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Process displays

For standard signals, temperature, strain gauge

PA418



PA418 - Process display

Features

- **Inputs: Voltage ±10 V / current ±20 mA / thermocouples J,K,T,Pt100 / strain gauge / potentiometer**
- **Programmable characteristic curve with 11 control points**
- **Three programmable control inputs**
- **Min, Max, Tare functions**
- **Display stabilization filter**
- **Analog output 4…20 mA or 0…10 V**
- **Interface RS232 or RS485**
- **LED display, 5-digits, 3 colors**
- **DIN housing 96 x 48 mm**

Technical data - electrical ratings

Voltage supply	85...265 VAC (50/60 Hz) or 100...300 VDC 21...53 VAC (50/60 Hz) or 10.5...70 VDC
Power consumption	8 W
Sensor supply	5 V ±0.5 V / max. 60 mA 10 V ±0.5 V / max. 60 mA 24 VDC ±5 V / 60 mA
Display	LED, 7 segments, 3 colors - red, green, amber (with 100 unit stickers for front)
Number of digits	5-digits + activity indicator
Digit height	14 mm
Display range	-19999...19999 ("OuE" to signal overflow)
Display refresh	50 ms (current, voltage, strain gauge) 100 ms (thermocouple J,K,T) 250 ms (temperature Pt100)
Function	Digital display of 1 analog measured value, With Min/Max memory and tare function
A/D transformer	Principle ∑Δ Resolution 16 bit Measuring rate 20/s Measuring accuracy ±(0.1 % +3-digit) Temp. coeffic. 100 ppm/°C
Analog input	Current, voltage, potentiometer, temperature, strain gauge
Programmable parameters	Analog input Measuring range Display intensity Display color Display range can be linearised Decimal point Relay outputs with time delay or hysteresis

Technical data - electrical ratings

Limits	Without, 2, 4
Control inputs	3 inputs NPN, max. 40 V (20 mA)
Control functions	15 programmable functionalities
Data memory	>10 years in EEPROM
Outputs electronic	Optocoupler
Outputs relay	2x change-over contact, floating, or 4x normally open
Interfaces	RS232, RS485
Profiles	ASCII, ISO1745, Modbus RTU
Transmission rate	=19.2 kBaud
Standard DIN EN 61010-1	Protection class II Overvoltage category II Pollution degree 2
Emitted interference	DIN EN 61000-6-3
Interference immunity	DIN EN 61000-6-2

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Part number

PA418. [ ][ ][ ][**AX01**]

Voltage supply
- 4 85...265 VAC and 100...300 VDC
- 5 21...53 VAC and 10.5...70 VDC

Relay outputs / Analog output
- 0 Without outputs
- 1 Two relay outputs
- 2 Four relay outputs
- 3 Four electronic outputs PNP
- 5 Analog output 4...20 mA
- 6 Two relay outputs and analog output 4...20 mA
- 7 Four relay outputs and analog output 4...20 mA
- 8 Four electronic outputs PNP and analog output 4...20 mA
- A Analog output 0...10 V
- B Two relay outputs and analog output 0...10 V
- C Four relay outputs and analog output 0...10 V
- D Four electronic outputs PNP and analog output 0...10 V

Interface
- 0 Without interface
- 1 RS485
- 2 RS232

Accessories

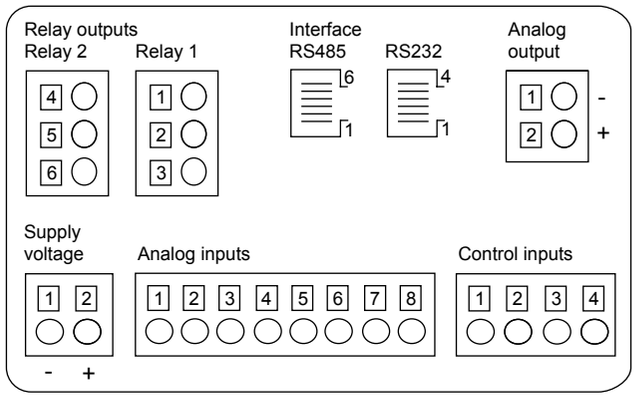
Mounting accessories

ZPA4.001	Accessory for DIN rail mounting (ZPA4.001)

Technical data - mechanical design

Ambient temperature	-10...+60 °C
Storage temperature	-25...+85 °C
Relative humidity	95 % non-condensing
Connection	Spring-loaded terminal connector, detachable
Core cross-section	1 mm² (Grid 5.08) 2.5 mm² (Grid 7.62)
Protection DIN EN 60529	IP 65 (face)
Operation / keypad	Membrane with softkeys
Housing type	Built-in housing
Dimensions W x H x L	96 x 48 x 96 mm
Cutout dimensions	92 x 45 mm (+0.3)
Mounting depth	83 mm
Mounting type	Front panel installation by clip frame
Weight approx.	160 g
Material	Housing: Polycarbonate, UL 94V-0

Connection diagram



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Inputs and outputs

Analog input

Input	Range	Resolution	Specification
Current	±20 mA	10 µA	Input resistance 12 Ω
Voltage	±10 V	0.5 mV	Input resistance 1 MΩ
Potentiometer voltage*	Max. ±10 V		Input resistance 1 MΩ
Strain gaug	±15 mV, ±30 mV, ±150 mV	1 µV	Input resistance 100 MΩ
Temperature Pt100	Offset programmable -9.9...99 °C Measuring current <1 mA	1 or 0.1 °C/°F	Line resistance max. 40 Ω
Thermocouple J,K,T	Cold junction compensation -10...+60 °C Offset programmable -9.9...99 °C	1 or 0.1 °C/°F	

*Minimum potentiometer value: 200 Ω

Temperature range thermo sensor

Temperature	Thermocouple J	Thermocouple K	Thermcouple T	Pt100
Degrees Celsius	-50...+850 °C	-50...+1250 °C	-200...+400 °C	-100...+800 °C
Degrees Fahrenheit	-58...+1562 °F	-58...+2282 °F	-328...+752 °F	-148...+1472 °F

Relay outputs

Relay	Switching voltage max.	Switching current max.	Switching performance max.
2x changeover	250 VAC / 110 VDC	1 A	150 VA / 30 W
4x normally open	250 VAC / 50 VDC	0.2 A	30 VA / 6 W

Electronic outputs

Outputs	Switching voltage max.	Switching current max.	
PNP	50 VDC	50 mA	

Analog output

Output	Range	Resolution	Load resistance
Current	4...20 mA	13 bit	Max. 500 Ω
Voltage	0...10 V	13 bit	Min. 10 kΩ

Scaling configurable relating to value display, accuracy ±0.1 %, transformation 20/s

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Terminal assignment

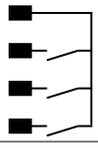
Inputs

Voltage supply

Terminal	Assignment
1	Supply voltage -
2	Supply voltage +

Control inputs

Terminal	Assignment
1	Common
2	Tare*
3	Reset Tare*
4	Hold*



* Default; more functionality assignment options in programming level.

Analog inputs / process

Terminal	Assignment
1	Sensor supply -
2	Sensor supply +24 V
3	Sensor supply +5 V / +10 V
4	n.c.
5	Current input +
6	Voltage input +
7	n.c.
8	Current / voltage -

Analog inputs / strain gauge

Terminal	Assignment
1	Sensor supply -
2	n.c.
3	Sensor supply +5 V / +10 V
4	n.c.
5	n.c.
6	n.c.
7	Input mV +
8	Input mV -

Analog inputs / Pt100 / thermocouple J,K,T

Terminal	Assignment Pt100	Thermocouple
1	n.c.	n.c.
2	n.c.	n.c.
3	n.c.	n.c.
4	Pt100	n.c.
5	n.c.	n.c.
6	n.c.	n.c.
7	Pt100	Thermocouple +
8	Pt100 Common	Thermocouple -

Analog inputs / potentiometer

Terminal	Assignment
1	Sensor supply -
2	n.c.
3	Potentiometer +
4	n.c.
5	n.c.
6	Potentiometer out
7	n.c.
8	Potentiometer -

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Terminal assignment

Outputs

Analog output

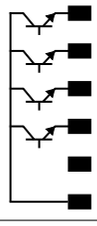
Terminal	Assignment
1	(-) 4...20 mA / 0...10 V
2	(+) 4...20 mA / 0...10 V

Interface

Terminal	Assignment RS232	RS485
1	n.c.	–
2	TxD	n.c.
3	RxD	T,R B
4	GND	T,R A
5	–	GND
6	–	–

Limit outputs / electronic PNP outputs

Terminal	Assignment
1	Opto-output 1
2	Opto-output 2
3	Opto-output 3
4	Opto-output 4
5	n.c.
6	Max. +50 VDC



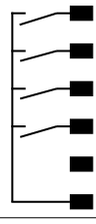
Limit outputs / two relays

Terminal	Assignment
1	Normally open
2	Changeover
3	Normally closed
4	Normally open
5	Changeover
6	Normally closed



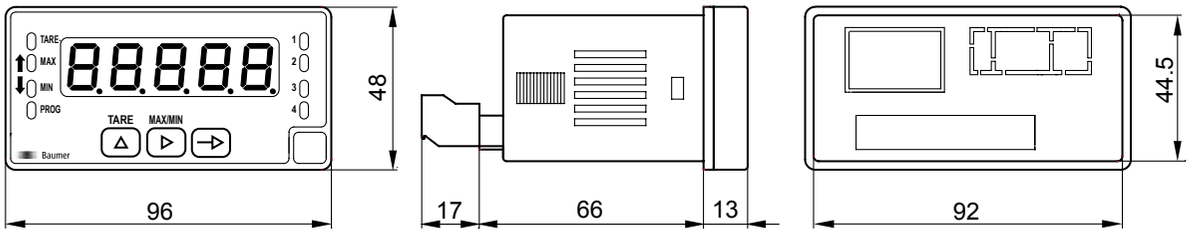
Limit outputs / four relays

Terminal	Assignment
1	Normally open 1
2	Normally open 2
3	Normally open 3
4	Normally open 4
5	n.c.
6	Common

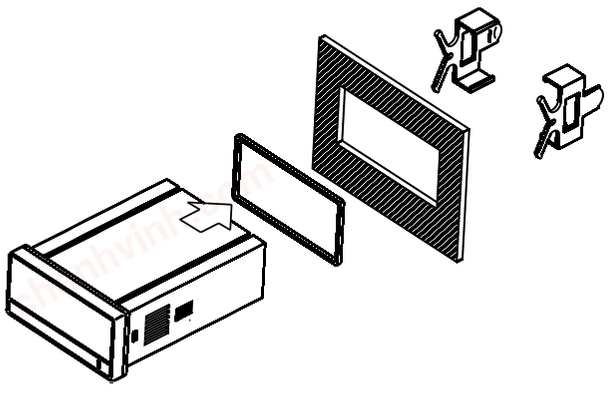


Dimensions

PA418 - without clip frame



PA418 - clip frame mounting



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