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Process displays
For standard signals

PA420



PA420 - Process display

Features

- **Inputs: Voltage ±1 V, ±10 V / current ±1 mA, ±20 mA / potentiometer**
- **Totaliser, batch counter**
- **Volume calculation functions**
- **Programmable characteristic curve with 30 control points**
- **Min, Max, Tare functions**
- **4 programmable control inputs**
- **Analog output 4…20 mA or 0…10 V**
- **Interface RS232 or RS485**
- **LED dispaly, 5-digits**
- **DIN housing 96 x 48 mm**

Technical data - electrical ratings

Voltage supply	24/115/230 VAC ±10 % (50/60 Hz) 10...30 VDC
Power consumption	15 VA, 10 W
Sensor supply	5 V or 10 V / max. 120 mA 24 VDC ±25 % / max. 30 mA
Display	LED, 7-segment display (with 100 unit stickers for front)
Number of digits	5-digits + activity indicator
Digit height	14 mm
Display range	-32000...32000 ("oUFLo" to signal overflow)
Display refresh	60 ms
Function	Digital display of 1 analog measured value With Min/Max memory and tare function Volume calculation functions Totaliser and batch counter
A/D transformer	Principle ∑Δ Resolution 24 bit Measuring rate 18/s Temp. coeffic. 100 ppm/°C
Analog input	Current, voltage, potentiometer
Programmable parameters	Measuring range Display range can be linearised Decimal point Relay or electronic outputs with time delay or hysteresis Analog output Analog input Volume calculation Display-smoothing filter
Control inputs	4 inputs NPN, max. 40 V (20 mA)
Control functions	36 programmable functions
Data memory	>10 years in EEPROM

Technical data - electrical ratings

Outputs electronic	Optocoupler PNP (optional)
Analog output	Current or voltage
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

PA420. [ ][ ][ ][**AX01**]

Voltage supply
- 1 24 VAC
- 3 115 VAC
- 4 230 VAC
- 5 10...30 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 / 0...10 V
- 6 Two relay outputs and analog output 4...20 mA / 0...10 V
- 7 Four relay outputs and analog output 4...20 mA / 0...10 V
- 8 Four electronic outputs PNP and analog output 4...20 mA / 0...10 V

Interface
- 0 Without interface
- 1 RS485
- 2 RS232

Accessories

Mounting accessories

ZPA4.002	Accessory for DIN rail mounting

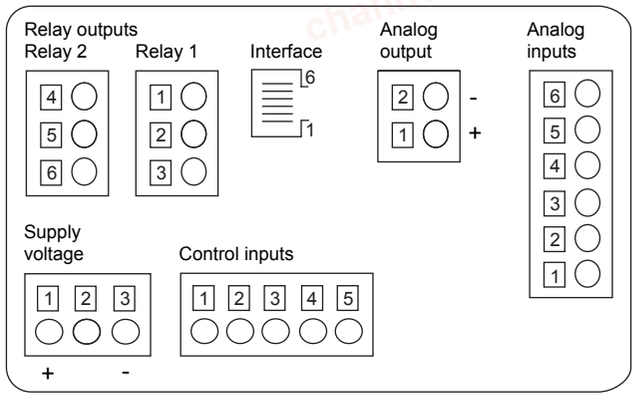
Connectors and cables

ZPA4.102	Cable RS232, RJ9 - SUB-D 9, 2 m
ZPA4.104	Cable RS485, RJ11 - RJ11, 2 m

Technical data - mechanical design

Ambient temperature	-10...+60 °C
Storing temperature	-25...+85 °C
Relative humidity	95 % non-condensing
Connection	Sping-lodaded 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 127 mm
Cutout dimensions	92 x 45 mm (+0.3)
Installation depth	150 mm
Mounting	Front panel installation by clip frame
Weight approx.	600 g
Material	Housing: Polycarbonate, UL 94V-0

Connection diagram



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Inputs and outputs

Analog input

Input	Range	Resolution	Specification
Current	±1 mA / ±20 mA	0.1 µA	Input resistance 15 Ω
Voltage	±1 V / ±10 V	0.1 mV	Input resistance 1 MΩ
Potentiometer voltage*	Max. ±10 V		Input resistance 1 MΩ

*Minimum potentiometer value: 200 Ω

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	12 bit	Max. 500 Ω
Voltage	0...10 V	12 bit	Min. 10 kΩ
Scaling configurable relating to value display, accuracy ±0.1 %, transformation 18/s			

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Terminal assignment

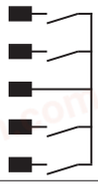
Inputs

Supply voltage

Terminal	Assignment VAC	Assignment VDC
1	Supply voltage +	+
2	Ground	n.c.
3	Supply voltage -	–

Control inputs

Terminal	Assignment
1	Reset*
2	Hold*
3	Common
4	Tare*
5	Min - Max*



* Default; more functionality assignment options in programming level.

Analog inputs / process

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

Outputs

Analog output

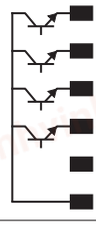
Terminal	Assignment
1	(+) 4...20 mA / 0...10 V
2	(–) 4...20 mA / 0...10 V

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	–	–

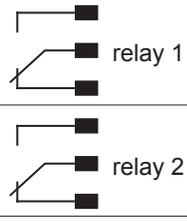
Limit outputs / electronic PNP outputs

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



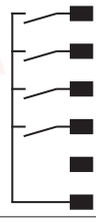
Limit output / two relays

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



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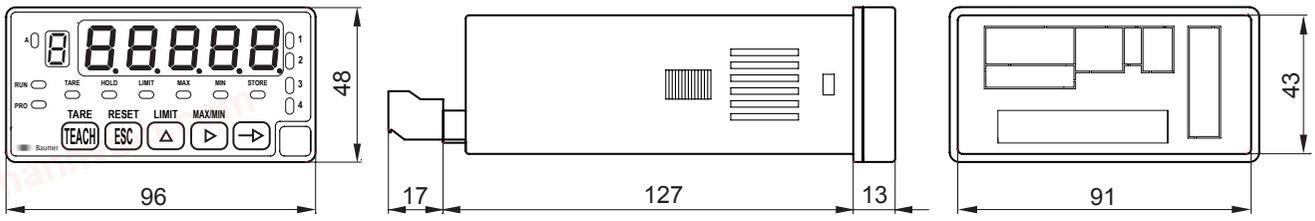
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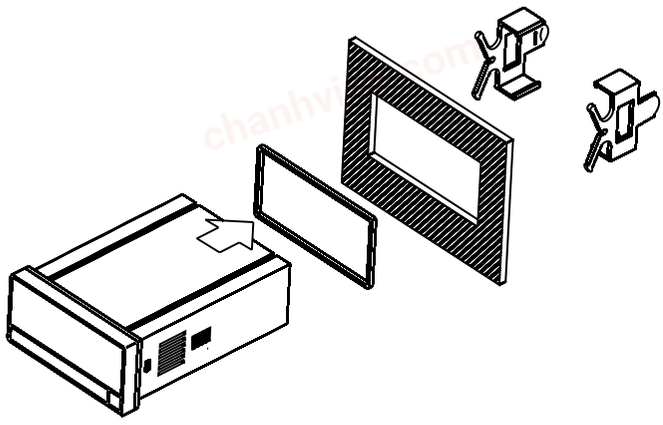
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Dimensions

PA420 - without clip frame



PA420 - clip frame mounting



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