Temperature/process controller PAX2C

- Universal AC and DC power supply unit
- Integrated USB programming port / free software
- Universal input for current, voltage, thermocouples, Pt100
- Four programmable universal indicators
- 2-line LCD display with unit and bargraph
- 3-color display with 7 programmable color zones
- Front panel protection class IP65
- Up to 16 alarms with Boolean logic functionality

https://www.wachendorff-prozesstechnik.de/en/PAX2C

Description

The new PAX2C universal controller was developed on the basis of the previous PAX series, which is particularly characterized by its robustness, durability and flexibility.
The 2-line, three-colour backlit LCD display shows 2 bargraphs and 4 universal indicators, thus ensuring optimum visualization of the control processes. The flexible color selection in 7 zones, which also changes when alarm values are reached, ensures that the values are displayed appropriately.
In addition to the universal input for current, voltage, thermocouples and Pt100, the universal AC/DC power supply ensures that the PAX2C 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, switching outputs). Functions such as auto-tuning, linearization and the logical linking of up to 16 alarms are just as much a matter of course as the programming lock and definition of user rights.
The high sampling rate of up to 40 measurements/second, coupled with the integrated USB interface for programming, makes the PAX2C one of the most modern controllers on the market.

Product details

Display:	3-color backlit dimmable LCD display. The display is divided into 7 programmable color zones (1st line, 2nd line, 4 universal physical units and indicators). Line, 4 universal physical units and indicators). Upper and lower line each with 4 digits, display range -1999 to 9999, programmable unit (3 digits) and 8-segment bargraph.
Universal indicators:	Up to four programmable indicators with 2 digits each
Status indicators:	MAN: Controller is in manual mode. REM: Controller is in remote mode.
Digit height:	Vertical installation: 1st row: 13 mm, 2nd row: 11.2 mm Horizontal installation: 1st line: 15.7 mm, 2nd line: 12 mm
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 40 measurements/sec, depending on the type of sensor connected. Display update: 1 to 20 updates/sec. Switching output: delay time from 0 to 9,999 seconds Analog output: update time from 0 to 10 seconds
Data backup:	FRAM
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
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% Requirement: 1 k load min. (2m A max.) Temperature coefficient: 40 ppm/° C max. • **Reference current:** 1.05 mA, +/-2% Requirement: 10 k load max. Temperature coefficient: 40 ppm/° C max.
User input:	Two programmable user inputs NPN or PNP switching, max. input signal: 30 VDC **NPN switching** (20 kOhm pull-up resistor to +3.3 V): Active at $_{Vin}$ <1.1 V; Inactive at $_{Vin}$ >2.2 V **PNP switching** (20 kOhm pull-down resistor): Active at Vin >2.2 V; Inactive at $_{Vin}$ <1.1 V

Ambient conditions:	Temperature: 0 °C to +50 °C. Storage: -40 °C to +60 °C. Humidity: max. 85%rh, non-condensing.
Power supply:	40 VAC to 250 VAC, 50/60 Hz, 20 VA or 21.6 VDC to 250 VDC, 8 W
Protection class:	Jet-proof and dust-tight to IP65 from the front. Rear protection class IP20.
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.
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.
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.
Connection:	Via screw terminals.
Weight:	approx. 227 g.
Scope of delivery:	Device, fixing material, seal, operating instructions.
Customs tariff number:	9032 89 00
Manufacturer:	Red Lion, USA.
Output cards:	The device can be upgraded very quickly with various 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. The installation of the cards is simple and intuitive.
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 5. Modbus RTU/ASCII
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 against 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 for 1 min.

Drawings

Area table

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

Bereich	Genauigkeit in x,x % der Spanne		Impedanz	Auflösung*
	(+18 °C bis +28 °C)	(0 °C bis +50 °C)		
250 µA	0,03 % + 0,03 µA	0,12 % +0,04 µA	1,11 kΩ	0,1 µA
2,5 mA	0,03 % +0,3 µA	0,12 % +0,4 µA	111 Ω	1 µA
25 mA	0,03 % +3 µA	0,12 % +4 µA	11,1Ω	10 µA
250 mA	0,05 % +30 µA	0,12 % +40 µA	1,1Ω	0,1 mA
2 A	0,5 % +0,3 mA	0,7 % +0,4 mA	0,1Ω	1 mA
250 mV	0,03 % +30 µV	0,12 % +40 µV	451 kΩ	0,1 mV
2,0 V	0,03 % +0,3 mV	0,12 % +0,4 µV	451 kΩ	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	10 mV
100 V	0,3 % +30 mV	0,12 % +40 mV	451 kΩ	0,1 V
200 V	0,3 % +30 mV	0,12 % +40 mV	451 kΩ	0,1 V

* Höhere Auflösung kann durch die Eingangsskalierung erreicht werden

Thermoelemente

Impedanz: 20 MΩ, Schutz: max. 30 V,
Drahtwiderstandseffekt: 0,03 µV/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: 136,5 µA +/-10 %, 10 Ω-Bereich: 2,05 mA +/-10 %.
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	-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 +259 °C	0,2 °C	0,5 °C
10 Ohm Cu, a = 0,00427	-110 °C bis +260 °C	0,4 °C	0,9 °C

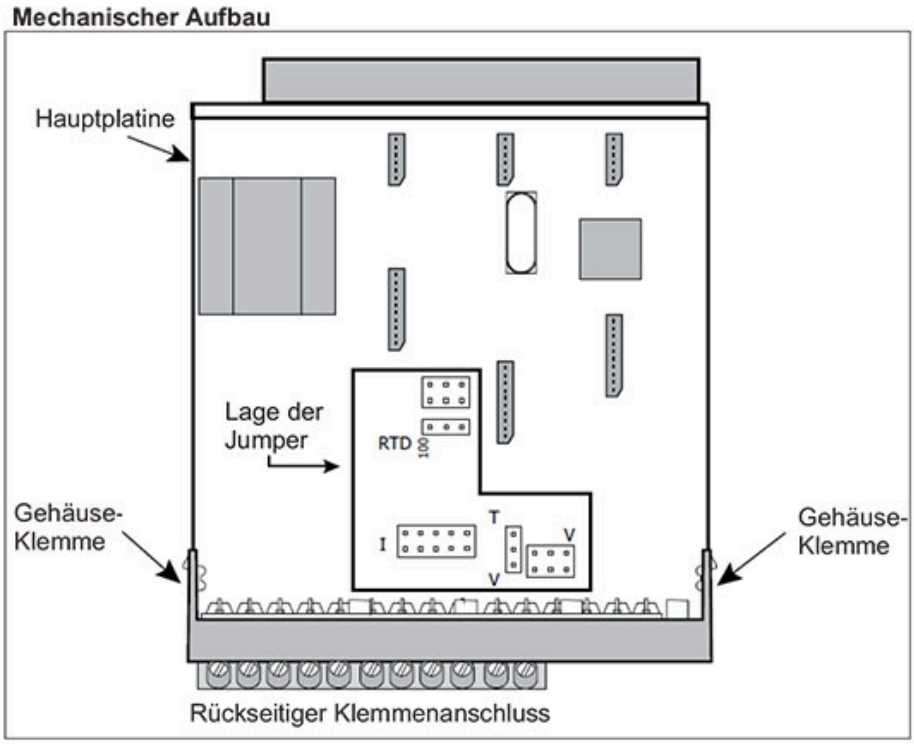
Widerstandseingang

Max. ständige Überlast: 30 VDC

Bereich	Genauigkeit in x,x % der Anzeige		Impedanz	Auflösung*
	(+18 °C bis +28 °C)	(0 °C bis +50 °C)		
100 Ω	0,05 % + 0,03 Ω	0,2 % +0,04 Ω	0,175 V	0,1 Ω
999 Ω	0,05 % +0,3 Ω	0,2 % +0,4 Ω	1,75 V	1 Ω
9999 Ω	0,05 % +1 Ω	0,2 % +1,5 Ω	17,5 V	1 Ω

Drawings

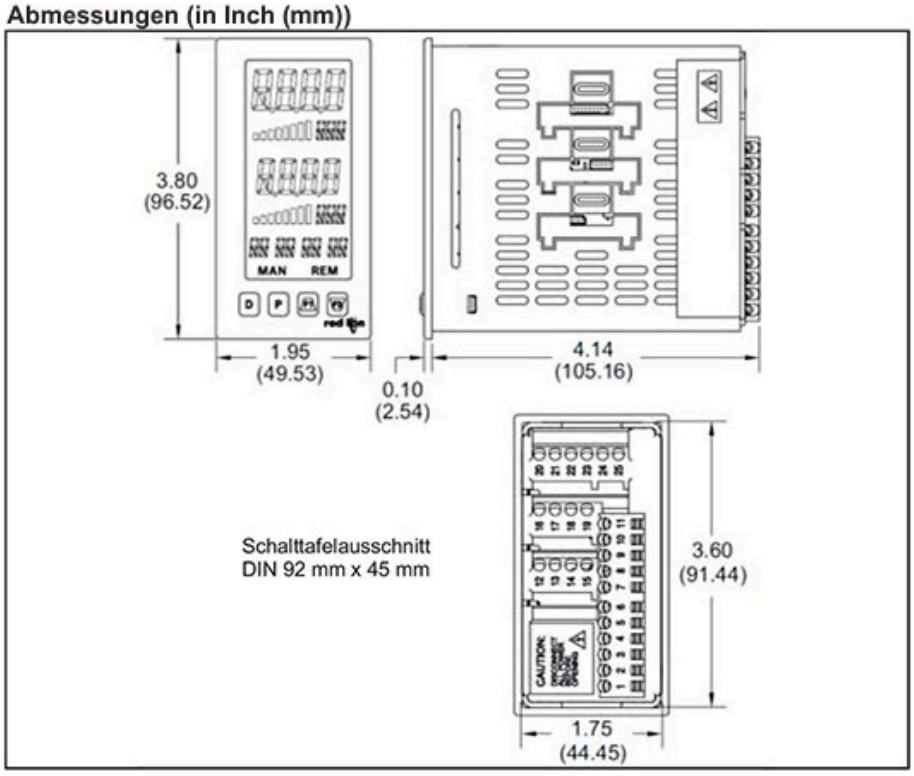
Mechanical structure



Drawings

Dimensions (mm)

Abmessungen (in Inch (mm))



WACHENDORFF
Prozesstechnik GmbH & Co. KG

Wachendorff Prozesstechnik GmbH & Co. KG
Industriestrasse 7 • 65366 Geisenheim
Germany

Phone: +49 (0) 67 22 / 99 65 - 20
E-Mail: wp@wachendorff.de
www.wachendorff-prozesstechnik.de