Modicon Quantum automation platform

Treatment for severe environments
“Conformal Coating” modules

Presentation

Protective treatment of Modicon Quantum PLCs

Modicon Quantum PLCs comply with “**TC**” (Treatment for all Climates) treatment requirements.

For installations in industrial production workshops or environments corresponding to “**TH**” (Treatment for hot and humid environments), PLCs 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.

These PLCs themselves have an IP 20 protection index *(1)*.
They can therefore be installed without an enclosure in reserved access areas that do not exceed **pollution level 2** (control room with no dust-producing machinery or activity). **Pollution level 2** does not take account of more severe environments such as those where the air is polluted with dust, fumes, corrosive or radioactive particles, vapours or salts, moulds, insects, etc.

Treatment for more severe environments

If the Modicon Quantum automation platform has to be used in a severe environment, the “*Conformal Coating*” offer provides CPU and power supply modules, I/O modules and racks with “***Humiseal 1A33***” coating on their electronic cards.

This treatment improves the cards' insulation qualities and their resistance to:
- Condensation
- Dusty atmospheres (conducting foreign particles)
- Chemical corrosion, in particular during use in sulphurous atmospheres (oil refinery, purification plant, etc.) or atmospheres containing halogens (chlorine, etc.)

This protection, combined with appropriate installation and maintenance, enables Modicon Quantum products to be used in harsh chemical environments such as types **3C2** and **3C3** described in standard IEC/EN 60721-3-3 or types **G3** and **GX** described in standard ISA-S71.04.

The functional and electrical characteristics of the coated modules are identical to those of the non-coated versions. Consult the selection guides or the references pages in this catalogue (chapter 1…chapter 5).

To order modules and racks with Conformal Coating protection, please refer to references pages 8/3 to 8/9 (for coated products, add the letter “**C**” at the end of the standard reference).

ATEX IECEx certification consists of a detailed procedure for the testing and inspection of equipment made to be used in potentially hazardous areas. The results obtained after this procedure enable an ATEX certificate to be issued, together with a report confirming and demonstrating that the product can be used safely in potentially explosive environments (in line with the given parameters).

For Modicon Quantum, some “Coated” modules which can be used in a Unity system are now certified ATEX IEC-EX with the following standards:
- IEC/EN 60079-0
- IEC/EN 60079-15
- IEC/EN 60079-31

ATEX level “II 3 GD” certified products will have the following information on their identification plates:

II: for surface industries only

3: Category 3 equipment, for use in areas in which explosive environments caused by gases, vapours, mists or air/dust mixtures are unlikely to occur, or if they do occur, are likely to do so only infrequently and for a short period only (less than 10 hours a year). This equipment can be used in zones 2/22.

G-D: for gas and dust.

The PLC configuration must be placed in a location providing at least IP54 protection (insulated enclosure) for 3G and Gc materials and IP6X for category 3D and Dc equipment when used in zones 2/22.

Items located in a hazardous zone 2/22 or outside ATEX zones can be connected to the PLC configuration intrinsically with no safety barrier. Certified modules can also be connected in hazardous zones 1/21 or 0/20 using intrinsic, external safety barriers.

1) Any slot in **TSXRKY●●** *racks that is not occupied by a module must be fitted with a* **TSXRKA02** *screw-on protective cover (sold in lots of 5).*

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Treatment for severe environments
"Conformal Coating"
racks, power supplies, memory cards

"Conformal Coating" racks

Description	Number of slots	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
Racks for: - Local I/O Modules	3	–	–	**140XBP00300C**	0.340/ *0.750*
	4	–	Yes	**140XBP00400C**	0.450/ *0.992*
- Remote I/O Modules	6	Non-interfering	Yes	**140XBP00600C**	0.640/ *1.411*
	10	Non-interfering	Yes	**140XBP01000C**	1.000/ *2.205*
- Distributed I/O Modules	16	Non-interfering	Yes	**140XBP01600C**	1.600/ *3.527*

"Conformal Coating" rack expansion module *(1)*

Description	Length/ dimensions	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
Rack expansion module	–	–	**140XBE10000C**	–

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"Conformal Coating" power supply modules *(2)*

Input voltage	Output current	Type	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
120/230 V ∿	3 A	Standalone	–	–	**140CPS11100C**	0.650/ *1.433*
115/230 V ∿	11 A	Summable	–	–	**140CPS11420C**	0.650/ *1.433*
115/230 V ∿	11 A	Redundant	Non-interfering	Yes	**140CPS12420C**	0.650/ *1.433*
24 V ⎓	3 A	Standalone	–	–	**140CPS21100C**	0.650/ *1.433*
	8 A	Summable	–	Yes	**140CPS21400C**	0.650/ *1.433*
		Redundant	Non-interfering	Yes	**140CPS22400C**	0.650/ *1.433*
48…60 V ⎓	8 A	Summable	–	–	**140CPS41400C**	0.650/ *1.433*
		Redundant	–	–	**140CPS42400C**	0.650/ *1.433*
125 V ⎓	3 A	Standalone	–	–	**140CPS51100C**	0.650/ *1.433*
	8 A	Redundant	–	–	**140CPS52400C**	0.650/ *1.433*

"Conformal Coating" PCMCIA memory expansion cards *(3)*

140CPU65150C, 140CPU65160C, 140CPU65260C, 140CPU67060C, 140CPU67160C, 140CPU67260C and **140CPU67261C** Quantum CPUs can take the following memory expansion cards.
There are two types of memory limit:
- One associated with the type of CPU
- One associated with the chosen model of PCMCIA memory card

The lower of these two limits defines the memory capacity that is accessible to the user for the application.

Description	Memory size		Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
	Application	Data file			
Application/ configurable data file SRAM memory expansion	192…1024 KB	832…0 KB	–	**TSXMRPC001MC**	0.076/ *0.168*
	192…3072 KB	2880…0 KB	–	**TSXMRPC003MC**	0.076/ *0.168*
	192…7168 KB	6976…0 KB	–	**TSXMRPC007MC**	0.076/ *0.168*

TSXMRP/MCP/MRP●●●●C

(1) For accessories, see page 1/17.
(2) For separate parts, see page 1/21.
(3) For replacement parts, see page 1/8 and page 1/9.