Universal display PAX2A

- Universal AC and DC power supply unit
- Integrated USB programming port / free software
- Universal input for current, voltage, thermocouples, Pt100 and potentiometers
- Free scaling with 16-step linearization
- 2-line backlit LCD display
- front side protection class IP65
- Easily programmable via front keys
- Minimum and maximum value memory, summation function
- Display of a physical unit of measurement possible

https://www.wachendorff-prozesstechnik.de/en/PAX2A

Description

The new PAX2A was developed on the basis of the previous PAX series, which is particularly characterized by its robustness, durability and flexibility.
The 2-line, three-color backlit LCD display shows, for example, the process value in the upper area and has the option of displaying, for example, a totalized value or an alarm value in the lower area. The flexible color selection in the upper display, which also changes with alarm values, ensures that the values are displayed appropriately. In addition to the universal input for current, voltage, process signals, thermocouples and Pt100, the universal AC/DC power supply ensures that the PAX2 can be used in almost all applications. This is supported by the expansion with optional plug-in cards (serial interface up to Profibus DP, analog output, limit values). Functions such as minimum and maximum value memory, integration over time and taring are just as much a matter of course as the programming lock and definition of user rights.
The high sampling rate of up to 160 measurements/second, coupled with the integrated USB interface for programming, makes the PAX2 one of the most modern displays on the market.

Product details

Entrance area:	Current: +/- 250 µADC, +/- 2.5 mA, +/- 25mA, +/-250 mA, +/- 2A, Voltage: +/- 250 mVDC, +/- 2.0 V, +/- 10V, +/-25 V, +/- 100 V, +/- 200 V Thermocouples: T, E, J, K, R, S, B, N, C (W5/W26) Pt100: 3- or 4-wire, 2-wire: compensated Potentiometer: 100 Ohm, 1000 Ohm, 10 KOhm
Display:	Backlit dimmable LCD display Upper line: 6-digit, three-color (red, green, orange) with 18 mm digits Lower line: 9-digit, green with 8.9 mm digits
Physical unit:	A physical 3-digit (red, green or orange) unit can be easily programmed from a list.
Indicators:	Four red backlit indicators for switching outputs.
Keyboard:	4 buttons, whereby 2 buttons are freely programmable function buttons are freely programmable function keys.
Resolution:	24 bits of the internal A/D converter.
Update rates:	A/D conversion rate: programmable from 5 to 160 measurements/sec. Display update: 1 to 20 updates/sec. Switching output: delay time from 0 sec. to 3275 sec. Analog output: update time from 0 sec. to 10 sec.
Error messages:	"OLOL" - input signal is greater than the + signal range "ULUL" - input signal is smaller than the - signal range "Short" - sensor short circuit is present (Pt100 only) "OPEN" - sensor break is present "...." - Display value exceeds upper display value "-....." - Display value falls below lower display value
Data backup:	FRAM
Entrance areas:	The accuracy in the range table (see drawings) is given as a percentage of the display value. The protection corresponds to the max. permissible input signal. Range adjustable via jumper.
Sensor supplies:	• **Ext. sensor supply:** +18 VDC @ 50 mA • **Reference voltage:** +2 VDC, ±2 % Correspondence: 1 k load min. (2 mA max.) Temperature coefficient: 40 ppm/°C max. • **Reference current:** 1.05 mA, ±2 % Correspondence: 10 k load max. Temperature coefficient: 40 ppm/°C max.

User input:	Two programmable user inputs NPN or PNP switching, response time: 12 msec. for activation or deactivation, max. input signal deactivation, max. input signal: 30 VDC NPN switching (20 kOhm pull-up resistor to +3.3 V: Active at Vin <,1.1 V; Inactive at Vin >2.3 V PNP switching (20 kOhm pull-down resistor): Active at Vin >2.3 V; Inactive at Vin <.1.1 V
Sum function:	Time base: second, minute, hour or day Batch counter: Summation of the display value via user input Time accuracy: 0.01 % typical Scaling factor and decimal point freely programmable; low signal suppression.
Programming:	Programming is carried out either via the integrated USB interface and the free Crimson 2 programming software or via the four front buttons. The simple and logically structured menu navigation allows very fast commissioning. In addition, access rights can be assigned, e.g. quick access to the switching points can be enabled. The Crimson 2 software is available as a free download.
Protection class:	Jet-proof and dust-tight to IP65 from the front. Rear protection class IP20.
Power supply:	50 VAC to 250 VAC, 50/60 Hz, 14 VA or 21.6 VDC to 250 VDC, 8 W
Housing:	Black, impact-resistant plastic housing made from a single cast. The electronic slot can be pulled out to the rear. The plug-in cards can be installed very easily.
Connection:	Via screw terminals.
Relative humidity:	max. 85%. rH, non-condensing.
Ambient temperature:	Operation: 0 °C to +50 °C. With all 3 cards fitted: 0 °C to 45 °C. Storage: -40 °C to +60 °C.
Dimensions:	W 97 mm x H 50 mm x D 105 mm
Panel cut-out:	according to DIN 92 mm x 45 mm.
Fastening:	via mounting frame with clamping screws.
Weight:	approx. 227 g.
Scope of delivery:	Device, fixing material, seal, operating instructions.
Customs tariff number:	9030 33 20
Manufacturer:	Red Lion, USA
Output cards:	The device can be easily upgraded with various output cards. output cards. Each device can be equipped with a maximum of one interface card, one relay or transistor output card and one analog output card. You can easily install the cards yourself.

Pluggable interface card:	1. half-duplex RS232, programmable (terminal strip or plug). 2. multipoint RS485, programmable (terminal strip or plug). 3. DeviceNet, programmable. 4. PROFIBUS-DP, programmable.
Pluggable relay output cards:	• 2 x relay changeover contact 5 A at 120/240 VAC or 28 VDC (ohmic load), at 120 VAC (80 VA inductive load). Service life of the relays is 100,000 cycles at max. load. The service life increases with lower loads. • 4 x NO relay 3 A at 240 VAC or 30 VDC (resistive load), at 120 VAC (80 VA inductive load). Service life of the relays is 100,000 cycles at max. load.
Pluggable transistor output cards:	• 4 x NPN-OC transistors: max. 100 mA at Vsat = 0.7 V, Vmax 30 V, galvanic isolation of 500 V from the signal input. • 4 x PNP-OC transistors: Internal supply: 24 VDC +/-10%, max. 30 mA all 4 transistors. External supply: max. 30 VDC, 100 mA for each individual transistor.
Pluggable analog output card:	Selectable output signal: 0/4 mA to 20 mA, 0 VDC to 10 VDC. Digitally scalable, offset. Accuracy: 0.17 % of range at 18 °C to 28 °C operating temperature, 0.4 % of range at 0 °C to 50 °C operating temperature. Resolution 1/3500. Voltage: 10 VDC (500 Ohm max. load). Current: 20 mA (500 Ohm load max.). Galvanically isolated from the signal input up to 500 V.

Drawings

Area table

Strom- oder Spannungseingang, bipolar (+/- DC)

Bereich	Genauigkeit in x,x % der Spanne		Impedanz	Auflösung*
	(+18 °C bis +23 °C)	(0 °C bis +50 °C)		
250 µA	0,03 % + 0,03 µA	0,12 % +0,04 µA	1,11 kΩ	10 nA
2,5 mA	0,03 % +0,3 µA	0,12 % +0,4 µA	111 Ω	0,1µA
25 mA	0,03 % +3 µA	0,12 % +4 µA	11,1Ω	1µA
250 mA	0,05 % +30 µA	0,12 % +40 µA	1,1Ω	10 µA
2 A	0,5 % +0,3 mA	0,7 % +0,4 mA	0,1Ω	0,1 mA
250 mV	0,03 % +30 µV	0,12 % +40 µV	451 kΩ	10 µV
2,0 V	0,03 % +0,3 mV	0,12 % +0,4 µV	451 kΩ	0,1 mV
10 V	0,03 % +3 mV	0,12 % +4 µV	451 kΩ	1 mV
25 V	0,03 % +3 mV	0,12 % +4 µV	451 kΩ	1 mV
100 V	0,3 % +3 mV	0,12 % +40 mV	451 kΩ	10 mV
200 V	0,3 % +30 mV	0,12 % +40 mV	451 kΩ	10 mV

* Höhere Auflösung kann durch die Eingangsskalierung erreicht werden

Thermoelemente

Impedanz: 20 MΩ, Schutz: max. 30 V,
Drahtwiderstandseffekt: 0,03 %V/Ω.

Typ	Sensor	Anzeigebereich	Genauigkeit bei	
			18 bis 28 °C	0 bis 50 °C
T	Cu-CuNi	-200 °C bis+ 400 °C	1,2 °C	2,1 °C
E	NiCr-CuNi	-200 °C bis +750 °C	1,0 °C	2,4 °C
J	Fe-CuNi	-200 °C bis +760 °C	1,1 °C	2,3 °C
K	NiCr-Ni	-200 °C bis +1250 °C	1,3 °C	3,4 °C
R	PtRh 13-Pt	0 °C bis +1768 °C	1,9 °C	4,0 °C
S	PtRh 10-Pt	0 °C bis +1768 °C	1,9 °C	4,0 °C
B	PtRh 30-PtRh 6	+300 °C bis +1820 °C	2,8 °C	4,4°C
N	NiCrSilicon-NiSilicon	-200 °C bis +1300 °C	1,3 °C	3,1 °C
C	W5-W26	0 °C bis +2315 °C	1,9 °C	6,1 °C

Pt 100 Sensoren

2-, 3- oder 4-Draht Anschluss, Schutz: max. 30 V,
Stromversorgung: 100 Ω-Bereich: 165 µA, 10 Ω-Bereich: 2,6 mA,.
Max. Leitungswiderstand: 100 Ω = 10 Ω/Leitungslänge,
10 Ω = 3 Ω/Leitungslänge,

Sensor	Anzeigebereich	Genauigkeit bei	
		18 bis 28 °C	0 bis 50 °C
100 Ohm Pt a = 0,00385 nach DIN 43760	-200 °C bis +850 °C	0,4 °C	1,6 °C
100 Ohm Pt a = 0,00392	-200 °C bis +850 °C	0,4 °C	1,6 °C
120 Ohm Ni, a = 0,00672	-80 °C bis +260 °C	0,2 °C	0,5 °C
10 Ohm Cu, a = 0,00427	-100 °C bis +260 °C	0,4 °C	0,9 °C

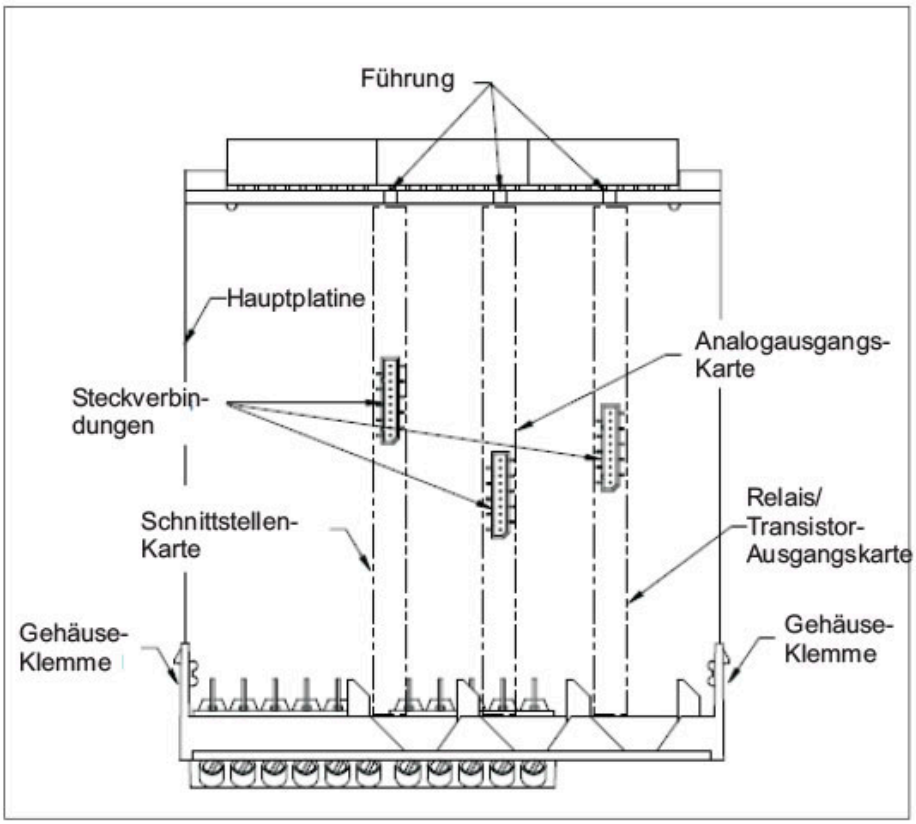
Widerstandseingang

Max. Ständige Überlast: 30 VDC

Bereich	Genauigkeit in x,x % der Spanne		Impedanz	Auflösung*
	(+18 °C bis +23 °C)	(0 °C bis +50 °C)		
100 Ω	0,05 % + 0,03 Ω	0,2 % +0,04 Ω	0,175 V	0,01 Ω
1000 Ω	0,05 % +0,3 Ω	0,2 % +0,4 Ω	1,75 V	0,1 Ω
10 kΩ	0,05 % +1 Ω	0,2 % +1,5 Ω	17,5 V	1 Ω

Drawings

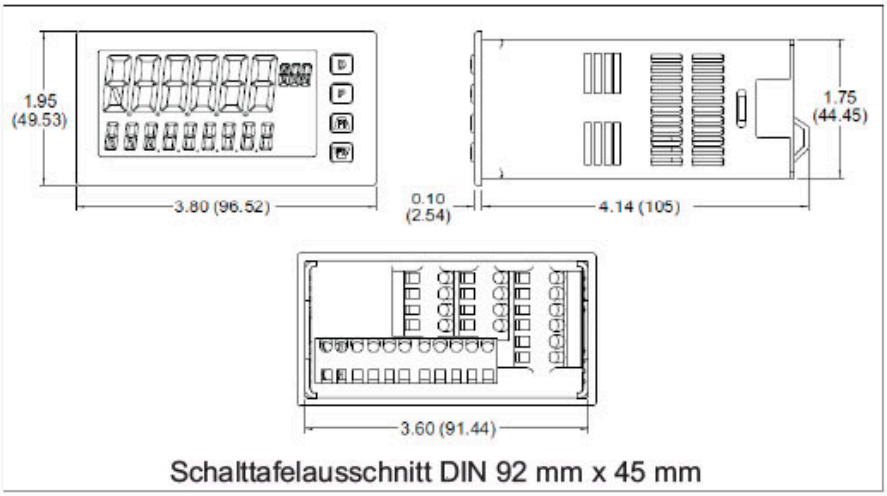
Mechanical structure



Mechanischer Aufbau

Drawings

Dimensions



Abmessungen (in Inch (mm))

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