# Product data sheet
## Characteristics

# BMXART0814
Analog isolated low level input module, Modicon X80, 8 inputs, 40mV positive or negative



## Main

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

## Complementary

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|---|---|
| Analog/digital conversion | Sigma delta 16 bits |
| Analogue input resolution | 15 bits + sign |
| Permitted overload on inputs | +/- 7.5 V +/- 1.28 V<br>+/- 7.5 V +/- 160 mV<br>+/- 7.5 V +/- 320 mV<br>+/- 7.5 V +/- 40 mV<br>+/- 7.5 V +/- 640 mV<br>+/- 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 | 400 ms with temperature probe<br>200 ms with thermocouple |

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|---|---|
| Measurement error | +/- 0.7 °C Ni 1000 25 °C<br>+/- 2 °C Pt 100 0...60 °C<br>+/- 2 °C Pt 1000 0...60 °C<br>+/- 2.1 °C Ni 100 25 °C<br>+/- 2.1 °C Pt 100 25 °C<br>+/- 2.1 °C Pt 1000 25 °C<br>+/- 2.7 °C thermocouple U 25 °C<br>+/- 2.8 °C thermocouple J 25 °C<br>+/- 3 °C Ni 100 0...60 °C<br>+/- 3 °C thermocouple L 25 °C<br>+/- 3.2 °C thermocouple R 25 °C<br>+/- 3.2 °C thermocouple S 25 °C<br>+/- 3.5 °C thermocouple B 25 °C<br>+/- 3.7 °C thermocouple E 25 °C<br>+/- 3.7 °C thermocouple K 25 °C<br>+/- 3.7 °C thermocouple N 25 °C<br>+/- 3.7 °C thermocouple T 25 °C<br>+/- 4 °C Cu 10 0...60 °C<br>+/- 4 °C Cu 10 25 °C<br>+/- 4.5 °C thermocouple J 0...60 °C<br>+/- 4.5 °C thermocouple L 0...60 °C<br>+/- 4.5 °C thermocouple R 0...60 °C<br>+/- 4.5 °C thermocouple S 0...60 °C<br>+/- 4.5 °C thermocouple U 0...60 °C<br>+/- 5 °C thermocouple B 0...60 °C<br>+/- 5 °C thermocouple E 0...60 °C<br>+/- 5 °C thermocouple K 0...60 °C<br>+/- 5 °C thermocouple N 0...60 °C<br>+/- 5 °C thermocouple T 0...60 °C<br><= 0.15 % of full scale +/- 1.28 V 0...60 °C<br><= 0.15 % of full scale +/- 160 mV 0...60 °C<br><= 0.15 % of full scale +/- 320 mV 0...60 °C<br><= 0.15 % of full scale +/- 640 mV 0...60 °C<br><= 0.15 % of full scale +/- 80 mV 0...60 °C<br><= 0.2 % of full scale 4000 Ohm 0...60 °C<br>0.05 % of full scale +/- 1.28 V 25 °C<br>0.05 % of full scale +/- 160 mV 25 °C<br>0.05 % of full scale +/- 320 mV 25 °C<br>0.05 % of full scale +/- 40 mV 25 °C<br>0.05 % of full scale +/- 640 mV 25 °C<br>0.05 % of full scale +/- 80 mV 25 °C<br>0.12 % of full scale 400 Ohm 25 °C<br>0.12 % of full scale 4000 Ohm 25 °C<br><= 0.2 % of full scale +/- 40 mV 0...60 °C<br><= 0.3 % of full scale 400 Ohm 0...60 °C<br>1.3 °C Ni 1000 0...60 °C |
| Temperature drift | 25 ppm/°C 400 Ohm<br>25 ppm/°C 4000 Ohm<br>25 ppm/°C Ni 1000<br>25 ppm/°C thermocouple B<br>25 ppm/°C thermocouple E<br>25 ppm/°C thermocouple J<br>25 ppm/°C thermocouple K<br>25 ppm/°C thermocouple L<br>25 ppm/°C thermocouple N<br>25 ppm/°C thermocouple R<br>25 ppm/°C thermocouple S<br>25 ppm/°C thermocouple T<br>25 ppm/°C thermocouple U<br>30 ppm/°C +/- 1.28 V<br>30 ppm/°C +/- 160 mV<br>30 ppm/°C +/- 320 mV<br>30 ppm/°C +/- 40 mV<br>30 ppm/°C +/- 640 mV<br>30 ppm/°C +/- 80 mV<br>30 ppm/°C Cu 10<br>30 ppm/°C Ni 100<br>30 ppm/°C Pt 100<br>30 ppm/°C Pt 1000 |
| Recalibration | Internal |

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|---|---|
| Detection type | Open circuit Cu 10<br>Open circuit Ni 100<br>Open circuit Ni 1000<br>Open circuit Pt 100<br>Open circuit Pt 1000<br>Open circuit thermocouple B<br>Open circuit thermocouple E<br>Open circuit thermocouple J<br>Open circuit thermocouple K<br>Open circuit thermocouple L<br>Open circuit thermocouple N<br>Open circuit thermocouple R<br>Open circuit thermocouple S<br>Open circuit thermocouple T<br>Open circuit thermocouple U |
| Maximum wiring resistance | 20 Ohm 2 wires Cu 10<br>20 Ohm 2 wires Ni 100<br>20 Ohm 2 wires Pt 100<br>20 Ohm 3 wires Cu 10<br>20 Ohm 3 wires Ni 100<br>20 Ohm 3 wires Pt 100<br>200 Ohm 2 wires Ni 1000<br>200 Ohm 2 wires Pt 1000<br>200 Ohm 3 wires Ni 1000<br>200 Ohm 3 wires Pt 1000<br>50 Ohm 4 wires Cu 10<br>50 Ohm 4 wires Ni 100<br>50 Ohm 4 wires Pt 100<br>500 Ohm 4 wires Ni 1000<br>500 Ohm 4 wires Pt 1000 |
| Measurement resolution | 0.1 °C Cu 10<br>0.1 °C Ni 100<br>0.1 °C Ni 1000<br>0.1 °C Pt 100<br>0.1 °C Pt 1000<br>0.1 °C thermocouple B<br>0.1 °C thermocouple E<br>0.1 °C thermocouple J<br>0.1 °C thermocouple K<br>0.1 °C thermocouple L<br>0.1 °C thermocouple N<br>0.1 °C thermocouple R<br>0.1 °C thermocouple S<br>0.1 °C thermocouple T<br>0.1 °C thermocouple U<br>1280/2exp14 mV +/- 1.28 V<br>160/2exp14 mV +/- 160 mV<br>320/2exp14 mV +/- 320 mV<br>40/2exp14 mV +/- 40 mV<br>12.5 mOhm 400 Ohm<br>125 mOhm 4000 Ohm<br>640/2exp14 mV +/- 640 mV<br>80/2exp14 mV +/- 80 mV |
| Maximum conversion value | +/- 100 % 400 Ohm<br>+/- 100 % 4000 Ohm<br>+/- 102.5 % +/- 1.28 V<br>+/- 102.5 % +/- 160 mV<br>+/- 102.5 % +/- 320 mV<br>+/- 102.5 % +/- 40 mV<br>+/- 102.5 % +/- 640 mV<br>+/- 102.5 % +/- 80 mV |
| MTBF reliability | 900000 H |
| Operating altitude | 0...2000 m<br>2000...5000 m with derating factor |
| Status LED | 1 LED (green) RUN<br>1 LED per channel (green) channel diagnostic<br>1 LED (red) ERR<br>1 LED (red) I/O |
| Net weight | 0.165 Kg |
| Current consumption | 150 mA at 3.3 V DC<br>50 mA at 24 V DC |

## Environment

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|---|---|
| Vibration resistance | 3 gn |
| Shock resistance | 30 gn |
| Ambient air temperature for storage | -40…85 °C |
| Ambient air temperature for operation | 0…60 °C |
| Relative humidity | 5…95 % at 55 °C without condensation |
| IP degree of protection | IP20 |
| Directives | 2014/35/EU - low voltage directive<br>2014/30/EU - electromagnetic compatibility |
| Product certifications | CE[RETURN]EAC[RETURN]UL[RETURN]CSA[RETURN]Merchant Navy[RETURN]RCM |
| Standards | IEC 61131-2<br>IEC 61000-6-4<br>IEC 61000-6-2<br>EN 61010-2-201 |
| Environmental characteristic | 3C3 conforming to IEC 60721-3-3<br>3C4 conforming to IEC 60721-3-3 |
| Protective treatment | Standard version |

## Packing Units

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|---|---|
| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 5.600 Cm |
| Package 1 Width | 11.300 Cm |
| Package 1 Length | 12.000 Cm |
| Package 1 Weight | 209.000 G |
| Unit Type of Package 2 | S02 |
| Number of Units in Package 2 | 15 |
| Package 2 Height | 15.000 Cm |
| Package 2 Width | 30.000 Cm |
| Package 2 Length | 40.000 Cm |
| Package 2 Weight | 3.449 Kg |

## Offer Sustainability

| | |
|---|---|
| Recyclability potential, in % | 3 |
| Total lifecycle Carbon footprint | 126 kg CO2 eq. |
| Carbon footprint of the manufacturing phase [A1 to A3] | 26.4483272727 |
| Carbon footprint of the manufacturing phase [A1 to A3] | 26 kg CO2 eq. |
| Carbon footprint of the distribution phase [A4] | 0.0270680727 |
| Carbon footprint of the distribution phase [A4] | 0 kg CO2 eq. |
| Carbon footprint of the installation phase [A5] | 0.0551197091 |
| Carbon footprint of the installation phase [A5] | 0.1 kg CO2 eq. |
| Carbon footprint of the use phase [B2, B3, B4, B6] | 99.0017798883 |
| Carbon footprint of the use phase [B2, B3, B4, B6] | 99 kg CO2 eq. |
| Mercury free | Yes |
| Sustainable packaging | Yes |
| Carbon footprint of the end-of-life phase [C1 to C4] | 0.3673058182 |
| Carbon footprint of the end-of-life phase [C1 to C4] | 0.4 kg CO2 eq. |
| Environmental Disclosure | Product Environmental Profile |
| Total lifecycle Carbon footprint | 126 |
| Packaging made with recycled cardboard | Yes |
| Packaging without single use plastic | Yes |
| SCIP Number | 6a332f97-e1b4-4399-9d6b-8be150f8df51 |
| REACh Regulation | Reference contains Substances of Very High Concern above the threshold |
| EU RoHS Directive | Compliant By Exemption |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, w |

| | |
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| End of life manual availability | End Of Life Information |
| Take-back | No |

## Contractual warranty

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|---|---|
| Warranty (in months) | 18 |

Product Life Status : Commercialised