Tech-note

PLIO03 Multifunction I/O Module

The PLIO03 is compact multifunction I/O module. It has been designed as an optional plug-in for the eTOP Series 500 HMI products. The PLIO03 is a programmable module offering a highly flexible configuration. The PLIO03 is the basic block for extending you HMI applications to complete control applications

- 20 Digital Inputs, configurable as counter/encoder channels
- 12 Digital Outputs
- 4 Analog Inputs configurable for voltage, current or temperature measurement. When configured in Single-ended mode, up to 8 voltage measurement inputs are possible
- 1 PT100 input for cold junction compensation of thermocouples
- 4 Analog Outputs configurable for voltage or current

Highlights

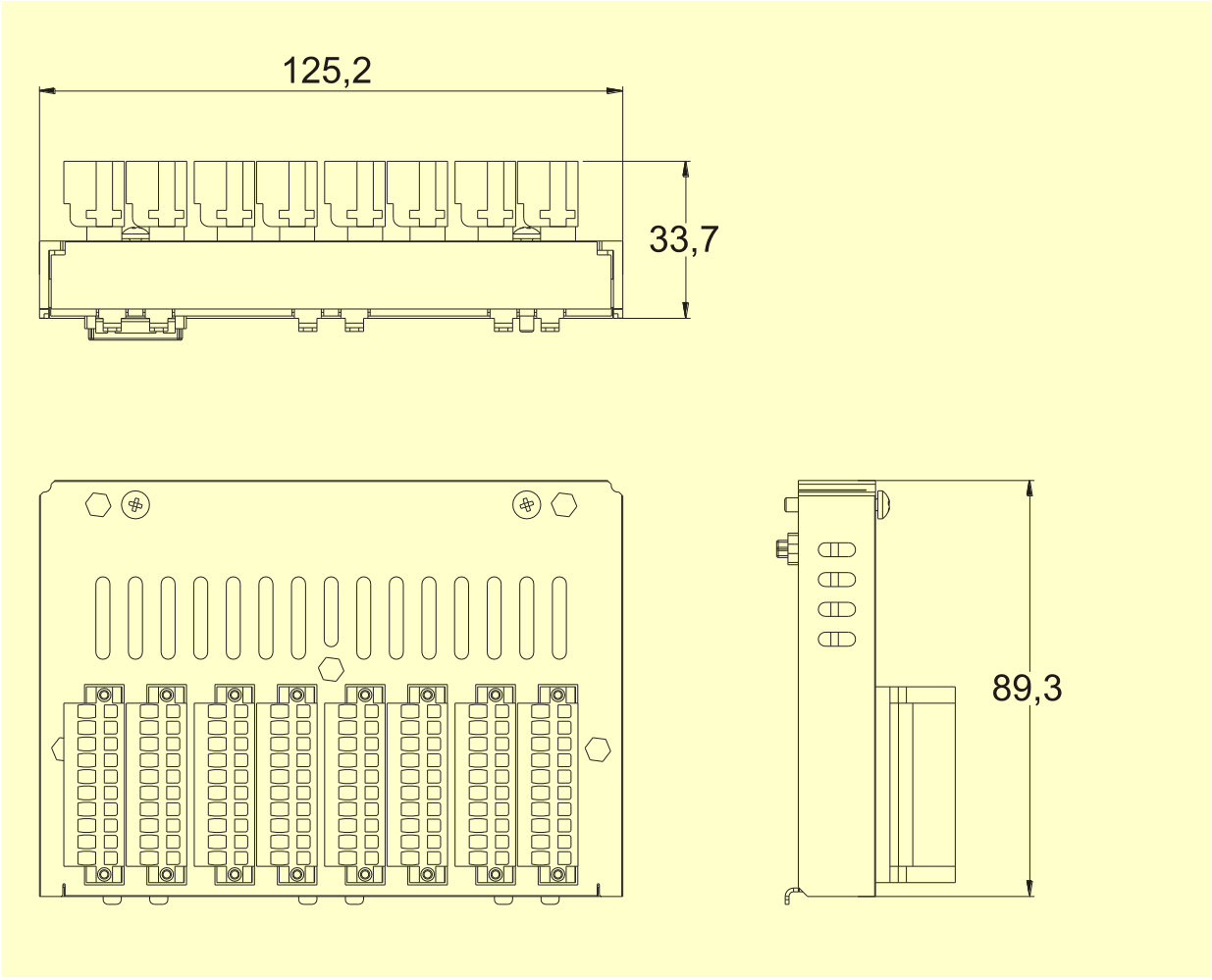
The PLIO03 I/O module has been designed for the eTOP Series 500 HMI products.
panels have been designed to run the JMobile software.

- 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.
- Overcurrent and Thermal shutdown for Digital Outputs with integrated diagnostic functions.
- Easy wiring with removable 3,5mm spring connectors.
- Digital Inputs can be configured as encoder inputs, counter inputs and period/ frequency measurement.
- Analog Input programmable as voltage inputs, current inputs. Additionally 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.
- Analog Outputs programmable as voltage outputs and current outputs.
- Additional PT100 channel for cold junction compensation. To be used for thermocouples.
- Advanced board-level diagnostic

Technical Data

Digital Inputs	
Number of channels	20
Type of channel	Source active high (+24Vdc) inputs.
Input Voltage range	12 - 30 Vdc
Input impedance	3,3 KOhm
Optical isolation	Yes
Isolation	1500 Vdc
Input filter	Programmable 0.1ms to 20ms
Special input modes	Software configuration for 2 blocks of 4 inputs. Each block can be configured as encoder, counter or frequency
Encoder mode	2 blocks of 4 digital inputs can be programmed as Encoder Phase A, B, Zero and Machine Zero Index. Max frequency 1MHz. 32bit counter
Counter mode	2 blocks of 2 digital inputs can be programmed as pulse and gate counter inputs. Max frequency 1MHz. 32bit counter
Frequency mode	2 digital inputs can be programmed as frequency measurement inputs. Max frequency 20 KHz. Minimum frequency 1 Hz
Digital Outputs	
Number of Channels	12
Type of channel	Source type with feedback of output driver fault status
Output Voltage range	12 - 30Vdc
Nominal Output current	0,5A
Optical isolation	Yes
Output protection	Overcurrent and over temperature protected driver
Analog Inputs	
Number of channels	4 differential or 8 single ended
Description	Individually programmable.
Optical isolation	No
Measurement type	Industry standard voltage or current. Temperature measurement with trasductors such as thermocouples and PT100/ RTD
A/D resolution	12 bits
Accuracy @ 25°C	0,1% typ.
Voltage input range and accuracy	Bipolar: ±100mV 0,1% F.S. ±500mV 0,2 % F.S. ±1V 0,1% F.S. ±5V 0,1% F.S. ±10V 0,1% F.S. Unipolar: 0-1V 0,1% F.S. 0-10V 0,1% F.S.
Voltage Input absolute input range	+/- 15Vdc (Analog ground referenced)
Current input range	0-20mA 4-20mA
Current mode input impedance	200 Ohm
Voltage mode input impedance	10 MOhm
Thermocouple input	E, J, K,R,S,T types
Cold Junction compensation	External with dedicated PT100 input
PT100 (RTD) input	2, 3 or 4 wires transductor interface type with break and short circuit detection
Analog Outputs	
Output channels	4
Analog output type	Voltage or current
Optical isolation	No
D/A Resolution	12 bit
Output voltage type	Single-ended +/-10Vdc
Output voltage load impedance	1 KOhm min.
Output voltage linearity error	0,15%
Output current type	Current source type 0-20mA or 4-20mA
Output current load impedance	470 ohm max.
Output current linearity error	0,2%
Connectors	
Connector Type	Omnimate Range header/plugs 3,5mm – 10 contacts (two pieces terminal blocks
Removable Plug Connector	Spring type contact Part number: 1691190000 BLZF 3.50/10/180F SN BK BX
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
DNV	DNV Type Approval Certificate
ATEX	Zone 2/22 II 3G Ex nA IIC T4 Gc 0<Tamb<+50°C II 3D Ex tc IIIC T105°C Dc
IECEx	Zone 2/22 Ex nA IIC T4 Gc 0<Tamb<+50°C Ex tc IIIC T105°C Dc
UL	UL508 Listed Haz. Loc. Class I, Division 2, Groups A,B,C and D.

Dimensions



Ordering Information

Model	Part Number	Description
PLIO03	+PLIO03U0P1	Multifunction I/O Module. 20 DI, 12 DO, 4 AI, 4 AO