Honeywell

Technical Information

Experion Series-C I/O Specification

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5.20. Universal Input Output – CC-PUIO31

Function

The Universal Input Output module interfaces with analog input, analog output, digital input, and digital output field devices.

Notable Features

- Each channel user configurable as:
  - Analog Input
  - Analog Output
  - Digital Input
    - DISOE - Sequence of Events (1ms resolution SOE, 20ms PV scan)
  - Digital Output
  - Pulse Input (any four channels)
- Open Wire Detection
- Electronic short circuit protection[1]
- Fast Scan (Priority I/O Module Scan)
- Safe-state (FAILOPT) behaviors configurable on a per channel basis for Digital / Analog Output
- HART 7 support (Analog I/O)
- HART Modem per Channel for Fast Performance
- Extended Temperature Range -40 to +70°C module ambient

Model Specifications

Parameter	Specification		
Universal Process IO Module	**CC-PUIO31**		
IOTA Model Numbers	**CC-TUIO31**	Non Redundant	9”
	CC-TUIO41	Redundant	12”
Note 1: Each signal can be shorted in the field with no damage to the IOM or IOTA. Other channels on the same IOM will not be affected. AI, AO and DI channels are further protected and certified to support energy limited / nonincendive field wiring connections to Zone 2 / Division 2 hazardous locations.			

Detail Specifications – Analog Input

Parameter	Specification
Input type	Current (2, 3, or 4 wire devices)
Input Channels	32 Maximum per module (with or without open wire detect)
A/D Converter Resolution	16 bit
Input Range	0-20 mA or 4-20 mA
Normal Mode Rejection Ratio	18 dB at 50 Hz, 20 dB at 60 Hz
Input Filter Response	Single pole, -3dB @ 6 Hz
Crosstalk, dc to 60 Hz (channel-to-channel)	60 dB
Input Impedance	250 Ω
Input Voltage Range (any input referenced to common, no damage)	+33 VDC to -1 VDC (1)
Input Scan Rate	10 ms
Hardware accuracy	0.1% of full-scale (23.5 ± 2°C) 0.175% of full-scale (0 to +70°C) 0.25% of full-scale (-40 to +70°C)
Short Circuit Current Limit	25 mA
Note 1: Return terminal is connected directly to Common (Ground)	

Detail Specifications – Pulse Input

Parameter	Specification
Channels	Any 4 channels
Frequency	0-15 kHz
Minimum Pulse Width	25 µs
Duty Cycle	Any Duty Cycle that meets the Minimum Pulse Width specification

Detail Specifications – Analog Output with HART[1]

Parameter	Specification
Output Type	4-20 mA
Output Channels	32 Maximum per module [2]
Output Temperature Drift	0.007% of Full Scale/°C
Output Readback Diagnostic	± 4% of Full Scale
Output Current Linearity	± 0.05% of Full Scale (nominal)
Resolution	12 bit
Calibrated Accuracy	< 0.35% of Full Scale (25ºC) including linearity
Directly Settable Output Current Range	0 mA, 2.9 mA to 21.1 mA
Maximum Resistive Load (24 V supply)	825 ohms @ 20 mA
Maximum Output Compliant Voltage (24 V supply)	16.5 VDC @ 20 mA
Open Circuit Voltage	Supply Voltage (26 VDC maximum)
Response Time, DAC input code to output (within 3% of final value)	80 ms in HART mode 0.25 ms in non-HART mode
Gap (0 mA) of Output to Field on Switchover	0 ms (both partners continuously active)

Note 1: If an AO channel's configuration is changed from non-HART to HART, and the analog OP remains energized, there will be a disturbance of the output of no more than 65ms while the channel is reloaded. Changing an AO channel from HART to non-HART will not produce any OP disturbance.

Note 2: Please refer to the User's Guide for calculation method to determine channel usage versus operating temperature.

Detail Specifications – Digital Input with OWD[1]

Parameter	Specification
Open Circuit Voltage	Supply Voltage (26 VDC maximum)
Closed contact current	7 mA (maximum)
Closed contact detection	3.1 mA < I < 7 mA
Open contact detection	0.9 mA < I < 2.0 mA
Open wire detect	I < 0.9 mA
Digital Input Resolution for Sequence of Events (SOE)	1ms (any /all Channels)
Note 1 Please refer to the User's Guide for appropriate field resistor configuration for OWD function.	

Detail Specifications – Digital Input without OWD

Parameter	Specification
Open Circuit Voltage	Supply Voltage (26 VDC maximum)
Closed contact current	7 mA (maximum)
Closed contact detection	I > 3.2 mA
Open contact detection	I < 2.0 mA
Digital Input Resolution for Sequence of Events (SOE)	1ms (any /all Channels)

Detail Specifications – Digital Output

Parameter	Specification
Output Channels	32 Maximum per module [2] (with or without open wire detect)
Output Type	Solid state source, short circuit protected [3]
Load Current Off Load Current On	< 0.1 mA 1 mA Minimum to 0.5 A Maximum per channel 9 A Maximum per module [1]
On-State Voltage	24 V (typ), load current @ 0.5 A
Off-State Leak Current	0 V
Off-State Leak Current	< 0.1 mA
Gap (0 current) of Output to Field on Switchover	0 ms

Note 1: Dependent on actual channel configuration for the module and the environment. Please refer to the User's Guide for calculation method.

Note 2: Please refer to the User's Guide for calculation method to determine channel usage versus operating temperature.

Note 3: Short circuit will be limited to less than 1.4 Amps within 2 microseconds, and to 750 mA within 10 microseconds. If the short period persists more than 10 mili seconds, the DO channel will be shutoff