Tech-note

PLIO04 Multifunction I/O Module

The PLIO04 is compact multifunction I/O module. It has been designed as an optional plug-in for the eTOP Series 500 and Series 600 HMI products. The PLIO04 is a programmable module offering a highly flexible configuration.

- 10 Digital Inputs
- 12 Digital Outputs SSR
- 4 Analog Inputs configurable for voltage or temperature measurement (PT100 or thermocouple). When configured in Single-ended mode, up to 8 voltage measurement inputs are possible
- 4 Analog inputs configurable for voltage measurement
- 1 PT100 input for cold junction compensation of thermocouples
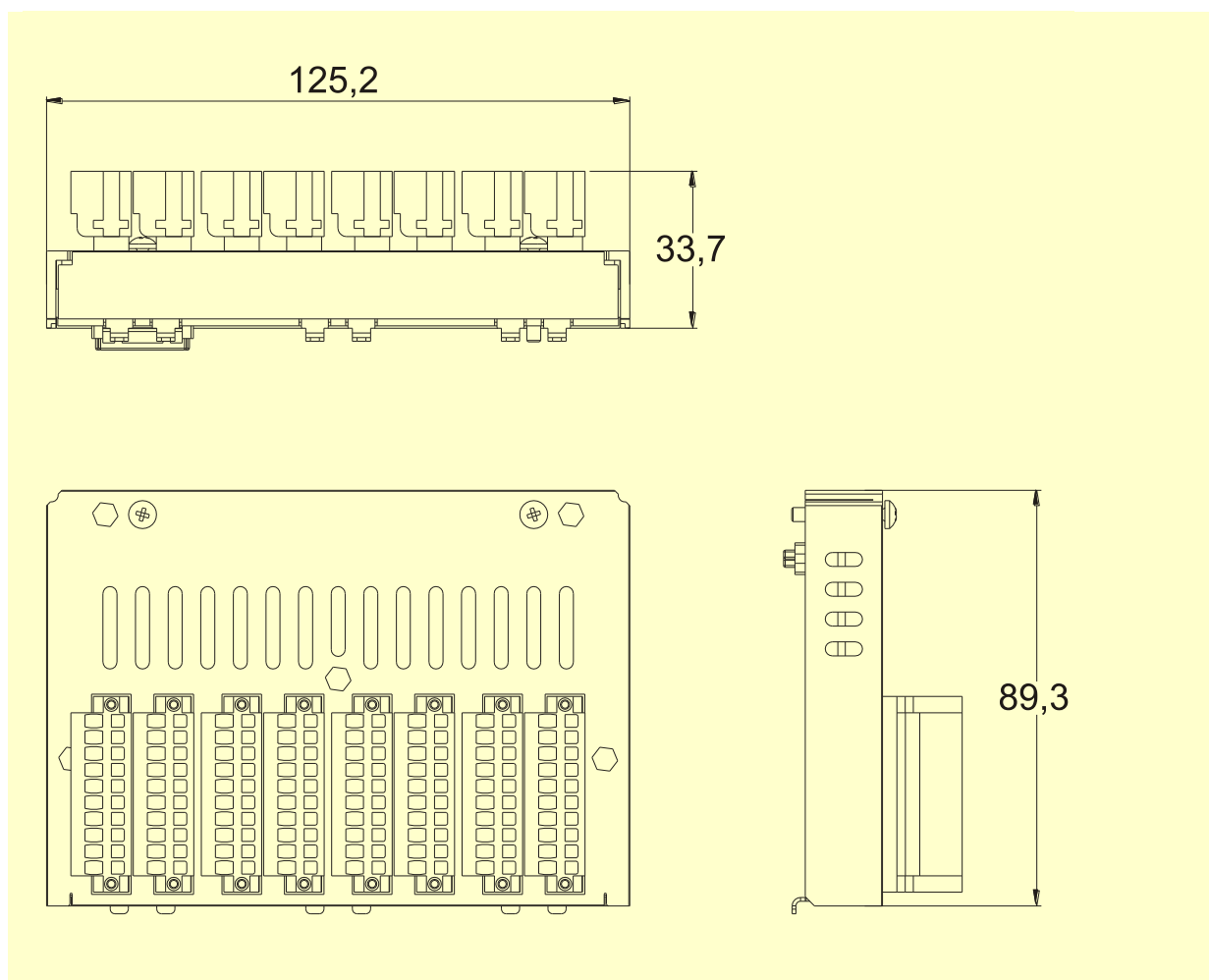
Highlights

The PLIO04 I/O module has been designed for the eTOP Series 500 and Series 600 HMI products.

- Plug&Play operation. The I/O module is automatically detected when plugged-in.
- I/O configuration supported by a CODESYS I/O library.
- Compact and low power consumption.
- No additional power supply required in addition to the 24Vdc I/O power supply
- Optically isolated Digital I/O.
- Easy wiring with removable 3,5mm spring connectors.
- Analog Inputs are software programmable as voltage inputs or temperature inputs. They can be configured to support industrial temperature sensors like thermocouple and PT100 (RTD).
- Analog Inputs with Programmable Gain Amplifier (PGA) and Offset
- On-board FPGA-based measurement controller reduces main CPU overhead.
- Additional PT100 channel for cold junction compensation. To be used for thermocouples.
- Protective coating
- Advanced board-level diagnostic

Technical Data

Digital Inputs

Number of channels	10
Type of channel	Source active high (+24Vdc) inputs.
Input Voltage range	12 - 30 Vdc
Input impedance	3,3 KΩ
Optical isolation	Yes
Isolation	1500 Vrms
Input filter	Programmable 0.1ms to 20ms

Digital Outputs

Number of Channels	10
Type of channel	SSR, 2 contacts
Max load voltage	30 Vdc
Max load current	1.4 A
Output delay time	5ms max
Optical isolation	Yes
Isolation	1500 Vrms

Analog Inputs

Channels	4 differential or 8 single ended Individually programmable.		
Optical isolation	No		
Measurement type	Voltage Temperature (various types of thermocouples or PT100 RTD) with external cold junction compensation		
A/D resolution	12 bits		
Accuracy @ 25°C	0,2% typ.		
Voltage input range and accuracy	Bipolar:	± 100mV	0.1% FS
		± 500mV	0.1% FS
		± 1V	0.1% FS
		± 5V	0.1% FS
		± 10V	0.1% FS
	Unipolar:	0-100mV	0.1% FS
		0-500mV	0.1% FS
		0-1V	0.1% FS
		0-5V	0.1% FS
		0-10V	0.1% FS
Voltage Input absolute maximum ratings	± 15Vdc (referenced to analog ground)		
Voltage input linearity error	0.1%		
Voltage mode input impedance	>2 MΩ		
Thermocouple input	E (-270/1000°C) J (-210/760°C) K (-270/1370°C) R (0/1768°C) S (0/1768°C) T (-270/400°C)		

Cold Junction compensation	External with dedicated PT100 input		
PT100 RTD input	2, 3 or 4 wires transducer interface with break and short circuit detection		
Temperature range	-100°C÷850°C		
PT100 accuracy @ 25 °C	Range 1	0÷157Ω	0.2%
	Range 2	0÷530 Ω	0.3%
	Range 3	0÷1020 Ω	0.4%
	Range 4	0÷8800 Ω	0.5%

Analog Inputs

Channels	4 single ended		
Optical isolation	No		
Measurement type	Voltage		
A/D resolution	12 bits		
Accuracy @ 25°C	0,2% typ.		
Voltage input range and accuracy	Unipolar:	0-100mV	0.1% FS
		0-500mV	0.1% FS
		0-1V	0.1% FS
		0-5V	0.1% FS
		0-10V	0.1% FS
Voltage Input absolute maximum ratings	± 15Vdc (referenced to analog ground)		
Voltage input linearity error	0.1%		
Voltage mode input impedance	>2 MΩ		

Connectors

Connector Type	Omnimate range header/plugs 3.5mm-10 contacts (two piece terminal blocks) SL-SMT 3.5/180F Box + BLZF 3.5/180F

Environmental Conditions

Operating temperature	0 to 50 °C (vertical installation)
Storage temperature	-20 to +70 °C
Operating and storage humidity	5 – 85 % relative humidity, non-condensing
Protection class	IP20

Approvals

CE	Emission EN 61000-6-4 Immunity EN 61000-6-2 for installation in industrial environments

Dimensions

125,2

33,7

89,3

Ordering Information

Model	Part Number	Description
PLIO04	+PLIO04U0P1	Multifunction I/O Module. 10 DI, 10 DO, 8 AI