

# DIGITAL ANZEIGE

for Industry Applications



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## Series PAXP, PAXDP

### Key-Features:

- 1 channel model PAXP and 2 channel model PAXDP
- 5 digits, 14 mm high LEDs, annunciators
- Input signal 4...20 mA and 0...10 VDC
- 20 measurements/s (PAXP)
- 5.3 to 105.3 measurements/s, selectable (PAXDP)
- 2, resp. 3 programmable user inputs
- Protection class IP65
- Working temperature 0 to 50 °C,
- Easy programming directly, or via PC
- Plug-in output-cards: analog, USB, Relay (thresholds), Transistor, RS232, Profibus
- Summation, min-/max value display
- 16 point scaling
- two galvanically isolated input channels (PAXDP)

## TECHNICAL DATA

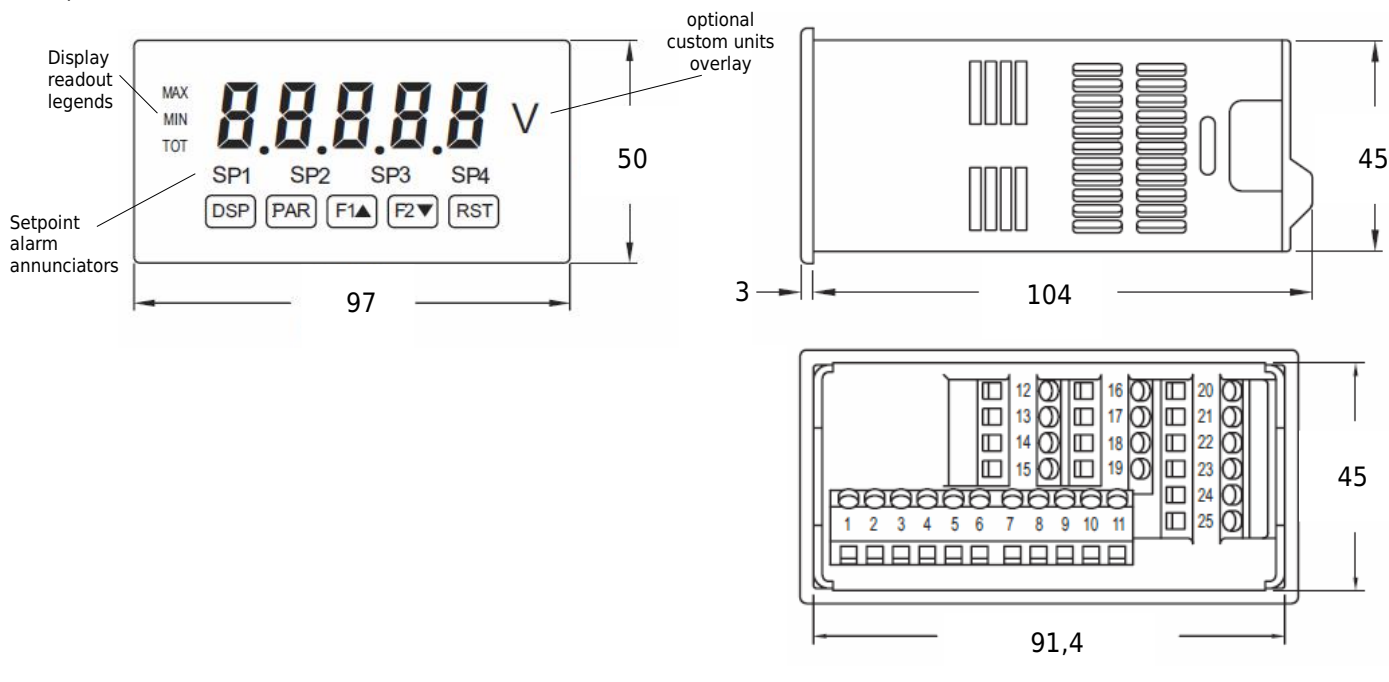
Display		5 digits, 14 mm high, red LEDs
Panel cut-out	[mm]	92 x 45
Annunciators PAXP		MAX, MIN, TOT (sum), SP1, SP2, SP3, SP4 (the respective output SP is active)
Annunciators PAXDP		A, B, C (respective programmable display of the channel), SP1, SP2, SP3, SP4 (the respective output is active)
Programmable user inputs		3 (PAXP), 2 (PAXDP), logic state: jumper selectable for sink/source logic
Sensor inputs PAXP	[mA] [VDC]	20 (-2 to 26), accuracy (18-28 °C): 0.03% of reading, display resolution 1 µA 10 (-1 to 13), accuracy (18-28 °C): 0.03% of reading, display resolution 1 mV
Sensor inputs PAXDP	[mA] [VDC]	20 (-26 to 26), accuracy (18-28 °C): 0.03% of reading, display resolution 1 µA 10 (-13 to 13), accuracy (18-28 °C): 0.03% of reading, display resolution 1 mV
Output signal (via plug-in cards)		Relay output, transistor output, analog output
Serial Interfaces (via plug-in cards)		USB port (programmable), RS485, RS232, Profibus
Supply voltage PAXP000B, PAXDP00B	[VDC]	85...250
Supply voltage PAXP001B, PAXDP01B	[VDC]	11...36
Update rates A/D conversion PAXP		20 readings/sec. 16 Bit resolution
Update rates A/D conversion PAXDP		5.3 to 105.3 readings/sec selectable, 16 Bit resolution
Sensor supply PAXP (transmitter power)	[VDC]	24, ±5%, regulated, max. 50 mA
Sensor supply PAXDP (transmitter power)	[VDC]	18, ±20%, not regulated, max. 90 mA per input channel
Update rates display PAXP	[ms]	200 to within 99% of final readout value, max. 700
Update rates display PAXDP	[ms]	60 to within 99% of final readout value, max. 770
Protection class		IP65 (face only)
Humidity		max. 85%, no condensation
Working temperature	[°C]	0...+50, unit supplier with 3 plug-in cards: 0...+45
Housing		Plastics, 97 mm x 50 mm x 104 mm
Weight	[g]	300, unit only without plug-in cards
Electromagnetic compatibility		conform to CE , EN 50081-2, EN50082-2, EN61326:2006
Delivery		Display, mounting material, sealing, manual

## FUNCTIONS

	PAXP	PAXDP
Scaling	■	■
Linearisation	■	■
Totaliser	■	■
Minimum- and Maximum value display	■	■
Mathematics function		■
Tara	■	■
Alarm	optional	optional
Scaling via applying a signal	■	■
Programming mode lock-out	■	■
Password protection	■	■
Programming with software	■	■

# TECHNICAL DRAWING

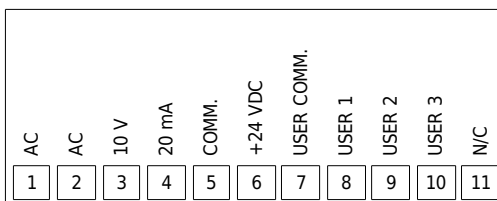
## PAXP, PAXDP



# ELECTRICAL CONNECTION PAXP

## Assignment PAXP

1	AC / +DC	PAXP0000: 85 - 250 VAC PAXP0010: 11 - 36 VDC, resp. 24 VAC
2	AC / -DC	PAXP0000: 85 - 250 VAC PAXP0010: 11 - 36 VDC, resp. 24 VAC
3	10 V	Voltage signal
4	20 mA	Current signal
5	COMM.	GND signal input
6	+24 VDC	Sensor supply 24 VDC/50 mA
7	USER COMM.	GND user input
8	USER 1	User input 1
9	USER 2	User input 2
10	USER 3	User input 3
11	N/C	Not connected

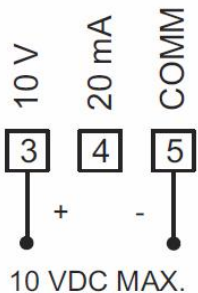


Connections PAXP

**Caution:** Sensor input common is NOT isolated from user input common. In order to preserve the safety of the meter application, the sensor input common must be suitably isolated from hazardous live earth referenced voltages; or input common must be at protective earth ground potential. If not, hazardous live voltage may be present at the User Inputs and User Input Common terminals. Appropriate considerations must then be given to the potential of the user input common with respect to earth common; and the common of the isolated plug-in cards with respect to input common.

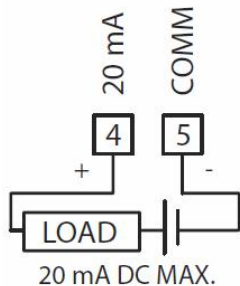
### Voltage Signal (self powered)

Terminal 3: +VDC  
Terminal 5: -VDC



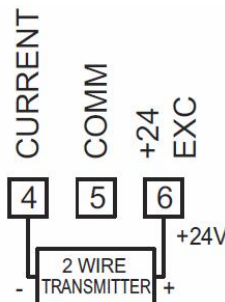
### Current Signal (self powered)

Terminal 4: +ADC  
Terminal 5: -ADC



### Current Signal (2 wire requiring excitation)

Terminal 4: -ADC  
Terminal 6: +ADC

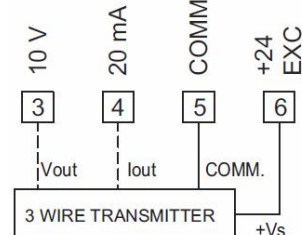


### Current Signal (3 wire requiring excitation)

Terminal 4: +ADC (Signal)  
Terminal 5: -ADC (Common)  
Terminal 6: +Volt Supply

### Voltage Signal (3 wire requiring excitation)

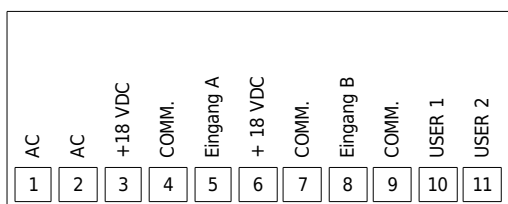
Terminal 3: +VDC (Signal)  
Terminal 5: -VDC (Common)  
Terminal 6: + Volt Supply



# ELECTRICAL CONNECTION PAXDP

## Assignment PAXDP

1	AC / +DC	PAXP0000: 85 - 250 VAC PAXP0010: 11 - 36 VDC, resp. 24 VAC
2	AC / -DC	PAXP0000: 85 - 250 VAC PAXP0010: 11 - 36 VDC, resp. 24 VAC
3	+18 VDC	Sensor supply channel A
4	COMM.	GND channel A
5	Input A	Input channel A
6	+18 VDC	Sensor supply channel B
7	COMM.	GND channel B
8	Input B	Input channel B
9	USER 1	User input 1
10	USER 2	User input 2
11	COMM.	GND user input



Connections PAXDP

## Setting the Jumpers

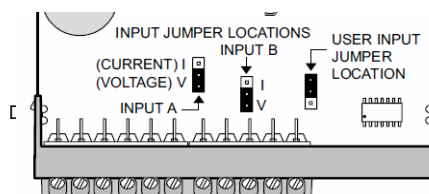
The meter has three jumpers that must be checked and/or changed prior to applying power. To access the jumpers, remove the meter base from the case by firmly squeezing and pulling back on the side rear finger tabs. This should lower the latch below the case slot (which is located just in front of the finger tabs). It is recommended to release the latch on one side, then start the other side latch.

### Input Jumpers

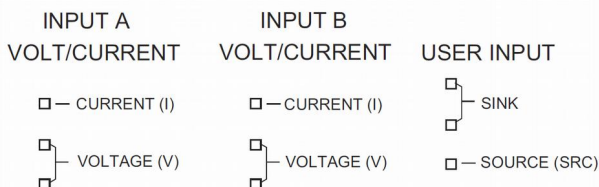
These jumpers are used to select the proper input types, Voltage (V) or Current (I). The input type selected in programming must match the jumper setting.

### User Input Logic Jumper

This jumper selects the logic state of all the user inputs. If the user inputs are not used, it is not necessary to check or move this jumper.

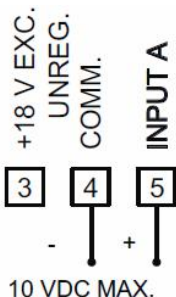


The indicates factory setting.



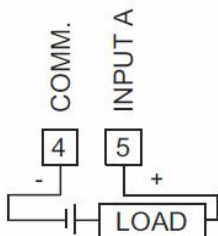
### Input A: Voltage Signal (self powered)

Terminal 4: -VDC  
Terminal 5: +VDC



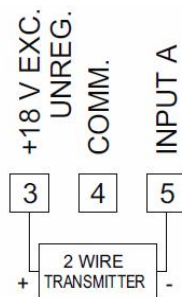
### Input A: Current Signal (self powered)

Terminal 4: -ADC  
Terminal 5: +ADC



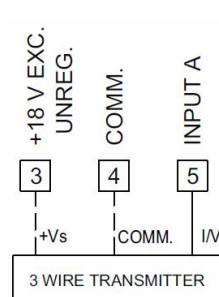
### Input A: Current Signal (2 wire requiring excitation)

Terminal 3: +ADC  
Terminal 5: -ADC



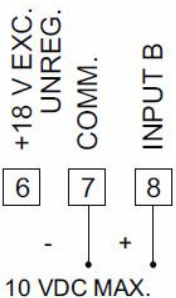
### Input A: Voltage/Current Signal (3 wire requiring excitation)

Terminal 3: +VOLT Supply  
Terminal 4: -ADC (Common)  
Terminal 5: +ADC (Signal)



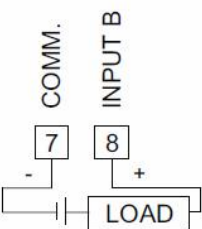
### Input B: Voltage Signal (self powered)

Terminal 7: -VDC  
Terminal 8: +VDC



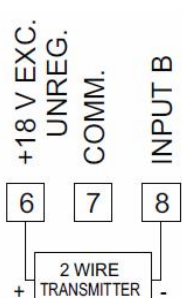
### Input B: Current Signal (self powered)

Terminal 7: -ADC  
Terminal 8: +ADC



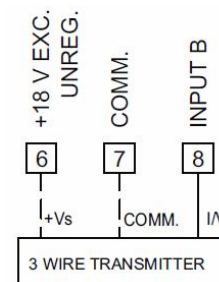
### Input B: Current Signal (2 wire requiring excitation)

Terminal 6: +ADC  
Terminal 8: -ADC



### Input B: Voltage/Current Signal (3 wire requiring excitation)

Terminal 6: +VOLT Supply  
Terminal 7: -ADC (Common)  
Terminal 8: +ADC (Signal)



**CAUTION:** Sensor Input B common is NOT isolated from user input common. In order to preserve the safety of the meter application, the sensor input common must be suitably isolated from hazardous live earth referenced voltages; or input common must be at protective earth ground potential. If not, hazardous live voltage may be present at the User Inputs and User Input Common terminals. Appropriate considerations must then be given to the potential of the user input common with respect to earth common; and the common of the isolated plug-in cards with respect to input common.

## PLUG-IN CARDS

The display can be fitted with up to three optional plug-in cards. The details for each plug-in card can be reviewed in the specification section below. Only one card from each function type can be installed at one time. The plug-in cards can be installed initially or at a later date.

### **Analog Output Card (retransmitted linear DC output): PAXCDL10**

- Types: 0 to 20 mA, 4 to 20 mA, or 0 to 10 VDC.
- Isolation to sensor + user input commons: 500 Vrms for 1 min., working range 50V, not isolated from all other commons.
- Accuracy: 0.17 % of FS (10 to 28 degree Celsius), 0.4% (0 to 50 degree Celsius)
- Resolution 1/3500
- Compliance: 10 VDC, 10 kOhm load min., 20 mA, 500 Ohm max. load

### **Setpoint Alarm Output Cards**

#### Quad sourcing open collector card: PAXCDS40

- 4 isolated sourcing x PNP transistors
- Internal supply: 24 VDC +/- 10%, 30 mA max. total
- Isolation to sensor + user input commons: 500 Vrms for 1 min., working range 50V, not isolated from all other commons.
- External supply: 30 VDC max., 100 mA max. each output

#### Quad sinking open collector card: PAXCDS30

- 4 isolated sinking x NPN transistors
- Isolation to sensor + user input commons: 500 Vrms for 1 min., working range 50V, not isolated from all other commons.
- Rating: 100mA max. at  $V_{sat}=0,7 V_{max}$ ,  $V_{max}$ : 30V

#### Dual relay card: PAXCDS10

- 2 x FORM-C relays, 5 A at 120/240 VAC or 28 VDC (Ohm load) at 120 VAC (80 VA inductive load)
- Life expectancy: 100.000 cycles min. at full load.

#### Quad relay card: PAXCDS20

- 4 x FORM-A relays, 3 A at 250 VAC or 30 VDC (Ohm load) at 120 VAC (80 VA inductive load)
- Life expectancy: 100.000 cycles min. at full load.

### **Interface Cards:**

- RS232, programmable, version with Sub-D connector: PAXCDC2C or with terminal: PAXCDC20
- Multipoint RS485, programmable: PAXCDC10
- DeviceNet, programmable: PAXCDC30
- Profibus-DP: PAXCDC50

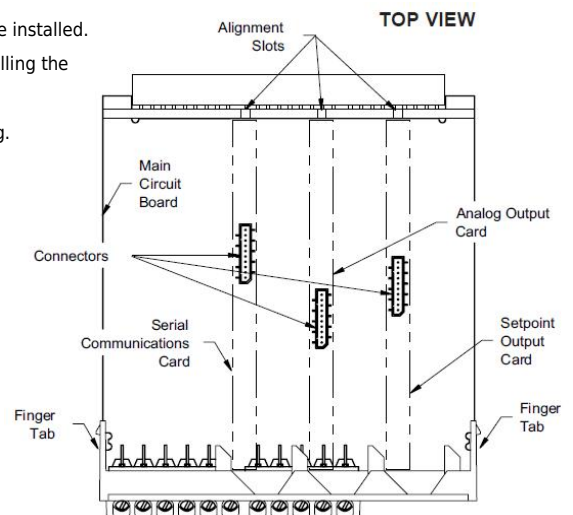
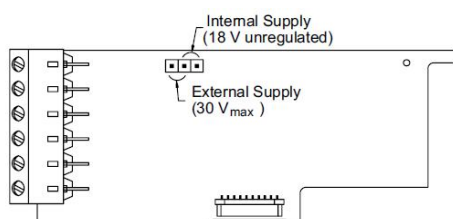
Isolation 500V, not isolated from all other commons.

### **USB CARD: PAXUSB00**

- only suited for slow measurement (for high dynamic measurement please use the RS232 card).
- USB virtual COM Port
- Connection: type mini B

### **Installing plug-in cards:**

- With the display removed from the case, locate the plug-in card connector for the card type to be installed. The types are keyed by position with different main circuit board connector locations. When installing the card, hold the display by the rear terminals and not by the front display board. If installing the Quad sourcing card, set the jumper for internal or external supply operation before continuing.
- Install the card by aligning the card terminals with the slot bay in the rear cover.
- Slide the display back into the case. Be sure the rear cover latches fully into the case.
- Apply the plug-in card label to the bottom side of the display in the designated area.



## PROGRAMMING

### Directly by the displays keys

#### DISPLAY MODE:

The meter normally operates in the Display Mode. In this mode, the meter displays can be viewed consecutively by pressing the DSP key. The annunciators to the left of the display indicate which display is currently shown; Max Value (MAX), Min Value (MIN), or Totalizer Value (TOT). Each of these displays can be locked from view through programming. (See Module 3) The Input Display Value is shown with no annunciator.

#### PROGRAMMING MODE:

Two programming modes are available:

##### Full Programming

Mode permits all parameters to be viewed and modified. Upon entering this mode, the front panel keys change to Programming Mode operations. This mode should not be entered while a process is running, since the meter functions and User Input response may not operate properly while in Full Programming Mode.

##### Quick Programming Mode

permits only certain parameters to be viewed and/or modified. When entering this mode, the front panel keys change to Programming Mode operations, and all meter functions continue to operate properly. Quick Programming Mode is configured in Module 3. The Display Intensity Level d-LEu parameter is available in the Quick Programming Mode only when the security code is non-zero. For a description, see Module 9—Factory Service Operations. Throughout this document, Programming Mode (without Quick in front) always refers to "Full" Programming Mode

### By Software

Additionally, the meters have a feature that allows a remote computer to directly control the outputs of the meter. With an RS232 or RS485 card installed, it is possible to configure the meter using a Windows® based program. The configuration data can be saved to a file for later recall.

You will find a detailed description of the programming in the manual that is included in the delivery.

## PACKAGE FOR THE CONNECTION PAX TO PC

### SFCRUSB1

Package for the connection of PAX displays to the USB interface of a PC:

- includes USB plug-in card PAXUSB00
- USB interface cable
- Software Crimson 2: The Crimson software is a Windows based program that allows configuration of the PAX display from a PC. Crimson offers standard drop-down menu commands, that make it easy to program the meter. The meter's program can then be saved in a PC file for future use. A PAX serial plug-in card or PAX USB programming card is required to program the meter using the software.

Please keep in mind that the USB interface is limited in its speed of data transfer. In fast applications data might get lost. In such cases the faster RS232 interface should be chosen.

Note: the USB interface is restricted in its ability to communicate with the Software ProLOG.

## ProLOG

### Analysis- and Visualisation software for Windows-based Systems

Visualisation of the measurement data on a Windows PC, with the option of storing the data in a CSV file.

## HOUSING

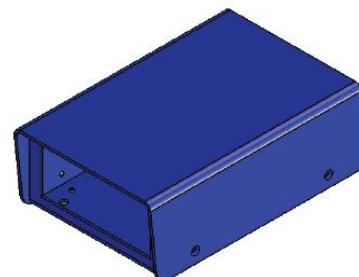
### Aluminium housing GEH01P65

- black powder coating
- internal grounding terminal.
- protection class: IP65
- dimensions: (W x H x D) 168 mm x 83 mm x 220 mm
- delivery: housing, mounting material
- without cable passages (must be drilled individually)



### Table housing TG9648

- The housing is suited for all displays with front dimensions 96 x 48 mm
- self assembly
- dimensions: (W x H x D) 114 mm x 62 mm x 176 mm
- delivery: housing, mounting material



## ORDER CODES

**PAXP000** Voltage supply: 85 to 250 VAC

**PAXP0010** Voltage supply: 11 to 36 VDC/24 VAC

**PAXDP000** Voltage supply: 85 to 250 VAC

**PAXDP0010** Voltage supply: 11 to 36 VDC/24 VAC

## ACCESSORIES

### Plug-in cards

PAXCDC10 Serial communication card RS485

PAXCDC20 Serial communication card RS232, terminal

PAXUSB00 Interface card USB

PAXCDC50 Interface card PROFIBUS-DP

PAXCDL10 Analog output card

PAXCDS10 Dual relay, Form-C, normally open & closed

PAXCDS20 Quad relay, Form-A, normally open only

PAXCDS30 Quad sinking NPN open collector

PAXCDS40 Quad sourcing PNP open collector

PAXCDC2C Serial communication card RS232, 9 pole SUB-D connector

### Miscellaneous

PAXLBK11 Units label kit

Einstellung Pre-adjustment according to customer demands

### Software

Crimson 2 on request

ProLOG on request

### Packages

SFCRUSB1 includes USB plug-in card PAXUSB00

USB interface cable

Software Crimson 2

### Housings

GEH0IP65 Aluminium housing, IP65

TG9648 Table housing

Subject to change without prior notice.

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