I/O and Powerfeed Modules, System Connectivity Components

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I/O and Powerfeed Modules, System Connectivity Components

Product Description

I/O and powerfeed modules mount easily to DIN rail inside the control cabinet and connect directly to the SmartWire-DT system with snap-in connections to the 8-conductor flat SmartWire-DT cable.

I/O modules provide a means of easy connection of digital and analog devices to the SmartWire-DT network. Powerfeed modules allow the insertion of 24 Vdc and/or 15 Vdc power where necessary based on the power demands of components connected to the SmartWire-DT network.

Connectivity components are designed to make connection of devices to the 8-conductor flat SmartWire-DT cable simple and trouble-free.

Features

- I/O modules available in digital input and output, analog input and output, and RTD input versions in various combinations to simplify panel configuration
- Relay output version available for high-current loads
- Temperature input versions have wide operating ranges to support a variety of application requirements
- Powerfeed modules can be used to create zoned control arrangements to support integration of Emergency Stop devices into a network

Product Selection

Powerfeed Modules

Powerfeed Module

Powerfeed Modules

Powerfeed modules feed auxiliary 24 Vdc power and/or 15 Vdc network power into the SmartWire-DT flat cable. The auxiliary 24 Vdc power is needed for the power supply of contactors and the 15 Vdc network power is used for supplying power to additional SmartWire-DT nodes. Powerfeed modules are also used to create zone control or groups of devices controlled by a single Emergency Stop.

Description	Pkg. Qty.	Catalog Number
Powerfeed module 1 (for 24 Vdc auxiliary power)	1	**EU5C-SWD-PF1-1**
Powerfeed module 2 (for 24 Vdc auxiliary power and 15 Vdc network power)	1	**EU5C-SWD-PF2-1**

I/O Modules

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Digital I/O Module

Digital I/O Modules

Digital input/output (I/O) modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They can be connected anywhere along the flat cable network and can therefore be positioned in the control panel to help reduce the I/O wiring.

Description	Pkg. Qty.	Catalog Number
Digital module with 8 digital inputs 24 Vdc	1	**EU5E-SWD-8DX**
Digital module with 8 digital outputs 24 Vdc / 0.5 A	1	**EU5E-SWD-X8D**
Digital module with 4 digital inputs 24 Vdc and 4 transistor outputs 24 Vdc/0.5 A	1	**EU5E-SWD-4D4D**
Digital module with 4 digital inputs 24 Vdc and 2 relay outputs 250 Vac/3 A	1	**EU5E-SWD-4D2R**
For Sensor Inputs		
Digital module with 4 digital inputs 24 Vdc three-wire connections	1	**EU5E-SWD-4DX**

Analog I/O Module

Analog I/O Modules

Analog input/output (I/O) modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They can be connected anywhere along the flat cable network and can therefore be positioned in the control panel to help reduce the I/O wiring.

Description	Pkg. Qty.	Catalog Number
Analog module with 4 analog inputs 0–10 V or 0–20 mA	1	**EU5E-SWD-4AX**
Analog module with 2 analog inputs 0–10 V or 0–20 mA and 2 analog outputs 0–10 V or 0–20 mA	1	**EU5E-SWD-2A2A**

Temperature Input Module

Temperature Input Modules

Temperature input modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They can be connected anywhere along the flat cable network and can therefore be positioned in the control panel to help reduce the I/O wiring.

Description	Pkg. Qty.	Catalog Number
RTD module with 4 temperature inputs Pt100, Pt 1000 or Ni1000; +32 to +292 °F (0 to +200 °C)	1	**EU5E-SWD-4PT**
RTD module with 4 temperature inputs Pt100, Pt 1000 or Ni1000; −148 to +752 °F (−100 to +400 °C)	1	**EUSE-SWD-4PT-2**

Digital I/O Modules

Description	Unit	EU5E-SWD-8DX	EU5E-SWD-4DX	EU5E-SWD-4D4D	EU5E-SWD-4D2R	EU5E-SWD-X8D
General						
Standards		IEC/EN 61131-2; EN 50178	IEC/EN 61131-2; EN 50178	IEC/EN 61131-2; EN 50178	IEC/EN 61131-2; EN 50178	IEC/EN 61131-2; EN 50178
Dimensions (W x H x D)	in (mm)	1.38 x 3.54 x 3.97 (35 x 90 x 101)	1.38 x 3.54 x 3.97 (35 x 90 x 101)	1.38 x 3.54 x 3.97 (35 x 90 x 101)	1.38 x 3.54 x 3.97 (35 x 90 x 101)	1.38 x 3.54 x 3.97 (35 x 90 x 101)
Weight	lbs (kg)	0.22 (0.10)	0.22 (0.10)	0.22 (0.10)	0.22 (0.10)	0.22 (0.10)
Mounting		DIN rail IEC/EN 60715, 35 mm	Top-hat rail IEC/EN 60715, 35 mm	DIN rail IEC/EN 60715, 35 mm	DIN rail IEC/EN 60715, 35 mm	Top-hat rail IEC/EN 60715, 35 mm
Mounting position		Vertical	Vertical	Vertical	Vertical	Vertical
Ambient Conditions, Mechanical						
Degree of protection (IEC/EN 60529)		IP20	IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)						
Constant amplitude 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Constant acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms	Impacts	9	9	9	9	9
Drop to IEC/EN 60068-2-31 (drop height)	in (mm)	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)
Free fall, packaged (IEC/EN 60068-2-32)	ft (m)	1.0 (0.3)	1.0 (0.3)	1.0 (0.3)	1.0 (0.3)	1.0 (0.3)
Electromagnetic Compatibility (EMC)						
Overvoltage category		II	II	II	II	II
Pollution degree		2	2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)						
Air discharge (Level 3)	kV	8	8	8	8	8
Contact discharge (Level 2)	kV	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008) 80–1000 MHz	V/m	10	10	10	10	10
1.4–2 GHz	V/m	3	3	3	3	3
2–2.7 GHz	V/m	1	1	1	1	1
Radio interference suppression (SmartWire-DT)		EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
Burst (IEC/EN 61131-2:2008, Level 3)						
Supply cables	kV	2	2	2	2	2
Signal lines	kV	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)						
Supply cables	kV	0.5	0.5	0.5	0.5	0.5
Radiated RFI (IEC/EN 61131-2:2008, Level 3)	V	10	10	10	10	10
Climatic Environmental Conditions						
Operating ambient temperature (IEC 60068-2)	°F (°C)	−13° to 131° (−25° to 55°)	−13° to 131° (−25° to 55°)	−13° to 131° (−25° to 55°)	−13° to 131° (−25° to 55°)	−13° to 131° (−25° to 55°)
Condensation		Prevent with suitable measures	Prevent with suitable measures	Prevent with suitable measures	Prevent with suitable measures	Prevent with suitable measures
Storage	°F (°C)	−40° to 158° (−40° to 70°)	−40° to 158° (−40° to 70°)	−40° to 158° (−40° to 70°)	−40° to 158° (−40° to 70°)	−40° to 158° (−40° to 70°)
Relative humidity, noncondensing (IEC/EN 60068-2-30)	%	5–95	5–95	5–95	5–95	5–95
SmartWire-DT Network						
Station type		SmartWire-DT (node)	SmartWire-DT (slave)	SmartWire-DT (node)	SmartWire-DT (node)	SmartWire-DT (slave)
Address allocation		Automatic	Automatic	Automatic	Automatic	Automatic
SmartWire-DT status (LED)		Green	Green	Green	Green	Green
Connection Plug		8-pole	Plug, 8-pole	8-pole	8-pole	Plug, 8-pole
Connection plug		External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5
Current consumption (15 V SWD supply)		See **Page V7-T9-61**	See **Page V7-T9-61**	See **Page V7-T9-61**	See **Page V7-T9-61**	See **Page V7-T9-61**

Note

① Minimum length 8 mm.

Digital I/O Modules, continued

Description	Unit	EU5E-SWD-8DX	EU5E-SWD-4DX	EU5E-SWD-4D4D	EU5E-SWD-4D2R	EU5E-SWD-X8D
Connection Supply and I/O						
Connection type		Push in terminals	Push in terminals	Push in terminals	Push in terminals	Push in terminals
Solid	mm²	0.2–1.5 (AWG 24–16)	0.2–1.5 (AWG 24–16)	0.2–1.5 (AWG 24–16)	0.2–1.5 (AWG 24–16)	0.2–1.5 (AWG 24–16)
Flexible with ferrule ①	mm²	0.25–1.5 (AWG 24–16)	0.25–1.5	0.25–1.5	0.25–1.5	0.25–1.5 (AWG 24–16)
24 Vdc Supply for Output Supply						
Rated operational voltage (U_e)	V	24 Vdc (–15%/+20%)	24 Vdc (–15%/+20%)	24 Vdc (–15%/+20%)	24 Vdc (–15%/+20%)	24 Vdc (–15%/+20%)
Residual ripple on the input voltage	%	—	≤5	5	—	≤5
Protection against polarity reversal		—	Yes	Yes	—	Yes
Digital Inputs						
Quantity		8	4 ①	4	4	—
Input current	mA	Typ. 4 at 24 Vdc	Typ. 4 at 24 Vdc	Typ. 4 at 24 Vdc	Typ. 4 at 24 Vdc	Typ. 4 at 24 Vdc
Voltage level to IEC/EN 61131-2						
Limit value type 1				Low <5 Vdc; High >15 Vdc		
Input delay						
High		<0.2 ms	<0.2 ms	<0.2 ms	<0.2 ms	<0.2 ms
Low		<0.2 ms	<0.2 ms	<0.2 ms	<0.2 ms	<0.2 ms
SmartWire-DT status (LED)		Yellow	Yellow	Yellow	Yellow	—
Power Supply I+, I-						
Overload proof		—	Yes, with diagnostics	—	—	—
Output current per input supply	A	—	≤0.5	—	—	—
Supply voltage	V	—	U_e 0.16 V	—	—	—
Transistor Outputs						
Number		—	—	4	—	8
Output current	A	—	—	Normally 0.5 at 24 Vdc	—	Normally 0.5 at 24 Vdc
Short-circuit tripping current	A	—	—	Max. 1.2 over 3 ms	—	Max. 1.2 over 3 ms
Lamp load (R_{LL})	W	—	—	3	—	≤3
Overload proof		—	—	Yes, with diagnostics	—	Yes, with diagnostics
Switching capacity		—	—	EN 60947-5-1 utilization category DC-13	—	EN 60947-5-1 utilization category DC-13
Status display	LED	—	—	—	—	Yellow
Relay Outputs						
Number		—	—	—	2	—
Contact type art		—	—	—	N/O contact	—
Operations						
Utilization category AC-1, 250 V, 6 A		—	—	—	>6 x 10⁴	—
Utilization category AC-15, 250 V, 3 A		—	—	—	>5 x 10⁴	—
Utilization category DC-13, 24 V, 1 A		—	—	—	>2 x 10⁵	—
Safe isolation	Vac	—	—	—	230	—
Minimum load current	mA	—	—	—	100 mA, 12 Vdc	—
Pick-up/drop-out time	ms	—	—	—	5/2.5	—
Bounce duration	ms	—	—	—	Normally 1.5	—
Short-circuit protection		—	—	—	External 4A gL/gG	—
Status display outputs (LED)		—	—	Yellow	Yellow	—
Potential Isolation						
Inputs for SmartWire-DT		Yes	Yes	Yes	Yes	Yes
Transistor outputs for SmartWire-DT		—	Yes	Yes	—	—
Transistor outputs for inputs		—	—	No	—	—
Relays for SmartWire-DT		—	—	—	Yes	—
Relays for inputs		—	—	—	Yes	—
Relays for relays		—	—	—	Yes	—

The operations values in the table use the following superscript notation: $>6 \times 10^4$, $>5 \times 10^4$, $>2 \times 10^5$.

Note

① Three-wire connection with power supply I+, I-.