



## Main

Range of product	Modicon X80
Product or component type	Analog input module
Product specific application	For severe environments
Electrical connection	2 connectors 40 ways
Input output isolation	Isolated
Input level	Low level
Analogue input number	8
Analogue input type	Voltage +/- 1.28 V Voltage +/- 160 mV Voltage +/- 320 mV Voltage +/- 40 mV Voltage +/- 640 mV Voltage +/- 80 mV Resistor 400 Ohm 2 wires Resistor 400 Ohm 3 wires Resistor 400 Ohm 4 wires Resistor 4000 Ohm 2 wires Resistor 4000 Ohm 3 wires Resistor 4000 Ohm 4 wires Temperature probe -100...+260 °C Cu 10 Temperature probe -100...+450 °C Pt 100 UL/JIS Temperature probe -100...+450 °C Pt 1000 UL/JIS Temperature probe -200...+850 °C Pt 100 IEC Temperature probe -200...+850 °C Pt 1000 IEC Temperature probe -60...+180 °C Ni 100 Temperature probe -60...+180 °C Ni 1000 Thermocouple +130...+1820 °C thermocouple B Thermocouple +270...+1300 °C thermocouple N Thermocouple -200...+600 °C thermocouple U Thermocouple -200...+760 °C thermocouple J Thermocouple -200...+900 °C thermocouple L Thermocouple -270...+1000 °C thermocouple E Thermocouple -270...+1370 °C thermocouple K Thermocouple -270...+400 °C thermocouple T Thermocouple -50...+1769 °C thermocouple R Thermocouple -50...+1769 °C thermocouple S

## Complementary

Analog/digital conversion	Sigma delta 16 bits
Analogue input resolution	15 bits + sign
Input impedance	10 MOhm
Permitted overload on inputs	+/- 7.5 V +/- 1.28 V +/- 7.5 V +/- 160 mV +/- 7.5 V +/- 320 mV +/- 7.5 V +/- 40 mV +/- 7.5 V +/- 640 mV +/- 7.5 V +/- 80 mV
Common mode rejection	120 dB 50/60 Hz
Differential mode rejection	60 dB 50/60 Hz
Cold junction compensation	External by Pt100 probe
Type of filter	First order digital filtering
Nominal read cycle time	200 ms with thermocouple 400 ms with temperature probe
Measurement error	+/- 0.7 °C Ni 1000 25 °C +/- 1.5 °C Ni 1000 - 25...70 °C +/- 2.1 °C Ni 100 25 °C +/- 2.1 °C Pt 100 25 °C +/- 2.1 °C Pt 1000 25 °C

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+/- 2.7 °C thermocouple U 25 °C  
 +/- 2.8 °C thermocouple J 25 °C  
 +/- 3 °C thermocouple L 25 °C  
 +/- 3.2 °C thermocouple R 25 °C  
 +/- 3.2 °C thermocouple S 25 °C  
 +/- 3.5 °C Ni 100 - 25...70 °C  
 +/- 3.5 °C Pt 100 - 25...70 °C  
 +/- 3.5 °C Pt 1000 - 25...70 °C  
 +/- 3.5 °C thermocouple B 25 °C  
 +/- 3.7 °C thermocouple E 25 °C  
 +/- 3.7 °C thermocouple K 25 °C  
 +/- 3.7 °C thermocouple N 25 °C  
 +/- 3.7 °C thermocouple T 25 °C  
 +/- 4 °C Cu 10 25 °C  
 +/- 4.5 °C Cu 10 - 25...70 °C  
 +/- 5.5 °C thermocouple J - 25...70 °C  
 +/- 5.5 °C thermocouple L - 25...70 °C  
 +/- 5.5 °C thermocouple R - 25...70 °C  
 +/- 5.5 °C thermocouple S - 25...70 °C  
 +/- 5.5 °C thermocouple U - 25...70 °C  
 +/- 6 °C thermocouple B - 25...70 °C  
 +/- 6 °C thermocouple E - 25...70 °C  
 +/- 6 °C thermocouple K - 25...70 °C  
 +/- 6 °C thermocouple N - 25...70 °C  
 +/- 6 °C thermocouple T - 25...70 °C  
 <= 0.2 % of full scale +/- 1.28 V - 25...70 °C  
 <= 0.2 % of full scale +/- 160 mV - 25...70 °C  
 <= 0.2 % of full scale +/- 320 mV - 25...70 °C  
 <= 0.2 % of full scale +/- 40 mV - 25...70 °C  
 <= 0.2 % of full scale +/- 640 mV - 25...70 °C  
 <= 0.2 % of full scale +/- 80 mV - 25...70 °C  
 <= 0.3 % of full scale 400 Ohm - 25...70 °C  
 <= 0.3 % of full scale 4000 Ohm - 25...70 °C  
 0.05 % of full scale +/- 1.28 V 25 °C  
 0.05 % of full scale +/- 160 mV 25 °C  
 0.05 % of full scale +/- 320 mV 25 °C  
 0.05 % of full scale +/- 40 mV 25 °C  
 0.05 % of full scale +/- 640 mV 25 °C  
 0.05 % of full scale +/- 80 mV 25 °C  
 0.12 % of full scale 400 Ohm 25 °C  
 0.12 % of full scale 4000 Ohm 25 °C

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Temperature drift

25 ppm/°C 400 Ohm  
 25 ppm/°C 4000 Ohm  
 25 ppm/°C Ni 1000  
 25 ppm/°C thermocouple B  
 25 ppm/°C thermocouple E  
 25 ppm/°C thermocouple J  
 25 ppm/°C thermocouple K  
 25 ppm/°C thermocouple L  
 25 ppm/°C thermocouple N  
 25 ppm/°C thermocouple R  
 25 ppm/°C thermocouple S  
 25 ppm/°C thermocouple T  
 25 ppm/°C thermocouple U  
 30 ppm/°C +/- 1.28 V  
 30 ppm/°C +/- 160 mV  
 30 ppm/°C +/- 320 mV  
 30 ppm/°C +/- 40 mV  
 30 ppm/°C +/- 640 mV  
 30 ppm/°C +/- 80 mV  
 30 ppm/°C Cu 10  
 30 ppm/°C Ni 100  
 30 ppm/°C Pt 100  
 30 ppm/°C Pt 1000

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Recalibration

Internal

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Detection type

Open circuit Cu 10  
 Open circuit Ni 100  
 Open circuit Ni 1000  
 Open circuit Pt 100  
 Open circuit Pt 1000  
 Open circuit thermocouple B  
 Open circuit thermocouple E  
 Open circuit thermocouple J  
 Open circuit thermocouple K  
 Open circuit thermocouple L  
 Open circuit thermocouple N  
 Open circuit thermocouple R  
 Open circuit thermocouple S  
 Open circuit thermocouple T

Open circuit thermocouple U

Maximum wiring resistance	20 Ohm 2 wires Cu 10 20 Ohm 2 wires Ni 100 20 Ohm 2 wires Pt 100 20 Ohm 3 wires Cu 10 20 Ohm 3 wires Ni 100 20 Ohm 3 wires Pt 100 200 Ohm 2 wires Ni 1000 200 Ohm 2 wires Pt 1000 200 Ohm 3 wires Ni 1000 200 Ohm 3 wires Pt 1000 50 Ohm 4 wires Cu 10 50 Ohm 4 wires Ni 100 50 Ohm 4 wires Pt 100 500 Ohm 4 wires Ni 1000 500 Ohm 4 wires Pt 1000
Measurement resolution	0.1 °C Cu 10 0.1 °C Ni 100 0.1 °C Ni 1000 0.1 °C Pt 100 0.1 °C Pt 1000 0.1 °C thermocouple B 0.1 °C thermocouple E 0.1 °C thermocouple J 0.1 °C thermocouple K 0.1 °C thermocouple L 0.1 °C thermocouple N 0.1 °C thermocouple R 0.1 °C thermocouple S 0.1 °C thermocouple T 0.1 °C thermocouple U 1280/2exp14 mV +/- 1.28 V 160/2exp14 mV +/- 160 mV 320/2exp14 mV +/- 320 mV 40/2exp14 mV +/- 40 mV 40/2exp14 mV 400 Ohm 4000/2exp14 mV 4000 Ohm 640/2exp14 mV +/- 640 mV 80/2exp14 mV +/- 80 mV
Maximum conversion value	+/- 100 % 400 Ohm +/- 100 % 4000 Ohm +/- 102.5 % +/- 1.28 V +/- 102.5 % +/- 160 mV +/- 102.5 % +/- 320 mV +/- 102.5 % +/- 40 mV +/- 102.5 % +/- 640 mV +/- 102.5 % +/- 80 mV
Status LED	1 LED green RUN 1 LED per channel green channel diagnostic 1 LED red ERR 1 LED red I/O
Product weight	0.36 lb(US) (0.165 kg)
Current consumption	150 mA at 3.3 V DC

**Environment**

vibration resistance	3 gn
shock resistance	30 gn
ambient air temperature for storage	-40...185 °F (-40...85 °C)
ambient air temperature for operation	-13...158 °F (-25...70 °C)
relative humidity	5...95 % 55 °C without condensation
IP degree of protection	IP20
product certifications	ATEX CE CSA UL RCM IEC-Ex Merchant Navy EAC
standards	EN/IEC 61131-2 EN/IEC 61010-2-201 UL 61010-2-201

protective treatment	Conformal coating Humiseal 1A33 TC
environmental characteristic	Corrosion resistance Dust resistant
operating altitude	0...6561.68 ft (0...2000 m) 2000...5000 m (with derating factor)

### Offer Sustainability

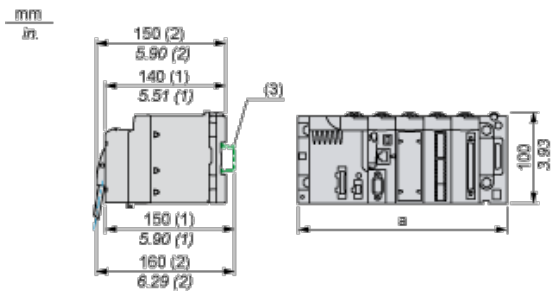
Green Premium product	Green Premium product
Compliant - since 0911 - Schneider Electric declaration of conformity	Compliant - since 0911 - Schneider Electric declaration of conformity
Reference not containing SVHC above the threshold	Reference not containing SVHC above the threshold
Available	Available
Available	Available

### Contractual warranty

Warranty period	18 months
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### Modules Mounted on Racks

#### Dimensions



- (1) With removable terminal block (cage, screw or spring).
- (2) With FCN connector.
- (3) On AM1 ED rail: 35 mm wide, 15 mm deep. Only possible with BMXXBP0400/0400H/0600/0600H/0800/0800H rack.

Rack references	a in mm	a in in.
BMXXBP0400 and BMXXBP0400H	242.4	09.54
BMXXBP0600 and BMXXBP0600H	307.6	12.11
BMXXBP0800 and BMXXBP0800H	372.8	14.68
BMXXBP1200 and BMXXBP1200H	503.2	19.81

### Wiring Diagram

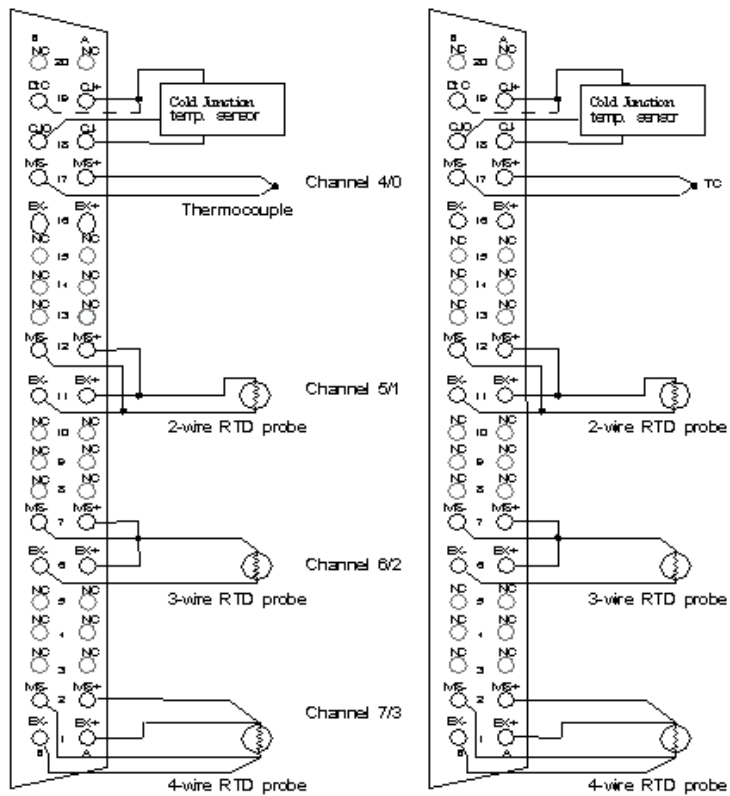
Below example shows a probe configuration with:

- | Channel 0/4: Thermocouple
- | Channel 1/5: 2-wires RTD
- | Channel 2/6: 3-wires RTD
- | Channel 3/7: 4-wires RTD

Module Front view - cabling view

Left connector

Right connector (BMX ART 414 only)



**MS+** Thermocouple + input

**MS-** Thermocouple - input

**EX+** RTD probe current generator + output

**EX-** RTD probe current generator - output

**NC** Not connected

**DtC** The CJC sensor detection input is connected to CJ+ if the sensor type is DS600. It is not connected (NC) if the sensor type is LM31.

**NOTE:** The CJC sensor is needed for TC only.