Installation Instructions

GuardPLC 1753-IF8XOF4 Analog I/O Module

Catalog Number 1753-IF8XOF4

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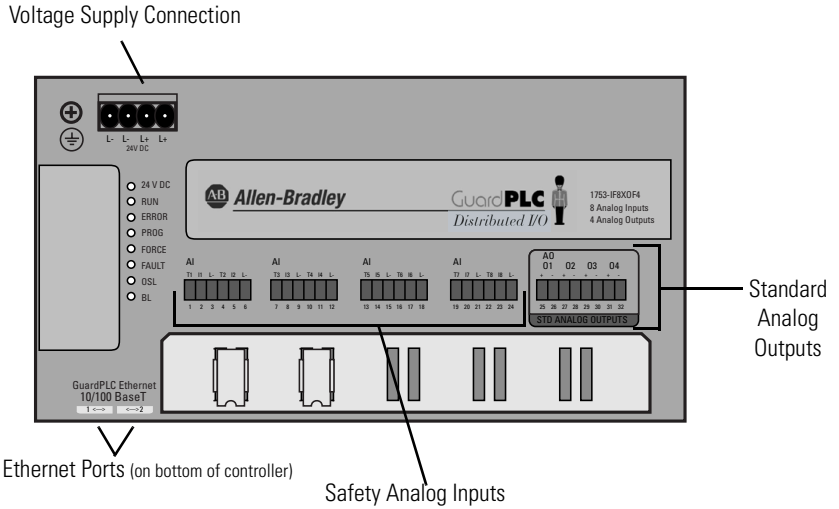
Description

The 1753-IF8XOF4 module is a distributed safety I/O module for use with GuardPLC controllers. The module features 8 safety analog inputs and 4 standard analog outputs. The module communicates with the GuardPLC controller via GuardPLC Ethernet.



General Safety

ATTENTION

Personnel responsible for the application of safety-related Programmable Electronic Systems (PES) shall be aware of the safety requirements in the application of the system and shall be trained in using the system.

Indicator	State	Condition
OSL	Flashing	Emergency **O**perating **S**ystem **L**oader is active.
BL	Flashing	**B**oot **L**oader unable to load operating system or unable to start COMM operating system loader.

Controller status can be interrogated through the programming software. For more information, refer to the GuardPLC™ Controller Systems User Manual (1753-UM001).

Specifications

General	
Interfaces: GuardPLC Ethernet	2 x RJ-45, 10/100BaseT (with 100 Mbps) with integrated switch
Operating Voltage	24V dc, -15% to +20%, w_{ss} 15% from a power supply with protective separation, conforming to IEC 61131-2 requirements, as well as either of the following: • EN 60950 - SELV (Safety Extra Low Voltage) • EN 60204 - PELV (Protective Extra Low Voltage)
Response Time	≥ 20 ms
Battery Backup	none
Current Consumption	max. 0.8 A (with max. load), idle current 0.4 A @24V
Isolation Voltage	No isolation between circuits
Wiring Category(1)	category 2 on communications ports, signal ports, and power ports
Wire Size	I/O – 16 AWG (1.5 mm^2) to 26 AWG (0.14 mm^2) solid or stranded copper wire rated at 75 °C (167 °F) or greater with 3/64 inch (1.2 mm) insulation maximum Power – 14 AWG (2.5 mm^2) to 22 AWG (0.34 mm^2) solid or stranded copper wire rated at 75 °C (167 °F) or greater with 3/64 inch (1.2 mm) insulation maximum
Terminal Block Torque	0.51 Nm (4.5 in-lb)

Analog Inputs	
Number of Inputs	8 (not electrically isolated)
Input Signal Range, Nominal	Voltage: 0 to +10V dc Current: 0 to +20 mA[3]
Input Signal Range, Service	Voltage: -0.1 to +11V dc Current: -0.4 to +23 mA[3]
Shunt Resistor, External	500 Ω (for current input)
Impedance, Analog Input	>2 MΩ
Analog Input Signal, Source Impedance	≤500 Ω
Input Resolution	12 bits
Effective Resolution	9 bits @ 10V
Sensor Supply	selectable 26V/8.2V 200 mA, short-circuit-proof
Accuracy	0.5%
Safety Accuracy	2%
Calibration Error Zero Point	±1%
Calibration Error Terminal Point	±0.4%
Channel Error	±0.5%
Temperature Error Zero Point	±0.5%/10 K
Temperature Error Terminal Point	±0.5%/10 K
Linearity Error	±0.5%
Long-term Drift	±0.5%
Analog Outputs	
Number of Outputs	4 (not electrically isolated) non-safety with common safety switch off
Output Signal Range	4…20 mA nominal 0…20 mA full range
Resolution of Software	12 bits
Impedance, Current Output	600 Ω max.
Calibration Error Zero Point	±1%
Calibration Error Terminal Point	±1%
Channel Error	±1%
Temperature Error Zero Point	±1%/10 K
Temperature Error Terminal Point	±1%/10 K
Linearity Error	±1%

Environmental Conditions	
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40°C to +85°C (-40°F to +185°F) without backup battery
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0°C to +60°C (+32°F to +140°F)
Vibration	IEC60068-2-6 (Test Fc, Operating): 1 g @ 10…150 Hz
Shock, Operating	IEC60068-2-27 (Test Ea, Unpackaged Shock):15 g
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 10 to 95% non-condensing
Emissions	Group 1, Class A
ESD Immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80% AM from 80 Hz to 2000 MHz
EFT/B Immunity	IEC 61000-4-4: ±2 kV @ 5 kHz on power ports ±1 kV @ 5 kHz on signal ports ±1 kV @ 5 kHz on communication ports
Surge Transient Immunity	IEC 61000-4-5: ±500V line-line (DM) and ±500 line-earth (CM) on DC power ports ±1 kV line-earth (CM) on shielded ports ±1 kV line-earth (CM) on communication ports
Conducted RF Immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz to 80 MHz
Enclosure Type Rating	meets IP20
Mechanical Dimensions	
Width	207 mm (8.16 in.) including housing screws
Height	114 mm (4.49 in.) including latch
Depth	97 mm (3.82 in.) including grounding bolt
Weight	0.95 kg (2.09 lb)

Certifications (when product is marked)[2]	
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada
CE	European Union 89/336/EEC EMC Directive, compliant with: • EN 61000-6-4; Industrial Emissions • EN 61000-6-2; Industrial Immunity
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
TÜV	TÜV Certified for Functional Safety

(1) Use this Conductor Category information for planning conductor routing. Refer to Publication 1770-4.1, *Industrial Automation Wiring and Grounding Guidelines*.

(2) See the product certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

(3) with external shunt resistor