

±1888

Product Guide

DP Series
712.U.001.04

Digital Panel Meters, programmable

| | |
|---------------|--|
| 48x24 | ✓ for DC Current and Voltage |
| 48x48 | ✓ for AC Current and Voltage |
| 72x24 | ✓ for Standard Signals |
| 96x24 | ✓ for Temperature (RTD Pt 100, Pt 1000) |
| 96x48 | ✓ 48x24, 48x48, 72x24, 96x24, 96x48, 96x96, 144x72 or 144x48 mm Bezel |
| 96x96 | ✓ 7.62 / 10 / 14 / 20 or 25 mm Digit Height |
| 144x48 | ✓ Red or Green LEDs |
| 144x72 | ✓ 3, 3½, 4, 4½ or 5 Digits |
| | ✓ Auxiliary Supply AC 115/230 V, 50 Hz or DC 24 V |



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General Data

Digital Panel Meters, programmable

Application

for standard applications in switchboard-, control equipment-, process control-, and machine tool industry.

for mounting in switchboards, machine tools or mosaic grid panels (optional)

for measuring DC current or DC voltage, AC current or AC voltage TRMS, standard signals, temperature

connection analog inputs direct or for use on transducer, shunt, transformer

Mechanical Data

| | |
|---------------------------------------|--|
| case details | rectangular format |
| material of case | glass-fibre reinforced thermoplastics, black |
| bezel | black, mat or optionally gray varnished (similar to RAL 7037) or siliceous gray (similar to RAL 7032) |
| terminals | screw terminal barrier strip |
| enclosure code | IP 50 front operating elements are accessible behind removable display lens. IP 20 front operating elements are passed through front mask IP 20 rear of case |
| panel fixing | screw clamps |
| mask lettering | caption, custom logo or extra lettering to special order |
| operating elements | behind removable display lens; on top side for meter DPA 08/10 |
| climatic suitability | |
| operating temperature range | 0°C ... +23°C ... +50°C |
| storage temperature range | -20°C ... +23°C ... +70°C |
| relative humidity | ≤75% annual average, non-condensing |
| dimensions (in mm) | |
| bezel | DPA 08/10 ...-4 ...-7 48 x 24 48 x 48 72 x 24 |
| panel cutout | 45 ^{+0.6} x 22.2 ^{+0.3} 45 ^{+0.6} x 45 ^{+0.6} 68 ^{+0.7} x 22.2 ^{+0.3} |
| panel thickness | ≤5 |
| mounting depth | 120 incl. terminal barrier strip |
| bezel height | 5.25 |
| dimensions (in mm) | |
| bezel | DPA 14 ...-4 ...-9 96 x 24 96 x 48 96 x 96 |
| panel cutout | 92 ^{+0.8} x 22.2 ^{+0.6} 92 ^{+0.8} x 45 ^{+0.6} 92 ^{+0.8} x 92 ^{+0.8} |
| panel thickness | ≤5 |
| mounting depth | 120 incl. terminal barrier strip |
| bezel height | 7.5 |
| dimensions (in mm) | |
| bezel | DPA 20/25 ...-4 144 x 48 144 x 72 |
| panel cutout | 138 ^{+1.0} x 45 ^{+0.6} 138 ^{+1.0} x 68 ^{+0.7} |
| panel thickness | ≤45 |
| mounting depth | 120 incl. terminal barrier strip |
| bezel height | 8.5 |
| mounting in mosaic grid panels | please specify type/manufacturer of mosaic grid when ordering |

options refer to last page

additional data on request

ordering information

| | | | | | | | | | |
|------|--------------|---|--------|-------|--------------|--------|--------|------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| type | digit height | - | digits | input | power supply | option | colour | case | min/max |

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mA, V
mV

Short Form Data

Digital Panel Meters, for Standard Signals

DPA 08

DPA 10

Input E

Input D

- 48 x 24 mm

-4 48 x 48 mm

-7 72 x 24 mm

Digits

30 3 digits

31 3½ digits

40 4 digits

41 4½ digits *

50 5 digits *

*DPA 08 only

Display Span

-199 ... 999

-1999 ... +1999

-1999 ... 9999

-19999 ... +19999

-19999 ... 30000

Input

E DC Current -19 ... 20 mA and DC Voltage -10 ... 10 V

D DC Voltage 0 ... 60 - 150 mV

Auxiliary Voltage

1 24 V DC electrically insulated

Options

0 none

F Action Input: Display Dark/Hold/ON/OFF/HELP, Segment Test

Display Colour

R red

G green

Electrical Data

measuring range

DC current

0/4 ... 20 mA

DC voltage

0 ... ±10 V

0 ... ±60 - 150 mV

measuring principle

conversion rate

error, max.

overrange indication

auxiliary voltage

power consumption

input resistance

100 Ω

input resistance

220 kΩ

470 kΩ

dual-slope integration

approx. 1 read per second

±0.01% of reading, ±1 count

center segments will flash

DC 24 V (20 ... 30 V), electrically insulated

2.5 VA max.

Display

display

digit height

display span

display colour

overrange indication

mean value set - up

zero point, end value, polarity sign and decimal point programmable

7-segment LED

DPA 08 7.62 mm**DPA 10** 10 mm

see above

red or green

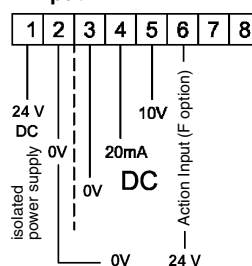
center segments will flash

adjustable from 1 up to 99 readings

Connection

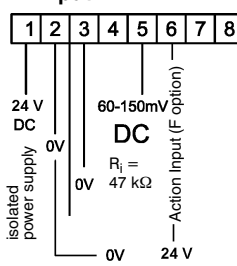
plug-in terminal barrier strip

E input



20mA: -19 ... +20 mA ($R_i = 50 \Omega$)
10V: -10 ... +10 V ($R_i = 150 k\Omega$)

D input



| | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ordering example | DPA | 08 | - | 30 | E | 1 | 0 | G - |

±1888
mA, V

Short Form Data

Digital Panel Meters for DC Current and DC Voltage (mA / V)

DPA 14

Input A

- 96 x 24 mm
-4 96 x 48 mm
-9 96 x 96 mm

Digits

| | | |
|----|-----------|-------------------|
| 30 | 3 digits | -199 ... 999 |
| 31 | 3½ digits | -1999 ... +1999 |
| 40 | 4 digits | -1999 ... 9999 |
| 41 | 4½ digits | -19999 ... +19999 |
| 50 | 5 digits | -19999 ... 30000 |

Display Span

Input

A DC Current 20 / 200 mA and
DC Voltage 2 / 10 / 40 / 200 V

Auxiliary Voltage

1 24 V DC electr. insulated
2 115/230 V AC, 50 Hz electr. insulated

Options refer to last page

Display Colour

R red
G green

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µA, mV

Short Form Data

Digital Panel Meters for DC Current and DC Voltage (µA / mV)

DPA 14

Input D

- 96 x 24 mm
-4 96 x 48 mm
-9 96 x 96 mm

Digits

| | | |
|----|-----------|-------------------|
| 30 | 3 digits | -199 ... 999 |
| 31 | 3½ digits | -1999 ... +1999 |
| 40 | 4 digits | -1999 ... 9999 |
| 41 | 4½ digits | -19999 ... +19999 |
| 50 | 5 digits | -19999 ... 30000 |

Display Span

Input

D DC Current 100 µA / 1 mA and
DC Voltage
60 / 125 / 150 / 300 mV

Auxiliary Voltage

1 24 V DC electr. insulated
2 115/230 V AC, 50 Hz electr. insulated

Options refer to last page

Display Color

R red
G green

Electrical Data

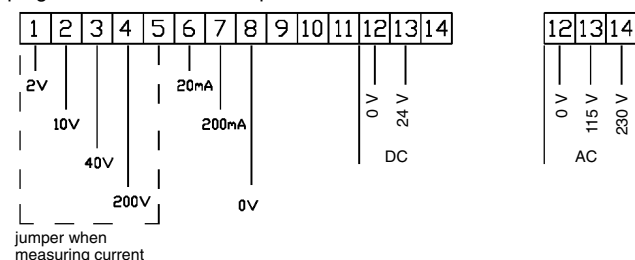
| | |
|--------------------------|---|
| measuring ranges | input resistance |
| DC current | |
| ±20 mA | 100 Ω |
| ±200 mA | 10 Ω |
| DC voltage | |
| ±2 V | 100 kΩ |
| ±10 V | 560 kΩ |
| ±40 V | 2.2 MΩ |
| ±200 V | 12 MΩ |
| measuring principle | dual-slope integration |
| conversion rate | approx. 1 read per second |
| error, max. | ±0.01% of reading, ±1 count |
| auxiliary voltage | DC 24 V (20 ... 30 V), electrically insulated or AC 115/230 V, 50 Hz, electrically insulated |
| power consumption | 3 VA max. |

Display

| | |
|---|--|
| display | 7-segment LED |
| digit height | 14 mm |
| display span | see above |
| display colour | red or green |
| display | standard or reciprocal |
| overrange indication | center segments will flash |
| mean value set - up | adjustable from 1 up to 500 readings |
| round - off last digit | adjustable: 2 nd , 5 th , 10 th steps, none |
| zero point, end value, polarity sign and decimal point programmable | |

Connection

plug-in terminal barrier strip



| | | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|---|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| ordering example | DPA | 14 | - | 40 | A | 2 | 0 | G | -4 -M |

Electrical Data

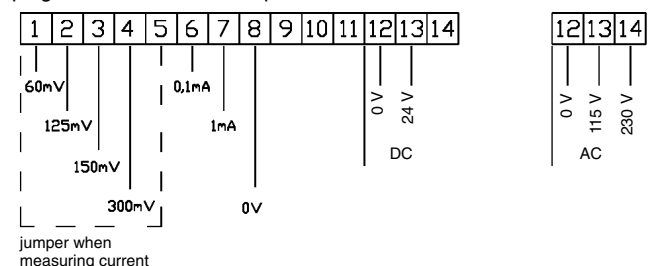
| | |
|--------------------------|---|
| measuring ranges | input resistance |
| DC current | |
| ±100 µA | 560 Ω |
| ±1 mA | 68 Ω |
| DC voltage | |
| ±60 mV | 100 kΩ |
| ±125 mV | 220 kΩ |
| ±150 mV | 270 kΩ |
| ±300 mV | 560 kΩ |
| measuring principle | dual-slope integration |
| conversion rate | approx. 1 read per second |
| error, max. | ±0.01% of reading, ±1 count |
| auxiliary voltage | DC 24 V (20 ... 30 V), electrically insulated or AC 115/230 V, 50 Hz, electrically insulated |
| power consumption | 3 VA max. |

Display

| | |
|---|--|
| display | 7-segment LED |
| digit height | 14 mm |
| display span | see above |
| display colour | red or green |
| display | standard or reciprocal |
| overrange indication | center segments will flash |
| mean value set - up | adjustable from 1 up to 500 readings |
| round - off last digit | adjustable: 2 nd , 5 th , 10 th steps, none |
| zero point, end value, polarity sign and decimal point programmable | |

Connection

plug-in terminal barrier strip



| | | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|---|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| ordering example | DPA | 14 | - | 41 | D | 1 | 0 | R | - -M |

±1888
2x mA, V

Short Form Data

Digital Panel Meters for DC Current and DC Voltage (mA / V), 2 Inputs

DPA 14

Input B
- 96 x 24 mm
-4 96 x 48 mm
-9 96 x 96 mm

| | | |
|--------------------------|--|------------------|
| Digits | | Display Span |
| 30 | 3 digits | -199 ... 999 |
| 40 | 4 digits | -1999 ... 9999 |
| 50 | 5 digits | -19999 ... 30000 |
| Input | | |
| B | 2x DC Current 20 mA and DC Voltage 10 V | |
| Auxiliary Voltage | | |
| 1 | 24 V DC electr. insulated | |
| 2 | 115/230 V AC, 50 Hz electr. insulated | |
| Option | | |
| 0 | none | |
| Display Colour | | |
| R | red | |
| G | green | |

Electrical Data

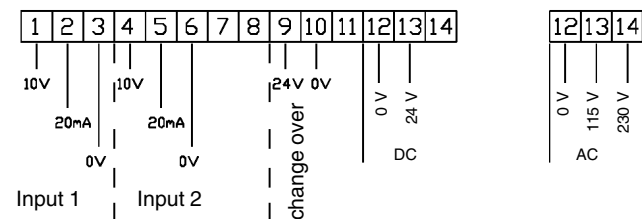
| | |
|--------------------------|---|
| measuring ranges | input resistance |
| 2x DC current | |
| ±20 mA | 100 Ω |
| 2x DC voltage | |
| ±10 V | 560 kΩ |
| change over | 24 V DC (opto-coupler) |
| measuring principle | dual-slope integration |
| conversion rate | approx. 1 read per second |
| error, max. | ±0.01% of reading, ±1 count |
| auxiliary voltage | DC 24 V (20 ... 30 V), electrically insulated or AC 115/230 V, 50 Hz, electrically insulated |
| power consumption | 3 VA max. |

Display

| | |
|---|--|
| display | 7-segment LED |
| digit height | 14 mm |
| display span | see above |
| display colour | red or green |
| display | standard or reciprocal |
| overrange indication | center segments will flash |
| wire-break detection | programmable for downscale detection |
| mean value set - up | adjustable from 1 up to 500 readings |
| round - off last digit | adjustable: 2 nd , 5 th , 10 th steps, none |
| zero point, end value, polarity sign and decimal point programmable | |

Connection

plug-in terminal barrier strip



| | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ordering example | DPA | 14 | - | 50 | B | 2 | 0 | G -4 |

±1888
A, V

Short Form Data

Digital Panel Meters for AC Current and AC Voltage TRMS

DPA 14

Input F
- 96 x 24 mm
-4 96 x 48 mm
-9 96 x 96 mm

| | | |
|--------------------------|--|--------------|
| Digits | | Display Span |
| 30 | 3 digits | 0 ... 999 |
| 40 | 4 digits | 0 ... 9999 |
| 50 | 5 digits | 0 ... 20000 |
| Input | | |
| F | AC Current 3 / 6 A and AC Voltage 2 / 100 / 250 / 500 V | |
| Auxiliary Voltage | | |
| 1 | 24 V DC electr. insulated | |
| 2 | 115/230 V AC, 50 Hz electr. insulated | |
| Options | refer to last page | |
| Display Colour | | |
| R | red | |
| G | green | |

Electrical Data

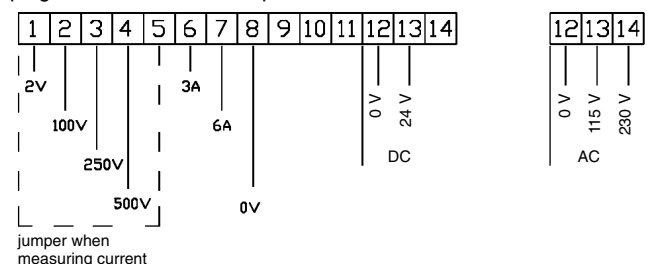
| | |
|--------------------------|---|
| measuring ranges | input resistance |
| AC current | |
| 3 A | 20 mΩ |
| 6 A | 10 mΩ |
| AC voltage | |
| 2 V | 10 kΩ |
| 100 V | 470 kΩ |
| 250 V | 1 MΩ |
| 500 V | 2.2 MΩ |
| measuring principle | dual-slope integration, true RMS |
| conversion rate | approx. 1 read per second |
| error, max. | ±0.2% of reading, ±1 count |
| auxiliary voltage | DC 24 V (20 ... 30 V), electrically insulated or AC 115/230 V, 50 Hz, electrically insulated |
| power consumption | 3 VA max. |

Display

| | |
|--|--|
| display | 7-segment LED |
| digit height | 14 mm |
| display span | see above |
| display colour | red or green |
| display | standard or reciprocal |
| overrange indication | center segments will flash |
| mean value set - up | adjustable from 1 up to 500 readings |
| round - off last digit | adjustable: 2 nd , 5 th , 10 th steps, none |
| zero point, end value and decimal point programmable | |

Connection

plug-in terminal barrier strip



| | | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| ordering example | DPA | 14 | - | 30 | F | 2 | 0 | G -4 | - |



Short Form Data

Digital Panel Meters for Temperature Pt 100 / Pt 1000

DPA 14

Input M
Input L

- 96 x 24 mm
-4 96 x 48 mm
-9 96 x 96 mm

Digits
31 3½ digits

Display Span
-100.0 ... +199.9 °C
-200 ... +800 °C
-148 ... +392 °F
-328 ... +1472 °F

Input
M for RTD Pt 100 Input
L for RTD Pt 1000 Input

Auxiliary Voltage
1 24 V DC electr. insulated
2 115/230 V AC, 50 Hz electr. insulated

Options refer to last page

Display Colour

R red
G green



Short Form Data

Digital Panel Meters for DC Current and DC Voltage

DPA 20

DPA 25

Input A

- 144 x 48 mm
-4 144 x 72 mm

Digits
30 3 digits
31 3½ digits
40 4 digits
41 4½ digits*
50 5 digits*

Display Span
-199 ... 999
-1999 ... +1999
-1999 ... 9999
-19999 ... +19999
-19999 ... 30000

* DPA 20 only

Input

A DC Current 20 / 200 mA and
DC Voltage 2 / 10 / 40 / 200 V

Auxiliary Voltage

1 24 V DC electr. insulated
2 115/230 V AC, 50 Hz electr. insulated

Options refer to last page

Display Colour

R red
G green

Electrical Data

measuring ranges for RTD input resolution
-100.0...+199.9°C/-148...+392°F ±0.1 K
-200...+800°C/-328...+1472°F ±1 K

measuring principle dual-slope integration
conversion rate approx. 1 read per second
error, max. ±0.01% of reading, ±1 count

auxiliary voltage DC 24 V (20 ... 30 V), electr. insulated or
AC 115/230 V, 50 Hz, electr. insulated

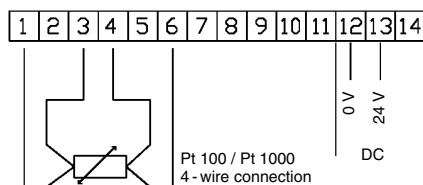
power consumption 3 VA max.

Display

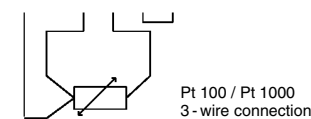
display 7-segment LED
digit height 14 mm
display span see above
display colour red or green
overrange indication center segments will flash
zero adjustment possible

Connection

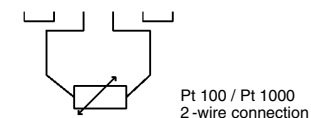
plug-in terminal barrier strip



Pt 100 / Pt 1000
4-wire connection



Pt 100 / Pt 1000
3-wire connection



Pt 100 / Pt 1000
2-wire connection

| | | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|---|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| ordering example | DPA | 14 | - | 31 | M | 2 | 0 | G | -4 -M |

Electrical Data

measuring ranges input resistance

DC current
±20 mA 100 Ω
±200 mA 10 Ω

DC voltage
±2 V 100 kΩ
±10 V 560 kΩ
±40 V 2.2 MΩ
±200 V 10 MΩ

measuring principle dual-slope integration
conversion rate approx. 1 read per second
error, max. ±0.01% of reading, ±1 count

auxiliary voltage DC 24 V (20 ... 30 V), electr. insulated or
AC 115/230 V, 50 Hz, electr. insulated

power consumption 5 VA max.

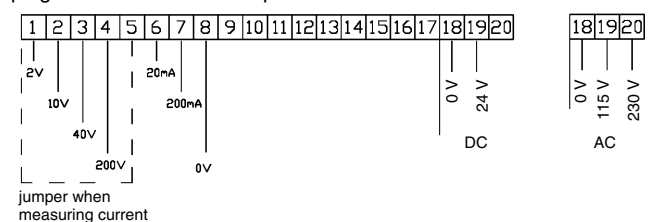
Display

display 7-segment LED
digit height DPA 20 20 mm
DPA 25 25 mm

display span see above
display colour red or green
overrange indication center segments will flash
mean value set-up adjustable from 1 up to 500 readings
zero point, end value, polarity sign and decimal point programmable

Connection

plug-in terminal barrier strip



jumper when
measuring current

| | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ordering example | DPA | 20 | - | 31 | A | 1 | 0 | G - |

±1888
A, V

Short Form Data

Digital Panel Meters for AC Current / AC Voltage TRMS

DPA 20

DPA 25

Input F

- 144 x 48 mm
-4 144 x 72 mm

| | | |
|--------------------------|--|--------------|
| Digits | | Display Span |
| 30 | 3 digits | 0 ... 999 |
| 40 | 4 digits | 0 ... 9999 |
| 50 | 5 digits * | 0 ... 20000 |
| | * DPA 20 only | |
| Input | | |
| F | AC Current 3 / 6 A and AC Voltage 2 / 100 / 250 / 500 V | |
| Auxiliary Voltage | | |
| 1 | 24 V DC electr. insulated | |
| 2 | 115/230 V AC, 50 Hz electr. insulated | |
| Options | refer to right-side column | |
| Display Colour | | |
| R | red | |
| G | green | |

Electrical Data

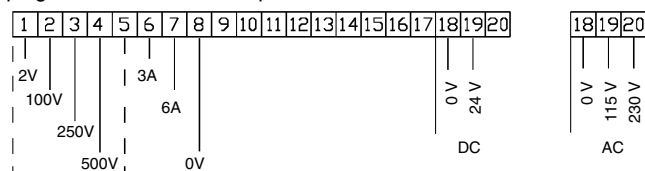
| | |
|--------------------------|---|
| measuring ranges | input resistance |
| AC current | |
| 3 A | 20 mΩ |
| 6 A | 10 mΩ |
| AC voltage | |
| 2 V | 10 kΩ |
| 100 V | 470 kΩ |
| 250 V | 1 MΩ |
| 500 V | 2.2 MΩ |
| measuring principle | dual-slope integration, true RMS |
| conversion rate | approx. 1 read per second |
| error, max. | ±0.2% of reading, ±1 count |
| auxiliary voltage | DC 24 V (20 ... 30 V), electrically insulated or AC 115/230 V, 50 Hz, electrically insulated |
| power consumption | 5 VA max. |

Display

| | | |
|--|--------------------------------------|-------|
| display | 7-segment LED | |
| digit height | DPA 20 | 20 mm |
| | DPA 25 | 25 mm |
| display span | see above | |
| display colour | red or green | |
| overrange indication | center segments will flash | |
| mean value set-up | adjustable from 1 up to 500 readings | |
| zero point, end value and decimal point programmable | | |

Connection

plug-in terminal barrier strip



jumper when measuring current

| | | | | | | | | |
|------------------|-----|----|---|----|---|---|---|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ordering example | DPA | 25 | - | 40 | F | 2 | 0 | G -4 |

±1888

Options

Digital Panel Meters, programmable

DPA 14

DPA 20

DPA 25

Input A/E
Input D
Input F
Input L
Input M

Options

| | |
|-----|---|
| 0 | none |
| 1 * | Analog Output 0 ... 10 V (load ≥1000 Ω) |
| 2 * | Analog Output 0/4 ... 20 mA (load ≤500 Ω) |
| 4 * | like 1, galvanically isolated |
| 7 * | 1 Control Output, open collector max. 30 V, max. 0.5 A, max. 12 W |
| 8 * | 2 Control Outputs, open collector max. 30 V, max. 0.5 A, max. 12 W |
| D * | Input Blanked Control active high, 24 V |
| G * | Segment Test Input |
| H * | Display Hold Input active high, 24 V |
| R | 2 Setpoints Relay N.O./N.C. |
| S * | Rerial Output RS232 |

Additional Option

| | |
|----------------------------------|-------------------------|
| -M * | Min./Max. Value Storage |
| * DPA 14 only (not with B input) | |

Extras

R option

| | |
|-------------------|---|
| setpoints | 2 relays N.O./N.C. |
| capacity | DPA 14 max. 200 V, max. 0.5 A, max. 10 W |
| limit | DPA 20/25 max. 250 V, max. 4 A, max. 200 W |
| response time | approx. 1 ms |
| hysteresis | adjustable, internal adjustment |
| status indication | small, single-digit 7-segment LED |

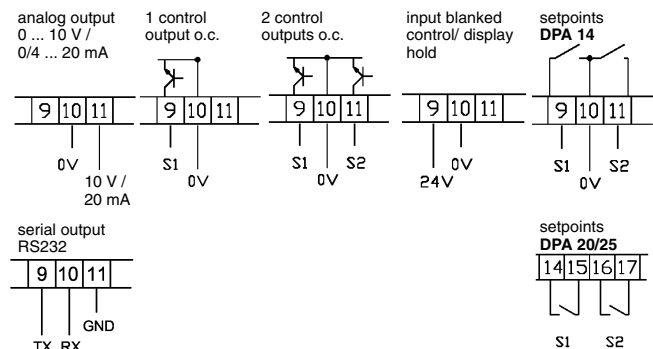
S option

| | |
|---------------------|--|
| RS232 serial output | baud rate (150 ... 19200 baud), parity, data bits, device address, write direction and protocol adjustable |
|---------------------|--|

Further options

| | |
|---|---|
| caption | please specify |
| extra lettering | please specify |
| logo on the lens | please specify |
| factory calibration | please specify |
| special measuring range on request | |
| non-standard auxiliary voltage on request | |
| enclosure code | IP 54 to IP 65 front using rubber cover attachment 96x48 |

Connection



- specifications subject to change without notice; date of issue 03/07 -

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