



Micro800™ **4 Ch Universal Analog Input Module**

(Catalog Number 2080sc-IF4U)

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For More Information

PLC sample projects and documentation are available on our website at <http://www.spectrumcontrols.com>

Environment and Enclosure

ATTENTION

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters (6562 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1, for additional installation requirements.
- NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure

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:

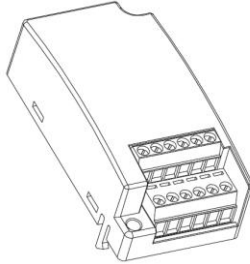
- Touch a grounded object to discharge static potential.
 - Wear an approved wrist-strap grounding device.
 - Do not touch connectors or pins on component boards.
 - Do not touch circuit components inside the module.
 - If available, use a static-safe work station.
 - When not in use, keep the module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

ATTENTION

To comply with the CE Low Voltage Directive (LVD), all connected I/O must be powered from a source compliant with the following: Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

Parts List

Your package contains one Micro800 Universal Analog Input Plug-in Module and one Quick Start guide.



You can choose to wire the plug-in before inserting it onto the controller, or wire it once the module is secured in place.

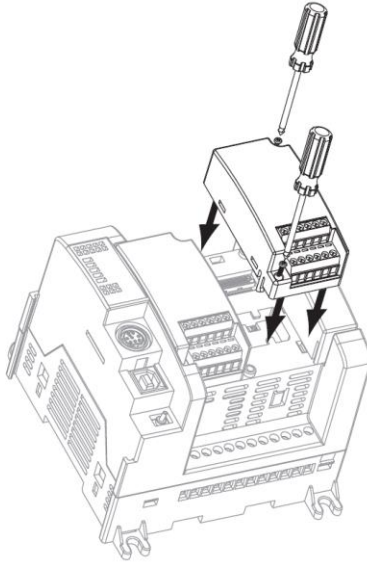


- This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be difficulties with electromagnetic compatibility in residential and other environments due to conducted and radiated disturbance.
- Be careful when stripping wires. Wire fragments that fall into the controller could cause damage. Once wiring is complete, make sure the controller is free of all metal fragments before removing the protective debris strip.
- Do not wire more than 2 conductors on any single terminal.
- If you insert or remove the plug-in module while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
- Cable length should be less than 10 meters.
- Do not insert or remove the plug-in module while power is applied, otherwise, permanent damage to equipment may occur.

Insert Module into Controller

Follow the instructions to insert and secure the plug-in module to the controller.

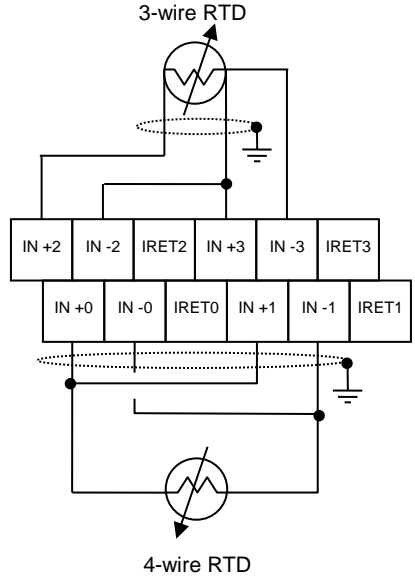
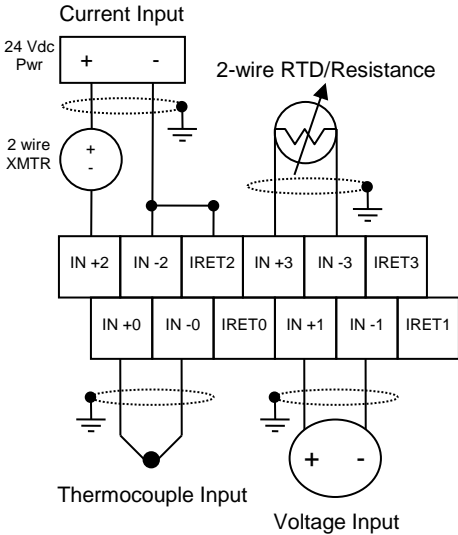
1. Position the plug-in module with the terminal block facing the front of the controller as shown.



2. Snap the module into the module bay.
3. Using a screwdriver, tighten the 10...12 mm (0.39...0.47 in.) M3 self tapping screw to torque specifications.

Wire the Module

Follow the wiring diagrams below to wire the module.



Configuring the Module

The 2080sc-IF4U is configured using 8 SINT configuration registers. The following table describes the module configuration registers.

Table 1 (Configuration Assembly)

	Bits	15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0																														
		MSB								LSB																						
		7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0															
Ch0 Config. 2x Bytes	Channel Enable	Enable															Disable													0	1	
	Filter Frequency	17 Hz																												0	0	0
		4 Hz																												0	0	1
		60 Hz																												0	1	0
		240 Hz																												0	1	1
470 Hz																												1	0	0		
Input Type	4-20 mA																															
	0-20 mA																															
	+/-10 V																															
	0-10 V																															
	0-5 V																															
	+/-100 mV																															
	+/-50 mV																															
	Type J TC																															
	Type K TC																															

	Bits	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
		MSB								LSB							
		7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Type T TC										1	0	0	1				
Type E TC										1	0	1	0				
100 Pt 385										1	0	1	1				
1000 Pt 385										1	1	0	0				
100 Pt 3916										1	1	0	1				
1000 Pt 3916										1	1	1	0				
0-3000 Ohms										1	1	1	1				
Type R TC ²									1	0	0	0	0				
Undefined Bits								x	x								
Data Format ¹	Engr. X1 Engr. X10				0	0	0	1									
Temp. Units	Degrees C Degrees F			0	1												
2/3/4 Wire RTD, ignored for R ranges.	3 Wire (Default) 4 wire with lead 2 wire	0	0														
		0	1														
		1	0														
CJC enable	Enable Disable	0	1														
Ch1 Config. 2x Bytes	Data structure the same as channel 0 above																
Ch2 Config. 2x Bytes	Data structure the same as channel 0 above																
Ch3 Config. 2x Bytes	Data structure the same as channel 0 above																

¹ See Table 2 (Data Format)

² Type R thermocouple is only available on modules running firmware version 1.3 or higher.

Table 2 (Data Format)

Input Type	Input Value	Condition	EU x1	EU x10
E Thermocouple	1000.00 deg C	High Range	10000	1000
	-270.00 deg C	Low Range	-2700	-270
J Thermocouple	1200.00 deg C	High Range	12000	1200
	-210.00 deg C	Low Range	-2100	-210
K Thermocouple	1370.00 deg C	High Range	13700	1370
	-270.00 deg C	Low Range	-2700	-270

Input Type	Input Value	Condition	EU x1	EU x10
T Thermocouple	400.00 deg C	High Range	4000	400
	-270.00 deg C	Low Range	-2700	-270
R Thermocouple	1768.00 deg C	High Range	17680	1768
	0.00 deg C	Low Range	0	0
100 Ohm Pt 0.385	850.00 deg C	High Range	8500	850
	-200.00 deg C	Low Range	-2000	-200
1000 Ohm Pt 0.385	850.00 deg C	High Range	8500	850
	-200.00 deg C	Low Range	-2000	-200
100 Ohm Pt 0.392	630.00 deg C	High Range	6300	630
	-200.00 deg C	Low Range	-2000	-200
1000 Ohm Pt 0.392	630.00 deg C	High Range	6300	630
	-200.00 deg C	Low Range	-2000	-200
0..3000 Ohms	3000.00 ohms	High Range	30000	3000
	0.00 ohms	Low Range	0	0
+/-50mV	50.00 mV dc	High Range	5000	500
	-50.00 mV dc	Low Range	-5000	-500
+/-100mV	100.00 mV dc	High Range	10000	1000
	-100.00 mV dc	Low Range	-10000	-1000
0..5V	5.00 V dc	High Range	5000	500
	0.00 V dc	Low Range	0	0
+/-10V	10.00 V dc	High Range	10000	1000
	-10.00 V dc	Low Range	-10000	-1000
0..10V	10.00 V dc	High Range	10000	1000
	0.00 V dc	Low Range	0	0
4..20mA	20.00 mA	High Range	20000	2000
	4.00 mA	Low Range	4000	400
0..20mA	20.00 mA	High Range	20000	2000
	0.00 mA	Low Range	0	0
CJC	85.00 deg C	High Range	850	85
	-25.00 deg C	Low Range	-250	-25

Module Input Data

There are four input registers used to report data values for each of the four channels and one register to report CJC sensor temperature.

Table 3 (Module Input Data)

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Ch0	Channel 0 Input Data															
Ch1	Channel 1 Input Data															
Ch2	Channel 2 Input Data															
Ch3	Channel 3 Input Data															
CJC	CJC Temperature in degrees C															

Three separate status bytes are available to the user, one for open-circuit detect, one for over/under range detection, and one for general module status.

Table 4 (Open-circuit Status)

Bit	7	6	5	4	3	2	1	0
	NU	NU	O_CJC	U_CJC	OC3	OC2	OC1	OC0

Bit 0 for channel 0 open wire.

Bit 1 for channel 1 open wire.

Bit 2 for channel 2 open wire.

Bit 3 for channel 3 open wire.

Bit 4 is for CJC under range indication.

Bit 5 is for CJC over range indication.

Bit 6 and Bit 7 are not used.

Table 5 (Under/Over Range Status)

Bit	7	6	5	4	3	2	1	0
	O3	O2	O1	O0	U3	U2	U1	U0

Bit 0 is for channel 0 under range indication

Bit 1 is for channel 1 under range indication

Bit 2 is for channel 2 under range indication

Bit 3 is for channel 3 under range indication

Bit 4 is for channel 0 over range indication

Bit 5 is for channel 1 over range indication

Bit 6 is for channel 2 over range indication

Bit 7 is for channel 3 over range indication

Table 6 (General Module Status)

Bit Number	Description	Notes
0-1	These 2 bits define module operation mode, 0: Idle: Module is ready to RUN, and I/O is off. 1: RUN: Module is under RUN, and I/O is on. 2: Error: Error happens, and I/O is off. 3: Busy: Module is busy, cannot go to RUN, and I/O is off.	
2	This bit defines module user interrupt mode, 0: User Interrupt is disabled. 1: User Interrupt is enabled.	The IF4U does not support this functionality; this bit is always off (0).
3	<i>Reserved</i>	
4	SW Error	Trigger condition – Watchdog timer triggered.
5	ADC Error	Trigger condition – ADC communication stops or ADC has not sampled data for long period of time.
6	Calibration Error	Trigger condition – blank calibration or calibration checksum error.
7	Configuration Error	Wrong bits set in channel configuration.

Adding the IF4U to CCW

The 2080sc-IF4U is configured for CCW (Connected Components Workbench) using the PLUGIN_READ and PLUGIN_WRITE instructions for generic plug-in modules.

The configuration, input data, and status structures discussed in the sections above, are stored at different memory locations in the module. The following table lists the memory location offset for each parameter which is used when configuring the PLUGIN_READ, WRITE, and INFO instructions.

Table 7 (Parameter Offset)

Parameter	Offset (Dec)	Comments
MOD_ID_LO	0	Module ID
MOD_ID_HI	1	
VENDOR_ID_LO	2	Vendor ID
VENDOR_ID_HI	3	
PRODUCT_TYPE_LO	4	
PRODUCT_TYPE_HI	5	
PRODUCT_CODE_LO	6	
PRODUCT_CODE_HI	7	
MOD_REV_LO	8	Minor revision, 1-255
MOD_REV_HI	9	Major revision, 1-127
MOD_STATUS	16	Module status register (see Table 6)
SYNC_DATA_LATCH	26	Writing 0xA5 to this register triggers input data latch
CONFIG_IN0_LO	32	Channel Configuration Registers
CONFIG_IN0_HI	33	
CONFIG_IN1_LO	34	
CONFIG_IN1_HI	35	
CONFIG_IN2_LO	36	
CONFIG_IN2_HI	37	
CONFIG_IN3_LO	38	
CONFIG_IN3_HI	39	
INPUT_DATA_0_LO	48	Input Data (Format is 16-bit signed integer)
INPUT_DATA_0_HI	49	
INPUT_DATA_1_LO	50	
INPUT_DATA_1_HI	51	
INPUT_DATA_2_LO	52	
INPUT_DATA_2_HI	53	
INPUT_DATA_3_LO	54	
INPUT_DATA_3_HI	55	
CJC_DATA_LO	56	
CJC_DATA_HI	57	
OC_STATUS	80	Open-circuit status
U_O_RANGE_STATUS	81	Under/over range status

The following sample program, written in structured text, demonstrates how to configure the module in CCW.

```

u800Slot := 1;          (* Slot number for module. *)
ConfigArray[1] := 0;   (* Ch0 Config LSB *)
ConfigArray[2] := 0;   (* Ch0 Config MSB *)
ConfigArray[3] := 0;   (* Ch1 Config LSB *)
ConfigArray[4] := 0;   (* Ch1 Config MSB *)
ConfigArray[5] := 0;   (* Ch2 Config LSB *)
ConfigArray[6] := 0;   (* Ch2 Config MSB *)
ConfigArray[7] := 0;   (* Ch3 Config LSB *)
ConfigArray[8] := 0;   (* Ch3 Config MSB *)
WriteConfig(true,u800Slot,32,8,ConfigArray);          (* Write the config. data to the module*)
ReadModStatus(true,u800Slot,16,1,IF4U_S1_ModStatus);  (* Read general module status *)
ReadOCStatus(true,u800Slot,80,1,IF4U_S1_OCStatus);    (* Read open-circuit status *)
ReadUOStatus(true,u800Slot,81,1,IF4U_S1_UOStatus);    (* Read under/overrange status *)
WriteSyncData(true,u800Slot,26,1,SyncDataArray);     (* Write sync data command (A5 Hex) to the module *)
ReadModData(true,u800Slot,48,10,Inp_DataTbl);        (* Read the input data from the module. *)
x := 9;          CHData := 0;          (* Preset the for loop exit value and channel data. *)
for i := 1 to x by 2 do                      (* For Loop. *)
  CHData := (any_to_int(Inp_DataTbl[i+1])*256 + any_to_int(Inp_DataTbl[i]));  (* Convert SINT data to INT data *)
  case i of  (* Put the data into their corresponding global variables. *)
    1: IF4U_S1_IN_0 := CHData;
    3: IF4U_S1_IN_1 := CHData;
    5: IF4U_S1_IN_2 := CHData;
    7: IF4U_S1_IN_3 := CHData;
    9: IF4U_S1_IN_CJC := CHData;
  end_case;
  CHData := 0;
end_for;

```

The sample project above can be downloaded from our website at <http://www.spectrumcontrols.com/downloads.htm>

Electrical Specifications

Input Specifications	
Inputs per module	4 current, voltage, thermocouple input channels or 2 plus 1 to 2 resistance/RTD channel or 2 to 4 resistance/RTD channels
Input ranges	0-20mA, 4-20mA, $\pm 50\text{mV}$, $\pm 100\text{mV}$, 0-5V, 0-10V, $\pm 10\text{V}$, types J, K, T, E thermocouple, 100 Ω and 1000 Ω PT385 and Pt3916, 3000 Ω resistance.
Thermocouple Accuracy	Linearization per ITS-90 System accuracy at 25°C (4 and 17 Hz filters) Type J (-180°C to 1200°C) ± 1.4 °C maximum Type J (-210°C to -180°C) ± 1.4 °C maximum Type K (-200°C to 1370°C) ± 1 °C maximum Type K (-270°C to -200°C) ± 10 °C maximum Type T (-190°C to 400°C) ± 1.5 °C maximum Type T (-270°C to -190°C) ± 10 °C maximum Type E (-200°C to 1000°C) ± 1 °C maximum Type E (-270°C to -200°C) ± 8 °C maximum Type R (300°C to 1768°C) ± 4 °C maximum Type R (0°C to 300°C) ± 8 °C maximum System accuracy at -20-65°C (4 and 17 Hz filters) Type J (-180°C to 1200°C) ± 2 °C maximum Type J (-210°C to -180°C) ± 2.8 °C maximum Type K (-200°C to 1370°C) ± 2 °C maximum Type K (-270°C to -200°C) ± 20 °C maximum Type T (-190°C to 400°C) ± 3 °C maximum Type T (-270°C to -190°C) ± 20 °C maximum Type E (-200°C to 1000°C) ± 2 °C maximum Type E (-270°C to -200°C) ± 16 °C maximum Type R (300°C to 1768°C) ± 6 °C maximum Type R (0°C to 300°C) ± 12 °C maximum
J/C accuracy	± 3 °C maximum

CJC Sensor resolution	± 0.4 °C maximum		
CJC Sensor accuracy	± 1.5 °C maximum		
Voltage Accuracy	System accuracy at 25°C (4 and 17 Hz filters) ± 40 µV maximum for ± 50 mV inputs ± 40 µV maximum for ± 100 mV inputs ± 6 mV maximum for 0-5 V inputs ± 20 mV maximum for 0-10 V inputs ± 20 mV maximum for ±10 V inputs System accuracy at -20-65°C (4 and 17 Hz filters) ± 80 µV maximum for ± 50 mV inputs ± 80 µV maximum for ± 100 mV inputs ± 12 mV maximum for 0-5 V inputs ± 40 mV maximum for 0-10 V inputs ± 40 mV maximum for ± 10 V inputs		
Current Accuracy	System accuracy at 25°C (4 and 17 Hz filters) ± 50 µA maximum for 0-20 mA inputs ± 50 µA maximum for 4-20 mA inputs System accuracy at -20-65°C (4 and 17 Hz filters) ± 120 µA maximum for 0-20 mA inputs ± 120 µA maximum for 4-20 mA inputs		
RTD Accuracy	System accuracy at 25°C (4 and 17 Hz filters) ± 0.7 °C for 1000Ω Platinum 385 and 3916 ± 3.1 °C for 100Ω Platinum 3916 ± 3.4 °C for 100Ω Platinum 385 System accuracy at -20-65°C (4 and 17 Hz filters) ± 1.2 °C for 1000Ω Platinum 385 and 3916 ± 4.7 °C for 100Ω Platinum 3916 ± 5.1 °C for 100Ω Platinum 385		
Resistance Accuracy	System accuracy at 25°C (4 and 17 Hz filters) ± 1.5Ω for 3000Ω range System accuracy at -20-65°C (4 and 17 Hz filters) ± 2.5Ω for 3000Ω range		
Repeatability (at 25°C)	4 Hz filter	17 Hz filter	60, 240 & 470 Hz filters ¹
Type J	± 0.2 °C	± 0.4 °C	± 1 °C
Type K (-200°C to 1370°C)	± 0.2 °C	± 0.4 °C	± 2 °C
Type K (-270°C to -200°C)	± 2 °C	± 3.5 °C	± 10 °C
Type T (-190°C to 400°C)	± 0.2 °C	± 0.4 °C	± 2 °C
Type T (-270°C to -190°C)	± 1 °C	± 1.5 °C	± 8 °C
Type E (-200°C to 1000°C)	± 0.2 °C	± 0.4 °C	± 2 °C
Type E (-270°C to -200°C)	± 1 °C	± 1.5 °C	± 8 °C
Type R (300°C to 1768°C)	± 2 °C	± 2.2 °C	± 4 °C
Type R (0°C to 300°C)	± 4 °C	± 4.4 °C	± 8 °C
±50 mV, ±100 mV	± 20 µV	± 22 µV	± 40 µV
0-5V, 0-10V, +/-10V	± 1.5 mV	± 1.8 mV	± 6 mV
0-20 mA, 4-20 mA	± 3 µA	± 4 µA	± 15 µA
RTD, Platinum 385, 3916	± 0.3 °C	± 0.4 °C	± 2 °C
Resistance	± 0.2 Ω	± 0.3 Ω	± 2 Ω
CMRR	84 dB minimum at 50 and 60 Hz for 4 Hz and 17 Hz filters		
NMRR	4 Hz filter	72dB minimum at 50 and 60 Hz	
	17 Hz filter	62dB minimum at 50 and 60 Hz	
Crosstalk	-70dB maximum		
Cable resistance (applies only to 3- and 4-wire RTD & resistance measurements)	25 Ω maximum		
Input bias current	Less than ± 2.5 µA steady state for ±10V inputs, less than 1.75µA for all other voltage and TC inputs. Less than ± 40 µA peak for all voltage and TC input configurations.		
Current input impedance	249 Ω ± 0.1%, 10 PPM/°C		

¹ These filters do not reject 50/60 Hz. Repeatability for these filters is strongly dependent on how much 50/60Hz noise is in the system.

Input protection	Voltage Mode \pm 30 VDC continuous. Current Mode 28 mA continuous.
Power source	3.3 VDC & 24 VDC from backplane, 30mA max from each
Channel to Channel Isolation	None
Power consumption	<22 mA at 3.3V, <18 mA at 24V, <1.5 W
Inrush current	<120 mA at 3.3V, <120 mA at 24V
Fusing	2.7 Ω 1/10W resistor on 24VDC input, 0.47 Ω 1/10W resistor on 3.3VDC input
Fault detection	Over/under range for all types, open circuit in voltage, RTD, resistance ranges shown as over-range
Input filters	4 Hz, 17 Hz, 60 Hz, 470 Hz
Wire size	#16 to #30 AWG
Operating temperature	-20 °C to 65 °C
Storage temperature	-45 °C to 85 °C
Operating humidity	5% to 95% (non-condensing)
Agency approvals / evaluations	UL/cUL 508 Ansi/ISA 12.12.01 (Class I, Div 2, T4A)
Manufacturing	RoHS and REACH compliant
Dimensions	58.4mm x 29.3mm x 25mm

Environmental Specifications

Environmental Tests	Industry Standards	Test Level Limits
Temperature (Operating) (Performance Criteria A)	IEC60068-2-1: (Test Ad, Operating Cold), IEC60068-2-2: (Test Bd, Operating Dry Heat), IEC60068-2-14: (Test Nb, Operating Thermal Shock)	-20 to 65°C (-4 to 149°F)
Temperature (Non-operating) (Performance Criteria B)	IEC60068-2-1: (Test Ab, Unpackaged Non-operating Cold), IEC60068-2-2: (Test Bb, Unpackaged Non-operating Dry Heat), IEC60068-2-14: (Test Na, Unpackaged Non-operating Thermal Shock)	-40 to 85°C (-40 to 185°F)
Operating Altitude	2000 meters (6561 feet)	Not tested
Humidity (Operating) (Performance Criteria A)	IEC60068-2-30: (Test Db, Unpackaged Damp Heat):	5 to 95% non-condensing
Vibration (Operating) (Performance Criteria A)	IEC60068-2-6: (Test Fc, Operating)	5G @ 10 to 500 Hz, 0.030 in. max. peak-to-peak
Shock (Operating) (Performance Criteria A)	IEC60068-2-27: (Test Ea, Unpackaged Shock)	30 g, 11ms half-sine (3 mutually perpendicular axes)
Shock (Non-operating) (Performance Criteria B)	IEC60068-2-27: (Test Ea, Unpackaged Shock)	50 g, 11ms half-sine (3 mutually perpendicular axes)
Radiated Emissions	CSIPR 11; Group 1, Class A Rockwell Document QTP#X0327	(Enclosure) Class A, 30MHz – 1GHz
Conducted Emissions	IEC 61000-6-4:2007	Group 1, Class A (AC Mains),

Environmental Tests	Industry Standards	Test Level Limits
	Rockwell Document QTP#X0327	150kHz – 30MHz
ESD immunity (Performance Criteria B)	IEC 61000-4-2 Rockwell Document QTP#X0327	6kV Indirect (Coupling Plate) 6kV Contact Discharge (to points of initial contact) 8kV Air Discharge (to points of initial contact)
Radiated RF immunity (Performance Criteria A)	IEC 61000-4-3: Level 3 Rockwell Document QTP#X0327	10 V/M with 1 kHz sine-wave 80%AM from 80...2000 MHz 10 V/M with 200 Hz sine-wave 50% Pulse 100%AM @900 MHz 10 V/M with 200 Hz sine-wave 50% Pulse 100%AM @1890 MHz 1 V/M with 1 kHz sine-wave 80%AM from 2000...2700 MHz (3 V/M goal)
EFT/B immunity (Performance Criteria B)	IEC 61000-4-4* Rockwell Document QTP#X0327	Signal Ports: ± 3 kV @ 5 kHz for 5 minutes, Criteria B (Marine?) ± 2 kV @ 5 kHz for 5 minutes, Criteria A (Marine?) ± 2 kV @ 5 kHz for 5 minutes, Criteria B (standard) Power Ports: ± 2 kV @ 5 kHz for 5 minutes, Criteria A (Marine?) ± 2 kV @ 5 kHz for 5 minutes, Criteria B (standard)
Surge transient immunity (Performance Criteria B)	IEC 61000-4-5 Rockwell Document QTP#X0327	Signal Ports: ± 2 kV line-earth {CM}@ 2Ω on shielded ports Power Ports ± 2kV CM @ 12Ω ± 1kV DM @ 2Ω
Conducted RF immunity (Performance Criteria A)	IEC 61000-4-6 Rockwell Document QTP#X0327	10V rms with 1 kHz sine wave 80%AM from 150 kHz...80 MHz on signal and power ports
Magnetic Field (Performance Criteria A)	IEC 61000-4-8 Rockwell Document QTP#X0327	30Arms/m
AC Mains Voltage Dips,	IEC 61000-4-11	Follow the 61000-4-11.

Environmental Tests	Industry Standards	Test Level Limits
Interruptions and Variations	Rockwell Document QTP#X0327	
Oscillatory Waves	IEC 61000-4-18 Rockwell Document QTP#X0327	Not Tested

Safety Tests	Industry Standards	Test Level Limits
As required	UL 508 Industrial Control Equipment Seventeenth Edition Dated January 28 1999, with revisions through July 11, 2005 (ANSI/UL 508-2005) (NRAQ, NRAQ7) CUL CSA C22.2 No. 142 -M1987 Process Control Equipment May 1987 ULH ANSI/ISA-12.12.01-2007 Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous (Classified) Locations CULH CSA C22.2 No. 213-M1987 - Non-incendive Electrical Equipment for use in Class I Division 2 Hazardous Locations - March 1987	As required
As required	Ex IEC 60079-15:2005 -Electrical apparatus for explosive gas atmospheres – Part 15: Construction, test and marking of type of protection "n" electrical apparatus - Edition 3 IEC 60079-:2006	As required
As required	CE LVD IEC 1131-2 Programmable Controllers Part 2: Equipment Requirements and Tests; Second Edition 2003-02, Section 11-14	As required

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 or the area is known to be non-hazardous.
 - Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.
 - This product must be installed in an enclosure.
 - All wiring must comply with N.E.C. article 501-4(b).
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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 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 ou que il n'y ait pas de danger d'explosion.
 - Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée.
 - Ce produit doit être installé dans une armoire.
 - Tout le câblage doit agréer la norme N.E.C. article 501-4(b).
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For Technical Support

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