Modicon Quantum automation platform

I/O architectures

Local I/O

Presentation (continued)

Local I/O configuration rules

When configuring a local I/O system, the following four parameters should be considered:

- Discrete and analog I/O modules are not compatible with Hot Standby architectures
- Number of slots available in the 2 local racks (primary and secondary)
- Slots available for optional modules
- Power consumed by the installed modules
- Addressing words available for configuring the modules

Available slots and power consumption

A local I/O system can have a maximum of 27 available slots (with two 16-slot racks) for I/O modules, application-specific modules, communication modules and motion control modules.

All these modules are powered from the power supply included in the rack.

To ensure a valid configuration, simply add together the consumptions (in mA) of the modules in the rack and check that the total current is less than that provided by the selected power supply.

This power consumption calculation can be easily performed using Unity Pro software.

Empty **140XCP50000** modules are also available to occupy unused slots.

Module addressing

With Unity Pro, the I/O addressing is unlimited (physical limitation to 27 slots).

A 16-bit input or output module is equivalent to one word.
Simply add together the addressing requirements of each module and check that the limit is not exceeded.

Overview:
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Modicon Quantum automation platform

Discrete I/O modules

Mixed I/O modules and accessories

References (continued)

Mixed discrete I/O modules

Number	Inputs	Outputs	Safety	Reference	Weight kg/*lb*
24 I/O	**16 inputs 24 V ⎓** 2 groups of 8, positive logic	**8 outputs 24 V ⎓** 2 groups of 4, positive logic	–	**140DDM39000**	0.300/ *0.661*
	16 inputs 125 V ∿ 2 groups of 8	**8 outputs 125 V ∿** 2 groups of 4	–	**140DAM59000**	0.450/ *0.992*
8 I/O	**4 inputs 125 V ⎓** 1 group of 4, positive logic	**4 outputs 24…125 V ⎓** No common point, positive or negative logic	–	**140DDM69000**	0.300/ *0.661*

Accessories

Description	Sold in lots of	Safety	Reference	Weight kg/*lb*
40-way screw terminal block for I/O modules *(1)* Degree of protection < IP 20	–	Non-interfering	**140XTS00200**	0.150/ *0.331*
40-way screw terminal block for I/O modules *(1)* Degree of protection IP 20	–	–	**140XTS00100**	–
Empty module without screw terminal block	–	–	**140XCP50000**	–
Empty module with hinged cover without screw terminal block	–	–	**140XCP51000**	–
Pack of jumpers for 40-way screw terminal block	12	–	**140XCP60000**	–

Connection cables for I/O modules with HE 10 connectors

Description	Used for	Gauge Cross-sect.	Length m/*ft*	Reference	Weight kg/*lb*
Connection cables 1 HE 10 connector at each end	96-channel modules 140DDI36400 140DDO36400 With Modicon Telefast ABE 7 pre-wired system (see page 7/8)	AWG 22 0.324 mm²	0.5/ *1.64*	**TSXCDP053**	0.085/ *0.187*
			1/ *3.28*	**TSXCDP103**	0.150/ *0.331*
			2/ *6.56*	**TSXCDP203**	0.280/ *0.617*
			3/ *9.84*	**TSXCDP303**	0.410/ *0.904*
			5/ *16.40*	**TSXCDP503**	0.670/ *1.477*
			10/ *32.81*	**TSXCDP1003**	1.180/ *2.601*

Replacement parts

Description	Sold in lots of	Reference	Weight kg/*lb*
Set of keying pins for 40-way screw terminal blocks	60	**140XCP20000**	–

(1) Except for 96-channel modules **140DDI36400** *and* **140DDO36400** *which are connected via 6 HE 10 connectors. Require the Modicon Telefast ABE 7 pre-wired system.*

Modicon Quantum automation platform
Non-interfering modules

Conformal Coating non-interfering modules and racks

Non-interfering Quantum modules and racks are also available in a Conformal Coating version, for operation in severe environments.
These modules and racks with protective coating have an additional letter "**C**" at the end of their references (see pages 8/2 to 8/9).

Accessories

Accessories for power supply module 140CPS12420

Description	Degree of protection	Safety	Reference	Weight kg/ *lb*
7-way screw terminal block	IP 20	–	**140XTS00500**	0.150/ *0.331*

Accessories for mixed discrete I/O module

Description	Sold in lots of	Safety	Reference	Weight kg/ *lb*
40-way screw terminal block for I/O modules, degree of protection IP 20		Non-interfering	**140XTS00100**	0.150/ *0.331*
40-way screw terminal block for I/O modules, degree of protection < IP 20	–	Non-interfering	**140XTS00200**	0.150/ *0.331*
Empty module Without screw terminal block	–	–	**140XCP50000**	–
Empty module with hinged cover Without screw terminal block	–	–	**140XCP51000**	–
Pack of jumpers for 40-way screw terminal block	12	–	**140XCP60000**	–
Set of keying pins for 40-way screw terminal blocks	60	–	**140XCP20000**	–

Rack accessories

Description	Length/ Size	Safety	Reference	Weight kg/ *lb*
19" support for flush mounting a 140XBP01000 rack	125 mm deep	–	**140XCP40100**	–
19" support for surface mounting a 140XBP01000 rack	20 mm deep	–	**140XCP40200**	–

Earthing accessories

Description	Sold in lots of	Used for	Safety	Reference	Weight kg/ *lb*
Earthing kit	1	Earthing the cable shielding. Kit comprises 1 bar (1 m long) and 2 lateral supports	–	**STBXSP3000**	–
Terminal blocks for earthing kit	10	Cables, cross-section 1.5...6 mm²	–	**STBXSP3010**	–
	10	Cables, cross-section 5...11 mm²	–	**STBXSP3020**	–



STBXSP3000 + STBXSP3010/3020

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Modicon Quantum automation platform

Treatment for severe environments
“Conformal Coating” intrinsically safe,
high-speed counter inputs and outputs, high-speed inputs

Ruggedized Profibus DP network gateway (1)

Description	Protocols	Physical layer	Certified ATEX Zone 2/22	Reference	Weight kg/lb
Profibus Remote Master (PRM) module	Modbus TCP	1 Ethernet switch 2 x 10BASE-T/100BASE-TX ports	–	**TCSEGPA23F14FK**	–
	Profibus DP V1 and Profibus PA (via gateway)	1 isolated RS 485 Profibus DP port			

“Conformal Coating” AS-Interface cabling system (2)


140EIA92100C

Description	Number per Quantum PLC	Profile	Max. number of I/O	Certified ATEX Zone 2/22	Reference	Weight kg/lb
AS-Interface master module for Quantum PLCs	4 per local drop 4 per remote drop (RIO) 2 per distributed drop (DIO)	AS-Interface M2	31 discrete devices, i.e. 248 I/O	–	**140EIA92100C**	0.450/ *0.992*

“Conformal Coating” Modbus Plus communication devices (3)

Description		Medium	Type	Certified ATEX Zone 2/22	Reference	Weight kg/lb
Quantum Modbus Plus	**DIO drop adaptors** (including power supply)	Single	115/230 ∿	–	**140CRA21110C**	–
			24 ⎓	Yes	**140CRA21120C**	–
		Redundant	115/230 ∿	–	**140CRA21210C**	–
			24 ⎓	Yes	**140CRA21220C**	–
	DIO head-end adaptors no. 2 and no. 3	Single	Twisted pair cable	–	**140NOM21100C**	–
		Redundant	Twisted pair cable	Yes	**140NOM21200C**	–
		Single	Optical fibre cable	Yes	**140NOM25200C**	–

“Conformal Coating” asynchronous serial link module (4)


140ESI06210C

Description	Characteristic	Certified ATEX Zone 2/22	Reference	Weight kg/lb
ASCII serial link module with 2 RS 232 C ports	19.2 Kbps	–	**140ESI06210C**	0.300/ *0.661*
Backup battery holder module	2 type C lithium batteries, 3 V	–	**140XCP90000C**	–

Accessories

Description	Certified ATEX Zone 2/22	Reference	Weight kg/lb
40-way terminal block for fieldbus (IP20)	Yes	**140XTS00100**	–
40-way terminal block for fieldbus	Yes	**140XTS00200**	–
Empty module	Yes	**140XCP50000**	–

(1) Conformal Coating and extended operating temperatures between -25 and +70°C.
(2) For separate parts, see page 5/43.
(3) For Modbus Plus gateways and repeaters, and PC interface cards, see pages 5/44 to 5/53.
(4) For cables, see page 5/57.