

Modicon X80 I/O platform

Treatment for severe environments

Ruggedized modules

Presentation

Protective treatment of Modicon X80 I/O platform

The Modicon X80 I/O platform complies with "TC" (Treatment for all Climates) treatment requirements. It is designed as standard to operate in temperatures ranging from 0 to +60 °C/32 to 140 °F. For installations in industrial environments corresponding to "TH" (Treatment for Hot and humid environments), devices must be housed in enclosures providing at least IP 54 protection as specified by standard IEC/EN 60529, or an equivalent level of protection according to NEMA 250.

The Modicon X80 I/O platform offers **IP 20 degree of protection** (1). It can therefore be installed without an enclosure in reserved access areas that do not exceed **pollution level 2** (control room with no conductive dust). **Pollution level 2** does not take account of harsher environments, such as those where the air is polluted with conductive dust, fumes, corrosive or radioactive particles, vapors or salts, molds, insects, etc. All the safety hardware in-rack modules in red color (processor, coprocessor, X80 I/O) are conformal coated for a default use in severe environments.

Treatment for severe environments

If the Modicon X80 I/O platform has to be used in more severe environments or is required to start and operate in an extended temperature range, from **-25 °C to +70 °C/-13 °F to 158 °F**, the "**ruggedized**" offer features industrially hardened processor and power supply modules, X-bus and Ethernet I/O modules and racks that have a protective coating on their circuit boards.

Note: Capable of **starting within an extended temperature range (from -25 °C to +70 °C/-13 °F to 158 °F, a single-rack configuration is also able to operate at extremely low temperatures (as low as -40 °C/-40 °F) if placed in an appropriate enclosure. Please contact our Customer Care Center.**

The coated/harsh offer provides the Safety CPU/Coprocessor and Safety I/O modules with "AVR 80" coating on their electronic cards. This treatment increases the isolation capability of the circuit boards and their resistance to:

- Condensation
- Dusty atmospheres (conducting foreign particles)
- Chemical corrosion, in particular during use in sulfurous atmospheres (oil refinery, purification plant, etc.) or atmospheres containing halogens (chlorine, etc.) or chemical vapors

This protection, combined with appropriate installation and maintenance, enables Modicon X80 I/O products to be used in the following environments:

■ Harsh chemical environments (products with suffix 'H' and 'C'):

The use of contact grease protection on connectors, removal blocks is mandatory to meet these requirements. The lubricant protection seals electrical contacts from oxygen, moisture, aggressive gasses and other hostile elements.

- IEC/EN 60721-3-3 class 3C4:
 - 7 days; 25 °C/77 °F relative humidity 75%
 - Concentrations (ppb): H₂S: 9,900/SO₂: 4,800/Cl₂: 200
- ISA S71.04 classes G1 to Gx:
 - 14 days; 25 °C/77 °F relative humidity 75%
 - Concentrations (ppb): H₂S: 60/SO₂: 350/Cl₂: 1,450/NO₂: 12
- IEC/EN 60068-2-52 salt mist, Kb test severity level 2:
 - 3 x 24-hour cycles
 - 5% NaCl
 - 40 °C/104 °F relative humidity 93%
- Extreme climatic environments (products with suffix 'H' and 'T'):
 - Temperatures ranging from -25 to +70 °C/-13 to 158 °F
 - Relative humidity levels up to 93% from -25 °C/-13 °F to +60 °C/140 °F
 - Formation of ice
 - Altitudes from 0 to 5,000 m/0 to 16,404 ft

Specific characteristics for Safety modules

All the Safety modules are coated and only exist with this surface treatment. There is no T, C, H extension in part numbers. Safety modules are compatible for:

- temperature range from -25...+60 °C/-13...140 °F
- corrosive environment using common H components

For corrosive environment, additional protecting gel need to cover all electrical connection of M580 harsh products.

This 25 g gel tube can be ordered separately under reference **BMXGEL0025**.

(1) Each slot in a **BM•XBP••00** rack is equipped as standard with a protective cover that should only be removed when inserting a module. If any covers are subsequently misplaced, replacements can be ordered under reference **BMXXEM010** (sold in lots of 5).

