Modicon Quantum automation platform

Analog I/O modules

Current/voltage outputs, mixed I/O

Type	Analog output module, 4 channels and 8 channels			Mixed analog I/O module
				
Number of channels	4	8	4	4 inputs and 2 isolated outputs
Input range	4…20 mA	0…25 mA 0…20 mA 4…20 mA	0…10 V 0…5 V ± 10 V ± 5 V	Inputs: 0…10 V, 0…5 V, 0…20 mA ± 10 V, ± 5 V, ± 20 mA 1…5 V, 4…20 mA Outputs: 4...20 mA
Resolution	12 bits	0…25 mA: 0…25,000 points 0…20 mA: 0…20,000 points 4…20 mA: 0…16,000 points (default) 4…20 mA: 0…4095 points	12 bits	Inputs: 16 bits max. Outputs: 12 bits
I/O addresses	4 output words	8 output words	4 output words	5 input words and 2 output words
Isolation between channels	500 V ∿ at 47…63 Hz or 750 V ⎓ for 1 minute	None	500 V ∿ at 47…63 Hz for 1 minute	Inputs: ± 40 V ⎓ max.
Bus current required	480 mA	550 mA	700 mA	350 mA
Maximum dissipated power	5.3 W	5.0 W	4.5 W	–
External power supply (U_s)	12...30 V ⎓	6...30 V ⎓ max.	–	–
External fuse	–		0.063 mA, 250 V 3AG fast-blow *(2)*	Depending on use
Online modification of configuration *(1)*	Yes			Yes
Functional safety certification	Non-interfering	–		–
Approvals	UL 508, CSA 22.2-142, CE, FM Class 1 Div. 2, ATEX Zone 2/22 *(3)*			UL 508, CSA 22.2-142, CE, FM Class 1 Div. 2, ATEX Zone 2/22 *(3)*
Type of module	**140ACO02000**	**140ACO13000**	**140AVO02000**	**140AMM09000**
Page	3/22			3/22

(1) For online modification of configuration, see page 2/37.
(2) External fuse to be used on the "Master Override" signal when it is connected to an external source.

(3) Only Conformal Coating versions, depending on model, are ATEX Zone 2/22 certified. For more information, see pages 8/2 to 8/9.

Modicon Quantum automation platform

Analog I/O modules

Input, output and mixed modules

Analog input modules

Description	Range	Safety	Reference	Weight kg/*lb*
8 high level channels 12-bit, unipolar	4...20 mA 1... 5 V	–	**140ACI03000**	0.300/ *0.984*
16 high level channels 0…25,000 points, unipolar	0...20 mA, 0...25 mA 4...20 mA	Non-interfering	**140ACI04000**	0.300/ *0.984*
8 RTD channels 13-bit	Ni 100, Ni 200, Ni 500, Ni 1000, Pt 100, Pt 200, Pt 500, Pt 1000	–	**140ARI03010**	0.300/ *0.984*
8 thermocouple and low level channels 16-bit	Types J, K, E, T, S, R, B ± 25 mV, ± 100 mV	–	**140ATI03000**	0.300/ *0.984*
8 high level channels 16-bit, bipolar	± 20 mA, 0…20 mA, 4…20 mA ± 10 V, ± 5 V, 0…10 V, 0…5 V, 1…5 V	–	**140AVI03000**	0.300/ *0.984*

Analog output modules

Description	Range	Safety	Reference	Weight kg/*lb*
4 current channels 12-bit	4...20 mA	Non-interfering	**140ACO02000**	0.300/ *0.984*
8 current channels 0…25,000 points	0...20 mA 0...25 mA 4...20 mA	–	**140ACO13000**	0.300/ *0.984*
4 high level voltage channels 12-bit	± 5 V, ± 10 V 0…5 V, 0…10 V	–	**140AVO02000**	0.300/ *0.984*

Mixed analog I/O modules

Description	Range	Safety	Reference	Weight kg/*lb*
4 input channels, 14…16-bit	± 20 mA, 0…20 mA, 4…20 mA ± 5 V, ± 10 V, 0…5 V, 0…10 V, 1…5 V	–	**140AMM09000**	0.300/ *0.984*
2 output channels 12-bit	4…20 mA			

CPUs: page 1/2 | I/O architectures: page 2/6 | Communication: page 5/2 | Safety modules: page 6/2

Modicon Quantum automation platform

Treatment for severe environments

"Conformal Coating" discrete I/O modules and analog I/O modules

"Conformal Coating" discrete mixed I/O modules (1)

No.	Inputs	Outputs	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
24 I/O	**16 x 24 V ⎓ inputs** 2 groups of 8, positive logic	**8 x 24 V ⎓ outputs** 2 groups of 4, positive logic	–	Yes	**140DDM39000C**	0.300/ *0.661*
	16 x 125 V ∿ inputs 2 groups of 8	**8 x 125 V ∿ outputs** 2 groups of 4	–	–	**140DAM59000C**	0.450/ *0.992*
8 I/O	**4 x 125 V ⎓ inputs** 1 group of 4, positive logic	**4 outputs** **24…125 V ⎓** No common point, positive or negative logic	–	–	**140DDM69000C**	0.300/ *0.661*

"Conformal Coating" analog input modules (2)

Description	Range	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
8 high level channels 12-bit, unipolar	4...20 mA 1 ... 5 V	–	Yes	**140ACI03000C**	0.300/ *0.661*
16 high level channels 0…25,000 points, unipolar	0...20 mA, 0...25 mA 4...20 mA	Non-interfering	Yes	**140ACI04000C**	0.300/ *0.661*
8 RTD channels 13-bit	Ni 100, Ni 200, Ni 500, Ni1000, Pt 100, Pt 200, Pt 500, Pt1000	–	–	**140ARI03010C**	0.300/ *0.661*
8 thermocouple and low level channels 16-bit	Types J, K, E, T, S, R, B ± 25 mV, ± 100 mV	–	–	**140ATI03000C**	0.300/ *0.661*
8 high level channels 16-bit, bipolar	± 20 mA, 0…20 mA, 4…20 mA ± 10 V, ± 5 V, 0…10 V, 0…5 V, 1…5 V	–	Yes	**140AVI03000C**	0.300/ *0.661*

"Conformal Coating" analog output modules (2)

Description	Range	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
4 current channels 12-bit	4...20 mA	Non-interfering	Yes	**140ACO02000C**	0.300/ *0.661*
8 current channels 0…25,000 points	0...20 mA 0...25 mA 4...20 mA	–	Yes	**140ACO13000C**	0.300/ *0.661*
4 high level voltage channels 12-bit	± 5 V, ± 10 V 0…5 V, 0…10 V	–	Yes	**140AVO02000C**	0.300/ *0.661*
8 current channels 16-bit	4...20 mA	–	Yes	**140SAI94000S**	0.300/ *0.661*

"Conformal Coating" mixed analog I/O modules (2)

Description	Range	Safety	Certified ATEX Zone 2/22	Reference	Weight kg/*lb*
4 input channels, 14…16-bit	± 20 mA, 0…20 mA, 4…20 mA ± 5 V, ± 10 V, 0…5 V, 0…10 V, 1…5 V	–	Yes	**140AMM09000C**	0.300/ *0.661*
2 output channels 12-bit	4…20 mA				

(1) For accessories, connection cables, replacement parts, see page 3/15.
(2) For accessories, see page 3/23.

8