



Allen-Bradley

Product Profile

MicroLogix 1200R Two Port Controllers

Bulletin 1762

Allen-Bradley MicroLogix 1200R controllers have enhanced communication functionality through a new Programming / Human Machine Interface (HMI) port. This second comm port provides an inexpensive means to connect the controllers to a computer running RSLogix 500 programming software, or to connect to an HMI device (such as a PanelView display).

Benefits At A Glance

- Increased application flexibility
- Reduced system cost
- Direct connection to local HMI
- New port requires no configuration and is "respond only"; there is no messaging available on this port
- Uses same RSLogix 500 programming software

Applications

- Distributed control with local HMI and programming
- Networked controller with HMI
- Remote Terminal Unit with modem and local HMI

Features

- New Programming / Human Machine Interface (HMI) port
- Large non-volatile memory
- Expansion I/O
- Compatible instruction set and programming software
- Small footprint; 90mm x 110mm (3.5" x 4.3") for 24 I/O points
to 90mm x 160mm (3.5" x 6.3") for 40 I/O points



MicroLogix 1200R Specifications

Channel 0 functionality is the same for MicroLogix 1200 and MicroLogix 1200R controllers	
Channel 1 Programming / HMI Fixed configuration	
Baud Rate 19.2K	
Parity none	
No Hardware handshaking	
Stop Bits 1	
Note: Communication Toggle Button only applies to Channel 0 communication configuration	
24 point controllers	
1762-L24AWAR	Two port; 14 AC Inputs; 10 Relay Outputs; & AC power
1762-L24BWAR	Two port; 14 DC Inputs; 10 Relay Outputs; & AC power
1762-L24BXBR	Two port; 14 DC Inputs; 5 Relay & 5 DC Outputs; & AC power
40 point controllers	
1762-L40AWAR	Two port; 24 AC Inputs; 16 Relay Outputs; & AC power
1762-L40BWAR	Two port; 24 DC Inputs; 16 Relay Outputs; & AC power
1762-L40BXBR	Two port; 24 DC Inputs; 8 Relay & 8 DC Outputs; & AC power

Certifications

C-UL certified (under CSA C22.2 No. 142)

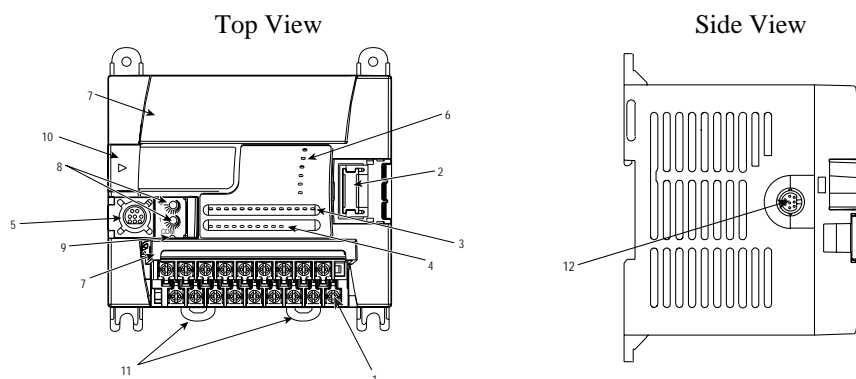
UL508 listed

CE compliant for all applicable directives

Class I, Division 2, Hazardous Location, Groups A, B, C, D (UL 1604, C-UL under CSA C22.2 No. 213)

CE / C-Tick compliant for all applicable directives/acts

The hardware features of the controllers are:



Feature	Description	Feature	Description
1	Terminal Blocks (Removable Terminal Blocks on 40-point controllers only)	7	Terminal Doors and Labels
2	Bus Connector Interface to Expansion I/O	8	Trim Pots
3	Input LEDs	9	Communications Toggle Push Button
4	Output LEDs	10	Memory Module Port Cover(1) – or- Memory Module and/or Real-Time Clock(2)
5	Communication Port/ Channel 0	11	DIN Rail Latches
6	Status LEDs	12	Programmer/HMI Port (Equipped with 1762-LxxxxR Controllers only)

Diagram illustrating the wiring connections for a PLC rack, showing terminals TB-1 and TB-3, and the corresponding PLC inputs/outputs.

Terminal TB-1 Connections:

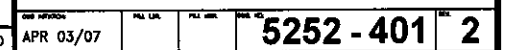
- 1: 24 VDC POWER SUPPLY FROM CLIENT
- 2: 24 VDC POWER SUPPLY FROM CLIENT
- 3: REMOTE S/D
- 4: REMOTE S/D
- 5: VRU FAULT
- 6: VRU FAULT
- 7: PLANT ESD-100
- 8: PLANT ESD-100
- 9: PLANT ESD-200
- 10: PLANT ESD-200
- 11: PT-100A (4-20 mA TO PLC)
- 12: PT-100A (4-20 mA TO PLC)
- 13: PT-100A (4-20 mA TO PLC)
- 14: SPARE
- 15: SPARE
- 16: SPARE
- 17: SPARE
- 18: SPARE
- 19: SPARE
- 20: SPARE
- 21: SPARE
- 22: SPARE
- 23: SPARE
- 24: SPARE
- GRND
- GRND

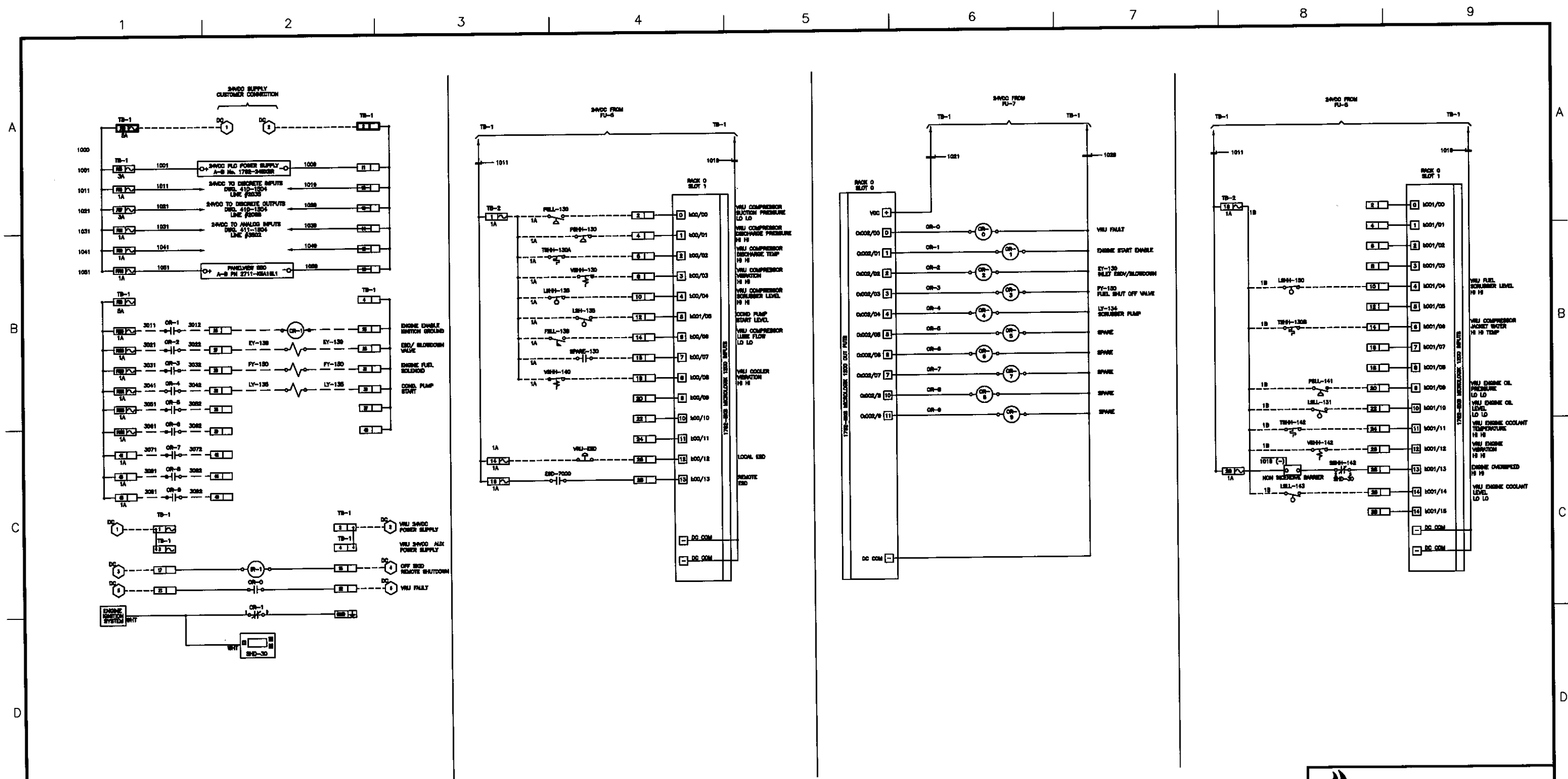
Terminal TB-3 Connections:


- 1: ANALOG INPUT #0
- 2: TANK PRESSURE TRANSMITTER PT-100A
- 3: TANK PRESSURE TRANSMITTER PT-100A

- CONNECTION POINT IN CONTROL PANEL

2	WB	AS-BUILT	18-09-07		
0	WB	ISSUED FOR APPROVAL	18-07-07		
REV	BY	DESCRIPTION	DO-WW-YY	CHK'	







APORTECH
energy services inc.

HUSKY ENERGY
c/o IMV PROJECTS

TANK VRU
LSD: 11-36-49-20-W3M

VRU I/O SCHEMATIC

REV	BY	DESCRIPTION	DATE	CHK'D
2	MB	AS BUILT	04/10/07	
1	MB	ISSUED FOR APPROVAL	25/08/07	

25/08/07

DB

5252 - 410

2

A

B

C

D

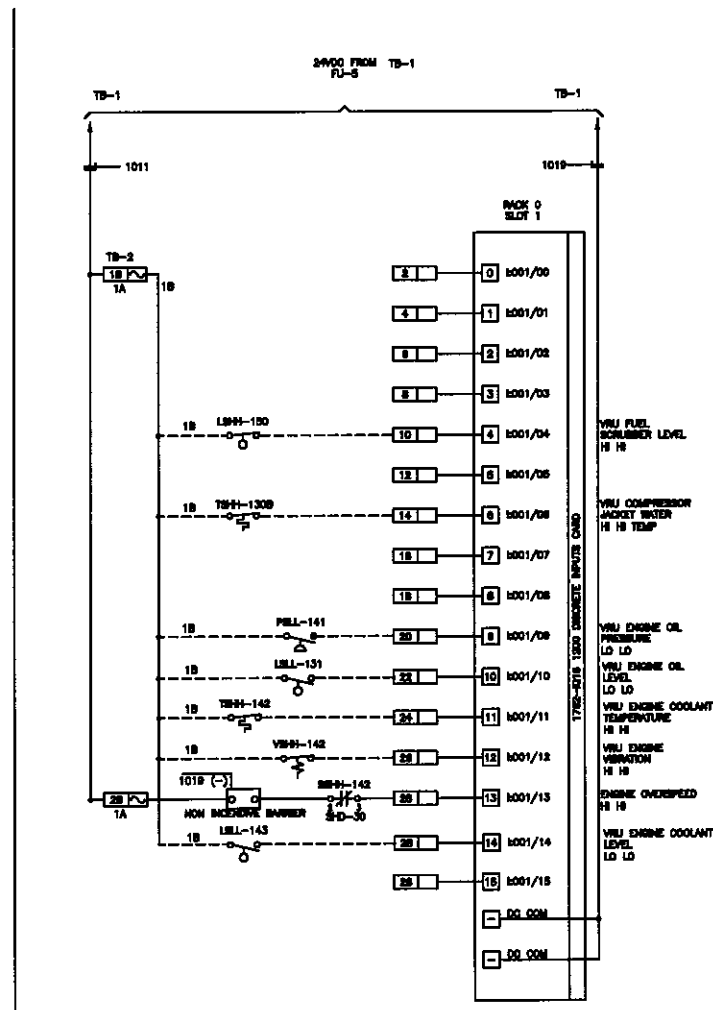
E

A

B

C

D



SP STOP
ST START
SS START / STOP
CL CLOSE
OP OPEN
SD SHUTDOWN
PR PERMISSIVE
X OPERATE
TD TIME DELAY
A ATTEND
U UNATTEND
TO TIMED OPENING
R RUNNING
FC FAIL CLOSE
TC TIMED CLOSING

[illegible][illegible][illegible]

Field Certification Certificate of Compliance

Certificate: 1954888

Project: 1954888

Date Issued: September 14, 2007

Issued to: VaporTech Energy Services Inc.
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Attention: Mr. Marion Bratu

*The products listed below are eligible to bear CSA Field Certification Labels,
bearing the CSA Mark shown*



Field Certification

Issued by: Tony DeSousa

Authorized by: Patricia Pasemko
Operations Manager

PRODUCTS

2258-02 PROCESS CONTROL EQUIPMENT for Hazardous Locations

Class I, Division 2, Groups C, D. Ex nA IIB, T3B, Enclosure type 4, IP 66

Model 1762-24BXBR, 1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

CSA Field Certification Label issued serial number FB 471017 to FB 471018 and FB 471033 to FB 471034

APPLICABLE REQUIREMENTS

The specific products described in this report were evaluated using the following applicable requirements:

C22.1 – 2006	Canadian Electrical Code - Part I.
C22.2 No 0 – M91	General Requirements - Canadian Electrical Code Part II.
C22.2 No 0.4 – 04	Bonding of Electrical Equipment.
C22.2 No 142 – M1987	Process Control Equipment.
C22.2 No 213 – M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous
Locations.	
CAN/CSA E60079-0:02	Electrical apparatus for explosive gas atmospheres.

Certificate: 1954888

Project: 1954888

PART 0: General requirements.

CAN/CSA E60079-15:02 Electrical apparatus for explosive gas atmospheres.
PART 15: Electrical apparatus with type of protection "n" (Non-Sparking).
IEC60529:2001 - Degrees of protection provided by enclosure (IP code).

MARKINGS

1. Submitter's name, trademark
2. Catalogue / Model designation.
3. Complete electrical rating (amps, hertz, and volts).
4. Serial number traceable to month and year of manufacture.
5. Hazardous Location designations.
6. Temperature code
7. The following cautions

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I,
DIVISION 2

WARNING: MULTIPLE SOURCES OF POWER – REFER TO ELECTRICAL DRAWINGS.

WARNING: PANEL MUST BE CLEAR AND FREE OF ALL GASES BEFORE REPLACING FUSES.



Descriptive and Test Report

REPORT: 1954888

PROJECT: 1954888

Edition 1: Project – 1954888

Issued by Tony DeSousa; Reviewed by Andrew Redeker C.E.T.

Contents: Certificate of Compliance - Page 1 to 2
Description and Tests – Pages 1 to 2

SUBMITTOR

VaporTech Energy Services Inc.
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Attention Mr. Marian Bratu
P.O. 002096

Location of Examination

Vapor-Tech Systems
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Location of Installations

VTES Job No. 5252A – Husky Energy – LSD 11-36-49-20-W3M

PRODUCTS

2258-02 PROCESS CONTROL EQUIPMENT For Hazardous Locations

Class I, Division 2, Groups C, D. Ex nA IIB, T3B, Enclosure type 4, IP 66

Model 1762-24BXBR,1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

Serial No.

5252B
5252C
5252D
5252E

CSA Labels

FB 471017
FB 471018
FB 471033
FB 471034

APPLICABLE REQUIREMENTS

The specific products described in this report were evaluated using the following applicable requirements:

C22.1 – 2006	Canadian Electrical Code - Part I.
C22.2 No 0 – M91	General Requirements - Canadian Electrical Code Part II.
C22.2 No 0.4 – 04	Bonding of Electrical Equipment.
C22.2 No 142 – M1987	Process Control Equipment.
C22.2 No 213 – M1987 Locations.	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous
CAN/CSA E60079-0:02	Electrical apparatus for explosive gas atmospheres. PART 0: General requirements.

The test report shall not be reproduced, except in full, without the approval of CSA International.

CAN/CSA E60079-15:02 Electrical apparatus for explosive gas atmospheres.
IEC60529:2001 PART 15: Electrical apparatus with type of protection "n" (Non-Sparking).
 - Degrees of protection provided by enclosure (IP code).

MARKINGS

1. Submittor's name, trademark
2. Catalogue / Model designation.
3. Complete electrical rating (amps, hertz, and volts).
4. Serial number traceable to month and year of manufacture.
5. Hazardous Location designations.
6. Temperature code
7. The following cautions

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I,
DIVISION 2

WARNING: MULTIPLE SOURCES OF POWER – REFER TO ELECTRICAL DRAWINGS.

WARNING: PANEL MUST BE CLEAR AND FREE OF ALL GASES BEFORE REPLACING FUSES.

ALTERATIONS

1. Nameplate markings as described above.

DESCRIPTION

The IF20F2 is a PLC Control Panel.

A full description of the product is contained in report 1926927; a copy of that report is retained in file 1954888.

TEST REPORT

All testing for the product was done in report 1926927; a copy of that report is retained in file 1954888.
All components were evaluated to Zone 2 and found acceptable.

A dielectric test of 500 V was waived as only components were wired.

End of Report

Field Certification Certificate of Compliance

Certificate: 1926927

Project: 1926927

Date Issued: July 23, 2007

Issued to: VaporTech Energy Services Inc.
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Attention: Mr. Barry Nimmon

*The products listed below are eligible to bear CSA Field Certification Labels,
bearing the CSA Mark shown*



Field Certification

Issued by: Ron Hargreaves

Authorized by: 
Patricia Pasemko
Operations Manager

PRODUCTS

2258-02 PROCESS CONTROL EQUIPMENT For Hazardous Locations
Class I, Division 2, Groups C, D, T3B

Part A

Model 1762-24BXBR, 1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

CSA Field Certification Label issued serial number **FB 466704**

Part B

Model 1769-L32E, 1Q 16, 1F8, 0F4C1, PB4, OW16 PLC Control Panel rated 24 Vdc, 6.5 A

CSA Field Certification Label issued serial number **FB 466705**

Part C

Model 1747—L551, 1746-P3, A10, 1B16,, OW16,, N14, NT4, NI041 PLC Control Panel rated 24 Vdc, 6.5 A

CSA Field Certification Label issued serial number **FB 466706**

Certificate: 1926927

Master Contract: N/A

Part D

Model 1762-24BXBR,1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

CSA Field Certification Label issued serial number FB 466707

APPLICABLE REQUIREMENTS

The specific products described in this report were evaluated using the following applicable requirements:

C22.1 – 2002	Canadian Electrical Code - Part I.
C22.2 No 0 – M91	General Requirements - Canadian Electrical Code Part II.
C22.2 No 0.4 – 04	Bonding of Electrical Equipment.
C22.2 No 142 – M1987	Process Control Equipment.
C22.2 No 213 – M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.

MARKINGS

1. Submittor's name, trademark
2. Catalogue / Model designation.
3. Complete electrical rating (amps, hertz, and volts).
4. Serial number traceable to month and year of manufacture.
5. Hazardous Location designations.
6. Temperature code
7. The following cautions

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2

WARNING: MULTIPLE SOURCES OF POWER – REFER TO ELECTRICAL DRAWINGS.

WARNING: PANEL MUST BE CLEAR AND FREE OF ALL GASES BEFORE REPLACING FUSES.



Descriptive and Test Report

REPORT: 1926927

PROJECT: 1926927

Edition 1: Project - 1926927

Issued by Ron Hargreaves – Edmonton Facility

Contents: Certificate of Compliance - Page 1 to 2
Description and Tests – Pages 1 to 11

SUBMITTOR

VaporTech Energy Services Inc.
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Attention Mr. Barry Nimmon
P.O. 002191/2/3/4

Location of Examination

Vapor-Tech Systems
20715 – 107 Ave N.W.
Edmonton, AB, T5S 1W5

Location of Installations

VTES Job No. 5252A – Husky Energy – LSD 11-36-49-20-W3M
VTES Job No. 5230 – Husky Energy – LSD 2-30-9-16-W4M
VTES Job No. 5229 – Dominion Exploration – LSD 16-34-48-09-W5M
VTES Job No. 5248 – Husky Energy – LSD 11-36-49-20-W3M

PRODUCTS

2258-02 PROCESS CONTROL EQUIPMENT For Hazardous Locations
Class I, Div 2, Gr. C, D, T3B

Part A

Model 1762-24BXBR,1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

Serial No.

5252A

CSA Labels

FB 466704

Part B

Model 1769-L32E,1Q 16, 1F8,0F4C1,PB4,OW16 PLC Control Panel rated 24 Vdc, 6.5 A

Serial No.

5230

CSA Labels

FB 466705

Part C

Model 1747—L551, 1746-P3, A10, 1B16,, OW16,, N14, NT4, NI041 PLC Control Panel rated 24 Vdc, 6.5 A

Serial No.

5229

CSA Labels

FB 466706

Part D

The test report shall not be reproduced, except in full, without the approval of CSA International.

Model 1762-24BXBR,1Q 16, IF20F2 PLC Control Panel rated 24 Vdc, 6.5 A

Serial No.
5248

CSA Labels
FB 466707

APPLICABLE REQUIREMENTS

The specific products described in this report were evaluated using the following applicable requirements:

C22.1 – 2002	Canadian Electrical Code - Part I.
C22.2 No 0 – M91	General Requirements - Canadian Electrical Code Part II.
C22.2 No 0.4 – 04	Bonding of Electrical Equipment.
C22.2 No 142 – M1987	Process Control Equipment.
C22.2 No 213 – M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.

MARKINGS

1. Submittor's name, trademark
2. Catalogue / Model designation.
3. Complete electrical rating (amps, hertz, and volts).
4. Serial number traceable to month and year of manufacture.
5. Hazardous Location designations.
6. Temperature code
7. The following cautions

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2

WARNING: MULTIPLE SOURCES OF POWER – REFER TO ELECTRICAL DRAWINGS.

WARNING: PANEL MUST BE CLEAR AND FREE OF ALL GASES BEFORE REPLACING FUSES.

ALTERATIONS

1. Nameplate markings as described above.

DESCRIPTION

The PLC control Panels consists of the following components/devices installed interior to certified Hoffman enclosures complete with Hoffman CP series backpan.

VTES JOB #:

5229

CLIENT:

DOMINION EXPLORATION

LOCATION:

16-34-48-09 W5M

Function:	Mfg'r	Description	QTY	CSA Classification	VOLT
Power Supply	Allen Bradley	Power Supply 24 VDC	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
PLC rack 10 slots	Allen Bradley	Backpanel, 10 slots 24VDC	1	cUL Class I, Div 2, Group A,B,C,D.Temp	24

				code T3C	
PLC Processor	Allen Bradley	5/05 Processor, Ethernet, 16K memory, OS 501	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Discrete input card	Allen Bradley	Discrete input card 16 point	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Discrete output card	Allen Bradley	Discrete outputcard 16 point	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Analog input card	Allen Bradley	Analog input card 4 point	2	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Analog output card	Allen Bradley	Analog output card 4 point	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Thermocouple card	Allen Bradley	Thermocouple card 4 point	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Analog combo card	Allen Bradley	Analog combo card 2 in/ 2out (4-20 mA)	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
HMI	Allen Bradley	Panelview 1000 Plus, 24 VDC, Touchpad	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
Ethernet switch	N-Tron	4 port Ethernet switch, 24 VDC	1	Class Division 2; Group A,B,C,D	24
Enclosure	Hoffman	Steel enclosure 42"x36"x 12" (HxWxD)	1	CSA Type 4 and 12	
Backpanel	Hoffman	Metal backpanel 42"x36", white	1		
Card slot filler	Allen Bradley	Card slot filler series B	4		
Input / Output relays	Weidmuller	12/24 VDC NO relay, Class I Div 2	19	CL1 DIV 2 GR A,B,C,D CSA	24
Fuse Terminals	Weidmuller	Fuse holder WSI-6	66	IEC, UL, CSA 300V, 6.5 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-4	20	IEC, UL, CSA 600V, 35 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-6	2	IEC, UL, CSA 600V, 45 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-2.5	82	IEC, UL, CSA 600V, 25 amps	
Ground terminal block	Weidmuller	Ground terminal block	7		
Label holder	Weidmuller	Label holder - SCHAT-5	5		
End stop	Weidmuller	End Bracket	16		
End Plate	Weidmuller	Cover plate for WDU terminal block	9		
DIN rail	Weidmuller	Rail for mounting terminal blocks	10 ft		
Fuse	Cooper	Sand filled ceramic fuse , 1 A	50		
Fuse	Cooper	Sand filled ceramic fuse 3.15 A	10		
Fuse	Cooper	Sand filled ceramic fuse, 5 A	10		
Fuse	Cooper	Sand filled ceramic fuse, 63 mA	13		

MASTER CONTRACT: N/A

REPORT: 1926927

PROJECT: 1926927

Page No: 4

Date Issued: July 23, 2007

Fuse	Cooper	Sand filled ceramic fuse, 250 mA	10		
Jumper	Weidmuller	Jumper comb	2		
Jumper	Weidmuller	Jumper comb	2		
Insulation	Weidmuller	Insulation Sleeve	4		
Ferrules	Techspan	Copper Terminals	240		
Ferrules	Techspan	Copper Terminals	50		
Numbers	Weidmuller	Marking tabs	8		
Jumper	Weidmuller	Jumper bar	1		
Shirnk	Neil Neumann	Heat shrink tube 1/8"	20 ft		
End Plate	Weidmuller	End Plate for Relay AP/DK5	2		

VTES JOB #:

5230

CLIENT:

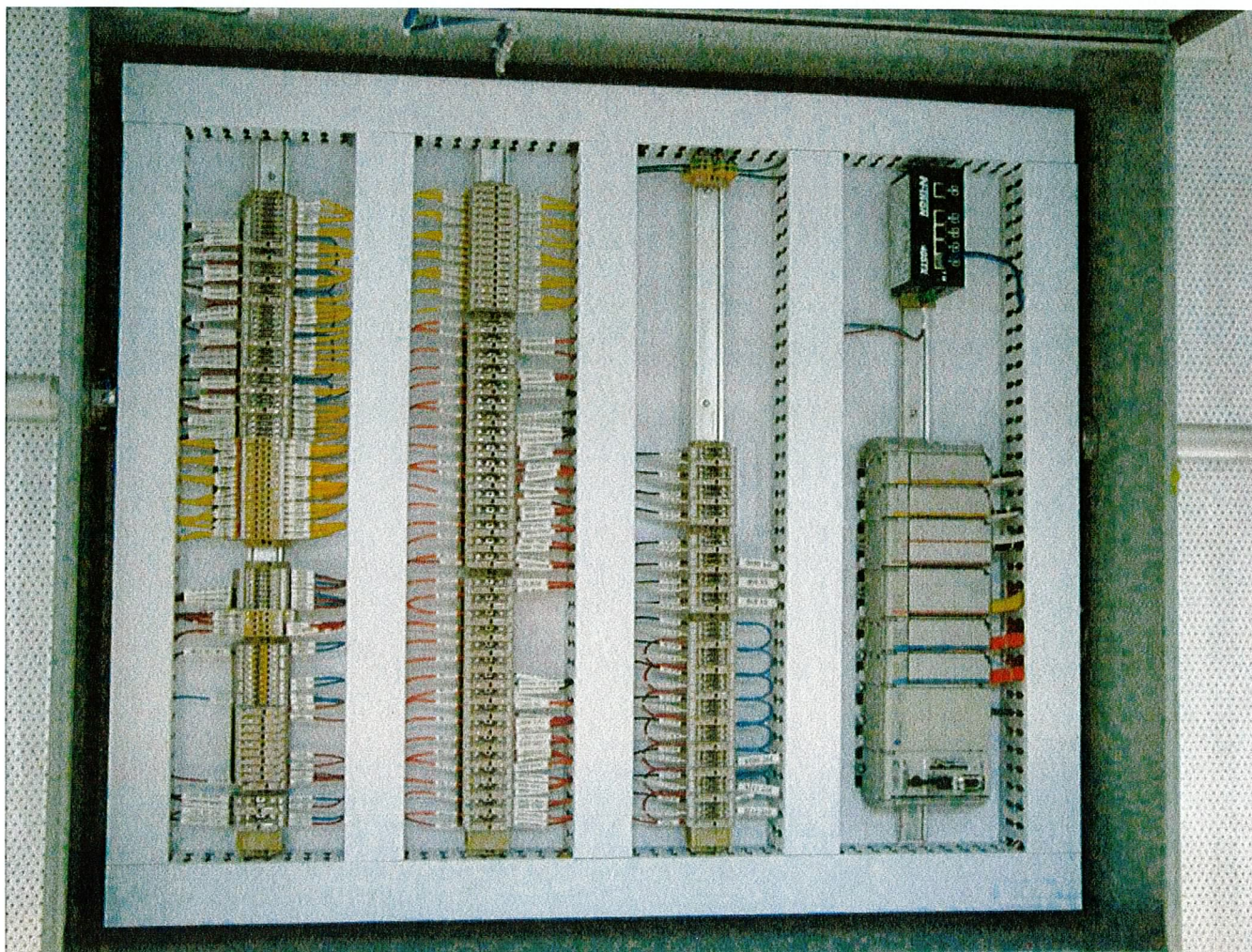
Husky (Tartan Eng)

LOCATION:



02-30-09-16 w4m

Function:	Mfg'r	Description	Mfg'r P/N	QTY	CSA CERTIFICATION	VOLT
PLC CPU	Allen Bradley	Compact Logix Processor, 750k memory	1769-L32E	1	UL listed; CSA approved, Class1, Groups A, B, C or D, Division 2; CE compliant for all applicable directives	24
PLC I/O	Allen Bradley	Compact Logix 16 Point 24 VDC Sourcing Discrete Input module	1769-IQ16	2	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
PLC I/O	Allen Bradley	Compact Logix 8 Point (4-20 mA) Analog Input card	1769-IF8	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
PLC I/O	Allen Bradley	Compact Logix 4 Point (4-20 mA) Analog Output card	1769-OF4CI	2	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
PLC PS	Allen Bradley	Compact Logix Power supply 24 VDC	1769-PB4	1	C-UL-us Certified, CE Compliant, CL 1 DIV 2 Group A,B,C,D Certified for US and Canada	24
PLC	Allen Bradley	16 Point 24 VDC Relay Output module	1769-OW16	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24
HMI	Allen Bradley	Panelview 1000 Plus, Ethernet, 24 VDC, touchpad and keypad	2711P- B10C4D1	1	UL,C-UL,CL 1 Div 2 GRP A,B,C,D CE Marked CL 2 Div 2, CL 3 Div 1, C-Tick	24
Ethernet switch	N-Tron	4 port Ethernet switch, 24 VDC	405-TX	1	Class Division 2; Group A,B,C,D	24
Input / Output relays	Weidmuller	12/24 VDC Normaly open relay	MC5R	22	CL1 DIV 2 GR A,B,C,D CSA	24
Label holder	Weidmuller	Label holder - SCHAT-5	292460000	3		
End stop	Weidmuller	End Bracket	383560000	17		
	Weidmuller	Cover plate for WDU terminal block	105000000	8		
DIN rail	Weidmuller	Rail for mounting terminal blocks	TS-35	10 ft		
Jumper	Weidmuller	Jumper comb	QB58	2		
Jumper	Weidmuller	Jumper comb	QB75	2		
Insulation	Weidmuller	Insulation Sleeve	IP58	4		
Ferrules	Techspan	Copper Terminals	FER-18-8D	150		
Ferrules	Techspan	Copper Terminals	FER-16-8D	60		
Numbers	Weidmuller	Marking Tabs	DEK6FW-1- 50	6		

Jumper	Weidmuller	Jumper bar	WDV-06	1		
Heat shrink label	Impact	Heat shrink 1/8"		10 ft		
End Plate	Weidmuller	End Plate for Relay AP/DK5	APDK-50	3		
		Aluminum close nipple 1/2" Alum	0500-CL	12		
Wireway	IBOCO	Wire Duct, Plastic, White (3"x2 3/8"), Wide	T1-2230W	20 ft		
Fuse		Sand filled ceramic fuse, 1 A	GDA-1	40		
Fuse		Sand filled ceramic fuse 3.15 A	GDA-3.15	10		
Fuse		Sand filled ceramic fuse, 5 A	GDA-5	10		
Fuse		Sand filled ceramic fuse, 63 mA	GDA-.063	10		
Fuse		Sand filled ceramic fuse, 250 mA	GDA-.250	10		
PLC	Allen Bradley	Right end cap	1769-ECR	1		
PLC Enclosure	Hoffman	PLC Metal Enclosure, 42"x36"x12"	CSD-423612	1	CSA Type 4 and 12	
PLC Backpanel	Hoffman	Backpanel	CP-4236	1		
Communication Cables	VTES	Ethernet Patch Cord - Cat 5, 1m Length	N/A			
Fuse Terminals	Weidmuller	Fuse holder WSI-6	1011000000	80	IEC, UL, CSA 300V, 6.5 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-4	1020100000	42	IEC, UL, CSA 600V, 35 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-6	1020200000	33	IEC, UL, CSA 600V, 45 amps	
Wire Terminals	Weidmuller	Terminal block feed through WDU-2.5	1020000000	8	IEC, UL, CSA 600V, 25 amps	
Ground terminal block	Weidmuller	Ground terminal block	1010100000	2		



CAUTION
ENSURE THAT PANEL EXTERIOR
AND INTERIOR ARE CLEAR OF
"COMBUSTIBLE GASES"
PRIOR TO DISCONNECT OF
FUSES OR WIRING

 VAPORTECH energy services inc.		CONTROL PANEL		 FIELD CERTIFICATION FB 466785		20711-107 Avenue Edmonton, Alberta Canada T5B 1W5 1-800-465-7176	
VTES JOB NO: 5230							
EQUIPMENT: ASP TANK FARM VRU							
CLIENT: HUSKY ENERGY							
LOCATION: CROWSNEST							
MODEL: 1769-L32E, IO16, IF8, OF4CI, PB4, OW16							
APPROVAL DATE: JUNE 22/07							
LSD: 2-30-0-16-W4M							
AREA CLASSIFICATION:							
	CLASS	DIV / ZONE	GROUPS	T. CODE	TEMP.		
PLC CONTROL PANEL	I	2	CD / IIB	T3B	165 C		
(24 Vdc, 6.5 A) Evaluated by CSA for Electrical Features Only							
Refer to Electrical Drawings: 5230-100-2, 411a-2, 411b-2, 412-2, 413-2							
CSA QUALIFICATIONS: CAUTION: Multiple Sources of Power							
WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 1, DIV 2 / ZONE 2 PANEL MUST BE CLEAR AND FREE OF GASES BEFORE REPLACING FUSES.							



5252A

Husky c/o IMV Projects

11-36-49-20-w3m

Mfg'r	Description	Mfg'r P/N	QTY	CSA Classification	VOLT	AMP
Allen Bradley	PanelView 550, 24V DC, RS-232 (DF-1) Comm Port, Monochrome Display, KeyPad Only,	2711-K5A16L1	1	cUL Class I Zone 2, Group IIC, temp code T4	24	1
Allen Bradley	MicroLogix 1200, 24 I/O, 24V DC, c/w 2nd Comm Port	1762-L24BXBR	1	cUL Class I Division 2, Group A,B,C,D, temp code T3C	24	1.5
Allen Bradley	16 Point 24V Discrete Input Expansion Card	1762-IQ16	1	cUL Class I Division 2, Group A,B,C,D, temp code T3C	24	

Allen Bradley	2 Input / 2 Output Analog Expansion Card	1762-IF2OF2	1	cUL Class I Division 2, Group A,B,C,D, temp code T3C	24	
Murphy	Engine RPM Indicator	SHD30	1	CSA, Class I Div. 2, group C & D		
Allen Bradley	RS-232 Cable - PanelView to MicroLogix	2711-NC21	1			
Hoffman	Metal CSD 30"x24"x10"	CSD-302410	1	CSA Type 4 and 12		
Hoffman	Backpanel; 30"x24"	CP-3024	1			
Omron	Relay - Engine enable - 24 VDC	MY4H-US	1	CSA Class I Division 2	24	
	Base, D-Rail Mount For MY4 Relays	OMR PYF14AE	1			
Weidmuller	12/24 VDC NO relay, Class I Div 2, MC5R	7901540000	12	Class I Div 2		
Weidmuller	Fuse holder WSI-6	1011000000	30	IEC, UL, CSA 300V, 6.5 amps		
Weidmuller	Terminal block feed through WDU-4	1020100000	40	IEC, UL, CSA 600V, 35 amps		
Weidmuller	Terminal block feed through WDU-6	1020200000	4	IEC, UL, CSA 600V, 45 amps		
Weidmuller	Terminal block feed through WDU-2.5	1020000000	40	IEC, UL, CSA 600V, 25 amps		
Weidmuller	Ground terminal block	1010100000	2			
Weidmuller	Label holder - SCHAT-5	292460000	3			
Weidmuller	EW-35	383560000	14			
Weidmuller	Cover plate for WDU terminal block	1050000000	6			
Weidmuller	Rail for mounting terminal blocks	TS-35	6 ft			
Cooper	Fuse , 1 A	GDA-1	30			
Cooper	Fuse , 3.15 A	GDA-3.15	7			
Cooper	Fuse , 5 A	GDA-5	4			
Cooper	Fuse , 63 mA	GDA-.063	4			
Cooper	Fuse , 250 mA	GDA-.250	4			
Techspan	Copper terminals	FER-18-8D	100			
Techspan	Copper terminals	FER-16-8D	50			
Weidmuller	Jumper comb	QB75	2			
Weidmuller	Jumper comb	QB58	1			
Weidmuller	Insulation sleeve	IP58	2			

VTES JOB #:

5248

CLIENT:

Husky c/o IMV Projects

LOCATION:

11-36-49-20-w3m

Function:	Mfg'r	Description	Mfg'r P/N	QTY	CSA Classification	VOLT	AMP
PLC	Allen Bradley	Micrologix 1200 14 Inputs, 10 relay outputs, 24 VDC, two Communication ports, FRN 11	1762-L24BXBR	1	UL listed; CSA approved, Class1, Division 2; Groups A, B, C, D, ; CE compliant for all applicable directives	24	1.5
HMI	Allen Bradley	PanelView Plus 300 , 24V DC, Keypad, RS-232	2711-K3A17L1	1	UL; C-UL; CE marked; Class I, Div. 2, Groups A, B, C, D; Class I Zone 2; Class II Div. 2; Class III Div. I;	24	1
Expansion card	Allen Bradley	Analog Combo card, 4-20mA, 2 IN, 2 OUT	1762-IF2OF2	1	cUL Class I, Div 2, Group A,B,C,D.Temp code T3C	24	Supplied by PLC power supply
Cable	Allen Bradley	RS-232 Cable - PanelView to MicroLogix communication cable	2711-NC21	1			
PLC Enclosure	Hoffman	Metal CSD 30"x24"x10"	CSD-302410	1	CSA Type 4 and 12		
Backpanel	Hoffman	Backpanel; 30"x24"	CP-3024	1			
	Weidmuller	Relay 12/24 VDC	MC5R	12	Class 1, Division 2, Group A,B,C,D	24	
	Hoffman	Enclosure handle, non locking	WHNL	2			
Fuse	Cooper	Sand filled ceramic fuse , 1 A	GDA-1A	40			
Fuse	Cooper	Sand filled ceramic fuse 3.15 A	GDA-3.15A	5			
Fuse	Cooper	Sand filled ceramic fuse, 5 A	GDA-5A	2			
Fuse	Cooper	Sand filled ceramic fuse, 63 mA	GDA-63mA	8			
Fuse	Cooper	Sand filled ceramic fuse, 250 mA	GDA-250mA	8			
	Weidmuller	Jumper comb	QB75	2			
	Weidmuller	Jumper comb	QB58	1			
	Weidmuller	Insulation sleeve	IP58	2			

	Weidmuller	TS-35 Rail (Top hat)	TS-35	7 ft			
	Weidmuller	Fuse holder	WSI-6	60	IEC, UL, CSA 300V, 6.5 amps		
	Weidmuller	Feed through terminals	WDU-4	100	IEC, UL, CSA 600V, 35 amps		
	Weidmuller	Feed through terminals	WDU-6	20	IEC, UL, CSA 600V, 45 amps		
	Weidmuller	Feed through terminals	WDU-2.5	20	IEC, UL, CSA 600V, 25 amps		
	Weidmuller	End plate for WDU TB	WAP-2.5	25			
	Weidmuller	End bracket	EW35	15			
	IBOCO	Wireway, plastic, white 2 1/4 x 3"		25 ft			
	Weidmuller	End plate for relays	AP/DK 5	2			
	Weidmuller	Terminal markers	DEK6FW- 1-50	1			
	Weidmuller	Label holders	SCHT-50	3			
	Weidmuller	Ground terminal block	WPE-4	4			

TEST REPORT

A dielectric test of 500 V was waived as only components were wired.

End of Report



Installation Instructions

MicroLogix™ 1762-IQ16 DC Input Module

Inside

Description	3
Installation	4
Mounting	5
System Assembly	7
Field Wiring Connections	7
I/O Memory Mapping	10
Specifications	11
Hazardous Location Considerations	13
Environnements dangereux	14

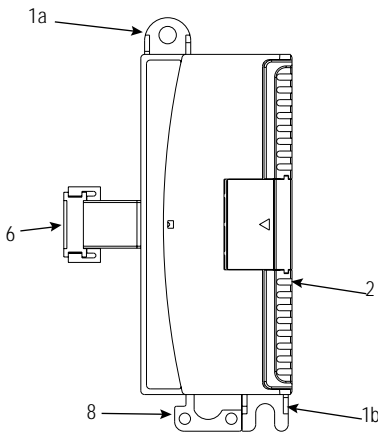
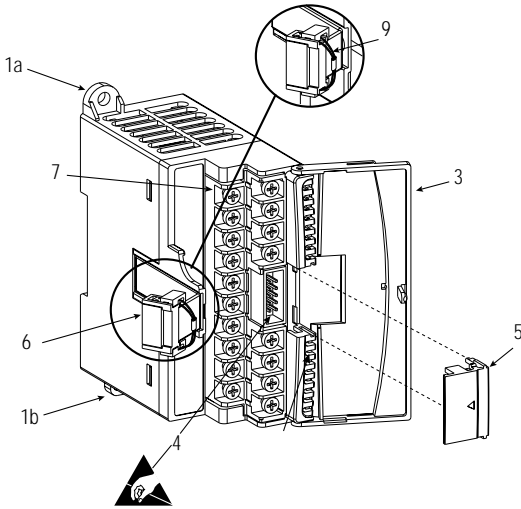
For More Information

For	Refer to this Document	Pub. No.
Information on installing, wiring, and operating a MicroLogix 1200 Programmable Controller	MicroLogix 1200 Programmable Controllers User Manual (Bulletin 1762 Controllers and Expansion I/O)	1762-UM001A-US-P
Installation guide for the MicroLogix 1200 Programmable Controller.	MicroLogix 1200 Programmable Controllers Installation Instructions	1762-IN006B-ML-P
More information on proper wiring and grounding techniques.	Industrial Automation Wiring and Grounding Guidelines	1770-4.1

If you would like a manual, you can:

- download a free electronic version from the internet:
www.ab.com/micrologix or **www.theautomationbookstore.com**
- purchase a printed manual by:
 - contacting your local distributor or Rockwell Automation representative
 - visiting **www.theautomationbookstore.com** and placing your order
 - calling **1.800.963.9548** (USA/Canada)
or **001.330.725.1574** (Outside USA/Canada)

Description



Item	Description
1a	upper panel mounting tab
1b	lower panel mounting tab
2	I/O diagnostic LEDs
3	module door with terminal identification label
4	bus connector with male pins
5	bus connector cover
6	flat ribbon cable with bus connector (female pins)
7	terminal block
8	DIN rail latch
9	pull loop

Installation

1762 I/O is suitable for use in an industrial environment when installed in accordance with these instructions. Specifically, this equipment is intended for use in clean, dry environments (Pollution degree 2⁽¹⁾) and to circuits not exceeding Over Voltage Category II⁽²⁾ (IEC 60664-1).⁽³⁾

Prevent Electrostatic Discharge

ATTENTION

Electrostatic discharge can damage integrated circuits or semiconductors if you touch bus connector pins. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential.
 - Wear an approved wrist-strap grounding device.
 - Do not touch the bus connector or connector pins.
 - Do not touch circuit components inside the module.
 - If available, use a static-safe work station.
 - When not in use, keep the module in its static-shield box.
-

Remove Power

ATTENTION

Remove power before removing or installing this module. When you remove or install a module with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's field devices, causing unintended machine motion
- causing an explosion in a hazardous environment
- causing permanent damage to the module's circuitry

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

(1) Pollution Degree 2 is an environment where, normally, only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation shall be expected.

(2) Over Voltage Category II is the load level section of the electrical distribution system. At this level transient voltages are controlled and do not exceed the impulse voltage capability of the product's insulation.

(3) Pollution Degree 2 and Over Voltage Category II are International Electrotechnical Commission (IEC) designations.

Mounting

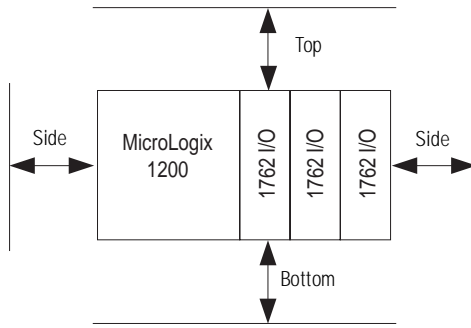
ATTENTION



Do not remove protective debris strip until after the module and all other equipment near the module is mounted and wiring is complete. Once wiring is complete and the module is free of debris, carefully remove protective debris strip. Failure to remove strip before operating can cause overheating.

Minimum Spacing

Maintain spacing from enclosure walls, wireways, adjacent equipment, etc. Allow 50.8 mm (2 in.) of space on all sides for adequate ventilation, as shown:



NOTE

1762 expansion I/O may be mounted horizontally only.

ATTENTION



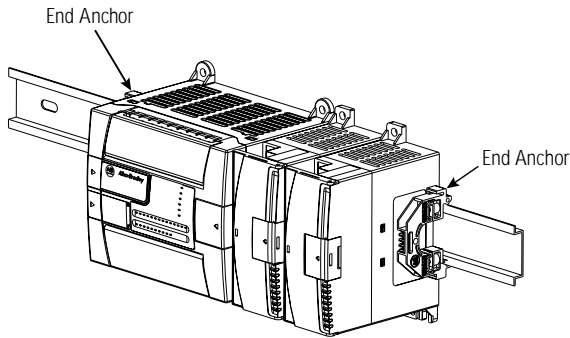
During panel or DIN rail mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the module. Debris that falls into the module could cause damage when power is applied to the module.

DIN Rail Mounting

The module can be mounted using the following DIN rails: 35 x 7.5 mm (EN 50 022 - 35 x 7.5) or 35 x 15 mm (EN 50 022 - 35 x 15).

Before mounting the module on a DIN rail, close the DIN rail latch. Press the DIN rail mounting area of the module against the DIN rail. The latch will momentarily open and lock into place.

Use DIN rail end anchors (Allen-Bradley part number 1492-EA35 or 1492-EAH35) for vibration or shock environments.



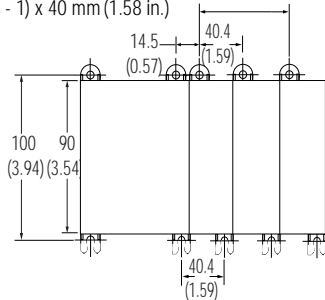
NOTE

For environments with greater vibration and shock concerns, use the panel mounting method described below, instead of DIN rail mounting.

Panel Mounting

Use the dimensional template shown below to mount the module. The preferred mounting method is to use two M4 or #8 panhead screws per module. M3.5 or #6 panhead screws may also be used, but a washer may be needed to ensure a good mechanical contact. Mounting screws are required on every module.

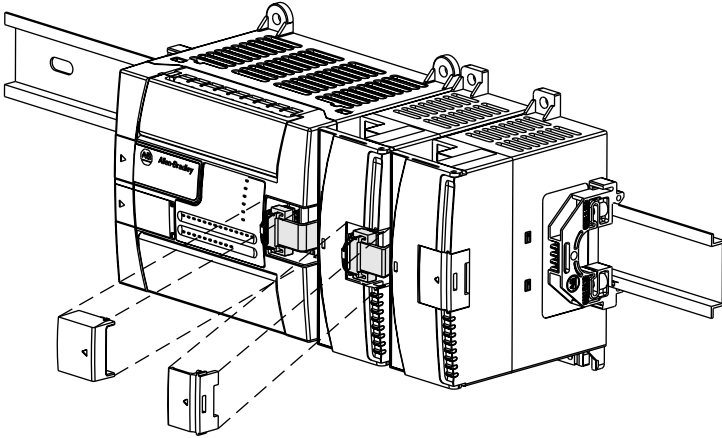
For more than 2 modules: (number of modules - 1) x 40 mm (1.58 in.)



NOTE: All dimensions are in mm (inches). Hole spacing tolerance: ± 0.4 mm (0.016 in.).

System Assembly

The expansion I/O module is attached to the controller or another I/O module by means of a flat ribbon cable *after* mounting as shown below.



NOTE

Use the pull loop on the connector to disconnect modules. Do not pull on the ribbon cable.

ATTENTION



EXPLOSION HAZARD

- In Class I, Division 2 applications, the bus connector must be fully seated and the bus connector cover must be snapped in place.
- In Class I, Division 2 applications, all modules must be mounted in direct contact with each other as shown on Page 6. If DIN rail mounting is used, an end stop must be installed ahead of the controller and after the last 1762 I/O module.

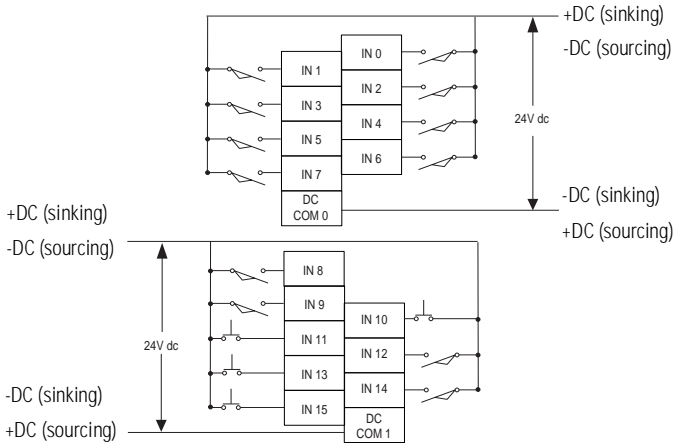
Field Wiring Connections

Grounding the Module

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Refer to *Industrial Automation Wiring and Grounding Guidelines*, Allen-Bradley publication 1770-4.1, for additional information.

Input Wiring

Basic wiring⁽¹⁾ of input devices to the 1762-IQ16 is shown below.



A write-on label is provided with the module. Mark the identification of each terminal with permanent ink, and slide the label back into the door.

ATTENTION



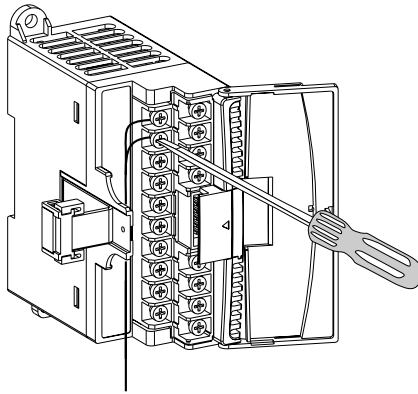
Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

ATTENTION



Miswiring of the module to an AC power source will damage the module.

(1) Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing I/O circuits supply (source) current to sinking field devices. Sinking I/O circuits are driven by a current sourcing field device. Field devices connected to the negative side (DC Common) of the field power supply are sinking field devices. Field devices connected to the positive side (+V) of the field supply are sourcing field devices.

**NOTE**

Finger-safe cover not shown for clarity.

Wiring the Finger-Safe Terminal Block

When wiring the terminal block, keep the finger-safe cover in place.

1. Route the wire under the terminal pressure plate. You can use the stripped end of the wire or a spade lug. The terminals will accept a 6.35 mm (0.25 in.) spade lug.
2. Tighten the terminal screw making sure the pressure plate secures the wire. Recommended torque when tightening terminal screws is 0.90 Nm (8 in-lbs).

NOTE

If you need to remove the finger-safe cover, insert a screw driver into one of the square wiring holes and gently pry the cover off. If you wire the terminal block with the finger-safe cover removed, you will not be able to put it back on the terminal block because the wires will be in the way.

Wire Size and Terminal Screw Torque

Each terminal accepts up to two wires with the following restrictions:

Wire Type		Wire Size	Terminal Screw Torque
Solid	Cu-90°C (194°F)	#14 to #22 AWG	0.90 Nm (8 in-lbs)
Stranded	Cu-90°C (194°F)	#16 to #22 AWG	0.90 Nm (8 in-lbs)

I/O Memory Mapping

Input Data File

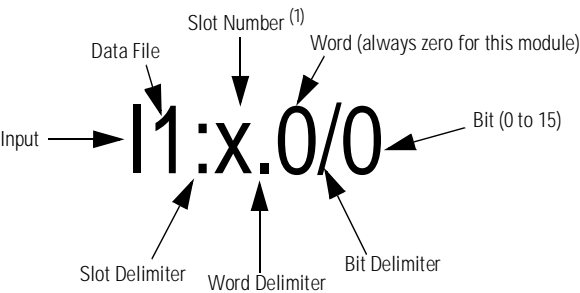
For each input module, the input data file contains the current state of the field input points. Bit positions 0 through 15 correspond to input terminals 0 through 15.

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r

r = read only

Addressing

The addressing scheme for 1762 Expansion I/O is shown below.



(1) I/O located on the controller (embedded I/O) is slot 0. I/O added to the controller (expansion I/O) begins with slot 1.

Specifications

General Specifications

Specification	Value
Dimensions	90 mm (height) x 87 mm (depth) x 40.4 mm (width) height including mounting tabs is 110 mm 3.54 in. (height) x 3.43 in. (depth) x 1.59 in. (width) height including mounting tabs is 4.33 in.
Approximate Shipping Weight (with carton)	230g (0.51 lbs.)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Operating Temperature	0°C to +55°C (+32°F to +131°F)
Operating Humidity	5% to 95% non-condensing
Operating Altitude	2000 meters (6561 feet)
Vibration	Operating: 10 to 500 Hz, 5G, 0.030 in. max. peak-to-peak, 2 hours per axis
Shock	Operating: 30G panel mounted, 3 pulses per axis Non-Operating: 50G panel mounted, 3 pulses per axis (40G DIN Rail mounted)
Agency Certification	C-UL certified (under CSA C22.2 No. 142) UL 508 listed CE compliant for all applicable directives
Hazardous Environment Class	Class I, Division 2, Hazardous Location, Groups A, B, C, D (UL 1604, C-UL under CSA C22.2 No. 213)
Radiated and Conducted Emissions	EN50081-2 Class A
<i>Electrical /EMC:</i>	<i>The module has passed testing at the following levels:</i>
ESD Immunity (IEC1000-4-2)	4 kV contact, 8 kV air, 4 kV indirect
Radiated Immunity (IEC1000-4-3)	10 V/m, 80 to 1000 MHz, 80% amplitude modulation, +900 MHz keyed carrier
Fast Transient Burst (IEC1000-4-4)	2 kV, 5 kHz
Surge Immunity (IEC1000-4-5)	2 kV common mode, 1 kV differential mode
Conducted Immunity (IEC1000-4-6)	10V, 0.15 to 80 MHz ⁽¹⁾

(1) Conducted Immunity frequency range may be 150 kHz to 30 MHz if the Radiated Immunity frequency range is 30 MHz to 1000 MHz.

Input Specifications

Specification	1762-IQ16
Voltage Category	24V dc (sink/source) ⁽¹⁾
Operating Voltage Range	10 to 30V dc at 30°C (86°F) 10 to 26.4V dc at 55°C (131°F)
Number of Inputs	16
Bus Current Draw (max.)	60 mA at 5V dc (0.3W)
Heat Dissipation (max.)	5.3 Total Watts at 30V 4.2 Total Watts at 26.4V
Signal Delay (max.)	On Delay: 8.0 ms Off Delay: 8.0 ms
Off-State Voltage (max.)	5V dc
Off-State Current (max.)	1.5 mA
On-State Voltage (min.)	10V dc
On-State Current	2.0 mA min. at 10V dc 8.0 mA nominal at 24V dc 12.0 mA max. at 30V dc
Nominal Impedance	3K ohm
IEC Input Compatibility	Type 1+
Power Supply Distance Rating	6
Isolated Groups	Group 1: inputs 0 to 7; Group 2: inputs 8 to 15
Input Group to Backplane Isolation	Verified by one of the following dielectric tests: 1200V ac for 1 sec. or 1697V dc for 1 sec. 75V dc working voltage (IEC Class 2 reinforced insulation)
Vendor I.D. Code	1
Product Type Code	7
Product Code	97

(1) Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing I/O circuits supply (source) current to sinking field devices. Sinking I/O circuits are driven by a current sourcing field device. Field devices connected to the negative side (DC Common) of the field power supply are sinking field devices. Field devices connected to the positive side (+V) of the field supply are sourcing field devices.

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following WARNING statement applies to use in hazardous locations.

WARNING**EXPLOSION HAZARD**

- Substitution of components may impair suitability for Class I, Division 2.
 - Do not replace components or disconnect equipment unless power has been switched off.
 - Do not connect or disconnect components unless power has been switched off.
 - This product must be installed in an enclosure.
 - In Class I, Division 2 applications, the bus connector must be fully seated and the bus connector cover must be snapped in place.
 - In Class I, Division 2 applications, all modules must be mounted in direct contact with each other as shown on Page 6. If DIN rail mounting is used, an end stop must be installed ahead of the controller and after the last 1762 I/O module.
-

Environnements dangereux

Cet équipement est conçu pour être utilisé dans des environnements de Classe I, Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à une utilisation dans des environnements dangereux.

MISE EN GARD**DANGER D'EXPLOSION**

- La substitution de composants peut rendre cet équipement impropre à une utilisation en environnement de Classe I, Division 2.
 - Ne pas remplacer de composants ou déconnecter l'équipement sans s'être assuré que l'alimentation est coupée.
 - Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée.
 - Ce produit doit être installé dans une armoire.
 - Pour les applications de Classe I, Division 2, le connecteur de bus doit être correctement installé et son couvercle enclenché.
 - Pour les applications de Classe I, Division 2, tous les modules doivent être installés en contact direct les uns avec les autres, comme indiqué Page 6. Si on utilise le montage sur rail DIN, une butée doit être placée à l'avant de l'automate et après la dernière unité d'E/S 1762.
-

MicroLogix is a trademark of Rockwell Automation.

Reach us now at www.rockwellautomation.com

Wherever you need us, Rockwell Automation brings together leading brands in industrial automation including Allen-Bradley controls, Reliance Electric power transmission products, Dodge mechanical power transmission components, and Rockwell Software. Rockwell Automation's unique, flexible approach to helping customers achieve a competitive advantage is supported by thousands of authorized partners, distributors and system integrators around the world.

Americas Headquarters, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444
European Headquarters SA/NV, avenue Hermann Debroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 663 06 00, Fax: (32) 2 663 06 40
Asia Pacific Headquarters, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 1762-IN010A-EN-P - July 2000



**Rockwell
Automation**

PN 40071-114-01(A)

© 2000 Rockwell International Corporation. Printed in MALAYSIA.





Installation Instructions

MicroLogix™ Analog Input/Output Module

(Catalog Number 1762-IF20F2)

Inside...

For More Information	2
Description	3
Installation	4
Mounting	5
System Assembly	7
Field Wiring Connections	8
Input Type Selection	8
Output Type Selection	8
Wiring	9
I/O Memory Mapping	13
Specifications	18
Hazardous Location Considerations	22
Environnements dangereux	23

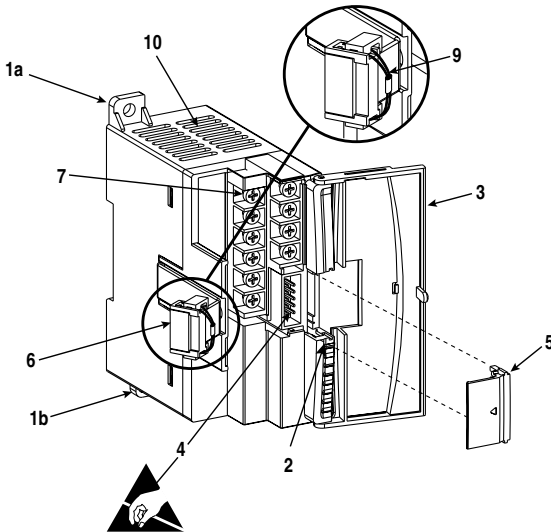
For More Information

For	Refer to this Document	Pub. No.
Information on installing, wiring, and operating a MicroLogix 1200 Programmable Controller	MicroLogix 1200 Programmable Controllers User Manual	1762-UM001A-US-P
Installation guide for the MicroLogix 1200 Programmable Controller.	MicroLogix 1200 Programmable Controllers Installation Instructions	1762-IN006A-ML-P
Installation guide for the MicroLogix 1200 Memory Module and Real Time clock.	MicroLogix 1200 Memory Module and/or Real Time Clock Installation Instructions	1762-IN001A-US-P
Installation guide for the 1762-IA8 Discrete Input Module	1762-IA8 120V ac Input Module Installation Instructions	1762-IN002A-US-P
Installation guide for the 1762-OW8 Discrete Output Module	1762-OW8 Relay Output Module Installation Instructions	1762-IN003A-US-P
Installation guide for the 1762-IQ8 Discrete Input Module	1762-IQ8 DC Input Module Installation Instructions	1762-IN004A-US-P
More information on proper wiring and grounding techniques.	Industrial Automation Wiring and Grounding Guidelines	1770-4.1

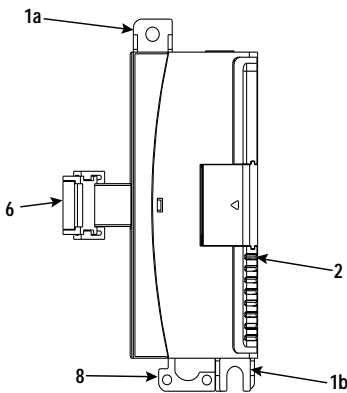
If you would like a manual, you can:

- download a free electronic version from the internet:
www.ab.com/micrologix or www.theautomationbookstore.com
- purchase a printed manual by:
 - contacting your local distributor or Rockwell Automation representative
 - visiting www.theautomationbookstore.com and placing your order
 - calling 1.800.963.9548 (USA/Canada)
or 001.330.725.1574 (Outside USA/Canada)

Description



Item	Description
1a	upper panel mounting tab
1b	lower panel mounting tab
2	power diagnostic LED
3	module door with terminal identification label
4	bus connector with male pins
5	bus connector cover
6	flat ribbon cable with bus connector (female)
7	terminal block
8	DIN rail latch
9	pull loop
10	input type selector switch



Installation

1762 I/O is suitable for use in an industrial environment when installed in accordance with these instructions. Specifically, this equipment is intended for use in clean, dry environments (Pollution degree 2⁽¹⁾) and to circuits not exceeding Over Voltage Category II⁽²⁾ (IEC 60664-1).⁽³⁾

Prevent Electrostatic Discharge

ATTENTION

Electrostatic discharge can damage integrated circuits or semiconductors if you touch bus connector pins. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential.
 - Wear an approved wrist-strap grounding device.
 - Do not touch the bus connector or connector pins.
 - Do not touch circuit components inside the module.
 - If available, use a static-safe work station.
 - When not in use, keep the module in its static-shield box.
-

Remove Power

ATTENTION

Remove power before removing or installing this module. When you remove or install a module with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's field devices, causing unintended machine motion
- causing an explosion in a hazardous environment
- causing permanent damage to the module's circuitry

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

(1) Pollution Degree 2 is an environment where, normally, only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation shall be expected.

(2) Over Voltage Category II is the load level section of the electrical distribution system. At this level transient voltages are controlled and do not exceed the impulse voltage capability of the product's insulation.

(3) Pollution Degree 2 and Over Voltage Category II are International Electrotechnical Commission (IEC) designations.

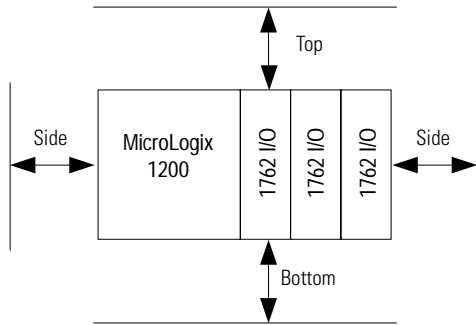
Mounting

ATTENTION

Do not remove protective debris strip until after the module and all other equipment near the module is mounted and wiring is complete. Once wiring is complete and the module is free of debris, carefully remove protective debris strip. Failure to remove strip before operating can cause overheating.

Minimum Spacing

Maintain spacing from enclosure walls, wireways, adjacent equipment, etc. Allow 50.8 mm (2 in.) of space on all sides for adequate ventilation, as shown:

**NOTE**

1762 expansion I/O may be mounted horizontally only.

ATTENTION

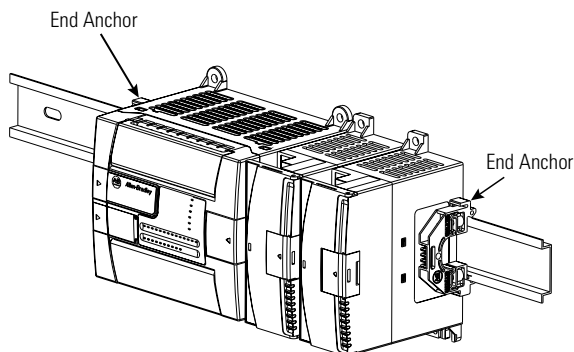
During panel or DIN rail mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the module. Debris that falls into the module could cause damage when power is applied to the module.

DIN Rail Mounting

The module can be mounted using the following DIN rails: 35 x 7.5 mm (EN 50 022 - 35 x 7.5) or 35 x 15 mm (EN 50 022 - 35 x 15).

Before mounting the module on a DIN rail, close the DIN rail latch. Press the DIN rail mounting area of the module against the DIN rail. The latch will momentarily open and lock into place.

Use DIN rail end anchors (Allen-Bradley part number 1492-EA35 or 1492-EAH35) for environments with vibration or shock concerns.



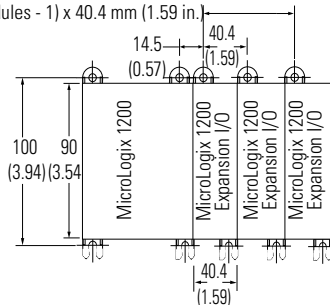
NOTE

For environments with extreme vibration and shock concerns, use the panel mounting method described below, instead of DIN rail mounting.

Panel Mounting

Use the dimensional template shown below to mount the module. The preferred mounting method is to use two M4 or #8 panhead screws per module. M3.5 or #6 panhead screws may also be used, but a washer may be needed to ensure a good ground contact. Mounting screws are required on every module.

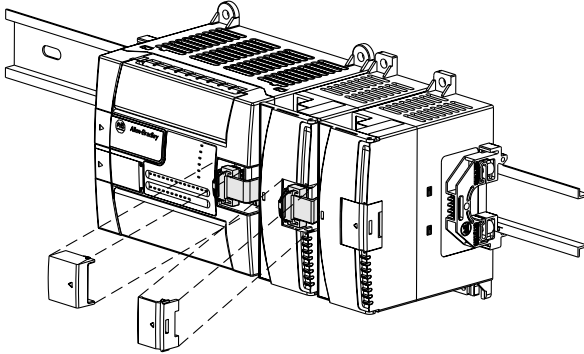
For more than 2 modules: (number of modules - 1) x 40.4 mm (1.59 in.)



NOTE:
Hole spacing tolerance:
±0.4 mm (0.016 in.).

System Assembly

The expansion I/O module is attached to the controller or another I/O module by means of a ribbon cable *after* mounting as shown below.

**NOTE**

Use the pull loop on the connector to disconnect modules. Do not pull on the ribbon cable.

WARNING**EXPLOSION HAZARD**

- In Class I, Division 2 applications, the bus connector must be fully seated and the bus connector cover must be snapped in place.
- In Class I, Division 2 applications, all modules must be mounted in direct contact with each other as shown on page 6. If DIN rail mounting is used, an end stop must be installed ahead of the controller and after the last 1762 I/O module.

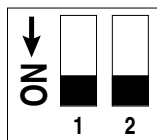
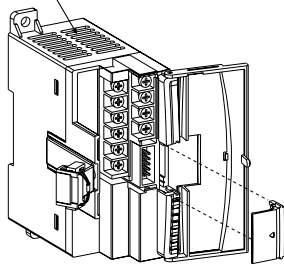
Field Wiring Connections

Grounding the Module

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the module's mounting tabs or DIN rail (if used) are not required unless the mounting surface cannot be grounded. Refer to *Industrial Automation Wiring and Grounding Guidelines*, Allen-Bradley publication 1770-4.1, for additional information.

Input Type Selection

Select the input type, current or voltage, using the switch located on the module's circuit board *and* the input type/range selection bits in the Configuration Data File (see page 16). You can access the switch through the ventilation slots on the top of the module. Switch 1 controls channel 0; switch 2 controls channel 1. The factory default setting for both switch 1 and switch 2 is Current. Switch positions are shown below.



↑ Voltage (OFF)

↓ Current (ON) Default

Switch 1 = Channel 0

Switch 2 = Channel 1

Output Type Selection

The output type selection, current or voltage, is made by wiring to the appropriate terminals, Iout or Vout, *and* by the type/range selection bits in the Configuration Data File (see page 16).

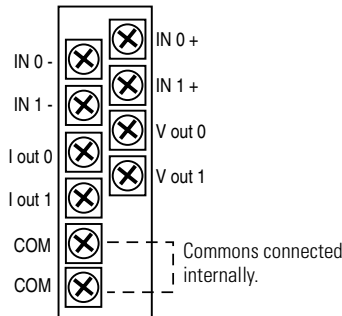
Wiring

System Wiring Guidelines

Consider the following when wiring your system:

- The analog common (COM) is not connected to earth ground inside the module. All terminals are electrically isolated from the system.
- Channels are not isolated from each other.
- Use Belden™ 8761, or equivalent, shielded wire.
- Under normal conditions, the drain wire (shield) should be connected to the metal mounting panel (earth ground). Keep shield connection to earth ground as short as possible.
- To ensure optimum accuracy for voltage type inputs and outputs, limit overall cable impedance by keeping all analog cables as short as possible. Locate the I/O system as close to your voltage type sensors or actuators as possible.
- The 1762-IF2OF2 module does not provide loop power for analog inputs. Use a power supply that matches the input transmitter specifications.

Terminal Block Layout

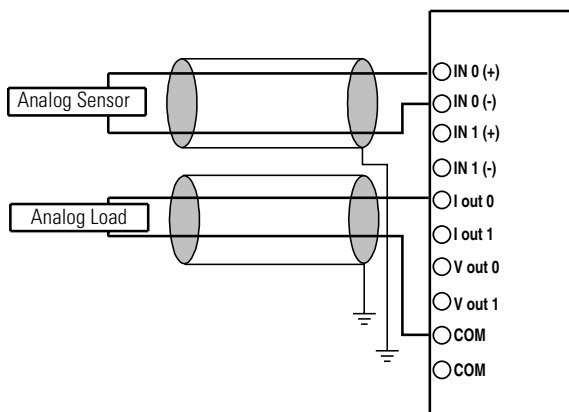


ATTENTION



Analog outputs may fluctuate for less than a second when power is applied or removed. This characteristic is common to most analog outputs. While the majority of loads will not recognize this short signal, it is recommended that preventive measures be taken to ensure that connected equipment is not affected.

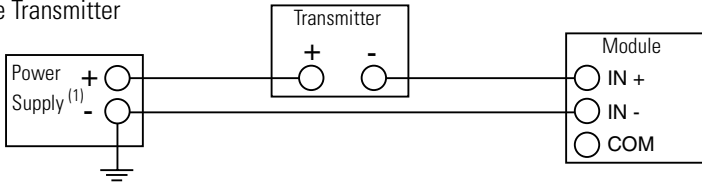
Differential Sensor Transmitter Types

**NOTE**

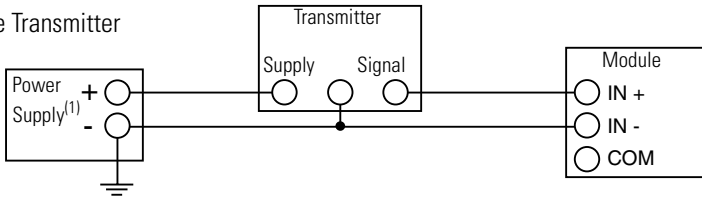
Grounding the cable shield at the module end only usually provides sufficient noise immunity. However, for best cable shield performance, earth ground the shield at both ends, using a $0.01\mu\text{F}$ capacitor at one end to block AC power ground currents, if necessary.

Sensor/Transmitter Types

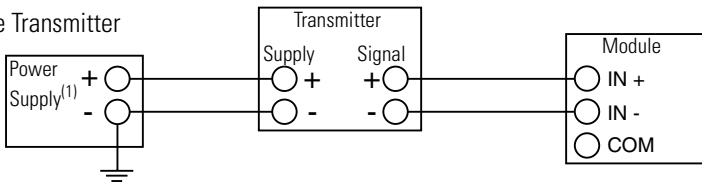
2-Wire Transmitter



3-Wire Transmitter



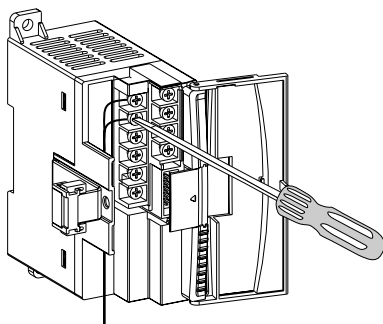
4-Wire Transmitter



(1) All power supplies rated N.E.C. Class 2.

Labeling the Terminals

A write-on label is provided with the module. Mark the identification of each terminal with permanent ink, and slide the label back into the door.



Wiring the Finger-Safe Terminal Block

ATTENTION



Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

When wiring the terminal block, keep the finger-safe cover in place.

1. Route the wire under the terminal pressure plate. You can use the stripped end of the wire or a spade lug. The terminals will accept a 6.35 mm (0.25 in.) spade lug.
2. Tighten the terminal screw making sure the pressure plate secures the wire. Recommended torque when tightening terminal screws is 0.904 Nm (8 in-lbs).
3. After wiring is complete, remove the debris shield.

NOTE

If you need to remove the finger-safe cover, insert a screw driver into one of the square wiring holes and gently pry the cover off. If you wire the terminal block with the finger-safe cover removed, you will not be able to put it back on the terminal block because the wires will be in the way.

Wire Size and Terminal Screw Torque

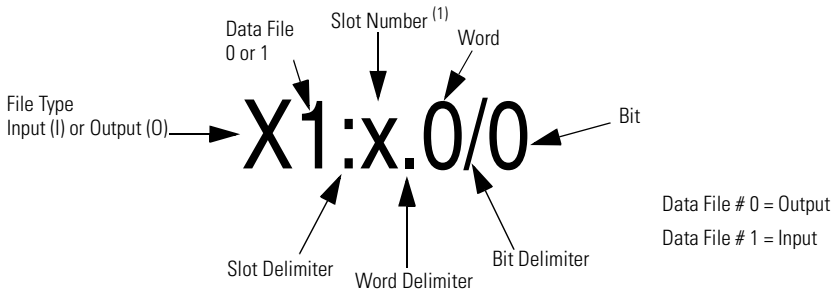
Each terminal accepts up to two wires with the following restrictions:

Wire Type		Wire Size	Terminal Screw Torque
Solid	Cu-90°C (194°F)	#14 to #22 AWG	0.904 Nm (8 in-lbs)
Stranded	Cu-90°C (194°F)	#16 to #22 AWG	0.904 Nm (8 in-lbs)

I/O Memory Mapping

Addressing

The addressing scheme for 1762 Expansion I/O is shown below.



- (1) I/O located on the controller (embedded I/O) is slot 0. I/O added to the controller (expansion I/O) begins with slot 1.

Input Data File

For each module, slot x, words 0 and 1 contain the analog values of the inputs. The module can be configured to use either raw/proportional data or scaled-for-PID data. The input data file for each configuration is shown below.

Raw/Proportional Format

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	Channel 0 Data 0 to 32760												0	0	0
1	0	Channel 1 Data 0 to 32760												0	0	0
2	reserved															
3	reserved															
4	reserved										SO 1	SO 0	reserved	SI 1	SI 0	
5	UI 0	OI 0	UI 1	OI 1	reserved				UO 0	OO 0	UO 1	OO 1	reserved			

Scaled-for-PID Format

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	Channel 0 Data 0 to 16,380												0	0
1	0	0	Channel 1 Data 0 to 16,380												0	0
2	reserved															
3	reserved															
4	reserved										SO 1	SO 0	reserved	SI 1	SI 0	
5	UI 0	OI 0	UI 1	OI 1	reserved				UO 0	OO 0	UO 1	OO 1	reserved			

The bits are defined as follows:

- **SIx** = General status bits for input channels 0 and 1.
SOx = General status bits for output channels 0 and 1. This bit is set when an error (over- or under-range) exists for that channel, or there is a general module hardware error.
- **OIx** = Over-range flag bits for input channels 0 and 1.
OOx = Over-range flag bits for output channels 0 and 1. These bits can be used in the control program for error detection.
- **UIx** = Under-range flag bits for input channels 0 and 1.
UOx = Under-range flag bits for output channels 0 and 1. These bits can be used in the control program for error detection.

Output Data File

For each module, slot x, words 0 and 1 contain the channel output data.

Raw/Proportional Format

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	Channel 0 Data 0 to 32,760												0	0	0
1	0	Channel 1 Data 0 to 32,760												0	0	0

Scaled-for-PID Format

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	Channel 0 Data 0 to 16,380												0	0
1	0	0	Channel 1 Data 0 to 16,380												0	0

Configuration Data File

The configuration of the format for analog inputs and outputs is made at going to run (GTR). Changes made to the configuration file while in run mode have no effect.

The configuration table for analog inputs and outputs is shown in the table below.

Configuration Data File

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	reserved	Data Format Input Channel 0			Type/Range Select Input Channel 0				reserved							
1		Data Format Input Channel 1			Type/Range Select Input Channel 1				reserved							
2	reserved															
3	reserved															
4	reserved	Data Format Output Channel 0			Type/Range Select Output Channel 0				reserved							
5		Data Format Output Channel 1			Type/Range Select Output Channel 1				reserved							
6	reserved															
7	reserved															

Bit 15 and Bits 7 through 0 - Reserved

These bits are reserved and are not checked by the module.

Data Format (Bits 14 through 12)

These bits indicate the format of the data as shown in the following table. Other combinations of these bits are not supported and result in an error.

Bit Settings			Data Format
14	13	12	
0	0	0	Raw/Proportional
0	1	0	Scaled for PID
other			Not Supported

Type/Range Select (Bits 11 through 8)

These bits indicate the type and range as in the following table. Other combinations of these bits are not supported and result in an error.

Bit Settings				Data Format
11	10	9	8	
0	0	1	0	Voltage Mode 0 to 10V dc
0	0	1	1	Current Mode 4 to 20 mA
other				Not Supported

Specifications

General Specifications

Specification	Value
Dimensions	90 mm (height) x 87 mm (depth) x 40 mm (width) height including mounting tabs is 110 mm 3.54 in. (height) x 3.43 in. (depth) x 1.58 in. (width) height including mounting tabs is 4.33 in.
Approximate Shipping Weight (with carton)	240g (0.53 lbs.)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Operating Temperature	0°C to +55°C (-32°F to +131°F)
Operating Humidity	5% to 95% non-condensing
Operating Altitude	2000 meters (6561 feet)
Vibration	Operating: 10 to 500 Hz, 5G, 0.030 in. max. peak-to-peak
Shock	Operating: 30G
Bus Current Draw (max.)	40 mA at 5V dc 105 mA at 24V dc
Analog Normal Operating Range	Voltage: 0 to 10V dc Current: 4 to 20 mA
Full Scale ⁽¹⁾ Analog Ranges	Voltage: 0 to 10.5V dc Current: 0 to 21 mA
Resolution	12 bits (unipolar)
Repeatability ⁽²⁾	±0.1%
Input and Output Group to System Isolation	30V ac/30V dc rated working voltage ⁽³⁾ (N.E.C. Class 2 required) (IEC Class 2 reinforced insulation) type test: 500V ac or 707V dc for 1 minute
Module Power LED	On: indicates power is applied.
Recommended Cable	Belden™ 8761 (shielded)

Specification	Value
Vendor I.D. Code	1
Product Type Code	10
Product Code	75
Agency Certification	C-UL certified (under CSA C22.2 No. 142) UL 508 listed CE compliant for all applicable directives
Hazardous Environment Class	Class I, Division 2, Hazardous Location, Groups A, B, C, D (UL 1604, C-UL under CSA C22.2 No. 213)
Noise Immunity	NEMA standard ICS 2-230
Radiated and Conducted Emissions	EN50081-2 Class A
<i>Electrical /EMC:</i>	<i>The module has passed testing at the following levels:</i>
ESD Immunity (IEC1000-4-2)	4 kV contact, 8 kV air, 4 kV indirect
Radiated Immunity (IEC1000-4-3)	10 V/m, 80 to 1000 MHz, 80% amplitude modulation, +900 MHz keyed carrier
Fast Transient Burst (IEC1000-4-4)	2 kV, 5 kHz
Surge Immunity (IEC1000-4-5)	1 kV galvanic gun
Conducted Immunity (IEC1000-4-6)	10V, 0.15 to 80 MHz ⁽⁴⁾

- (1) The over- or under-range flag comes on when the normal operating range (over/under) is exceeded. The module continues to convert the analog input up to the maximum full scale range.
- (2) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (3) Rated working voltage is the maximum continuous voltage that can be applied at the terminals with respect to earth ground.
- (4) Conducted Immunity frequency range may be 150 kHz to 30 MHz if the Radiated Immunity frequency range is 30 MHz to 1000 MHz.

Input Specifications

Specification	Value
Number of Inputs	2 differential (unipolar)
A/D Converter Type	Successive approximation
Common Mode Voltage Range ⁽¹⁾	±27 V
Common Mode Rejection ⁽²⁾	> 55 dB at 50 and 60 Hz
Non-linearity (in percent full scale)	±0.1%
Typical Overall Accuracy ⁽³⁾	±0.5% full scale at 0 to 55°C ±0.3% full scale at 25°C
Input Impedance	Voltage Terminal: 200KΩ Current Terminal: 250Ω
Current Input Protection	±32 mA
Voltage Input Protection	±30 V
Channel Diagnostics	Over or under range or open circuit condition by bit reporting for analog inputs.

(1) For proper operation, both the plus and minus input terminals must be within ±27V of analog common.

(2) $V_{cm} = 1 V_{pk-pk}$ AC

(3) $V_{cm} = 0$ (includes offset, gain, non-linearity and repeatability error terms)

Output Specifications

Specification	Value
Number of Outputs	2 single-ended (unipolar)
D/A Converter Type	Resistor string
Resistive Load on Current Output	0 to 500 Ω (includes wire resistance)
Load Range on Voltage Output	> 1K Ω
Reactive Load, Current Output	< 0.1 mH
Reactive Load, Voltage Output	< 1 μ F
Typical Overall Accuracy ⁽¹⁾	$\pm 1\%$ full scale at 0 to 55°C $\pm 0.5\%$ full scale at 25°C
Output Ripple range 0 to 500 Hz (referred to output range)	< $\pm 0.1\%$
Non-linearity (in percent full scale)	< $\pm 0.5\%$
Open and Short-Circuit Protection	Continuous
Output Protection	± 32 mA

(1) Includes offset, gain, non-linearity and repeatability error terms.

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following WARNING statement applies to use in hazardous locations.

WARNING**EXPLOSION HAZARD**

- Substitution of components may impair suitability for Class I, Division 2.
 - Do not replace components or disconnect equipment unless power has been switched off.
 - Do not connect or disconnect components unless power has been switched off.
 - This product must be installed in an enclosure.
 - In Class I, Division 2 applications, the bus connector must be fully seated and the bus connector cover must be snapped in place.
 - In Class I, Division 2 applications, all modules must be mounted in direct contact with each other as shown on page 6. If DIN rail mounting is used, an end stop must be installed ahead of the controller and after the last 1762 I/O module.
 - All wiring must comply with N.E.C. article 501-4(b).
-

Environnements dangereux

Cet équipement est conçu pour être utilisé dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à une utilisation dans des environnements dangereux.

MISE EN GARDE**DANGER D'EXPLOSION**

- La substitution de composants peut rendre cet équipement impropre à une utilisation en environnement de Classe 1, Division 2.
 - Ne pas remplacer de composants ou déconnecter l'équipement sans s'être assuré que l'alimentation est coupée.
 - Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée.
 - Ce produit doit être installé dans une armoire.
 - Pour les applications de Classe I, Division 2, le connecteur de bus doit être correctement installé et son couvercle enclenché.
 - Pour les applications de Classe 1, Division 2, tous les modules doivent être installés en contact direct les uns avec les autres, comme indiqué page 6. Si on utilise le montage sur rail DIN, une butée doit être placée à l'avant de l'automate et après la dernière unité d'E/S 1762.
-

MicroLogix is a trademark of Rockwell Automation.
Belden is a trademark of Belden, Inc.

Reach us now at www.rockwellautomation.com

Wherever you need us, Rockwell Automation brings together leading brands in industrial automation including Allen-Bradley controls, Reliance Electric power transmission products, Dodge mechanical power transmission components, and Rockwell Software. Rockwell Automation's unique, flexible approach to helping customers achieve a competitive advantage is supported by thousands of authorized partners, distributors and system integrators around the world.



Americas Headquarters, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444
European Headquarters SA/NV, avenue Hermann Debroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 663 06 00, Fax: (32) 2 663 06 40
Asia Pacific Headquarters, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

**Rockwell
Automation**

Publication 1762-IN005A-US-P - March 2000

PN 40071-073-01(A)

© 2000 Rockwell International Corporation. Printed in the U.S.A.



PanelView 550 Keypad & Keypad/TouchTerminals

(Catalog Numbers 2711-K5Axx, 2711-B5Axx)

Inside:

English.....	1
Français	13
Deutsch	27
Español	41
Italiano	55



Installation Instructions

English

PanelView 550 Terminals

(Catalog Numbers 2711-K5Axx, 2711-B5Axx)

Inside:

For More Information	2
Hazardous Location Considerations	2
European Union Directive Compliance	3
Wiring and Safety Guidelines	4
Enclosures	4
Required Tools.....	4
Mounting Dimensions.....	5
Cutout Dimensions.....	5
Clearances	6
Installing Terminal in a Panel.....	7
Installing the Memory Card	9
Connecting AC Power	10
Connecting DC Power	11

For More Information

For	Refer to	Refer to
More detailed information on the 550 and the other Standard PanelView terminals.	Standard PanelView Terminals User Manual	2711-UM014

If you would like a publication, you can:

- download a free electronic version from the PanelBuilder32 installation CD
- download free from the internet: **www.theautomationbookstore.com**

To purchase a publication:

- visit the www.theautomationbookstore.com and place your order
- contact your local distributor or Rockwell Automation Representative

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F and G; Class III Division 2; or non-hazardous locations only.

The following WARNING statement applies to use in hazardous locations.

WARNING



EXPLOSION HAZARD

- Substitution of components may impair suitability for Class I, Class II, Class III Division 2.
- Do not replace components or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not connect or disconnect components unless power has been switched off or the area is known to be non-hazardous.
- This product must be installed in an enclosure. All cables connected to the product must remain in the enclosure or be protected by conduit or other means.
- All wiring must comply with N.E.C. article 501-4(b), 502-4(b), 503-3(b) as appropriate.

See the nameplate on terminal for hazardous locations certifications.

ATTENTION



In Class I, Class II, Class III Division 2 Hazardous locations, the PanelView 550 terminal must be wired per the National Electric Code as it applies to hazardous locations. Peripheral equipment must also be suitable for the location in which it is installed.

The following PV550 terminals have an operating temperature code of T2 (maximum operating temperature of 300° C or 572° F).

- keypad terminals (series G or earlier)
- keypad and touch screen terminals (series G or earlier)

Do not install these terminals in environments where atmospheric gases have ignition temperatures less than 300° C (572° F).

The following PV550 following PV550 terminals have an operating temperature code of T4 (maximum operating temperature of 135°C or 275°F).

- keypad terminals (series H and later)
- keypad and touch screen terminals (series H and later)

Do not install these terminals in environments where atmospheric gases have ignition temperatures less than 135°C (275°F).

European Union Directive Compliance

If a PanelView 550 Operator Terminal is installed within the European Union or EFTA regions and has a CE mark, the following regulations apply.

EMC and Low Voltage Directives

This apparatus is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) and amending directives 91/263/EEC, 92/31/EEC, 93/68/EEC; 72/23/EEC Low Voltage Directive, and amending directive 93/68/EEC using the following standards, in whole or in part:

- EN 50081-2:1993 EMC - Generic Emission Standard, Part 2 - Industrial Environment
- EN 61000-6-2:1999 EMC - Generic Immunity Standard, Part 2 - Industrial Environment
- EN 61131-2:1995 EMC - Programmable Controllers - Equipment Requirements and Tests
- Low Voltage Directive - Safety Sections of EN 61131-2

The product described is intended for use in an industrial environment.

Intended Use of Product

According to these Standards, the factor which determines, for EMC purposes, whether an apparatus is deemed to be “Industrial” or “Residential, commercial and light industrial”, is given in Clause 1 of EN50081-2 as follows:

Apparatus covered by this standard is not intended for connection to a public mains network but is intended to be connected to a power network supplied from a high- or medium-voltage transformer dedicated for the supply of an installation feeding a manufacturing or similar plant.

The PanelView 550 terminals are intended for use solely in an industrial environment as defined above. When installed in Europe, any other application is in contravention of European Union Directives, and a breach of these laws.

Wiring and Safety Guidelines

Install the PanelView 550 terminal using publication 70E, Electrical Safety Requirements for Employee Workplaces. In addition to the NFPA general guidelines, follow these recommendations:

- Connect the PanelView terminal to its own branch circuit.
The input power source should be protected by a fuse or circuit breaker rated at no more than 15 amps.
- Route incoming power to the PanelView 550 terminal by a separate path from the communications cable.
- Where power and communication lines must cross, they should cross at right angles. Communications lines can be installed in the same conduit as low level DC I/O lines (less than 10 Volts).
- Grounding minimizes noise from Electromagnetic Interference (EMI) and is a safety measure in electrical installations. To avoid EMI, shield and ground cables appropriately.
- A source for grounding recommendations is the National Electrical Code published by the National Fire Protection Association of Boston.

Enclosures

Mount the PanelView 550 terminal in a panel or enclosure to protect the internal circuitry. The terminal meets NEMA Type 12/13 and 4X (indoor use) ratings only when properly mounted in a panel or enclosure with the equivalent rating.

Allow enough space within the enclosure for adequate ventilation. Consider heat produced by other devices in the enclosure. The ambient temperature around the terminal must be between 0° and 55° C (32° and 131° F).

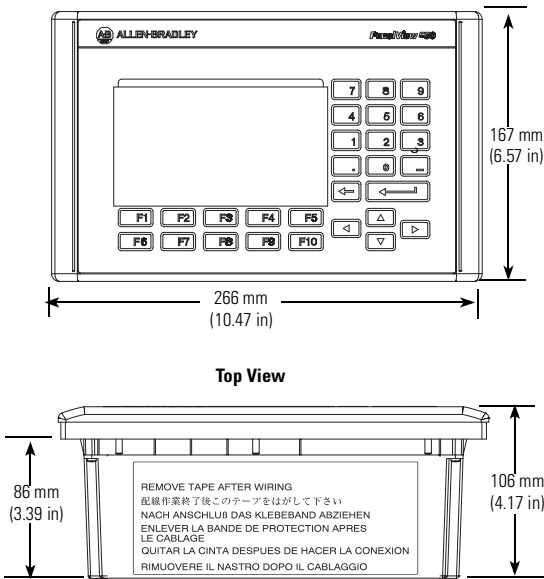
Make provisions for accessing the back panel of the terminal for wiring, maintenance, installing a memory card, and troubleshooting.

Required Tools

Other than the tools required to make the panel cutout, the tools required for installation are:

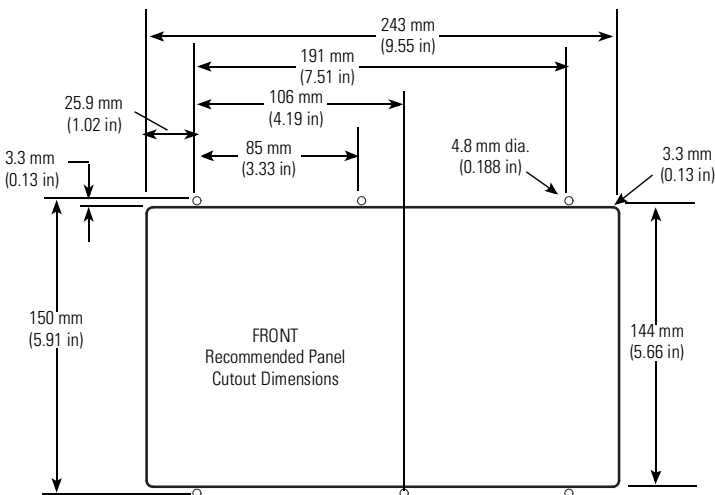
- 7mm (M4) deep well socket wrench or nut driver
- small slotted screwdriver
- torque wrench (in. / lbs)

Mounting Dimensions



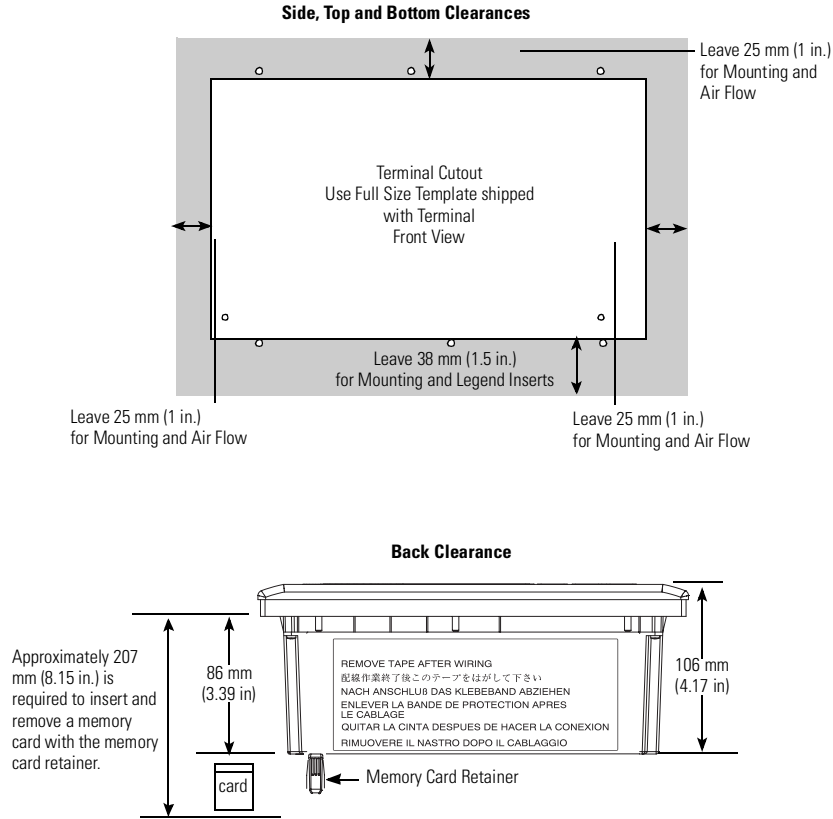
Cutout Dimensions

Use the full size template shipped with the terminal to mark the cutout dimensions. The figure below shows a reduced size cutout.



Clearances

Allow adequate clearances for mounting, air flow, maintenance, and for installing a memory card and legend inserts.



Installing Terminal in a Panel

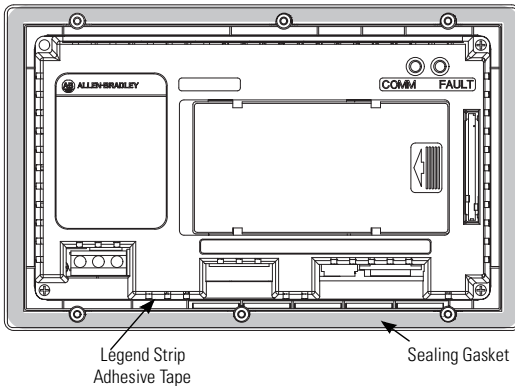
To install the PV500 terminal in a panel:

ATTENTION



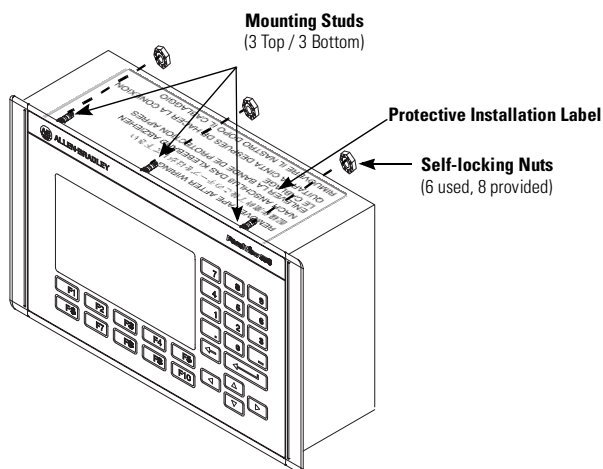
- Disconnect all electrical power from the panel before making the cutout.
- Make sure the area around the panel cutout is clear.
- Take precautions so that metal cuttings do not enter any components that may already be installed in panel.
- Failure to follow this warning may result in personal injury or damage to the panel components.

1. Cut an opening in the panel using the panel cutout provided with the terminal. Remove sharp edges or burrs.
2. Make sure the sealing gasket is properly positioned on the terminal (as shown below). This gasket forms a compression type seal. Do not use sealing compounds.



3. Verify that the ends of the legend strips are secured with the legend strip adhesive.
4. Place the terminal in the panel cutout.
5. Make sure the ends of the legend inserts are positioned behind the panel cutout.

6. Install the 6 self-locking nuts, hand tight.



7. Alternately tighten the self-locking nuts until the terminal is held firmly against the panel. Tighten the nuts to a torque of 10 inch-pounds. Do not overtighten nuts.

ATTENTION


Mounting nuts must be tightened to a torque of 10 inch-pounds to provide a proper seal and to prevent potential damage to the terminal. Allen-Bradley assumes no responsibility for water or chemical damage to the terminal or other equipment within the enclosure because of improper installation.

8. Remove the protective installation label covering the top vents of the terminal.

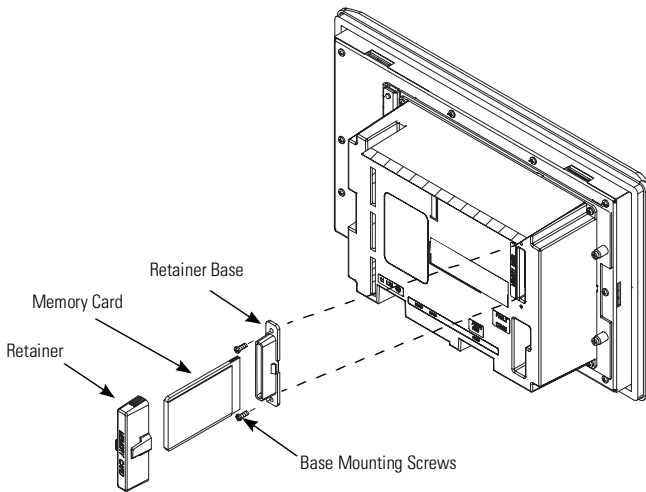
ATTENTION


Failure to remove the protective installation label covering the top vents could result in overheating and damage to the terminal.

Installing the Memory Card

The memory card retainer is required for UL508 installations where a memory card is inserted in the card slot. The retainer protects against Electrostatic Discharge (ESD) up to 15KV and prevents accidental removal of a memory card in high vibration environments.

To attach the memory card retainer:



1. Secure the base of the retainer over the existing memory card slot using the two screws provided. Tighten screws to a torque of 6 to 8 inch lbs (.7 to .9 N•m).
2. Insert the memory card and install the retainer until it is properly seated.
3. To remove the retainer, press the tabs on each side and pull.

Connecting AC Power

The table below shows the electrical ratings for the AC versions of the terminals.

Terminal Type	Supply Voltage	Power Consumption
PV550	85 to 264V ac, 47 to 63 Hz	45 VA maximum

ATTENTION



- The PanelView 550 terminal is designed for safe use when installed in a suitably rated NEMA Type 12, 13, 4X (indoor use only), IP54 or IP65 enclosure.
- Do not apply power to the terminal until all wiring connections have been made. Failure to do so may result in electrical shock.

ATTENTION



Explosion Hazard - Do not connect or disconnect equipment while circuit is live unless area is known to be non-hazardous.

To connect AC power to the PanelView 550 terminals:

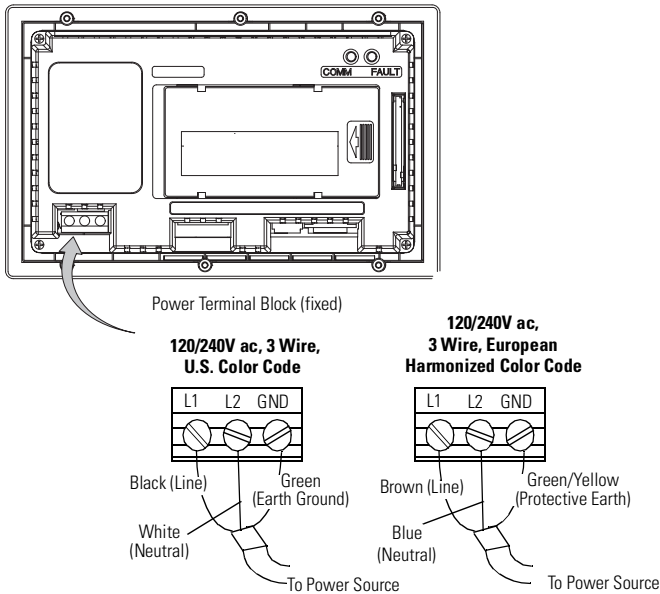
1. Secure the AC power wires to the L1 and L2N terminal block screws.
2. Secure the Earth Ground/Protective Earth wire to the GND screw on the terminal block.

ATTENTION



Improper wiring of the power terminals may result in voltage at the communication connector shells. Refer to the following figure when wiring.

3. Apply power to the terminal.



Connecting DC Power

The L1 and L3 versions (e.g., Catalog No. 2711-K5A1L1 or 2711-K5A1L3) of the PV550 terminals connect to a 24V dc power source.

The table below shows the electrical ratings for the DC versions of the terminals. Electronic circuitry and an internal fuse protect the terminals from reverse polarity and over-voltage conditions

Terminal Type	Supply Voltage	Power Consumption
PV550	18 to 30V dc, (24V dc nominal)	12 Watts maximum (0.5 Amps @ 24V dc)

ATTENTION



- Do not connect the PanelView terminal to an AC power source. Connecting to an AC power source may damage the terminal.
- The PanelView 550 terminal is designed for safe use when installed in a suitably rated NEMA Type 12, 13, 4X (indoor use only), IP54 or IP65 enclosure.

To connect DC power to the PV550 terminal:

1. Secure the DC power wires to the terminal block screws.
2. Secure the Earth Ground wire to the correct terminal block screw.

ATTENTION



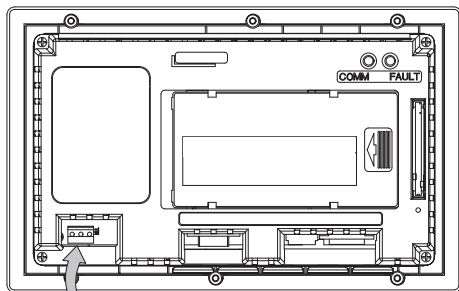
Explosion Hazard - Do not connect or disconnect equipment while circuit is live unless area is known to be non-hazardous.

ATTENTION

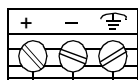


Do not apply power to the terminal until all wiring connections have been made. Failure to do so may result in electrical shock.

3. Apply 24V dc power to the terminal.



Power Terminal Block (fixed)



Earth Ground
DC Negative
DC Positive

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/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, 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/Middle East/Africa: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 6356-9077, Fax: (65) 6356-9011

Publication 2711-IN009C-MU-P - January 2003

PN 40061-325-01(6)

Supersedes Publication 2711-IN009B-MU-P - May 2002

Copyright © 2003 Rockwell Automation. All rights reserved. Printed in the U.S.A.