Energy Evaluation
For
Town of Edgartown Wastewater Treatment Facility

330 West Tisbury Road
Edgartown, MA 02539
Proposal # 005135

Prepared by:

RISE Engineering a Division of Thielsch Engineering

Bryan Loughlin
Energy Engineer

1341 Elmwood Ave
Cranston, RI 02910

Phone (401) 588-0553
Fax (401) 784-3710

RISE ENGINEERING

EXECUTIVE SUMMARY

RISE Engineering a Division of Thielsch Engineering on behalf of the Cape Light Compact has performed an Energy Evaluation of the Edgartown Waste Water Treatment Plant located at 330 West Tisbury Rd Edgartown, MA 02539 . This treatment plant is a small facility that has an average flow rate of 0.35 MGD and a design capacity flow rate of 0.75 MGD. Currently this facility services approximately 700 customers. Flow is affected by time of year as the customer base is largely a vacation community. The Edgartown Waste Water Treatment Facility consists of the following processes:

1. *Pretreatment Building*
2. *Primary Clarifiers*
3. *Activated Sludge Process*
   c/w separate anoxic and aerobic basins
4. *Secondary Clarifiers*
5. *Ultraviolet Disinfection*
6. *Rapid Infiltration*
7. *Sludge Processing*
8. *Odor Control Collection and Treatment System*

There are a number of opportunities to save energy at the Edgartown Waste Water Treatment Plant.

ECM's

ECM # 1 - VFD Retrofit for the two remaining sludge holding tank blowers
ECM # 2 - VFD retrofit for the 3 plant water pumps
ECM # 3 - VFD and controls for the Odor control system
ECM # 4 - Reactivation of the DO Control System
ECM # 5 - Fix AC conditioners on existing VFD's
ECM # 6 - Lighting for the Lab, Pre & Post Treatment and Office building
ECM # 7 - Main Building high efficiency boiler and IR retrofit
ECM # 8 - Post Treatment high efficiency boiler retrofit and Chemical Storage IR retrofit
ECM # 9 – Lab Building IR Retrofit

- *ECM's 7-9 do not fall into the Cape Light Compact Energy Savings Program.*

Replacement the boiler for the Post Treatment Building
Replacement of the boiler for the Operations, Belt Press Room and Chemical Storage Building
IR Heating in the Belt Press Room
IR Heating in the Garage of the Lab Building

COST BENEFIT ANALYSIS						
	PROJECT COST	REBATE	CUSTOMER COST	ENERGY $ SAVED	ROI	YTPB
DO Sensing System and VFD Retrofit	$ 75,150	$ 75,150	$ -	$ 12,390		0.0
Sludge Blowers VFD Retrofit	$ 32,225	$ 32,225	$ -	$ 3,012		0.0
Fix 7 VFD AC units	$ 6,429	$ 6,429	$ -	$ 3,949		0.0
VFD on 25 HP Odor control Belt Press	$ 26,649	$ 26,649	$ -	$ 8,462		0.0
Plant Water Control, VFD, Motors	$ 53,475	$ 53,475	$ -	$ 7,375		0.0
Lighting	$ 5,813	$ 5,813	$ -	$ 1,133		0.0
Boiler Replacement	$ 22,776		$ 22,776	$ 1,600	7%	14.2
Belt Filter IR Heater	$ 27,276		$ 27,276	$ 1,946.78	7%	14.0
IR Heater	$ 12,434		$ 12,434	$ 730.04	6%	17.0
Storage Room IR	$ 13,086		$ 13,086	$ 973.39	7%	13.4
Post Treatment Boiler	$ 19,875		$ 19,875	$ 511.37	3%	38.9
TOTALS	$ 295,188	$ 199,741	$ 95,447	$ 42,082	44%	2.3

GAS ENERGY SAVINGS ANALYSIS				
	EXISTING THERMS	PROPOSED THERMS	SAVED THERMS	PERCENT SAVINGS
Boiler Replacement	*6,000*	*5,167*	834	14%
Belt Filter IR Heater	*2,562*	*1,537*	1,025	40%
IR Heater	*961*	*576*	384	40%
Storage Room IR	*1,281*	*768*	512	40%
TOTALS			2,242	

ELECTRIC ENERGY SAVINGS ANALYSIS							
	EXISTING KW	PROPOSED KW	SAVED KW	EXISTING KWH	PROPOSED KWH	SAVED KWH	PERCENT SAVINGS
DO Sensing System and VFD Retrofit	30.25	21.41	8.8	265,015	187,579	77,436	29%
Sludge Blowers VFD Retrofit	7.34	5.19	2.1	64,279	45,456	18,823	29%
Fix 7 VFD AC units	5.64	2.82	2.8	24,681	12,341	12,341	50%
VFD on 25 HP Odor control Belt Press	17.90	7.79	10.1	64,440	58,510	52,886	82%
Plant Water	8.42	3.89	4.5	85,699	39,608	46,091	54%
Lighting	10.03	6.34	3.69	20862.00	13310.00	7552.00	36%
TOTALS	79.58	47.44	32.13	524,976	356,804	215,128	41%

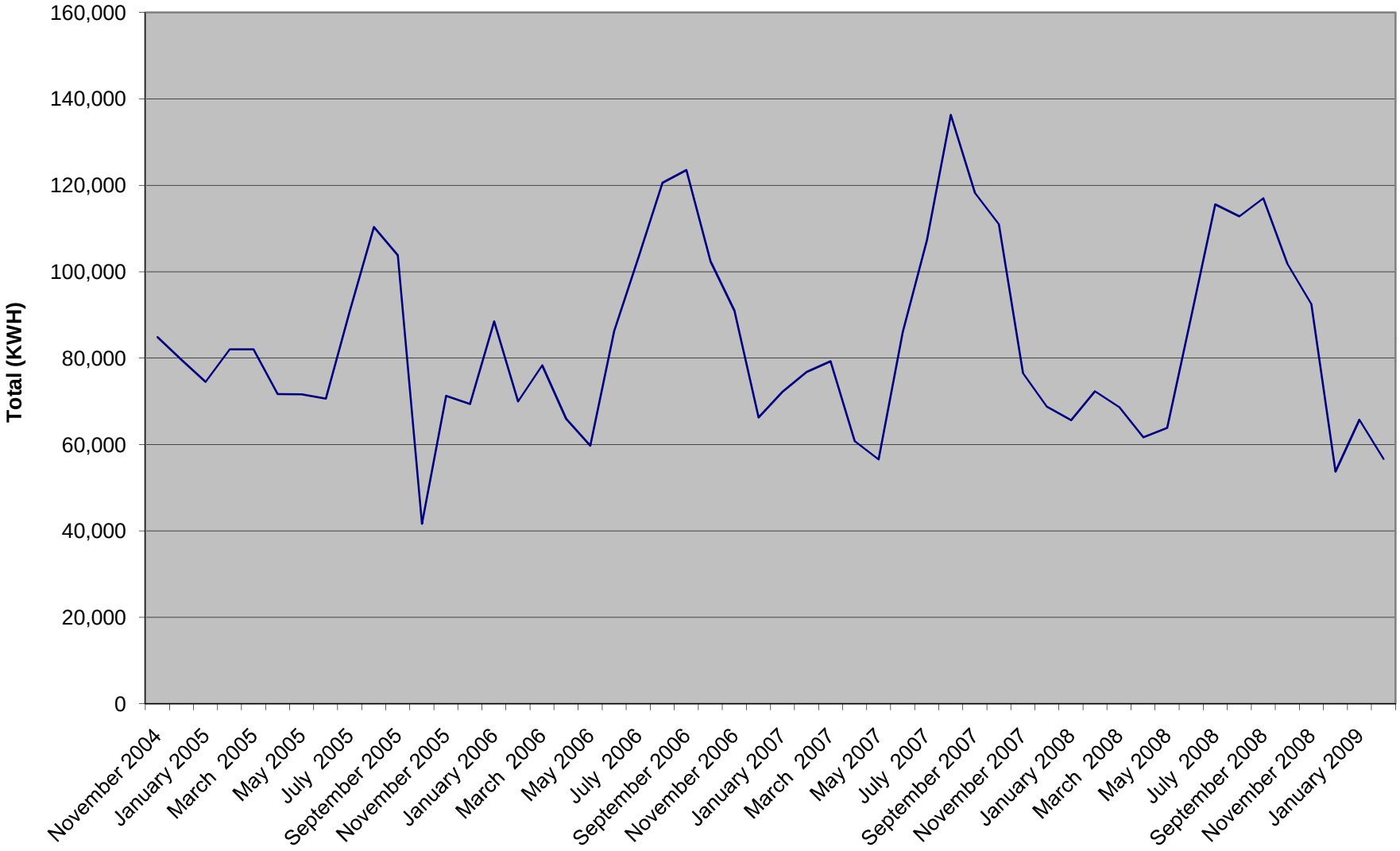
ENVIRONMENTAL IMPACT	
THERMS SAVED	2,242
KWH SAVED	215,128
GREEN HOUSE GAS IMPACT	
CO^2 EMISSIONS REDUCED (Lbs)	327,416
N^20 EMISSIONS REDUCED (Lbs)	0.80
NH4 EMISSIONS REDUCED (Lbs)	1.44
EQUILIVANT SAVINGS	
Cars Removed From The Road	28
Homes Removed	19
Computers Removed	215
# of trees saved	315
Acres of forest preserved from deforestation	1.04

ENVIRONMENTAL IMPACT

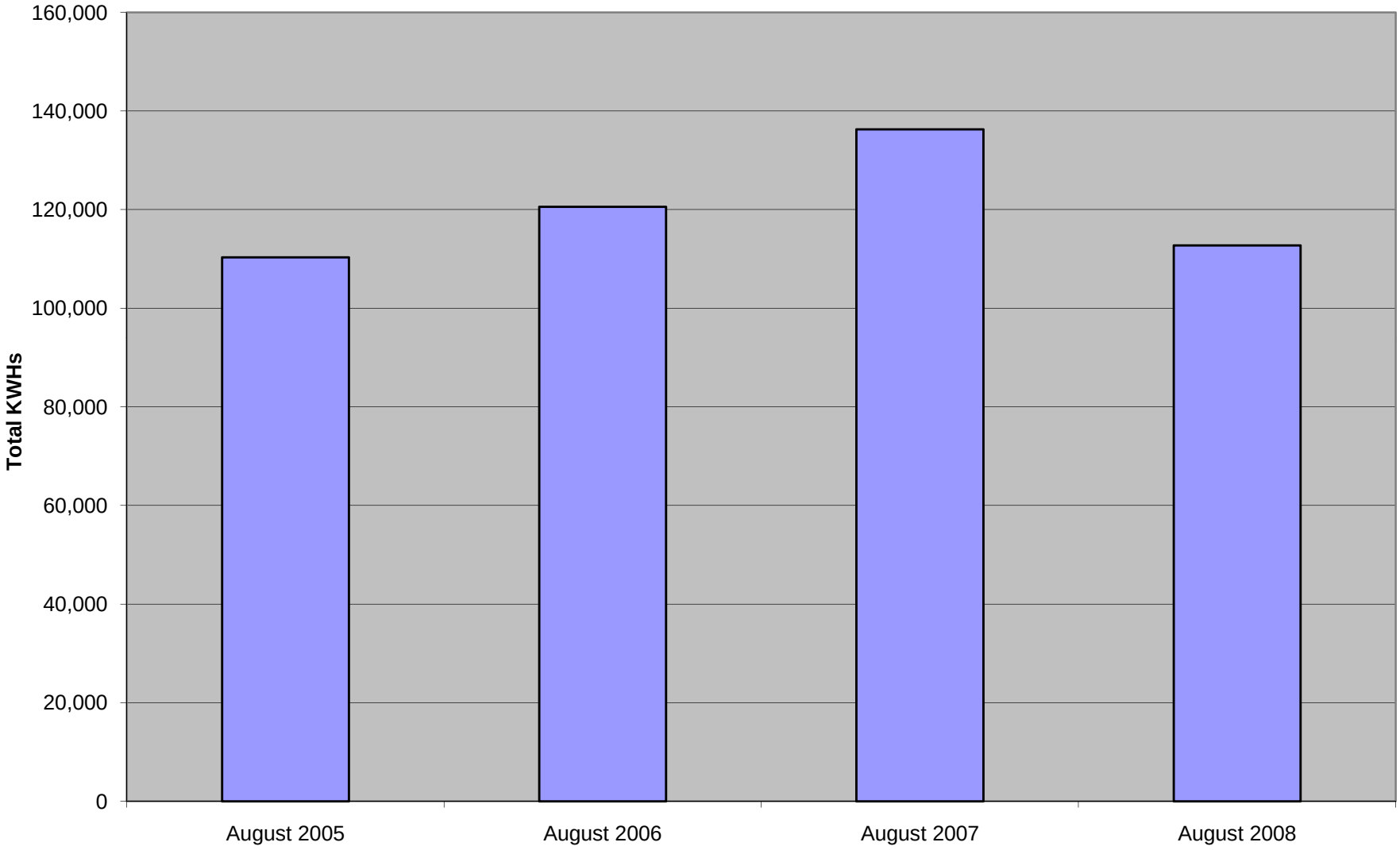
Saving electrical and gas energy helps our environment by reducing the greenhouse gases that are emitted to our atmosphere, from the burning of the fossil fuels that create our electricity and heat our buildings. This is an estimate of the green house gas emissions saved by these energy conservation measures.

ENVIRONMENTAL IMPACT	
THERMS SAVED	
KWH SAVED	251,828
GREEN HOUSE GAS IMPACT	
CO^2 EMISSIONS REDUCED (Lbs)	352,559
N^20 EMISSIONS REDUCED (Lbs)	0.93
NH4 EMISSIONS REDUCED (Lbs)	1.69
EQUILIVANT SAVINGS	
Cars Removed From The Road	30
Homes Removed	22
Computers Removed	252
# of trees saved	340
Acres of forest preserved from deforestation	1.12

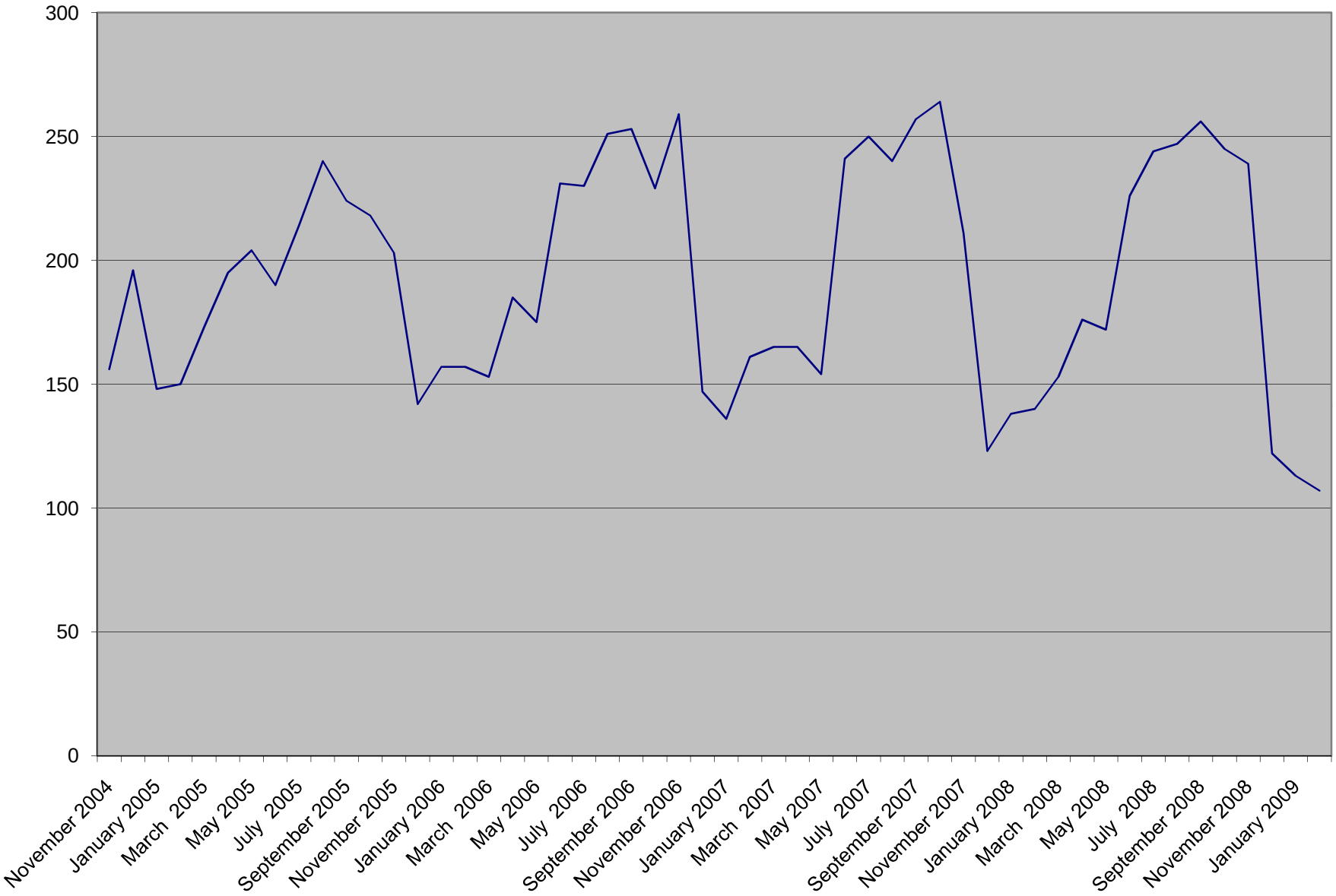
Edgartown Wastewater Treatment Facility Energy Consumption in Total KWHs



Edgartown Wastewater Treatment Facility August Comparisons



Aug Comparison


300
250
200
150
100
50
0
November 2004
January 2005
March 2005
May 2005
July 2005
September 2005
November 2005
January 2006
March 2006
May 2006
July 2006
September 2006
November 2006
January 2007
March 2007
May 2007
July 2007
September 2007
November 2007
January 2008
March 2008
May 2008
July 2008
September 2008
November 2008
January 2009

Demand

Edgartown Waste Water Treatment Facility		
EXISTING	Hi Speed	Low Speed
HP	30	22.5
KW	17.904	13.428
Hours	3324	5436
KWH	59,513	72,995
Avg KW	15.1	
Total KWH	132,508	

Summer 30 HP 3 months	3 Shoulder Months 30HP 12Hr/D	Winter 22.5HP 6 Months 12/day	Winter 22.5HP 6 Months 12/day
hrs	hrs	hrs	hrs
2208	1116	4320	1116

PROPOSED	
% Savings	40%
KW	10.71
Hours	8760
KWH	93,790

	100%	90%	80%	70%
Hours	1095	2190	2190	3285
New KW	18.7	13.9	9.8	6.5
New Kwh	20421.8	30408.4	21356.8	21461.1

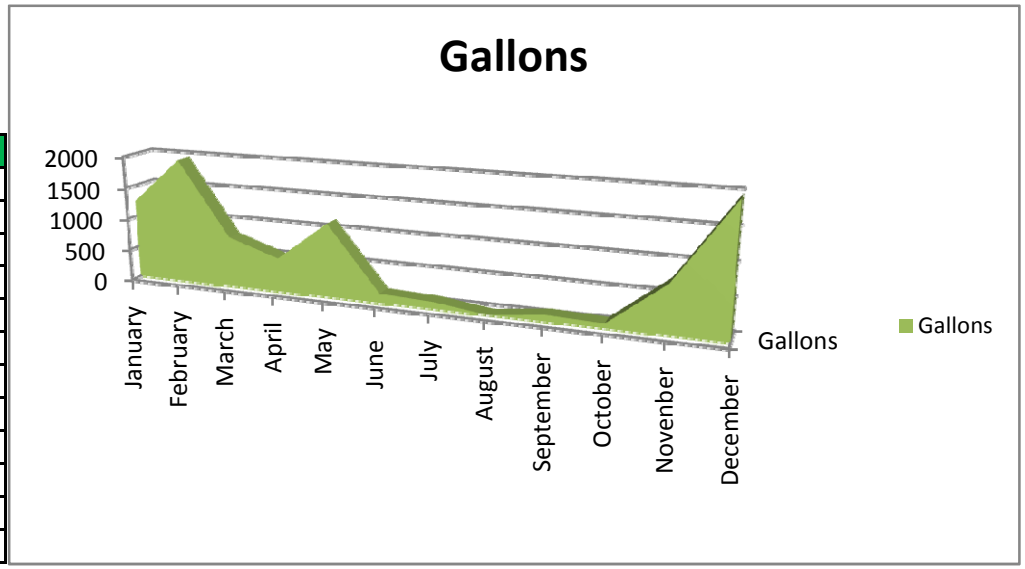
SAVINGS 1Motor		2 Motors	4 Motors
KW	4.4	8.8	8.8
KWH	38,718	77435.5	77435.5
Cost of Energy	$ 0.16	$ 0.16	$ 0.16
$ Saved	$ 6,195	$ 12,390	$ 12,390

Month and Year	Peak (KWH)	Low-A (KWH)	Low-B (KWH)	DMD	Total (KWH)
November 2004	12,156	26,528	46,156	156	84,840
December 2004	11,922	25,904	41,722	196	79,548
January 2005	11,223	24,019	39,254	148	74,496
February 2005	11,437	25,276	45,283	150	81,996
March 2005	12,252	27,255	42,477	173	81,984
April 2005	20,121	15,532	35,975	195	71,628
May 2005	20,530	13,188	37,886	204	71,604
June 2005	20,910	13,519	36,131	190	70,560
July 2005	26,971	16,768	47,113	214	90,852
August 2005	30,477	18,725	61,138	240	110,340
September 2005	30,765	18,820	54,203	224	103,788
October 2005	11,828	7,507	22,293	218	41,628
November 2005	17,423	15,914	37,907	203	71,244
December 2005	9,814	22,853	36,669	142	69,336
January 2006	12,553	28,567	47,356	157	88,476
February 2006	10,416	23,231	36,277	157	69,924
March 2006	10,756	24,006	43,562	153	78,324
April 2006	12,227	18,881	34,832	185	65,940
May 2006	18,647	10,888	30,153	175	59,688
June 2006	24,486	14,716	47,054	231	86,256
July 2006	29,758	19,059	54,371	230	103,188
August 2006	34,684	22,095	63,797	251	120,576
September 2006	33,023	21,074	69,407	253	123,504
October 2006	29,956	18,961	53,431	229	102,348
November 2006	21,257	21,716	47,987	259	90,960
December 2006	8,830	20,672	36,738	147	66,240
January 2007	10,348	23,932	37,924	136	72,204
February 2007	11,175	25,121	40,456	161	76,752
March 2007	11,794	23,704	43,750	165	79,248
April 2007	17,757	10,870	32,129	165	60,756
May 2007	17,835	9,799	28,874	154	56,508
June 2007	25,108	14,658	46,214	241	85,980
July 2007	31,376	19,132	56,760	250	107,268
August 2007	37,723	23,484	75,065	240	136,272
September 2007	34,506	21,070	62,600	257	118,176
October 2007	32,274	19,862	58,840	264	110,976
November 2007	18,566	15,067	42,843	211	76,476
December 2007	9,643	22,664	36,369	123	68,676
January 2008	9,338	21,571	34,659	138	65,568
February 2008	9,793	21,947	40,536	140	72,276
March 2008	10,662	21,554	36,436	153	68,652
April 2008	17,876	10,992	32,776	176	61,644
May 2008	18,506	10,785	34,537	172	63,828
June 2008	26,884	16,069	46,747	226	89,700
July 2008	31,724	19,225	64,599	244	115,548
August 2008	32,922	20,068	59,786	247	112,776
September 2008	34,655	20,878	61,455	256	116,988
October 2008	29,157	18,111	54,528	245	101,796
November 2008	22,974	19,185	50,301	239	92,460
December 2008	7,412	16,264	30,024	122	53,700
January 2009	9,177	20,679	35,832	113	65,688
February 2009	8,085	18,661	29,894	107	56,640

Month and Year	Peak (KWH)	Low-A (KWH)	Low-B (KWH)	DMD	Total (KWH)	Cost (Usage + DMD)	Cost per KWH
February 2009	8,085	18,661	29,894	107	56,640		
January 2009	9,177	20,679	35,832	113	65,688	$11,762.45	$0.18
December 2008	7,412	16,264	30,024	122	53,700	$9,737.91	$0.18
November 2008	22,974	19,185	50,301	239	92,460	$16,649.63	$0.18
October 2008	29,157	18,111	54,528	245	101,796	$18,243.99	$0.18
September 2008	34,655	20,878	61,455	256	116,988	$20,823.11	$0.18
August 2008	32,922	20,068	59,786	247	112,776	$20,083.00	$0.18
July 2008	31,724	19,225	64,599	244	115,548	$18,399.68	$0.16
June 2008	26,884	16,069	46,747	226	89,700	$14,527.99	$0.16
May 2008	18,506	10,785	34,537	172	63,828	$10,475.74	$0.16
April 2008	17,876	10,992	32,776	176	61,644	$10,170.32	$0.16
March 2008	10,662	21,554	36,436	153	68,652	$11,094.67	$0.16
February 2008	9,793	21,947	40,536	140	72,276	$11,566.43	$0.16
January 2008	9,338	21,571	34,659	138	65,568	$10,164.31	$0.16
December 2007	9,643	22,664	36,369	123	68,676	$10,340.18	$0.15
November 2007	18,566	15,067	42,843	211	76,476	$11,702.42	$0.15
October 2007	32,274	19,862	58,840	264	110,976	$16,724.86	$0.15
September 2007	34,506	21,070	62,600	257	118,176	$17,716.01	$0.15
August 2007	37,723	23,484	75,065	240	136,272	$20,185.80	$0.15
July 2007	31,376	19,132	56,760	250	107,268	$16,458.92	$0.15
June 2007	25,108	14,658	46,214	241	85,980	$13,413.53	$0.16
May 2007	17,835	9,799	28,874	154	56,508	$8,936.31	$0.16
April 2007	17,757	10,870	32,129	165	60,756	$9,563.13	$0.16
March 2007	11,794	23,704	43,750	165	79,248	$12,253.31	$0.15
February 2007	11,175	25,121	40,456	161	76,752	$11,951.78	$0.16
January 2007	10,348	23,932	37,924	136	72,204	$10,597.45	$0.15
December 2006	8,830	20,672	36,738	147	66,240	$9,977.50	$0.15
November 2006	21,257	21,716	47,987	259	90,960	$13,810.12	$0.15
October 2006	29,956	18,961	53,431	229	102,348	$15,288.72	$0.15
September 2006	33,023	21,074	69,407	253	123,504	$18,362.04	$0.15
August 2006	34,684	22,095	63,797	251	120,576	$17,963.38	$0.15
July 2006	29,758	19,059	54,371	230	103,188	$15,403.76	$0.15
June 2006	24,486	14,716	47,054	231	86,256	$13,065.73	$0.15
May 2006	18,647	10,888	30,153	175	59,688	$9,226.37	$0.15
April 2006	12,227	18,881	34,832	185	65,940	$17,037.12	$0.26
March 2006	10,756	24,006	43,562	153	78,324	$15,312.15	$0.20
February 2006	10,416	23,231	36,277	157	69,924	$13,955.03	$0.20
January 2006	12,553	28,567	47,356	157	88,476	$17,208.23	$0.19
December 2005	9,814	22,853	36,669	142	69,336		
November 2005	17,423	15,914	37,907	203	71,244		
October 2005	11,828	7,507	22,293	218	41,628		
September 2005	30,765	18,820	54,203	224	103,788		
August 2005	30,477	18,725	61,138	240	110,340		
July 2005	26,971	16,768	47,113	214	90,852		
June 2005	20,910	13,519	36,131	190	70,560		
May 2005	20,530	13,188	37,886	204	71,604		
April 2005	20,121	15,532	35,975	195	71,628		
March 2005	12,252	27,255	42,477	173	81,984		
February 2005	11,437	25,276	45,283	150	81,996		
January 2005	11,223	24,019	39,254	148	74,496		
December 2004	11,922	25,904	41,722	196	79,548		
November 2004	12,156	26,528	46,156	156	84,840		

Oil	$ 2.70

Month	Gallons	Amount
January	1242.1556	$ 3,353.82
February	1952.4037	$ 5,271.49
March	792.5	$ 2,139.75
April	528.55185	$ 1,427.09
May	1147.8519	$ 3,099.20
June	142.49259	$ 384.73
July	107.37778	$ 289.92
August	0	$ -
September	100.18889	$ 270.51
October	71.033333	$ 191.79
Novenber	735.00741	$ 1,984.52
December	1966.5444	$ 5,309.67



ECM # 1 – VFD Retrofit for two remaining Sludge Holding Tank Blowers

Sludge aeration blowers

Base Case

There are three existing sludge aeration blowers that provide aeration into the sludge aeration holding tanks. One of the three blowers has an existing ABB VFD while the two remaining blowers run continuously with no means of control. Currently airflow is controlled via a control damper that is partially closed.

The existing motors are NEMA Premium Efficiency motors.

Proposed Case

RISE Engineering is proposing the addition of two VFD's to the remaining (15hp) blowers. The two VFD's will be controlled and integrated into the control system. Provide a pressure signal across all 3 drives via closed loop 4-20mA signal that will maintain a positive pressure through the tank.

Energy Savings Analysis

ENERGY SAVINGS				
	15	25	15	
KW	2.34	0.00	2.34	2.15
KWH	9,412	-	9,412	18,823
$ Saved	$ 1,505.85	$ -	$ 1,505.85	$ 3,011.71

Edgartown Waste Water Treatment Facility Sludge Blowers				
EXISTING				Totals
HP	15	25	15	
KW	6.71	7.10	6.71	7.34
Hours	4015	1460	4015	
KWH	26,957	10,366	26,957	64,279
cost kwh	0.16	0.16	0.16	
Energy Cost	$ 4,313.07	$ 1,658.56	$ 4,313.07	$ 10,284.71

4 HRs peak(25H

PROPOSED				
VFD and LR Efficiency	94%	94%	94%	
KW	4.4	7.1	4.4	5.19
Hours	4015	1460	4015	
KWH	17,545	10,366	17,545	45,456
cost kwh	0.16	0.16	0.16	
Energy Cost	$ 2,807.22	$ 1,658.56	$ 2,807.22	$ 7,273.00

ENERGY SAVINGS				
	15	25	15	
KW	2.34	0.00	2.34	2.15
KWH	9,412	-	9,412	18,823
$ Saved	$ 1,505.85	$ -	$ 1,505.85	$ 3,011.71

ECM #4 Reactivation of the DO Control System

Base Case

Currently the DO levels are monitored daily at the lab and then the motors are adjusted manually to attempt to control the DO. This method of control provides for large swings in the dissolved O^2 levels from 0.5 to 3.0. Most Waste Water Facilities will attempt to maintain a DO level of approx 1.5. Edgartown WWTF at it's inception had a DO control system in place. At this time DO sensors were not very reliable and the customer had a number of problems with the system. Edgartown WWTF abandoned this system a short time after the installation. Since that time DO sensor have made tremendous advances and are now very reliable.

Proposed Case

RISE Engineering is proposing the addition of DO sensors for the two carousels, VFD's for the aeration motors, wireless communication, PLC control system and a panelview 300 to provide closed loop control of the DO system. This custom control strategy will provide an excellent opportunity to save energy as the system will now maintain a constant DO. By maintaining a consistent DO Edgartown will be able to avoid the overdriving of the system and then the resultant under driving of the system as they attempt to maintain the DO. RISE Engineering is proposing and recommending the 4 motor solution.

SAVINGS 1Motor		2 Motors	4 Motors
KW	4.4	8.8	8.8
KWH	38,718	77435.5	77435.5
Cost of Energy	$ 0.16	$ 0.16	$ 0.16
$ Saved	$ 6,195	$ 12,390	

ECM # 2 Plant Water Pumps

Plant Water Base Case

There are three existing plant water pumps that run in a lead – lag – lag configuration. There is currently no pressurization tank for the system. The plant water provides water for the plant as well as the belt press room. Currently the plant operators have increased the required pressure from 65 psi to 75 psi to nuisance low pressure alarms. The water for the belt press room has a booster pump that raises the pressure from 75 to 120 psi. There are currently two pressurization valves in the system one is for the plant water line and the second is for the belt press room. Both of these valves are 50% open. This provides for an excellent opportunity to save energy.

P1 is a 7.5 hp pump that runs 24/7 (lead)
P2 is a 20 hp pump that runs on demand
P3 is a 20 hp pump that runs on demand

Plant Water Proposed Case

RISE Engineering is proposing the addition of 3 VFD's, motors, a Programmable Logic Controller, pressure sensors and an Operator Interface screen to maintain a consistent system pressure 60-70 psi during the day and 40 psi at night. RISE will open the control valves that are currently partially closed. A drop in pressure will result in a automatic increase in flow.

Energy Savings Analysis

SAVINGS					
	P1	P2	P3	Totals	
KW	2.3	6.0	6.0	4.53	avg kw saved
KWH	9,091	19,493	17,507	46,091	
$ Saved	$ 1,454.49	$ 3,118.90	$ 2,801.14	$ 7,374.54	

Edgartown Waste Water Treatment Facility				
EXISTING CASE	P 1	P 2	P 3	Totals
HP	7.5	20	20	
KW	4.19625	11.19	11.19	8.42
Motor Eff	88.5%	91.7%	91.7%	
KW less Motor Eff	4.7	12.2	12.2	
Hours	4028	3239	2909	10176 Hours are
KWH	16,902	36,244	32,552	85,699
Pressure (PSI)	75	75	75	
Cost/kwh	$ 0.16	$ 0.16	$ 0.16	
Yearly Energy cost	$ 2,704.40	$ 5,799.11	$ 5,208.27	

PROPOSED CASE				
New Pressure	40	40	40	
% Committed to System losses	15%	15%	15%	
New Motor Efficiency	88.5%	91.7%	91.7%	
VFD and Reactor efficiency	94%	94%	94%	
KW	1.9	5.2	5.2	3.89
KWH	7,812	16,751	15,045	39,608
Cost/kwh	$ 0.16	$ 0.16	$ 0.16	
Yearly Energy cost	$ 1,249.91	$ 2,680.20	$ 2,407.13	$ 6,337.24

SAVINGS				
	P1	P2	P3	Totals
KW	2.3	6.0	6.0	4.53 avg kw
KWH	9,091	19,493	17,507	46,091
$ Saved	$ 1,454.49	$ 3,118.90	$ 2,801.14	$ 7,374.54

		hrs
Plant Water P#	Plant Water P#	4028
Plant Water P#	Plant Water P#	3239
Plant Water P#	Plant Water P#	2909

ECM # 3 – VFD and Controls for Odor Control System

Base Case

The odor control system is designed to provide a continuous positive air flow across the sludge holding tank, Pretreatment building, Septage Holding Tank and the Dewatering Room. The air is then treated by traveling through a two stage mist scrubber.

The odor control system consists of (1) 25 hp, (1) 15 hp, (1) 5 hp, (1) 3 hp, and (1) 1 hp. The odor control system operates 24/7/365.

Proposed Case

RISE Engineering is recommending the addition of 1 VFD and controls for the 25 hp. The 15 hp motor does not meet the minimum hour requirements. RISE is recommending the addition of an automatic damper system for the fresh air intake on the exhaust side of the 25 hp OCF blower.

SAVINGS	
KW	10.1
KWH	52885.9
KW Cost	
KWH Cost	0.16
KW $ Saved	
KWH $ Saved	$ 8,461.74

25 HP OC		
EXISTING		
Head	2	2
CFM	22,000	11,000
KW	17.9	9.1
HP	25	25
Motor Eff	91.2%	91.2%
KW Less Eff	16.3248	8.2992
Hours of Operation	3600	5160
Yearly KWH	64,440	46,956
Yearly Energy Cost	$ 10,310.40	$ 7,512.96

PROPOSED	100%
Head	2
CFM	13,200
KW	6.7
Motor Eff	91.2%
VFD & Line Reactor Eff	94%
New KW	7.8
Hours of Operation	8760
Yearly KWH	58,510
Yearly Energy Cost	$ 9,361.62

SAVINGS	
KW	10.1
KWH	52885.9
KW Cost	
KWH Cost	0.16
KW $ Saved	
KWH $ Saved	$ 8,461.74

	100%	90%	80%	70%	60%	50%	40%	30%	20%
CFM	22000	19800	17600	15400	13200	11000	8800	6600	4400
Hours	720	720	720	720	720	1290	1290	1290	1290
KW	19.0	15.4	12.2	9.3	6.9	4.8	3.0	1.7	0.8
KWH	13,711	11,106	8,775	6,718	4,936	6,141	3,930	2,211	983

ECM # 5 - Fix AC conditioners on existing VFD's

Base Case

Currently the AC units on the existing VFD Controls do not have any interaction with the air temp or what the VFD is doing. The AC units currently run 24/7/365 even though the VFD's do not.

Proposed Case

RISE Engineering is recommending the installation of a temp sensor and a control system to manage the ac units such that if the VFD is not running or the cabinet temp is below the mfg's recommended operating temp then the AC unit will turn off.

	V	A	HRs	KWH	cost/kwh	savings/unit	# of units	total savings	KW Saved
7 VFD's	115	7	4380	3525.9	$ 0.16	$ 564.14	7	$ 3,949.01	5.635

	V	A	HRs	KWH	cost/kwh	savings/unit	# of units	total savings	KW Saved
7 VFD's	115	7	4380	3525.9	$ 0.16	$ 564.14	7	$ 3,949.01	5.635

Existing KW	24,681
Proposed KW	12,341
Saved KW	12,341

Existing KW	5.6
Proposed KW	2.8
Saved KW	2.8

ECM #6 - Lighting for the Lab, Pre & Post Treatment Buildings as well as the main building

Base Case

The Lab, Pre & Post Treatment as well as the Main Building are operating with older T12 technology.

Proposed Case

RISE Engineering is proposing a relamp and reballast upgrade of all of the existing T12 lighting at the Edgartown WWTF.

SAVINGS	
	Lab
KW	3.6
KWH	7,552
$ Saved	$ 1,133.00

avg kw saved

RISE ENGINEERING

Town of Edgartown Wastewater Treatment Facility
330 West Tisbury Road
Edgartown, MA 02539
Matt Rodenbaugh

															Sensor		SAVINGS	
Line Item	Room Name	Fixture Type	Existing Fixture Type	Fixt. Qty	Existing Hours	Watts	kW	kWh	Proposed Fixture Type	Fixt Qty	Proposed Hours	kW	kWh	Sensor Model #	Sensor Qty	kW Saved	kWh Saved
1	Lab	C1	2 X 4 3 LAMP T 12 MAG SURFACI	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
2	Lab	C2	2 X 4 3 LAMP T 12 MAG DROP IN	5	2,080	110	0.55	1,144	3 Lamp RLRB	5	2,080	0.335	697		0	0.22	447
3	Office	C2	2 X 4 3 LAMP T 12 MAG DROP IN	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
4	Garage	A1	8' FIX, 4' 4 LAMPT12 MAG SURFA	4	2,080	140	0.56	1,165	4 Lamp RLRB	4	2,080	0.356	740		0	0.20	424
5	Garage	B1	4' 2 LAMP T12 MAG SURFACE M(	1	2,080	70	0.07	146	2 Lamp RLRB	1	2,080	0.047	98		0	0.02	48
6	Basement	B2	4' 2 LAMP T12 MAG INDUSTRIAL	4	2,080	70	0.28	582	2 Lamp RLRB	4	2,080	0.188	391		0	0.09	191
7	Hallway	B3	4' 3 LAMP T12 MAG SURFACE M(	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
8	MCC Room	B4	4' 2 LAMP T12 MAG VT	2	2,080	70	0.14	291	2 Lamp RLRB	2	2,080	0.094	196		0	0.05	96
9	Basement	B3	4' 3 LAMP T12 MAG SURFACE M(	17	2,080	110	1.87	3,890	3 Lamp RLRB	17	2,080	1.139	2,369		0	0.73	1,520
10	UV Room	B4	4' 2 LAMP T12 MAG VT	10	2,080	70	0.7	1,456	2 Lamp RLRB	10	2,080	0.47	978		0	0.23	478
11	Entry	B3	4' 3 LAMP T12 MAG SURFACE M(	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
12	MCC Room	B3	4' 3 LAMP T12 MAG SURFACE M(	2	2,080	110	0.22	458	3 Lamp RLRB	2	2,080	0.134	279		0	0.09	179
13	Chemical Storage	B4	4' 2 LAMP T12 MAG VT	6	2,080	70	0.42	874	2 Lamp RLRB	6	2,080	0.282	587		0	0.14	287
14	Boiler Room	B3	4' 3 LAMP T12 MAG SURFACE M(	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
15	Boiler Room	B2	4' 2 LAMP T12 MAG INDUSTRIAL	1	2,080	70	0.07	146	2 Lamp RLRB	1	2,080	0.047	98		0	0.02	48
16	Basement	B2	4' 2 LAMP T12 MAG INDUSTRIAL	18	2,080	70	1.26	2,621	2 Lamp RLRB	18	2,080	0.846	1,760		0	0.41	861
17	Stairwell	B4	4' 2 LAMP T12 MAG VT	2	2,080	70	0.14	291	2 Lamp RLRB	2	2,080	0.094	196		0	0.05	96
18	Press Room	B4	4' 2 LAMP T12 MAG VT	14	2,080	70	0.98	2,038	2 Lamp RLRB	14	2,080	0.658	1,369		0	0.32	670
19	Storage	B4	4' 2 LAMP T12 MAG VT	5	2,080	70	0.35	728	2 Lamp RLRB	5	2,080	0.235	489		0	0.12	239
20	Hallway	C2	2 X 4 3 LAMP T 12 MAG DROP IN	1	2,080	110	0.11	229	3 Lamp RLRB	1	2,080	0.067	139		0	0.04	89
21	Boiler Room	C1	2 X 4 3 LAMP T 12 MAG SURFACI	3	2,080	110	0.33	686	3 Lamp RLRB	3	2,080	0.201	418		0	0.13	268
22	Office Hallway	C2	2 X 4 3 LAMP T 12 MAG DROP IN	3	2,080	110	0.33	686	3 Lamp RLRB	3	2,080	0.201	418		0	0.13	268
23	Confrence Room	C2	2 X 4 3 LAMP T 12 MAG DROP IN	4	2,080	110	0.44	915	3 Lamp RLRB	4	2,080	0.268	557		0	0.17	358
24	Office	C2	2 X 4 3 LAMP T 12 MAG DROP IN	2	2,080	110	0.22	458	3 Lamp RLRB	2	2,080	0.134	279		0	0.09	179
25	Office # 2	C2	2 X 4 3 LAMP T 12 MAG DROP IN	4	2,080	110	0.44	915	3 Lamp RLRB	4	2,080	0.268	557		0	0.17	358
476	0	0	0	0	0				0	0	0				0		0
TOTALS				**113**			**10.03**	**20,862**		**113**		**6.399**	**13310**		**0**	**3.63**	**7,552**

Division of Thielsch Engineering, Inc
1341 Elmwood Avenue
Cranston, Rhode Island 02910

Town of Edgartown Wastewater Treatment Facility
330 West Tisbury Road
Edgartown, MA 02539
Matt Rodenbaugh
(508) 627-5482

Proposal Summary

Estimated Current Lighting Load (Wattage)			10,030	Watts
Estimated Proposed Lighting Load (Wattage)			6,399	Watts
Estimated Lighting Load Savings (Wattage)			**3,631**	Watts
Estimated Current Lighting Usage (kWh)			20,862	kWh
Estimated Proposed Lighting Usage (kWh)			13,310	kWh
Estimated Lighting Usage Savings (kWh)			**7,552**	kWh
Estimated Current Annual Lighting Bill:	kWh * 0.15	$	3,129	
Estimated Proposed Annual Lighting Bill:	kWh * 0.15	$	1,996	
Estimated Proposed Annual Lighting Bill Savings:		**$**	**1,133**	
Estimated Total Job Cost		**$**	**5,812.94**	
Estimated Utility Incentive		**$**	**(5,812.94)**	
Estimated Customer Net Cost		**$**	**-**	
Maintenance Savings		**$**	**339**	
Net Heating and AC Savings		**$**	**85**	
Simple Payback (Customer Share/Bill Savings):	Years =		**0.0**	

ECM # 7 - Main Building Heating

Base Case

The main office building houses 3 sections:

1. Office space
2. Dewatering
3. Storage

The building dewatering equipment does not run sufficient hours to meet the CLC retrofit program. This building is heated via a single Burnham Brand Boiler that is capable of 350,000 BTU/hr output. This boiler runs off of # 2 fuel oil. The XXX Boiler heats all 3 areas of the building.

Proposed Case

RISE Engineering is proposing the installation of 2 Stainless Steel IR units for the Dewatering and the Storage area of this building. RISE is also proposing the installation of a propane tank to supply fuel to the IR units and maintaining a temp of 50 degrees in these two spaces.

By adding the two IR units RISE will also be able to replace and reduce the size of the existing boiler with a new high eff. Cast Iron boiler to supply heat to the office space only.

Fuel Saving	Fuel Cost	Savings
Therms	$/Therm	
834		$ 1,600.46

Belt filter IR	
Base Use Therms	2,561.55
Expected Savings	40%
Proposed Use Therms	1,536.93
Therms Saved	1,024.62
Cost / Therm	$ 1.90
Yearly $ Saved	$ 1,947

Storage Room IR	
Base Use Therms	1,280.77
Expected Savings	40%
Proposed Use Therms	768.46
Therms Saved	512.31
Cost / Therm	$ 1.90
Yearly $ Saved	$ 973

Customer:	Edgartown Waste Water Treatment Facility
Address	330 West Tisbury Road Edgartown, MA 02539
Account#	144881

Existing Boiler Efficiency		
OA (F)		Eff (%)
20		75
65		75

Condensing Boiler Efficiency	
OA (F)	Eff (%)
20	86
65	94

Balance Point	60
Fuel Cost	$ 1.20

Baseline Temp	55
Therms/heating Degree Hour	0.033865
Total Therms committed to other	0
Base Therms per hour	0.0
Base Therms Adjusted for efficiency	0.0

6000 6000 0 -0.033842839

Weather Data							Base	Standard Boilers			Condensing Boilers			Cost Savings	
Temp Range				Occ	Deg.	Heating	Therms	Eff	Fuel Use		Eff	Fuel Use	Fuel Saving	Fuel Cost	Savings
From	To	Avg	WB	Hours	fr. Base	deg hrs		%	Therms		%	Therms	Therms	$/Therm	$
90	95	91	75	3.29				75%	0		88%	0	0	$ 1.92	$ -
85	90	87	72	45.09				75%	0		88%	0	0	$ 1.92	$ -
80	85	82	67	162.16				75%	0		88%	0	0	$ 1.92	$ -
75	80	77	66	349.85				75%	0		88%	0	0	$ 1.92	$ -
70	75	72	64	564.81				75%	0		88%	0	0	$ 1.92	$ -
65	70	67	61	725.47				75%	0		88%	0	0	$ 1.92	$ -
60	65	62	57	810.24				75%	0		88%	0	0	$ 1.92	$ -
55	60	58	52	755.52				75%	0		88%	0	0	$ 1.92	$ -
50	55	53	47	711.27	7.00	4,979	0	75%	225		88%	192	33	$ 1.92	$ 63.77
45	50	47	42	678.70	13.00	8,823	0	75%	398		88%	340	59	$ 1.92	$ 113.00
40	45	42	38	698.23	18.00	12,568	0	75%	567		88%	484	84	$ 1.92	$ 160.96
35	40	37	33	764.83	23.00	17,591	0	75%	794		88%	677	117	$ 1.92	$ 225.29
30	35	33	29	765.07	27.00	20,657	0	75%	933		88%	795	138	$ 1.92	$ 264.56
25	30	28	24	572.10	32.00	18,307	0	75%	827		87%	713	114	$ 1.92	$ 218.91
20	25	23	19	418.50	37.00	15,485	0	75%	699		86%	610	89	$ 1.92	$ 171.70
15	20	18	15	316.83	42.00	13,307	0	75%	601		86%	524	77	$ 1.92	$ 147.56
10	15	13	10	216.84	47.00	10,191	0	75%	460		86%	401	59	$ 1.92	$ 113.01
5	10	8	6	126.66	52.00	6,586	0	75%	297		86%	259	38	$ 1.92	$ 73.03
0	5	3	1	50.68	57.00	2,889	0	75%	130		86%	114	17	$ 1.92	$ 32.03
-5	0	-2	-4	19.75	62.00	1,225	0	75%	55		86%	48	7	$ 1.92	$ 13.58
-10	-5	-7	-9	4.01	67.00	269	0	75%	12		86%	11	2	$ 1.92	$ 2.98
-15	-10	-11	-12	0.10	71.00	7	0	75%	0		86%	0	0	$ 1.92	$ 0.08
Totals				8760	HDhrs	132,884			6000			5,167	834		$ 1,600.46
									$ 11,520.26			$ 9,919.79	$ 1,600.46		

Please Note: This spreadsheet is not for general use and is the property of Action Energy LLC.
All savings estimates and rebates must be considered estimated until reviewed and approved by the CLC.

Data and assumptions in this spreadsheet are supplied by customer and has not been independently verified.
Any Questions Regarding this spreadsheet please contact Bruce Shaffer at Action Energy 508-837-6594

12,404.00 6,403.87
2,561.55 Belt Filter
1,280.77 Storage
960.58 chemical Storage
1,600.97 Post Treatment

bruce@actionenergyusa.com

oil Cost	23,922
Cost/Gal	2.7
Gallons	8860
Therms	12404
Cost therm	1.93

Belt filter IR	
Base Use Therms	2,561.55
Expected Savings	40%
Proposed Use Therms	1,536.93
Therms Saved	1,024.62
Cost / Therm	$ 1.90
Yearly $ Saved	$ 1,947

Storage Room IR	
Base Use Therms	1,280.77
Expected Savings	40%
Proposed Use Therms	768.46
Therms Saved	512.31
Cost / Therm	$ 1.90
Yearly $ Saved	$ 973

ECM # 8 - Post Treatment Building Heating

Base Case

The Post Treatment building houses 3 sections:

1. UV
2. Storage
3. Basement

This building is heated via a single Burnham Brand Boiler that is capable of355 MBTU/hr output. This boiler runs off of # 2 fuel oil. The Burnham Boiler heats all 3 areas of the building.

Proposed Case

RISE Engineering is proposing the installation of 1 Stainless Steel IR unit for the Chemical Storage area of this building. RISE is also proposing the installation of a propane tank to supply fuel to the IR unit and maintaining a temp of 50 degrees in this space.

By adding the one IR unit RISE will also be able to replace and reduce the size of the existing boiler with a new high eff. Cast Iron boiler to supply heat to the office space only.

Fuel Saving	Fuel Cost	Savings
Therms	$/Therm	
266		$ 511.37

Chemical Storage Room IR	
Base Use Therms	1,280.77
Expected Savings	40%
Proposed Use Therms	768.46
Therms Saved	512.31
Cost / Therm	$ 1.90
Yearly $ Saved	$ 973

Customer:	Edgartown Waste Water Treatment Facility
Address	330 West Tisbury Road Edgartown, MA 02539
Account#	144873

Balance Point	60
Fuel Cost	$ 1.20

Existing Boiler Efficiency		
OA (F)		Eff (%)
20		75
65		75

Condensing Boiler Efficiency	
OA (F)	Eff (%)
20	86
65	94

Baseline Temp	55
Therms/heating Degree Hour	0.009038
Total Therms committed to other	0
Base Therms per hour	0.0
Base Therms Adjusted for efficiency	0.0

1645 1,600.97 44 0.017852

Weather Data							Base	Standard Boilers			Condensing Boilers			Cost Savings	
Temp Range				Occ	Deg.	Heating	Therms	Eff	Fuel Use		Eff	Fuel Use	Fuel Saving	Fuel Cost	Savings
From	To	Avg	WB	Hours	fr. Base	deg hrs		%	Therms		%	Therms	Therms	$/Therm	$
90	95	91	75	3.29				73%	0		88%	0	0	$ 1.92	$ -
85	90	87	72	45.09				73%	0		88%	0	0	$ 1.92	$ -
80	85	82	67	162.16				73%	0		88%	0	0	$ 1.92	$ -
75	80	77	66	349.85				73%	0		88%	0	0	$ 1.92	$ -
70	75	72	64	564.81				73%	0		88%	0	0	$ 1.92	$ -
65	70	67	61	725.47				73%	0		88%	0	0	$ 1.92	$ -
60	65	62	57	810.24				73%	0		88%	0	0	$ 1.92	$ -
55	60	58	52	755.52				73%	0		88%	0	0	$ 1.92	$ -
50	55	53	47	711.27	7.00	4,979	0	73%	62		88%	51	11	$ 1.92	$ 20.17
45	50	47	42	678.70	13.00	8,823	0	73%	109		88%	91	19	$ 1.92	$ 35.75
40	45	42	38	698.23	18.00	12,568	0	73%	156		88%	129	27	$ 1.92	$ 50.92
35	40	37	33	764.83	23.00	17,591	0	73%	218		88%	181	37	$ 1.92	$ 71.28
30	35	33	29	765.07	27.00	20,657	0	73%	256		88%	212	44	$ 1.92	$ 83.70
25	30	28	24	572.10	32.00	18,307	0	73%	227		87%	190	36	$ 1.92	$ 70.03
20	25	23	19	418.50	37.00	15,485	0	73%	192		86%	163	29	$ 1.92	$ 55.64
15	20	18	15	316.83	42.00	13,307	0	73%	165		86%	140	25	$ 1.92	$ 47.82
10	15	13	10	216.84	47.00	10,191	0	73%	126		86%	107	19	$ 1.92	$ 36.62
5	10	8	6	126.66	52.00	6,586	0	73%	82		86%	69	12	$ 1.92	$ 23.67
0	5	3	1	50.68	57.00	2,889	0	73%	36		86%	30	5	$ 1.92	$ 10.38
-5	0	-2	-4	19.75	62.00	1,225	0	73%	15		86%	13	2	$ 1.92	$ 4.40
-10	-5	-7	-9	4.01	67.00	269	0	73%	3		86%	3	1	$ 1.92	$ 0.97
-15	-10	-11	-12	0.10	71.00	7	0	73%	0		86%	0	0	$ 1.92	$ 0.03
Totals				8760	HD hrs	132,884			1645			1,379	266		$ 511.37
									$ 3,158.80			$ 2,647.43	$ 511.37		

Please Note: This spreadsheet is not for general use and is the property of Action Energy LLC.
All savings estimates and rebates must be considered estimated until reviewed and approved by the CLC.

Data and assumptions in this spreadsheet are supplied by customer and has not been independently verified.
Any Questions Regarding this spreadsheet please contact Bruce Shaffer at Action Energy 508-837-6594 bruce@actionenergyusa.com

ECM # 9 – Lab Building

Base Case

The Lab building houses 3 sections:

1. Lab
2. Garage
3. Basement

This building is heated via multiple Electric Resistance Heating units. The garage space is seldom used other than as a pass though to get to the basement of the building. RISE did note that this building would benefit greatly from door replacements for the entry doors as well as the garage door. All of these doors are in need of repair and have a number of air gaps around them.

Proposed Case

RISE Engineering is proposing the installation of 1 Stainless Steel IR unit for Garage area of this building. RISE is also proposing the installation of a propane tank to supply fuel to the IR unit and maintaining a temp of 50 degrees in this space.

*RISE did consider the cost of replacing the doors.

Belt filter IR	
Base Use Therms	960.58
Expected Savings	40%
Proposed Use Therms	576.35
Therms Saved	384.23
Cost / Therm	$ 1.90
Yearly $ Saved	$ 730

Bulletin	1761	1763	1762	1766	1764-LSP, 1764-LRP	
Type	**MicroLogix 1000**	**MicroLogix 1100**	**MicroLogix 1200**	**MicroLogix 1400**	**MicroLogix 1500**	
Memory						
User Program/ Data Space	1K	4K / 4K configurable	4K / 2K configurable	10K / 10K configurable	3.6K / 4K configurable	10K / 4K configurable
Data Logging/ Recipe Storage	–	Data logging: up to 128kB * Recipe: up to 64kB	–	Data logging: up to 128kB * Recipe: up to 64kB	Recipe: User Program memory	48 kB
EEPROM Back-up	–	–	√	–	–	
Battery Back-up	–	√	–	√	√	
Backup Memory Module	Only through hand-held programmer	√	√	√	√	
Discrete I/O						
Embedded	Up to 32	16	Up to 40	32	Up to 28	
Maximum with local expansion	–	Up to 80	Up to 136	Up to 144	Up to 540	
Distributed I/O	–	–	–	–	Using 1769 SDN	
Additional Functionality						
Analog	5 Embedded	2 Embedded, up to 16 expansion	Up to 24 Expansion	6 Embedded, up to 28 expansion	Up to 128 Expansion	
Trim Potentiometers	–	2 digital	2	2 digital	2	
PID	–	√	√	√	√	
High-Speed Counter (24V DC inputs)	1 @ 6.6 kHz	1 @ 40 kHz	1 @ 20 kHz	up to 6 @ 100 kHz	2 @ 20 kHz	
Real Time Clock	–	√	√	√	√	
Simple Motion: Pulse Width Modulated/Pulse Train Outp.	–	2 @ 40 kHz (DC FET version)	1 @ 20 kHz (DC FET version)	3 @ 40kHz PWM / 100kHz PTO (DC FET version)	2 @ 20 kHz (DC FET version)	
Single Axis Servo Control	–	Through emb. PTO (FET)	Through emb. PTO (FET)	Through emb. PTO (FET)	Through embedded PTO (FET)	
Data Access Tool	–	Embedded LCD	–	Embedded LCD	√	
Floating Point Math	–	√	√	√	√	
Programming Software						
RSLogix 500 & RSLogix Micro	√	√	√	√	√	
Communications						
Online Editing	–	√	–	√	–	
RS-232 Ports	(1) – 8-pin Mini DIN	(1) – 8-pin Mini DIN (combo with RS-485 port)	(1) – 8-pin Mini DIN (1) – 8-pin Mini DIN (R)	(1) - 9-pin Dshell (nonisolated) (1) - 8-pin Mini DIN (isolated - combo with RS485 port)	(1) – 8-pin Mini DIN	(1) - 8-pin Mini DIN & (1) - isolated 9-pin D-shell
RS-485 Ports	–	(1) 8-pin Mini DIN (combo with RS-232 port)	–	1) - 8-pin Mini DIN (isolated - combo with RS232 port)	–	
DeviceNet Peer to Peer/Slave	w/ 1761-NET-DNI	w/ 1761-NET-DNI	w/ 1761-NET-DNI	w/ 1761-NET-DNI	w/ 1761-NET-DNI	
DeviceNet Scanner	–	–	–	–	w/ 1769-SDN	
Ethernet	w/ 1761-NET-ENI	Embedded and w/ 1761-NET-ENI	w/ 1761-NET-ENI	Embedded and w/ 1761-NET-ENI	w/ 1761-NET-ENI	
DH-485	w/ 1761-NET-AIC	Directly from combo port using 1763-NC01	w/ 1761-NET-AIC	Directly from combo port using 1763-NC01	w/ 1761-NET-AIC	
DF1 Half-Duplex Master/Slave, Radio Modem	Slave only	√	√	√	√	
Modbus RTU	–	Master/Slave	Master/Slave	Master / Slave	Master/Slave	
ASCII	–	√	√	√	√	
DNP3	–	–	–	Slave only	–	
Operating Power						
120/240V AC / 24V DC	√	√	√	√	√	
Certifications	cULus Listed, CE, Class I Div. 2					

* Recipe memory size is subtracted from the available data logging memory size

www.rockwellautomation.com

Power, Control and Information Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core E, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 1761-BR006E-EN-P, July 2008
Supersedes Publication 1761-BR006D-EN-P, March 2007

LISTEN. THINK. SOLVE.®

MICROLOGIX

MICROLOGIX™

ONE FAMILY OF MICRO CONTROLLERS FOR EVERY APPLICATION AND BUDGET

ALLEN-BRADLEY • ROCKWELL SOFTWARE

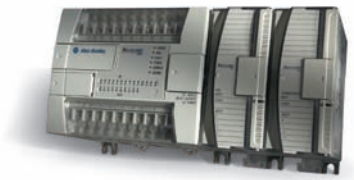
Rockwell Automation

MICROLOGIX

POWER. PERFORMANCE. PEACE OF MIND.

The MicroLogix Family of Controllers.

Today's marketplace is more competitive than ever. Thriving in such an environment means using the best tools and technologies the world has to offer. All over the globe, companies requiring compact controllers look to the Allen-Bradley® MicroLogix™ family of controllers from Rockwell Automation.



1200

1000

1400

1100

1500

With five controller versions to choose from, you'll find a wide variety of features to suit most applications.

Communicate with Ease

No matter what your communication requirements are, we've got you covered. From our MicroLogix 1100 and 1400 controllers with embedded EtherNet/IP to a wide range of network interface devices, finding the right controller to fit your communication need is easy.

All MicroLogix controllers provide:

- At least one built-in enhanced RS-232C port supporting DF1 Full-Duplex, DF1 Half-Duplex Slave, and DH-485 protocols
- Communication with personal computers, operator interfaces, other PLCs and more through DeviceNet and Ethernet, as well as through open point-to-point and SCADA protocols

In addition, the MicroLogix 1100, 1200, 1400 and 1500 provide:

- Embedded Modbus RTU Master and Slave protocols
- DF1 Half-Duplex Master and DF1 Radio Modem protocols
- Full ASCII (read/write) capability
- The MicroLogix 1100 and 1400 provides a built-in EtherNet/IP port for peer-to-peer messaging
- The MicroLogix 1200R, MicroLogix 1400 and MicroLogix 1500 LRP offer an additional serial port

Expand your I/O horizons

With a wide range of I/O capabilities – from embedded to modular – MicroLogix controllers combine high-speed embedded I/O with the flexibility and expandability of expansion I/O for just the right amount of points for any application. And with the MicroLogix 1100, 1200 and 1400 controllers, take advantage of the convenience of using the same 1762 expansion I/O modules.

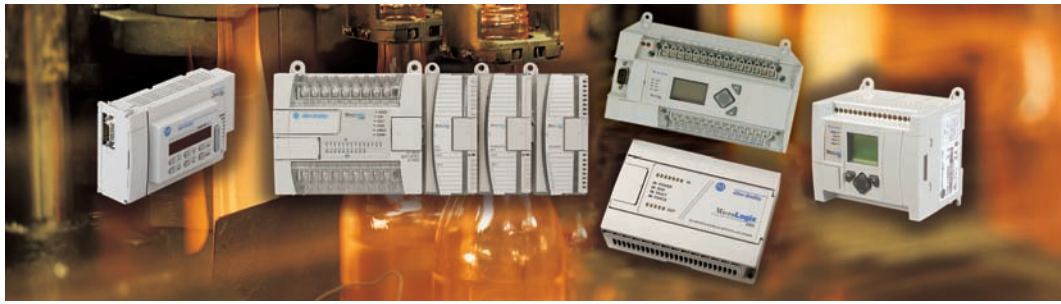
Relax. You're with Rockwell Automation

Don't forget, these controllers bear the Allen-Bradley name – a trusted brand name in industrial automation for over a century. With Rockwell Automation you'll benefit from:

- Strict quality standards
- Latest technological advances
- Global capability, local supply
- Unmatched customer service
- Peace of mind

Get world-class service and support

Customer satisfaction is built into every product that Rockwell Automation offers. In addition to worldwide sales and field personnel, thousands of in-house automation experts ensure customer support. You're not locked into one supplier either. Our referencing program seamlessly integrates several third-part products and technologies that complement our own. This enables you to tap the resources of an even larger selection of global products and services.



MICROLOGIX 1000

SMALL ON COST. BIG ON CAPABILITY.

Are you looking for a compact and inexpensive micro controller? You'll find what you're looking for with the MicroLogix 1000 controllers. These small, economical programmable controllers offer several I/O configurations and are available in 17 different models. With footprints as small as 120mm x 80mm x 40mm (4.72" x 3.15" x 1.57"), the MicroLogix 1000 controllers are ideal for tight spaces that require up to 32 points of I/O. You'll get a high-speed controller with advanced networking capabilities and a full suite of control solutions.

Benefits

The MicroLogix 1000 micro-PLC can handle a wide variety of big-time applications at 32 I/O or below, while using only a fraction of the space of a full-size controller – at a fraction of the price. Here are a few reasons why you can choose them with confidence:

- Preconfigured 1K programming and data memory to ease configuration (bit, integer, timers, counters, etc)
- Fast processing allows for typical throughput time of 1.5 ms for a 500-instruction program
- Built-in EEPROM memory retains all of your ladder logic and data if the controller loses power, eliminating the need for battery back-up or separate memory module
- Multiple input commons allow you to use the controller for either sinking or sourcing input devices and multiple output commons provide isolation in multi-voltage output applications.
- RS-232 communication channel allows for simple connectivity to a personal computer for program upload, download and monitoring using multiple protocols, including DF1 Full-Duplex
- RTU slave protocol support using DF1 Half-Duplex Slave allows up to 254 nodes to communicate with a single master using radio modems, leased-line modems or satellite uplinks
- Peer-to-peer messaging capability allows you to network up to 32 controllers on DH-485 (using a 1761-NET-AIC module)
- Advanced communications networks, including DeviceNet and EtherNet/IP through the 1761-NET-DNI and 1761-NET-ENI communication modules
- Controllers that have 24V dc inputs include a built-in high-speed counter (6.6 kHz)
- Adjustable DC input filters allow you to customize the input response time and noise rejection to meet your application needs
- Regulatory agency certifications for world-wide market (CE, C-Tick, UL, c-UL, including Class 1 Division 2 Hazardous Location)

Flexible I/O technology

Broad input and output specifications provide a flexible control solution.

- Input options: AC, DC and analog (current or voltage)
- Output options: relay, TRIAC, MOSFET and analog (current or voltage)
- Both AC and DC powered controllers are available

Use your MicroLogix 1000 control system to provide factory floor networking and reduce production problems. You'll find the MicroLogix 1000 is ideal for a number of applications: from water/wastewater and SCADA, to packaging and material handling.

MICROLOGIX 1100

COMMUNICATE. CONTROL. VISUALIZE.

With online editing and a built-in 10/100 Mbps EtherNet/IP port for peer-to-peer messaging, the MicroLogix 1100 controller adds greater connectivity and application coverage to the MicroLogix family. The next generation controller's built-in LCD screen displays controller status, I/O status, and simple operator messages; enables bit and integer manipulation; and offers digital trim pot functionality.

Key Features and Benefits

- Built-in 10/100 Mbps EtherNet/IP port for peer-to-peer messaging – offers users high speed connectivity between controllers, with the ability to access, monitor and program from anywhere an Ethernet connection is available
- Online editing functionality – modifications can be made to a program while it is running, making fine tuning of an operating control system possible, including PID loops. Not only does this reduce development time, but it aids in troubleshooting
- Embedded Web server – allows a user to custom configure data from the controller to be displayed as a web page
- Isolated RS-232/RS-485 combo port – provides a host of different point-to-point and network protocols
- Embedded LCD screen – allows user to monitor data within the controller, optionally modify that data, and interact with the control program. Displays status of embedded digital I/O and controller functions, and acts as a pair of digital trim pots to allow a user to tweak and tune a program

Additional Features

- One 40kHz embedded high-speed counter (on controllers with DC inputs)
- Two 40kHz high-speed PTO/PWM (on controllers with DC outputs)
- Two embedded analog inputs (0-10 v DC, 10 bit resolution)
- A simple operator interface for messages and bit/integer input
- 4K words user program memory and 4K words user data memory
- Up to 128K bytes for data logging and 64K bytes for recipe

I/O Capabilities

For small applications, the embedded I/O in this controller may represent all of the control required. There are 10 digital inputs, 6 digital outputs, and 2 analog inputs on every controller, with the ability to add digital, analog, RTD, and thermocouple modules to customize the controller for your application. On the versions of the controller with DC inputs, there is a high speed counter, and on the DC output version, two PTO/PWM (pulse train outputs and pulse width modulated) outputs, enabling the controller to support simple motion capabilities.

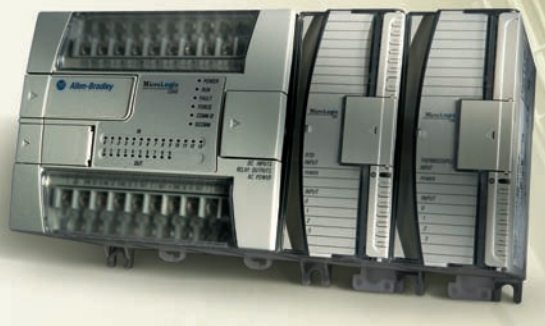
The MicroLogix 1100 also supports expansion I/O. Up to four of the 1762 I/O modules (also used by the MicroLogix 1200 and 1400 controller) may be added to the embedded I/O, providing application flexibility and support of up to 80 digital I/O.

Applications

The MicroLogix 1100 is ideal for a wide variety of applications. It is particularly well suited to meet the needs of SCADA RTU, packaging, and material handling applications. With even more memory for data logging and recipe than the MicroLogix 1500, the MicroLogix 1100 is great for remote monitoring and for applications that are memory intensive, but require limited I/O.

MICROLOGIX 1200

INCREASED FUNCTIONALITY AND OPTIONS



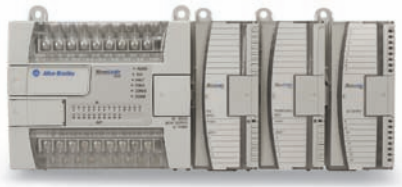
The MicroLogix 1200 is filled with features and options designed to handle an extensive range of applications.

Available in 24- and 40-point versions, the I/O count can be expanded using rackless I/O modules. This results in larger control systems, greater application flexibility and expandability at a lower cost and reduced parts inventory.

A field-upgradeable flash operating system ensures you will always be up-to-date with the latest features, without having to replace hardware. The controller can be easily updated with the latest firmware via a web site download.

Key Features and Benefits

- Four latching or pulse-catch inputs—Latching inputs let the controller capture and hold very brief (microsecond) signals for input processing.
- 20 kHz high-speed counter—The built-in independent high-speed counter uses 32-bit integers for extended range, features 8 modes of operation, and supports direct control of outputs independent of program scan.
- Programmable Limit Switch Function—This function allows you to configure the high-speed counter to operate as a programmable limit switch or rotary cam switch.
- Trim potentiometers—Two built-in 3/4-turn analog trim potentiometers with a digital output (range from 0 to 250) allow quick and easy adjustments of timers, counters, setpoints, and more.
- Program data security—Data file download protection allows a program to be reloaded into the controller without overwriting protected data.
- Floating Point Data Files—You can create data files that can contain up to 256 IEEE-754 floating point values.



- Memory, real-time clock, or memory/real-time clock modules—Memory backup provides protection and transportability for programs and data. The real-time clock lets you easily solve time/date scheduling applications, and can be synchronized with an external source via a program instruction.
- Four interrupt inputs—Interrupt inputs let the controller scan a specific program file (subroutine) when an input condition is detected from a sensor or field device.

With the 1200R controller you gain even more control capabilities.

- A Programming/Human Machine Interface (HMI) port in addition to the Channel 0 port: offers an inexpensive means of providing an extra port that can be used for programming using a personal computer or connecting an operator interface device to your controller.
- Increased application flexibility
- Reduced system cost: enables users to directly connect a local HMI, allowing the other port to be used for networking, modem connection, programming and other devices
- Requires no configuration: DF1 Full Duplex port that has the same parameters as Channel 0 when in the "Default Comms" configuration
- Respond Only: Messaging is not available; it communicates by responding to communications initiated from the device attached to it

Keep your I/O options open

If the embedded I/O in the MicroLogix 1200 controllers isn't enough for you, use up to six digital and analog expansion modules. The 1762 expansion I/O modules are the same for the MicroLogix 1100 and 1400 controllers and the rackless design eliminates added system cost and inventory issues.

With the MicroLogix 1200, you'll be ready to tackle applications in industries such as pharmaceutical, printing, food and beverage, packaging and material handling with confidence.

MICROLOGIX 1400

ENHANCED FEATURES TO MEET YOUR NEEDS.

MicroLogix 1400 from Rockwell Automation complements the existing MicroLogix family of small programmable logic controllers, by combining the features you demand from MicroLogix 1100, such as Ethernet/IP, online editing, and a built-in LCD, plus enhanced features, such as increased I/O, faster High Speed Counter/PTO and communication capabilities.

Utilize the built-in LCD with back lighting to set the Ethernet network configuration, display floating point values on user configurable display, display OEM logos and view and/or modify any binary or integer file element.

Program with RSLogix™ 500 programming software (Version 8.1 and above) as well as new RSLogix Micro programming software.

Key Features and Benefits

- Ethernet port provides you with peer-to-peer messaging, Web server and Email capability
- Online editing allows you to make modifications to the ladder logic while the program is running
- Built-in LCD with backlight allows you to view controller and I/O status, and provides a simple interface for messages, bit / integer monitoring and manipulation
- Expand your application capabilities through support of up to 7 expansion I/O modules (1762 I/O) with 144 discrete I/O
- Up to 6 embedded 100 kHz high-speed counters (on controllers with dc inputs)
- 2 Serial ports with DF1/DH485/Modbus RTU/DNP3/ASCII protocol support

Additional Features

- 10K words user program memory and 10K words user data memory
- Up to 128K bytes for data logging and 64K bytes for recipe
- Program with RSLogix 500 or RSLogix Micro

I/O Capabilites

If the embedded I/O in the MicroLogix 1400 isn't enough for your use, add up to seven of the 1762 I/O modules (also used by the MicroLogix 1100 and 1200 controllers) digital and analog expansion modules.

Applications

- General Industrial Machinery (Material Handling, Packaging, Assembly, etc)
- HVAC / Building Automation
- SCADA (Oil and Gas, Water/Wastewater, and Electrical Power)
- Food and Beverage
- Pharmaceutical
- Commercial Machinery (Vending, Industrial Washers and Dryers, etc)

MICROLOGIX 1500

MORE POWERFUL. MORE EXPANDABLE.

In a perfect world you would always know what's behind the next door. In the world of automation, the MicroLogix 1500 controller can help you open up new possibilities and get you to where you want to go with ease.

As the most powerful member of the MicroLogix family you'll get unmatched performance, power and flexibility. In fact, it can handle many applications that traditionally called for larger, more expensive controllers. With its removable processor, base units with embedded I/O and power supply – and expansion through 1769 Compact I/O™ – the MicroLogix 1500 packs all of the best features of a modular system into a low-cost, small footprint.

Get a better view into your control application with the Data Access Tool (DAT) plug-in device. You'll be able to monitor and easily change data without the need for a computer or the added expense of an HMI device.

If you need advanced communication, the 1769-SDN DeviceNet scanner allows a MicroLogix 1500 controller to become a DeviceNet master, slave, or peer device. It combines standard DeviceNet master functionality with enhanced performance features.

Features:

- Three base options, including a choice of electrical configurations featuring:
- 120V ac or 24V dc inputs
- Relay and high-speed MOSFET outputs
- 120-240V ac or 24V dc power
- Supports up to 14K of onboard non-volatile user memory, for complex application programs
- Typical scan time is less than 1 millisecond per 1K of user program
- Expandable to over 512 points of I/O
- Innovative, rackless, tongue-and-groove design reduces system cost and inventory
- Two 20 kHz high-speed counters, each with eight modes of operation, and two high-speed outputs that can be configured as either 20 kHz Pulse Train Outputs (PTO) or Pulse Width Modulated (PWM) Outputs
- Broad application coverage through embedded I/O and up to 16 Compact I/O modules
- Terminal blocks are finger-safe, removable NEMA-style blocks
- Features a field-upgradable flash operating system.

1762 AND 1769 I/O

EXPAND YOUR CONTROL, NOT YOUR BUDGET

1762 I/O for MicroLogix 1100, 1200 and 1400 has a modular, rackless design. Elimination of the I/O rack from the system enhances cost savings and reduces replacement parts inventory. The package design allows modules to be either DIN rail or panel mounted. The DIN latches and screw mounting holes are an integral part of the package design.

Features:

- Rackless design, eliminating added system costs and inventory
- Small footprint, shrinking panel space
- Integral high-performance I/O bus
- Software keying to prevent incorrect positioning within the system
- Feature-rich I/O functionality addresses a wide range of applications
- AC/DC relay, 24V dc, and 120V ac voltages

1769 Compact™ I/O is an I/O platform that offers industry-leading price and performance. With a wide range of modules, they complement and extend the MicroLogix 1500 controller's capabilities by maximizing flexibility of the I/O count and type. Compact I/O provides an excellent platform for future enhancements, so you can easily choose the level of control as their application needs grow. It utilizes the latest design technology for superior performance, excellent functionality and ease of use, including:

Features:

- Innovative rackless design, which reduces system cost and inventory
- Modular, high-density I/O termination to reduce panel space requirements
- Integrated high-performance serial I/O bus
- Feature-rich I/O functionality to address a wide range of applications
- Front removal/insertion, which reduces time for initial system assembly and product replacement
- Broad application coverage through 24V dc sink/source and 120/240V ac I/O, relay, and analog I/O

NETWORK INTERFACE DEVICES

COMMUNICATE WITH CONFIDENCE

With the 1761-NET-ENI EtherNet/IP Interface, the 1761-NET-DNI DeviceNet Interface, and the 1761-NET-AIC Advanced Interface Converter (AIC+), you can connect MicroLogix controllers to Ethernet, DeviceNet, or DH-485 multi-drop networks. Just like the MicroLogix processors, all of these network interface devices can be DIN-rail or panel mounted, and all are industrially hardened to meet virtually any installation requirement.

1761-NET-ENI AND 1761-NET-ENIW ETHERNET INTERFACE

Both the ENI and the ENIW provide EtherNet/IP compatibility, allowing exchange of information with other Allen-Bradley Ethernet controllers in a peer-to-peer relationship, eliminating the need for a master type device

BENEFITS OF ENI OR ENIW

- 100 Base-T Port with embedded LEDs allows connection to your network through any standard RJ45 Ethernet cable, and embedded LEDs provide easy to see link and transmit / receive status.
- RS-232 port provides isolation and will autobaud on power up to detect the communications port setting of the attached controller.
- Ability to force Ethernet to 10 Mbps or 100 Mbps and half-duplex or full-duplex (default is Auto Negotiate)

BENEFITS OF ENIW ONLY

- Fixed-format pages are easily customized using the new ENIW utility. No HTML programming skills are needed.
- Home page provides for user defined links to URLs, and most pages offer user defined page names.
- Four data view pages allow display of user text and integer/floating point data, and allow data to be written to the attached controller. Data writes may be password protected (one password per page). Data view pages provide for a user selectable update interval and update timer (indication of communications).
- Event page provides a log of events composed of up to 50 string elements.

1761-NET-DNI DEVICENET INTERFACE

- Peer-to-peer messaging between Allen-Bradley controllers and other devices using the DF1 Full-Duplex protocol (real-time communications – no polling required)
- Programming and on-line monitoring over the DeviceNet network
- Through a DNI connected to a modem, you can dial in to any other DNI-controller combination on DeviceNet

BENEFITS

- Utilizes producer/consumer technology that significantly reduces the amount of traffic on the network, which improves efficiency and data throughput. This results in information getting across the network more quickly to a single controller – or to any combination of devices looking for the information.
- Offers up to 64 words of data (32 inputs, 32 outputs, configurable)
- The DNI will keep its mapped I/O data up-to-date by polling the controller connected to it. The controller may also send updated data to the DNI. The DNI then handles all of the network communications.
- Allows peer-to-peer messaging between devices that use the DF1 Full-Duplex protocol
- Allows you to take advantage of the latest advances in communications

1761-NET-AIC ADVANCED INTERFACE CONVERTER

- Provides DH-485 network access from any DH-485 protocol compatible device that has a RS-232 port, including all MicroLogix controllers, SLC™ processors, and Allen-Bradley PanelView™ HMI devices
- Provides isolation between all ports for a more stable network and protection for connected devices
- Auto baud rate capability for ease of system set-up

BENEFITS

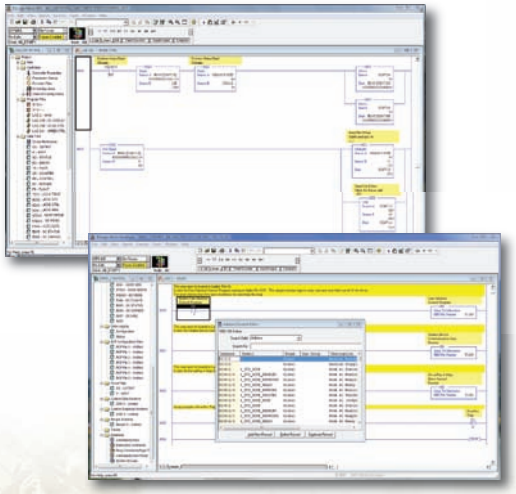
- Provides a simple, cost-effective solution for connecting RS-232 devices to a DH-485 network
- Offers two isolated RS-232 connections – one 9-pin D-shell and one 8-pin mini DIN – to protect connected devices that may be on different power sources, and an RS-485 6-pin Phoenix connection for multi-drop connections
- Allows linking of controllers using DF1 Half-Duplex "master/slave" protocol
- Accepts power via the 8-pin mini DIN from a MicroLogix controller or an external power connection

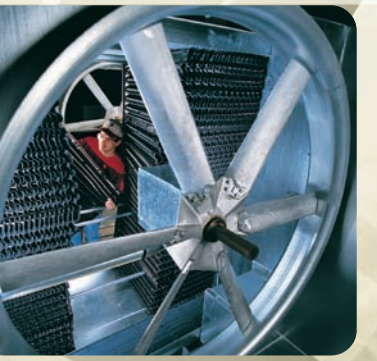
PROGRAMMING SOFTWARE

POWERFUL, FLEXIBLE PROGRAMMING

Rockwell Automation continually strives to bring you the best application development products to help maximize performance, save project development time, and reduce the total cost of ownership of your system.

RSLogix 500 and the newly developed RSLogix Micro programming software are two products that allow you to create, modify and monitor application programs for the Allen-Bradley MicroLogix family of controllers. Designed with features to help save time and increase productivity, these programming products allow you to gain the most value from our controllers, drives and operator interface product lines.





RSLOGIX 500/RSLOGIX MICRO

RSLogix programming packages help make program maintenance across hardware platforms convenient and system integration easier. Specifically, RSLogix 500 and RSLogix Micro packages offer:

INCREASED PRODUCTIVITY

- Create application programs without worrying about syntax errors
- Navigate and correct errors at your convenience
- Share common code via library support
- Quickly copy or move instructions within a project or from one project to another

INCREASED TIME SAVINGS

- Speed Logix creation and modification via drag and drop ladder logic editing
  – Includes application examples to accelerate development for common control challenges

INCREASED DIAGNOSTICS & TROUBLESHOOTING CAPABILITIES

- Edit while controller is operating for quick testing and troubleshooting
- Detect inserted, deleted, moved or modified differences from original program
- Locate problem areas quickly and replace addresses and text easily
- Examine the status of interdependent data simultaneously in one window
- Access I/O configurations through easy point and clicks

INCREASED INVESTMENT VALUE

- Import or export projects easily from any Rockwell Software MS-DOS programming product
- Readily re-use code developed for MicroLogix
- Customize RSLogix and integrate with Microsoft office and other applications

RSLogix 500 programming software is ideal for both MicroLogix and SLC controllers. RSLogix Micro is a new cost-effective software package for MicroLogix programming. Both software programs are feature rich and designed to streamline your overall development and deployment processes.

OPERATOR INTERFACE

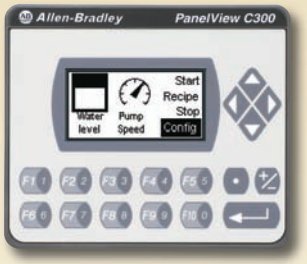
COMPONENT LEVEL VISUALIZATION

When you need an essential component, with added value, but with a reduced cost, look to the Allen-Bradley PanelView™ Component family of operator interfaces from Rockwell Automation. Leverage the new features of PanelView Component, such as built-in programming software and integrated mounting clamps, to help improve productivity and maintenance, while enjoying the convenience and efficiencies of single-source buying. Preferred integration with Allen-Bradley MicroLogix™ family of programmable logic controllers offers you an ideal control and visualization solution for a wide variety of applications. When you need a product that is easier to install, learn and operate, PanelView Component offers you a full line of displays, from 2" to 10", with the fundamental features you need, in a compact, easy to understand package.

C200

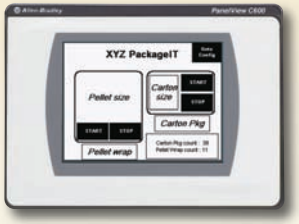
- Function or combination of numeric /function keys
- 2" monochrome, graphic display
- Serial communication

C300



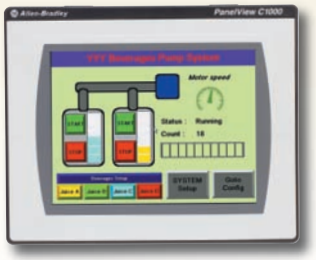
- Touch screen or combination of numeric /function keys
- 3" monochrome, graphic display
- Serial communication

C600



- Touch screen
- 6" monochrome or STN color display
- Serial and Ethernet communication

C1000



- Touch screen
- 10" TFT color
- Serial and Ethernet communication

LISTEN.
THINK.
SOLVE.®

VISUALIZATION PLATFORMS

SELECTION GUIDE

OPERATOR INTERFACE TERMINALS

INDUSTRIAL COMPUTERS AND MONITORS

HMI SOFTWARE

MESSAGE DISPLAYS

ALLEN-BRADLEY • ROCKWELL SOFTWARE

Rockwell Automation

Information...in the right place...at the right time...and in the right format.

Comprised of a suite of scalable HMI software and family of operator interface hardware, the Rockwell Automation visualization solutions you'll see here provide plant floor machine operators, supervisors, engineers, and business managers a window to critical data, and production and process information. These solutions increase productivity and reduce total cost of ownership by providing you with system elements that can be quickly configured, enabling easier access to information to make crucial real-time business decisions.

How To Use This Selection Guide

This selection guide is a powerful tool in creating a powerful visualization system addressing your control and information needs. It provides definitions and easy step-by-step instructions to create the best system for you.

Table of Contents

Visualization and Integrated Architecture

Visualization products are an enabling technology of the Rockwell Automation Integrated Architecture. Integrated Architecture provides scalable solutions to improve and sustain your competitive advantage for the full range of automation disciplines including sequential, motion, process control, drive control, safety, and information.

Unlike traditional architectures, Integrated Architecture reduces total cost of ownership by using a single control infrastructure for the entire range of factory automation applications, large or small. This enables you to reuse engineering designs and practices to reduce development time and cost, quickly respond to customer or market demands, reduce maintenance costs and downtime, and easily access plant and production data from business systems for better management decision-making.

PanelView Plus, FactoryTalk View Machine Edition, and FactoryTalk View Site Edition provide premier integration in a number of ways.

- Reduces programming time with Logix native addressing and the ability to browse directly to Logix tags without creating a separate tag database
- Simplifies interaction of all networks with support for all core Integrated Architecture CIP networks including EtherNet/IP, ControlNet, DeviceNet, and numerous other drivers
- Simplifies development with pre-engineered faceplates for specific motion, process, and drives applications

Additional Resources

Resource	Description
http://www.rockwellautomation.com/solutions/integratedarchitecture/index.html	The Integrated Architecture home page offers a description of the benefits of the Rockwell Automation Integrated Architecture for a full range of automation disciplines.
http://www.rockwellautomation.com/solutions/integratedarchitecture/resources.html	The Resource Tools page offers tools, such as sample code, common configuration drawings and videos that can help you maximize your use of the Integrated Architecture.
http://literature.rockwellautomation.com/idc/groups/literature/documents/br/iaemea-br002_en-p.pdf	The Integrated Architecture Value Book provides real-world examples showing how companies in a multitude of industries have deployed the technology to achieve a host of benefits.

Visualization Design Considerations

Application requirements	Things to consider
User and location requirements	Machine operators, process operators, maintenance personnel, manufacturing supervisors, management Single or multiple locations User input required
Communication requirements	Type of controller or remote device Communication protocol required Communication over single or multiple networks Data update frequency
Information input requirements	Start and stop Numeric input Selectable recipes Text input
Information display requirements	On and off states, numeric values, trend charts Process alarms, status, and recipes Manuals, production schedules, drawings, video
Environmental conditions	Temperature, vibration, hazardous gas and dust Outdoor or sun-intensive application Power shutdown required Unpredictable power removal
Security Requirements	Login required Restrict access by groups or users Secured screens or displays Restrict changes to application
Maintenance requirements	Firmware and software compatibility over time Expense of downtime Windows experience level of maintenance personnel

Selection Checklist

Use the following checklist as a guide to select your visualization products. Use a spreadsheet to record the results. Refer to page 84 for examples.

✓	Step	See	Page
	1 Select a Visualization Platform		
	Determine dedicated or open/multi-application platform and type of device within platform. • Dedicated HMI - Message Display • Dedicated HMI - Graphic Terminal • Open/multi-application - Windows CE • Open/multi-application - Windows XP	Select a visualization platform.	page 6
	2 Select a Visualization Product		
	Select the appropriate visualization product within the platform type. Selection criteria can include: • Display size • Operator input • Communication network • Power	**Graphic Terminals** PanelView Plus PanelView Standard	 page 10 page 56
		Windows CE PanelView Plus CE **Windows XP** Industrial Computers and Monitors	 page 10 page 27
		Message Displays InView message displays	 page 49
	3 Select HMI Software		
	Review and select a Rockwell Software HMI software package.	**Rockwell Software HMI** FactoryTalk View Machine EditionFactoryTalk View Site Edition	page 68
	4 Determine Cable Requirements		
	Use the tables in this guide to determine the appropriate cables for application downloads and runtime communication to controllers.	**Upload and Download Cables** **Runtime Communication Cables** PanelView Plus terminals PanelView Standard terminals InView displays	page 75 page 76 page 79 page 82

Step 1 - Select:

• *Visualization platform type*

Select a Visualization Platform

Rockwell Automation offers a variety of dedicated and open/multi-application visualization platforms. Choosing the right platform depends on the type of operation you need from the system. To help you decide, here is a comparison of each platform.

Dedicated or open/multi-application platform is usually the first choice.

Dedicated Platform	Open Platform/Multi-application
Simplicity	Flexibility
Optimized for machine level operator interface	Supervisory HMI and multiple uses beyond HMI
Secured / focused purpose	Scalable possibilities
Longevity / stability over time	Latest technology
55 °C and 2 g vibration rating (typical)	50 °C and 1 g vibration rating (typical)
Instant off, able to remove power safely	Shut down before removing power
Inherently resistant to software viruses	Virus protection software is recommended

Dedicated Platform

Dedicated platforms are optimized for machine-level interface, providing tight integration with the control system. They replace traditional wired panels as the input and output mechanism for operator interaction with one or more machines. Dedicated operator interface terminals may be networked with other operator interface devices but are usually not part of a supervisory system.

Dedicated terminals are available in a broad range of display sizes and input configurations to match the particular needs of the application. These robust devices are fully packaged (hardware, software, and communication) and tested for HMI operation. Simply download your configured application file, connect the communication cables, and they're ready for operation, with minimal startup.

They are also protected from untested third-party applications; only factory-qualified applications can be loaded. Design parameters are very specific, generating consistent performance with minimal platform changes.

Dedicated Platform Types	Rockwell Automation Products
Message Displays • Panel mount and large format versions with viewing distances up to 137 m / 450 ft (module dependent) • Text messages - alarm conditions, safety alerts, production status, general information • No shutdown procedure for power removal • No Windows OS knowledge required for operation	InView Message Displays
Graphic Terminals • Rugged packages with high shock, vibration, and temperature ratings • Run single graphic HMI application, for example, FactoryTalk View Machine Edition software • No shutdown procedure for power removal • No Windows OS knowledge required for operation	PanelView Plus Operator Interface PanelView Standard Operator Interface

Open Platform Multi-application

Open platforms are designed for flexibility. These platforms may come with Windows CE or Windows XP operating system installed and will support multiple software packages, as well as integrate third-party hardware to meet specific application needs.

While a dedicated platform is optimized for machine level HMI, an open/multi-application platform can be used for supervisory HMI purposes beyond traditional operator interface applications. Additionally, it can be combined with logic software for a PC-based control system. Or it can be expanded to a standard HMI software application with Visual Basic programs, data analysis or other Windows-based software packages, for a more specialized solution. As with any open system, security against unwanted or untested software applications is up to the user.

Open platforms use the latest commercial technology, such as microprocessors and motherboards, to meet application software requirements and maintain expected system performance.

Open Platform Types	Rockwell Automation Products
Windows CE Devices • Hybrid of industrial computer and dedicated HMI terminal • Solid state design - no rotating media • Higher environmental standards • No shutdown required for power removal • Run multiple applications designed for the specific CE device, for example, FactoryTalk View Machine Edition software, Internet Explorer, Terminal Services for thin-client	PanelView Plus CE Terminals
Industrial Computers • Flexible Windows OS platforms • Run multiple Windows-based applications (for example, FactoryTak View Machine Edition, FactoryTalk View Site Edition, Terminal Services, SoftLogix 5800, RSBizware) • Shutdown procedure required for power removal • Windows OS and computer knowledge typically required for field configuration, upgrades and maintenance	Industrial Computers and Monitors

Step 2 - Select:

- *Visualization product within platform type*

Select a Visualization Product

Once you have determined the platform type, you need to select the appropriate Rockwell Automation visualization product based on your application requirements. Each product family has specific selection criteria to determine the right product. Selection guidelines are provided at the beginning of each product family section.

PanelView Plus Product Family

- 4 to 15-inch color and monochrome (400 and 600) displays
- Touch screen, keypad, and touch/keypad combination available in most sizes
- Modular design reduces support cost
- Advanced, FactoryTalk View Machine Edition software is installed and activated on each terminal providing advanced functionality such as trending and graphs
- Optimized for Logix control architectures while also supporting PLC/SLC based systems
- Part of the Rockwell Automation Integrated Architecture to simplify system design and development
- PanelView Plus CE supports additional functionality such as file viewers for machine manuals and drawings, and is available in 7 to 15-inch models
- High-bright display available for light intensive applications
- Data logging to record values of a single record locally or on a remote drive
- Runtime language switching

Industrial Computer and Monitors

- Hosts multiple Windows XP software packages including FactoryTalk View Site Edition
- High performance with fast screen updates
- Large displays to view large amounts of information
- Integrated display computers or separate computers and monitors available
- Designed for operation and maintenance in industrial environments
  - 24 x 7 hard drive or solid state memory options
  - 50 °C and 1 g vibration ratings
  - Component selection to reduce design changes (compared to office grade desktop computers)

InView Message Displays

- Text messages stored in memory and created with simple, WYSIWYG development software
- 0.7 to 9-inch characters
- Visible up to 450 feet
- Trigger messages via all Allen-Bradley industrial networks
- Trigger messages via PC using TCP/IP ActiveX

PanelView Standard Product Family

- 3 to 10-inch displays, color and monochrome available
- Touch screen, keypad, and combination touch/keypad input available
- Optimized for PLC/SLC-based control systems and supports native Logix controller addressing
- Simple, common development software supports entire family
- Proven technology with a large installed base
- DeviceNet explicit messaging

FactoryTalk View HMI Software

- Designed for supervisory functionality of a manufacturing cell or a complete site
- Integrated login security between the operating system and FactoryTalk View software to simplify operation while controlling access
- Allows stand-alone or multi-client/multi-server configurations
- Allows for a single screen to be viewed from multiple locations
- Records data for historical reference

PanelView Plus Selection Guidelines

- *Select display size*
- *Select operator input: keypad, touch, keypad/touch (model dependent)*
- *Select communications*
- *Select memory requirements*
- *Select power*
- *Select CE terminal (optional)*
- *Select configuration software*
- *Select program and runtime cables*
- *Select optional accessories*

Select a PanelView Plus Operator Interface

PanelView Plus gives operators a clear view into monitoring and controlling applications. With FactoryTalk View Machine Edition already installed and activated, development time is reduced. The PanelView Plus family of products provides a broad range of rugged terminals that offer:

- Premier integration with Integrated Architecture
- Common development software
- Scalable 4 to 15-inch displays with touch screen, keypad, or both for input

The PanelView Plus CE provides an open platform allowing users to access the Windows CE desktop. Use this additional functionality to:

- Save time by viewing manuals directly on your operator terminal
- Access production schedules directly from your terminal
- Save time by including training documents and even video on the operator terminal
- Improve machine control and simplify setup through a live video from a web camera
- Allow remote access to the terminal with VNC (Virtual Network Computing)

All this is achieved through various file viewers, Internet Explorer, Terminal Services, FTP fucntionality, and more, included with each terminal.

The PanelView Plus and PanelView Plus CE operator interface terminals are designed to optimize system development, performance, and efficiency.

See how companies around the world use this product: www.rockwellautomation.com/casestudies

Benefits

- Provides maximum flexibility, inventory reduction, and easy upgrades
- Communicates through multiple ports
- Integrated with FactoryTalk View Machine Edition for advanced functionality including trending, expressions, data logging, advanced graphics, and direct browsing of Logix addresses
- Includes keypad, touch screen, or keypad/touch screen combination terminals for convenient and flexible operator input choices
- Features a 1250 high-bright display for outdoor installations
- Provides 700 and 1250 conformally coated configurations for harsh environments
- Offers field replaceable bezels and backlights with a life expectancy of 50,000 hours to reduce maintenance costs
- Includes CompactFlash card slot for transferring files, logging data, or system upgrades
- Includes complete package for immediate startup
- Offers unit level immediate exchange program to reduce downtime
- Powerful graphics providing clear and crisp visuals

Key Functionality

- **Standard Operator Elements:** Push buttons, indicators, numeric displays, alphanumeric data entry, gauges and graphs
- **Trending:** Create time-based or x-y plot of up to 8 pens per trend
- **Expressions:** Modify data based on conditions using If/Then/Else statements and mathematical functions including log and sine
- **Data logging:** Record up to 300,000 values of a single record locally or on a remote drive
- **Parameters:** Reduce screen development time by reusing a single screen with multiple sets of data
- **Multiple port communications:** ControlNet Unscheduled, DH+, DH-485, DF1 serial, DH-485 serial, EtherNet/IP plus multi-vendor PLC communications support
- **Direct browsing:** Browse ControlLogix, FlexLogix, CompactLogix, SoftLogix 5000 and RSLogix 5000 addresses, eliminating the need to create or import tags
- **Language switching:** Switch languages easily with the touch of a button. Includes 40 design-time and 20 run-time languages.
- **Security:** Add user groups and centralized authority.

PanelView Plus 400 and 600

The PanelView Plus 400 and 600 terminals combine a 4 or 6-inch display, logic module, memory, and power (ac or dc) together in the base unit.

The PanelView Plus 400 displays are grayscale (320 x 240) with keypad input or color with touch and/or keypad input. The PanelView Plus 600 displays are grayscale (320 x 240) or color with either keypad, analog touch screen or keypad/touch screen input. Plus, these terminals offer additional features.

- Unique mounting mechanism requiring only a single die-cut and no special tools for installation
- Replaceable bezel ID labels for custom terminal or system identification
- Function key legend kit and software for customizing the function key legends of the PanelView Plus 600 keypad terminals

Onboard standard communication options include:

- **RS-232 Only Unit:** Contains an RS-232 communication port, USB port, and CompactFlash slot for file transfers and data logging.
  For applications with limited budgets that require only basic PLC communications, the RS-232 port of this unit supports DF1, DH-485, and other multivendor PLC protocols.
- **Ethernet and RS-232 Unit:** Contains Ethernet and RS-232 communication ports, USB port, and CompactFlash slot for file transfers and data logging. This unit also supports a network interface for optional communication modules (DH-485, DH+, Remote I/O, ControlNet, DeviceNet).
  For more distributed and complex applications requiring PLC communication, this unit can provide simultaneous communication with multiple networks.

PanelView Plus 700 to 1500

The PanelView Plus and PanelView Plus CE 700, 1000, 1250, and 1500 terminals use additional modular components allowing for flexible configuration, installation, and upgrades. Items can be ordered as separate components or factory assembled per your configuration.

The field replaceable 6.5, 10.4, 12.1, and 15.1-inch flat-panel color displays come with keypad, analog touch screen, or keypad/touch screen input. A 12.1-inch high-bright display module and other conformal-coated options are available to meet more specific environmental conditions. You can even order your display with a built-in antiglare overlay.

The memory, logic module, and communication modules are usable across the entire product range. Designed for easy installation, all of these devices can be installed with minimal effort using only a screwdriver.

The logic module comes standard with these features.

- Ethernet and RS-232 built-in communication ports
- Two USB ports for mouse and keyboard support
- Power input, ac or dc
- Network interface for optional communication module
- CompactFlash slot for transferring files, logging data, or system upgrades

The logic module is available with our without CompactFlash and RAM memory. The contents of the CompactFlash differentiates a PanelView Plus from a PanelView Plus CE terminal.

- For PanelView Plus terminals, the internal CompactFlash contains FactoryTalk View Machine Edition software and flash memory.
- For PanelView Plus CE terminals, the internal CompactFlash contains the open Windows CE operating system, FactoryTalk View Machine Edition software, and flash memory.

CompactFlash and RAM memory come in a variety of sizes and can be ordered separately or bundled with the logic module for the PanelView Plus or PanelView Plus CE terminal.

Communication

All PanelView Plus terminals come standard with an Ethernet and RS-232 serial ports. The Ethernet port supports EtherNet/IP and Ethernet options using KEPServer drivers. The RS-232 port supports DF1 serial, DH-485 serial, and multi-vendor serial drivers. An optional ControlNet, DeviceNet, or DH+/DH-485/Remote I/O communication module can be added or changed after installation. Or, you can order a terminal with ControlNet or DH+/DH-485/Remote I/O as a pre-assembled option.

Additional communication options are featured on page 58.

	Pre-Assembled PanelView Plus and PanelView Plus CE Terminals						
Communication Port	**400**	**600**	**700**	**1000**	**1250**	**1500**	**Communication Module**
RS-232 only (base)	Yes	Yes	N/A	N/A	N/A	N/A	
Ethernet & RS-232 (base)	Yes	Yes	Yes	Yes	Yes	Yes	
RS-232 Isolated	✶	✶	N/A	N/A	N/A	N/A	2711P-RN22C (400 and 600)
DH-485	Yes	Yes	Yes	Yes	Yes	Yes	2711P-RN3 (400 and 600) 2711P-RN6 (700-1500)
DH+	Yes❄	Yes	Yes	Yes	Yes	Yes	2711P-RN8 (400 and 600) 2711P-RN6 (700-1500)
Remote I/O§	Yes❄	Yes	Yes	Yes	Yes	Yes	2711P-RN1 (400 and 600) 2711P-RN6 (700-1500)
ControlNet	‡	‡	Yes	Yes	Yes	Yes	2711P-RN15C (400 and 600) 2711P-RN15S (700-1500)
DeviceNet	‡	‡	‡	‡	‡	‡	2711P-RN10C (400 and 600) 2711P-RN10H (700-1500)

✶ PanelView Plus 400 and 600 offer an isolated RS-232 communication module. This option is not pre-assembled. Select the Ethernet & RS-232 base unit (2711P-xxx20x) and the 2711P-RN22C module.

❄ PanelView Plus 400 supports DH+ and Remote I/O communications. These options are not pre-assembled. Select the Ethernet & RS-232 base unit (2711P-K4M20x) and the DH+ (2711P-RN8) or Remote I/O (2711P-RN1) communication module.

‡ PanelView Plus 400 and 600 terminals are not available with ControlNet and DeviceNet as pre-assembled options. Select a base unit and the ControlNet (2711P-RN15C) or DeviceNet (2711P-RN10C) communication module. PanelView Plus/PanelView Plus CE 700 to 1500 terminals are not available with DeviceNet as a pre-assembled option. Select a base unit and the DeviceNet communication module (2711P-RN10H).

§ PanelView Plus 400 and 600 terminals support single rack Remote I/O communications.

Hilscher partner communication cards are also available supporting additional communication protocols.

Cat. No.	Description
PVIEW 50-PB	PROFIBUS-DP Master
PVIEW 50-DPS	PROFIBUS-DP Slave
PVIEW 50-MBP	Modbus Plus

Software

PanelView Plus is configured with FactoryTalk View Studio and has integrated FactoryTalk View Machine Edition functionality. FactoryTalk View Studio is available in two versions. FactoryTalk View Studio for Machine Edition is for developing Machine Edition projects only. FactoryTalk View Studio for FactoryTalk View Site Edition configures both Machine Edition and Site Edition for distributed multiserver/multiclient applications. Both software packages support PanelView Plus application development. Application projects can be developed and tested in FactoryTalk View Studio before downloading to the PanelView Plus, saving development time.

For a complete list of available HMI software, see page 72 or visit www.rockwellautomation.com/rockwellsoftware.

Cat. No.	Description
9701-VWSTMENE	FactoryTalk View Studio for Machine Edition is configuration software for developing and testing machine-level human machine interface (HMI) applications.
9701-VWSTENE	FactoryTalk View Studio for FactoryTalk View is configuration software for developing and testing supervisory-level and machine-level human-machine interface (HMI) applications.

You can import PanelView Standard/PanelBuilder32 and PanelView e applications into FactoryTalk View Studio as Machine Edition applications using the Machine Edition Import Wizard. The Import Wizard steps you through a few options such as scaling to a new screen resolution size, and then converts objects, text, tags and communication configurations to ones that are available in Machine Edition.

Product Migration Hardware

Consider both the display size and the unit size, when migrating to a new operator interface. PanelView Plus uses the same cutouts as existing PanelView products, yet offers a larger display. For instance, a PanelView Plus 1250 terminal with a 12.1-inch display fits into the same cutout as a PanelView 1000 or 1000e with a 10.4-inch display. When maintaining the same screen size, adapter plates are available to accommodate the new PanelView Plus cutout.

Existing Terminal	Drop-in Replacement	With an Adapter Plate
PanelView 550, 600 Touch	PanelView Plus 600 Touch PanelView Plus 400 Keypad	Not Required
PanelView 550 Keypad or Keypad/Touch	PanelView Plus 600 Keypad or Keypad/Touch	PanelView Plus 400 Keypad or 600 Touch
PanelView 600 Keypad or Keypad/Touch	PanelView Plus or PanelView Plus CE 700 Keypad or Keypad/Touch	Not Required
PanelView 900	PanelView Plus or PanelView Plus CE 1000	PanelView Plus or PanelView Plus CE 700
PanelView 1000, 1000e	PanelView Plus or PanelView Plus CE 1250	PanelView Plus or PanelView Plus CE 1000
PanelView 1200, 1200e CRT Touch	Not Available	PanelView Plus or PanelView Plus CE 1000 ✶ PanelView Plus PanelView Plus CE 1250 ❄
PanelView 1200, 1200e CRT Keypad	PanelView Plus or PanelView Plus CE 1500‡	PanelView Plus or PanelView Plus CE 1250
PanelView 1400, 1400e CRT	PanelView Plus or PanelView Plus CE 1500‡	PanelView Plus or PanelView Plus CE 1250
RAC6182: 7.7-inch Color	Not Available	PanelView Plus or PanelView Plus CE 700✶ PanelView Plus or PanelView Plus CE 1000✶
RAC6182: 12.1-inch Color	PanelView Plus or PanelView Plus CE 1250	PanelView Plus or PanelView Plus CE 1000✶

✶ Check for availability.
❄ Requires modification of cutout.
‡ Adapter plate required for stud mounted PanelViews.

PanelView Plus Specifications

PanelView Plus	400 Monochrome Keypad Only	600 Grayscale Keypad, Keypad/Touch, Touch	600 Color Keypad, Keypad/Touch, Touch
Display			
Display Description	Monochrome Passive Matrix FSTN		Color Active Matrix TFT
Display Size	3.8 inch	5.5 inch	
Display Area (WxH)	78 x 59 mm 3.07 x 2.32 in	111 x 84 mm 4.37 x 3.30 in	
Resolution	320 x 240, 32-level Grayscale		320 x 240, 18-bit Color Graphics
Backlight	LED	CCFL, 50 000 H	
Real-time Clock	Battery-backed time clock timestamps critical data		
Application Memory	64 MB/64 MB, Not Expandable (for bitmaps or recording data) 10 MB (for application storage)		
Touch Screen			
Touch Screen Description	—	Analog resistive	
Keypad			
Keypad Description	Poly-domed membrane	Stainless steel domed membrane	
Function Keys	8 (F1…F8)	10 (F1…F10)	
Electrical			
Communication Ports	RS-232 and 1 USB only or Ethernet, RS-232, 1 USB plus optional DH-485, DH+, Remote I/O, ControlNet (Scheduled and Unscheduled), or DeviceNet Module ❄		
Input Voltage, DC	18…30V dc (24V dc nominal)		
Power Consumption, DC	25 Watts max. (1.0 A at 24V dc)		
Input Voltage, AC	85…264V ac, 47…63 Hz		
Power Consumption, AC	60 VA max.		
Application Software	FactoryTalk View Studio for Machine Edition or Enterprise Series		
Environmental			
Operating Temperature	0…55 °C (32…131 °F)		
Non-Operating Temperature	-25…70 °C (-13…158 °F)		
Relative Humidity	5…95% without condensation		
Shock, Operating	15 g at 11 ms		
Shock, Non-Operating	30 g at 11 ms		
Vibration	0.012 in p-p, 10…57 Hz 2 g peak, 57…500 Hz		
Ratings✶	NEMA Type 12, 13, 4X, IP54, IP65		
Certifications	C-UL certified; UL listed; CE marked; Class I Div 2, Groups A, B, C, D; Class II Div 2, Groups F, G; Class III, Div I; C-Tick		
Weight			
Keypad or Key/Touch	562 g (1.24 lb)	930 g (2.05 lb)	
Touch	—	789 g (1.74 lb)	
Dimensions			
Keypad (HxWxD) or Key/Touch	152 x 185 x 90 mm 6.0 x 7.28 x 3.54 in	167 x 266 x 98 mm 6.58 x 10.47 x 3.86 in	
Touch Screen (HxWxD)	—	152 x 185 x 98 mm 6.0 x 7.28 x 3.86 in	
Cutout Dimensions			
Keypad (HxW) or Key/Touch	123 x 156 mm 4.86 x 6.15 in	142 x 241 mm 5.61 x 9.50 in	
Touch Screen (HxW)	—	123 x 156 mm 4.86 x 6.15 in	

✶ Check for availability of NEMA Type 4X outdoor rating
❄ DeviceNet and ControlNet require FactoryTalk View Machine Edition 4.0 or higher.

PanelView Plus PanelView Plus CE	700 Color	1000 Color	1250 Color ✶	1500 Color
	Keypad, Keypad/Touch, Touch			
Display				
Display Description	Color Active Matrix TFT			
Display Size	6.5 inch	10.4 inch	12.1 inch	15 inch
Display Area (WxH)	132 x 99 mm (5.2 x 3.9 in)	211 x 158 mm (8.3 x 6.2 in)	246 x 184 mm (9.7 x 7.2 in)	304 x 228 mm (12.0 x 9.0 in)
Resolution	640 x 480, 18-bit Color Graphics		800 x 600 18-bit Color Graphics	1024 x 768, 18-bit Color Graphics
Backlight	50 000 h - field replaceable			
Luminance ✶	300 cd/m² (Nits)			
Real-time Clock	Battery-backed time clock timestamps critical data			
Application Software				
PanelView Plus	FactoryTalk View Studio for Machine Edition or Enterprise Series			
PanelView Plus CE	FactoryTalk View Studio for Machine Edition or Enterprise Series, and open multi-application platform			
Application Memory				
PanelView Plus	Standard: 64 MB RAM/64 MB Flash, approx., 25 MB for application storage Extended: 128 MB RAM /128 MB Flash, approx., 115 MB for application storage			
PanelView Plus CE	Standard: 128 MB RAM/128 MB Flash Extended: 256 MB RAM/256 MB Flash, field-upgradable to 512 MB, 20 MB required for operating system and FactoryTalk View Machine Edition software			
Touch Screen				
Touch Screen Description	Analog resistive			
Keypad				
Keypad Description	Stainless steel domed membrane			
Function Keys	22 (F1…F10, K1…K12)	32 (F1…F16, K1…K16)	40 (F1…F20, K1…K20)	40 (F1…F20, K1…K20)
Electrical				
Communication Ports	Ethernet, RS-232, 2 USB plus optional DH+/DH-485/Remote I/O, ControlNet (Scheduled and Unscheduled), or DeviceNet module ‡			
Input Voltage, AC	85…264V ac, 47…63 Hz			
Power Consumption, AC	160 VA max			
Input Voltage, DC	18…32V dc (24V dc nominal)			
Power Consumption, DC	70 Watts (2.9 A at 24V dc)			
Environmental				
Operating Temperature	0…55 °C (32…131 °F)			
Non-Operating Temperature	-25…70 °C (-13…158 °F)			
Relative Humidity	5…95% without condensation			
Shock, Operating	15 g at 11 ms			
Shock, Non-Operating	30 g at 11 ms			
Vibration	0.012 in p-p, 10…57 Hz 2 g peak, 57…500 Hz			
Ratings❄	NEMA Type 12, 13, 4X, IP54, IP65			
Certifications ✶	C-UL certified; UL listed; CE marked; Class I Div 2, Groups A, B, C, D; Class II Div 2, Groups F, G; Class III, Div I; C-Tick			
Weight				
Keypad or Key/Touch	1.9 kg (4.2 lb)	2.9 kg (6.3 lb)	3.4 kg (7.6 lb)	4.6 kg (10.0 lb)
Touch	1.7 kg (3.8 lb)	2.6 kg (5.7 lb)	3.2 kg (7.1 lb)	4.2 kg (9.3 lb)
Dimensions				
Keypad (HxWxD) or Key/Touch	193 x 290 x 55 mm 7.58 x 11.40 x 2.18 in	248 x 399 x 55 mm 9.77 x 15.72 x 2.18 in	282 x 416 x 55 mm 11.12 x 16.36 x 2.18 in	330 x 469 x 65 mm 12.97 x 18.46 x 2.55 in
Touch Screen (HxWxD)	179 x 246 x 55 mm 7.04 x 9.68 x 2.18 in	248 x 329 x 55 mm 9.77 x 12.97 x 2.18 in	282 x 363 x 55 mm 11.12 x 14.30 x 2.18 in	330 x 416 x 65 mm 12.97 x 16.37 x 2.55 in
Cutout Dimensions				
Keypad (HxW) or Key/Touch	167 x 264 mm 6.57 x 10.39 in	224 x 375 mm 8.8 x 14.75 in	257 x 390 mm 10.11 x 15.35 in	305 x 419 mm 12.0 x 16.5 in
Touch Screen (HxW)	154 x 220 mm 6.08 x 8.67 in	224 x 305 mm 8.8 x 12.0 in	257 x 338 mm 10.11 x 13.29 in	305 x 391 mm 12.0 x 15.4 in

✶ 1250 High-Bright touch screen (Cat. No. 2711P-RDT12H) is available for outdoor installations. The brightness is over 1000 cd/m² and the backlight is not replaceable. Certifications include Class I, Zone 2, Group IIC.
❄ Check for availability of NEMA Type 4X outdoor rating.
‡ DeviceNet requires FactoryTalk View Machine Edition 4.0 or higher.

Product Selection

PanelView Plus 400 Grayscale

Description	Cat. No.
3.8-inch Grayscale Display	**Keypad**
RS-232 Communications Only, DC Input	2711P-K4M5D
RS-232 Communications Only, AC Input	2711P-K4M5A
Ethernet, RS-232, and Modular Communications Interface, DC Input	2711P-K4M20D
Ethernet, RS-232 and Modular Communications Interface, AC Input	2711P-K4M20A
Ethernet, RS-232 and DH-485 Modular Communications, DC Input	2711P-K4M3D
Ethernet, RS-232 and DH-485 Modular Communications, AC Input	2711P-K4M3A

PanelView Plus 600 Grayscale

Description	Cat. No.		
5.5-inch Grayscale Display	**Keypad**	**Touch**	**Keypad/Touch**
RS-232 Communications Only, DC Input	2711P-K6M5D	2711P-T6M5D	2711P-B6M5D
RS-232 Communications Only, AC Input	2711P-K6M5A	2711P-T6M5A	2711P-B6M5A
Ethernet, RS-232 and Modular Communications Interface, DC Input	2711P-K6M20D	2711P-T6M20D	2711P-B6M20D
Ethernet, RS-232 and Modular Communications Interface, AC Input	2711P-K6M20A	2711P-T6M20A	2711P-B6M20A
Ethernet, RS-232 and DH-485 Modular Communications, DC Input	2711P-K6M3D	2711P-T6M3D	2711P-B6M3D
Ethernet, RS-232 and DH-485 Modular Communications, AC Input	2711P-K6M3A	2711P-T6M3A	2711P-B6M3A
Ethernet, RS-232 and DH+ Modular Communications, DC Input	2711P-K6M8D	2711P-T6M8D	2711P-B6M8D
Ethernet, RS-232 and DH+ Modular Communications, AC Input	2711P-K6M8A	2711P-T6M8A	2711P-B6M8A
Ethernet, RS-232 and Remote I/O Modular Communications, DC Input	2711P-K6M1D	2711P-T6M1D	2711P-B6M1D
Ethernet, RS-232 and Remote I/O Modular Communications, AC Input	2711P-K6M1A	2711P-T6M1A	2711P-B6M1A

PanelView Plus 600 Color

Description	Cat. No.		
5.5-inch Color TFT Display	**Keypad**	**Touch**	**Keypad/Touch**
RS-232 Communications Only, DC Input	2711P-K6C5D	2711P-T6C5D	2711P-B6C5D
RS-232 Communications Only, AC Input	2711P-K6C5A	2711P-T6C5A	2711P-B6C5A
Ethernet, RS-232 and Modular Communications Interface, DC Input	2711P-K6C20D	2711P-T6C20D	2711P-B6C20D
Ethernet, RS-232 and Modular Communications Interface, AC Input	2711P-K6C20A	2711P-T6C20A	2711P-B6C20A
Ethernet, RS-232 and DH-485 Modular Communications, DC Input	2711P-K6C3D	2711P-T6C3D	2711P-B6C3D
Ethernet, RS-232 and DH-485 Modular Communications, AC Input	2711P-K6C3A	2711P-T6C3A	2711P-B6C3A
Ethernet, RS-232 and DH+ Modular Communications, DC Input	2711P-K6C8D	2711P-T6C8D	2711P-B6C8D
Ethernet, RS-232 and DH+ Modular Communications, AC Input	2711P-K6C8A	2711P-T6C8A	2711P-B6C8A
Ethernet, RS-232 and Remote I/O Modular Communications, DC Input	2711P-K6C1D	2711P-T6C1D	2711P-B6C1D
Ethernet, RS-232 and Remote I/O Modular Communications, AC Input	2711P-K6C1A	2711P-T6C1A	2711P-B6C1A

PanelView Plus and PanelView Plus CE 700 Color

Description	PanelView Plus Cat. No.			PanelView Plus CE Cat. No.		
6.5-inch TFT Displays	**Keypad**	**Touch**	**Key/Touch**	**Keypad**	**Touch**	**Key/Touch**
Standard Communications (Ethernet and RS-232), DC Input, 64 MB Flash/RAM	2711P-K7C4D1	2711P-T7C4D1	2711P-B7C4D1		—	—
Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM ✶	2711P-K7C4D2	2711P-T7C4D2	2711P-B7C4D2	2711P-K7C4D6	2711P-T7C4D6	2711P-B7C4D6
Conformal-Coated, Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM ✶	—	2711P-T7C4D2K	—	—	2711P-T7C4D6K	—
Standard Communications (Ethernet and RS-232), DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C4D7	2711P-T7C4D7	2711P-B7C4D7
Standard Communications (Ethernet and RS-232), AC Input, 64 MB Flash/RAM	2711P-K7C4A1	2711P-T7C4A1	2711P-B7C4A1	—	—	—
Standard Communications (Ethernet and RS-232), AC Input, 128 MB Flash/RAM ✶	2711P-K7C4A2	2711P-T7C4A2	2711P-B7C4A2	2711P-K7C4A6	2711P-T7C4A6	2711P-B7C4A6
Standard Communications (Ethernet and RS-232), AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C4A7	2711P-T7C4A7	2711P-B7C4A7
DH+, DH-485, RIO and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K7C6D1	2711P-T7C6D1	2711P-B7C6D1	—	—	—
DH+, DH-485, RIO and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K7C6D2	2711P-T7C6D2	2711P-B7C6D2	2711P-K7C6D6	2711P-T7C6D6	2711P-B7C6D6
DH+, DH-485, RIO and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C6D7	2711P-T7C6D7	2711P-B7C6D7
DH+, DH-485, RIO and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K7C6A1	2711P-T7C6A1	2711P-B7C6A1	—	—	—
DH+, DH-485, RIO and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K7C6A2	2711P-T7C6A2	2711P-B7C6A2	2711P-K7C6A6	2711P-T7C6A6	2711P-B7C6A6
DH+, DH-485, RIO and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C6A7	2711P-T7C6A7	2711P-B7C6A7
ControlNet and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K7C15D1	2711P-T7C15D1	2711P-B7C15D1	—	—	—
ControlNet and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K7C15D2	2711P-T7C15D2	2711P-B7C15D2	2711P-K7C15D6	2711P-T7C15D6	2711P-B7C15D6
ControlNet and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C15D7	2711P-T7C15D7	2711P-B7C15D7
ControlNet and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K7C15A1	2711P-T7C15A1	2711P-B7C15A1	—	—	—
ControlNet and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K7C15A2	2711P-T7C15A2	2711P-B7C15A2	2711P-K7C15A6	2711P-T7C15A6	2711P-B7C15A6
ControlNet and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K7C15A7	2711P-T7C15A7	2711P-B7C15A7

✶ Select extended memory option for projects with memory intensive (18-bit color) bitmaps, historical trending, or data logging.

PanelView Plus and PanelView Plus CE 1000 Color

Description	PanelView Plus Cat. No.			PanelView Plus CE Cat. No.		
10.4-inch TFT Display	**Keypad**	**Touch**	**Key/Touch**	**Keypad**	**Touch**	**Key/Touch**
Standard Communications (Ethernet and RS-232), DC Input, 64 MB Flash/RAM	2711P-K10C4D1	2711P-T10C4D1	2711P-B10C4D1	—	—	—
Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM ✶	2711P-K10C4D2	2711P-T10C4D2	2711P-B10C4D2	2711P-K10C4D6	2711P-T10C4D6	2711P-B10C4D6
Standard Communications (Ethernet and RS-232), DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C4D7	2711P-T10C4D7	2711P-B10C4D7
Standard Communications (Ethernet and RS-232), AC Input, 64 MB Flash/RAM	2711P-K10C4A1	2711P-T10C4A1	2711P-B10C4A1	—	—	—
Standard Communications (Ethernet and RS-232), AC Input, 128 MB Flash/RAM ✶	2711P-K10C4A2	2711P-T10C4A2	2711P-B10C4A2	2711P-K10C4A6	2711P-T10C4A6	2711P-B10C4A6
Standard Communications (Ethernet and RS-232), AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C4A7	2711P-T10C4A7	2711P-B10C4A7
DH+, DH-485, RIO and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K10C6D1	2711P-T10C6D1	2711P-B10C6D1	—	—	—
DH+, DH-485, RIO and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K10C6D2	2711P-T10C6D2	2711P-B10C6D2	2711P-K10C6D6	2711P-T10C6D6	2711P-B10C6D6
DH+, DH-485, RIO and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C6D7	2711P-T10C6D7	2711P-B10C6D7
DH+, DH-485, RIO and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K10C6A1	2711P-T10C6A1	2711P-B10C6A1	—	—	—
DH+, DH-485, RIO and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K10C6A2	2711P-T10C6A2	2711P-B10C6A2	2711P-K10C6A6	2711P-T10C6A6	2711P-B10C6A6
DH+, DH-485, RIO and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C6A7	2711P-T10C6A7	2711P-B10C6A7
ControlNet and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K10C15D1	2711P-T10C15D1	2711P-B10C15D1	—	—	—
ControlNet and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K10C15D2	2711P-T10C15D2	2711P-B10C15D2	2711P-K10C15D6	2711P-T10C15D6	2711P-B10C15D6
ControlNet and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C15D7	2711P-T10C15D7	2711P-B10C15D7
ControlNet and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K10C15A1	2711P-T10C15A1	2711P-B10C15A1	—	—	—
ControlNet and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K10C15A2	2711P-T10C15A2	2711P-B10C15A2	2711P-K10C15A6	2711P-T10C15A6	2711P-B10C15A6
ControlNet and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K10C15A7	2711P-T10C15A7	2711P-B10C15A7

✶ Select extended memory option for projects with memory intensive (18-bit color) bitmaps, historical trending, or data logging.

PanelView Plus and PanelView Plus CE 1250 Color

Description	PanelView Plus Cat. No.			PanelView Plus CE Cat. No.		
12.1-inch TFT Display	**Keypad**	**Touch**	**Key/Touch**	**Keypad**	**Touch**	**Key/Touch**
Standard Communications (Ethernet and RS-232), DC Input, 64 MB Flash/RAM	2711P-K12C4D1	2711P-T12C4D1	2711P-B12C4D1	—	—	—
Conformal-Coated, Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM ✶	—	2711P-T12C4D2K	—	—	2711P-T12C4D6K	—
Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM ✶	2711P-K12C4D2	2711P-T12C4D2	2711P-B12C4D2	2711P-K12C4D6	2711P-T12C4D6	2711P-B12C4D6
Standard Communications (Ethernet and RS-232), DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K12C4D7	2711P-T12C4D7	2711P-B12C4D7
Standard Communications (Ethernet and RS-232), AC Input, 64 MB Flash/RAM	2711P-K12C4A1	2711P-T12C4A1	2711P-B12C4A1	—	—	—
Standard Communications (Ethernet and RS-232), AC Input, 128 MB Flash/RAM ✶	2711P-K12C4A2	2711P-K12C4A2	2711P-B12C4A2	2711P-K12C4A6	2711P-K12C4A6	2711P-B12C4A6
Standard Communications (Ethernet and RS-232), AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K12C4A7	2711P-K12C4A7	2711P-B12C4A7
DH+, DH-485, RIO and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K12C6D1	2711P-T12C6D1	2711P-B12C6D1	—	—	—
DH+, DH-485, RIO and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K12C6D2	2711P-T12C6D2	2711P-B12C6D2	2711P-K12C6D6	2711P-T12C6D6	2711P-B12C6D6
DH+, DH-485, RIO and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K12C6D7	2711P-T12C6D7	2711P-B12C6D7
DH+, DH-485, RIO and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K12C6A1	2711P-T12C6A1	2711P-B12C6A1	—	—	—
DH+, DH-485, RIO and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K12C6A2	2711P-T12C6A2	2711P-B12C6A2	2711P-K12C6A6	2711P-T12C6A6	2711P-B12C6A6
DH+, DH-485, RIO and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K12C6A7	2711P-T12C6A7	2711P-B12C6A7
ControlNet and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K12C15D1	2711P-T12C15D1	2711P-B12C15D1	—	—	—
ControlNet and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K12C15D2	2711P-T12C15D2	2711P-B12C15D2	2711P-K12C15D6	2711P-T12C15D6	2711P-B12C15D6
ControlNet and Standard Communications, DC Input, 256 MB Flash/RAM✶	—	—	—	2711P-K12C15D7	2711P-T12C15D7	2711P-B12C15D7
ControlNet and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K12C15A1	2711P-T12C15A1	2711P-B12C15A1	—	—	—
ControlNet and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K12C15A2	2711P-T12C15A2	2711P-B12C15A2	2711P-K12C15A6	2711P-T12C15A6	2711P-B12C15A6
ControlNet and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K12C15A7	2711P-T12C15A7	2711P-B12C15A7

✶ Select extended memory option for projects with memory intensive (18-bit color) bitmaps, historical trending, or data logging.

PanelView Plus and PanelView Plus CE 1500 Color

Description	PanelView Plus Cat. No.			PanelView Pus CE Cat. No.		
15-inch TFT Display	**Keypad**	**Touch**	**Key/Touch**	**Keypad**	**Touch**	**Key/Touch**
Standard Communications (Ethernet and RS-232), DC Input, 64 MB Flash/RAM	2711P-K15C4D1	2711P-T15C4D1	2711P-B15C4D1	—	—	—
Standard Communications (Ethernet and RS-232), DC Input, 128 MB Flash/RAM	2711P-K15C4D2	2711P-T15C4D2	2711P-B15C4D2	2711P-K15C4D6	2711P-T15C4D6	2711P-B15C4D6
Standard Communications (Ethernet and RS-232), DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C4D7	2711P-T15C4D7	2711P-B15C4D7
Standard Communications (Ethernet and RS-232), AC Input, 64 MB Flash/RAM	2711P-K15C4A1	2711P-T15C4A1	2711P-B15C4A1	—	—	—
Standard Communications (Ethernet and RS-232), AC Input, 128 MB Flash/RAM ✶	2711P-K15C4A2	2711P-T15C4A2	2711P-B15C4A2	2711P-K15C4A6	2711P-T15C4A6	2711P-B15C4A6
Standard Communications (Ethernet and RS-232), AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C4A7	2711P-T15C4A7	2711P-B15C4A7
DH+, DH-485, RIO and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K15C6D1	2711P-T15C6D1	2711P-B15C6D1	—	—	—
DH+, DH-485, RIO and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K15C6D2	2711P-T15C6D2	2711P-B15C6D2	2711P-K15C6D6	2711P-T15C6D6	2711P-B15C6D6
DH+, DH-485, RIO and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C6D7	2711P-T15C6D7	2711P-B15C6D7
DH+, DH-485, RIO and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K15C6A1	2711P-T15C6A1	2711P-B15C6A1	—	—	—
DH+, DH-485, RIO and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K15C6A2	2711P-T15C6A2	2711P-B15C6A2	2711P-K15C6A6	2711P-T15C6A6	2711P-B15C6A6
DH+, DH-485, RIO and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C6A7	2711P-T15C6A7	2711P-B15C6A7
ControlNet and Standard Communications, DC Input, 64 MB Flash/RAM	2711P-K15C15D1	2711P-T15C15D1	2711P-B15C15D1	—	—	—
ControlNet and Standard Communications, DC Input, 128 MB Flash/RAM ✶	2711P-K15C15D2	2711P-T15C15D2	2711P-B15C15D2	2711P-K15C15D6	2711P-T15C15D6	2711P-B15C15D6
ControlNet and Standard Communications, DC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C15D7	2711P-T15C15D7	2711P-B15C15D7
ControlNet and Standard Communications, AC Input, 64 MB Flash/RAM	2711P-K15C15A1	2711P-T15C15A1	2711P-B15C15A1	—	—	—
ControlNet and Standard Communications, AC Input, 128 MB Flash/RAM ✶	2711P-K15C15A2	2711P-T15C15A2	2711P-B15C15A2	2711P-K15C15A6	2711P-T15C15A6	2711P-B15C15A6
ControlNet and Standard Communications, AC Input, 256 MB Flash/RAM ✶	—	—	—	2711P-K15C15A7	2711P-T15C15A7	2711P-B15C15A7

✶ Select extended memory option for projects with memory intensive (18-bit color) bitmaps, historical trending, or data logging.

Product Accessories

Display Modules

Cat. No.	Description
2711P-RDK7C	PanelView Plus and PanelView Plus CE 700 Color Keypad Display Module
2711P-RDT7C	PanelView Plus and PanelView Plus CE 700 Color Touch Screen Display Module
2711P-RDT7CK	PanelView Plus and PanelView Plus CE 700 Conformal-coated Color Touch Screen Display Module
2711P-RDB7C	PanelView Plus and PanelView Plus CE 700 Color Keypad/Touch Display Module
2711P-RDK10C	PanelView Plus and PanelView Plus CE 1000 Color Keypad Display Module
2711P-RDT10C	PanelView Plus and PanelView Plus CE 1000 Color Touch Screen Display Module
2711P-RDB10C	PanelView Plus and PanelView Plus CE 1000 Color Keypad/Touch Display Module
2711P-RDK12C	PanelView Plus and PanelView Plus CE 1250 Color Keypad Display Module
2711P-RDT12AG	PanelView Plus and PanelView Plus CE 1250 Color Touch Screen Display Module with Antiglare Overlay
2711P-RDT12CK	PanelView Plus and PanelView Plus CE 1250 Conformal-coated Color Touch Screen Display Module
2711P-RDT12C	PanelView Plus and PanelView Plus CE 1250 Color Touch Screen Display Module
2711P-RDB12C	PanelView Plus and PanelView Plus CE 1250 Color Keypad/Touch Display Module
2711P-RDT12H	PanelView Plus and PanelView Plus CE 1250 Color High-Bright Touch Screen Display Module
2711P-RDK15C	PanelView Plus and PanelView Plus CE 1500 Color Keypad Display Module
2711P-RDT15C	PanelView Plus and PanelView Plus CE 1500 Color Touch Screen Display Module
2711P-RDT15AG	PanelView Plus and PanelView Plus CE 1500 Color Touch Screen Display Module with Antiglare Overlay
2711P-RDB15C	PanelView Plus and PanelView Plus CE 1500 Color Keypad/Touch Display Module

Communication Modules

Cat. No.	Description
PanelView Plus and PanelView Plus CE 700 to 1500 Terminals	
2711P-RN6	DH+/DH-485/Remote I/O Communication Module for PanelView Plus 700-1500 and PanelView Plus CE
2711P-RN10H	DeviceNet Communication Module for PanelView Plus 700-1500 and PanelView Plus CE
2711P-RN15S	ControlNet Scheduled and Unscheduled Communication Module for PanelView Plus 700-1500 and PanelView Plus CE
PanelView Plus 400 and 600 Terminals	
2711P-RN1	Single Rack Remote I/O Communication Module for PanelView Plus 400 and 600
2711P-RN3	DH-485 Communication Module for PanelView Plus 400 and 600
2711P-RN8	DH+ Communication Module for PanelView Plus 400 and 600
2711P-RN10C	DeviceNet Communication Module for PanelView Plus 400 and 600
2711P-RN15C	ControlNet Scheduled and Unscheduled Communication Module for PanelView Plus 400 and 600
2711P-RN22C	RS-232 Isolated Communication Module for PanelView Plus 400 and 600

Logic Modules

Cat. No.	Description
Logic Modules for PanelView Plus and PanelView Plus CE 700 to 1500 Terminals	
2711P-RP	Logic Module without Flash/RAM Memory, DC Input
2711P-RPA	Logic Module without Flash/RAM Memory, AC Input
Logic Modules for PanelView Plus 700 to 1500 Terminals	
2711P-RP1	Logic Module with 64 MB Flash/64 MB RAM, DC Input
2711P-RP1A	Logic Module with 64 MB Flash/64 MB RAM, AC Input
2711P-RP2	Logic Module with 128 MB Flash/128 MB RAM, DC Input
2711P-RP2A	Logic Module with 128 MB Flash/128 MB RAM, AC Input
2711P-RP2K	Conformal-coated Logic Module with 128 MB Flash/128 MB RAM, DC Input
2711P-RP3	Logic Module with 256 MB Flash/256 MB RAM, DC Input
2711P-RP3A	Logic Module with 256 MB Flash/256 MB RAM, AC Input
Logic Modules for PanelView Plus CE 700 to 1500 Terminals	
2711P-RP6	PanelView Plus CE Logic Module with 128 MB Flash/128 MB RAM, DC Input
2711P-RP6A	PanelView Plus CE Logic Module with 128 MB Flash/128 MB RAM, AC Input
2711P-RP6K	PanelView Plus CE Conformal-coated Logic Module with 128 MB Flash/128 MB RAM, DC Input
2711P-RP7	PanelView Plus CE Logic Module with 256 MB Flash/256 MB RAM, DC Input
2711P-RP7A	PanelView Plus CE Logic Module with 256 MB Flash/256 MB RAM, AC Input

Internal CompactFlash Cards

Cat. No.	Description
PanelView Plus 700 to 1500 Terminals	
2711P-RW1	64 MB Internal CompactFlash Card with FactoryTalk View Machine Edition Software
2711P-RW2	128 MB Internal CompactFlash Card with FactoryTalk View Machine Edition Software
2711P-RW3	256 MB Internal CompactFlash Card with FactoryTalk View Machine Edition Software
PanelView Plus CE 700 to 1500 Terminals	
2711P-RW6	128 MB Internal CompactFlash Card with Open Windows CE Operating System and FactoryTalk View Machine Edition Software
2711P-RW7	256 MB Internal CompactFlash Card with Open Windows CE Operating System and FactoryTalk View Machine Edition Software
2711P-RW8	512 MB Internal CompactFlash Card with Open Windows CE Operating System and FactoryTalk View Machine Edition Software

RAM Memory for 700 to 1500 Terminals

Cat. No.	Description
2711P-RR64	64 MB SODIMM Memory
2711P-RR128	128 MB SODIMM Memory
2711P-RR256	256 MB SODIMM Memory

Firmware Upgrade Kits for 700 to 1500 Terminals

Cat. No.	Description
2711P-RU310	PanelView Plus Media Kit includes Firmware Upgrade Wizard, 1 Firmware License, Certificate of Authenticity, End User License Agreement.
2711P-RUA310	PanelView Plus Advanced Media Kit includes 6189-RU310 Media Kit, PCMCIA to Compact Flash Adapter, 128 MB Compact Flash Card.
2711P-RUL01	Firmware Upgrade License Kit with one PanelView Plus Firmware License.
2711P-RUL05	Firmware Upgrade License Kit with five PanelView Plus Firmware Licenses.
2711P-RUL10	Firmware Upgrade License Kit with (10) PanelView Plus Firmware Licenses.
2711P-RUL25	Firmware Upgrade License Kit with (25) PanelView Plus Firmware Licenses.
2711P-RUL50	Firmware Upgrade License Kit with (50) PanelView Plus Firmware Licenses.

Power Supply

Cat. No.	Description
2711P-RSACDIN	DIN-rail Mount AC-to-DC Power Supply, 85…265V ac, 47…63 Hz, for PanelView Plus 700-1500 and PanelView Plus CE

External Compact Flash Cards

Cat. No.	Description
2711P-RC2	128 MB Blank CompactFlash Card
2711P-RC3	256 MB Blank CompactFlash Card
2711P-RC4	512 MB Blank CompactFlash Card
2711P-RCH	CompactFlash to PCMCIA Adapter

Function Key Legend Inserts

Cat. No.	Description
2711P-RFK6	Keypad Printable Blank Legends and Software for PanelView Plus 600
2711P-RFK7	Keypad Printable Blank Legends and Software for PanelView Plus and PanelView Plus CE 700
2711P-RFK10	Keypad Printable Blank Legends and Software for PanelView Plus and PanelView Plus CE 1000
2711P-RFK12	Keypad Printable Blank Legends and Software for PanelView Plus and PanelView Plus CE 1250
2711P-RFK15	Keypad Printable Blank Legends and Software for PanelView Plus and PanelView Plus CE 1500

Backlight Replacements

Cat. No.	Description
2711P-RL7C	Color Backlight for PanelView Plus and PanelView Plus CE 700 Series A and B Displays
2711P-RL7C2	Color Backlight for PanelView Plus and PanelView Plus CE 700 Series C Displays
2711P-RL10C	Color Backlight for PanelView Plus and PanelView Plus CE 1000 Series A Displays
2711P-RL10C2	Color Backlight for PanelView Plus and PanelView Plus CE 1000 Series B and C Displays
2711P-RL12C	Color Backlight for PanelView Plus and PanelView Plus CE 1250 Series A and B Displays
2711P-RL12C2	Color Backlight for PanelView Plus and PanelView Plus CE 1250 Series C Displays
2711P-RL15C	Color Backlight for PanelView Plus and PanelView Plus CE 1500 Series B Displays

Bezel Replacements

Cat. No.	Description
2711P-RBK7	Replacement Bezel for PanelView Plus and PanelView Plus CE 700 Keypad Terminals
2711P-RBT7	Replacement Bezel for PanelView Plus and PanelView Plus CE 700 Touch Sceen Terminals
2711P-RBB7	Replacement Bezel for PanelView Plus and PanelView Plus CE 700 Keypad and Keypad/Touch Terminals
2711P-RBK10	Replacement Bezel for PanelView Plus and PanelView Plus CE 1000 Keypad Terminals
2711P-RBT10	Replacement Bezel for PanelView Plus and PanelView Plus CE 1000 Touch Terminals
2711P-RBB10	Replacement Bezel for PanelView Plus and PanelView Plus CE 1000 Keypad and Keypad/Touch Terminals
2711P-RBK12	Replacement Bezel for PanelView Plus and PanelView Plus 1250 Keypad Terminals
2711P-RBT12	Replacement Bezel for PanelView Plus and PanelView Plus CE 1250 Touch Terminals
2711P-RBT12H	Replacement Bezel for PanelView Plus and PanelView Plus CE 1250 Touch High-Bright Displays
2711P-RBB12	Replacement Bezel for PanelView Plus and PanelView Plus CE 1250 Keypad and Keypad/Touch Terminals
2711P-RBK15	Replacement Bezel for PanelView Plus and PanelView Plus CE 1500 Keypad Terminals
2711P-RBT15	Replacement Bezel for PanelView Plus and PanelView Plus CE 1500 Touch Terminals
2711P-RBB15	Replacement Bezel for PanelView Plus and PanelView Plus CE 1500 Keypad and Keypad/Touch Terminals

Antiglare Overlays

Cat. No. ✶	Description
2711P-RGK4	Antiglare Overlay for PanelView Plus 400 Keypad
2711P-RGK6	Antiglare Overlay for PanelView Plus 600 Keypad or Keypad/Touch
2711P-RGT6	Antiglare Overlay for PanelView Plus 600 Touch
2711P-RGK7	Antiglare Overlay for PanelView Plus and PanelView Plus CE 700 Keypad or Keypad/Touch
2711P-RGT7	Antiglare Overlay for PanelView Plus and PanelView Plus CE 700 Touch
2711P-RGK10	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1000 Keypad or Keypad/Touch
2711P-RGT10	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1000 Touch
2711P-RGK12	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1250 Keypad or Keypad/Touch
2711P-RGT12	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1250 Touch and High-Bright Touch
2711P-RGK15	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1500 Keypad or Keypad/Touch
2711P-RGT15	Antiglare Overlay for PanelView Plus and PanelView Plus CE 1500 Touch

✶ All catalog numbers ship with a quantity of three overlays.

Adapter Plates

Cat. No.	Description
2711P-RAK4	Adapts PanelView Plus 400 Keypad or 600 Touch to PanelView Standard 550 Keypad
2711P-RAK6	Adapts a PanelView Plus 600 Keypad to a PanelView Standard 600 Keypad
2711P-RAK7	Adapts a PanelView Plus and PanelView Plus CE 700 Keypad or Keypad/Touch to a PanelView Standard 900 Keypad
2711P-RAT7	Adapts a PanelView Plus and PanelView Plus CE 700 Touch to a PanelView Standard 900 Touch
2711P-RAK10	Adapts a PanelView Plus and PanelView Plus CE 1000 Keypad or Keypad/Touch to a PanelView 1000/1000E Keypad
2711P-RAT10	Adapts a PanelView Plus and PanelView Plus CE 1000 Touch to a PanelView 1000/1000E Touch
2711P-RAK15	Adapts a PanelView Plus and PanelView Plus CE 1500 Keypad or Keypad/Touch to a PanelView 1200E/1400E Keypad
2711P-RAT15	Adapts a PanelView Plus and PanelView Plus CE 1500 Touch to a PanelView 1200E/1400E Touch
2711P-RAK12E	Adapts a PanelView Plus and PanelView Plus CE 1250 (or PV1000/1000E) Keypad or Keypad/Touch to a PanelView 1200/1400E Keypad
2711P-RAT12E2	Adapts a PanelView Plus and PanelView Plus CE 1250 (or PV1000/1000E) Touch to a PanelView 1200 Touch
2711P-RAT12E	Adapts a PanelView Plus and PanelView Plus CE 1250 (or PV1000/1000E) Touch to a PanelView 1200E/1400E Touch
2711P-RAK12S	Adapts a PanelView Plus and PanelView Plus CE 1250 (or PV1000/1000E) Keypad or Keypad/Touch to a PanelView Standard 1400 Keypad
2711P-RAT12S	Adapts a PanelView Plus and PanelView Plus CE 1250 (or PV1000/1000E) Touch to a PanelView Standard 1400 Touch

See page 75, Determining Cable Requirements, for cable configuration details.

Cables

Cat. No.	Description
2711-NC13	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 5 m (16.4 ft)
2711-NC14	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 10 m (32.7 ft)
2711-NC17	Remote RS-232 Serial Cable
2711-NC21	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 5 m (16.4 ft)
2711-NC22	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 15 m (49 ft)
1761-CBL-AS03, -AS09	DH-485 Network Interface Cable (6-Pin Phoenix to RJ45)
2711P-CBL-EX04	Ethernet CAT5 Crossover Industrial Cable, 4.3 m (14 ft)

Communication Adapters

Cat. No.	Description
1761-NET-AIC	MicroLogix Advanced Interface Converter Module
1747-AIC	Isolated Link Coupler for use with DH-485 Communication Modules (2711P-RNx)Isolated Link Coupler for Programmable Controller

Miscellaneous

Cat. No.	Description
2711P-RVT12	Solar Visor for PanelView Plus and PanelView Plus CE 1250 High Bright Display Module
2711P-RTFC	Mounting Levers for PanelView Plus 400 and 600 (Quantity 8)
2711P-RTMC	Mounting Clips for PanelView Plus 700-1500 and PanelView Plus CE (Quantity 8)
2711P-RCH	CompactFlash to PCMCIA Adapter
2711P-RY2032	Replacement Battery for PanelView Plus 700-1500 and PanelView Plus CE
2711P-RVAC	AC Power Terminal Block for PanelView Plus 400 and 600 (Quantity 10)
2711-TBDC	DC Power Terminal Block for PanelView Plus 400/600 Terminals and PanelView Micro 300 (Quantity 10)
2711P-RTBDC3	DC Power Terminal Block with 3-pin Connector for PanelView Plus 700-1500 and PanelView Plus CE, Series A-D Logic Modules (Quantity 10)
2711P-RTBDC2	DC Power Terminal Block with 2-pin Connector for PanelView Plus 700-1500 and PanelView Plus CE, Series E and Later Logic Modules (Quantity 10)
2711P-RTBAC3	AC Power Terminal Block for PanelView Plus 700-1500 and PanelView Plus CE (Quantity 10)

Industrial Computer and Selection Guidelines

- *Select system configuration*
  - *Computer with integrated display*
  - *Computer with integrated display and keypad*
  - *Non-display computer and separate monitor*
  - *Non-display computer only*
  - *Monitor only*
- *Select product criteria*
- *Select optional accessories*

Select Industrial Computers and Monitors

The industrial computers and monitors provide a broad product offering of integrated display computers with or without a keypad, non-display computers, and the latest in flat panel monitors. They are built for speed, reliability, flexibility, ease of upgrade, and rugged operation. Whether applied in a control room or factory floor, these products provide you with a solution for just about any environment.

Keeping pace with today's technology is a challenge. That's why all computers and monitors contain the latest technology so you don't have to worry about losing performance or competitive advantage. Plus, all computers are packaged with standard and performance features to help you make the correct choice for every application. Computers and monitors offer:

- **Cost-effective industrial solution** for demanding industrial environments. This product line can integrate control and information across your entire factory architecture. Whether it's viewing your factory floor, maintaining equipment, controlling production, or collecting information, count on industrial computers and monitors to lower your total cost of operation and increase your productivity.
- **Effective technology management** means components are chosen to maintain that balance of performance and longevity while meeting industrial specifications. Whether it's the processor, memory, or storage media, you can order the same catalog number time after time, with the assurance that you will receive the latest technology from Rockwell Automation.
- **Easy product configuration** simplifies catalog ordering, which means no more catalog numbers to configure. Few products lend themselves to customization like industrial computers and monitors because there are so many choices to make such as display size, memory size, storage drive capacity, and processor selection. The computers are pre-packaged with the options you need for virtually any industrial application.
- **Immediate Exchange** if your computer or monitor fails. A simple request through your Allen-Bradley distributor takes care of it - no need to wait weeks for a repair.

See how companies around the world use this product: www.rockwellautomation.com/casestudies

Integrated Display Computers Selection Guidelines

- *Select solid state or rotating media*
- *Select display size*
- *Select standard or performance package*
- *Select operator input: optional touch screen*
- *Select bezel type (model dependent)*

Integrated Display Computers

The 1200P, 1500P, and 1700P integrated display computers combine a TFT flat panel display with industrial computing power capable of performing visual interface, maintenance, and basic information applications. These panel mount devices offer 12.1, 15 and 17-inch displays with a resistive touch screen option for operator input, and solid state IDE flash drive or rotating media options. When panel space is limited, the 12.1-inch display provides a space saving option. If viewing every aspect of an operation is critical, the larger displays offer even more flexibility. Plus each rotating-media model offers standard and performance features with prepackaged options for easy product selection.

By combining industrial hardened monitors and computers in a single machine, these panel mounted computers provide an entire solution in one chassis and catalog number. Because there are no external monitor cables or separate component mounting requirements, system integration is simplified.

The integrated display computers support multiple communications. All units come standard with Ethernet and serial ports.

Benefits

- Offers a range of display sizes with a resistive touch screen option for operator input
- Features standard and performance models with prepackaged options for easy product selection
- Offers aluminum or stainless steel bezels for varying application requirements
- Provides a complete package for immediate startup
- Provides technology change management - no catalog numbers to configure or become outdated
- Includes a cloning utility for system backup and restore
- Includes a diagnostic utility for hardware analysis and system troubleshooting
- Offers quick delivery on most industrial computer and monitor orders
- Reduces downtime through unit-level immediate exchange program
- Premier compatibility with FactoryTalk View software

Computers with Rotating Media (6181P)

All models of the 6181P standard computer offer traditional rotating media storage in a slim form factor. The 2.5-inch IDE hard drive offers storage that is sufficient to run most of the Rockwell Software suite of products, such as FactoryTalk View Site Edition, FactoryTalk View Machine Edition, and RSView32. All models ship with the Windows XP Professional operating system providing flexibility and compatibility for your applications.

Large capacity and low cost are the principal advantages of hard-drive technology. That makes hard drives an economical storage element for applications that require a large amount of storage, especially in environments that are not susceptible to vibration, shock, and temperature fluctuations. Because hard drives with rotating media are replaceable components, computers with these drives do require preventive maintenance.

Computers with Solid State IDE Flash Drives (6181F)

All models of the 6181F integrated display computers offer solid state IDE flash drives as an alternate choice for data storage. These storage devices do not contain the moving parts of traditional rotating media, making it a more reliable choice for data storage. Solid state drives are most effective for applications where I/O response time is critical. Some of the advantages of solid state drives include:

- Greater resilience to physical vibration, shock, and extreme temperature fluctuations
- Absence of moving parts means no mechanical wear-out
- Higher capacity storage and data integrity
- Drop-in replacement for standard rotating media
- Integrated error detection and correction mechanism, and technology improves data reliability

These computers ship with Windows XP Professional for solid state drives. This operating system minimizes the memory consumption of a solid state drive, while still allowing the flexibility of a standard Windows XP Professional operating system.

Integrated Display Computer With Keypad Selection Guidelines

- *Select display size*
- *Select standard or performance package*
- *Select operator input: keypad, keypad and touch*
- *Determine power requirements*

Integrated Display Computer with Keypad

The 1200P and 1500P integrated display computers with a keypad let you run demanding visual interface, maintenance, control and basic information applications from one machine. Expansion capabilities (1 full-length ISA slot, 2 full-length PCI slots and 1 1/2 length PCI slot) add to the versatility. These panel-mount machines offer a 12.1 or 15-inch flat panel display, 44 or 36 programmable function keys, a full alphanumeric keypad, and resistive touch screen option. Plus, each model is available with a standard or performance package to meet your specific needs.

With its integrated display and configurable keypads, these powerful and rugged computers can function as both an industrial computer and an operator input station. The absence of external monitor cables and separate component mounting requirements allows for simple system integration.

Like all industrial computers, the integrated display computers with a keypad support multiple communications. All units come standard with Ethernet and serial ports.

Benefits

- Provides a complete package for immediate startup
- Features standard and performance models with prepackaged options for easy product selection
- Provides technology change management - no catalog numbers to configure or become outdated
- Features configurable keys, full alphanumeric keypad, and resistive touch screen option for flexible operator input
- Offers ac or dc power to meet a wide range of application requirements
- Includes a cloning utility for system backup and restore
- Includes a diagnostic utility for hardware analysis and system troubleshooting
- Offers quick delivery on most industrial computer and monitor orders
- Reduces downtime through unit-level immediate exchange program
- Premier compatibility with FactoryTalk View software

Non-Display Computer Selection Guidelines

- *Select form factor*
- *Select standard or performance package*
- *Determine mounting requirements*

Non-Display Computers

The non-display industrial computers provide the functionality needed to run factory operations from small visual interface and maintenance applications to large control and information applications. Pairing a powerful non-display computer with an industrial monitor produces a workstation capable of directing machines and processes, displaying maintenance information, controlling non-critical processes using SoftLogix, and serving production information for use in decision-making.

All variations of the non-display computers offer modern computer technology in industrially hardened cases. With a variety of mounting options available, you can mount an industrial non-display computer almost anywhere in the plant.

Like all industrial computers, the non-display computers support multiple communications. All units come standard with Ethernet and serial ports.

Benefits

- Provides a complete package for immediate startup
- Features standard and performance models with prepackaged options for easy product selection
- Offers rack, bench/tabletop, machine, and DIN rail mounting options
- Provides technology change management - no catalog numbers to configure or become outdated
- Includes a cloning utility for system backup and restore
- Includes a diagnostic utility for hardware analysis and system troubleshooting
- Offers quick delivery on most industrial computer and monitor orders
- Reduces downtime through unit-level immediate exchange program
- Premier compatibility with FactoryTalk View software

Industrial Non-Display Computers (750R, 1450R)

Enhance the performance of your application with the powerful, industrial non-display computers. Whether applied in a control room environment or on the factory floor, these computers can match your industrial needs. Designed for industrial environments, these computers can withstand these environmental conditions.

- Temperatures up to 45 °C
- Operating vibrations of 1.0 g
- Operating shock of 15 g

Built to meet today's demanding technology requirements, the non-display computers offer great flexibility at a competitive price. Both the 750R and 1450R are available in standard and performance models. The performance models typically include extended RAM, enhanced CPU performance, and extra optical drive features. The 750R and 1450R also share the same motherboard, offering an 800 MHz front side bus (FSB).

Both models ship with two shock-mounted, hard drive bays that are front accessible. The bottom bay contains a hard drive as original equipment and is rated for 24/7 operations. By loosening just two screws, an additional drive can be installed or a drive replaced.

Compact Industrial Non-Display Computers (200R)

For the most rugged industrial environments where endurance to high temperature, shock, and vibration is critical, these compact industrial non-display computers are the answer. These computers can withstand the following environmental conditions.

- Temperatures up to 50 °C
- Operating vibrations of 1.0 g
- Operating shock of 15 g

All models provide consumer-grade processing power in industrially hardened packages. Combine the small form factor of the 200R non-display computer with an industrial monitor to create a compact way to view drawings, modify ladder logic, and review manuals. Plus, the 200R is available with either rotating media or solid-state drive.

Monitor Selection Guidelines

- *Select display size*
- *Determine mounting requirements*
- *Select bezel type (model dependent)*

Industrial Monitors

Visualizing your application's critical information just got easier. The industrial monitors offer industry leading reliability at very competitive prices. Whether your visualization application is on the factory floor or in a control room, the monitor portfolio has the mounting configuration and interface options you require.

The industrial monitors deliver the latest in LCD flat panel technology for both the less demanding and more rugged industrial environments. Combine these monitors with any of the non-display computers to create a powerful visualization, maintenance, control, or information computing solution. The monitors provide a bright, clear picture on a resistive or capacitive touch screen using an analog or digital video input signal. Video adjustment is easy using the one button automatic setup function. For additional fine-tuning, control buttons and onscreen (OSD) menus are available.

Benefits

- Offers monitor solutions to meet the requirements of the less demanding and more rugged industrial environments
- Provides a space saving flat panel design for panel, Vesa, rack, bench/tabletop, and wall mount configurations
- Configures easily using one button automatic setup of monitor settings
- Features an optional resistive or capacitive antiglare touch screen for operator input
- Provides both VGA and DVI video inputs
- Includes all required cables and power supply for immediate startup
- Provides Class 1 Division 2 certifications for use in hazardous locations
- Uses the standard U9-size cutout, making the 19-inch flat panel monitors an easy drop-in replacement for aging CRT and smaller TFT displays
- Offers quick delivery on most industrial computer and monitor orders
- Reduces downtime through unit-level immediate exchange program

Industrial Monitors (1550M, 1750M, 1950M)

For cleaner, less demanding environments that do not require endurance to high temperature, shock and vibration, these industrial monitors can withstand the following environmental conditions.

- Temperatures up to 45 °C
- Operating vibrations of 1.0 g
- Operating shock of 15 g

You can select from 15, 17, or 19-inch display sizes and Vesa or panel mount configurations. For models that mount to articulating arms or desktop stands, the Vesa mount configuration gives a clean, "desktop" look. The panel mount configuration provides a NEMA Type 4, IEC IP66 enclosure seal. Both of these popular configurations feature a metal reinforced infrastructure.

The monitors are designed for ease of use. All monitors have USB and RS-232 touch screen inputs, DVI and VGA inputs, OSD menus for image rotation, color palette changes and a simple auto reset with just the push of a button.

Industrial Monitors (1200M, 1500M, 1700M, 1900M)

For more demanding environments with high temperature, shock and vibration requirements, these industrial monitors provide the ruggedness needed to withstand these environmental conditions.

- Temperatures up to 50 °C
- Operating vibrations of 2.0 g
- Operating shock of 20 g

Besides offering a range of display sizes, all monitors can be panel, rack, bench/tabletop, or wall mounted and are Vesa mount ready. The 19-inch monitor shares the same 9U form factor as smaller 18-inch TFT displays and 19 or 20-inch CRTs making upgrades that much easier. As a drop-in replacement for Allen-Bradley 6185-D/6157-C and Intecolor FP18/E19 panel mount units, the 19-inch monitor lets you take advantage of the latest technology without redesigning your panels.

The 12.1-inch monitor has an aluminum bezel, while the 15, 17, and 19-inch displays are available with aluminum or stainless steel bezels. For additional application flexibility, all models support ac or dc power.

For applications that demand system survival in the harshest environments, these industrial monitors are up to the challenge. All of the monitors meet Class 1, Division 2, and Zone 2 requirements for operations in North American hazardous locations.

Specifications

6181P Integrated Display Computers with Rotating Media

6181P	1200P ✶	1500P	1700P
Display			
Display Description	Color Active Matrix TFT Flat Panel Display		
Display Size	12.1 inch	15 inch	17 inch
Display Area (WxH)	246 x 185 mm (9.7 x 7.3 in)	305 x 229 mm (12 x 9 in)	338 x 270 mm (13.3 x 10.7 in)
Resolution	800 x 600 (native mode), 256K colors	1024 x 768 (native mode), 256K colors	1280 x 1024 (native mode), 16.7M colors
Luminance	250 cd/m² (Nits)	350 cd/m² (Nits)	260 cd/m² (Nits)
Backlight	CCFT tubes, 50 000 h (for 1/2 brightness)		
Touch Screen Description	Resistive antiglare		
Bezel	Aluminum	Stainless Steel	
System Components			
Processor Types			
Standard:	Pentium 4 Celeron, 2.0 GHz		
Performance:	Pentium 4, 2.0 GHz		
Expansion Slots Description	2 Half-length PCI, 1 Compact Flash (Type 2)	1 Half-length PCI, 1 Compact Flash (Type 2)	
RAM			
Standard:	512 MB DDR		
Performance:	1 GB DDR		
Hard Drive	40 GB, 2.5 in IDE		
Removable Media			
Standard:	Slim Floppy Drive, Slim CD-ROM Drive		
Performance:	Slim Floppy Drive, Slim DVD-ROM/CD-RW Drive		
I/O	3 Serial ports (4 for non-touch), 2 PS/2 ports (keyboard/mouse), 1 Parallel port, 2 USB 2.0 ports, 10/100 Mbps Ethernet port, 1 VGA port, Audio Line In/Line Out & Microphone		
Operating Systems	Windows XP Professional		
Electrical			
Input Voltage, AC	90…264V ac, autoranging		
Line Frequency	47…63 Hz		
Power Consumption, AC	150VA (1.5 A at 100V rms, 0.63 A at 240V rms)		
Input Voltage, DC	18…32V dc	—	—
Power Consumption, DC	150 W	—	—
Environmental			
Operating Temperature	0…50 °C (32…122 °F)		
Non-Operating Temperature	-20…60 °C (-4…140 °F)		
Relative Humidity	10…90% without condensation		
Vibration	1 g peak, 10…500 Hz		
Vibration, Non-Operating	2 g peak, 10…500 Hz		
Shock, Operating	15 g (1/2 sine, 11 ms)		
Shock, Non-Operating	30 g (1/2 sine, 11 ms)		
Ratings	NEMA Type 1, 12, 4, IEC IP66		
Certifications	UL/c-UL Listed, CE marked, C-Tick		
Mechanical			
Weight	9.2 kg (21 lb)	10 kg (23 lb)	12.6 kg (28 lb)
Dimensions (HxWxD)	279 x 349 x 176 mm 10.99 x 13.75 x 6.93 in	309 x 410 x 109 mm 12.17 x 16.14 x 4.29 in	356 x 452 x 110 mm 14.02 x 17.80 x 4.32 in
Dimensions, Cutout (HxW)	254 x 324 mm 10 x 12.76 in	285.0 x 386.6 mm 11.24 x 15.22 in	329.5 x 424.0 mm 12.97 x 16.69 in
Mounting Options	Panel Mount	Panel Mount, Vesa Mount Ready	

✶ Non-display performance versions of the 1200P are available with AC or DC power.

6181F Integrated Display Computers with Solid State Drive

6181F	1200P ✶	1500P	1700P
Display			
Display Description	Color Active Matrix TFT Flat Panel Display		
Display Size	12.1 inch	15 inch	17 inch
Display Area (WxH)	246 x 185 mm (9.7 x 7.3 in)	305 x 229 mm (12 x 9 in)	338 x 270 mm (13.3 x 10.7 in)
Resolution	800 x 600 (native mode), 256K colors	1024 x 768 (native mode), 256K colors	1280 x 1024 (native mode), 16.7M colors
Luminance	250 cd/m² (Nits)	350 cd/m² (Nits)	260 cd/m² (Nits)
Backlight	CCFT tubes, 50 000 h (for 1/2 brightness)		
Touch Screen Description	Resistive Antiglare		
Bezel	Aluminum	Aluminum or Stainless Steel	
System Components			
Processor Types	Pentium 4, 2.0 GHz		
Expansion Slots Description	2 Half-length PCI, 1 Compact Flash (Type 2)	1 Half-length PCI, 1 Compact Flash (Type 2)	
RAM	1 GB DDR		
Hard Drive	8 GB Solid State Drive, 2.5 in IDE		
Removable Media	Slim DVD-ROM/CD-RW Drive		
I/O	3 Serial ports, 2 PS/2 ports (keyboard/mouse), 1 Parallel port, 2 USB 2.0 ports, 10/100 Mbps Ethernet port, 1 VGA port, Audio Line In/Line Out & Microphone		
Operating Systems	Windows XP Professional for Solid State Drives		
Electrical			
Input Voltage, AC	90…264V ac autoranging		
Line Frequency	47…63 Hz		
Power Consumption, AC	150VA (1.5 A at 100V rms, 0.63 A at 240V rms)		
Environmental			
Operating Temperature	0…50 °C (32…122 °F)		
Non-Operating Temperature	-20…60 °C (-4…140 °F)		
Relative Humidity	10…90% without condensation		
Vibration	1.5 g peak, 10…500 Hz		
Vibration, Non-Operating	2 g peak, 10…500 Hz		
Shock, Operating	15 g (1/2 sine, 11 ms)		
Shock, Non-Operating	30 g (1/2 sine, 11 ms)		
Ratings	NEMA Type 1, 12, 4, IEC IP66		
Certifications	UL/c-UL Listed, CE marked, C-Tick		
Mechanical			
Weight	9.2 kg (21 lb)	10 kg (23 lb)	12.6 kg (28 lb)
Dimensions (HxWxD)	279 x 349 x 176 mm 10.99 x 13.75 x 6.93 in	309 x 410 x 109 mm 12.17 x 16.14 x 4.29 in	356 x 452 x 110 mm 14.02 x 17.80 x 4.32 in
Dimensions, Cutout (HxW)	254 x 324 mm 10 x 12.76 in	285.0 x 386.6 mm 11.24 x 15.22 in	329.5 x 424.0 mm 12.97 x 16.69 in
Mounting Options	Panel Mount	Panel Mount, Vesa Mount	

✶ A non-display version of the 1200P computer is available with 24V dc power and is rated for Class I, Division 2, hazardous locations. This computer does not contain optical drives.

6180P Integrated Display Computers with Keypad

6180P	1200P	1500P
Display		
Display Description	Color Active Matrix TFT Flat Panel Display	Color Active Matrix TFT Flat Panel Display
Display Size	12.1 inch	15 inch
Display Area (WxH)	246 x 185 mm (9.7 x 7.3 in)	305 x 229 mm (12 x 9 in)
Resolution	800 x 600	1024 x 768
Touch Screen Description	Resistive Antiglare	
Keypad Description	36 Function Keys, Full Alphanumeric Keyboard	44 Function Keys, Full Alphanumeric Keyboard
System Components		
Processor Types		
Standard:	Celeron M 1.86 GHz	
Performance:	Core 2 Duo 1.66 GHz	
Expansion Slots Description	1 Full-length PCI, 2 Half-length PCI, 1 Full-length ISA	
RAM		
Standard:	512 MB DDR2	
Performance:	1 GB DDR2	
Hard Drive	80 GB, 3.5 in SATA	
Removable Media		
Standard:	3.5 in Floppy Drive, DVD-ROM/CD-RW Drive	
Performance:	3.5 in Floppy Drive, DVD-RW Drive	
I/O	3 Serial ports, 1 Parallel port, 6 USB 2.0 ports, 2 Ethernet 10/100/1000 Mbps ports, 1 DVI-I port, 3 Audio ports	
Operating Systems	Windows XP Professional	
Electrical		
Input Voltage, AC	90…264V ac, autoswitching	
Line Frequency	47…63 Hz	
Power Consumption, AC	160VA (1.6 A at 100V rms, 0.67 A at 240V rms)	
Input Voltage, DC	19…32V dc	
Power Consumption, DC	180 W (7.5 A at 24V dc)	
Inrush Current at 24V	20 A peak, 5 ms	
Environmental		
Operating Temperature	0…55 °C (32…131 °F)	
Non-Operating Temperature	-20…60 °C (-4…140 °F)	
Relative Humidity	20…90% without condensation	
Vibration	1 g peak, 10…500 Hz	
Vibration, Non-Operating	2 g peak, 10…500 Hz	
Shock, Operating	15 g (1/2 sine, 11 ms)	
Shock, Non-Operating	30 g (1/2 sine, 11 ms)	
Ratings	NEMA Type 4, 12, IEC IP66	
Certifications	UL/c-UL Listed, CE marked, C-Tick	
Mechanical		
Weight	17 kg (37.4 lb)	18.5 kg (40.8 lb)
Dimensions (HxWxD)	311 x 483 x 225 mm 12.25 x 19.01 x 8.86 in	355 x 483 x 225 mm 13.97 x 19.01 x 8.86 in
Dimensions, Cutout (HxW)	279 x 450 mm 10.98 x 17.72 in	326.4 x 429.3 mm 12.85 x 16.90 in
Mounting Options	Panel Mount	Panel Mount

6155R Compact Non-Display Computers with Rotating Media

6155R	200R
System Components	
Display Description	Requires External Monitor
Processor Types	
Standard:	Celeron M 1 GHz
Performance:	Celeron M 1 GHz
Expansion Slots Description	1 CompactFlash Slot (Type 2)
RAM	
Standard:	256 MB SODIMM
Performance:	512 MB SODIMM
Hard Drive	40 GB, 2.5 in IDE
Removable Media	
Standard:	—
Performance:	—
I/O	
Standard:	2 Serial ports, 1 PS/2 port (keyboard/mouse), 1 Ethernet 10/100 Mbps port, 1 VGA port, 4 USB 2.0 ports, 1 Line Audio Out
Performance:	2 Serial ports, 1 PS/2 port (keyboard/mouse), 2 Ethernet 10/100 Mbps ports, 1 VGA port, 4 USB 2.0 ports, 1 Line Audio Out
Operating Systems	Windows XP Professional
Electrical	
Input Voltage, AC	90…264V ac, autoranging
Line Frequency	47…63 Hz
Power Consumption, AC	30VA (0.5 A at 100V rms, 0.28 A at 240V rms)
Environmental	
Operating Temperature	0…50 °C (32…122 °F)
Non-Operating Temperature	-20…60 °C (-4…140 °F)
Relative Humidity	10…90% without condensation
Vibration	1 Grms random
Vibration, Non-Operating	2 g peak, 10…500 Hz
Shock, Operating	15 g (1/2 sine, 11 ms)
Shock, Non-Operating	30 g (1/2 sine, 11 ms)
Ratings	NEMA Type 1
Certifications	UL/c-UL Listed, CE marked, C-Tick
Mechanical	
Weight	2.1 kg (4.7 lb)
Dimensions (HxWxD)	115 x 172 x 150 mm 4.54 x 6.78 x 5.91 in
Mounting Options	DIN Rail, Machine Mount, Vesa Mount

6155F Compact Non-Display Computers with Solid State Drive

6155F	200R
System Components	
Display Description	Requires External Monitor
Processor Types	Celeron M 1 GHz
Expansion Slots Description	1 CompactFlash Slot (Type 2)
RAM	1 GB
Hard Drive	8 GB Solid State Drive
Removable Media	—
I/O	2 Serial ports, 1 PS/2 port (keyboard/mouse), 2 Ethernet 10/100 Mbps ports, 1 VGA port, 4 USB 2.0 ports, Audio Line Out
Operating Systems	Windows XP Professional for Solid State Drives
Electrical	
Input Voltage, AC	90…264V ac, autoranging
Line Frequency	47…63 Hz
Power Consumption, AC	30 W (0.5 A at 100V rms, 0.28 A at 240V rms)
Input Voltage, DC	9…36V dc
Power Consumption, DC	30VA (0.84 A at 36V dc, 3.34 A at 9V dc)
Environmental	
Operating Temperature	0…50 °C (32…122 °F)
Non-Operating Temperature	-20…60 °C (-4…140 °F)
Relative Humidity	10…90% without condensation
Vibration	2 g peak, 10…500 Hz
Vibration, Non-Operating	2 g peak, 10…500 Hz
Shock, Operating	15 g (1/2 sine, 11 ms)
Shock, Non-Operating	30 g (1/2 sine, 11 ms)
Ratings	NEMA Type 1
Certifications	UL/c-UL Listed, CE marked, C-Tick
Mechanical	
Weight	2.5 kg (5.6 lb)
Dimensions (HxWxD)	115 x 172 x 150 mm 4.54 x 6.78 x 5.91 in
Mounting Options	DIN Rail, Machine Mount, Vesa Mount

6177R Industrial Non-Display Computers

6177R	750R	1450R
System Components		
Display Description	Requires External Monitor	
Processor Types		
Standard:	Pentium 4 Celeron, 2.66 GHz	
Performance:	Pentium 4, 3.0 GHz	
Advanced (750R):	Pentium 4, 3.0 GHz	
Expansion Slots Description	Half-Length: 3 PCI Slots, 1 PCI-Express Slot	Half-Length: 6 PCI Slots, 1 PCI-Express Slot Half-Length: 5 PCI Slots, 2 ISA Slots, 1 PCI-Express Slot (6144R-R4LXP only)
RAM		
Standard:	512 MB DDR2	
Performance:	1 GB DDR2	
Advanced (750R):	2 GB DDR2	
Hard Drive		
Standard:	80 GB, 3.5 in SATA	
Performance:	80 GB, 3.5 in SATA	
Advanced (750R):	160 GB, 3.5 in SATA	
Advanced (Server OS):	Two 160 GB, 3.5 in SATA Drives configured for RAID 1 operations	
Removable Media		
Standard:	Slim CD-ROM Drive	
Performance:	Slim DVD-ROM/CD-RW Drive	
Advanced:	Slim DVD-RW Drive	
I/O	2 Serial ports, 1 PS/2 Keyboard port, 1 PS/2 Mouse port, 1 Parallel port, 2 Gigabit Ethernet ports (10/100/1000 Mbps), 1 VGA port, 6 USB 2.0 ports (4 rear, 2 front), Audio Line In/Line Out & Microphone	
Operating Systems	Windows XP Professional or Windows 2003 Server R2	
Electrical		
Input Voltage, AC	90…264V ac, autoranging	
Line Frequency	47…63 Hz	
Power Consumption, AC	265VA (2.7 A at 100 Vrms, 1.1 A at 240V rms)	
Environmental		
Operating Temperature	0…45 °C (32…113 °F)	
Non-Operating Temperature	-20…60 °C (-4…140 °F)	
Relative Humidity	10…90% without condensation	
Vibration	1 g peak, 10…640 Hz	
Vibration, Non-Operating	2 g peak, 10…640 Hz	
Shock, Operating	15 g (1/2 sine, 11 ms)	
Shock, Non-Operating	30 g (1/2 sine, 11 ms)	
Ratings	NEMA Type 1	
Certifications	UL/c-UL Listed, CE marked, C-Tick, RoHS compliant, China RoHS	
Mechanical		
Weight	13.8 kg (30.4 lb)	14.0 kg (30.9 lb)
Dimensions (HxWxD)	360 x 170 x 381 mm 14.17 x 6.69 x 15.01 in	176 x 431 x 465 mm 6.93 x 16.97 x 18.31 in
Mounting Options	M4 Machine Mount	4U Rack Mount

6186-M Industrial Monitors

6186-M	1200M	1500M	1700M	1900M
Display				
Display Description	Color Active Matrix TFT Flat Panel Display			
Display Size	12.1 inch	15 inch	17 inch	19 inch
Display Area (WxH)	246 x 185 mm (9.7 x 7.3 in)	305 x 229 mm (12 x 9 in)	338 x 270 mm (13.3 x 10.7 in)	377 x 302 mm (14.8 x 11.9 in)
Bezel	Aluminum	Aluminum or Stainless Steel		
Luminance	400 cd/m² (Nits)	350 cd/m² (Nits)	300 cd/m² (Nits)	300 cd/m² (Nits)
Contrast Ratio	500:1	400:1	500:1	700:1
Resolution	800 x 600 (native mode), 256 K Colors	1024 x 768 (native mode), 256K colors	1280 x 1024 (native mode), 16.2M colors	
Backlight	CCFT tubes, 50 000 h (for 1/2 brightness)			
Video Input Signal	DVI and Analog (VGA)			
Video Interface	HD-15 (5-BNC connector support through cable adapter)	HD-15 or DVI (5-BNC connector support through cable adapter)		
Touch Screen Description	Resistive Antiglare	Resistive Antiglare or Capacitive Antiglare		Resistive Antiglare
OSD Controls/Indicators	Automatic Screen Setup (OSD), Brightness, Contrast, Horizontal/Vertical Position, Image Lock, Color Balance, Video Information, Power On and Sync detected			
Electrical				
Input Voltage, AC	90…264V ac, autoranging			
Line Frequency	47…63 Hz			
Power Consumption, AC	12 W max.	24 W max.	36 W max.	
Input Voltage, DC	12V dc	12V dc or 24V dc		
Environmental				
Operating Temperature	0…50 °C (32…122 °F)			
Non-Operating Temperature	-20…60 °C (-4…140 °F)			
Relative Humidity	10…90% without condensation			
Vibration	2 g peak, 10…640 Hz			
Vibration, Non-Operating	2 g peak, 10…640 Hz			
Shock, Operating	20 g (1/2 sine, 11 ms)			
Shock, Non-Operating	30 g (1/2 sine, 11 ms)			
Ratings	NEMA Type 12, 4, 4X, IEC IP66			
Certifications	UL/c-UL Listed, UL 1604 Hazardous Locations Class 1 Div 2, CE marked, C-Tick			
Mechanical				
Weight	5 kg (11.0 lb)	9 kg (19.8 lb)	10 kg (22.01 lb)	11 kg (24.25 lb)
Dimensions (HxWxD)	260 x 340 x 56 mm 10.24 x 13.39 x 2.21 in	309 x 410 x 58 mm 12.2 x 16.14 x 2.28 in	356 x 452 x 55 mm 14.02 x 17.80 x 2.16 in	399 x 483 x 74 mm 15.7 x 19.0 x 2.9 in
Dimensions, Cutout (HxW)	238 x 318 mm 9.37 x 12.51 in	285.6 x 386.6 mm 11.24 x 15.22 in	329.5 x 424.0 mm 12.97 x 16.69 in	363.5 x 449.6 mm 14.31 x 17.70 in
Mounting Options	Panel, Rack, Bench/Tabletop, Wall, Vesa Mount Ready			

6176M Industrial Monitors

6176M	1550M	1750M	1950M
Display			
Display Description	Color Active Matrix TFT Flat Panel Display		
Display Size	15 inch	17 inch	19 inch
Display Area (WxH)	305 x 229 (12 x 9 in)	338 x 270 mm (13.3 x 10.7 in)	377 x 302 mm (14.8 x 11.9 in)
Luminance	350 cd/m² (Nits)	300 cd/m² (Nits)	300 cd/m² (Nits)
Contrast Ratio	400:1	800:1	800:1
Resolution	1024 x 768 (native mode), 16.7M colors	1280 x 1024 (native mode), 16.7M colors	1280 x 1024 (native mode), 16.7M colors
Backlight	CCFT tubes, 50 000 h (for 1/2 brightness)		
Video Input Signal	DVI and Analog (VGA)		
Touch Screen Description	Resistive Antiglare (RS232 and USB Inputs)		
OSD Controls/Indicators	Automatic Screen Setup (OSD), Brightness, Contrast, Horizontal/Vertical Position, Image Lock, Color Balance, Video Information, and Sync detected		
Electrical			
Input Voltage, AC	90…264V ac, autoranging		
Line Frequency	47…63 Hz		
Power Consumption, AC	2 A at 24 W	3 A at 36 W	3.5 A at 42 W
Input Voltage, DC	12V dc, power adapter required		
Environmental			
Operating Temperature	0…45 °C (32…113 °F)		
Non-Operating Temperature	-20…60 °C (-4…140 °F)		
Relative Humidity	10…90% without condensation		
Vibration	1 g peak, 10…640 Hz		
Vibration, Non-Operating	2 g peak, 10…640 Hz		
Shock, Operating	10 g (1/2 sine, 11 ms)		
Shock, Non-Operating	15 g (1/2 sine, 11 ms)		
Ratings✶	NEMA Type 12, 4, IEC IP66		
Certifications	UL/c-UL Listed, CE marked, C-Tick, RoHS compliant		
Mechanical			
Weight, Panel Mount	4.1 kg (9.02 lb)	5.7 kg (12.54 lb)	7.5 kg (16.50 lb)
Weight, Vesa Mount	3.1 kg (6.82 lb)	4.6 kg (10.12 lb)	6.0 kg (13.20 lb)
Dimensions (HxWxD) Panel Mount	309 x 410 x 50 mm 12.2 x 16.1 x 2.0 in	356 x 452 x 53 mm 14.0 x 17.8 x 2.1 in	399.3 x 482.6 x 58.0 mm 15.7 x 19.0 x 2.3 in
Dimensions (HxWxD) Vesa Mount	282.6 x 383.6 x 50.0 mm 11.0 x 15.0 x 2.0 in	326.5 x 421.0 x 53.0 mm 12.9 x 16.6 x 2.1 in	357 x 444 x 58 mm 14.1 x 17.5 x 2.3 in
Dimensions, Cutout (HxW) Panel Mount	285.6 x 386.6 mm 11.24 x 15.22 in	329.5 x 424.0 mm 12.97 x 16.69 in	363.5 x 449.6 mm 14.31 x 17.70 in
Mounting Options	Panel Mount, Vesa Mount, Bench/Tabletop, Rack Mount (19 inch only)		

✶ Ratings apply to panel-mounted monitors.

Product Selection

6181P Integrated Display Computers with Rotating Media

Cat. No.	Description
1200P	
6181P-12NSXPH	Integrated Display Computer, 12.1-inch TFT Display, Standard Package
6181P-12NPXPH	Integrated Display Computer, 12.1-inch TFT Display, Performance Package
6181P-12TSXPH	Integrated Display Computer, 12.1-inch TFT Display, Touch Screen, Standard Package
6181P-12TPXPH	Integrated Display Computer, 12.1-inch TFT Display, Touch Screen, Performance Package
6181P-12TPXPHDC	Integrated Display Computer, 12.1-inch TFT Display, Touch Screen, 24V dc Power, Performance Package
1500P	
6181P-15NSXPH	Integrated Display Computer, 15-inch TFT Display, Standard Package
6181P-15NPXPH	Integrated Display Computer, 15-inch TFT Display, Performance Package
6181P-15TSXPH	Integrated Display Computer, 15-inch TFT Display, Touch Screen, Standard Package
6181P-15TPXPH	Integrated Display Computer, 15-inch TFT Display, Touch Screen, Performance Package
6181P-15TPXPHSS	Integrated Display Computer, Stainless Steel, 15-inch TFT Display, Touch Screen, Performance Package
1700P	
6181P-17NSXPH	Integrated Display Computer, 17-inch TFT Display, Standard Package
6181P-17NPXPH	Integrated Display Computer, 17-inch TFT Display, Performance Package
6181P-17TSXPH	Integrated Display Computer, 17-inch TFT Display, Touch Screen, Standard Package
6181P-17TPXPH	Integrated Display Computer, 17-inch TFT Display, Touch Screen, Performance Package
6181P-17TPXPHSS	Integrated Display Computer, Stainless Steel, 17-inch TFT Display, Touch Screen, Performance Package
1200P - Non-Display Versions	
6181P-2PXPH	Non-Display Computer, Performance Package
6181P-2PXPHDC	Non-Display Computer, 24V dc Power, Performance Package

6181F Integrated Display Computers with Solid State Drive

Cat. No.	Description
1200P	
6181F-12TPXPH	Integrated Display Computer, 12.1-inch TFT Display, Touch Screen, Solid State Drive, Performance Package
6181H-2PXPHDC	Non-Display Computer, Solid State Drive, 24V dc Power, Class I, Division 2 Hazardous Locations, Performance Package
1500P	
6181F-15TPXPH	Integrated Display Computer, 15-inch TFT Display, Touch Screen, Solid State Drive, Performance Package
6181F-15TPXPHSS	Integrated Display Computer, 15-inch TFT Display, Touch Screen, Solid State Drive, Stainless Steel Bezel, Performance Package
6181F-15TPXPHDC	Integrated Display Computer, 15-inch TFT Display, Touch Screen, Solid State Drive, 24V dc Power, Performance Package
1700P	
6181F-17TPXPH	Integrated Display Computer, 17-inch TFT Display, Touch Screen, Solid State Drive, Performance Package
6181F-17TPXPHSS	Integrated Display Computer, 17-inch TFT Display, Touch Screen, Solid State Drive, Stainless Steel Bezel, Performance Package

6180P Integrated Display Computers with Keypad

Cat. No.	Description
1200P	
6180P-12KSXP	Integrated Display Computer with Keypad, 12.1-inch TFT Display, Keypad, Standard Package
6180P-12KPXP	Integrated Display Computer with Keypad, 12.1-inch TFT Display, Keypad, Performance Package
6180P-12BSXP	Integrated Display Computer with Keypad, 12.1-inch TFT Display, Keypad and Touch Screen, Standard Package
6180P-12BPXP	Integrated Display Computer with Keypad, 12.1-inch TFT Display, Keypad and Touch Screen, Performance Package
6180P-12BPXPDC	Integrated Display Computer with Keypad, 12.1-inch TFT Display, Keypad and Touch Screen, 24V dc Power, Performance Package
1500P	
6180P-15KSXP	Integrated Display Computer with Keypad, 15-inch TFT Display, Keypad, Standard Package
6180P-15KPXP	Integrated Display Computer with Keypad, 15-inch TFT Display, Keypad, Performance Package
6180P-15BSXP	Integrated Display Computer with Keypad, 15-inch TFT Display, Keypad and Touch Screen, Standard Package
6180P-15BPXP	Integrated Display Computer with Keypad, 15-inch TFT Display, Keypad and Touch Screen, Performance Package
6180P-15BPXPDC	Integrated Display Computer with Keypad, 15-inch TFT Display, Keypad and Touch Screen, 24V dc Power, Performance Package

6155R Compact Non-Display Computers with Rotating Media

Cat. No.	Description
200R	
6155R-NSXPH	Non-Display Computer, No Slots, Standard Package
6155R-NPXPH	Non-Display Computer, No Slots, Performance Package

6155F Compact Non-Display Computers with Solid State Drive

Cat. No.	Description
200R	
6155F-NPXPH	Non-Display Computer, No Slots, Solid State Drive, Performance Package
6155F-NPXPHDC	Non-Display Computer, No Slots, Solid State Drive, Performance Package

6177R Industrial Non-Display Computers

Cat. No.	Description
750R	
6177R-M4SXP	Non-Display Computer, 4 Slot, Machine Mount, Standard Package, Windows XP Professional Operating System
6177R-M4PXP	Non-Display Computer, 4 Slot, Machine Mount, Performance Package, Windows XP Professional Operating System
6177R-M4AXP	Non-Display Computer, 4 Slot, Machine Mount, Advanced Package, Windows XP Professional Operating System
6177R-M4AS3RD	Non-Display Computer, 4 Slot, Machine Mount, Advanced Package, Windows Server 2003 Operating System
1450R	
6177R-R4SXP	Non-Display Computer, 7 Slot, 4U Rack Mount, Standard Package, Windows XP Professional Operating System
6177R-R4PXP	Non-Display Computer, 7 Slot, 4U Rack Mount, Performance Package, Windows XP Professional Operating System
6177R-R4LXP	Non-Display Computer, 7 Slot, ISA Slots, 4U Rack Mount, Performance Package, Windows XP Professional Operating System
6177R-R4AS3RD	Non-Display Computer, 7 Slot, 4U Rack Mount, Advanced Package, Windows Server 2003 Operating System

6186-M Industrial Monitors

Cat. No.	Description
1200M	
6186-M12AL	12.1-inch Flat Panel Monitor, Aluminum Bezel; Includes required cables and power supply
6186-M12ALTR	12.1-inch Flat Panel Monitor, Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
1500M	
6186-M15AL	15-inch Flat Panel Monitor, Aluminum Bezel; Includes required cables and power supply
6186-M15SS	15-inch Flat Panel Monitor, Stainless Steel Bezel; Includes required cables and power supply
6186-M15ALTR	15-inch Flat Panel Monitor, Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6186-M15SSTR	15-inch Flat Panel Monitor, Stainless Steel Bezel, Resistive Touch Screen; Includes required cables and power supply
6186-M15ALTC	15-inch Flat Panel Monitor, Aluminum Bezel, Capacitive Touch Screen; Includes required cables and power supply
1700M	
6186-M17AL	17-inch Flat Panel Monitor, Aluminum Bezel; Includes required cables and power supply
6186-M17SS	17-inch Flat Panel Monitor, Stainless Steel Bezel; Includes required cables and power supply
6186-M17ALTR	17-inch Flat Panel Monitor, Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6186-M17SSTR	17-inch Flat Panel Monitor, Stainless Steel Bezel, Resistive Touch Screen; Includes required cables and power supply
6186-M17ALTC	17-inch Flat Panel Monitor, Aluminum Bezel, Capacitive Touch Screen; Includes required cables and power supply
1900M	
6186-M19AL	19-inch Flat Panel Monitor, Aluminum Bezel; Includes required cables and power supply
6186-M19SS	19-inch Flat Panel Monitor, Stainless Steel Bezel; Includes required cables and power supply
6186-M19ALTR	19-inch Flat Panel Monitor, Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6186-M19SSTR	19-inch Flat Panel Monitor, Stainless Steel Bezel, Resistive Touch Screen; Includes required cables and power supply

6176M Industrial Monitors

Cat. No.	Description
1550M	
6176M-15PN	15-inch Flat Panel Monitor, Panel Mount Aluminum Bezel; Includes required cables and power supply
6176M-15PT	15-inch Flat Panel Monitor, Panel Mount Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6176M-15VN	15-inch Flat Panel Monitor, Vesa Mount Plastic Bezel; Includes required cables and power supply
6176M-15VT	15-inch Flat Panel Monitor, Vesa Mount Plastic Bezel, Resistive Touch Screen; Includes required cables and power supply
1750M	
6176M-17PN	17-inch Flat Panel Monitor, Panel Mount Aluminum Bezel; Includes required cables and power supply
6176M-17PT	17-inch Flat Panel Monitor, Panel Mount Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6176M-17VN	17-inch Flat Panel Monitor, Vesa Mount Plastic Bezel; Includes required cables and power supply
6176M-17VT	17-inch Flat Panel Monitor, Vesa Mount Plastic Bezel, Resistive Touch Screen; Includes required cables and power supply
1950M	
6176M-19PN	19-inch Flat Panel Monitor, Panel Mount Aluminum Bezel; Includes required cables and power supply
6176M-19PT	19-inch Flat Panel Monitor, Panel Mount Aluminum Bezel, Resistive Touch Screen; Includes required cables and power supply
6176M-19VN	19-inch Flat Panel Monitor, Vesa Mount Plastic Bezel; Includes required cables and power supply
6176M-19VT	19-inch Flat Panel Monitor, Vesa Mount Plastic Bezel, Resistive Touch Screen; Includes required cables and power supply

Product Accessories

Drives

Cat. No.	Description	For Use With
6189V-25HDD	2.5-in IDE Hard Disk Drive Standard	6155R-N, 6181P
6189V-35HDD	3.5-in IDE Hard Disk Drive Standard	6155R-7, 6155R-14, 6180W
6189V-35HDDST80	3.5-in, 80 GB SATA Hard Disk Drive Standard	6177R, 6180P
6189V-35HDDST160	3.5-in, 160 GB SATA Hard Disk Drive Standard	6177R, 6180P
6189V-25SSD4GB	2.5 in IDE, 4 GB Solid State Drive	6155F, 6181F
6189V-25SSD8GB	2.5 in IDE, 8 GB Solid State Drive	6155F, 6181F
6189V-COMBO	CD-RW/DVD-ROM Combo Drive (Full)	6155R-14, 6180W
6189V-SLCOMBO	CD-RW/DVD-ROM Combo Drive (Slim)	6155R-7, 6177R, 6181F, 6181P
6189V-FD144	Floppy Disk Drive (Full)	6155R-7, 6155R-14, 6180W
6189V-SLFD144	Floppy Disk Drive (Slim)	6181P
6189V-SLDUAL	CD-RW/DVD-RW Combo Drive (Slim)	6177R

Memory Modules

Cat. No.	Description	For Use With
6189V-DIMM512	512 MB DIMM Memory	6155R-7, 6155R-14, 6180W Series A or B, 6181P-15 and 6181P-17 Series A only
6189V-DDR512	512 MB DDR Memory	6181F, 6181P
6189V-DDR1G	1024 MB DDR Memory	6181F, 6181P
6189V-512MDDR2	512 MB DDR2 Memory	6177R, 6180P
6189V-1GDDR2	1024 MB DDR2 Memory	6177R, 6180P

Add-In Cards and Modules

Cat. No.	Description	For Use With
6189V-2PCI15	PCI Expansion Slot Kit Provides 2 PCI Card Slots	6181F-15, 6181P-15 Series B and C
6189V-2PCI15R	PCI Expansion Slot Kit Provides 2 PCI Card Slots	6181F-15, 6181P-15 Series D
6189V-COMMCARD	RS-232 Serial PCI Communication Card	6155R-7, 6155R-14, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-PCIENET	Ethernet PCI Card, 10/100/1000 Mbps	6155R-7, 6155R-14, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-PCIDVI	PCI AGP/DVI Video Card, Dual Outputs	6155R-7, 6155R-14, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-RAIDSATA	SATA RAID 0 and RAID 1 PCI Card	6177R, 6180P

Power Supplies and Cords

Cat. No.	Description	For Use With
6189V-ACCORDM	USA AC Power Cord, IEC320-C5	6176M
6189V-ACCORDEU	EU AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMEU	EU AC Power Cord, IEC320-C5	6176M
6189V-ACCORDCH	China AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMCH	China AC Power Cord, IEC320-C5	6176M
6189V-ACCORDIT	Italy AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMIT	Italy AC Power Cord, IEC320-C5	6176M
6189V-ACCORDDK	Denmark AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMDK	Denmark AC Power Cord, IEC320-C5	6176M
6189V-ACCORDUK	UK AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMUK	UK AC Power Cord, IEC320-C5	6176M
6189V-ACCORDAU	Australia AC Power Cord, IEC320-C13	All Computers and Monitors
6189V-ACCORDMAU	Australia AC Power Cord, IEC320-C5	6176M
6189V-MPS	AC Power Supply, 90…264V ac, 50 W	6176M, 6186-M12, 6186-M15, 6186-M17
6189V-MMAPS	Power Supply Adapter Bracket for 6189V-MPS	6186-M12, 6186-M15, 6186-M17
6189V-MPS2	AC Power Supply, 90…264V ac, 80 W	6186-M20
6189V-MMAPS2	Power Supply Adapter Bracket for 6189V-MPS2	6186-M20

Fans

Cat. No.	Description	For Use With
6189V-FANFIL1	Fan Filter, 5 Pack	6180W
6189V-FANFIL2	Fan Filter, 5 Pack	6155R-14
6189V-FANFIL3	Fan Filter, 5 Pack	6155R-7

Screen Protectors

Cat. No.	Description	For Use With
6189V-SCRNCOVER12	Protective Screen Cover (Qty 10)	6180W-12, 6181F-12, 6180P-12, 6181P-12, 6186-M12
6189V-SCRNCOVER15	Protective Screen Cover (Qty 10)	6180W-15, 6181F-15, 6180P-15, 6181P-15, 6176M-15, 6186-M15
6189V-SCRNCOVER17	Protective Screen Cover (Qty 10)	6181F-17, 6181P-17, 6176M-17, 6186-M17
6189V-SCRNCOVER19	Protective Screen Cover (Qty 10)	6186-M19
6189V-SCRNCOVER20	Protective Screen Cover (Qty 10)	6186-M20
6189V-15PCOVER	15-in Vinyl Bezel Cover	6181F-15, 6181P-15, 6186-M15

Mounting Hardware

Cat. No.	Description	For Use With
6189V-MMA12	Panel Adapter, 6185-B to 6186-M12	6186-M12
6189V-MMA15	Panel Adapter, 6185-C/F/H to Current	6176M-15, 6186-M15
6189V-MMA17	Panel Adapter, 6185-D/J to Current	6176M-17, 6186-M17
6189V-MRA12	Rack Adapter, 12-in	6186-M12
6189V-MRA15	Rack Adapter, 15-in	6176M-15, 6186-M15
6189V-MRA17	Rack Adapter, 17-in, 6185-K/N to Current	6176M-17, 6186-M17
6189V-MBA	Bench/Table Top Adapter	6176M, 6186M, 6181F-15, 6181P-15
6189V-MCLPS	Mounting Clips (Qty 14)	6186M, 6181P
6189V-MCLPS2	Mounting Clips (Qty 12)	6176M
6189V-RACKSLIDES	Rackslides	6155R-14, 6177R-R4

Cables

Cat. No.	Description	For Use With
6189V-VGACBL2	Analog (VGA) Video Cable, 6 ft (1.8 m)	6176M, 6186-M
6189V-DVICBL2	Digital Video Cable, 2 m (6.5 ft)	6176M, 6186-M15, 6186-M17, 6186-M20
6189V-DVICBL5	Digital Video Cable, 5 m (16.4 ft)	6176M, 6186-M15, 6186-M17, 6186-M20
2711-NC13	Touch Screen Cable, 5 m (16.4 ft)	6176M, 6186-M
6189V-ACCORD	Power Supply Cord, 115V ac, Shielded	All
6189V-KMYCONN	Y-Adapter	All Computers
9300-USBS	USB to Serial Cable	Computers
6189V-TCHCBL2	Serial Touch Screen Cable, 1.8 m (6 ft)	6176M, 6186-M

Industrial Keyboards and Pointing Devices

Cat. No.	Description	For Use With
6189V-HPMOUSE	Desktop Mouse, Stainless Steel, 3-Button, PS/2	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-HPMOUSEP	Panel Mount Mouse, Stainless Steel, 3-Button, PS/2	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-KBDEPS1	Desktop Keyboard/Mouse, Stainless Steel, 116 Keys, PS/2	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-KBPEPS1	Panel Mount Keyboard/Mouse, Stainless Steel, 116 Keys, PS/2	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-KBDEPU1	Desktop Keyboard/Mouse, Polycarbonate, 84 Keys, PS/2	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-KBDEPU1U	Desktop Keyboard/Mouse, Polycarbonate, 84 Keys, USB	6155R, 6177R, 6180W, 6181F, 6180P, 6181P
6189V-KBDEPC1U	Desktop Keyboard/Mouse, Polycarbonate, 116 Keys, USB	6155R, 6177R, 6180W, 6181F, 6180P, 6181P

InView Selection Guidelines

- *Select display size and type*
- *Determine communication and select communication module (if applicable)*
- *Select configuration software*
- *Select program and runtime cables*

Select an InView Message Display

InView Message Displays are panel mount and large format displays for visually communicating information to groups or at a distance across the entire factory floor. Whether it's process alarming, safety messages, inventory or process data, or thanking the team, InView displays deliver the right information at the right time to the right place. Choose from eleven different models offering varying display lines, character sizes, LED colors, font types and messaging effects.

Benefits

- Red or tri-color (red, green, amber) LEDs with varying character size, font type and messaging effects provide highly visible messages up to 137 m (450 ft)
- Preferred compatibility to Rockwell Automation logic controllers and networks
- Onboard memory makes message storage and triggering easy
- Dynamic messaging, with the use of embedded variables, for real-time information
- RSLogix 5000 add-on instructions to assist with message trigger, download, and complete concatenation
- Easy-to-use configuration software package for developing and testing messages
- ActiveX control, used with any ActiveX container such as RSView32 software, enhances graphical HMI messaging
- Panel-mount display fits panel dimensions of older DataLiner 2-line displays (DL10, DL20) or DataLiner 4-line displays (DL40, DL40 Plus) using the adapter plate, cat. no. 2706-PNR2

See how companies around the world use this product: www.rockwellautomation.com/casestudies

Software

Develop messages on a PC with the InView Messaging software (2706-PSW1), a user-friendly and intuitive Microsoft Windows software package with WYSIWYG functionality. Within a simple configuration environment, you can quickly set up your communication network and easily develop messages with varying attributes.

- Message colors
- Font size and format
- Embedded process variables
- Message attributes

Communication

InView Message Displays have the most extensive communication options in the industry. Whether you are connecting to an Rockwell Automation controller, third party controller or a PC-based system, InView has a solution.

InView Message Displays come standard with RS-232 and RS-485 communications for quick and easy integration. For applications requiring industrial or commercial networks, InView communication modules can be used to integrate your display into new and existing networks.

InView Communication Modules

	Communication Module		
Network	**2706-P22R**	**2706-P42R, -P42C, -P44R, -P44C**	**2706-P72CN1, -P72CN2, -P74CN1, -P74CN2, -P92C, -P94C**
DeviceNet	2706-PDNETP	2706-PDNETM	2706-PDNETK
ControlNet	2706-PCNETP	2706-PCNETM	2706-PCNETK
EtherNet/IP	2706-PENETP	2706-PENETM	2706-PENETK
Remote I/O	2706-PRIOP	2706-PRIOM	2706-PRIOK
DH-485	2706-PDH485P	2706-PDH485M	2706-PDH485K
DH+	2706-PDHPP	2706-PDHPM	2706-PDHPK
Ethernet TCP/IP	✶	2706-PENET ❄	

✶ Rockwell Automation recommends using a third party DIN Rail mounted Ethernet TCP/IP solution with the InView P22R Panel Mount Display. Lantronixs and Digi both supply a DIN Rail Ethernet TCP/IP solution for connectivity to a personal computer.
❄ The 2706-P9x displays come standard with Ethernet TCP/IP, RS-232, and RS-485 communication.

Controller Based Communications

Use InView communication modules to trigger messages, update variables, and download message applications over industrial networks for connection into new and existing control environments.

- **Point-to-point RS-232 Serial** supports serial communications from a single controller to a single InView display with a limited distance of 50 ft.
- **Multi-drop RS-485 Serial** supports serial communications from a single controller to multiple InView displays using an AIC+ module (RS-232 to RS-485 converter).
- **Industrial Networks** allow InView communications with controllers over DeviceNet, ControlNet, EtherNet/IP, Data Highway Plus, DH-485, and Remote I/O using the communication modules.

PC Based Communications

Use the InView PC-based communications to download message files and trigger message/update variables on an InView display. This is done by using the InView Messaging software, the Instant Messager, or the InView ActiveX Control added to a VBA project or container. With the InView Messaging software you can create, download and trigger messages. The Instant Messenger is typically used to quickly display adhoc messages. The ActiveX Control allows you to create custom applications using a VBA environment such as RSView32 software. This provides the most flexibility when creating an application to drive an InView display.

- **Ethernet TCP/IP** allows InView display integration into information system and supervisory control PC-based systems. Using an existing office network, information can be communicated to the entire factory.
- **Point-to-Point RS-232 Serial** PC-based communications using InView Messaging software, Instant Messenger, or ActiveX control in RSView32 software.
- **Multi-drop RS-485 Serial** supports serial communications from a single PC to multiple InView displays using an AIC+ module (RS-232 to RS-485 converter).

Specifications

Cat. No. 2706-	P22R	P42R, P42C✶ P44R, P44C❄	P72CN1, P72CN2✶ P74CN1, P72CN2❄	P92C✶ P94C❄
Display				
Display Description	LED Matrix			
Display Type	Red LED Matrix	Red LED Matrix or Tri-Color LED Matrix	Tri-Color LED Matrix	
Display Area (WxH)	30 x 5 cm (12 x 2 in)	91.4 x 12.2 cm (36 x 4.8 in)✶ 183 x 12.2 cm (72 x 4.8 in)❄	91.4 x 18.3 cm (36 x 7.2 in)✶ 152.4 x 18.3 cm (60 x 7.2 in)❄	91.4 x 24.4 cm (36 x 9.6 in)✶ 183 x 24.4 cm (72 x 9.6 in)❄
Pixel Array	120 x 7	120 x 16 or 240 x 16	120 x 24 or 200 x 24	120 x 32 or 240 x 32
Pixel Spacing (Center to Center)	2.54 mm (0.1 in)	7.62 mm (0.3 in)		
Number of Lines	2	1…2	1…4	1…5
Character Size	1.8 cm (0.7 in)	1 line/12.2 cm (4.8 in) 2 line/5.3 cm (2.1 in)	1 line/18.3 cm (7.2 in) 2 line/7.6 cm (3.0 in) 3 line/5.3 cm (2.1 in) 4 line/3.8 cm (1.5 in)	1 line/24.4 cm (9.6 in) 2 line/11.4 cm (4.5 in) 3 line/7.6 cm (3.0 in) 4 line/5.3 cm (2.1 in) 5 line/3.8 cm (1.5 in)
Characters per Line	20	1 line/12; 2 line/20✶ 1 line/24; 2 line/40❄	1 line/12; 2-3 line/20; 4 line/24✶ 1 line/20; 2-3 line/33; 4 line/40❄	1-3 line/13; 4 line/20; 5 line/24✶ 1-3 line/26; 4 line/33; 5 line/40❄
Character Set	Standard and Extended ASCII			Standard and Extended ASCII User-defined Graphic Characters
Viewing Distance	7.6 m (25 ft)	60 m (200 ft)	100 m (350 ft)	137 m (450 ft)
Electrical				
Input Voltage, DC	18…30V dc, 0.5 A at 18V dc	—		
Input Voltage, AC	—	120…240V ac, 50…60 Hz		
Communication Modules				
Communication Type	Remote I/O, DH-485, DH+, DeviceNet, ControlNet, Ethernet			
Mounting Options	DIN Rail	Back-mounted	Internal	Internal
Power Source	External 24V dc	From Display	From Display	From Display
Series	A or later	C or later	C or later	C or later
Environmental				
Operating Temperature	0…55 °C (32…131 °F)	0…50 °C (32…122 °F)		
Relative Humidity	5…95% without condensation			
Ratings	NEMA Type 4 (indoor use only)	NEMA Type 12	NEMA Type 4, 4X (indoor use only) ‡	Nema Type 12, 13
Certifications	UL, C-UL, Class 1 Division 2, CE marked, C-Tick	ETL, CE marked, C-Tick		UL, C-UL, Class 1 Division 2, CE marked, C-Tick
Mechanical				
Weight	0.85 kg (1.87 lb)	12.7 kg (28 lb) 22.7 kg (50 lb)	27.2 kg (60 lb) 36.3 kg (80 lb)	32 kg (70 lb) 64 kg (140 lb)
Dimensions (HxWxD)	6 x 36 x 11 cm 2.43 x 14.40 x 4.38 in	14 x 103 x 20 cm 5.50 x 40.38 x 7.88 in✶ 14 x 194 x 20 cm 5.50 x 76.38 x 7.88 in❄	15 x 107 x 35 cm 6.0 x 42.25 x 13.75 in✶ 15 x 168 x 35 cm 6.0 x 66.25 x 13.75 in❄	40 x 105 x 13 cm 15.90 x 41.19 x 5.25 in✶ 40 x 196 x 13 cm 15.90 x 77.20 x 5.25 in❄

✶ Available as 91.44 cm (3 ft) enclosure
❄ Available as 182.88 cm (6 ft) enclosure
‡ The 2706-P72CN1 and 2706-P74CN1 displays have stainless steel enclosures. The NEMA Type 4X rating applies only to these enclosures.

Product Selection

InView Message Displays

Cat. No.	Description
2706-P22R	InView Message Display, 2 lines, 20 characters, red LEDs, NEMA Type 4 when panel mounted
2706-P42R	InView Message Display, 1 or 2 lines, 12 or 20 characters, 4.8 or 2.1 in high, red LEDs, NEMA Type 12
2706-P42C	InView Message Display, 1 or 2 lines, 12 or 20 characters, 4.8 or 2.1 in high, tri-color LEDs, NEMA Type 12
2706-P44R	InView Message Display, 1 or 2 lines, 24 or 40 characters, 4.8 or 2.1 in high, red LEDs, NEMA Type 12
2706-P44C	InView Message Display, 1 or 2 lines, 24 or 40 characters, 4.8 or 2.1 in high, tri-color LEDs, NEMA Type 12
2706-P72CN2	InView Message Display, 1…4 lines, 12…24 characters, 7.2…1.5 in high, tri-color LEDs, NEMA Type 4
2706-P74CN2	InView Message Display, 1…4 lines, 20…40 characters, 7.2…1.5 in high, tri-color LEDs, NEMA Type 4
2706-P72CN1	InView Message Display, 1…4 lines, 12…24 characters, 7.2…1.5 in high, tri-color LEDs, NEMA Type 4X, stainless steel enclosure
2706-P74CN1	InView Message Display, 1…4 lines, 20…40 characters, 7.2…1.5 in high, tri-color LEDs, NEMA Type 4X, stainless steel enclosure
2706-P92C	InView Message Display, 1…5 lines, 13…24 characters, 9.6…1.5 in high, tri-color LEDs, NEMA Type 12, 13
2706-P94C	InView Message Display, 1…5 lines, 26…48 characters, 9.6…1.5 in high, tri-color LEDs, NEMA Type 12, 13

Product Accessories

InView Software

Cat. No.	Description
2706-PSW1	InView Messaging software with ActiveX control

Enclosure

Cat. No.	Description
2706-NE1	NEMA Type 12/13 enclosure for 2706-P22R display

Adapter Plate

Cat. No.	Description
2706-PNR2	Adapter plate for Installing a 2706-P22R display in a DL40 4-line display panel opening.

InView DeviceNet Communication Modules

Cat. No.	Description
2706-PDNETP	InView DeviceNet communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PDNETM	InView DeviceNet communication module for 2706-P4x displays; mounts on back of display
2706-PDNETK	InView DeviceNet communication module for 2706-P7x, -P9x displays; mounts inside display

InView ControlNet Communication Modules

Cat. No.	Description
2706-PCNETP	InView ControlNet communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PCNETM	InView ControlNet communication module for 2706-P4x displays; mounts on back of display
2706-PCNETK	InView ControlNet communication module for 2706-P7x, -P9x displays; mounts inside display

InView EtherNet/IP Communication Modules

Cat. No.	Description
2706-PENETP	InView EtherNet/IP communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PENETM	InView EtherNet/IP communication module for 2706-P4x displays; mounts on back of display
2706-PENETK	InView EtherNet/IP communication module for 2706-P7x, -P9x displays; mounts inside display

InView Remote I/O Communication Modules

Cat. No.	Description
2706-PRIOP	InView Remote I/O communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PRIOM	InView Remote I/O communication module for 2706-P4x displays; mounts on back of display
2706-PRIOK	InView Remote I/O communication module for 2706-P7x, -P9x displays; mounts inside display

InView DH+ Communication Modules

Cat. No.	Description
2706-PDHPP	InView DH+ communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PDHPM	InView DH+ communication module for 2706-P4x displays; mounts on back of display
2706-PDHPK	InView DH+ communication module for 2706-P7x, -P9x displays; mounts inside display

InView DH-485 Communication Modules

Cat. No.	Description
2706-PDH485P	InView DH-485 communication module for 2706-P22R displays; 24V dc, DIN-rail mount
2706-PDH485M	InView DH-485 communication module for 2706-P4x displays; mounts on back of display
2706-PDH485K	InView DH-485 communication module for 2706-P7x, -P9x displays; mounts inside display

InView Ethernet TCP/IP Communication Modules

Cat. No.	Description
2706-PENET1 ✶	InView Ethernet TCP/IP communication module

✶ This module is not available for the cat. no. 2706-P22R display.

See Page 75, Determining Cable Requirements, for cable configuration details.

InView Cables/Interface Modules

Cat. No.	Description
2706-PCABLE1	InView Program/Download Cable
1747-PIC	Personal Computer Interface Converter converts RS-232 signals to/from DH-485 signals
1747-C10	DH-485 Operating/Programming Cable 1.8 m (6 ft)
1747-C11	DH-485 Operating/Programming Cable .3 m (1 ft)
1747-C20	DH-485 Operating/Programming Cable 6 m (20 ft)
1761-NET-AIC	MicroLogix Advanced Interface Converter Module
2711-NC13	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 5 m (16.4 ft)
2711-NC14	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 10 m (32.7 ft)
2711-NC21	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 5 m (16.4 ft)
2711-NC22	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 15 m (49 ft)
2706-NC13	RS-232 Operating Cable, 9-pin D Shell to 9-Pin D Shell, 3 m (10 ft)

PanelView Standard Selection Guidelines

- *Select display size*
- *Select operator input: keypad, touch, keypad/touch (model dependent)*
- *Select communications*
- *Determine power requirement*
- *Select configuration software*
- *Select program and runtime cables*
- *Select optional accessories*

Select a PanelView Standard Operator Interface

PanelView Standard operator terminals are engineered for maximum performance in space saving flat panel designs. These electronic operator interfaces feature pixel graphics capabilities and high-performance functionality in color, grayscale, and monochrome displays. The PanelView Standard family offers a complete line of rugged electronic operator interface solutions in a variety of sizes and configurations to meet specific application requirements, all with a rich collection of hardware and software features designed to simplify programming and improve operator productivity.

The high performance functionality of the PanelView Standard line includes advanced alarm handling, screen security, analog gauges, ATA PC memory card, universal language support, and online printing for more intuitive operator control.

Benefits

- Broad range of terminal combinations to fit any operator interface application
- Eight display combinations, from 3-inch to 10-inch, in color, grayscale or monochrome, each designed for minimal installation depth with maximum viewing angles
- Keypad, touch screen, or keypad/touch screen combinations for convenient and flexible operator input
- RS-232 printer port to print alarms, alarm lists, triggered messages, and triggered states of a multistate indicator
- ATA PC flash memory cards for fast application downloads, convenient storage of universal language support fonts, and simplified firmware upgrades
- Field-replaceable backlights to extend screen life of PanelView 600 and 1000 color terminals
- 100,000 hour LED backlight for PanelView 300, 300 Micro, and 550 terminals

See how companies around the world use this product: www.rockwellautomation.com/casestudies

Software

PanelBuilder32 software supports the entire family of PanelView Standard terminals, allowing easy conversion and reuse of existing applications. A 32-bit software package designed to operate on Microsoft Windows (including Windows 2000, ME, XP), PanelBuilder32 features an intuitive development environment to simplify application design, reduce development time, maximize performance, and improve productivity.

Configure screens quickly and easily using standard tools, objects, graphics, and imported bitmaps. Other time-saving advantages include cut/copy/paste and tag import/export capabilities in and between PanelView applications. In addition, multiple applications can be open at the same time.

Application files can be uploaded and downloaded directly, over the network, via a 'Pass Through' or 'Gateway' connection, or using an ATA PC memory card.

Functionality

Push Buttons/Selector Switches	Screen Selectors	Data Entry
Momentary NO, NC	Screen Security	Numeric Keypad
Maintained	GoTo Screen Button	Cursor Point for Numeric Entry
Latched	Previous Screen Button	Keypad Enable for Numeric Entry
Multistate	Screen Selector	Cursor Point for ASCII Entry
Control List Selector	GoTo Config Screen Button	Keypad Enable for ASCII Entry
Information Displays	**Alarm Diagnostics**	**Graphics**
Analog Gauges	Alarm Banner	Line/Connected Line
Bar Graph	Alarm List - Active, History	Rectangle/Circle/Ellipse
Message Display	Clear Alarm List Button	Free Drawings
Multistate/List Indicator	Print Alarm List Button	ISA Symbols
Numeric Data Display	Acknowledge Alarm Button	Custom Graphics
Time and Date Displays	Clear Alarm Button	Text
ASCII Display	Print Alarm Button	Linear/Circular Scale
Print Only Messages	Acknowledge All Alarms Button	Resizable Bitmaps

Communication

- **EtherNet/IP terminal** communicates with a PLC-5E, SLC-5/05, ENI module, and Logix 5000 controllers over the 1756-Ethernet bridge.
- **DeviceNet terminal** communicates at a device level on a DeviceNet link using Server Explicit, Client Explicit, I/O or Listen Only messaging. Also communicates with PLC, SLC 500, and ControlLogix controllers on the link using a DeviceNet Scanner Module and the DNI Module for DF1 devices.
- **ControlNet terminal** communicates with multiple controllers on a ControlNet network. Scheduled and unscheduled PLC-5/ControlLogix messages are supported using redundant cabling.
- **Data Highway Plus terminal** communicates with a single PLC, SLC 5/04 controller, ControlLogix system, or multiple controllers on the Allen-Bradley DH+ network. Direct access to controller data files minimizes ladder logic.
- **Remote I/O terminal** communicates with a PLC or SLC 500 controller, or a ControlLogix system on the 1771 Remote I/O network, supporting both discrete and block transfers of data.
- **DH-485 terminal** communicates with a single or multiple SLC 500 or MicroLogix controllers on the Allen-Bradley DH-485 network. It supports point-to-point or network transfers.
- **RS-232 (DH-485 protocol) terminal** communicates with MicroLogix and SLC 500 controllers using DH-485 protocol on point-to-point and networked configurations.
- **RS-232 (DF1 protocol) terminal** communicates with a single SLC 500, PLC or MicroLogix controller over a point-to-point DF1 link.

Specifications

PanelView Standard	300 Micro Keypad	300 Keypad
Display		
Display Description	Monochrome transflective LCD with integral LED backlight	
Display Area (WxH)	73 x 42 mm (2.87 x 1.67 in)	
Resolution	128 x 64	
Backlight	100 000 h LED backlight life	
Real-time Clock	Battery-back clock time stamps critical data	
Application Software	PanelBuilder32 Software	
Application Memory	170 K Application Runtime; 240 K Flash (application objects + text + bitmaps)	
ATA Memory Card	N/A	Supported
Touch Screen		
Actuation Rating, Touch	—	—
Touch Cells	—	—
Keypad		
Keypad Description	Stainless steel domed membrane	
Function Keys	4 (F1…F4)	8 (F1…F8)
Actuation Rating, Keys	2 000 000 presses	
Electrical		
Communication Ports	RS-232 (DH-485), RS-232 (DF1)	DeviceNet, DH-485, RS-232 (DH-485), RS-232 (DF1)
RS-232 Printer Port	—	1200, 2400, 9600, 19 200 K✶
Input Voltage, AC	—	—
Power Consumption, AC	—	—
Input Voltage, DC	11…30V dc	18…32V dc
Power Consumption, DC	2.5 W max. (0.105 A @ 24V dc)	10 W max. (0.42 A @ 24V dc)
Environmental		
Operating Temperature	0…55 °C (32…131 °F)	
Non-Operating Temperature	-20…85 °C (-4…185 °F)	-25…70 °C (-13…158 °F)
Relative Humidity	5…95% without condensation @ 0…55 °C (32…131 °F)	5…95% without condensation @ 0…30 °C (32…86 °F)
Ratings	NEMA Type 12, 13, 4X (indoor only), IP54, IP65	
Certifications	UL; C-UL; CE marked; Class 1 Div 2 Groups A,B,C,D; Class 1 Zone 2; Class II Div 2; Class III Div 1; C-Tick	
Weight		
Keypad	284 g (10 oz)	673 g (1.48 lb)
Touch	—	—
Dimensions		
Keypad (HxWxD)	133 x 111 x 48 mm 5.23 x 4.38 x 1.87 in	197 x 140 x 82 mm 7.76 x 5.53 x 3.21 in
Touch Screen (HxWxD)	—	—

✶ The PanelView 300 terminal with an RS-232 (DF1) Communication Port (2711-K3A17L1) does not have a printer port.

PanelView Standard	550 Keypad, Keypad/Touch	550 Touch (24V dc)
Display		
Display Description	Monochrome LCD Blue Mode Display	
Display Area (WxH)	120 x 60 mm (4.75 x 2.38 in)	
Resolution	256 x 128	
Backlight	100 000 h LED backlight life	
Real-time Clock	Battery-back clock time stamps critical data	
Application Software	PanelBuilder32 Software	
Application Memory	170 K Application Runtime; 240 K Flash (application objects + text + bitmaps)	
ATA Memory Card	Supported	
Touch Screen		
Actuation Rating, Touch	1 000 000 presses	
Touch Cells	128	
Keypad		
Keypad Description	Stainless steel domed membrane	—
Function Keys	10 (F1…F10)	—
Actuation Rating, Keys	2 000 000 presses	—
Electrical		
Communication Ports	EtherNet/IP, DeviceNet, ControlNet, DH+, Remote I/O, DH-485, RS-232 (DH-485), RS-232 (DF1)	
RS-232 Printer Port	1200, 2400, 9600, 19 200 K	
Input Voltage, AC	85…264V ac, 47…63 Hz	—
Power Consumption, AC	45V A maximum	—
Input Voltage, DC	18…30V dc	18…32V dc
Power Consumption, DC	18 W max. (0.75 A @ 24V dc)	18 W max. (0.75 A @ 24V dc)
Environmental		
Operating Temperature	0…55 °C (32…131 °F)	
Non-Operating Temperature	-20…70 °C (-4…158 °F)	
Relative Humidity	5…95% without condensation @ 0…30 °C (32…86 °F)	
Ratings	NEMA Type 12, 13, 4X (indoor only), IP54, IP65	
Certifications	UL; C-UL; CE marked; Class 1 Div 2 Groups A,B,C,D; Class 1 Zone 2; Class II Div 2; Class III Div 1; C-Tick	
Weight		
Keypad	1.2 kg (2.7 lb)	—
Touch		0.93 kg (2.1 lb)
Dimensions		
Keypad (HxWxD)	167 x 266 x 106 mm 6.57 x 10.47 x 4.17 in	—
Touch Screen (HxWxD)		152 x 185 x 82 mm 6.0 x 7.28 x 3.2 in

PanelView Standard	600 Color Keypad, Keypad/Touch	600 Color Touch (24V dc)
Display		
Display Description	Color Active Matrix Thin Film Transistor (TFT)	
Display Area (WxH)	115 x 86 mm (4.54 x 3.4 in)	115 x 87 mm (4.54 x 3.43 in)
Resolution	320 x 234	320 x 240
Backlight	Field replaceable	—
Real-time Clock	Battery-back clock time stamps critical data	
Application Software	PanelBuilder32 Software	
Application Memory	190 K Application Runtime; 240 K Flash (application objects + text + bitmaps)	
ATA Memory Card	Supported	
Touch Screen		
Touch Cells	128	
Actuation Rating, Touch	1 000 000 presses	
Keypad		
Keypad Description	Stainless steel domed membrane	—
Function Keys	10 (F1…F10)	—
Actuation Rating, Keys	2 000 000 presses	—
Electrical		
Communication Ports	EtherNet/IP, DeviceNet, ControlNet, DH+, Remote I/O, DH-485, RS-232 (DH-485), RS-232 (DF1)	
RS-232 Printer Port	1200, 2400, 9600, 19 200 K	
Input Voltage, AC	85…264V ac, 47…63 Hz	—
Power Consumption, AC	60V A maximum	—
Input Voltage, DC	18…32V dc	
Power Consumption, DC	34 W max. (1.9 A @ 24V dc)	24 W max. (1.0 A @ 24V dc)
Environmental		
Operating Temperature	0…55 °C (32…131 °F)	0…50 °C (32…122 °F)
Non-Operating Temperature	-25…70 °C (-13…158 °F)	
Relative Humidity	5…95% without condensation @ 0…55 °C (32…131 °F)	5…95% without condensation @ 0…40 °C (32…104 °F)
Ratings	NEMA Type 12, 13, 4X (indoor only), IP54, IP65	
Certifications	UL; C-UL; CE marked; Class 1 Div 2 Groups A,B,C,D; Class 1 Zone 2; Class II Div 2; Class III Div 1; C-Tick	
Weight		
Keypad	2.0 kg (4.4 lb)	—
Touch		1.0 kg (2.3 lb)
Dimensions		
Keypad (HxWxD)	192 x 290 x 116 mm 7.55 x 11.40 x 4.57 in	—
Touch Screen (HxWxD)		152 x 185 x 96 mm 6.0 x 7.28 x 3.80 in

PanelView Standard	1000 Grayscale Keypad, Touch	1000 Color Keypad, Touch
Display		
Display Description	Black/White Monochrome	Color Active Matrix Thin Film Transistor (TFT)
Display Area (WxH)	211 x 158 mm (8.3 x 6.2 in)	
Resolution	640 x 480	
Backlight	Field replaceable	
Real-time Clock	Battery-back clock time stamps critical data	
Application Software	PanelBuilder32 Software	
Application Memory	310 K Application Runtime; 1008 K Flash (application objects + text + bitmaps)	
ATA Memory Card	Supported	
Touch Screen		
Touch Cells	384	
Actuation Rating, Touch	1 000 000 presses	
Keypad		
Keypad Description	Stainless steel domed membrane	
Function Keys	16 (F1…F16)	
Actuation Rating, Keys	2 000 000 presses	
Electrical		
Communication Ports	EtherNet/IP, DeviceNet, ControlNet, DH+, Remote I/O, DH-485, RS-232 (DH-485), RS-232 (DF1)	
RS-232 Printer Port	1200, 2400, 9600, 19 200 K	
Input Voltage, AC	85…264V ac, 47…63 Hz	
Power Consumption, AC	55V A maximum	
Input Voltage, DC	18…32V dc	
Power Consumption, DC	24 W max. (1.0 A @ 24V dc)	
Environmental		
Operating Temperature	0…55 °C (32…131 °F)	
Non-Operating Temperature	-25…70 °C (-13…158 °F)	
Relative Humidity	5…95% without condensation @ 0…55 °C (32…131 °F)	
Ratings	NEMA Type 12, 13, 4X (indoor only), IP54, IP65	
Certifications	UL; C-UL; Class 1 Div 2 Groups A,B,C,D; CE marked; Class II Div 2; Class III Div 1; C-Tick	
Weight		
Keypad	3.3 kg (7.2 lb)	3.7 kg (8.2 lb)
Touch	3.2 kg (7.0 lb)	3.6 kg (7.9 lb)
Dimensions		
Keypad (HxWxD)	282 x 423 x 112 mm 11.11 x 16.64 x 4.40 in	
Touch Screen (HxWxD)	282 x 370 x 112 mm 11.11 x 14.58 x 4.40 in	

Product Selection

PanelView 300 Monochrome Terminals - Keypad Only

Description	Cat. No. Keypad ✶
DH-485 Communication Ports ❄	2711-K3A2L1
RS-232 (DH-485) Communication Port ❄	2711-K3A5L1
RS-232 (DH-485) Communication Port, Conformal Coated ❄	2711-K3A5L1K
DeviceNet Communication & RS-232 Port	2711-K3A10L1
RS-232 (DF1) Communication Port ‡	2711-K3A17L1

✶ PanelView 300 terminals are 18…30V dc only.
❄ Terminals with DH-485 communications require application file uploads/downloads through the communication port. The RS-232 printer port on these terminals is for printing only.
‡ This terminal does not have an RS-232 printer port. Use the communication port to upload/download application files.

PanelView 300 Micro Monochrome Terminals - Keypad Only

Description	Cat. No. Keypad ❄
RS-232 (DF1) Communication Port (8-Pin Mini DIN) ✶	2711-M3A18L1
RS-232 (DH-485) Communication Port (8-Pin Mini DIN) ✶	2711-M3A19L1

✶ These terminals do not have an RS-232 printer port Use the communication port to upload/download application files.
❄ PanelView 300 Micro terminals are 18…30V dc only.

PanelView 550 Monochrome Terminals

	Cat. No.		
Description	Keypad ❄ ‡ §	Touch ❄	Key & Touch ❄ ‡ §
DH-485 Communication Ports ✶	2711-K5A2	2711-T5A2L1	2711-B5A2
DH-485 Communication and RS-232 Printer Port ✶	2711-K5A3	2711-T5A3L1	2711-B5A3
RS-232 (DH-485) Communication Port ✶	2711-K5A5	2711-T5A5L1	2711-B5A5
RS-232 (DH-485) Communication and RS-232 Printer Port ✶	2711-K5A9	2711-T5A9L1	2711-B5A9
Remote I/O Communication and RS-232 Printer Port	2711-K5A1	2711-T5A1L1	2711-B5A1
DH+ Communication and RS-232 Printer Port	2711-K5A8	2711-T5A8L1	2711-B5A8
DeviceNet Communication and RS-232 Printer Port	2711-K5A10	2711-T5A10L1	2711-B5A10
ControlNet Communication and RS-232 Printer Port	2711-K5A15	2711-T5A15L1	2711-B5A15
RS-232 (DF1) Communication and RS-232 Printer/Download Port	2711-K5A16	2711-T5A16L1	2711-B5A16
EtherNet/IP Communication and RS-232 Printer Port	2711-K5A20	2711-T5A20L1	2711-B5A20

✶ Terminals with DH-485 communications require application file uploads/downloads through the communication port. The RS-232 printer port on these terminals is for printing only.
❄ Add L1 to the Cat. No. to order a 550 Keypad or Keypad and Touch terminal with DC power instead of AC power, for example, 2711-K5A10L1. PanelView 550 Touch Only terminals are 18…30V dc only.
‡ Add L2 to the Cat. No. of the 550 Keypad or Keypad and Touch terminal to order a stainless steel terminal with AC power, for example, 2711-K5A5L2.
§ Add L3 to the Cat. No. of the 550 Keypad or Keypad and Touch terminal to order a stainless steel terminal with DC power, for example, 2711-B5A10L3.

PanelView 600 Color Terminals

Description	Cat. No.		
	Keypad ❄	Touch ❄	Key & Touch ❄
DH-485 Communication Ports ✶	2711-K6C2	2711-T6C2L1	2711-B6C2
DH-485 Communication and RS-232 Printer Port ✶	2711-K6C3	2711-T6C3L1	2711-B6C3
RS-232 (DH-485) Communication Port ✶	2711-K6C5	2711-T6C5L1	2711-B6C5
RS-232 (DH-485) Communication and RS-232 Printer Port ✶	2711-K6C9	2711-T6C9L1	2711-B6C9
Remote I/O Communication and RS-232 Printer Port	2711-K6C1	2711-T6C1L1	2711-B6C1
DH+ Communication and RS-232 Printer Port	2711-K6C8	2711-T6C8L1	2711-B6C8
DeviceNet Communication and RS-232 Printer Port	2711-K6C10	2711-T6C10L1	2711-B6C10
ControlNet Communication and RS-232 Printer Port	2711-K6C15	2711-T6C15L1	2711-B6C15
RS-232 (DF1) Communication and RS-232 Printer/Download Port	2711-K6C16	2711-T6C16L1	2711-B6C16
EtherNet/IP Communication and RS-232 Printer Port	2711-K6C20	2711-T6C20L1	2711-B6C20

✶ Terminals with DH-485 communications require application file uploads/downloads through the communication port. The RS-232 printer port on these terminals is for printing only.
❄ Add L1 to the Cat. No. to order a 600 Keypad or Keypad and Touch terminal with DC power instead of AC power, for example, 2711-K6C3L1. PanelView 600 Touch Only terminals are 18…30V dc only.

PanelView 1000 Grayscale Terminals

Description	Cat. No.	
	Keypad ❄	Touch ❄
DH-485 Communication and RS-232 Printer Port ✶	2711-K10G3	2711-T10G3
RS-232 (DH-485) Communication and RS-232 Printer Port ✶	2711-K10G9	2711-T10G9
Remote I/O Communication and RS-232 Printer Port	2711-K10G1	2711-T10G1
DH+ Communication and RS-232 Printer Port	2711-K10G8	2711-T10G8
DeviceNet Communication and RS-232 Printer Port	2711-K10G10	2711-T10G10
ControlNet Communication and RS-232 Printer Port	2711-K10G15	2711-T10G15
RS-232 (DF1) Communication and RS-232 Printer/Download Port	2711-K10G16	2711-T10G16
EtherNet/IP Communication and RS-232 Printer Port	2711-K10G20	2711-T10G20

✶ Terminals with DH-485 communications require application file uploads/downloads through the communication port. The RS-232 printer port on these terminals is for printing only.
❄ Add L1 to the Cat. No. to order a 1000 Grayscale terminal with DC power instead of AC power, for example, 2711-K10G3L1.

PanelView 1000 Color Terminals

Description	Cat. No.	
	Keypad ❄	Touch ❄
DH-485 Communication and RS-232 Printer Port ✶	2711-K10C3	2711-T10C3
RS-232 (DH-485) Communication and RS-232 Printer Port ✶	2711-K10C9	2711-T10C9
Remote I/O Communication and RS-232 Printer Port	2711-K10C1	2711-T10C1
DH+ Communication and RS-232 Printer Port	2711-K10C8	2711-T10C8
DeviceNet Communication and RS-232 Printer Port	2711-K10C10	2711-T10C10
ControlNet Communication and RS-232 Printer Port	2711-K10C15	2711-T10C15
RS-232 (DF1) Communication and RS-232 Printer/Download Port	2711-K10C16	2711-T10C16
EtherNet/IP Communication and RS-232 Printer Port	2711-K10C20	2711-T10C20

✶ Terminals with DH-485 communications require application file uploads/downloads through the communication port. The RS-232 printer port on these terminals is for printing only.
❄ Add L1 to the Cat. No. to order a 1000 Color terminal with DC power instead of AC power, for example, 2711-K10C3L1.

Product Accessories

Software

Cat. No.	Description
2711-ND3	PanelBuilder32 Configuration Software for PanelView Standard Terminals (English)
2711-ND3DE	PanelBuilder32 Configuration Software for PanelView Standard Terminals (German)
2711-ND3ES	PanelBuilder32 Configuration Software for PanelView Standard Terminals (Spanish)
2711-ND3FR	PanelBuilder32 Configuration Software for PanelView Standard Terminals (French)
2711-ND3CN	PanelBuilder32 Configuration Software for PanelView Standard Terminals (Chinese)

Memory Cards

Cat. No.	Description
2711-NM13	2 MB PC Flash Memory Card
2711-NM14	4 MB PC Flash Memory Card
2711-NM15	10 MB Flash PC Memory Card
2711-NM232	32 MB Flash ATA Memory Card
2711-NMCC	Memory Card Retainer for PanelView 550, 600, 1000 Keypad or Keypad and Touch Terminals
2711-NMCD	Memory Card Retainer for PanelView 550 Touch Only Terminals
2711-NMCE	Memory Card Retainer for the PanelView 300, 600 Touch Only Terminals

Function Key Legend Kits

Cat. No.	Description
2711-NF1	Function Key Legend Strips for PanelView 550 Terminals
2711-NF4	Function Key Legend Strips for PanelView 600 Terminals
2711-NF6	Function Key Legend Strips for PanelView 1000 Terminals
2711-NF7	Function Key Legend Strips for PanelView 300 Terminals

Mounting Hardware

Cat. No.	Description
2711-NP2	Replacement Mounting Clips for PanelView 600, 1000, 1000E Touch Screen and Keypad terminals.

Real-Time Clock Replacements

Cat. No.	Description
2711-NB3	Real-Time Clock Replacement for PanelView 550 Keypad or Keypad and Touch (Series E and F), 600 Keypad or Keypad and Touch (Series A and B), 1000 Keypad or Touch (Series A and B), all 1400 Terminals
2711-NB4	Real-Time Clock Replacement for PanelView 300 Keypad, 550/600 Touch Only Terminals, 550 Keypad or Keypad & Touch (Series G and later), PV600 Keypad or Keypad & Touch (Series C and later), PV1000 Keypad or Touch (Series C and later).

Backlight Replacements

Cat. No.	Description
2711-NL1	Backlight Replacement Lamp for PanelView 550 (Series A through G) terminals.
2711-NL3	Backlight Replacement Lamp for PanelView 600 Keypad or Keypad and Touch (Series A and B) terminals.
2711-NL4	Backlight Replacement Lamp for PanelView 1000 Color (Series A only) and 1000e (Series A through C) terminals.
2711-NL5	Backlight Replacement Lamp for PanelView 600 Keypad or Keypad and Touch (Series C) terminals.
2711-NL6	Backlight Replacement Kit for PanelView 1000 Color (Series B) and 1000e (Series D) terminals.
2711-NL7	Backlight Replacement Lamp for PanelView 1000 Color (Series C) terminals.
2711-NL9	Backlight Replacement Kit for PanelView 1000 Color (Series D and E) and 1000 Grayscale (Series C and D) terminals.‡
2711-NL10	Backlight Replacement Kit for PanelView 1000 Color (Series F) and 1000 Grayscale (Series E) terminals.

Antiglare Overlays

Cat. No.	Description
2711-NV4	Antiglare Overlay for PanelView 550 Terminals (Quantity 3)
2711-NV4T	Antiglare Overlay for PanelView 550 and 600 Touch Only Terminals (Quantity 3)
2711-NV5	Antiglare Overlay for PanelView 600 Terminals (Quantity 3)
2711-NV6K	Antiglare Overlay for PanelView 1000/1000e Keypad terminals (Quantity 3).
2711-NV6T	Antiglare Overlay for PanelView 1000/1000e Touch Screen terminals (Quantity 3).
2711-NV7K	Antiglare Overlay for PanelView 1400 Keypad Terminals (Quantity 3)
2711-NV7T	Antiglare Overlay for PanelView 1400 Touch Terminals (Quantity 3)
2711-NV8	Antiglare Overlay for PanelView 300 Terminals (Quantity 3)

Power Supply and Terminal Block

Cat. No.	Power Supply and Terminal Block
1747-NP1	Wallmount power supply provides power to 1747-PIC Converter when SLC or network is not connected. 105…132V ac. Separate operating/programming cable required.
2711-TBDC	DC Power Terminal Block for PanelView Plus 400/600 Terminals and PanelView Micro 300 (Quantity 10)

See page 75, Determining Cable Requirements, for cable configuration details.

Cables/Interface Modules/Remote Keyswitch Port

Cat. No.	Description
1747-PIC	Personal Computer Interface Converter converts RS-232 signals to/from DH-485 signals
1747-C10	DH-485 Operating/Programming Cable 1.8 m (6 ft) for 2711-xxA2, -xxA3, -xxC2, -xxG3
1747-C11	DH-485 Operating/Programming Cable .3 m (1 ft) for 2711-xxA2, -xxA3, -xxC2, -xxG3
1747-C20	DH-485 Operating/Programming Cable 6 m (20 ft) for 2711-xxA2, -xxA3, -xxC2, -xxG3
1747-AIC	Isolated Link Coupler for DH-485 Network
1761-NET-AIC	MicroLogix Advanced Interface Converter Module
2706-NC13 ✶	RS-232 Operating Cable, 9-pin D Shell to 9-Pin D Shell, 3 m (10 ft)
2711-NC13 ✶	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 5 m (16.4 ft)
2711-NC14 ✶	RS-232 Operating/Programming Cable, 9-Pin D Shell to 9-Pin D Shell, 10 m (32.7 ft)
2711-NC17	Remote RS-232 Serial Port Assembly for PanelView 1000e and 1400e (Series F and later), PanelView Plus and Standard terminals. Includes a 9-pin RS-232 port assembly to allow remote serial port access.
2711-NC21 ❄	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 5 m (16.4 ft)
2711-NC22 ❄	RS-232 Operating Cable, 9-Pin D Shell to 8-Pin Mini DIN, 15 m (49 ft)
2711-CBL-HM05	RS-232 Operating Cable, 8-Pin Mini DIN to 8-Pin Mini DIN (PanelView 300 Micro to MicroLogix), 5 m (16.4 ft)
2711-CBL-HM10	RS-232 Operating Cable, 8-Pin Mini DIN to 8-Pin Mini DIN (PanelView 300 Micro to MicroLogix), 10 m (32.7 ft)
2711-CBL-PM05	RS-232 Operating/Programming Cable, 9-Pin D Shell to 8-Pin Mini DIN (PanelView 300 Micro to SLC or PLC), 5 m (16.4 ft)
2711-CBL-PM10	RS-232 Operating/Programming Cable, 9-Pin D Shell to 8-Pin Mini DIN (PanelView 300 Micro to SLC or PLC), 10 m (32.7 ft)
1761-CBL-AM00	RS-232 Operating Cable, 8-Pin Mini DIN to 8-Pin Mini DIN (PanelView 300 Micro to MicroLogix), 0.5 m (1.5 ft)
1761-CBL-HM02	RS-232 Operating Cable, 8-Pin Mini DIN to 8-Pin Mini DIN (PanelView 300 Micro to MicroLogix), 2 m (6.5 ft)
1761-CBL-AP00	RS-232 Operating/Programming Cable, 9-Pin D-Shell to 8-Pin Mini DIN (PanelView 300 Micro to SLC or PLC), 0.5 m (1.5 ft)
1761-CBL-PM02	RS-232 Operating/Programming Cable, 9-Pin D-Shell to 8-Pin Mini DIN (PanelView 300 Micro to SLC or PLC), 0.5 m (1.5 ft)

✶ Cable used for operation/communication with the following PanelViews: 2711-xxx5, -xxx9, -xxx16, -xxx17
Cable used for application file transfer or printing with the following PanelViews: 2711-xxx1, -xxx3, -xxx8, -xxx9, -xxx10, -xxx15, -xxx16, -xxx17, -xxx20
❄ Null modem not required

Step 3 - Select:

- *Review Rockwell Software products*
- *Select an HMI software* Package

Select HMI Software

The FactoryTalk Integrated Production and Performance suite provides a window into your application through a robust range of HMI offerings. FactoryTalk View, including FactoryTalk View Site Edition (SE), FactoryTalk View Machine Edition (ME) and FactoryTalk View Studio, are HMI software products designed with a common look, feel, and navigation to help speed HMI application development and training time. Supporting the Rockwell Automation Integrated Architecture, FactoryTalk View is part of the scalable and unified suite of monitoring and control solutions designed to span stand-alone, machine-level applications up through site-level HMI applications across a network. This suite offers you a common development environment, application reuse, and architecture so you can increase productivity, reduce operation costs, and improve quality.

FactoryTalk View includes the PC-based development tool FactoryTalk View Studio as well as FactoryTalk View Machine Edition and FactoryTalk View Site Edition.

FactoryTalk View Machine Edition

FactoryTalk View Machine Edition (ME) is a machine-level HMI product that supports both open and dedicated operator interface solutions for monitoring and controlling individual machines or small processes. It provides a consistent operator interface across multiple platforms, including Microsoft Windows CE and Microsoft Windows 2000 and XP solutions.

FactoryTalk View ME contains two components:

- **FactoryTalk View Studio:** The development environment containing the tools you need for creating all aspects of a human-machine interface (HMI), including graphic displays, trends, alarm reporting and real-time animation. It also provides tools for testing individual displays and entire applications. When development is completed, you will create a run-time file to run on a PanelView Plus, PanelView Plus CE or a personal computer.
- **FactoryTalk View ME Station**: The runtime environment. ME Station runs your run-time application. Station is embedded in PanelView Plus and PanelView Plus CE terminals. Run-time applications can also be run on a personal computer. It is installed by default, but requires an additional activation to be run standalone.

See how companies around the world use this product:
www.rockwellautomation.com/casestudies

The features of FactoryTalk View ME include:

- Alarming to quickly alert operators to conditions requiring immediate action
- Security to restrict operator access to specific displays
- RecipePlus for machine or process recipe management
- Runtime language switching
- Global objects
- Predefined objects
- RSLogix 5000 process faceplates
- Capability to convert your runtime application to development application

FactoryTalk View Site Edition

FactoryTalk View Site Edition is an HMI for supervisory-level monitoring and control applications. It has a distributed and scalable architecture that supports distributed-server/multi-user applications, giving maximum control over information where you want it. This highly scalable architecture can be applied to a stand-alone one-server/one-user application or to multiple users interfacing with multiple servers. FactoryTalk View Site Edition includes runtime servers and clients, allowing customers to develop and deploy a multi-server/multi-client application. Such applications are developed with the FactoryTalk View Studio development tool.

- Streamline HMI development with a common editor for FactoryTalk View ME and SE software
- Share data and integrate seamlessly with other FactoryTalk enabled products. The FactoryTalk Services Platform provides common services such as security, alarming and diagnostics across products.
- Optimize plant communication with FactoryTalk Live Data and premier connectivity to Rockwell Automation controllers
- Maximize productivity by directly accessing tag information in the controller, eliminating the need to create HMI tags
- Configure your application from anywhere on the network and easily make changes to a running system with remote, multi-user configuration capability
- Define graphics displays once and reference them throughout a distributed system
- Provide an audit trail of operator and alarm information in a centralized log database
- Customize the operator experience using client-side VBA and the exposed graphics object model
- Maximize the system availability with online creation and editing of graphics and optional server redundancy

Both FactoryTalk View ME Edition and FactoryTalk View Site Edition share a common design environment called FactoryTalk View Studio that allows you to create applications in a single design environment. FactoryTalk View Studio supports editing and reusing projects for improved portability between embedded machine and supervisory HMI systems. With FactoryTalk View, all software products in the suite are built on the same integrated, scalable architecture. Application developers can import entire machine-level applications into supervisory-level applications or drag individual components and drop them right into supervisory projects, saving development time and reducing engineering and training costs.

Users also can import PanelBuilder32 (PanelView) applications into FactoryTalk View Machine Edition and RSView32 applications into FactoryTalk View Site Edition, protecting their current HMI investments.

With FactoryTalk View Studio, you can:

- Configure a single operator station or configure an entire distributed application from one location
- Access tags from OPC servers throughout the system via a tag browser that presents direct controller tags and HMI tags in a logical hierarchy
- Remotely configure RSLinx and FactoryTalk View Site Edition servers
- Create displays using a full-featured graphics editor
- Define display text in multiple languages, allowing operators to switch the displayed language at run time
- User pre-built faceplate displays to easily interface with the process control functions in the Logix controllers

Software Comparison

TECHNOLOGY			
Customer Needs/Wants:	**FactoryTalk View Site Edition**	**FactoryTalk View Machine Edition**	**RSView32**
Operating Systems	Windows XP/2000 Windows Server 2003	Windows XP/2000/CE	Windows XP/2000/NT/9x/ Windows Server 2003
Embedded Platforms		✓	
Windows Domain Security	✓	✓	✓
OPC/ActiveX	✓	✓	✓
FactoryTalk Enabled	✓	✓	✓
Server-side VBA			✓
Client-side VBA	✓		

ARCHITECTURE				
Customer Needs/Wants:	**FactoryTalk View Site Edition**		**FactoryTalk View Machine Edition**	**RSView32**
Primary Application	Supervisory level: single-station or multiple-server, multiple-client		Machine level: single-station	Supervisory level: single-station or single-server, multiple-client
Tag-based HMI	✓		✓	✓
Direct Referencing	✓		✓	
	Network (Distributed)	**Local**		
Max. Number of Servers/Clients	10/50			1/20
Web Clients	✓			✓
Thin Clients (Terminal Services)	✓			✓
Multi-user Development	✓			
Remote Configuration at Runtime	✓			
Redundancy - Data Server	✓			
Redundancy - HMI Server	✓			Active Display

FEATURES			
Customer Requirements:	**FactoryTalk View Site Edition**	**FactoryTalk View Machine Edition**	**RSView32**
Animation Visibility, color, fill, horizontal and vertical position, width, height, rotation, horizontal and vertical slider, and more	and touch	no touch	and touch
Alarming	Tag-based and Device-based: digital & analog; definable alarm severities, alarm log	State-based (from controller); alarm log	Tag-based: digital & analog; definable alarm severities, alarm log
Data Logging	20 data log models per project; each with up to 10,000 tags; log to ODBC or proprietary database	1 data log model; up to 100 tags; 300K records max; export to dbf	20+ data log models; each with up to 10,000 tags; log to ODBC or dbf database
Trending	TrendX 4.0	TrendX 4.0 (subset)	TrendX 3.1 & native
Security	Security assigned to tags, graphic displays, macros, commands, OLE objects; local or Windows security	Display-based; local or Windows security	Security assigned to tags, graphic displays, macros, commands, OLE objects; local or Windows security
Additional Features	Test run; macros; derived tags; event detector	Test run; macros	Test run; macros; derived tags; event detector
Pricing Model	Display-based pricing; multiple levels	Included with PanelView Plus, PanelView Plus CE,; or Display-based pricing; multiple levels for XP/2000	Tag-based pricing; multiple levels

Rockwell Software HMI Products

FactoryTalk View Site Edition

Cat. No.	Description
Order localized versions of FactoryTalk View Site Edition (SE) by replacing the EN in the catalog number with DE for German, FR for French, or JP for Japanese.	
9701-VWSTENE	FactoryTalk View Studio - Configuration software for developing and testing machine level and supervisory level HMI applications
9701-VWSCWAENE	FactoryTalk View SE Client - Software for viewing and interacting with FactoryTalk View SE Servers
9701-VWSCRAENE	FactoryTalk View SE View Client - Provides read-only capabilities
FactoryTalk View SE Server - Stores HMI project components and serves same to clients, for example, graphics displays.	
FactoryTalk View SE Site Edition Station	
9701-VWSB025AENE	FactoryTalk View SE Station 25 Display
9701-VWSB100AENE	FactoryTalk View SE Station 100 Display
9701-VWSB250AENE	FactoryTalk View SE Station 250 Display
9701-VWSB000AENE	FactoryTalk View SE Station Unlimited Display

FactoryTalk View Site Edition with RSLinx Enterprise

Cat. No.	Description
The Linx bundle is RSLinx Classic (2.x) for FactoryTalk View and also RSLinx Enterprise	
9701-VWSS025LENE	FactoryTalk View SE Server 25 Display with RSLinx Bundle
9701-VWSS100LENE	FactoryTalk View SE Server 100 Display with RSLinx Bundle
9701-VWSS250LENE	FactoryTalk View SE Server 250 Display with RSLinx Bundle
9701-VWSS000LENE	FactoryTalk View SE Server Unlimited Display with RSLinx Bundle

FactoryTalk View Machine Edition

Cat. No.	Description
Order localized versions of FactoryTalk View Machine Edition (ME) by replacing the EN in the catalog number with DE for German, FR for French, or JP for Japanese.	
FactoryTalk View Machine Edition includes RSLinx Enterprise and KEPServer Enterprise.	
9701-VWSTMENE	FactoryTalk View Studio for Machine Edition - Configuration Software for developing and testing machine level HMI applications
FactoryTalk View Machine Edition Station Runtime for Windows 2000/XP ✶	
Used to run FactoryTalk View ME projects created with FactoryTalk View Studio on any computer with the Windows 2000/XP operating system including the Industrial Computers ✶	
9701-VWMR015AENE	FactoryTalk View ME Station Runtime 15 Displays - Windows 2000/XP
9701-VWMR030AENE	FactoryTalk View ME Station Runtime 30 Displays - Windows 2000/XP
9701-VWMR075AENE	FactoryTalk View ME Station Runtime 75 Displays - Windows 2000/XP
9701-VWMR250AENE	FactoryTalk View ME Station Runtime 250 Displays - Windows 2000/XP

✶ FactoryTalk View ME Station Runtime is included with PanelView Plus and PanelView Plus CE terminals.

RSView32

Cat. No.	Description
Monitors, controls and acquires data	
9301-2SE3104	RSView32 Runtime 150 with RSLinx Single Node
9301-2SE3103	RSView32 Runtime 150 with RSLinx - Includes 9301-2SE3100 RSView32 Runtime 150 and 9355-WABENE RSLinx
9301-2SE3100	RSView32 Runtime 150 - 150 Tag Database and Stand Alone Runtime
9301-2SE2104	RSView32 Works 150 with RSLinx Single Node
9301-2SE2103	RSView32 Works 150 with RSLinx - Includes 9301-2SE2100 RSView32 Works 150 and 9355-WABENE RSLinx
9301-2SE2100	RSView32 Works 150 - 150 Tag Database including Development and one embedded Runtime
9301-2SE3204	RSView32 Runtime 300 with RSLinx Classic Single Node
9301-2SE3203	RSView32 Runtime 300 with RSLinx Classic - Includes 9301-2SE3203 RSView32 Runtime 300 and 9355-WABENE RSLinx Classic
9301-2SE3200	RSView32 Runtime 300 - 300 Tag Database and Stand Alone Runtime
9301-2SE2204	RSView32 Works 300 with RSLinx Classic Single Node
9301-2SE2203	RSView32 Works 300 with RSLinx Classic - Includes 9301-2SE2200 RSView32 Works 300 and 9355-WABENE RSLinx Classic
9301-2SE2200	RSView32 Works 300 - 300 Tag Database including Development and one embedded Runtime
9301-2SE3304	RSView32 Runtime 1500 with RSLinx Classic Single Node
9301-2SE3303	RSView32 Runtime 1500 with RSLinx Classic including 9301-2SE3300 RSView32 Runtime 1500 and 9355-WABENE RSLinx Classic
9301-2SE3300	RSView32 Runtime 1500 - 1500 Tag Database and Stand Alone Runtime
9301-2SE2304	RSView32 Works 1500 with RSLinx Classic Single Node
9301-2SE2303	RSView32 Works 1500 with RSLinx Classic including 9301-2SE2300 RSView32 Works 1500 and 9355-WABENE RSLinx Classic
9301-2SE2300	RSView32 Works 1500 - 1500 Tag Database including Development and one embedded Runtime
9301-2SE3353	RSView32 Runtime 5000 with RSLinx Classic including 9301-2SE3500 RSView32 Runtime 5000 and 9355-WABENE RSLinx Classic
9301-2SE3350	RSView32 Runtime 5000 - 5000 Tag Database and Stand Alone Runtime
9301-2SE2353	RSView32 Works 5K with RSLinxRSView32 Works 5000 with RSLinx Classic - Includes 9301-2SE2350 RSView32 Works 5000 and 9355-WABENE RSLinx Classic
9301-2SE2350	RSView32 Works 5000 - 5000 Tag Database including Development and one embedded Runtime
9301-2SE3403	RSView32 Runtime 32K with RSLinx Classic - Includes 9301-2SE3400 RSView32 Runtime 2K and 9355-WABENE RSLinx Classic
9301-2SE3400	RSView32 Runtime 32K - 32,000 Tag Database and Stand Alone Runtime
9301-2SE2403	RSView32 Works 32K with RSLinx Classic - Includes 9301-2SE2400 RSView32 Works 32K and 9355-WABENE RSLinx Classic
9301-2SE2400	RSView32 Works 32K - 32,000 Tag Database including Development and one embedded Runtime
9301-2SE3503	RSView32 Runtime 100K with RSLinx Classic - Includes 9301-2SE3500 RSView32 Runtime 100K and 9355-WABENE RSLinx Classic
9301-2SE3500	RSView32 Runtime 100K - 100,000 Tag Database and Stand Alone Runtime
9301-2SE2503	RSView32 Works 100K with RSLinx Classic - Includes 9301-2SE2500 RSView32 Works 100K and 9355-WABENE RSLinx Classic
9301-2SE2500	RSView32 Works 100K - 100,00 Tag Database including Development and one embedded Runtime
9301-RSVWSENE	RSView32 WebServer
9301-MSGRPR0ENE	RSView32 Messenger Pro

RSView32 Active Display System

Cat. No.	Description
Client/Server Enhancement to RSView32	
9305-RSVADSENE	RSView32 Active Display Server - Includes one Active Display Server (no clients)
9305-ADSGWENE	RSView32 Active Display Server with RSLinx Gateway - Includes one Active Display Server (no clients) and 9355-WABGWENE RSLinx Gateway
9305-RSVADFCENE	RSView32 Active Display Floating Client - Includes one client with server-side activation
9305-RSVADDCENE	RSView32 Active Display Dedicated Client - Includes one client with client-side activation
9305-RSVADFVCENE	RSView32 Active Display Floating View Client - Includes one view-only client with server-side activation

RSView32 Languages

Cat. No.	Description
Choose language by replacing the xx in the catalog number with FR for French, ES for Spanish, IT for Italian, DE for German, PT for Portuguese, JP for Japanese, ZH for Chinese and KO for Korean.	
9301-2SE2100xxE	RSView32 Works 150
9301-2SE2103xxE	RSView32 Works 150 with RSLinx Classic Bundle
9301-2SE2200xxE	RSView32 Works 300
9301-2SE2203xxE	RSView32 Works 300 with RSLinx Classic Bundle
9301-2SE2300xxE	RSView32 Works 1500
9301-2SE2303xxE	RSView32 Works 1500 with RSLinx Classic Bundle
9301-2SE2350xxE	RSView32 Works 5K
9301-2SE2353xxE	RSView32 Works 5K with RSLinx Classic Bundle
9301-2SE2400xxE	RSView32 Works 32K
9301-2SE2403xxE	RSView32 Works 32K with RSLinx Classic Bundle
9301-2SE2500xxE	RSView32 Works 100K
9301-2SE2503xxE	RSView32 Works 100K with RSLinx Classic Bundle
9301-2SE3100xxE	RSView32 Runtime 150
9301-2SE3103xxE	RSView32 Runtime 150 with RSLinx Classic Bundle
9301-2SE3200xxE	RSView32 Runtime 300
9301-2SE3203xxE	RSView32 Runtime 300 with RSLinx Classic Bundle
9301-2SE3300xxE	RSView32 Runtime 1500
9301-2SE3303xxE	RSView32 Runtime 1500 with RSLinx Classic Bundle
9301-2SE3350xxE	RSView32 Runtime 5K
9301-2SE3353xxE	RSView32 Runtime 5K with RSLinx Classic Bundle
9301-2SE3400xxE	RSView32 Runtime 32K
9301-2SE3403xxE	RSView32 Runtime 32K with RSLinx Classic Bundle
9301-2SE3500xxE	RSView32 Runtime 100K
9301-2SE3503xxE	RSView32 Runtime 100K with RSLinx Classic Bundle
Choose language by replacing the xx in the catalog number with FR for French, ES for Spanish, IT for Italian, DE for German, PT for Portuguese.	
9305-RSVADSxxE	RSView32 Active Display Server
9305-RSVADFCxxE	RSView32 Active Display Floating Client
9305-RSVADDCxxE	RSView32 Active Display Dedicated Client
9305-RSVADFVCxxE	RSView32 Active Display Floating View Client

3rd Party Connectivity

Cat. No.	Description
9301-OPCSRVENE	KEPServer Enterprise for FactoryTalk View Site Edition and RSView32

Step 4 - Select:

- *Upload/download (direct) cables*
- *Runtime cables*

For information on:	See:
Application Upload/Download (Direct) Cables	this page
PanelView Plus Runtime Communication Cables	page 76
PanelView Standard Runtime Communication Cables	page 79
InView Runtime Communication Cables	page 82

Determine Cable Requirements

Use the tables on the following pages to determine appropriate cables for application upload/downloads and runtime communications to controllers and interface modules.

Application Upload/Download Cables

PanelView Plus and PanelView Plus CE Terminals	Cable to Personal Computer
2711P PanelView Plus 400 and 600 2711P PanelView Plus 700 to 1500	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft), 2706-NC13 (3 m/10 ft)

PanelView Standard Terminals	Cable to Personal Computer
PanelView 300 Micro 2711-M3A18L1, -M3A19L1	1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)
DH-485 Comm Port only or DH-485 Comm Port and RS-232 Printer Port PanelView 300 to 1400 2711-KxA2, -KxC2, -BxA2, -BxC2, -TxA2, -TxC2, -KxA3, -KxC3, -KxG3, -BxA3, -BxC3 -TxA3, -TxC3, -TxG3	1747-UIC
RS-232 (DH-485) Comm Port only or RS-232 (DH-485) Comm Port and RS-232 Printer Port PanelView 300 to 1400 2711-KxA5, -KxC5, -BxA5, -BxC5, -TxA5, -TxC5, -KxA9, -KxC9, -KxG3, -BxA9, -BxC9 -TxA9, -TxC9, -TxG9	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)
RS-232 (DF1) Comm Port only PanelView 300 2711-K3A17	
RS-232 (DF1) Comm Port only and RS-232 Printer Port PanelView 500T to 1400 2711-KxA16, -KxC16, -KxG16, -BxA16, -BxC16, -TxA16, -TxG16	
DeviceNet Comm Port and RS-232 Printer Port PanelView 300 to 1400 2711-KxA10, -KxC10, -KxG10, -BxA10, -BxC10, -TxA10, -TxC10, -TxG10	
ControlNet Comm Port and RS-232 Printer Port PanelView 550T to 1400 2711-KxA15, -KxC15, -KxG15, -BxA15, -BxC15, -TxA15, -TxC15, -TxG15	
Remote I/O Comm Port and RS-232 Printer Port PanelView 550T to 1400 2711-KxA1, -KxC1, -KxG1, -BxA1, -BxC1, -TxA1, -TxC1, -TxG1	
EtherNet/IP Comm Port and RS-232 Printer Port PanelView 550T to 1400 2711-KxA20, -KxC20, -KxG20, -BxA20, -BxC20, -TxA20, -TxC20, -TxG20	
DH+ Comm Port and RS-232 Printer Port PanelView 550T to 1400 2711-KxA8, -KxC8, -KxG8, -BxA8, -BxC8, -TxA8, -TxC8, -TxG8	

Message Displays	Cable to Personal Computer
InView 2706-P42x, -P43x, -P44x, -P72x, -P74x, -P9x	2706-PCABLE1

InView Communication Modules	Cable to Personal Computer
DH-485 Comm Port only or DH-485 Comm Port & RS-232 Port	1747-UIC
DeviceNet Comm Port and RS-232 Port	2711-NC13 (3 m/6 ft) 2711-NC14 (10 m/32 ft)
ControlNet Comm Port and RS-232 Port	
Remote I/O Comm Port and RS-232 Port	
Ethernet Comm Port and RS-232 Port	
DH+ Comm Port and RS-232 Port	

PanelView Plus Runtime Communication Cables

		Cables: PanelView Plus and PanelView Plus CE Terminals to SLC Controllers				
Protocol	**PanelView Plus Comm Port**	**SLC-500, 5/01, 5/02 CH 1 (RJ45) (DH-485)**	**SLC-5/03, 5/04, 5/05 CH 0 (9-pin RS-232) (DF1 or DH-485)**	**SLC-5/03 CH 1 (RJ45) (DH-485)**	**SLC-5/04 CH 1 (DH+)**	**SLC-5/05 CH 1 (ENET)**
DF1 (any)	RS-232 (DF1) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	N/A	N/A	N/A
DH-485 (any)	RS-232 (DH-485) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	N/A	N/A
	DH-485 Port PVPlus 400 and 600 2711P-xxx3xx, 2711P-RN3	1747-C10 (2 m/6 ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m/20 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	1747-C10 (2 m/6 ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m/20 ft)	N/A	N/A
	DH-485 Port PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft)	N/A	N/A
ControlNet xxx15xx	ControlNet Port PVPlus 400 and 600 2711P-RN15C PVPlus 700 to 1500 2711P-xxx15xx, 2711P-RN15S	N/A	N/A	N/A	N/A	N/A
DeviceNet	DeviceNet Port PVPlus 400 and 600 2711P-RN10C PVPlus 700 to 1500 2711P-RN10H	N/A	Use 1747-SDN Module with DeviceNet Cable			
EtherNet/IP all except xxx5xx	EtherNet/IP Port PVPlus 400 to 1500 All except 2711P-xxx5xx	N/A	Use 1761-NET-ENI Module with Ethernet Cable	N/A	N/A	2711P-CBL-EX04 Ethernet Crossover Cable✶
Remote I/O xxx1xx xxx6xx	Remote I/O Port PVPlus 400 and 600 2711P-xxx1xx, 2711P-RN1 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	SLC 5/02 only Use 1747-SN Scanner with Shielded Twinaxial Cable (1770-CD1)	Use 1747-SN Scanner with Shielded Twinaxial Cable (1770-CD1)			
DH+ xxx6xx xxx8xx	DH+ Port PVPlus 400 and 600 2711P-xxx8xx, 2711P-RN8 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	N/A	N/A	N/A	Shielded Twinaxial Cable (1770-CD1)	N/A

✶ EtherNet/IP direct connection from PanelView Plus terminal to an SLC 5/05 controller requires a hub or the crossover cable.

		Cables: PanelView Plus and PanelView Plus CE Terminals to PLC-5 and MicroLogix Controllers		
Protocol	**PanelView Plus Comm Port**	**PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)**	**MicroLogix 1500LRP CH1 (9-pin RS-232) (DF1 or DH-485)**	**MicroLogix 1000, 1200, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)**
DF1 (any)	RS-232 (DF1) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) Use 9-to-25 Pin Adapter	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49ft) Null Modem Not Required✶
DH-485 (any)	RS-232 (DH-485) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49ft) Null Modem Not Required✶
	DH-485 Port PVPlus 400 and 600 2711P-xxx3xx, 2711P-RN3 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	N/A	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port
ControlNet xxx15xx	ControlNet Port PVPlus 400 and 600 2711P-RN15C PVPlus 700 to 1500 2711P-xxx15xx, 2711P-RN15S	To PLC-5C with ControlNet Cable	N/A	N/A
DeviceNet	DeviceNet Port PVPlus 400 and 600 2711P-RN10C PVPlus 700 to 1500 2711P-RN10H	Use 1771-SDN Module with DeviceNet Cable	N/A	N/A
EtherNet/IP all except xxx5xx	EtherNet/IP Port PVPlus 400 to 1500 All except 2711P-xxx5xx	To PLC-5E with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable
Remote I/O xxx1xx xxx6xx	Remote I/O Port PVPlus 400 and 600 2711P-xxx1xx, 2711P-RN1 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	Shielded Twinaxial Cable (1770-CD1)	N/A	N/A
DH+ xxx6xx xxx8xx	DH+ Port PVPlus 400 and 600 2711P-xxx8xx, 2711P-RN8 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	Shielded Twinaxial Cable (1770-CD1)	N/A	N/A

✶ The AIC+ module is recommended for isolation purposes when PanelView Plus terminals and controller are not on the same power supply.

		Cables: PanelView Plus and PanelView Plus CE Terminals to Logix Controllers		
Protocol	**PanelView Plus Comm Port**	**ControlLogix CH0 (9-pin RS-232) (DF1)**	**CompactLogix CH0 (9-pin RS-232) (DF1 or DH-485)**	**FlexLogix CH0 (9-pin Mini DIN) (DF1 or DH-485)**
DF1 (any)	RS-232 (DF1) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)
DH-485 (any)	RS-232 (DH-485) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)
	DH-485 Port PVPlus 400 and 600 2711P-xxx3xx, 2711P-RN3 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	N/A
ControlNet xxx15xx	ControlNet Port PVPlus 400 and 600 2711P-RN15C PVPlus 700 to 1500 2711P-xxx15xx, 2711P-RN15S	Use 1756-CNB Module with ControlNet Cable	To 1769-L35E with ControlNet Cable	Use 1788-CNC or 1788-CNF Module with ControlNet Cable
DeviceNet	DeviceNet Port PVPlus 400 and 600 2711P-RN10C PVPlus 700 to 1500 2711P-RN10H	Use 1756-DNB Module with DeviceNet Cable	Use 1769-SDN Module with DeviceNet Cable	Use 1788-DNBO Module with DeviceNet Cable
EtherNet/IP all except xxx5xx	EtherNet/IP Port PVPlus 400 to 1500 All except 2711P-xxx5xx	Use 1756-ENET or 1756-ENBT Module with Ethernet Cable	To 1769-L35E with Ethernet Cable	Use 1788-ENBT Module with Ethernet Cable
Remote I/O xxx1xx xxx6xx	Remote I/O Port PVPlus 400 and 600 2711P-xxx1xx, 2711P-RN1 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A	N/A
DH+ xxx6xx xxx8xx	DH+ Port PVPlus 400 and 600 2711P-xxx8xx, 2711P-RN8 PVPlus 700 to 1500 2711P-xxx6xx, 2711P-RN6	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A	N/A

		Cables: PanelView Plus and PanelView Plus CE Terminals to Interface Module				
Protocol	**PanelView Plus Comm Port**	**1747-AIC**	**1761-NET-AIC Port 1 (9-pin)**	**1761-NET-AIC Port 2 (8-pin Mini DIN)**	**1761-NET-AIC Port 3 (DH-485)**	**1761-NET-DNI 1761-NET-ENI**
DF1 (any)	RS-232 (DF1) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required	N/A	1761-CBL-AP00 (0.5 m) 1761-CBL-PM02 (2 m) 2711-CBL-PM05 (5 m) 2711-CBL-PM10 (10 m)
DH-485 (any)	RS-232 (DH-485) Port (9-pin) PVPlus 400 to 1500 2711P-RN22C	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required	N/A	N/A
	DH-485 Port PVPlus 400 and 600 2711P-xxx3xx, 2711P-RN3	1747-C10 (2 m/6 ft) 1747-C11(0.3 m/1 ft) 1747-C20 (6 m/20 ft)	N/A	N/A	1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft) To Single AIC+	N/A
	DH-485 Port PVPlus 700 to 1500 2711P-xxx6xx, -RN6	Direct Connection to Single AIC with Belden 9842 Cable✶	N/A	N/A	Direct Connection to Single AIC with Belden 9842 Cable✶	N/A

✶ Use the serial port on the PanelView Plus terminal with an AIC+ module for a DH-485 network solution.

PanelView Standard Runtime Communication Cables

		Cables: PanelView Standard Terminals to SLC Controllers				
Protocol	**PanelView Standard Comm Port**	**SLC-500, 5/01, 5/02 CH1 (RJ45) (DH-485)**	**SLC-5/03, 5/04, 5/05 CH0 (9-pin RS-232) (DF1 or DH-485)**	**SLC-5/03 CH1 (RJ45) (DH-485)**	**SLC-5/04 CH1 (DH+)**	**SLC-5/05 CH1 (ENET)**
DF1 xxx16 xxx17 xxx18	RS-232 (DF1) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx18	N/A	1761-CBL-AP00 (0.5 m) 1761-CBL-PM02 (2 m) 2711-CBL-PM05 (5 m) 2711-CBL-PM10 (10 m)	N/A	N/A	N/A
	RS-232 (DF1) Port (9-pin) PanelView 300 to 1400 2711-xxx16, 2711-xxx17	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	N/A	N/A	N/A
DH-485 xxx2 xxx3 xxx5 xxx9 xxx19	RS-232 (DH-485) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx19	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	1761-CBL-AP00 (0.5 m) 1761-CBL-PM02 (2 m) 2711-CBL-PM05 (5 m) 2711-CBL-PM10 (10 m)	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	N/A	N/A
	DH-485 Port (9-pin) PanelView 300 to 1400 2711P-xxx5, -xxx9	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 1 or 2	N/A	N/A
	DH-485 Port (RJ45) PanelView 300 to 1400 2711P-xxx2, -xxx3	1747-C10 (2 m/6 ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m /20 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	1747-C10 (2 m/6 ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m/20 ft)	N/A	N/A
DeviceNet xxx10	DeviceNet Port PanelView 300 to 1400 2711P-xxx10	To SLC 5/02 with 1747-SDN and DeviceNet Cable	Use 1747-SDN Module with DeviceNet Cable			
ControlNet xxx15	ControlNet Port PanelView 550T to 1400 2711P-xxx15	N/A	PanelView does not support SLC ControlNet configurations.			
EtherNet/IP xxx20	EtherNet/IP Port PanelView 550T to 1400 2711-xxx20	N/A	N/A	N/A	N/A	2711P-CBL-EX04 Ethernet Crossover Cable✶
Remote I/O xxx1	Remote I/O Port PanelView 550T to 1400 2711-xxx1	SLC 5/02 only Use 1747-SN with Shielded Twinaxial Cable (1770-CD1)	Use 1747-SN Scanner with Shielded Twinaxial Cable (1770-CD1)			
DH+ xxx8	DH+ Port PanelView 550T to 1400 2711-xxx8	N/A	N/A	N/A	Shielded Twinaxial Cable (1770-CD1)	N/A

✶ EtherNet/IP direct connection from PanelView terminal to an SLC 5/05 controller requires a hub or the crossover cable.

		Cables: PanelView Standard Terminals to PLC-5 and MicroLogix Controllers		
Protocol	**PanelView Standard Comm Port**	**PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)**	**MicroLogix 1500LRP CH1 (9-pin RS-232) (DF1 or DH-485)**	**MicroLogix 1000, 1200, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)**
DF1 (any)	RS-232 (DF1) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx18	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft) Use 9-to-25 Pin Adapter	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AM00 (0.5 m/1.5 ft) 1761-CBL-HM02 (2 m/6.5 ft) 2711-CBL-HM05 (5 m/16 ft) 2711-CBL-HM10 (10 m/32 ft)✶
	RS-232 (DF1) Port (9-pin) PanelView 300 to 1400 2711-xxx16, 2711-xxx17	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) Use 9-to-25 Pin Adapter	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required✶
DH-485 xxx2 xxx3 xxx5 xxx9 xxx19	RS-232 (DH-485) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx19	N/A	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AM00 (0.5 m/1.5 ft) 1761-CBL-HM02 (2 m/6.5 ft) 2711-CBL-HM05 (5 m/16 ft) 2711-CBL-HM10 (10 m/32 ft)✶
	RS-232 (DH-485) Port (9-pin) PanelView 300 to 1400 2711-xxx5, -xxx9	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required✶
	DH-485 Port (RJ45) PanelView 300 to 1400 2711-xxx2, -xxx3	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	Use AIC+ Module (1761-NET-AIC) Connect to Port 3
DeviceNet xxx10	DeviceNet Port PanelView 300 to 1400 2711-xxx10	Use 1771-SDN Module with DeviceNet Cable	Use 1761-NET-DNI Module with Devicenet Cable	Use 1761-NET-DNI Module with DeviceNet Cable
ControlNet xxx15	ControlNet Port PanelView 550T to 1400 2711-xxx15	To PLC-5C with ControlNet Cable	N/A	N/A
EtherNet/IP xxx20	EtherNet/IP Port PanelView 550T to 1400 2711-xxx20	To PLC-5E with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable
Remote I/O xxx1	Remote I/O Port PanelView 550T to 1400 2711-xxx1	Shielded Twinaxial Cable (1770-CD1)	N/A	N/A
DH+ xxx8	DH+ Port PanelView 550T to 1400 2711-xxx8	Shielded Twinaxial Cable (1770-CD1)	N/A	N/A

✶ The AIC+ Module is recommended for isolation purposes when the PanelView terminal and controller are not on same power supply.

Protocol	PanelView Standard Comm Port	Cables: PanelView Standard Terminals to Logix Controllers ControlLogix CH0 (9-pin RS-232) (DF1)	CompactLogix CH0 (9-pin RS-232) (DF1 or DH-485)	FlexLogix CH0 (9-pin Mini DIN) (DF1 or DH-485)
DF1 xxx16 xxx17 xxx18	RS-232 (DF1) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx18	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)
	RS-232 (DF1) Port (9-pin) PanelView 300 to 1400 2711-xxx16, 2711-xxx17	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)
DH-485 xxx2 xxx3 xxx5 xxx9 xxx19	RS-232 (DH-485) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx19	N/A	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	N/A
	RS-232 (DH-485) Port (9-pin) PanelView 300 to 1400 2711-xxx6, -xxx9	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	N/A
	DH-485 Port (RJ45) PanelView 300 to 1400 2711-xxx2, -xxx3	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	N/A
DeviceNet xxx10	DeviceNet Port PanelView 300 to 1400 2711-xxx10	Use 1756-DNB Module with DeviceNet Cable	Use 1761-NET-DNI Module with Devicenet Cable	N/A
ControlNet xxx15	ControlNet Port PanelView 550T to 1400 2711-xxx15	Use 1756-CNB Module with ControlNet Cable	N/A	Use 1788-CNC Module with ControlNet Cable
EtherNet/IP xxx20	EtherNet/IP Port PanelView 550T to 1400 2711-xxx20	Use 1756-ENET Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable
Remote I/O xxx1	Remote I/O Port PanelView 550T to 1400 2711-xxx1	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A	N/A
DH+ xxx8	DH+ Port PanelView 550T to 1400 2711-xxx8	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A	N/A

Protocol	PanelView Standard Comm Port	Cables: PanelView Standard Terminals to Interface Modules 1747-AIC	1761-NET-AIC Port 1 (9-pin)	1761-NET-AIC Port 2 (8-pin Mini DIN)	1761-NET-AIC Port 3 (DH-485)	1761-NET-DNI 1761-NET-ENI
DF1 xxx16 xxx17 xxx18	RS-232 (DF1) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx18	N/A	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AM00 (0.5 m/1.5 ft) 1761-CBL-HM02 (2 m/6.5 ft) 2711-CBL-HM05 (5 m/16 ft) 2711-CBL-HM10 (10 m/32 ft)	N/A	1761-CBL-AM00 (0.5 m/1.5 ft) 1761-CBL-HM02 (2 m/6.5 ft) 2711-CBL-HM05 (5 m/16 ft) 2711-CBL-HM10 (10 m/32 ft)
	RS-232 (DF1) Port (9-pin) PanelView 300 to 1400 2711-xxx16, 2711-xxx17	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required✶	N/A	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)
DH-485 xxx2 xxx3 xxx5 xxx9 xxx19	RS-232 (DH-485) Port (8-pin Mini DIN) PanelView 300 Micro 2711-xxx19	N/A	1761-CBL-AP00 (0.5 m/1.5 ft) 1761-CBL-PM02 (2 m/6.5 ft) 2711-CBL-PM05 (5 m/16 ft) 2711-CBL-PM10 (10 m/32 ft)	1761-CBL-AM00 (0.5 m/1.5 ft) 1761-CBL-HM02 (2 m/6.5 ft) 2711-CBL-HM05 (5 m/16 ft) 2711-CBL-HM10 (10 m/32 ft)	N/A	N/A
	RS-232 (DH-485) Port (9-pin) PanelView 300 to 1400 2711-xxx5, 2711-xxx9	N/A	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required✶	N/A	N/A
	DH-485 Port (RJ45) PanelView 300 to 1400 2711-xxx2, 2711-xxx3	1747-C10 (2 m/6 ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m/20 ft)	N/A	N/A	1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft)	N/A

✶ Series A cables (2711-NC21, -NC22) for direct connection to 1761-NET-AIC module only. Do not use Series A cables on a network of AIC+ modules connected with Belden cables.

InView Runtime Communication Cables

		Cables: InView Displays to Controllers				
Protocol	**InView Port or Comm Module Port**	**SLC-500, 5/01, 5/02 CH1 (RJ45) (DH-485)**	**SLC-5/03, 5/04, 5/05 CH0 (9-pin RS-232) (DH-485)**	**SLC-5/03 CH1 (RJ45) (DH-485)**	**SLC-5/04 CH1 (DH+)**	**SLC-5/05 CH1 (ENET)**
RS-232 Serial Point-to-Point (any)	RS-232 Port InView Display	N/A	N/A	N/A	N/A	N/A
RS-485 Serial Multi-drop (any)	RS-485 Port (Terminal Block) InView Display	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port 3 Daisy Chain to Other InViews	N/A	N/A	N/A
DH-485	DH-485 (RJ45) Port Comm Module 2706-PDH485x	1747-C10 (2 m/6 ft) 1747-C20 (6 m/20 ft)	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	1747-C10 (2 m/6 ft) 1747-C20 (6 m/20 ft)	N/A	N/A
DeviceNet	DeviceNet Port Comm Module 2706-PDNETx	To SLC 5/02 with 1747-SDN Module and DeviceNet Cable	Use 1747-SDN Module with DeviceNet Cable	Use 1747-SDN Module with DeviceNet Cable	Use 1747-SDN Module with DeviceNet Cable	Use 1747-SDN Module with DeviceNet cable
ControlNet	ControlNet Port Comm Module 2706-PCNETx	N/A	InView does not support SLC ControlNet configurations.			
EtherNet/IP	EtherNet/IP Port Comm Module 2706-PENETx	N/A	N/A	N/A	N/A	2711P-CBL-EX04 Ethernet Crossover Cable✶
Remote I/O	Remote I/O Port Comm Module 2706-PRIOx	SLC 5/02 only use 1747-SN with shielded twinaxial cable (1770-CD1)	Use 1747-SN Scanner with Shielded Twinaxial Cable (1770-CD1)			
DH+	DH+ Port Comm Module 2706-PDHPx	N/A	N/A	N/A	Shielded Twinaxial Cable (1770-CD1)	N/A

✶ A direct connection from an InView EtherNet/IP communication module to an SLC 5/05 controller requires a hub or the crossover cable.

		Cables: InView Displays to Controllers		
Protocol	**InView Port or Comm Module Port**	**PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)**	**ControlLogix CH0 (9-pin RS-232) (DF1)**	**MicroLogix 1000, 1200, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)**
RS-232 Serial Point-to-Point (any)	RS-232 Port InView Display	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) Use 9-to-25 Pin Adapter	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) Null Modem Not Required✶
RS-485 Serial Multi-drop (any)	RS-485 Port (Terminal Block) InView Display	Use AIC+ Module (1761-NET-AIC) Connect to Port 3 Daisy Chain to Other InViews	Use AIC+ Module (1761-NET-AIC) Connect to Port 3 Daisy Chain to Other InViews	Use AIC+ Module (1761-NET-AIC) Connect to Port 3 Daisy Chain to Other InViews
DH-485	DH-485 (RJ45) Port Comm Module 2706-PDH485x	N/A	N/A	Use AIC+ Module (1761-NET-AIC) Connect to Port 3
DeviceNet	DeviceNet Port Comm Module 2706-PDNETx	Use 1771-SDN Module with DeviceNet Cable	Use 1756-DNB Module with DeviceNet Cable	Use 1761-NET-DNI Module with DeviceNet Cable
ControlNet	ControlNet Port Comm Module 2706-PCNETx	To PLC-5C with ControlNet Cable	Use 1756-CNB Module with ControlNet Cable	N/A
EtherNet/IP	EtherNet/IP Port Comm Module 2706-PENETx	To PLC-5E with Ethernet Cable	Use 1756-ENET Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable
Remote I/O	Remote I/O Port Comm Module 2706-PRIOx	Shielded Twinaxial Cable (1770-CD1)	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A
DH+	DH+ Port Comm Module 2706-PDHPx	Shielded Twinaxial Cable (1770-CD1)	Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD1)	N/A

✶ The AIC+ module is recommended for isolation purposes when the InView display and controller are not on same power supply.

		Cables: InView Displays to Controllers		
Protocol	**InView Port or Comm Module Port**	**MicroLogix 1500LRP CH1 (9-pin RS-232) (DF1 or DH-485)**	**CompactLogix CH0 (9-pin RS-232) (DF1 or DH-485)**	**FlexLogix CH0 (9-pin Mini DIN) (DF1 or DH-485)**
RS-232 Serial Point-to-Point (any)	RS-232 Port InView Display	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)	2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft)
RS-485 Serial Multi-drop (any)	RS-485 Port (Terminal Block) InView Display	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	Use AIC+ Module (1761-NET-AIC) Connect to Port 3
DH-485	DH-485 (RJ45) Port Comm Module 2706-PDH485x	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	Use AIC+ Module (1761-NET-AIC) Connect to Port 3	N/A
DeviceNet	DeviceNet Port Comm Module 2706-PDNETx	Use 1761-NET-DNI Module with DeviceNet Cable	Use 1761-NET-DNI Module with DeviceNet Cable	N/A
ControlNet	ControlNet Port Comm Module 2706-PCNETx	N/A	N/A	Use 1788-CNC Module with ControlNet Cable
EtherNet/IP	EtherNet/IP Port Comm Module 2706-PENETx	Use 1761-NET-ENI Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable	Use 1761-NET-ENI Module with Ethernet Cable
Remote I/O	Remote I/O Port Comm Module 2706-PRIOx	N/A	N/A	N/A
DH+	DH+ Port Comm Module 2706-PDHPx	N/A	N/A	N/A

		Cables: InView Displays to Interface Module				
Protocol	**InView Port or Comm Module Port**	**1747-AIC**	**1761-NET-AIC Port 1 (9-pin)**	**1761-NET-AIC Port 2 (8-pin Mini DIN)**	**1761-NET-AIC Port 3 (DH-485)**	**1761-NET-DNI 1761-NET-ENI**
RS-485 Serial Multi-drop (any)	RS-485 Port (Terminal Block) InView Display	N/A	N/A	N/A	N/A	N/A
DH-485	DH-485 (RJ45) Port Comm Module 2706-PDH485x	1747-C10 (2 m/6 ft) 1747-C20 (6 m/20 ft)	N/A	N/A	1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft)	N/A

Use a spreadsheet to record the results of your selection criteria. Examples are shown below.

Summary

Platform Type: Dedicated Message Display - InView

Selection Criteria	Requirement	Catalog Number	Quantity
Display Size	2-line Tri-Color	2706-P42C	2
Communications	DeviceNet	2706-PDNETM	2
Software	InView Messaging Software	2706-PSW1	1
Configuration Cable	Program download cable	2706-PCABLE1	1
Runtime Cable	DeviceNet network cable	DeviceNet cable	50 m

Platform Type: Dedicated Graphic Terminal - PanelView Plus

Selection Criteria	Requirement	Catalog Number	Quantity
Display Size Operator Input Communications Memory Power	10-inch Keypad and Touch RS-232 (DF1) 64 MB Flash / 64 MB RAM 24V dc	2711P-B10C4D1	1
Software	FactoryTalk View Studio for ME software	9701-VWSTMENE	1
Configuration Cable	Program download cable	2711-NC13	1
Runtime Cable	RS-232 (DF1) cable	2711-NC13	50 m

Platform Type: Open Windows XP - Integrated Display Computer

Selection Criteria	Requirement	Catalog Number	Quantity
Drive Type Display Size Package Operator Input Bezel Type Operating System	Rotating Media 15-inch Performance Touch Stainless Steel Windows XP Professional	6181P-15TPXPHSS	2
Software	FactoryTalk View Studio for ME software FactoryTalk View ME Station Runtime, 15 displays	9701-VWSTMENE 9701-VWMR015AENE	1
Configuration Cable	Not Needed	N/A	0
Runtime Cable	Ethernet Network cable	Ethernet cable	50 m

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication VIEW-SG001D-EN-P – October 2007
Supersedes Publication VIEW-SG001C-EN-P – March 2006

Industrial Wireless Solution Additions

Expanded Line of Gateways and Modems*

Monitoring the difficult parts of your operation has never been simpler.

Cooper Crouse-Hinds® now offers a complete solution of wireless modems and I/O gateways within the Industrial Wireless Solutions product line. Industrial modems provide wireless access to information housed in data loggers and PLCs within your plant so you can keep abreast of vital control parameters. I/O gateways provide a comprehensive line of radios which interface with the varied fieldbus protocols you currently have in the field. You'll now be able to provide instrumentation signals using the most common control protocols for PLC, DCS, and SCADA.

WIRELESS MODEMS - Class I, Div. 2**

Wireless modems are used to connect PLCs in industrial environments. They can also provide wireless access to field data loggers or data acquisition units in process plants. 900 MHz (Frequency Hopping Spread Spectrum) and 2.4 GHz (Direct Sequence Spread Spectrum) devices are now available.

Catalog Number	Description
D2 W MDME 900	900 MHz Wireless Ethernet Modem
D2 W MDME 2400 1	2.4 GHz Wireless Ethernet Modem (100mW)
D2 W MDME 2400 3	2.4 GHz Wireless Ethernet Modem (300mW)

WIRELESS MODEM FEATURES

- The 900 MHz modem is capable of sending/transmitting over 20+ miles when using a higher gain antenna, whereas the 2.4 GHz modem can send/transmit over 5 miles with a high gain antenna
- 10/100 BaseT Ethernet plus RS232/RS485 serial ports
- Military-grade AES security encryption of wireless data
- Modems can increase their radio range via repeaters
- Message filtering at MAC and IP address level
- Configuration and diagnostics via web browser
- Remote configuration and diagnostics via wireless link
- Automatic changeover to another access point if a wireless link fails (mesh networking)
- Modbus Master capability for both Modbus TCP and serial Modbus RTU
- Configurable as Access Point/Client; Bridge/Router/Repeater

WIRELESS I/O GATEWAYS - Class I, Div. 2**

Wireless gateways are capable of communicating with other I/O wireless devices contained in Literature #4932-0808, as well as PLCs, SCADA systems, and DCSs that operate using the following protocols:

Catalog Number†	Protocol
D2 W GMD 900††	Modbus Master and Slave / DF1 Interface
D2 W GPR1 900	Profibus-DP Slave Interface
D2 W GPR2 900	Profibus-DP Master Interface
D2 W GET1 900	Allen-Bradley® EtherNet/IP, Modbus TCP, TCP/IP functions
D2 W GDET1 900	DeviceNet Slave Interface
D2 W GM1 900	Modbus Plus Slave Interface

Gateways can also be used to wirelessly link control systems operating under differing protocols (such as Ethernet or Modbus) by performing signal conversions. Additionally, each gateway is capable of sending/transmitting over 20 miles when using an antenna.

**Radios listed in Literature #4932-0808 are certified for Class I, Division 2.
†Transmitted distances can vary due to site-specific conditions (topology, RF noise, etc.)
††Included in Literature #4932-0808.
Allen-Bradley® is a registered trademark of Rockwell Automation.

*Addendum to Literature #4932-0808

For more information, please contact your local Cooper Crouse-Hinds Sales Representative, or contact our Customer Service Center at 866-764-5454 or wireless.support@cooperindustries.com.

Accessories

Antennas

Cooper Crouse-Hinds antennas for modems and gateways are available in a variety of dB gain ratings and for application-specific needs. Cooper Crouse-Hinds Sales Representatives can help you select the appropriate antenna. Antennas for use with the 2.4 GHz Wireless Ethernet Modem are detailed below (900 MHz antennas are listed in Literature #4932-0808).

SG2400EL (2.4 GHz Collinear Antenna)

- 5.1dB gain
- Designed for use with the Cooper Crouse-Hinds CC10 SMA, or CC3 SMA coaxial cable extender kits
- At data link 2.4 GHz frequencies, it is important to keep cable runs to the shortest length possible; where a long run is unavoidable, a suitable low loss cable (such as a RU400) should be used
- Mounting brackets and hardware provided
- Connector: N-Type (female)
- Height: 55 cm
- Impedance: 50 ohms

MD2400EL (2.4 GHz Collinear Antenna)

- 0dB gain
- Approximately 15 feet (5m) of low loss RG58 coaxial cable is terminated with a male SMA connector
- Mounting brackets and hardware provided
- Length: 23 cm
- Impedance: 50 ohms

Y2400 18EL (GHz 18 Element Yagi Antenna)

- 18dB gain
- Suitable with CC10 SMA / CC20 SMA coaxial extenders
- Mounting brackets and hardware provided
- Connector: N-Type (female)
- Length: 70 cm; diameter: 8 cm
- Impedance: 50 ohms

Z2400EL (2.4 GHz Collinear Antenna)

- 10dB gain
- Connector: N-Type (female) connector built inside of mounting tube
- Mounting pole clamp included (304 stainless steel)
- Length: 85 cm
- Impedance: 50 ohms

WH2400 SMA (2.4 GHz Whip Antenna)

- Nominal gain: 0dB
- Designed for short distances (50 feet or less) and for indoor applications only
- Connector: SMA (male)
- Length: 54 mm
- Impedance: 50 ohms

Cables

Configuration cables are needed to commission the radios during installation procedures. A shorter cable is available for antennas which are positioned up to 10 feet away from the modem or gateway.

CBLETH C5A (Straight-through Configuration Cable)

- Used to connect to and communicate with the D2 W MDME 900 and D2 W MDME 2400 Ethernet modems using a PC or via a network router, switch, or hub
- Length: 2 meters

CBLETH C5X (Crossover Configuration Cable)

- Used to connect to and communicate with a D2 W GET1 900 Ethernet gateway using a PC or via a network router, switch, or hub
- Length: 2 meters

CC3 SMA (Coaxial Antenna Cable)

- 1dB loss (@ 900MHz); 2dB loss (@ 2.4 GHz)
- Length: 3 meters (10 feet)
- Connector: SMA (male) and N-Type (male)
- Impedance: 50 ohms

Cooper Crouse-Hinds
P.O. Box 4999 • Syracuse, NY 13221
Toll Free: (866) 764-5454
Fax: (315) 477-5179 FAX Orders Only: (866) 653-0640
crouse.customerctr@cooperindustries.com

Allen-Bradley

AC Drive Solutions Optimized for HVAC Applications

Rockwell Automation

With over one hundred years of industrial motor control technology and expertise, Rockwell Automation introduces a world class line of variable speed AC drive solutions specifically designed for the commercial market.

Allen-Bradley PowerFlex® HVAC drives **are an ideal, cost-effective solution for variable torque fan and pump applications in schools and universities, office and commercial buildings, hospitals and medical centers, hotels and casinos and manufacturing facilities — wherever air-handling effectiveness, efficiency and energy savings are critical.**

PowerFlex® 400

SIMPLE, COST-EFFECTIVE, HVAC CONTROL

Available in power ratings of 3.0-150 HP @ 380-480V AC and 3.0 - 50 HP @ 200-240V AC, the PowerFlex 400 AC drive is designed to meet global OEM, contractor and end-user demands for flexibility, space savings and ease-of-use. PowerFlex 400 offers a wide range of built-in features allowing for easy installation, start-up, and seamless building automation system integration including:

- Sleep function
- Purge frequency and freeze/fire interlock
- Integral PID controller
- Skip frequencies and bands
- Integral LCD keypad
- Selectable fan/pump curves
- Automatic restart
- Flying start
- Auxiliary motor control
- Damper control input

cost-effective

reliability

DURABILITY AND RUGGEDNESS

With a reputation built on quality and reliability, all Allen-Bradley PowerFlex drives are developed, tested and proven to withstand the harshest operating environments. Our HVAC drives are specifically UL Plenum rated, allowing for direct mounting in an air handling system. Our drives also meet seismic requirements of the 2003 International Building Code as specified by AC156.

SEAMLESS BUILDING AUTOMATION SYSTEM INTEGRATION

Rockwell Automation is an industry leader in automation network development and integration, providing seamless data transfer and communications capabilities throughout an enterprise. With built-in network connectivity, the PowerFlex HVAC drives are designed to be easily integrated into building automation networks. And, with our user friendly drive software tools, you can easily program, monitor and control HVAC drive operation.

- RS485 communications integral to base drive
- Embedded Modbus RTU and Metasys N2 protocols are parameter selectable and require no additional hardware or software
- Supports Drive Serial Interface (DSI) communication modules (DeviceNet™, EtherNet/IP™ and Profibus™) and accessories

integration

PACKAGED FOR PERFORMANCE

Flexible packaging features and options allow for easy installation and start-up. Disconnect and contactor bypass packages simplify installation and start-up by combining operator interface, control, communications and power options in preconfigured assemblies.

- Main input disconnect package
- 3 contactor full feature bypass with disconnect package
- 3 contactor basic bypass with disconnect package

performance

ROCKWELL AUTOMATION POWER QUALITY SOLUTIONS

In addition to the PowerFlex 400 line of AC drives and packages, Allen-Bradley industrial AC drives offer a wide array of techniques to reduce drive harmonics, including 12 Pulse and 18 Pulse Converters, Harmonic Filters, Active Power Filters, and Regenerative Active Front Ends.

Rockwell Automation also brings an expertise in Power and Energy Management Solutions, allowing you to gain access to a complete portfolio of systems, products, communications and applications geared at optimizing energy consumption and improving productivity while lowering your overall energy costs.

solutions

A BRAND YOU CAN TRUST

And because the Allen-Bradley AC drive offering is from Rockwell Automation, you can be sure these world-class solutions come backed by leading service and support, maximizing your investment now and in the future.

MOTOR CONTROL EXPERTISE

For over a century, Allen-Bradley has been providing motor control solutions for a broad range of industries and applications. In addition to our new HVAC drives, we offer a complete line of PowerFlex AC drives ranging from fractional to 8500 HP. To compliment this extensive offering, Allen-Bradley also offers a line of Control-Matched Motors, NEMA and IEC contactors, soft starters and disconnect switches.

expertise

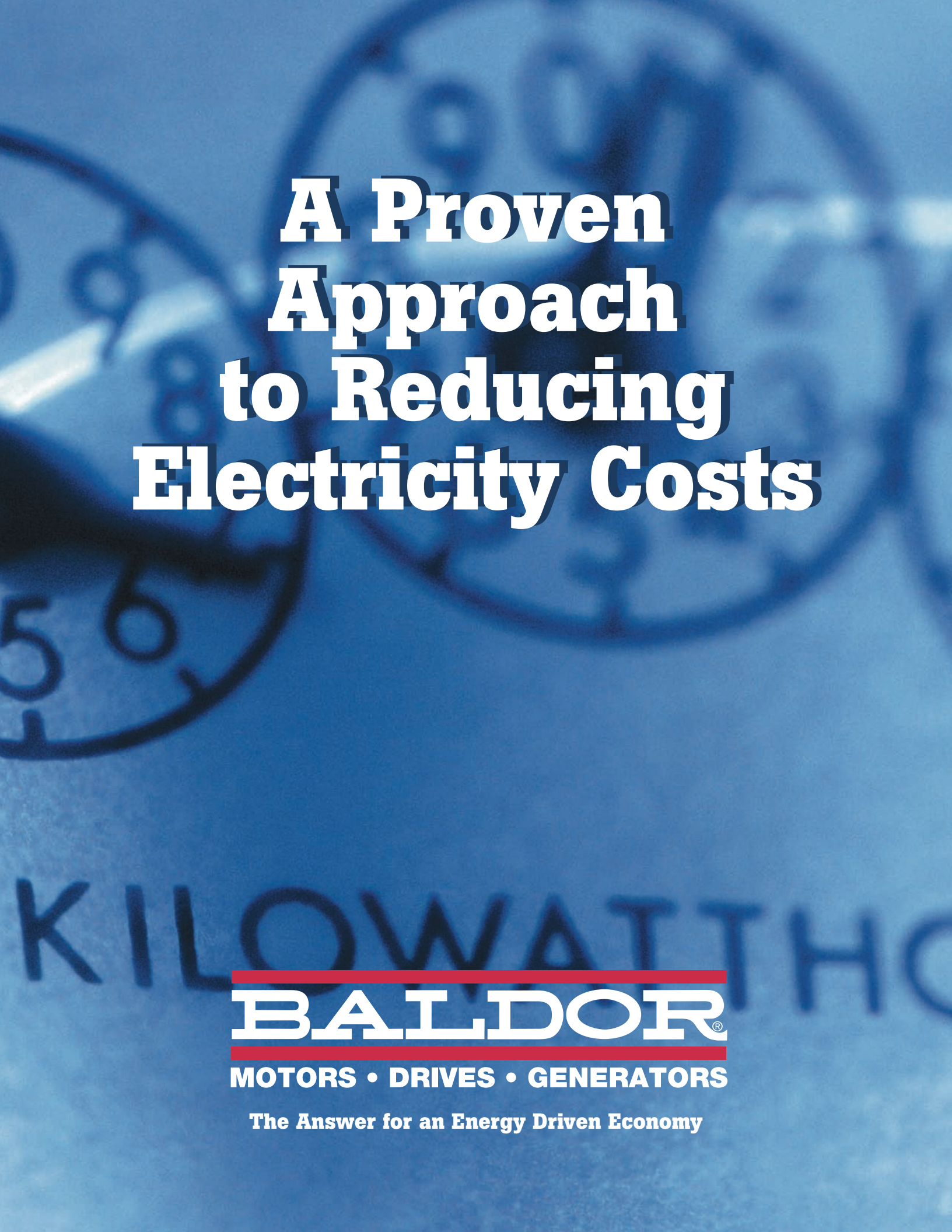
www.rockwellautomation.com

Corporate Headquarters
Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions
Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products
Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433
Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 1774
Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

Publication 22C-CL001B-EN-P — February 2005
Supersedes Publication 22C-BR001A-EN-P — April 2004



A Proven Approach to Reducing Electricity Costs

BALDOR®

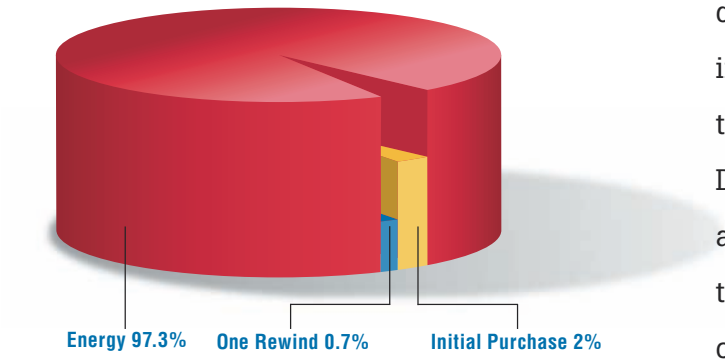
MOTORS • DRIVES • GENERATORS

The Answer for an Energy Driven Economy

First in Energy Efficiency Since 1920

The history of energy efficiency in industrial motors is really the story of Baldor Electric Company. For the past eight decades, Baldor has led the industry in developing products that deliver greater performance and reliability while using less electricity. From the company's founding in the 1920s through today, Baldor has introduced one efficiency enhancing advancement after another. In fact, many of the advancements initiated by Baldor have later been adopted as industry standards.

The issue of energy efficiency for electric motors and drives is becoming increasingly relevant as electricity costs continue to rise.



Companies are now competing in an environment of rising energy costs and the uncertainty of available electricity. These dynamics require the kind of forward-thinking industrial motor, drive, and generator supplier that anticipates customer needs and delivers products that save money and improve productivity. That company is Baldor.

Why is Energy Efficiency Important?

Electric motor-driven systems used in industrial processes consume some 679 billion kWh or 63 percent of all electricity used in U.S. industry, according to a Department of Energy report published in 1998. The report goes on to reveal that industrial motor electricity consumption could be reduced by up to 18 percent if companies were to apply "proven efficiency technologies and practices." Specifically, the DOE recommends motor efficiency upgrades and application improvements. The purpose of this brochure is to show you the energy saving opportunities from using premium efficient motors

Leadership in Energy Savings for More Than Eighty Years.

1924

In the company's first product catalog, Baldor establishes its charter to "build a better motor" which requires "a minimum of energy."

1976

First to put full-load motor efficiency ratings on all motor nameplates.

1976

First motor company to receive Federal Energy Administration Merit Award.

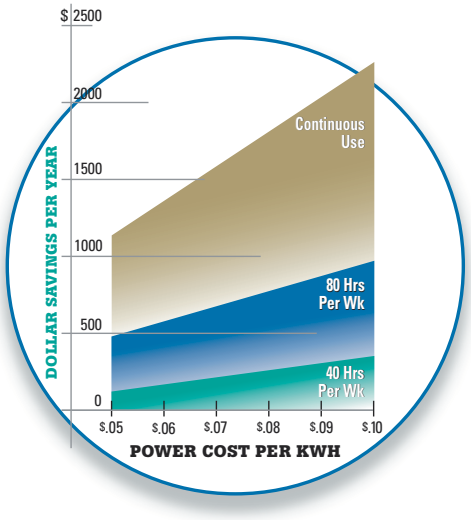
1983

Baldor Super-E® premium efficient motors introduced.

and drives. The opportunities are real.

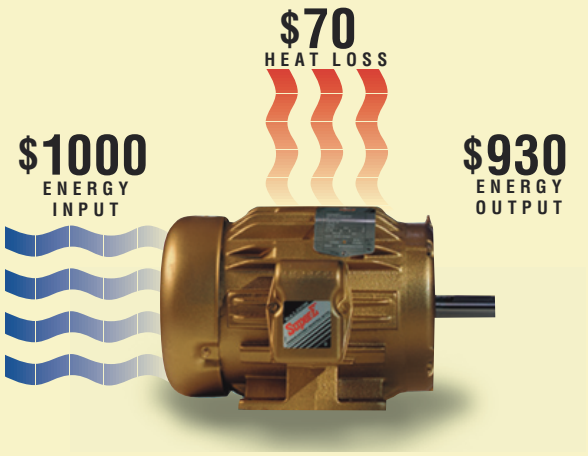
In 1992, the Energy Policy Act (EPAct) established minimum efficiency standards for industrial electric motors built after October 1997. Yet, only about 10 percent of all motors in use today comply with the minimum efficiency levels the Act mandates. When you factor in the savings potential of using adjustable speed drives in many applications, it's easy to see that the environment, along with your profitability, stand to benefit significantly.

What Is Higher Efficiency Worth?



Savings from using a 40 Hp Baldor Super-E – 94.5 percent efficiency compared with an average industrial motor – 88 percent efficiency.

How Is Motor Efficiency Measured?



The efficiency of any machine, including an electric motor, is determined by the amount of useful power it produces compared to the amount of electricity required to operate it. The graphic above illustrates how a Baldor Super-E effectively turns $1,000 in electrical power into $930 worth of mechanical power. Since motor efficiencies are commonly expressed as a percentage, you can see that this Super-E efficiency rating equals 93 percent. Measuring specific efficiency ratings involves precise lab testing. To do this, Baldor uses the IEEE Standard 112, Test Method B. This is the most complete and accurate method to test motor efficiency, encompassing all energy losses that might occur.

1986

Electric motor "soft" starters added to product line.

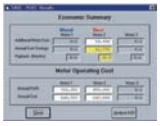
1990

Baldor introduces the Series 11 inverter (adjustable speed drive).

1991

Canadian electric utility, BC Hydro, approves Baldor as the first motor company to label motors "Power Smart."

1992

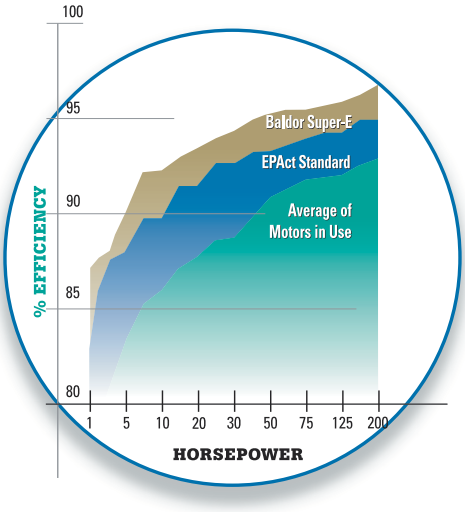


Baldor makes it easy to calculate energy savings with the SAVE software tool.

The Baldor Super-E®

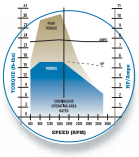
In the mid-1970s, a southeastern tire manufacturing plant asked Baldor if it were possible to increase the operating efficiencies of motors in their plants. Baldor engineers determined that considerable energy savings could be gained from a better motor design. By adding more copper to the windings, upgrading the laminations to a higher premium-grade steel, designing precision air gaps between the rotor and stator, and reducing fan losses in the motor, Baldor was able to supply the plant with the premium efficient motors it needed. This was the birth of the Baldor Super-E®. Today's upgraded and expanded Super-E product line offers some of the highest levels of efficiency in more than 500 stock motors rated from 1 to 1500 horsepower. Super-E, severe duty, close-coupled pump, IEEE 841, washdown, and explosion-proof models are also available with a three-year warranty or better. (Our IEEE motors have a five-year warranty.) Called a "key breakthrough" by the Consortium of Energy Efficiency, the Baldor Super-E was recognized by the CEE in 1998 as the first premium efficiency motor line to meet their stringent efficiency criteria citing, "For the first time, one manufacturer will carry all qualifying products." In 2001, the CEE efficiency levels were adopted as the NEMA Premium® efficient levels and expanded to 500 horsepower. The chart on the left page illustrates how Baldor Super-E

How Baldor Super-E Efficiencies Compare to Industry Standards.



The efficiency level of Baldor motors exceeds the level of the average installed motor base.

1993



Matched Performance™ introduced, providing lab tested performance data on motors and drives showing their adjustable speed operating range.

1995

Introduction of the Baldor SmartMotor,® all-in-one compatible motor and adjustable speed control.

1996

ISR® (Inverter Spike Resistant®) magnet wire standard on all Baldor motors, 1 Hp and larger.

1997

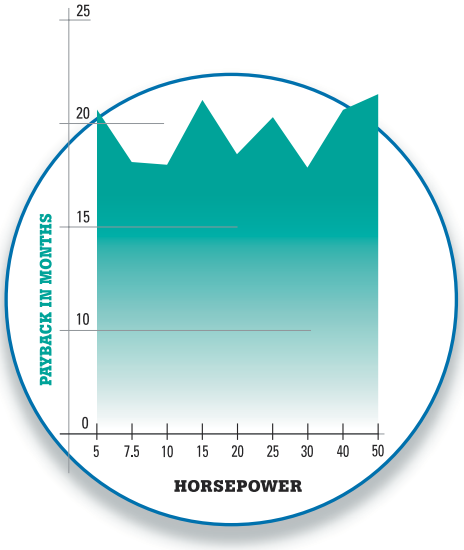
Debut of Baldor Standard-E® motors, 1-200 Hp motors that meet EPAct high efficiency levels.

efficiencies exceed both EPAct standards and the average efficiency of motors in use today.

Premium Efficiency Pays for Itself

To understand what a motor really costs, compare initial purchase price with the cost of the electricity it uses over its working lifetime. Often, too much attention is paid to purchase price. For most motors, this initial cost represents less than two percent of its lifetime cost. Electricity accounts for nearly 98 percent. Baldor Electric Company's motors and drives save customers money every minute they operate. Whether it's lower energy costs or greater reliability, these savings go straight to the bottom line. Baldor is the industry leader in overall efficiency ratings. Better than 96 percent of the energy consumed by some of Baldor's Super-E motors is converted to mechanical work. The Baldor Super-E runs cooler and longer with greater reliability than any other industrial motor. When you consider that a typical 50 horsepower motor costs over $25,000 to operate continuously in a year, it's easy to see how just a few percentage points of higher efficiency can quickly reduce electricity costs. Even seemingly modest percentage point differences in efficiency ratings can yield substantial electricity cost savings when the motor is operating continuously every day.

Payback And The Baldor Super-E



Payback is the time (in months) it takes for the cumulative energy savings to equal the additional cost of a new Super-E motor. Payback will vary depending on the motor's use.

1998

Baldor Super-E motors are first to meet new CEE efficiency standards.

1998

Baldor's Standard-E® line earns Product of the Year recognition from the readers of *Plant Engineering*.

1999

Upgraded Super-Es meet NEMA MG 1 Part 31.4.4.2 spec, making them "Inverter Ready."

2000

Baldor first to introduce Exxon POLYREX®EM bearing grease on all motors, providing superior performance and moisture resistance.

Case Studies

Peak Shaving Generators: A Win-Win Approach to Energy Savings

Baldor learned that the local electric provider for our Westville, Oklahoma, plant offered a rate schedule that provided significant savings for avoiding peak electricity usage times. Westville signed up and installed Baldor generators to subsidize power from the utility and effectively shave peak electricity demand. Westville had to effectively remove over 700 kW of demand from the utility without adversely affecting the production processes. The largest load removed was achieved by installing a Baldor 140 kW (175 kVA) trailer-mounted diesel powered generator for each of the three 100-ton air conditioning units that supply the plant with cold air.

The Baldor diesel generator sets installed in Westville were designed for both peak shaving and standby power. Therefore, these units can also supply power to critical loads in the event of an outage, which is not uncommon with the tornados and ice storms in Oklahoma.

After installing the generators and implementing several other energy efficiency ideas, electricity costs were dramatically reduced. Based on an annual consumption of 7.1 million kWh, the kWh charge was reduced by $213,000 producing a net annual savings of over $104,000.

Three Baldor 140kW/175kVA trailer-mounted diesel generators were installed to each of the three 100-ton air conditioning units at our Westville, OK plant. This configuration provided for the reduction of approximately 450 kW of load shaving.

Proactive Motor Planning Lowers Energy Costs and Downtime

Skyrocketing energy prices were sapping profit margins from RMC Pacific Materials Cement Division of Davenport, California. The plant faced a pressing need to lower its electricity consumption and update its facility's energy efficiency to remain profitable. RMC recognized the potential to cut electricity consumption,

2001

Motor Decisions Matter®

Baldor becomes sponsor.

2001

Introduced generators for peak shaving.

2002

NEMA Premium®

NEMA Premium® standard introduced. Baldor becomes partner.

2002

Expanded generator line to 2000 kW.

reduce expensive maintenance, and increase reliability in their processes by replacing their older motors with new, energy-efficient models. RMC Cement Division's motors are very large (up to 3000 horsepower) and fall outside the current specifications for NEMA Premium™ high-efficiency motors. Baldor worked with RMC to specify and install premium-efficient motors for the Cement Division. Baldor also assisted in developing a motor management program that compares motor replacement efficiencies, resulting in a comprehensive motor replacement strategy.

As a result, the RMC Cement Division received a $110,000 rebate from their electric utility for decreasing demand on the local energy grid through lower electricity consumption. The non-energy benefits of RMC's motor management plan included important factors like reduced plant downtime due to less need for motor maintenance. Calculations show that RMC Pacific Materials Cement Division's forward-thinking energy strategy could save them up to 3.1 million kWh in electricity usage.

2003

Became ENERGY STAR® Partner.

2004

Expanded Super-E energy efficient products.

Establish a Partnership with Your Electric Utility to Reduce Energy Costs

There are more than 30 U. S. electric utilities currently offering rebates to customers who buy premium efficient motors. For certain ratings, rebates can be as high as 15 percent of the purchase price for new and retrofit applications. In addition, a number of utility companies have incentive programs focused on decreasing energy use at the application level. Adjustable speed drives and soft starts qualify for these incentives.

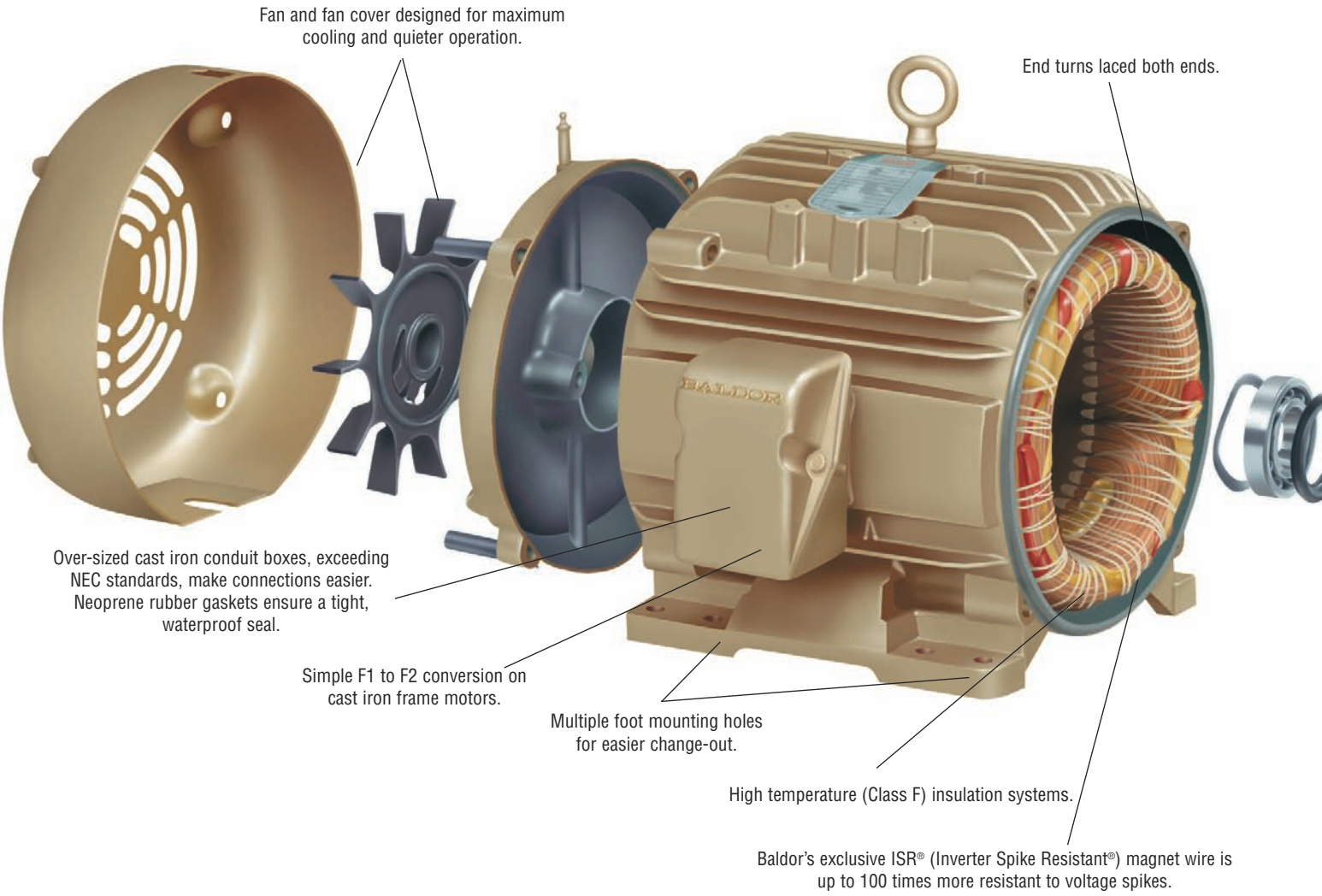
At the time of writing this brochure, the U.S. DOE offers up to $100,000 in matching funds to conduct plant surveys to determine ways to reduce energy consumption for certain industries.

Industry should treat their electrical suppliers as a partner and work with them to understand their utility usage and investigate ways to reduce the charges. Peak demand charges from starting large motors can be reduced by adding adjustable speed drives and soft starters or simply starting large motors at different times.

Today's businesses rely on electricity for all facets of daily operation. Costly and unreliable electric suppliers can be managed through a program consisting of a reduction of electricity consumption by adding more efficient Baldor Super-E® premium efficient motors and Baldor adjustable speed drives.

Backup electrical power can be supplied by the addition of Baldor generators. Additionally, lower utility rates may be possible by use of a Baldor generator to do peak shaving or allow adoption of a consistent utility rate.

The Baldor Super-E®: Premium Efficiency Inside And Out



What makes a Baldor Super-E® better?

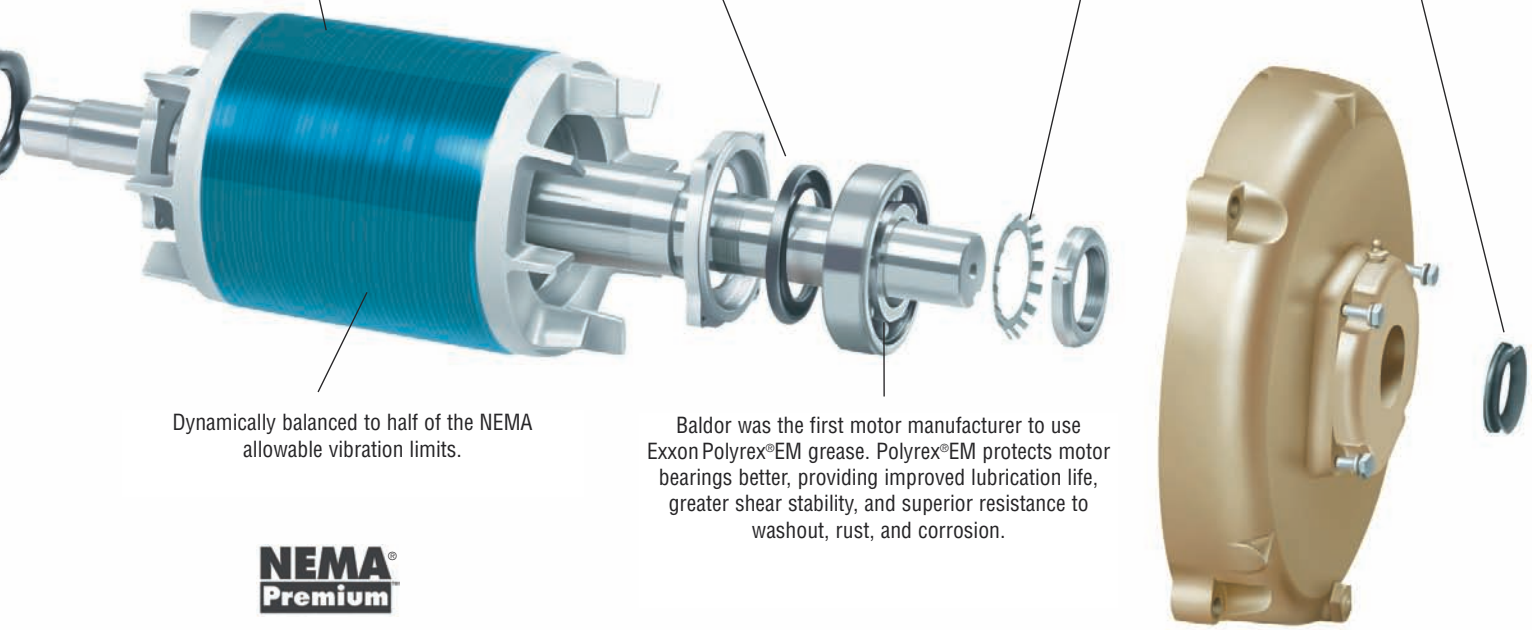
Premium-grade copper wire, more iron, annealed laminations with premium-grade steel and insulated oxide coating, superior bearings, large end rings, low-loss fans, and the expertise that enables each Super-E to run cooler and longer with better reliability than any other industrial motor.

High-pressure die cast aluminum rotor through 449T frames coated to prevent corrosion.

Neoprene rubber shaft slinger on pulley of motor prevents contaminants from entering.

Patented Lube-Lok® retainer grease seal on both ends, 250T frame and up.

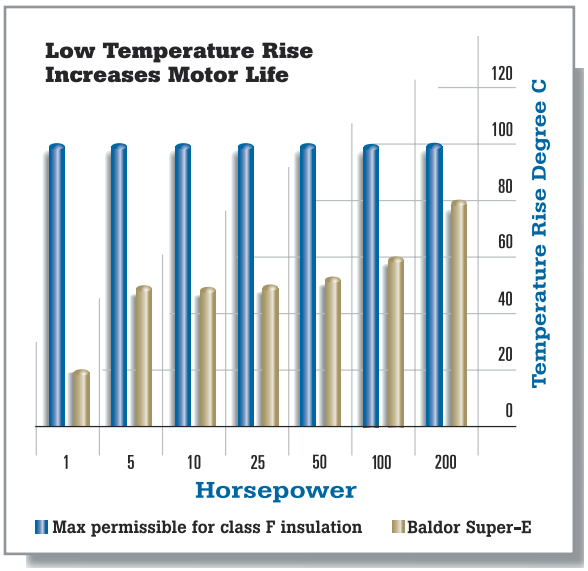
Locked bearing construction reduces endplay.



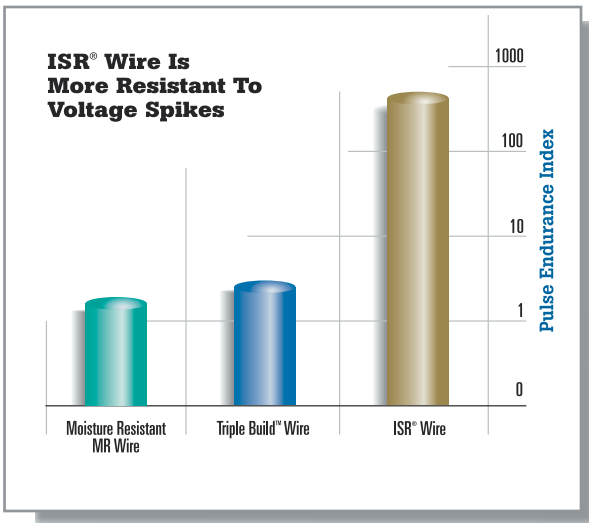
Dynamically balanced to half of the NEMA allowable vibration limits.

Baldor was the first motor manufacturer to use Exxon Polyrex®EM grease. Polyrex®EM protects motor bearings better, providing improved lubrication life, greater shear stability, and superior resistance to washout, rust, and corrosion.

NEMA® Premium



A motor that runs cooler, lasts longer.



NEMA MW-35: Pulse Endurance Test
Source: Phelps Dodge Magnet Wire Company.

Super-E Motors and Baldor Drives

Super-E Totally Enclosed Fan Cooled (TEFC)

- Three Phase
- 1 Hp thru 500 Hp stock, to 800 Hp custom
- Enclosures: TEFC
- Foot and Face Mount
- Inverter-Ready
- Low and medium voltage including 200V and 575V

Super-E C-Face and D-Flange

- C-Face motors available from stock in most all configurations and product families
- D-Flange motors are available as custom items or through Mod Express
- NEMA or IEC style

Super-E Single Phase

- Single Phase
- 1/4 Hp thru 5 Hp stock, to 15 Hp custom
- Enclosures: TEFC and ODP
- Foot or face mount

Super-E Severe Duty

- Designed for corrosive environments
- Three Phase
- 1 Hp thru 500 Hp stock, to 800 Hp custom
- Enclosures: TEFC and TENV
- Foot and face mount
- Inverter-Ready
- Low and medium voltage including 575V

Super-E Severe Duty IEEE 841

- Three Phase
- 1 Hp thru 250 Hp stock, to 800 Hp custom
- Enclosures: TEFC and TENV
- Exceeds the IEEE 841-2001 standards for severe duty
- InproSeal® on fan and drive end shafts

Super-E Pump Motors

- Three Phase
- 1 Hp thru 50 Hp stock, to 250 Hp custom
- Enclosures: TEFC and ODP
- JM, JP and West Coast Shafts
- Inverter-Ready

Super-E Open Drip Proof

- Three Phase
- 1 Hp thru 300 Hp stock, to 1500 Hp custom
- Enclosures: ODTF, OPEN, OPSB, WPI and WPII
- Inverter-Ready
- Low and medium voltage including 200V and 575V

Super-E Explosion Proof

- Three Phase
- 1 Hp thru 60 Hp stock, to 300 Hp custom
- Enclosures: TEFC and TENV
- Class 1 Group C & D, Class II Group F & G
- U.L. approved cast conduit box standard
- Low voltage

WPI – WPII

- Low and Medium Voltage through 600 Hp stock to 1500 Hp custom
- Sleeve bearings available
- Super-E NEMA Premium® efficiency available
- Standard aluminum and copper bar rotor designs

Super-E TEFC Vertical Base

- Three Phase
- 1/4 Hp thru 75 Hp stocked
- Enclosures: OPEN and TEFC
- Normal, medium, and high thrust designs
- Standard and super efficiencies

Super-E Brake Motors

- Three Phase
- 1 Hp thru 30 Hp stock
- Enclosures: TEFC and TENV
- Inverter-Ready brake connection
- NEMA standard BA dimension
- Easily convertible to C-Face

Super-E Washdown Duty

- Single and Three Phase
- 1/2 Hp thru 20 Hp stock
- Enclosures: TEFC and TENV
- Base mount, C-Face with or without base or JM pump shaft
- Available with BISSC approval
- IEC Ratings available

Super-E All-Stainless Washdown Duty

- Three Phase
- 1/2 Hp thru 10 Hp stock
- Enclosures: TEFC and TENV
- C-Face with or without base
- Labyrinth seals
- IEC Ratings available

Soft Starts

- Digital and Analog
- 1 Hp to 1000 Hp
- 230, 460 and 575 Volts
- Controls
- Combination Starters

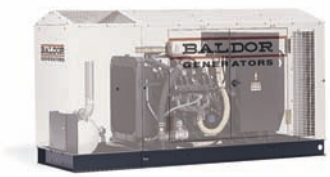
Mini Inverter Drives

- 230 Volt 1/3 Hp thru 5 Hp
- 460 Volt 1 Hp thru 7.5 Hp
- Simple Potentiometer or Fully Programmable Operator Display
- Heavy Duty Industrial Ratings
- Dynamic Braking Option
- NEMA 1 Enclosures

H2 Drives

- Inverter, Encoderless Vector, Vector Drive and AC Servo available
- 230 Volt 3/4 Hp thru 60 Hp
- 460 Volt 3/4 Hp thru 150 Hp
- 575 Volt 3/4 Hp thru 150 Hp
- Graphical Operator Display
- PID Process Control Loop
- Ethernet Connection option

Baldor Peak Shaving Generators



Standby Generators

- Diesel Liquid Cooled, Gaseous Liquid Cooled or Industrial Diesel Liquid Cooled configurations
- 20 kW to 2,000 kW
- Superior quality weather protective sound attenuating enclosures
- Extremely reliable alternators comply with NEMA, IEEE and ANSI standards
- Components comply to UL, CSA and NFPA 110 standards

Towable Generators

- Powered by industrial grade John Deere and Isuzu diesel engines
- 20 kW to 200 kW…custom built to 2,000 kW
- Available with or without heavy-duty trailers
- Heavy 12-gauge steel enclosure construction with sound attenuation for ultra-quiet operation
- Proven brushless alternator for long life and low maintenance
- Automatic safety shutdowns

Baldor Drives Provide Application Efficiencies

In many instances, the greatest potential for energy savings lies in the overall design of the application. The U.S. Department of Energy has indicated that application and process improvements yield the highest energy savings. In some applications, savings can be as much as 60 percent. For example, heat and air systems can be made more efficient by pairing a Baldor premium efficient motor with an adjustable speed drive (ASD). The savings result from the ASD automatically adjusting the motor speed to maintain an appropriate temperature and airflow.

What is the energy savings potential from using Baldor ASDs in other applications? According to the Wisconsin Center for Demand–Side and Research, many applications for pumps and compressors could deliver savings up to 25 percent; fans, blowers, and centrifugal refrigeration systems add up to 35 percent, and boiler fans and feedwater pumps as high as 50 percent in energy savings.

Baldor's broad line of drive products for fan and pump applications, soft starts, and line regenerative AC drives provide our customers with a variety of energy saving solutions.

The Fastest Way to Calculate Payback from Electricity Savings

How long before the electricity savings from a premium efficiency motor equal or exceed your cash outlay to purchase it? The answer depends on how the motor is rated, how it is used, and the

cost of electricity per kWh. Although a premium efficiency motor costs more than a standard motor, users soon recover that cost and more. BE$T (Baldor Energy Savings Tool – version 2.0), an energy savings program, included free with this brochure, makes the calculation easy. Cost savings and payback time frames from the addition of an adjustable speed drive can be calculated as well. In a single motor mode, the motor analysis section of BE$T 2.0 compares the annual operating costs of your motors with a Baldor Super–E premium efficient motor and a Baldor Standard–E® based on its ratings and operating cycles, giving you a financial summary of the annual savings and payback in months for each. The ASD analysis compares the use of an Adjustable Speed Drive to various mechanical means of flow control in pump or fan systems, calculating annual cost of operation, savings potential, and payback. In multi–motor mode, BE$T 2.0 is powerful enough to perform a complete plant analysis and provide a complete project summary. The BE$T 2.0 program can also factor in rebates and make the payback calculation using motor rewind cost as an offset.

Simple facility surveys can lead to identification of the age and efficiency of the motor population and can lead to a motor management strategy designed to increase plant uptime and productivity (often worth 5–8 times possible energy savings). Based on their usage and efficiency, motors can be tagged to be replaced immediately with Baldor Super–E premium motors, replace on failure with Super–E (or Standard–E if hours of operation are less), or simply rewind the motor.

Ask for Baldor Electric's *Method to Reduce Energy Costs* to learn how we have been able to save nearly $1 million dollars annually in energy costs in our own manufacturing facilities. For more free software tools like the Baldor CD–ROM e–catalog where you can find our full line of premium efficiency products, just call 1–800–828–4920 or order it from our website at www.baldor.com.

Why Baldor?

More Value for the User...

It is Baldor's goal to offer more Value to our customers. How can we best do this in an electric motor? Let's look at Baldor's value formula.

$$V_p = \frac{Q_p \times S_p}{C \times T}$$

We believe that Baldor builds the best industrial motors, but it is the customer's opinion of our quality that matters here. The customer's view of Baldor's service is also important and includes the ability to furnish accurate information, literature, websites, and manuals, etc. Cost not only includes purchase price, but also cost of operation, service, shipping, parts, etc. Time deals with how long it takes to receive a motor, an answer, or a matter resolved.

How do we offer this additional Value? We build motors that last longer and perform better than industry specs call for. For over 85 years, Baldor has been dedicated to providing customers with the most Value and reliability in energy-efficient industrial electric motors and drives. But to be considered as the #1 preferred motor brand, Baldor goes beyond designing and manufacturing the best motors. Other reasons are...

Baldor offers the industry's broadest line of stock motors and drives.

You can save valuable time with just one call to Baldor for all your motor and drive needs. We stock more than 6,500 different motors, drives, gearboxes, and generators plus, a broad line of servos, linear motors and drives, and MINT® motion control products.

Baldor products are available at more locations than any other brand.

Our 36 district offices across North America offer immediate availability of Baldor products to thousands of distributors in the U.S., Canada, and Mexico.

Industry's shortest lead times/ flexible manufacturing.

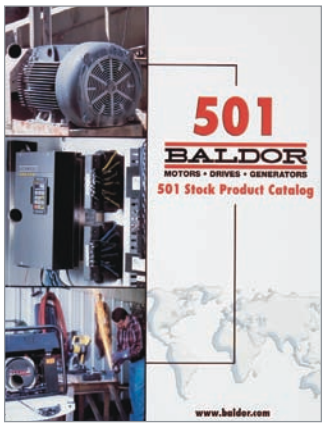
Baldor has the industry's shortest lead times on custom motors – as short as two weeks. Our unique FLEX FLOW manufacturing process lets us produce any order in any quantity, quickly, and efficiently.

Matched Performance™

This Baldor exclusive provides lab-tested performance data on Baldor products to help customers quickly and easily match the right motor and control to get precisely the drive they need.

Continuous innovation to improve reliability.

Baldor leads the motor industry in applying new technologies and materials to improve motor reliability. In 1996, Baldor was first to introduce ISR® (Inverter Spike Resistant®) magnet wire, which is up to 100 times more resistant to voltage spikes. In 2000, Baldor was first to use Exxon's new POLYREX®EM Grease, which protects motor bearings better, providing improved lubrication life, greater shear stability, and superior resistance to washout, rust, and corrosion.



With more than 6,500 stock products and the best information available, Baldor sets the standard in the industry.

Common keypad language.

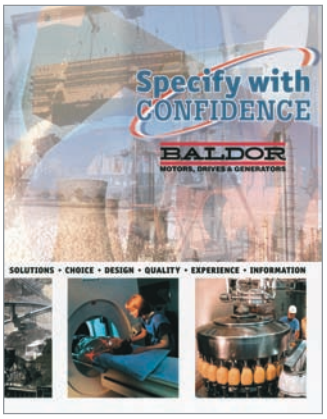
To make things easy for our customers, we developed our common-language keypad for all our controls. So you don't have to learn different languages to operate Baldor inverters, vectors, DC, or servo controls.

Studies conducted by leading industrial magazines and independent research companies show that Baldor is consistently the "most preferred" industrial motor manufacturer.

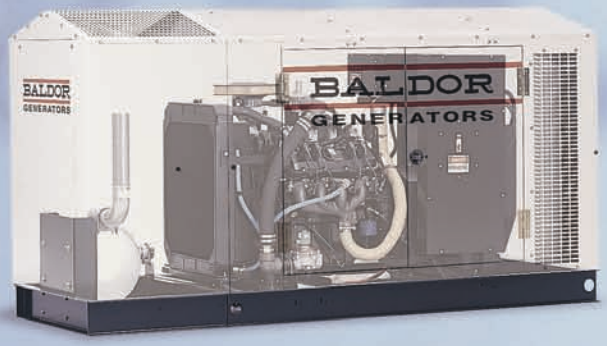
Industry's best information.

Only Baldor offers customers a choice of sources for product information with a wide variety of catalogs and product brochures, a CD-ROM electronic catalog, and the Baldor Web site (www.baldor.com). Or, talk to a Baldor customer service person at one of our sales offices.

If you need fast answers to tough questions, log on to www.BaldorProSPEC.com and ask a Baldor engineer. We guarantee we will have an answer for you within one business day. Easy access to accurate information is critical and no one does it better than Baldor.



With more than 80 years experience as OEM and specifier product development partners, from the first call to the install, you can count on Baldor to exceed your expectations.



BALDOR®

MOTORS • DRIVES • GENERATORS

The Answer for an Energy Driven Economy

P.O. Box 2400 • Fort Smith, AR 72902-2400 U.S.A.
1-800-828-4920 • Fax (479) 648-5792
International Fax (479) 648-5895
www.baldor.com

Made in the

ENERGY STAR PARTNER

BR458

Printed in the USA
7/05 AGI 25,000

EUTECTIC CAST IRON BOILERS

COMMERCIAL AND INSTITUTIONAL

GT 220 A

Innovative Design For Better Fuel Efficiency

A Symbol of Quality Engineering For Over Three Centuries

- 88%+ Efficiency
- Near Condensing Eutectic Cast Iron - Water Temperature Supply @ 86ºF
- Operates under large Temperature Differentials - Up to 80ºF without Thermal Shock
- Low NOx Compatibility
- Maximum Working Pressure at 60 p.s.i.

www.dedietrichboilers.com

De Dietrich BOILERS

DDRGT20508

GT 220 A

High Performance Low-Temperature Return Eutectic Cast Iron Boilers

Low Return Water Capability Maximizes Energy Savings

Thermocord & Groove system eliminates gaskets - the number one cause of boiler maintenance

De Dietrich "eutectic" cast iron delivers 30% more flexibility, providing the industry's best thermal shock resistance

Flexible eutectic cast allows 85 degree (F) supply water capability. This low temperature operation yields significant fuel savings

The GT 220 A Series is a eutectic cast iron 3-pass, high efficiency, large net output, low operating temperature, designed boiler. These boilers are specifically designed for oil / gas / propane firing.

The GT 220 A is equipped with a simplified control panel with built-in on/off limit, manual reset limit and temperature gauge.

The GT 220 A is a Three Pass Design with a generous combustion chamber and horizontal flue passes with fins. The heat transfer is enhanced by the fins and eutectic cast iron baffles. this body design assres:

- Efficiency up to 88%
- Low pressure drops
- Low noise level
- High thermal efficiency and heat transfer

Low Water Outlet Temperature down to 85ºF with indoor/outdoor reset achieves significant energy savings by reducing stand-by fuel consumption. In addition, it's not necessary to maintain boiler temperature between the two heating cycles, which further reduces fuel consumption and achieves excellent overall efficiency. Studies show substantial savings over retrofit boilers and new competitive models.

Easy Cleaning with Hinged Door for burner and flue access. Doors can be hinged right or left based on your access needs. Boiler is easily cleaned and vacuumed resulting in lower maintenance costs.

Eutectic Cast Iron boiler body provides exceptional resistance to temperature variations and thermal stress. De Dietrich's eutectic cast iron is 30% more flexible than any competitive cast iron allowing safe low temperature operation.

Four Inch Insulation featuring reinforces fiberglass wool. De Dietrich Boilers feature double insulation of the boiler front which minimizes heat loss and allows reduced stand-by consumption and improved thermal efficiency.

Control Panel. The standard control panel supplied is designed for heating only. The panel is equipped with a boiler thermometer, on/off limit and manual rest limit.
The large size permits it to be integrated easily with third party energy management systems. Optional equipment for DHW production and outdoor reset is available.

Standard Equipment

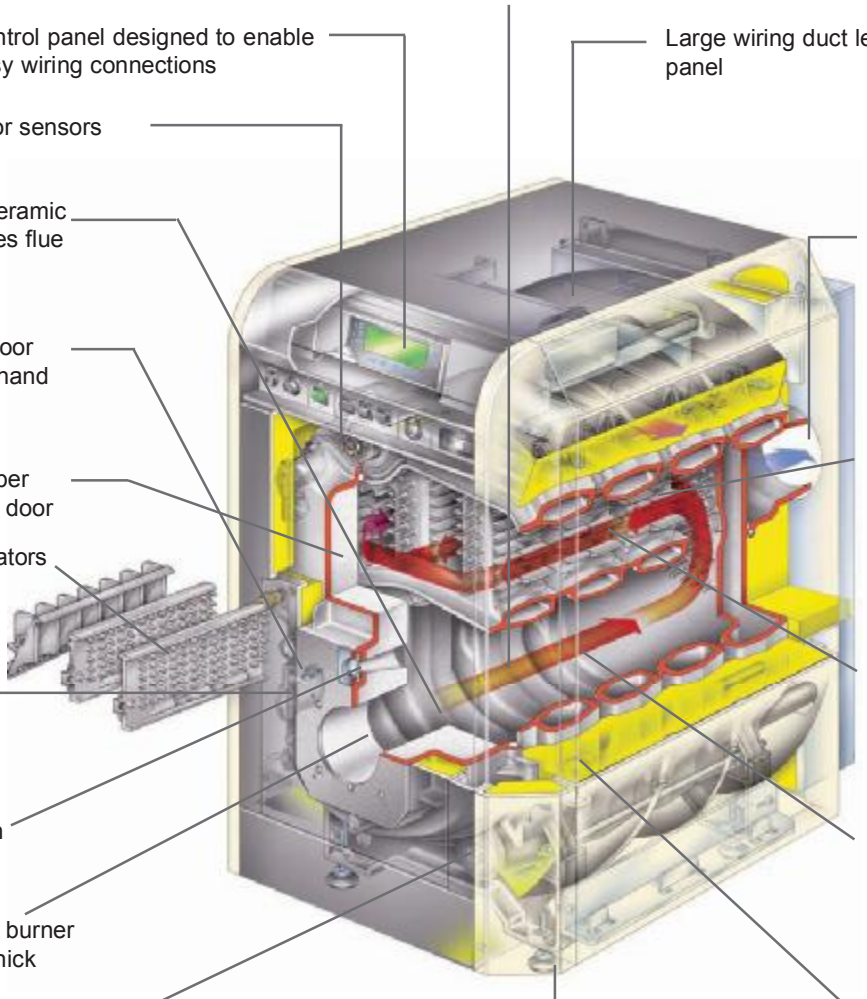
- Eutectic Cast Iron Nipples
- Built-In High Limit with Manual Reset
- Thermocord Combustion Sealed
- On/Off Limit
- Temperature Indicator
- ASME Relief Valve
- Low Water Cut-Off
- Low NOx Burners (optional)
- Factory Assembly (optional)

Contact your local De Dietrich representative for a list of available burners.

TH!NK BOILERS...TH!NK De Dietrich BOILERS

GT 220 A

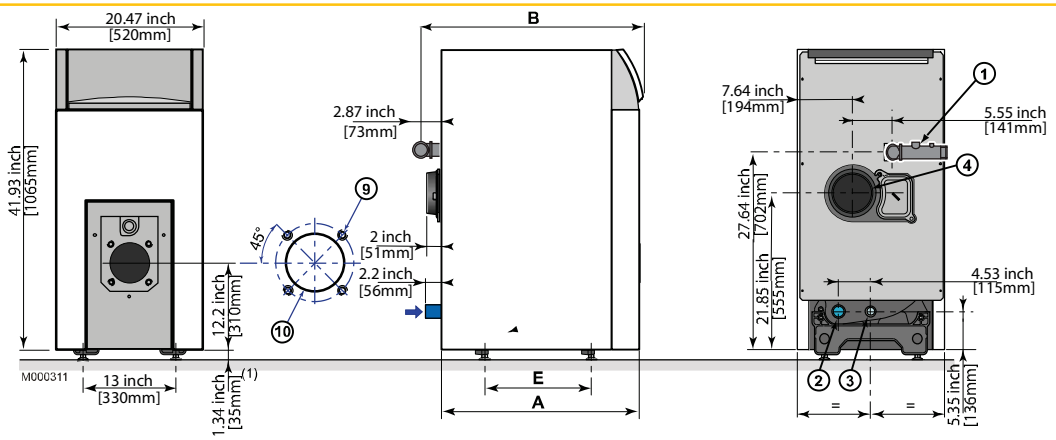
High Performance Low-Temperature Return Eutectic Cast Iron Boilers



De Dietrich BOILERS ***As the Boiler Should Be!!!***

Setting the Benchmark for Low-Temperature Near-Condensing Eutectic Cast Iron Boilers

MEA 304-06-M (City of New York)



(1) Adjustable feet: basic height 2" with $1^{3}/_{16}$ to $2\,^{1}/_{2}$ adjustment range.

	GT 224A	GT 225A	GT 226A	GT 227A	GT 228A
A	27.56 [700]	32.56 [827]	37.56 [954]	42.56 [1081]	47.56 [1208]
B	31.07 [789]	36.07 [916]	41.07[1043]	46.07 [1170]	51.07 [1297]
ØC	6 [153]	6 [153]	7.1 [180]	7.1 [180]	7.1 [180]
E	14.96 [380]	19.96 [507]	24.96 [634]	29.96 [761]	34.96 [888]
1&2	R1 1/4	R1 1/4	R1 1/2	R1 1/2	R1 1/2

1. Heating Outlet
2. Heating Return
3. Drainage / filling Rp 3/4
4. Flue gas nozzle Ø C
9. 4xM8 on Ø 5.9 inch [150mm] and 4 markings on Ø 6.7 inch [170mm]
10. Drilling Ø 4.33 inch [110mm] - Precut Ø 5.12 inch [130mm]

			Model				
Item		Unit	GT 224A	GT 225A	GT 226A	GT 227A	GT 228A
CSA - Gas Input		MBH	173	224	274	324	361
		Kw	50.7	65.5	80.3	95.1	105.7
CSA - #2 Fuel Oil Input		US/GPH	1.2	1.55	1.9	2.25	2.5
CSA - Output [Gas-Oil]		MBH	147	190	233	276	307
		Kw	43.2	55.8	68.4	81	90
Net I=B=R Rating		MBH	128	165	203	240	267
Cast iron sections		#	4	5	6	7	8
Water Resistance Deta T=(°F)	18 (°F)	Ft Water	0.667	1.117	1.670	3.058	2.889
	27 (°F)	Ft Water	0.297	0.496	0.742	1.359	1.284
	36 (°F)	Ft Water	0.167	0.280	0.417	0.765	0.722
MAWP [Water]		PSI	ASME IV Rating Class 30 - (60 psi)				
S2NA Panel	Electrical Connection	V/P/H	120/1/60				
	Max. Water Temp. Safety Limit [MR]	(°F)	230				
		(°C)	110				
	Water operating Temp. Range	(°F)	86 - 194				
		(°C)	30 - 90				
Gas-vent category		#	I, II, III or IV				
Boiler-vent connection		inch	6	6	7	7	7
Boiler weight [dry]		LB	481	567	655	741	827
		Kg	218	257	297	336	375

Notes:

- IBR / GAMA - CSA -MBH output based on Thermal Efficiency test according to ANSI ZI.13a/CSA 4.9a-2005.
- Approved for direct-vent applications - use only approved venting components as listed.
- Natural draft applications, approved for Type L vent [Gas-Oil] or Type B Vent [Gas only].
- All models comply with latest Canadian & USA standards.
- Outputs are rounded off. 85.2% efficiency is the published efficiency (oil is +3%).

DDR Americas Inc.

Toll Free: (800) 943-6275

www.dedietrichboilers.com

Represented By:

Schwank

INNOVATIVE HEATING SOLUTIONS

Shining Profitability!

Frost-free operation of your car wash is essential to provide uninterrupted operation and avoid customer and staff frustration. The STW-JZ provides the solution thanks to its moisture tight features. The pay-back is instant.

Efficient infra-red radiant heating eliminates frosty conditions and interruptions in operation. Customer satisfaction, lower operating costs and increased sales result in a quick pay back. With a moisture tight stainless steel burner cabinet the STW-JZ is built to heat and endure in harsh wet applications. And Schwank backs the STW-JZ with the best warranty in the industry – but what else would you expect from the world leader in infra-red radiant heating

1) **A Burner with "WOW!"** Stainless steel moisture proof cabinet and moisture resistant burner components protect your investment. Factory ready for 24 or 120 volt control. Factory installed igniter and 5 ft power cord reduce installation time. Status indicator lights simplify troubleshooting and reduce maintenance costs.

2) **Combustion air collar and cap** make the STW-JZ fresh air ready for a sealed combustion system isolated from site conditions.

3) **Durable Aluminized Steel Tube & Reflector System** is standard fare for the STS-JZ with an option to go with a complete stainless steel system.

4) **Focus Shield Reflectors and Closed Reflector Ends** extend below tube surface to trap convection heat and convert it to useable infra-red heat. Provides additional comfort and fuel savings.

5) **Webbed hanger system** (aluminized or stainless steel) promotes free passage of entrapped convection heat along the tube system, producing more uniform heat output and improved comfort.

Bernd Schwank,
Chairman
Schwank
International
Group of
Companies

SP-PSWZ-BX-02B

stw-jz Schwank

stw-jz Schwank

STW-JZ Series Specifications

Schwank invented the infra-red heater and we remain the world leader over 60 years later.

primo**Schwank**

supra**Schwank**

eco**Schwank**

SEMseries

STS-JZ
STR-JZ

patio**Schwank**

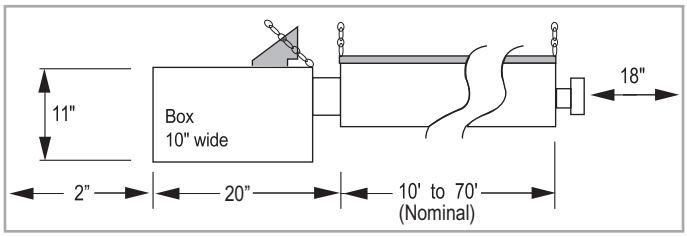
1100series
2300series
4000series

HotTot

DIMENSIONS AND SPECIFICATIONS

MODEL	CAPACITY (BTU/HR) U.S.A.* SEA LEVEL TO 2,000' CANADA: SEA LEVEL TO 4,500'	AVAILABLE LENGTH 10'	20'	30'	40'	50'	60'	70'
STW-JZ 200	200,000					✔	✔	✔
STW-JZ 175	175,000					✔	✔	✔
STW-JZ 155	155,000				✔	✔	✔	
STW-JZ 130	130,000			✔	✔	✔		
STW-JZ 110	110,000			✔	✔	✔		
STW-JZ 80	80,000		✔	✔	✔			
STW-JZ 60	60,000		✔	✔				
STW-JZ 45	45,000	✔	✔					
HEATER LENGTH		11'8"	21'4"	31'	40'8"	50'4"	60'	69'8"
SHIPPING WEIGHT (LBS.)		100	150	200	240	315	360	430

*U.S.A.: SEA LEVEL TO 2,000FT ; de-rate heater 4% for each additional 1000ft of elevation, tube length must conform to firing rate.



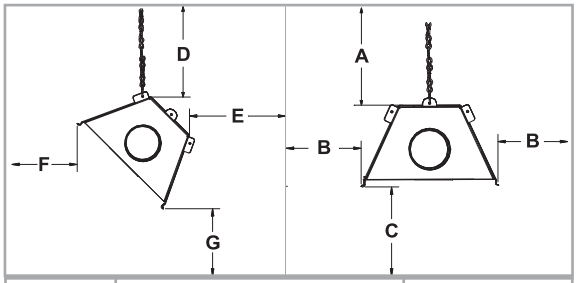
OPTIONS

All series have a stainless steel burner housing

Series

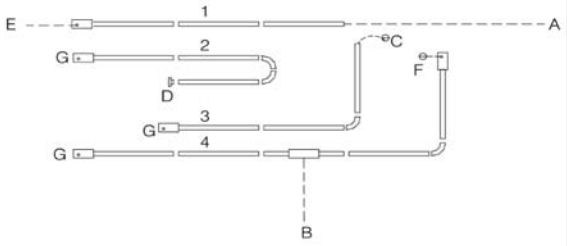
- ***STW-JZ*** - *Aluminized steel tube; aluminized steel reflectors*
- ***STW-JZ2*** - *Stainless steel tube; stainless steel reflectors*
- ***SPW-JZ*** - *Powder coated burner cabinet; aluminized steel tube and reflectors*
- ***JS-0570-XX*** - *Moisture proof thermostat (NEMA 4x enclosure)*

CLEARANCES TO COMBUSTIBLES



MODEL	SUSPENDED AT AN ANGLE UP TO 45 DEGREES				SUSPENDED HORIZONTALLY		
	D	E	F	G	A	B	C
STW-JZ 200	6"	1"	57"	68"	6.5"	22"	68"
STW-JZ 175	4.5"	1"	47"	68"	5.5"	20"	68"
STW-JZ 155	3.5"	1"	44"	64"	5.5"	19"	64"
STW-JZ 130	3.3"	1"	35"	56"	4.5"	11"	60"
STW-JZ 110	2"	1"	26"	54"	3.5"	10"	54"
STW-JZ 80	1.75"	1"	23"	38"	3"	6"	36"
STW-JZ 60	1.5"	1"	17"	34"	2.5"	5.5"	34"
STW-JZ 45	2.25"	1"	24"	32"	2.75"	7"	32"

FLEXIBLE LAYOUT



System Configuration
1. Straight line
2. "U" Tube with 2 90° elbow kits
3. "L" Tube with 90° elbow kit
4. Common 6" TEE flue vent

Venting Options
A. Flue Vent through wall 4"
B. Common Flue Vent through wall or roof 6"
C. Flue Vent through roof
D. Flue Vent into building, exhaust fan interlocked with heater
E. Combustion air intake from outside through wall
F. Combustion air intake from outside through roof
G. Combustion air intake from inside building

Schwank INNOVATIVE HEATING SOLUTIONS

Canada
5285 Bradco Blvd.
Mississauga, On. L4W 2A6
Telephone: 905-712-4766
Fax: 905-712-8336
www.schwankheaters.com

U.S.A.
2 Schwank Way,
Waynesboro, GA 30830
Telephone: 706-554-6191
Fax: 706-554-9390
info@schwankheaters.com

REPLACEMENT PARTS LIST

GAS FIRED SERIES:

STW-JZ / -JZ-2 IW

LOW INTENSITY TUBE TYPE INFRA RED HEATER
FOR CAR WASH AND OUTDOOR APPLICATIONS

NOTICE:

The Manufacturer reserves the right to make changes to equipment and specifications without obligation or notification.

Schwank

5285 Bradco Boulevard
Mississauga, Ontario,
L4W 2A6
Phone: (905) 712-4766
Fax: (905) 712-8336
1-866-361-0417

PO Box 988, 2 Schwank Way
Waynesboro, Georgia,
USA 30830
Phone: (706) 554-6191
Fax: (706) 554 9390
1-877-446-3727

e-mail: info@schwankheaters.com

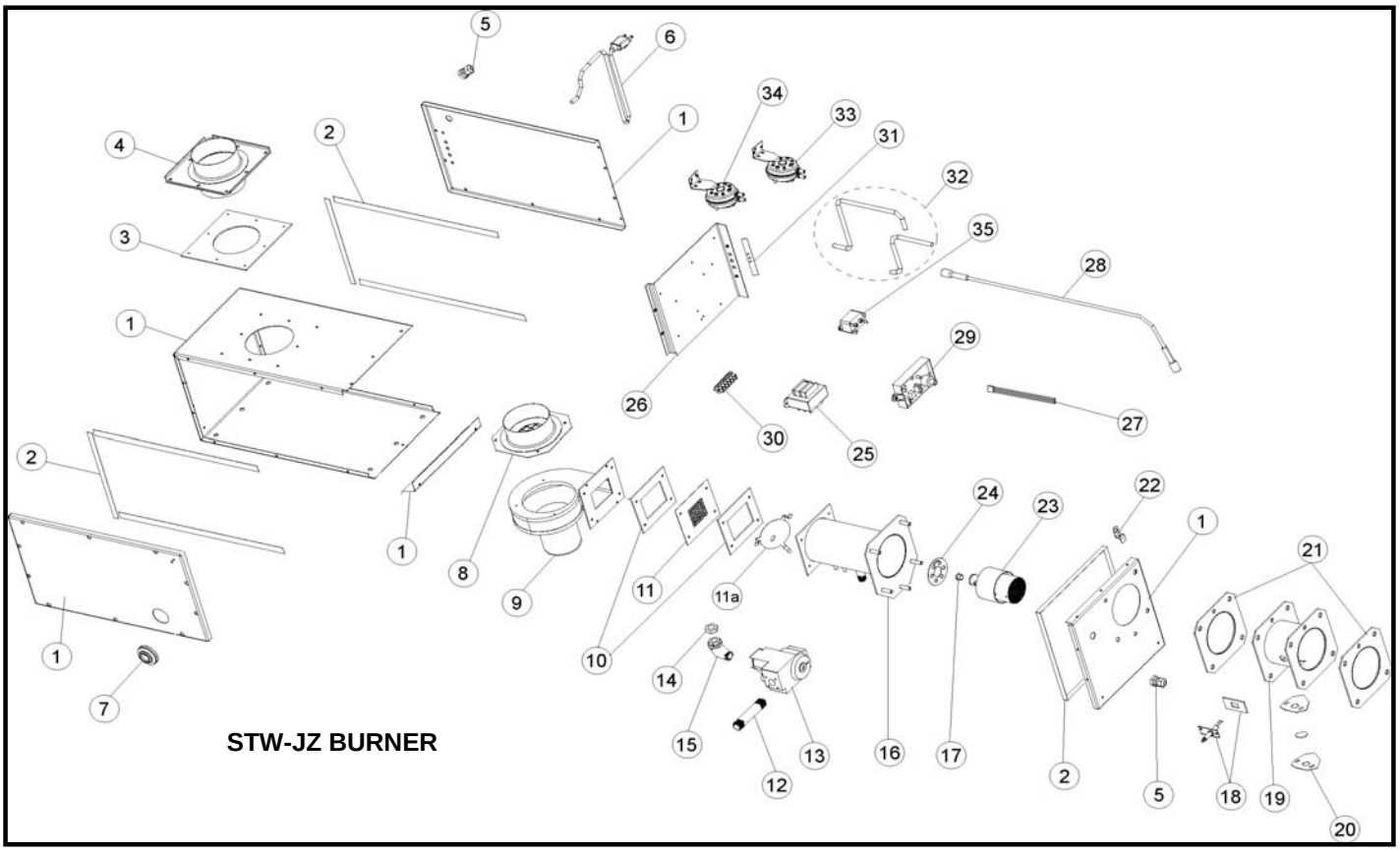
www.schwankheaters.com

InfraSave

Mississauga, Ontario,
Waynesboro,Georgia,
Phone: 1-866-INFRASV (463-7278)
Fax: 1-866-724-9265

e-mail: info@infrasave.com

www.infrasave.com



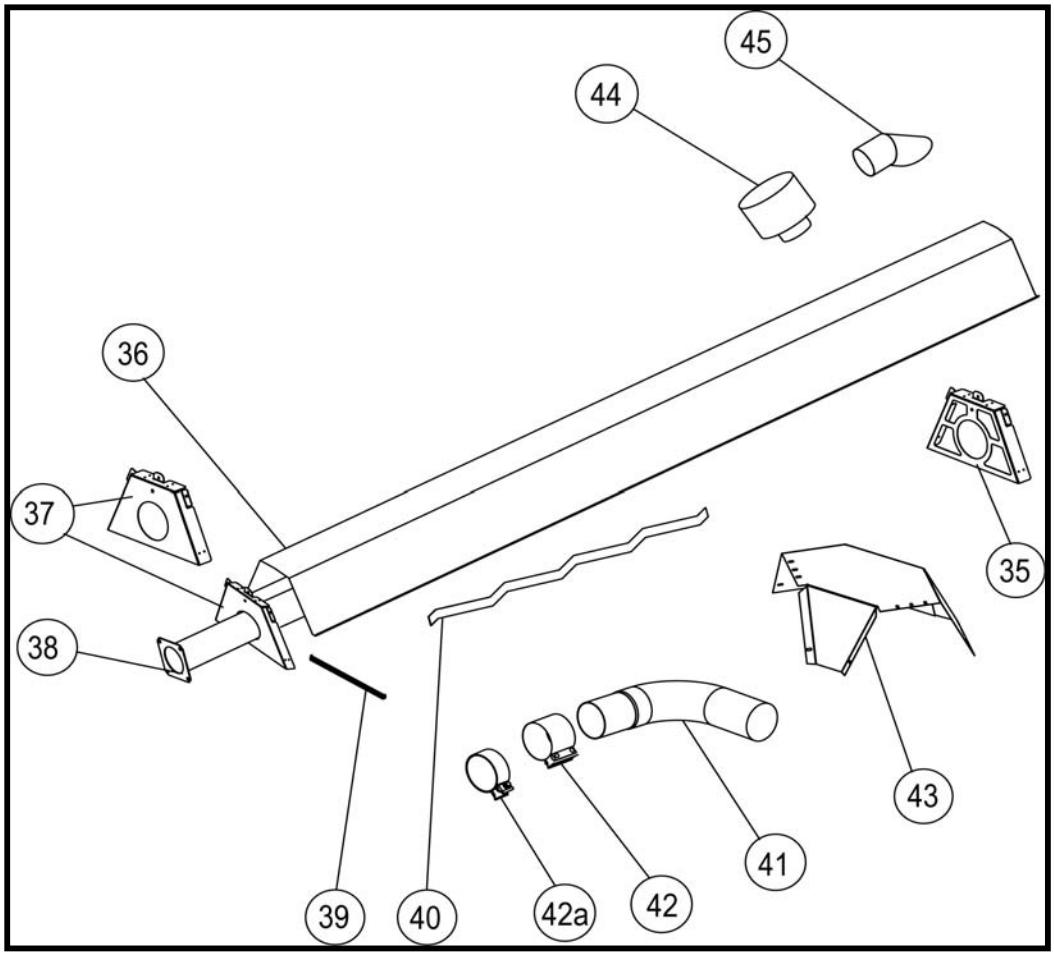
#	PART DESCRIPTION	PART #	PART DESCRIPTION PRIMARY	SUPPLEMENT
1	**BURNER HOUSING**	JS-0582-WP	Burner housing harsh environment	
2	**BURNER HOUSING GASKET SET**	JS-0591-WP	Housing gasket set	
3	**AIR INTAKE GASKET**	JS-0601-WP	Air intake gasket	each
4	**COMBUSTION AIR INLET**	JS-0583-WP	Combustion air inlet	
5	**SEALTIGHT CONNECTOR**	JW-0875-WP	Connector liquid tight	
6	**ELECTRICAL CORD**	JB-0567-XX	Electrical cord	
7	**WATERPROOF GROMMET**	JF-9018-CO	Water proof butt connectors	
8	**COMBUSTION AIR INLET FLANGE**	JS-0594-ST	60 blower rest. ring c/w flange	60,000
		JS-0595-SP	80 blower rest. ring c/w flange	80,000
		JS-0595-AA	110-200 blower rest. ring c/w flange	110 - 200,000
9	**BLOWER**	JS-0579-AA	Blower assembly	
10	**BLOWER GASKET**	JS-0578-XX	Outlet blower gasket	each
11	**EQUALIZER PLATE**	JS-0593-XL	Outlet equalizer plate 45 LP - 29 Holes - Series X1	STW-JZ-45-L-X1; 45 LP
		JS-0593-NG	Outlet equalizer plate 45 NG - 25 Holes	STW-JZ-45-N-X1; 45 NG
		JS-0593-XX	Outlet equalizer plate (60 to 200)	60,000 -> 200,000
11A	**AIR RESTRICTOR**	JS-0592-AR	Burner air restrictor (45-X1)	STW-JZ-45-X1; 45000
12	**4" NIPPLE**	JS-0590-XX	4" nipple	
13	**GAS VALVE**	JL-0701-AA	Comb. gas valve 3.5" W.C 24VAC VR8 NG	Nat. Gas
		JL-0703-AA	Comb. gas valve 10" W.C 24VAC VR8 LP	Propane
14	**MANIFOLD BUSHING**	JM-0589-XX	Manifold bushing	

* **PLEASE SEE THE CURRENT 'ITEM PRICE LIST' FOR PRICING**

SEE EXPLODED VIEW OF BURNER ON PREVIOUS PAGE

#	PART DESCRIPTION	PART #	PART DESCRIPTION PRIMARY	SUPPLEMENT
15	**90 DEGREE ELBOW FITTING 1/2"**	JS-0588-XX	90 degree street elbow fitting	
16	**OUTER BURNER**	JS-0504-WP	Outer burner assembly	
17	**MAIN BURNER ORIFICE**	JS-0742-DM	Gas orifice low intensity HTR 42 DMS	60 LP
		JS-0725-DM	Gas orifice low intensity HTR 25 DMS	60 NG
		JS-0736-DM	Gas orifice low intensity HTR 36 DMS	80 LP
		JS-0718-DM	Gas orifice low intensity HTR 18 DMS	80 NG
		JS-0731-DM	Gas orifice low intensity HTR 31 DMS	110 LP
		JS-0752-MM	Gas orifice low intensity HTR 5.2 mm	110 NG
		JS-0729-DM	Gas orifice low intensity HTR 29 DMS	130 LP
		JS-0758-MM	Gas orifice low intensity HTR 5.8 mm	130 NG
		JS-0714-IN	Gas orifice low intensity HTR 9/64 inch	155 LP
		JS-0725-IN	Gas orifice low intensity HTR 1/4 inch	155 NG
		JS-0721-DM	Gas orifice low intensity HTR 21 DMS	175 LP
		JS-0767-MM	Gas orifice low intensity HTR 6.7 mm	175 NG
		JS-0719-DM	Gas orifice low intensity HTR 19 DMS	200 LP
		JS-0730-IN	Gas orifice low intensity HTR 19/64 inch	200 NG
18	**IGNITER KIT**	JA-0571-KT	Igniter & gasket kit / DSI tube heater	
19	**FLANGE ADAPTER**	JS-0500-ZZ	4" flanged adapter - Stainless Steel	60-200
20	**SIGHT GLASS ASSEMBLY**	JS-0536-XX	Sight glass assembly	
21	**FLANGE GASKET**	JS-0591-XX	Flange gasket	each
22	**BURNER STABILIZING BRACKET**	JS-0582-BR	Burner suspension bracket	
23	**BURNER HEAD**	JS-0510-LP	Burner head - (60-80)	60-80,000
		JS-0512-XX	Burner head - (110-200)	110-200,000
24	**AIR RESTRICTOR RING**	JS-0596-XX	Burner head air rest. ring .375	60LP,60-200NG
		JS-0597-XX	Burner head air rest. ring .500	80-200LP
25	**STEP DOWN TRANSFORMER**	JA-0775-XX	Transformer 120/24V, 20VA AT120B1028	
26	**COMPONENT PLATE**	JS-0581-SE	component mounting plate	
27	**IGNITION CONTROL WIRING HARNESS**	JB-0568-WH	3 Try potted spark DSI control wiring harness	
28	**IGNITION CABLE**	JS-0518-XX	Hi voltage wire (24")	
29	**IGNITION CONTROL**	JB-0568-AA	Control - DSI 3 Try potted Gasliter 50N	
			50N-24-3-30-20-30-30,24VAC 1,1A	
29a	**WIRING KIT** (not shown)	JW-WXXX-HX	Wiring kit w/ Harness - harsh environment heater	Low voltage wires
30	**TERMINAL BLOCK**	JM-0455-DD	Terminal block	
31	**INDICATOR LAMPS**	JW-0519-AM	Amber indicator light	
		JW-0519-GR	Green indicator light	
		JW-0519-RE	Red indicator light	
32	**PRESSURE SWITCH TUBING**	JS-0572-SE	P.V.C. tubing set (2 x 20")	
33	**COMBUSTION AIR PROVING SWITCH**	JS-0576-YY	Air proving switch .30" w.c.	60
		JS-0576-XX	Air proving switch .48" w.c.	80
		JS-0575-YY	Air proving switch .65" w.c.	110-155
		JS-0576-AA	Air proving switch .85" w.c.	175-200
34	**BLOCKED FLUE PROVING SWITCH**	JS-0577-SS	Blocked flue switch .58" w.c.	60
		JS-0577-YY	Blocked flue switch .90" w.c.	80-155
		JS-0577-ZZ	Blocked flue switch 1.41" w.c.	175-200
35	**24V/120V RELAY SWITCH**	JS-0568-CC	24V/120V Relay Switch	ALL

GP-NSJW-BX-03A
STW-JZ / IW RPL
RD: April 2006
RL: 03A
KH



#	PART DESCRIPTION	PART #	PART DESCRIPTION PRIMARY	SUPPLEMENT
35	**WEBBED HANGER: Aluminized Steel**	JS-0505-JZ	Webbed Hanger - Aluminized Steel	
	Stainless Steel	JS-0505-SZ	Webbed Hanger - Stainless Steel	STW-JZ-2
36	**REFLECTOR: Aluminized Steel**	JS-0502-JZ	Reflector 24" x 116" - Aluminized Steel	
	Stainless Steel	JS-0502-ST-S	Reflector 24" x 116" - Stainless Steel	STW-JZ-2
37	**PLATE HANGER: Aluminized Steel**	JS-0506-JZ	Aluminized end plate hanger	
	Stainless Steel	JS-0506-SZ	Stainless Steel end plate hanger	STW-JZ-2
38	**LOW INTENSITY TUBE: Alum'd Steel**	JA-0501-SW-P	Aluminized tube,flanged,swaged, no ports	60-155
		JA-0499-SW-P	Alumatherm tube,flanged,swaged, no ports	175-200
		JS-0501-SK	Aluminized tube, 10' slotted + Accuseal clamp	175-200
		JS-0511-SW-P	Painted aluminized tube swaged	
	LOW INTENSITY TUBE: Stainless Steel	JA-0500-SW-P	Stainless Steel tube,flanged,swaged, no ports	STW-JZ-2: 60-200
		JS-0500-SW	Stainless Steel tube swaged	
39	**REFLECTOR BRACE: Aluminized Steel**	JS-0506-RB	Reflector brace - Aluminized Steel	3 per reflector
	Stainless Steel	JS-0506-SB	Reflector brace - Stainless Steel	3 per reflector
40	**TURBULATOR** (see Table in STW-JZ	JS-0533-SH	Short turbulator 4'	60-130
	I&O Manual)	JS-0533-LG	Turbulator 10'	60-200
41	**90° ELBOW 4": Aluminized Steel**	JA-0508-SW	90 degree elbow - Aluminized Steel	
	Stainless Steel	JA-0508-SS	91 degree elbow - Stainless Steel	STW-JZ-2
42	**COUPLER**	JA-0516-SW	4" swaged tube coupler torctite	
42a	**ACCUSEAL CLAMP 4"**	JA-0516-SA	4" Clamp for slotted Aluminized Tube	175-200
43	**90° ELBOW REFLECTOR: Alum'd Steel**	JS-0503-US	Reflector Cap for 90° Elbow - Aluminized Steel	
	Stainless Steel	JS-0503-SZ	Reflector Cap for 90° Elbow - Stainless Steel	STW-JZ-2
44	**VENT CAP**	JA-0530-XX	4" roof vent cap	
45	**VENT CAP**	JA-0528-XX	4" horizontal wall vent terminal	

* **PLEASE SEE THE CURRENT 'ITEM PRICE LIST' FOR PRICING**

GP-NSJW-BX-03A
STW-JZ / IW RPL
RD: April 2006
RL: 03A
KH

SUBMITTAL DATA

Schwank
INNOVATIVE HEATING SOLUTIONS

SCHWANK GAS-FIRED

CAR WASH / HARSH ENVIRONMENT

MODEL

STW-JZ

SERIES
LOW INTENSITY TUBE TYPE
INFRA RED HEATERS

PROJECT:	
ENGINEER:	
CONTRACTOR:	
DISTRIBUTOR:	
SCHWANK MODEL #:	
FUEL:	
APPROVED BY:	
DATE:	
APPROVAL #:	

CERTIFIED ®

MEMBER OF

crfa
Canadian Restaurant and Foodservices Association
Association canadienne des restaurateurs et des services alimentaires

DESIGN CERTIFIED ®

SP-SSJW-BX-06A
STW-JZ SD
RL: 6A
RD: April 2006
KH

NOTICE:

Schwank reserves the right to make changes to equipment and specifications without obligation or notification.

Schwank
5285 Bradco Boulevard
Mississauga, Ontario,
L4W 2A6
Phone: (905) 712-4766
Fax: (905) 712-8336
1-866-361-0417

PO Box 988, 2 Schwank Way
Waynesboro, Georgia,
USA 30830
Phone: (706) 554-6191
Fax: (706) 554 9390
1-877-446-3727

e-mail: info@schwankheaters.com

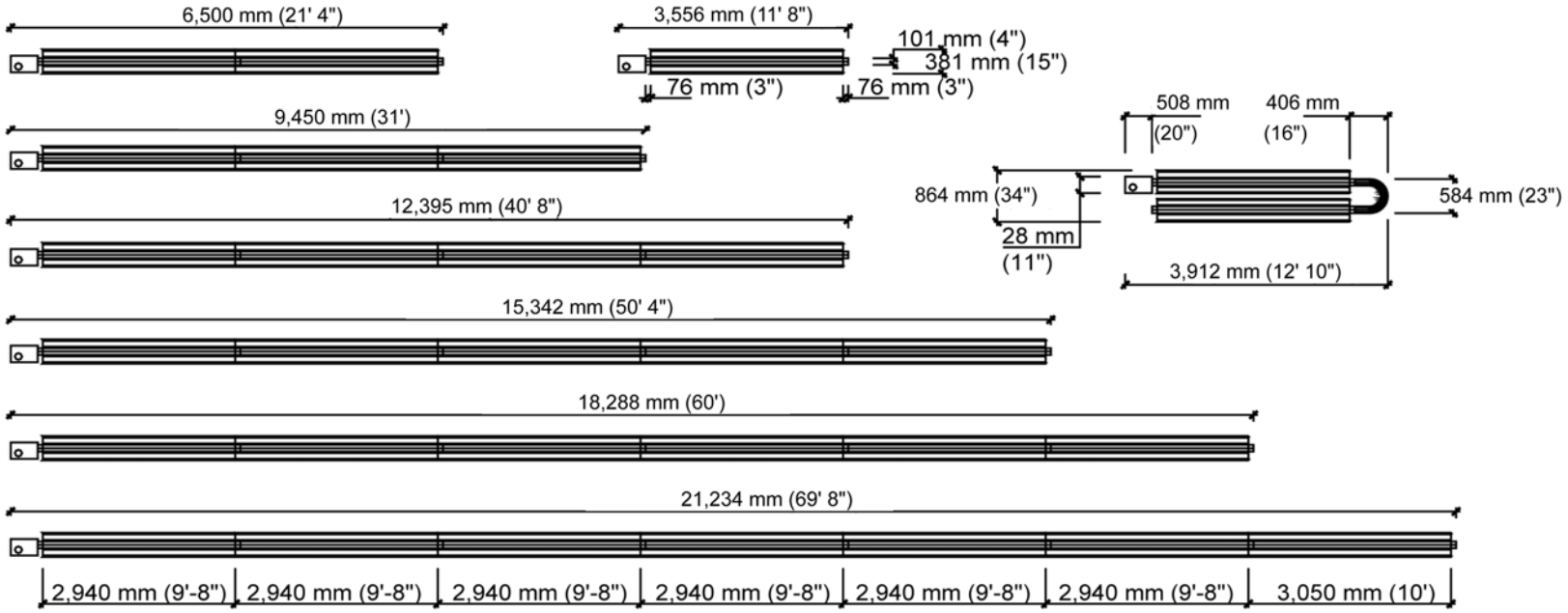
http://www.schwankheaters.com

SP-SSJW-BX-06A
STW-JZ SD
RL: 6A
RD: April 2006
KH

TABLE 1: MODEL CONFIGURATIONS	TOTAL HEATER LENGTH	Kilojoules/Hr (Btu/hr) 0 to 1373 meters (4500 ft) ABOVE SEA LEVEL	TURBULATOR		GAS PRESSURE & ELECTRICAL	FLUE & AIR VENT	SHIPPING WEIGHT KG (LBS.)	FOR PATIO APPLICATIONS
			REQUIRED LENGTH	NONE REQUIRED				
STW-JZ-200-70	21,234mm (69' 8")	210,000 kilojoules (200,000 Btu/hr)	3048mm (10 ft)		***LINE MINIMUM*** 12.45mbar NG (5" w.c. NG) — 27.39mbar LP (11" wc. LP)	101.6 mm (4")	151 kg (332 lbs)	
STW-JZ-200-60	18,288mm (60'0")		3048mm (10 ft)				132 kg (290 lbs)	
STW-JZ-200-50	15,342mm (50' 4")		3048mm (10 ft)				112 kg (247 lbs)	
STW-JZ-175-70	21,234mm (69' 8")	184,712 kilojoules (175,000 Btu/hr)	3048mm (10 ft)				151 kg (332 lbs)	
STW-JZ-175-60	18,288mm (60'0")		3048mm (10 ft)				132 kg (290 lbs)	
STW-JZ-175-50	15,342mm (50' 4")		3048mm (10 ft)		***LINE MAXIMUM*** 34.86 mbar N.G. or L.P. (14" w.c.)		112 kg (247 lbs)	
STW-JZ-155-60	18,288mm (60'0")	162,750 kilojoules (155,000 Btu/hr)		X			132 kg (290 lbs)	
STW-JZ-155-50	15,342mm (50' 4")			X			112 kg (247 lbs)	X
STW-JZ-155-40	12,395mm (40' 8")		3048mm (10 ft)				93 kg (205 lbs)	X
STW-JZ-130-50	15,342mm (50' 4")	136,500 kilojoules (130,000 Btu/hr)		X	***MANIFOLD*** 8.71 mbar NG (3½" w.c. NG) — 24.9 mbar LP (10" wc. L.P)		112 kg (247 lbs)	
STW-JZ-130-40	12,395mm (40' 8")		3048mm (10 ft)				93 kg (205 lbs)	X
STW-JZ-130-30	9,450mm (31'0")		3048mm (10 ft)				74 kg (162 lbs)	X
STW-JZ-110-50	15,342mm (50' 4")	115,500 kilojoules (110,000 Btu/hr)		X			112 kg (247 lbs)	
STW-JZ-110-40	12,395mm (40' 8")		3048mm (10 ft)		***GAS INLET*** 12.7mm (½" NPT)		93 kg (205 lbs)	X
STW-JZ-110-30	9,450mm (31'0")		3048mm (10 ft)				74 kg (162 lbs)	X
STW-JZ-80-40	12,395mm (40' 8")	84,000 kilojoules (80,000 Btu/hr)	3048mm (10 ft)				93 kg (205 lbs)	
STW-JZ-80-30	9,450mm (31'0")		3048mm (10 ft)		***ELECTRICAL*** 120V, 60 HZ 145 VA		74 kg (162 lbs)	X
STW-JZ-80-20	6,500mm (21' 4")		3048mm (10 ft)				54 kg (119 lbs)	X
STW-JZ-60-30	9,450mm (31'0")	63,000 kilojoules (60,000 Btu/hr)	3048mm (10 ft)				74 kg (162 lbs)	X
STW-JZ-60-20	6,500mm (21' 4")		3048mm (10 ft)				54 kg (119 lbs)	X
STW-JZ-45-20	6,500mm (21' 4")	47,000 kilojoules (45,000 Btu/hr)	1524mm (5 ft)		THERMOSTAT Factory ready for 24V or 120V thermostat		54 kg (119 lbs)	
STW-JZ-45-10	3,556mm (11'8)		1524mm (5 ft)				35 kg (76 lbs)	X

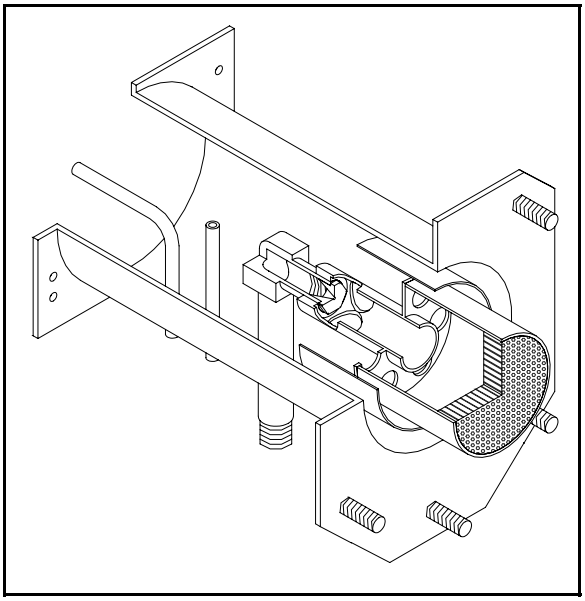
SP-SSJW-BX-06A
STW-JZ SD
RL: 6A
RD: April 2006
KH

TOP VIEWS OF SYSTEMS



COMPONENT QUANTITIES PER HEATER MODEL	**STW-JZ 45-10**	**STW-JZ 45-20**	**STW-JZ 60-20 80-20**	**STW-JZ 60-30 80-30 110-30 130-30**	**STW-JZ 80-40 110-40 130-40 155-40**	**STW-JZ 110-50 130-50 155-50**	**STW-JZ 175-50 200-50**	**STW-JZ 155-60**	**STW-JZ 175-60 200-60**	**STW-JZ 175-70 200-70**
3048 mm (10') ALUMA-THERM SWAGED TUBE w/ FLANGE	0	0	0	0	0	0	1	0	1	1
3048 mm (10') ALUMINIZED SWAGED TUBE c/w FLANGE	1	1	1	1	1	1	0	1	0	0
3048 mm (10') ALUMINIZED SWAGED TUBE	0	0	0	0	0	0	1	0	1	1
3048 mm (10') ALUMINIZED SWAGED TUBE w/ EMIS-SIVE COATING	0	1	1	2	3	4	3	5	4	5
2946 mm (9' 8") FOCUS SHIELD REFLECTOR	1	2	2	3	4	5	5	6	6	7
ALUMINIZED COUPLER	0	1	1	2	3	4	4	5	5	6
END WEBBED PLATE HANGER	2	2	2	2	2	2	2	2	2	2
TUBE / REFLECTOR WEBBED HANGER	0	1	1	2	3	4	4	5	5	6
REFLECTOR STABILIZER	3	6	6	9	12	15	15	18	18	21
3048 mm (10') ALUMINIZED STEEL TURBULATOR	1	1	1	1	1	0	1	0	1	1
1220 mm (4') ALUMINIZED STEEL TURBULATOR	0	0	1	1	0	0	0	0	0	0
QUANTITY OF HEATERS										

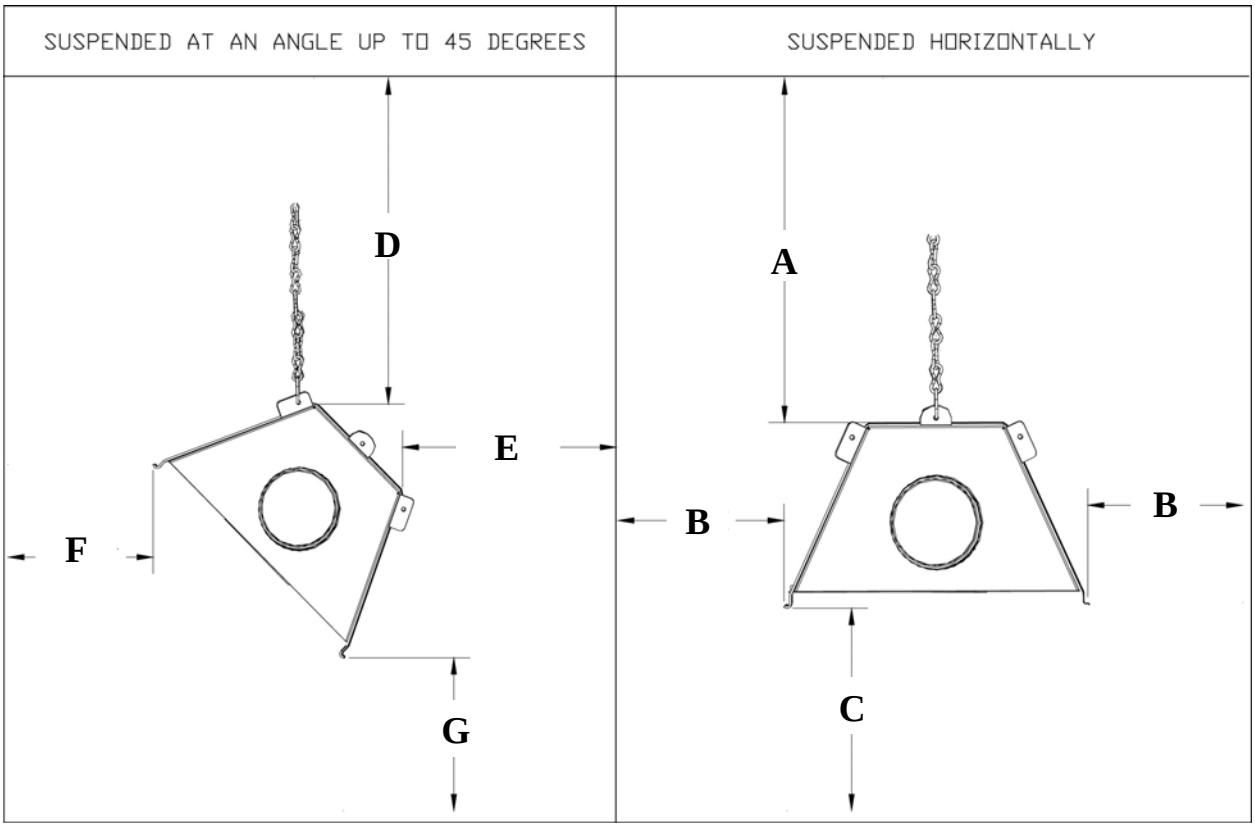
CUT-AWAY BURNER VIEW



OPTIONAL ACCESSORIES	QUANTITIES ON THIS PROJECT
90 DEGREE SWAGED ELBOW KIT 1 elbow, 2 end hangers, 1 coupler	
180 DEGREE SWAGED ELBOW KIT 2 90 degree elbow kits - 3 webbed hangers, 2 couplers	
100 mm (4") ROOF FLUE VENT TERMINAL	
150 mm (6") ROOF FLUE VENT TERMINAL	
100 mm (4") WALL FLUE VENT TERMINAL	
150 mm (6") WALL FLUE VENT TERMINAL	
FLUE VENT TEE 100 mm x 100 mm x 150 mm (4" x 4" x 6")	
ALUMINIZED STEEL COUPLING KIT FOR TEE	
MOISTURE - PROOF THERMOSTAT	
24V OPTION: 2 TO 7 HEATERS PER THERMOSTAT	
TYPE 1 HOSE GAS CONNECTOR (CANADA)	
FLEXIBLE GAS CONNECTOR (USA)	
FRESH AIR INTAKE HOOD	

SP-SSJW-BX-06A
STW-JZ SD
RL: 6A
RD: April 2006
KH

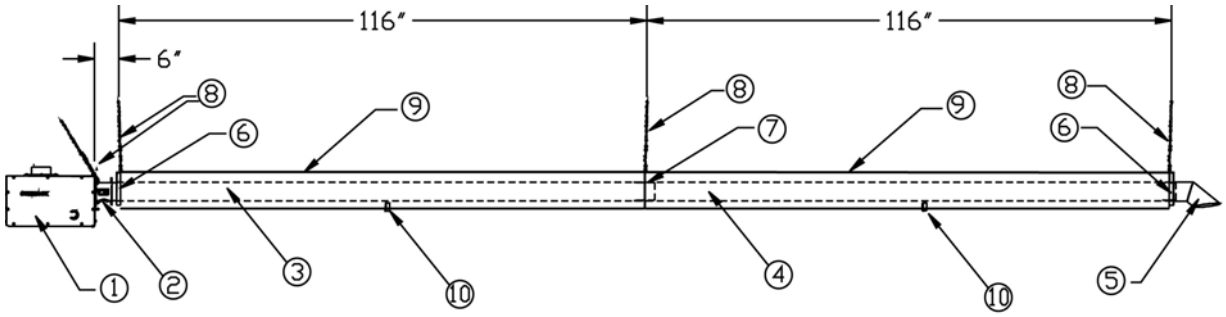
MINIMUM CLEARANCES TO COMBUSTIBLES

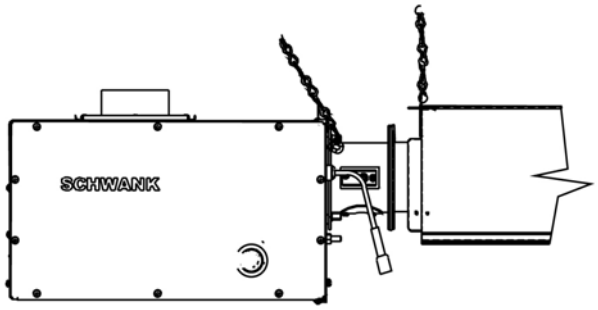


MODEL	SUSPENDED AT AN ANGLE UP TO 45 DEGREES				SUSPENDED HORIZONTALLY		
	D	**E**	**F**	**G**	**A**	**B**	**C**
STW-JZ-200	6”	1”	57”	68”	6.5”	22”	68”
STW-JZ-175	4.5”	1”	47”	68”	5.5”	20”	68”
STW-JZ-155	3.5”	1”	44”	64”	5.5”	19”	64”
STW-JZ-130	3.3”	1”	35”	56”	4.5”	11”	60”
STW-JZ-110	2”	1”	26”	54”	3.5”	10”	54”
STW-JZ-80	1.75”	1”	23”	38”	3”	6.0”	36”
STW-JZ-60	1.5”	1”	17”	34”	2.5”	5.5”	34”
STW-JZ-45	2.25”	1”	24”	32”	2.75”	7”	32”

The clearances to combustibles are established at points reaching a surface temperature of 160°F. Some materials such as awnings or plastic may require higher distances. Respect clearances as shown above.

TYPICAL HANGER & SUPPORT SPACING RECOMMENDATIONS





① Burner Assembly
② Flange Adapter
③ Flanged Tube
④ Swaged Tube
⑤ Flue Vent Terminal
⑥ End Plate Hanger
⑦ Plate Hanger
⑧ Hanging Chains
⑨ Focus Shield Reflector

REFLECTOR STABILIZER

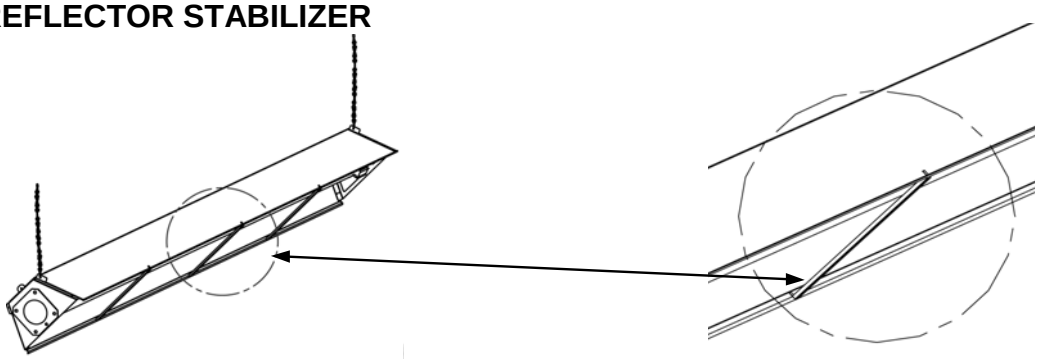
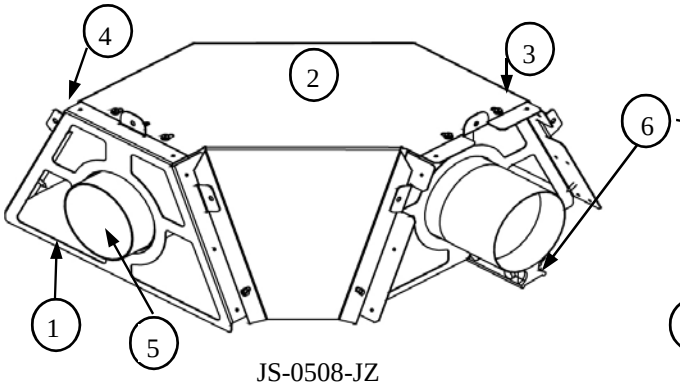
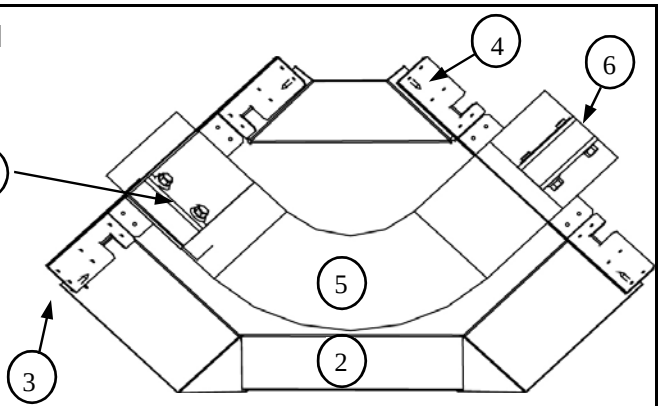


PLATE HANGER/ELBOW INSTALLATION



JS-0508-JZ



1. Plate-Hanger
2. Reflectors
3. Plate-Hanger Flange <u>UNDER</u> Reflector
4. Plate Hanger Flange to mount <u>UNDER</u> the next Reflector
5. 90^0 Elbow (shown)
6. Tube/Elbow Coupler

SP-SSJW-BX-06A
STW-JZ SD
RL: 6A
RD: April 2006
KH

COMPONENT DESCRIPTION

IGNITION	DIRECT SPARK IGNITION MODULE
COMBINATION GAS VALVE	24 VOLT ☐ NATURAL GAS 8.7 mbar (3 ½ wc.) MANIFOLD PRESSURE ☐ PROPANE 24.9 mbar (10” wc) MANIFOLD PRESSURE
REFLECTORS	REFLECTORS PROTRUDE 25.4 mm (1") BELOW BOTTOM SURFACE OF TUBE
	REFLECTORS ARE CLOSED AT START AND END OF EACH STRAIGHT RUN OF TUBES BY MEANS OF END PLATE HANGERS
TUBES 45 THRU 155 MBTUH INPUT	THE FIRST SECTION IS 3048 mm, (10 ft) - 10 cm (4") DIAMETER - 1.58 mm Thickness (16 GA) .ALUMINIZED STEEL SWAGED ONE END
	EACH ADDITIONAL SECTION IS 3048 mm (10 ft) - 10 cm (4") DIAMETER, 1.58 mm Thickness (16 GA) ALUMINIZED STEEL WITH EMISSIVE COATING SWAGED ONE END
TUBES 175 & 200 MBTUH NPUT	THE FIRST SECTION IS 3048 mm (10 ft) - 10 cm (4") DIAMETER, 1.58 mm Thickness (16 GA) ALUMATHERM SWAGED ONE END
	THE SECOND SECTION IS 3048 mm (10 ft) - 10 cm (4") DIAMETER, 1.58 mm Thickness (16 GA) ALUMINIZED STEEL SWAGED ONE END
	EACH ADDITIONAL SECTION IS 3048 mm (10 ft) - 10 cm (4") DIAMETER, 1.58 mm Thickness (16 GA) ALUMINIZED STEEL WITH EMISSIVE COATING SWAGED ONE END
HANGERS	ONE WEBBED HANGERS SUPPORT EACH 3048 mm, (10 ft) OF TUBE, EXCEPT THE FIRST AND LAST TUBES WHICH HAVE ONE WEBBED HANGER AND ONE END PLATE HANGER.
COUPLING KIT	ALUMINIZED STEEL COUPLER
ELBOWS	90 DEGREE ELBOW 100 mm (4") DIAMETER, 1.58 mm Thickness (16 GA) .ALUMINIZED STEEL, 215.9 mm (8 ½") CENTRE RADIUS SWAGED ONE END
	180 DEGREE ELBOW 100 mm (4") DIAMETER, 1.58 mm Thickness (16 GA) ALUMINIZED STEEL, 215.9 mm (8 ½") CENTRE RADIUS (ASSEMBLY OF TWO 90 DEGREE ELBOW KITS)
BURNER HOUSING	STAINLESS STEEL, WEATHER-PROOF WITH TWO ACCESS PANELS.
BURNER	INCORPORATES EFFECTILE CERAMIC BURNER HEAD WITH MINIMUM OF 835 FLAME PORTS
SAFETY SWITCHES	TWO SEPARATE AIR PRESSURE SWITCHES SENSE ADEQUATE COMBUSTION AIR AND BLOCKED FLUE
COMBUSTION AIR	COMBUSTION AIR DUCTED DIRECTLY TO INTAKE OF BLOWER
THERMOSTAT OPTIONS	SCHWANK TRUTEMP SET BACK THERMOSTAT WITH RADIANT & AMBIENT SENSORS, AND AUTOMATIC UNOCCUPIED SETBACK MODE
	24V THERMOSTAT
	LINE VOLTAGE THERMOSTAT
TERMINAL BLOCK	ALL WIRING CONNECTIONS BY MEANS OF ONE COMMON TERMINAL BLOCK; JUMPER FOR 120V / 24V THERMOSTAT CONTROL
ELECTRICAL CORD	1220 mm (4’) LENGTH 16/3 ELECTRICAL SUPPLY CORD WITH 3 PIN GROUNDED PLUG