Product Information: <u>ExTR Reference No. GB.FME.ExTR11.0006-00</u>

Experion Series C input/output chassis-less mounted modules and field level network gateways provide the physical connection between an automation system and the process when used with the C300 Controller. Input/Output Modules and field terminations are combined in the same area. The Input/Output Modules are plugged into Input /Output Termination Assemblies to eliminate the need for a separate chassis to hold the electronics assemblies.

<u>C300 Controller</u>

The C300 Controller is constructed using the Series C form factor that employs an Input Output Termination Assembly (IOTA) and an electronics module which mounts and connects to the IOTA. One C300 Controller contains all of the control functionality and the communications functions with plug-in modules.

The C300 Controller may operate in both non-redundant and redundant configurations. Redundant operation requires a second identical controller and connecting cables, which is the typical configuration. The C300 Controller is connected to the associated I/O hardware by a pair of I/O Link Interface cables

The table below identifies the C300 Controller components and its associated components. TheC300 Controller supports non-redundant and fully redundant operation. Redundancy is built in to the controller, so that just adding another controller and a redundancy cable; a redundant controller pair is achieved.
Note that the 'CC' designation on the model number indicates the printed wiring boards are conformally coated for additional protection from the environment, (CU = uncoated).

Components	Description	Model No.
C300 Controller Module	A distributed process controller and I/O gateway for the Experion system. Module contains printed circuit assemblies, status indicators and a display, inside in a plastic housing. Module mounts to its Input Output Termination Assembly (IOTA). Supply Rating: 0.311A @ 24VDC	CC-PCNT01 CU-PCNT01
C300 Controller Input Output Termination Assembly (IOTA)	Provides the connection point for theC300 Controller module and all cable terminations to the controller, (FTE, IO Link, Redundancy, Battery and Time Source cable terminations). Provides 24Vdc power distribution to the controller module. Supply Rating: 0.311A @ 24VDC Note: The C300 Controller IOTA supports only one controller module.	CC-TCNT01 CU-TCNT01
9 Port FTE Control Firewall Module	Provides FTE distribution to in-cabinet network nodes. (C300 Controllers and Series C Modules) Supply Rating: 0.112A @ 24VDC	CC-PCF901 CU-PCF901
9 Port Control Firewall IOTA	Provides connection for eight FTE cables from in-cabinet controllers and Series CFIMs. The 9th port provides an uplink to the FTE supervisory network. Provides 24Vdc power distribution to the control. Ethernet: 9 RJ-45 Connections Fiber-Optic: Model Ca-FSMx01 FTE Single Mode Fiber Module Supply Rating: 0.30mA@24VDC Model Ca-FMMx01 FTE Multi-Mode Fiber Module Supply Rating: 0.30mA@24VDC	CC-TCF901 CU-TCF901

The Series C modules comprise:

- **Input Output Termination Assembly (IOTA):** An assembly that holds the IOM and the connections for field wiring,
- **Input Output Module (IOM):** A device that contains most of the electronics required to perform a specific I/O function. The IOM plugs onto the IOTA.

Product Information: <u>ExTR Reference No. GB.FME.ExTR11.0006-00</u>

The Experion Series C I/O consists of the following I/O modules (IOM's):

High Level Analog Input /HART Input Module (16pt):

A High Level Analog Input Module supports both high level analog and HART inputs. Analog inputs are typically 4-20mA DC for both traditional and HART devices. HART data can be used for status and configuration. HART data, such as the secondary and tertiary variables, can also be used as process control variables.

Supply Rating: 0.195A @ 24VDC
Input Voltage: 24Vdc

Manufacturer's Declared Parameters			
Input / Output Model	CC-PAIH01 - High-Level Analog Input with HART CU-PAIH01 - High-Level Analog Input with HART		
IOTA Models	CC-TAIX01 CU-TAIX01	Non Redundant	6"
	CC-TAIX11 CU-TAIX11	Redundant	12"
Input Type	Voltage, current (2-wire or self-powered transmitters)		
Input Channels[1]	16 Channels (12 Single Ended / 4 Differential)		
Common Mode Rejection Ratio, dc to 60 Hz (500 Ω source imbalance)	70 dB		
Common Mode Voltage, dc to 60 Hz	-6 to +5 V peak		
A/D Converter Resolution	16 bits		
Input Range[1]	0 to 5 V, 1 to 5 V, 0.4 to 2 V, 4-20 mA (through 250 Ω)		
Normal Mode Rejection Ratio, at 60 Hz	19 dB		
Normal Mode Filter Response	Single-pole RC, -3 dB @ 6.5 Hz		
Maximum Normal Mode Input (differential inputs, no damage)	± 30 Volts		
Crosstalk, dc to 60 Hz (channel-to-channel)	-60 dB		
Input Impedance (voltage inputs)	> 10 M Ω powered		
Maximum Input Voltage (any input referenced to common, no damage)	± 30 Volts		
Input Scan Rate	50 ms		
Hardware Accuracy (@ CMV = 0 V)	± 0.075% of full-scale (23.5°± 2°C) ± 0.15% of full-scale (0 to 60°C)		
Transmitter Field Power Conditioning	Individually Protected Current Limiting Circuits for Class 1, Div 2 non-incendive interfacing. No fusing required		
1) Each channel's 250-Ohm load resistor is connected to the input terminal through a wire jumper on the IOTA. This jumper should be cut by the user on channels to be used with voltage transmitters. For channels 13-16 the low-side input connection is normally connected to system common by a wire jumper on the IOTA. This jumper may be cut by the user to enable differential operation subject to operating within the CMV specification.			

Product Information: <u>ExTR Reference No. GB.FME.ExTR11.0006-00</u>

Analog Output/HART Output Module (16pt):
The Analog Output Module supports both standard 4-20mA DC outputs and HART transmitter outputs.

Supply Rating: 0.46A @ 24VDC

Manufacturer's Declared Parameters			
Input / Output Model	CC-PAOH01 - High-Level Analog Output with HART CU-PAOH01 - High-Level Analog Output with HART		
IOTA Models	CC-TAOX01 CU-TAOX01	Non Redundant	6"
	CC-TAOX11 CU-TAOX11	Redundant	12"
Output Type	4-20 mA		
Output Channels	16		
Output Ripple	< 100 mV peak-to-peak at power line frequency, across 250 Ω load		
Output Temperature Drift	0.005% of Full Scale/°C		
Output Readback Accuracy	±4% of Full Scale		
Output Current Linearity	± 0.05% of Full Scale nominal		
Resolution	± 0.05% of Full Scale		
Calibrated Accuracy	± 0.35% of Full Scale (25°C) including linearity		
Directly Settable Output Current Range	0 mA, 2.9 mA to 21.1 mA		
Maximum Resistive Load (24 V supply = 22 VDC through 28 VDC)	800 ohms		
Maximum Output Compliant Voltage (24 V supply = 22 VDC through 28 VDC)	16 V		
Maximum Open Circuit Voltage	22 V		
Response Time (DAC input code to output)	settles to within 1% of final value within 80 ms		
Gap (0 mA) of Output to Field on Switchover	10 ms maximum (applies to Redundancy only)		

Product Information: <u>ExTR Reference No. GB.FME.ExTR11.0006-00</u>

Digital Input 24 VDC (32pt):

Digital input sensing for 24V signals

Supply Rating: 0.130A @ 24VDC

Manufacturer's Declared Parameters			
Input / Output Model	CC-PDIL01 - 24Volt Digital Input CU-PDIL01 - 24Volt Digital Input		
IOTA Models	CC-TDIL01 CU-TDIL01	Non Redundant	6"
	CC-TDIL11 CU-TDIL11	Redundant	12"
Input Channels	32		
Galvanic Isolation (any input terminal voltage referenced to common)	1500 VAC RMS or ±1500 VDC		
Isolation Technique	Optical (in IOM)		
DI Power Voltage Range	18 to 30 VDC		
ON Sense Voltage/Current	13 VDC (min) or 3 mA (min)		
OFF Sense Voltage/Current	5 VDC (max) or 1.2 mA (max)		
Input Impedance	4.2 KΩ		
Absolute Delay Across Input Filter and Isolation	5 ms ± 20%		
Field Resistance for Guaranteed ON Condition	300 Ωmax @ 15 VDC		
Field Resistance for Guaranteed OFF Condition	30 KΩmin @ 30 VDC		

Digital Input High Voltage (32pt):

Digital input sensing for 110 VAC, 220 VAC, 125VDC.

Parameter	Specification					
Input / Output Model	CC-PDIH01 – Digital Input High Voltage CU-PDIH01 – Digital Input High Voltage					
	120 VAC IOTA			240 VAC IOTA		
IOTA Models	CC-TDI110 CU-TDI110	Non Redundant	9"	CC-TDI220 CU-TDI220	Non Redundant	9"
	CC-TDI120 CU-TDI120	Redundant	12"	CC-TDI230 CU-TDI230	Redundant	12"
Input Channels	32			32		
Galvanic Isolation	1500 VAC RMS or ±1500 VDC			1500 VAC RMS or ±1500 VDC		
Isolation Technique	Optical			Optical		
	120 VAC	125 VDC		240VAC		
Digital Input Pwr. Range	90-132 VAC RMS	100-138 VDC		180-264 VAC RMS		
Sense Current (ON condition)	1.0 mA minimum	1.2 mA minimum		1.11 mA minimum		
Sense Current (OFF condition)	0.32 mA maximum	0.32 mA maximum		0.32 mA maximum		
Pick Up Voltage (ON condition)	90 VAC RMS minimum	100 VDC minimum		180 VAC RMS minimum		
Drop Out Voltage (OFF condition)	25 VAC RMS maximum	25 VDC minimum		50 VAC RMS maximum		
Absolute Delay Across Input Filter and Isolation (Bounceless Input to logic level change)	25 ms maximum	10 ms maximum		25 ms maximum		
Frequency Range	47-63 Hz	NA		47-63 Hz		

Digital Output Bussed 24 VDC (32 pt):

The Digital Output bussed 24VDC module provides reliable 24V digital output signals to control other processes. The DO24V can support high energy outputs to reduce the number of external components in the output loop.

Parameter	Specification			
Input / Output Model	CC-PDOB01 – 24Volt Digital Output , Field Isolated, Bussed output			
	CU-PDOB01 – 24Volt Digital Output , Field Isolated, Bussed output			
IOTA Models	CC-TDOB11		Non Redundant	6"
	CU-TDOB11		Redundant	12"
Output Channels	32			
Load Voltage	30 VDC Maximum			
Load Current		Per Channel	Per 8 Channels	Per Module
(A group of 8 channels consists of channels: 1-8, 9-16, 17-24, and 25-32)	One Short Condition[1]	0.5A	3A	6A
	Two Short Condition[1]	0.5A	1.5A	6A
Galvanic Isolation	1500 VAC RMS or ±1500 VDC			
On-State Voltage	24 V (typ), load current @ 0.5A			
Off-State Voltage	0v VDC (max) (3.3VDC (max) indicated under no-load condition)			
Off-State Leak Current	0.5 µA (max)			
Turn-On/Turn-Off Time	10 ms (max)			
Gap (0 current) of Output to Field on Switchover	10 ms maximum (applies to Redundancy only)			

[1]
One / Two Short Condition parameter denotes the maximum current that can be passed through the DO with the short condition indicated before the short protection mechanism disables the function. As an example, the DO can drive a maximum of 1.5A per 8 channels with two channels shorted before the short protection mechanism will disable all 8 channels affected.