



Product information

Displays



Characteristics

Display

- 7-segment
- 7.6, 10, 14, 20 mm
- Bar-graph, Red, green

Color

- Red, green, blue, yellow

Case

- Panel mounting

Front dimensionse

- 48x24 mm
- 48x48 mm
- 72x24 mm
- 96x48 mm
- Field case

Connection

- Slide-in terminals
- Clamp terminals

Function and advantages

Simple user-friendly programming, or, to be precise, the setting of the operating parameters of each digital display, makes the troublefree adaptation of the display systems and the fixed measuring instruments to the customized application possible. We also have large displays in our portfolio to display information on ongoing processes or to display key process data. The multitude of modifiable settings of each display remains very clearly arranged and simple thanks to the menu-driven parametrization, even without separate parametrization software.

General

Measuring Input – Sensor type

- Industry standard signal 0/4...20 mA
- Industry standard signal 0/2...10 V DC
- Voltage AC/DC
- Current AC/DC
- RTD Pt100/Pt1000
- Thermocouple type J, K, N

Instrumentation – Connection

- 2-wire connection
- 3-wire connection

Applications

- Industry metrology
- Indicating of process data
- Alarm display
- Indicating state for drum-, machineand tank-engineering
- Temperature measurement

As manufacturer and supplier of digital displays, and the many years of experience gained there while, we provide our customers a high degree of flexibility and efficiency in start-up. All devices built-in the instrument panel of this product group can be supplied in sturdy, closed plastic casings for front face panel installation in the prevalent casing dimensions of 48x24 mm, 48x48 mm, 72x24 mm, 96x24 mm and 96x48 mm. Auxiliary power of the field measuring devices, digital fixed measuring instruments and panel meter is potential-free from the measurement input.

Output

- Analogue output active 0/4...20 mA
- Analogue output active 0/2...10 V DC
- Impulse output 0/18 V DC
- Relay output change-over contact
- Transistor output PNP

Features

- 7-segment displays character height 7, 10, 14.2 and 20 mm
- Display color red, yellow, green, blue (EP9648)
- Loop powered displays
- Graphic recorder
- Large size displays LED dot matrix max. 100mm character height
- Large size displays 7-segment
- character height from 50 up to 150 mm

Device Overview

Measuring principle																
Device	Monitoring	BCD	Voltage	Current	Power	Resistance	DMS	Temperature	Conductivity	pH / ORP	Impulse / Frequency	Rotary / Flow	Quantity / Level	Counting Counting	0/4..20 mA , 0/2..10 V DC	Page
Panelmeter DIN 48x24																
BA4824N															•	4
BCD4824		•														5
DP4824								•							•	6
DP4824A								•							•	7
DP4824B						•									•	8
SP4824						•									•	9
GIA0420															•	10
DP4848A						•		•							•	11
Panelmeter DIN 72x24																
BA7224N															•	12
BCD7224		•														13
Panelmeter DIN 96x24																
BA9624N															•	14
BA9624B	•														•	15
Panelmeter DIN 96x48																
GA9648								•			•	•		•	•	16
EP9648								•							•	18
SP9648															•	19
S9648	•					•									•	20
T9648	•							•								21
DMS9648	•						•									22
TA9648	•												•			23
DF9648	•											•				24
A9648	•			•												26
V9648	•		•													27
DR9648	•										•	•				28
PR9648	•										•	•	•			29
SZ9648	•										•			•		30
UZ9648	•										•			•		31
LF9648	•															32
pH9648	•								•							33
Connection diagram XX96										•						35
Field case																
S1010	•														•	36
TA1010	•												•			37
T1010	•							•								38
DR1010	•											•				39
PR1010	•											•				40
UZ1010	•														•	41
LF1010	•								•							42
GIA0420 VO	•														•	43
Special devices																
Integra 1530	•		•	•	•											44
migra SC/MC											•	•		•		45
migan												•			•	47

Mistakes reserved, technical specifications subject to change without notice.

Bar Graph Display BA4824N



- Universal version for 0/4..20 mA, 0..10 V DC
- Red LED indicator (optionally green)
- Vertical and horizontal installation
- All areas can be selected via connecting terminal
- Display area adjustable via potentiometer

Characteristics

Series BA bar graph displays are especially well suited for representing continuously changing measurements. With their small design, they can be easily integrated into control panels and diagrams.

The version BA4824N is especially well-suited for processing input signals 0/4..20 mA, 0..10 V DC (limit value adjustable from 5..50 V DC). Adaptation to the corresponding input signal takes place via the connecting terminal. The display zero point and limit value can be adjusted via separate potentiometers.

Technical data

Auxiliary power

Auxiliary voltage : 24 V DC $\pm$ 10 % isolated
Power consumption : approximately 1.5 VA
Operating temperature : 0..+60 °C
CE-conformity : EN 61326-1:2013; EN 61010-1:2010

Measurement input

Current input : 0/4..20 mA,
Voltage input : 0..10 V DC (adjustable limit value)
Input resistance : Ri at: 10 V = 100 k Ω , 20 mA = 100 Ω

Accuracy

Resolution : 10 digit
Basic precision : $\pm$ 1 digit
Temperature coefficient : 100 ppm/K

Display

Range : 10 segments
Colour : red, optionally green

Housing

: DIN 48 x 24 mm, installation depth 100 mm

Design

: PC/ABS blend, black colour, UL94V-0

Panel aperture 42 x 21 mm

Fastening

: locking screw element for wall thickness up to 50 mm

Weight

: 60 g

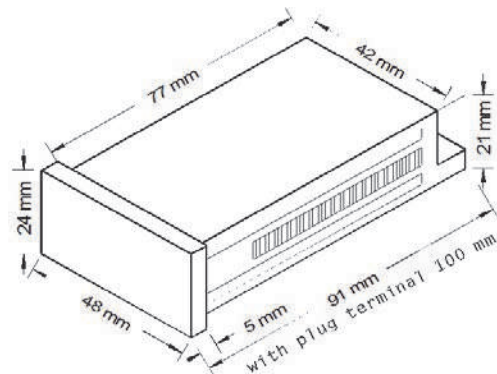
Connection

: rear plug terminals, max. 1.5 mm²
Protection class IP00

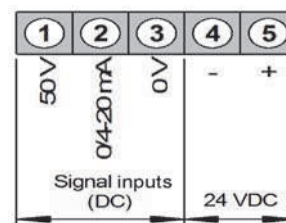
Ingress protection

: Front IP54 or IP65

Dimensions



Connection diagram



Ordering code

1. 2. 3. 4. 5. 6. 7.
BA - - - - - -

1. Construction	
4824N	10 segments
2. Installation	
1	Vertical
2	Horizontal
3. Bar colour	
1	Red display
2	Green display
4. Auxiliary voltage	
5	24 V DC with electrical isolation
5. Input signal	
0	Universal version
6. Measuring range scale 0..100 %	
10	Universal version
7. Ingress protection	
1	IP54
2	IP65

BCD Panelmeter BCD4824



- Display red or green 3-digit
- LED 10 mm or 14.2 mm
- Input BCD parallel or multiplex
- Supply voltage 10..30 V DC, optional 5 V DC

Characteristics

Digital Panelmeter BCD4824 was designed for monitoring and measurement applications, specially in connection with SPS automation. The multiplex mode minimize the number of input lines. The small case is suitable for installation in control units and panel boards.

Technical data

Power supply

Supply voltage : 10..30 V DC
Power consumption : approx. 1.2 VA
Operating temperature : -10..+60 °C
CE-conformity : EN 61326-1:2013

Display

: 3-digit
LED 10 mm or 14.2 mm
Color : red or green
Decimals : single points selectable

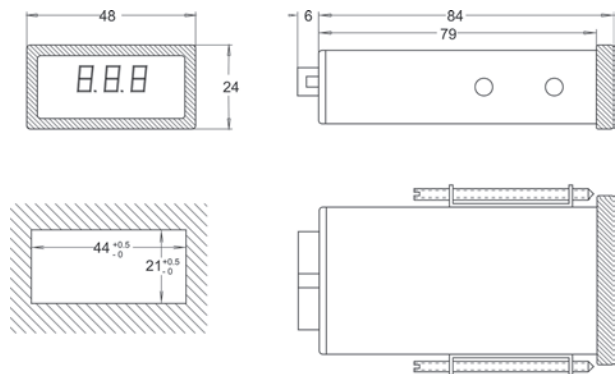
Inputs

Control : Parallel or multiplex
Voltage level : Low-Signal 0..3 V DC;
High-Signal 10..30 V DC,
or TTL-level
Input resistance : approx. 20 kΩ
minimal rise time of the
Strobe inputs 10 ms

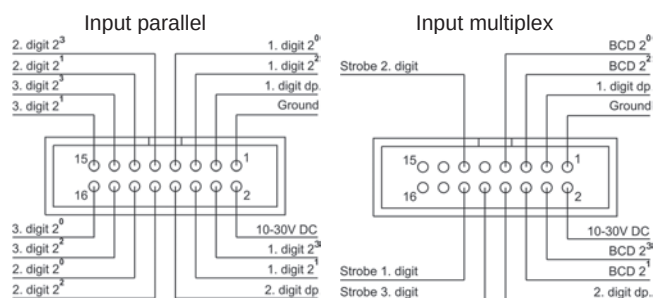
Case

Type : DIN 48x24 mm, mounting depth 97 mm
: slide-in case according to
DIN 43700, Noryl SE1 GFN2
panel cut-out 44x21 mm
Weight : approx. 60 g
Connection : terminal strip 16 pole,
Protection class : IP54 or IP65
terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

1. 2. 3. 4. 5.
BCD - - - -

1. Model	4824
2. Display	
1	LED red 10 mm
2	LED green 10 mm
3	LED red 14.2 mm
4	LED green 14.2 mm
3. Supply voltage	
5	10..30 V DC
7	5 V DC
4. Input	
1	0..3 V DC low; 10..30 V DC high, parallel
2	5 V TTL-level, parallel
3	0..3 V DC low; 10..30 V DC high, multiplex
4	5 V TTL-level, multiplex
5. Protection class	
1	IP54
2	IP65
Accessories connection cable with terminal strip and pigtails	
AK16K-AE-3	16x0.25 mm ² length 3 m
AK16K-AE-10	16x0.25 mm ² length 10 m
AK16K-AE-20	16x0.25 mm ² length 20 m

Digital Panelmeter DP4824



- Multipurpose input for 0/4...20 mA, 0...10 V, 0...100 Ω and PT100
- Adjustable display range -99...+999 Digit
- Conversion rate 4/s or 0.3/s selectable

Merkmale

Digital Panelmeter DP4824 are designed for measurement applications in process technology and automation. The small cases are suitable for installation in control units and panel boards. The universal input conception allows indication of all physical dimensions, which can be converted to industry standard signal of 0...20 mA, 4...20 mA or 0...10 V DC. Temperature measurement by RTD (Pt100)-sensors and 0...100 Ω potentiometers are possible as well.

Technische Daten

Power supply

Supply voltage : 10,8...30 V DC
Stromaufnahme : < 50 mA
Arbeitstemperatur : -10...+60 °C
CE-Konformität : EN 61326-1:2013

Messeingang

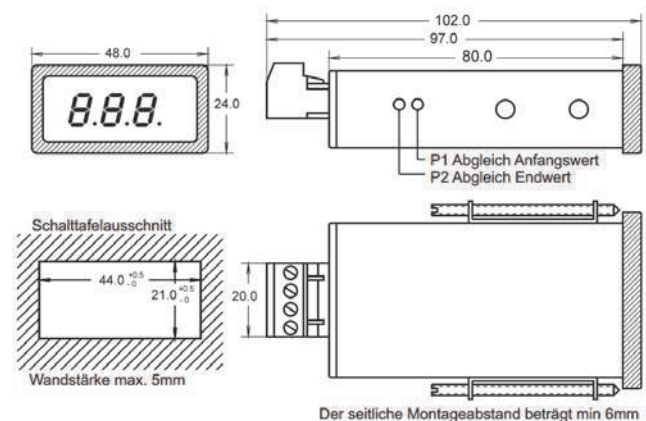
Spannungseingang
Eingangswiderstand : $R_i = > 8 \text{ M}\Omega$
Überlast Spannung : max. 30 V DC
Stromeingang
Eingangswiderstand : $R_i = < 100 \Omega$
Überlast Strom : max. 60 mA
Widerstand
Messstrom : ca. 3 mA
Messbereich : 0...100 Ω
Pt100
Messstrom : ca. 3 mA
Messstrom : ca. 0,2 mA (geringe Eigenerwärmung)
Grundgenauigkeit : 0,5 % +/- 1 Digit

Anzeige

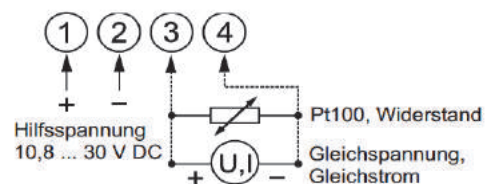
Messrate : 4/Sekunde umschaltbar 0,3/Sekunde
Umfang / Farbe : 3 Stellen, rot oder grün
Dezimalpunkt : einstellbar
Anzeighöhe : 7,6 mm oder 10 mm
Überlaufanzeige : negativer Überlauf "-/ ",
positiver Überlauf "/ "

Gehäuse : DIN 48x24 mm, Einbautiefe 97 mm
Ausführung : Kunststoffeinschubgehäuse nach DIN 43700, Noryl SE1 GFN2
Schalttafelausschnitt 44x21 mm
Gewicht : 80 g
Anschluss : steckbare Klemmenleiste, max 1,5 mm²
Schutzart IP20 gemäß BGV A3
Schutzart Front : IP54 bzw. IP65

Abmessungen



Anschlussbild



Bestellschlüssel

DP4824 - 1. - 2. - 3. - 4.

1. Anzeige	
1	3 ½-stellig LED rot 7,6mm
2	3 ½-stellig LED grün 7,6mm
3	3 ½-stellig LED rot 10,0 mm
4	3 ½-stellig LED grün 10,0 mm
2. Ausführung	
1	Universalausführung
2	Sondermessbereich (auf Anfrage)
3. Schutzart	
1	IP54
2	IP65
4. Einheit	
(erscheint als Gravur bzw Druck auf der Frontscheibe)	

Digital Panelmeter DP4824A



- Multipurpose input for 0/4..20 mA, 0/2..10 V and potentiometer
- Input for RTD sensor Pt100/Pt1000
- Adjustable display range ± 1999 Digit

Characteristics

The universal conception of the multipurpose input allows indication of all physical dimensions, which can be converted to 0/4..20 mA, 0/2..10 V DC. Other models of the DP4824A are for temperature measurement with Pt100 and Pt1000 sensors. The input configuration is switch selectable from the side, without opening the case. Input and supply voltage are isolated. The display range is adjustable with 20-turn trim pot's for initial value and span.

Technical data

Power supply

Supply voltage : 10.8..30 V DC; 17..30 V AC
Frequency AC : 47..63 Hz
Power consumption : approx. 1.2 VA
Working temperature : -10..+60 °C
CE-conformity : EN 55022, IEC 61000-4-2/4/11

Input

Voltage : 0/2..10 V DC
Input resistance : $R_i = 40 \text{ k}\Omega$
Overload : max. 48 V
Current : 0/4..20 mA
Input resistance : $R_i = 125 \Omega$
Overload : max. 60 mA
Potentiometer : min. 1 k Ω , max. 100 k Ω
Pt100 : -100.0..+199.9 °C / -100..+600 °C
Sensor current : approx. 1 mA (low self heating)
Pt1000 : -50.0..100.0 °C
Sensor current : approx. 0.2 mA (low self heating)
Accuracy : < 0.05 % ± 1 Digit

Display

Conversion rate : approx. 2 / s
Range / color : 3 ½ digit, red or green, 7.6 mm
Decimal point : switch selectable
Overflow : negative overflow " . . . ",
positive overflow " . . "

Case

Type : DIN 48x24 mm, mounting depth 97 mm
slide-in case acc. to DIN 43700,
material Noryl SE1 GFN2
panel cut-out 44x21 mm

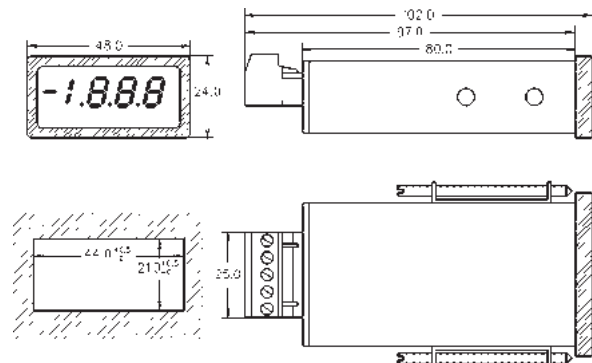
Weight

: 100 g

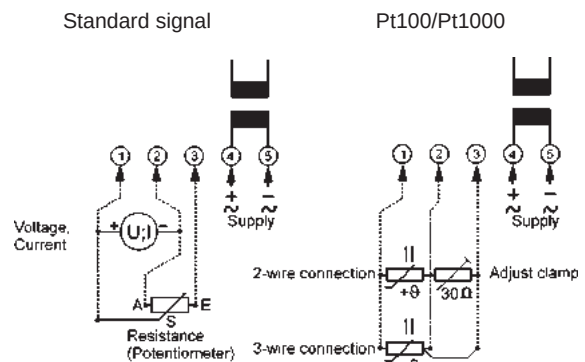
Connection

: plug-in terminal, max. 1.5 mm²
Protection class : front IP54 or IP65,
terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DP4824A - 1. - 2. - 3. - 4.

1. Display		
1	3 ½-digit LED red 7.6mm	
2	3 ½-digit LED green 7.6mm	
2. Input		
10	industry standard signal	
20	custom input (on request)	
50	Pt100	
53	Pt1000	
3. Protection class		
1	IP54	
2	IP65	
4. Unit (appears on the face plate)		

Digital Panelmeter DP4824B



- Multipurpose input for 0/4...20 mA, 0/2...10 V and potentiometer
- 2 trim pot's for initial and end value
- Adjustable display range ± 1999 Digit

Characteristics

The universal conception of the multipurpose input allows indication of all physical dimensions, which can be converted to 0/4...20 mA, 0/2...10 V DC. The input configuration is switch selectable from the side, without opening the case. Input and supply voltage are isolated. The display range is adjustable with 20-turn trim pot's for initial value and span.

Technical data

Power supply

Supply voltage : 10.8...30 V DC
Power consumption : approx. 1.2 VA
Working temperature : -10...+60 °C
CE-conformity : EN 61326-1:2013

Input

Voltage : 0/2...10 V DC
Input resistance : $R_i = 40 \text{ k}\Omega$
Overload : max. 48 V
Current : 0/4...20 mA
Input resistance : $R_i = 125 \Omega$
Overload : max. 60 mA
Potentiometer : min. 1 k Ω , max. 100 k Ω
Accuracy : < 0.025 % ± 1 Digit

Display

Conversion rate : approx. 2/s
Range / color : 4 ½-digit, red or green, 8 mm
Decimal point : switch selectable
Overflow : flashing "0000", with leading sign

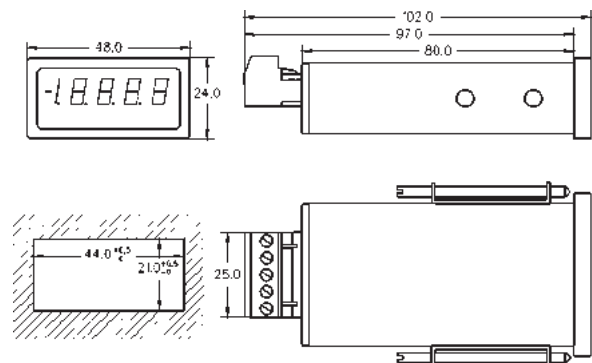
Case

Type : DIN 48x24 mm, mounting depth 97 mm
slide-in case according to DIN 43700,
material Noryl SE1 GFN2,
panel cut-out 44x21 mm

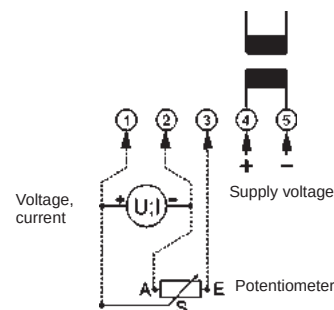
Weight

Weight : 100 g
Connection : plug-in terminal, max. 1.5 mm
Protection class : front IP54 or IP65
terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DP4824B - 1. - 2. - 3. - 4.

1. Display	
5	4 ½-digit, LED red 8 mm
2	4 ½-digit, LED green 8 mm
2. Input	
10	multipurpose device
20	custom input (on request)
3. Protection class	
1	IP54
2	IP65
4. Unit (appears on the face plate)	

Loop Powered Panelmeter SP4824



- LED-display without separate supply voltage
- Free adjustable indicating range
- Switch selectable conversion rate 3/s or 0,5/s

Characteristics

Loop powered Panelmeter SP4824 can be used for indicating and measurement applications in process technology and automation. The small case is suitable for installation in control units and panel boards. The input allows indication of any physical dimension, which are stated in a signal of 4..20mA.

Technical data

Input

Current input : 4..20 mA
Overload range : -100..+150 mA
Voltage drop : 2.5..3.4 V,
depends on chosen display brightness
Accuracy : 0.1 % , +/- 1 Digit
Operating temp. : -10..+60 °C
CE-conformity : EN 61326-1:2013

Display

Indicating range : -1999..+1999
Span : adjustable 0..4000 Digits
Zero point : adjustable -100..+25 % of the span
Brightness : adjustable ≈ 40..100 %
Conversion rate : 3/s switchable 0.5/s
Height : 7.6 mm

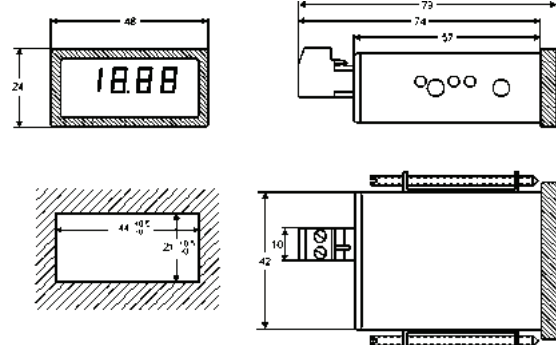
Overflow indication : "- / " for negative and
" / " for positive overflow
Color : red

Weight

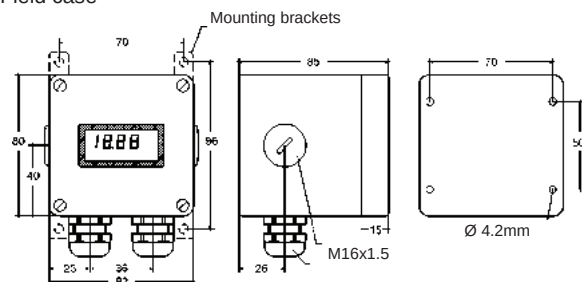
- Panel case : approx. 50 g
- Field case : approx. 270 g
Connection : slide-in terminal strip,
max. 1.5 mm², AWG16
Protection class : front IP54 or IP65
terminals IP20 acc. to BGV A3

Dimensions

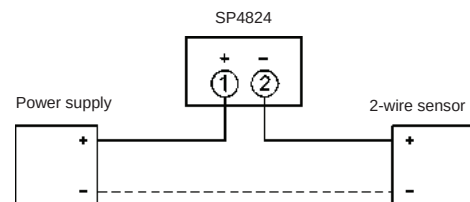
Panel case



Field case



Connection diagram



Ordering code

SP4824 - 1. - 2. - 3. - 4.

1. Device type	
1	panel case
2	field case 82x80x85 mm (WxHxD)
2. Display characteristics	
S	increasing (Standard)
F	decreasing
3. Protection class	
1	IP54
2	IP65
4. Unit (appears on the face plate)	
Accessories	
10031201	mounting brackets

Display GIA 0420 N



- Self-supplying, no additional auxiliary supply necessary
- Freely scalable
- Integrated self-diagnostic

Characteristics

The GIA 0420 is a microprocessor-controlled displaying device for 4..20 mA standard signals.

Any transmitter (with 4..20 mA output) can be connected to the device. The range adjustment of the GIA 0420 to the transmitter is done by entering the initial and final value and the decimal point position. No additional auxiliaries are needed for this adjustment, but the three buttons on the back side of the device.

The GIA 0420 doesn't need a separate auxiliary supply but is directly supplied by the measuring current. It has an integrated self-diagnostic which checks the device that it works correctly. This self-diagnostic together with the transmitter's check for "sensor break" and "sensor short circuit" and range exceeding or falling below ensures an optimum of operational reliability.

Technical data

Measuring input

Input signal : 4..20 mA (2-wire)
Accuracy : $\pm 0.2\%$ FS ± 1 digit
Measuring rate : 5 measurements / seconds
Voltage load : 3,5 V
Power supply : self-supplying: devices is supplied directly from measuring current

Working temperature : 0..50 °C
Filter : adjustable in 3 stages
Switching output : 1x electrically isolated open collector switching output
Storage : min- / max-memory via buttons

Display

Display : LCD display
Height : 10 mm
Display range : -1999..+9999 digit
initial and final value adjustable

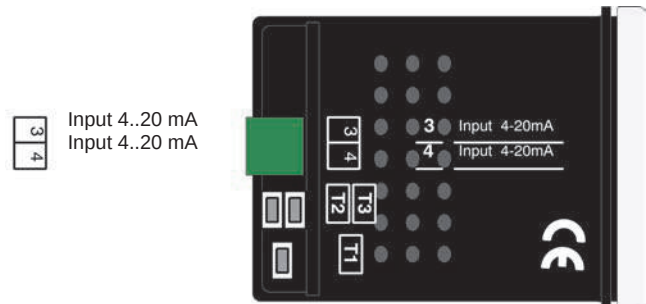
Connection : 2-pole screw / clamp terminals,
max. cross section up to 1.5 mm²

Housing : fibre-reinforced Noryl,
front screen made of polycarbonate
Protection class : front IP54

Dimensions

Housing : 24 x 48 x 65 mm (H x W x D)
Panel cutout : 21.7 x 45 mm [± 0.5 mm] (H x W)

Connection diagram



Design type

010N	Input signal: 0..20 V (3-wire) Input resistance: approx. 100 kOhm Power supply: 12..28 V, < 10 mA
ex	with ATEX protection for explosive areas

Ordering code

GIA 1. 2.
- -

1.	Design type
0420N	Display 0..20 mA
010N	Display 0..10 V
0420N-ex	Display 0..20 mA with Ex-protection
010N-ex	Display 0..10 V with Ex-protection
2.	Option
00	without option

Digital Panelmeter DP4848A



- Multipurpose input for 0/4..20 mA, 0/2..10 V and potentiometer
- Input for RTD sensor Pt100/Pt1000
- Adjustable display range -199..999 Digit

Characteristics

In spite of the small device size, the large display provides a good view from afar.
Other models of the DP4848A are for temperature measurement with Pt100 and Pt1000 sensors. The input configuration is switch selectable from the side, without opening the case. Input and supply voltage are isolated. The display range is adjustable with 20-turn trim pot's for initial value and span.

Technical data

Power supply

Supply voltage : 10.8..30 V DC; 17..30 V AC
Frequency AC : 47..63 Hz
Power consumption : approx. 1.2 VA
Working temperature : -10..+60 °C
CE-conformity : EN 61326-1:2013

Input

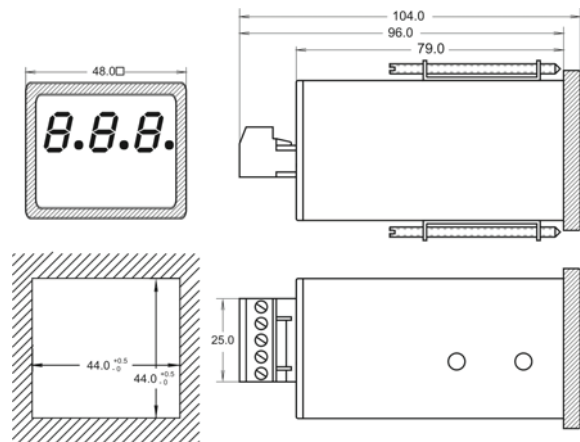
Voltage : 0/2..10 V DC
Input resistance : $R_i = 40 \text{ k}\Omega$
Overload : max. 48 V
Current : 0/4..20 mA
Input resistance : $R_i = 125 \Omega$
Overload : max. 60 mA
Potentiometer : min. 1 k Ω , max. 100 k Ω
Pt100 : -19.9..+99.9 °C / -100..+600 °C
Sensor current : approx. 1 mA (low self heating)
Pt1000 : -19.9..+99.9 °C
Sensor current : approx. 0.2 mA (low self heating)
Accuracy : < 0.05 % +/-1 Digit

Display

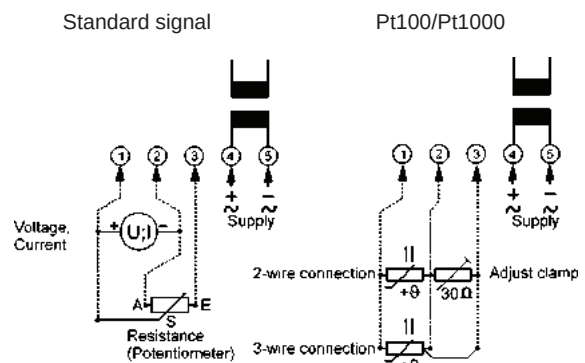
Conversion rate : approx. 2 / s
Range / color : 3 digit, red or green, 7.6 mm
Decimal point : switch selectable
Overflow : display flashes with 2 Hz
Case : DIN 48x48 mm, mounting depth 96 mm
Type : slide-in case, acc. to DIN 43700, material Noryl SE1 GFN2 panel cut-out 44x44 mm

Weight : 100 g
Connection : plug-in terminal, max. 1.5 mm
Protection class : front IP54 or IP65 terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DP4848A - 1. - 2. - 3. - 4.

1. Display	
3	3-digit LED red 14.2mm
4	3-digit LED green 14.2mm
2. Input	
10	industry standard signal
20	custom input (on request)
50	Pt100
53	Pt1000
3. Protection class	
1	IP54
2	IP65
4. Unit (appears on the face plate)	

Bar Graph Display BA7224N



- Universal version for 0/4..20 mA, 0..10 V DC
- Red LED indicator (optionally green)
- Vertical and horizontal installation
- All areas can be selected via connecting terminal
- Display area adjustable via potentiometer

Characteristics

Series BA bar graph displays are especially well suited for representing continuously changing measurements. With their small design, they can be easily integrated into control panels and diagrams.

The version BA7224N is especially well-suited for processing input signals 0/4..20 mA, 0..10 V DC (limit value adjustable from 5..50 V DC). Adaptation to the corresponding input signal takes place via the connecting terminal. The display zero point and limit value can be adjusted via separate potentiometers.

Technical data

Auxiliary power

Auxiliary voltage : 24 V DC $\pm$ 10 % isolated
Power consumption : approximately 1.5 VA
Operating temperature : 0..+60 °C
CE-conformity : EN 61326-1:2013; EN 61010-1:2010

Measurement input

Current input : 0/4..20 mA,
Voltage input : 0..10 V DC (adjustable limit value)
Input resistance : Ri at: 10 V = 100 k Ω , 20 mA = 100 Ω

Accuracy

Resolution : 20 digit
Basic precision : $\pm$ 1 digit
Temperature coefficient : 100 ppm/K

Display

Range : 20 segments
Colour : red, optionally green

Housing

mm : DIN 72 x 24 mm, installation depth 106 mm
Design : PC/ABS blend, black colour, UL94V-0
Panel aperture 66 x 21 mm

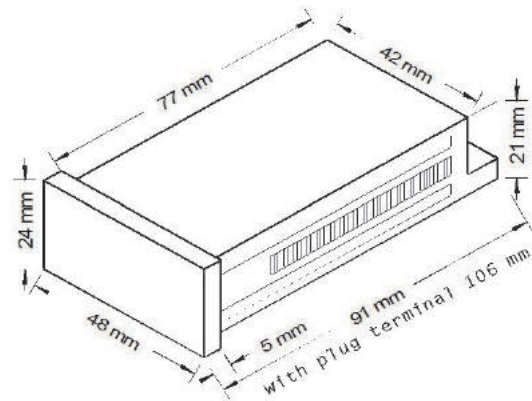
Fastening : locking screw element for wall thickness up to 50 mm

Weight : 80 g

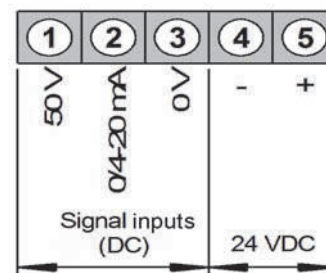
Connection : rear plug terminals, max. 1.5 mm²
Protection class IP00

Ingress protection : Front IP54 or IP65

Dimensions



Connection diagram



Ordering code

BA 1. 2. 3. 4. 5. 6. 7.
BA - - - - - -

1. Construction	
7224N	20 segments
2. Installation	
1	Vertical
2	Horizontal
3. Bar colour	
1	Red display
2	Green display
4. Auxiliary voltage	
5	24 V DC with electrical isolation
5. Input signal	
0	Universal version
6. Measuring range scale 0..100 %	
10	Universal version
7. Ingress protection	
1	IP54
2	IP65

BCD Panelmeter BCD7224



- Display red or green 5-digit
- LED 10 mm or 14.2 mm
- Input BCD parallel or multiplex
- Supply voltage 10..30 V DC, optional 5 V DC

Characteristics

Digital Panelmeter BCD7224 was designed for monitoring and measurement applications, specially in connection with SPS automation. The multiplex mode minimize the number of input lines. The small case is suitable for installation in control units and panel boards.

Technical data

Power supply

Supply voltage : 10..30 V DC
Power consumption : approx. 1.2 VA
Operating temperature : -10..+60 °C
CE-conformity : EN 61326-1:2013

Display

: 5-digit
LED 10 mm or 14.2 mm
Color : red or green
Decimals : single selection

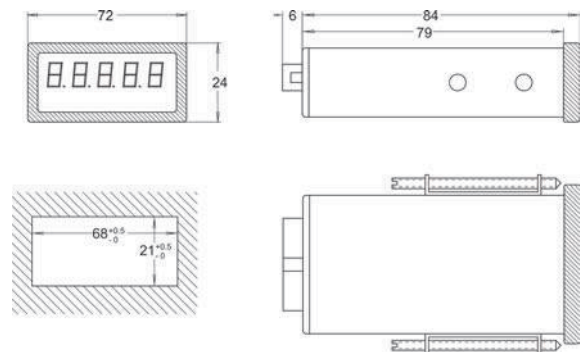
Inputs

Control : parallel or multiplex
Voltage level : low-signal 0..3 V DC;
high-signal 10..30 V DC,
or TTL-level
Input resistance : approx. 20 kΩ
minimal rise time of the
strobe inputs 10 ms

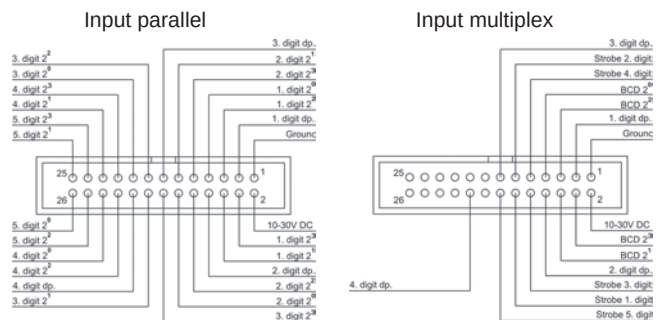
Case

Type : DIN 72x24 mm, mounting depth 85 mm
slide-in case according to
DIN 43700, Noryl SE1 GFN2
panel cut-out 68x21 mm
Weight : approx. 60 g
Connection : terminal strip 16 pole,
Protection class : IP54 or IP65
terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

BCD 1. 2. 3. 4. 5.
BCD - - - -

1. Model	7224
2. Display	
1	LED red 10 mm
2	LED green 10 mm
3	LED red 14.2 mm
4	LED green 14.2 mm
3. Supply voltage	
5	10..30 V DC
7	5 V DC
4. Input	
1	0..3 V DC low; 10..30 V DC high, parallel
2	5 V TTL-level, parallel
3	0..3 V DC low; 10..30 V DC high, multiplex
4	5 V TTL-level, multiplex
5. Protection class	
1	IP54
2	IP65
Accessories connection cable with terminal strip and pigtails	
AK26K-AE-3	26x0.25 mm ² length 3 m
AK26K-AE-10	26x0.25 mm ² length 10 m
AK26K-AE-20	26x0.25 mm ² length 20 m

Bargraph indicator BA9624N



- Universal design for 0/4..20 mA, 0..10 V DC
- Red LED display (optional green)
- Vertical and horizontal mounting
- All ranges selectable via terminal
- Display area selectable via potentiometer

Features

Bargraph indicators of the BA series are especially suited to display constantly changing readings. Due to the compact housing they can be easily integrated into control panels and graphs. The BA9624N design is particularly suitable for processing unit signals 0/4-20 mA and 0 to 10 V DC. The adaptation to the respective input signal results from the terminal. The indicator's zero point and full-scale value can be adjusted via separate potentiometer.

Technical data

Power supply

Power voltage : 24 V DC $\pm$ 10 %
Current consumption : ca. 2.0 VA
Operating temperature : 0..+60 °C
CE-compliance : EN 61326-1:2013; EN 61010-1:2010

Measuring input

Current input : 0/4 ..20 mA
Voltage input : 0..10 V DC
Input resistance : Ri at: 10 V = 124 k Ω , 20 mA = 100 Ω

Accuracy

Resolution : 30 digits
Basic accuracy : $\pm$ 1 Digit
Temperature coefficient : 100 ppm/K

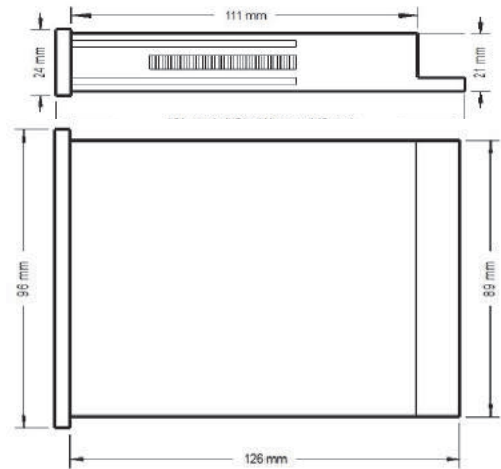
Indicator

Scope : 30 segments
Colour : red, optional green

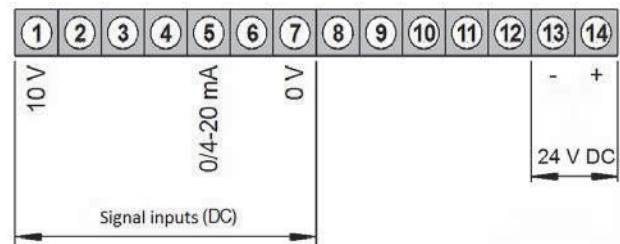
Housing

Design : PC/ABS-Blend, black colour, UL94V-0
Attachment : Snap-in screw to 50 mm, wall thickness
Weight : 300 g
Connection : Rear connection terminals, max 2.5 mm², protection class IP00
Protection class : Front IP54 or IP65

Dimensions



Terminal assignment



Ordering code

1. 2. 3. 4. 5. 6. 7.
BA - - - - - -

1. Model	9624N	30 segments
2. Mounting	1	vertical
	2	horizontal
3. Bargraph colour	1	red
	2	green
4. Power supply	5	24 V DC with galvanic isolation
5. Input signal	0	universal design
6. Measuring range scale 0..100 %	10	universal design
7. Protection class	1	IP54
	2	IP65

Bargraph Indicator BA9624B



- Multipurpose inputs for 0/4..20 mA and 0..10 V DC
- Bargraph with 30 segments red, yellow or green programmable
- Horizontal or vertical mounting
- Integrated integrated 3-digit display red, free adjustable in the range -99..999 Digit
- Increasing or decreasing trend indication
- Bargraph or dot operation
- Display time 0.01..10 s programmable

Characteristics

Multi-color Bargraph Displays can be used for monitoring analog trend indication. The small cases are suitable for installation in control units and panel boards.

The BA9624B includes a 3-digit display for alarm values and programming functions. The multipurpose input is designed for industry standard signals 0/4..20 mA and 0..10 V DC. 4 front buttons makes the programming for the application possible.

Technical data

Power supply

Supply voltage : 85..265 V AC, 50/60 Hz; 10..30 V AC/DC
Power consumption : approx. 5 VA
Operating temp. : 0..50 °C
CE-conformity : EN 61326-1:2013; EN 61010-1:2010

Input

Current : 0/4..20 mA, Ri 100 Ω
Voltage : 0..10 V DC, Ri 200 kΩ

Indicator

Bargraph : 30 segments LED tricolor
Display : 3-digits, 8 mm red ; -99..999 Digit
Display time : programmable from 0.01..10 s
Overflow : flashing upper or lower bargraph segments
Accuracy : ± 0.2 %; 1 segment (bargraph);
±1 digit (display)

Output

2 Relay : SPDT, 250 V AC / 5 A or 30 V DC / 5 A

Case

Type : DIN 96x24 mm, mounting depth 120 mm
slide-in case according to DIN 43700,
Polycarbonate / frame ABS
panel cut-out 92x22 mm

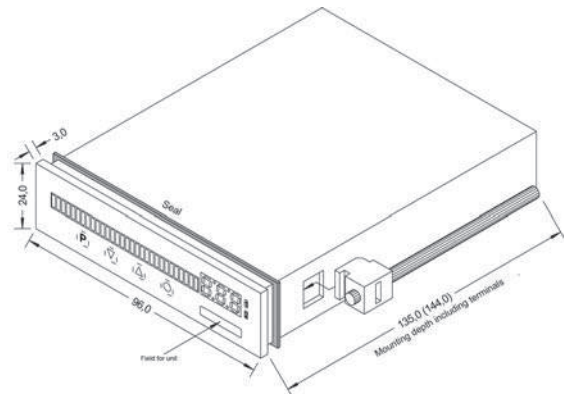
Installation : 2 clips, up to 50 mm wall thickness

Weight : 0.29 kg

Protection class : front IP65, terminals IP00

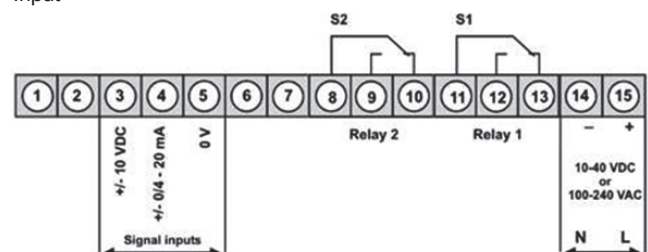
Connection : screw terminals, with pressure plate,
max. 2.5 mm² according to BGV A3

Dimensions

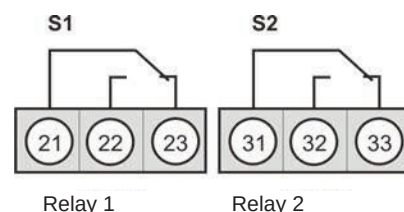


Connection diagrams

Input



Output



Ordering code

BA9624B - 1. - 2. - 3. - 4. - 5.

1. Mounting direction	
1	vertical
2	horizontal
2. Display color	
3	bargraph tricolor red/yellow/green 7-segment display red
3. Supply voltage	
0	85..265 V AC
5	10..30 V AC/DC
4. Measuring range, scale 0-100 %	
10	0/4..20 mA, 0..10 V DC
5. Protection class (front)	
2	IP65

Universal Display GA 9648



- Universal input for standard signals, frequency, Pt100/Pt1000 and thermocouples
- Self-diagnostics
- Integrated electrically isolated transmitter supply
- Interface

Characteristics

The GA 9648 is a microprocessor-controlled displaying device for universal use.

It has a universal input for standard signals (0..20 mA, 4..20 mA, 0..50 mV, 0..1 V, 0..2 V and 0..10 V), resistance thermometers (Pt100 and Pt1000), thermocouples (type J, K, N, S and T) and frequency (TTL and switch contact). Additionally the device provides functions like flow measurement, rotation speed measurement and counter.

The GA 9648 saves the highest and lowest measured value in the min/max value memory. Furthermore it automatically detects impermissible operating states like display or system error and displays a corresponding error code.

Technical Data

Measuring inputs

Measuring type	Input signal	Measuring range	Note
Voltage signal	0..10 V	0..10 V	Ri ≥ 200 kOhm
	0..2 V	0..2 V	Ri ≥ 10 kOhm
	0..1 V	0..1 V	Ri ≥ 10 kOhm
	0..50 mV	0..50 mV	Ri ≥ 10 kOhm
Current signal	4..20 mA	4..20 mA	Ri = ~125 Ohm
	0..20 mA	0..20 mA	Ri = ~125 Ohm
Resistance	Pt100	-50.0..+200.0 °C	3-wire connection
		-200..+850 °C	
	Pt1000	-200..+850 °C	2-wire connection
		-200..+850 °C	

Thermocouple	NiCr-Ni type K	-70.0..+250.0 °C	
		-270..+1372 °C	
	Pt10Rh-Pt type S	-50..+1750 °C	
	NiCrSi-NiSi type N	-100.0..+300.0 °C	
		-270..+1350 °C	
	Fe-CuNi type J	70.0..+300.0 °C	
		-170..+950 °C	
Frequency	Cu-CuNi type T	-70.0..+200.0 °C	
		-270..+400 °C	
	TTL signal	0..10 kHz	
	switching contact NPN	0..3 kHz	internal pull-up-resistor is switched on
	switching contact PNP	0..1 kHz	internal pull-down-resistor is switched on
Flow	TTL signal, switching contact NPN, PNP	analog to frequency	
Rotation speed	TTL signal, switching contact NPN, PNP	0..9999 U/min	switchable predistributor (1..1000), pulse frequency: max. 600000 pulses/min.
Rotation speed	TTL signal, switching contact NPN, PNP	0..9999 U/min	switchable predistributor (1..1000), pulse frequency: max. 600000 pulses/min.
		0..9999 U/min	switchable predistributor (1..1000), pulse frequency: max. 10000 pulses/min.

Accuracy

Standard signal	: < 0.2 % FS ±1digit (at 0..50 mV: < 0.3 % FS ±1digit)
Resistance thermometer	: < 0.3 % FS ±1digit
Thermocouple	: < 0.3 % FS ±1digit (at type S: < 0.5 % FS ±1digit)
Frequency	: < 0.1 % FS ±1digit

Measuring rate

Standard signal	: 100 measurements / second
Temperature	: 4 measurements / second
Frequency	: 100 measurements / second
Power supply	: 230 V AC, 50 / 60 Hz
Power consumption	: approx. 5 VA
Working temperature	: -20..+50 °C

continued on next page

Display

Display : LED display
Height : 13 mm
Display range : -1999..+9999 digit
initial, final value and decimal point
freely selectable

Operation : via 4 buttons or via interface
Interface : EASYBus interface, electrically isolated
Transmitter supply : 24 V DC $\pm 5\%$, 22 mA, electr. isolated
at DC supply: 18 V DC
Electric connection : via screw / clamp terminals
wire cross section from 0.14..1.5 mm²
Protection class : front IP54,
with optional sealing IP65

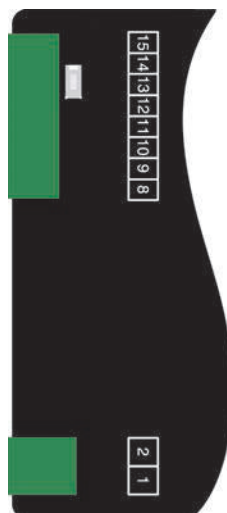
Dimensions

Housing

Size : 48 x 96 mm (H x W)
Mounting depth : 115 mm
(incl. screw / clamp terminals)
Panel mounting : by fixing clamps
Panel cutout : 43.0 x 90.5 mm [± 0.5 mm] (H x W)

Connection diagram

15	EASYBus interface
14	EASYBus interface
13	input: 0..10 V
12	input: 0..1 V, 0..2 V, mA, frequency, Pt100, Pt1000
11	input: 0..50 mV, thermocouple, Pt100
10	input: GND, Pt100, Pt1000
9	transmitter supply (-)
8	transmitter supply (+)
2	power supply
1	power supply



Options

230A	supply voltage: 230 V AC (standard)
012D	supply voltage: 12 V DC (11..14 V)
024D	supply voltage: 24 V DC (22..27 V)
024A	supply voltage: 24 V AC ($\pm 5\%$)
115A	supply voltage: 115 V AC ($\pm 5\%$)
AA	analog output 0..20 mA, 4..20 mA (selectable)
AV	analog output 0..10 V

Ordering code

GA9648 - 1. - 2. - 3.

1. Supply voltage	
230A	230 V AC (standard)
012D	12 V DC
024D	24 V DC
024A	24 V AC
115A	115 V AC
2. Analog output	
00	no analog output (standard)
AA	analog output 0..20 mA, 4..20 mA
AV	analog output 0..10 V
3. Option	
00	without option
IP	sealing to increase protection class to IP65

Special design types (upon request)

SA1 Selectable scaling
with input 0..10 V and control input 24 V
The device has a 0..10 V standard signal input and a 24 V control input. By means of the 24 V control input it is possible to switch between two freely programmable scalings.

SA2 Input ± 10 V DC
SA3 Set-point controller
This special design type makes the GA 9648 to a microprocessor-controlled set-point controller for universal use. The output value can be set via button 2 and 3 and then be output as analog signal corresponding to selected analog output type.

Accessories

- EAK 36**
Unit stickers (black with white characters), 36 different units, for labeling of display devices

Economy Panelmeter EP9648



- Multipurpose input for 0/4..20 mA, 0..10 V and Pt100
- LED-Display 14,2 mm red, yellow, green or blue or 20.3 mm red
- Indicating range and decimal point free programmable
- Programmable display time

Characteristics

The Economy Panelmeter EP9648 is a technical advancement of the DP9648. With universal input conditions and easy programming the Panelmeter receive a powerful instrument for monitoring, measurement and control applications. As highlight the device offers a self acting display brightness. A built-in photo sensor controls the ambient brightness and corrects the display brightness.

Technical data

Power supply

Supply voltage : 230 / 115 V AC 50/60 Hz $\pm 10\%$
or 24 V DC $\pm 20\%$

Power consumption: 3 VA

Working temp. : -10..+60 °C

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Current : 0/4..20 mA, Ri 10 Ω , overload max. 3-times

Voltage : 0..10 V, Ri 100 k Ω , overload max. 3-times

Pt100 : -100..400 °C
sensor current < 1 mA (low self heating)

Accuracy : voltage/current $\pm 0.1\%$, ± 1 digit;

Pt100 ± 0.2 °C, ± 1 digit

Display : LED 14.2 mm yellow, green, blue
or 20.3mm red

Indicating range : -1999..2000 Digit

Decimal point : programmable

Overflow indication : "-1999" or "9999",
flashing with 2 Hz

Display brightness : programmable from 2..100 %,
with photo sensor (only display red, optional)

Analog output

Voltage : 0..10 V DC, linearized,
short circuit proof max. 5 mA

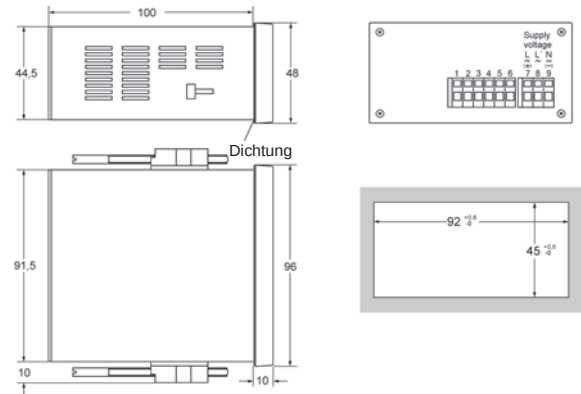
Accuracy : 0.1 %

Case : panel case DIN 96x48 mm,
material PA6-GF; UL94V-0

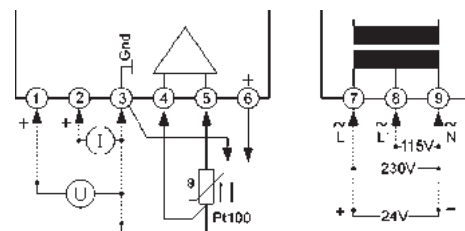
Dimensions : front 96x48 mm, mounting depth 100mm

Weight : max. 390 g
Connection : clamp terminals, 0.08..1.5 mm²
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

EP9648 - 1. - 2. - 3. - 4. - 5. - 6.

1. Display		
1	LED red	14.2 mm
3	LED red	20.3 mm
4	LED yellow	14.2 mm
6	LED green	14.2 mm
8	LED blue	14.2 mm
2. Model		
15	Industry standard signal	
	0/4...20 mA, 0...10 V DC and Pt100	
3. Supply voltage		
0	230 V AC	±10 % 50-60Hz
5	24 V DC	±20 %
4. Options		
00	without option	
07	self acting display brightness (only display LED red 1 and 3)	
5.	Unit appears in the unit field	
6.	Additional text above the display (3x90 mm HxW)	

Loop powered Panelmeter SP9648



- LED-display without separate supply voltage
- Free adjustable indicating range
- Switch selectable conversion rate 3/s or 0.5/s

Characteristics

Loop powered Panelmeter SP9648 can be used for indicating and measurement applications in process technology and automation. The small case is suitable for installation in control units and panel boards. The input allows indication of any physical dimension, which are stated in a signal of 4...20mA.

Technical data

Input

Current input : 4...20 mA
Overload range : -100...150 mA
Voltage drop : 2.5...3.4 V,
depends on chosen display brightness
Accuracy : 0.1 % , +/- 1 Digit
Operating temp. : -10...+60 °C
CE-conformity : EN 61326-1:2013

Display

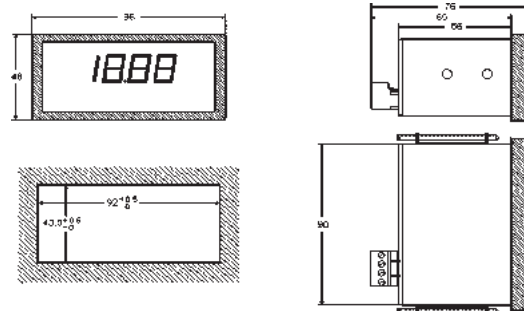
Indicating range : -1999...+1999
Span : adjustable 0...4000 Digits
Zero point : adjustable -100...+25 % of the span
Brightness : adjustable ≈ 40...100 %
Conversion rate : 3/s or 0.5/s switchable
Height : 7.6 mm
Overflow indication : "- / " for negative and
" / " for positive overflow
Color : red
Case : DIN96x48 mm mounting depth 69 mm
acc. to DIN 43700, material Noryl GFN 2 SE 1
field case polycarbonate RAL 7035

Weight

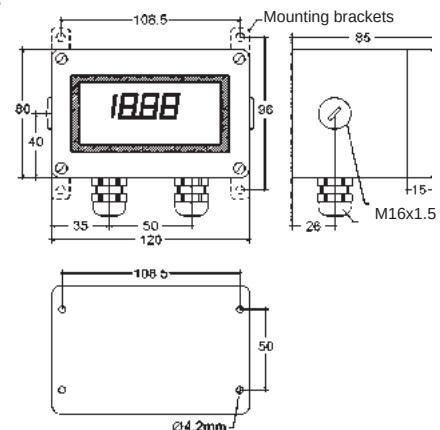
- Panel case : approx. 170 g
- Field case : approx. 366 g
Connection : slide-in terminal strip,
max. 1.5 mm², AWG16
Protection class : front IP54 or IP65
terminals IP20 acc. to BGV A3

Dimensions

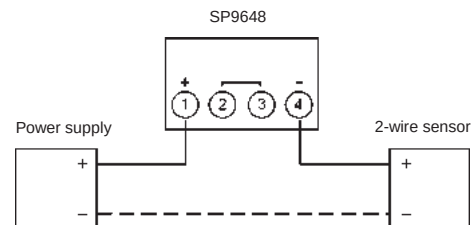
Panel case



Field case



Connection diagram



Ordering code

SP9648 - 1. - 2. - 3. - 4.

1. Device type	
1	panel case
2	field case 120x80x85 mm (WxHxD)
2. Display characteristic	
S	increasing (Standard)
F	decreasing
3. Protection class	
1	IP54
2	IP65
4. Unit (appears on the face plate)	
Accessories	
10031201	mounting brackets

Standard Signal Panelmeter S9648



- Measuring input for standard signals 0/4...20 mA or 0...10 V and Potentiometer
- Integrated transmitter supply
- LED-Display 14.2 mm red, indicating range $\pm 9999(0)$ Digit
- Max. 4 alarm outputs, relay SPDT or transistor

Characteristics

The Standard Signal Panelmeter S9648 has been designed for measuring industry standard signals 0/4...20 mA or 0...10 V DC. The device offers an integrated transmitter supply for direct connection of 2- and 3-wire transmitters for e.g. pressure or temperature. Indicating range and decimal point are free programmable in the range $\pm 9999(0)$ digit.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$,
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption : max. 3.5 VA, with analog output 5 VA
Operating temp. : -10...+55 °C
CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Current : 0/4...20 mA $R_i = 10\ \Omega$
Voltage : 0...10 V $R_i > 100\ k\Omega$
Potentiometer : 0...1 k Ω / 100 k Ω
Accuracy : $< 0.1\% \pm 2$ digit
Transmitter supply : U_0 approx. 24 V, R_i ca. 150 Ω , max. 50 mA
(max. 25 mA with 4 relays)

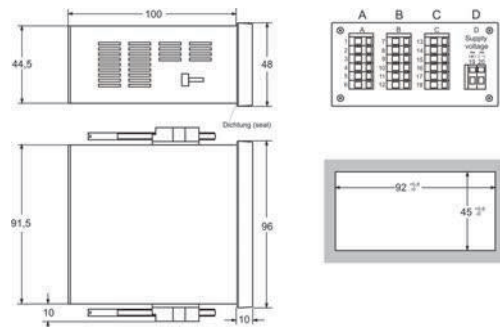
Display

Indicating range : $\pm 9999(0)$ digit with leading zero suppression
Parameter display : LED 2-digit red, 7 mm
(parameter and output indicator)

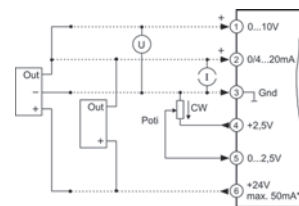
Output

Relay : SPDT $< 250\ V\ AC < 250\ VA < 2\ A$,
 $< 300\ V\ DC < 50\ W < 2\ A$
Transistor : max. 35 V AC / DC max. 100 mA,
with short circuit protection
Analog : 0/4...20 mA burden $\leq 500\ \Omega$; 0/2...10 V
burden $> 500\ \Omega$, isolated
automatically output changing
- Accuracy : 0.1 %; TK 0.01 %/K
Case : panel case DIN 96x48 mm,
material PA6-GF; UL94V-0
Dimensions : front 96x48 mm, mounting depth 100,
Weight : max. 390 g
Connection : clamp terminals, 0.08...1.5 mm²
AWG28...AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

S9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A

1 input standard signals,
0/4...20 mA, 0...10 V DC and potentiometer,
integrated transmitter supply 24 V max. 50 mA*

2. Terminal strip B

00 not installed
2R 2 relay outputs
2T 2 electronic outputs
S1** 2. input standard signals,
integrated transmitter supply 24 V max. 50 mA*

3. Terminal strip C

00 not installed
2R 2 relay outputs
2T 2 electronic outputs
AO analog output 0/4...20 mA, 0/2...10 V

4. Terminal strip D; supply voltage

0 230 V AC $\pm 10\%$ 50-60Hz
1 115 V AC $\pm 10\%$ 50-60Hz
4 24 V AC $\pm 10\%$ 50-60Hz
5 24 V DC $\pm 15\%$

5. Options

00 without option
01 min-and max-peak hold
02 difference-, average-, larger-, smaller value
08 analog output separate programmable

6. Unit (appears in the unit field)

7. Additional text placed above the display (3x90 mm HxW)

Attention!

* Terminal strip A+B together max. 50 mA

** no isolation to terminal strip A, only in connection with option 02

Temperature Panelmeter T9648



- Measuring input for Pt100, Pt1000 or Thermocouple
- LED-Display 14.2 mm red
- Max. 4 alarm outputs relay SPDT or transistor

Characteristics

The Temperature Panelmeter T9648 is suitable for measurement of temperatures in connection with RTD sensors Pt100, Pt1000 and thermocouples Fe-CuNi (J), NiCr-Ni (K), Pt10Rh-Pt (S). Devices for other temperature sensors are available on request. The measuring input is isolated. The measuring range can be limited in the configuration level. It is identical with the range of the analog output.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA, with analog output 5 VA

Operating temp. : -10...+55 °C

CE- conformity : EN 61326-1:2013
EN 60664-1:2007

Input

Pt100 : -100...+600 °C

Pt1000 : -50...+200 °C

Accuracy : Pt100 or Pt1000 $< 0.1\% \pm 2$ Digit,
max. 100 Ohm line resistance

Thermocouple : Fe-CuNi (J) 0...+800 °C,
NiCr-Ni (K) 0...+1200 °C
Pt10Rh-Pt (S) 0...+1600 °C
built-in cold junction

Accuracy : $< 0.1\% \pm 2$ Digit with compensating line

Display : LED red, 14.2 mm

Indicating range : $\pm 9999(0)$ Digit

Parameter display : LED 2-digit red, 7 mm
(parameter - and output indicator)

Output

Relay SPDT : < 250 V AC < 250 VA < 2 A,
 < 300 V DC < 50 W < 2 A

Transistor : max. 35 V AC/DC, 100 mA,
short circuit protected

Analog output : 0/4...20 mA burden $\leq 500 \Omega$; 0/2...10 V
burden $> 500 \Omega$, isolated
automatic output changing
(burden depending)

- Accuracy : 0.1 %; TK 0.01 %/K

Case : panel case DIN 96x48 mm,
material PA6-GF; UL94V-0

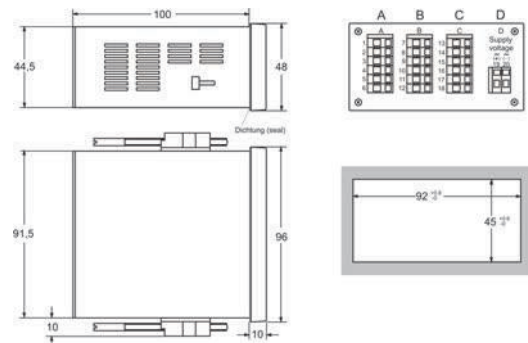
Dimensions : front 96x48 mm, mounting depth 100 mm

Weight : max. 390 g

Connection : clamp terminals, 0.08...1.5 mm²
AWG28...AWG14

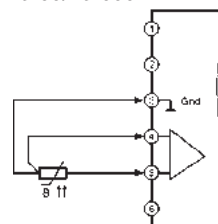
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions

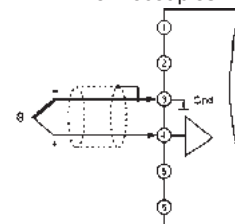


Connection diagram

Pt100/Pt1000



Thermocouples



Order code

T9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A

1	input Pt100
3	input Pt1000
5	input thermocouple

2. Terminal strip B

00	not installed
2R	2 relay outputs
2T	2 electronic outputs
T1*	2 nd input Pt100
T3*	2 nd input Pt1000

3. Terminal strip C

00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4...20 mA, 0/2...10 V

4. Terminal strip D; supply voltage

0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$

5. Options

00	without option
01	min-and max-peak hold
02	difference-, average-, larger-, smaller value
07	display brightness programmable

6. Unit (appears in the unit field)

7. Additional text placed above the display (3x90 mm HxW)

*In connection with terminal strip A, only Pt100 or Pt1000; Pt100 and Pt1000 can not be mixed. Not isolated to terminal strip A. Input ranges of Input 1 and 2 have to be the same. Only available with option 02.

DMS Bridge Panelmeter DMS9648



- Weight-force-pressure-torque with DMS bridges
- 1- or 2-way action, pressure or traction programmable
- Bridge sensitivity programmable
- Max. 8 parameter sets programmable
- Max. 4 alarm outputs, relay or transistor

Characteristics

The DMS Bridge Panelmeter DMS9648 is designed for measuring forces, pressure and torques with DMS bridges. The device offers a programmable bridge supply 5/10 V DC; max. 50 mA output current. Measuring errors due to line resistance can be compensated by using a sense line.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA, with analog output 5 VA

Operating

temperature : $-10\ldots+55\text{ }^{\circ}\text{C}$

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Bridge supply : 5 V DC or 10 V DC ; programmable;
max. 50 mA

Bridge resistance : at 5 V min. 100 Ω ; at 10 V min. 200 Ω

Bridge sensitivity : 0.900..6.600 mV/V programmable

Sense line : compensated line resistance
of max. 10 Ω

Accuracy : $< 0.1\% \pm 2$ Digit

Display : LED red, 14,2 mm

Indicating range : $\pm 9999(0)$ Digit

Additional display : LED 2 digit red, 7 mm
(parameter - and status indicator)

Output

Relay SPDT : $< 250\text{ V AC} < 250\text{ VA} < 2\text{ A}$,
 $< 300\text{ V DC} < 50\text{ W} < 2\text{ A}$

Transistor : max. 35 V AC/DC, 100 mA,
with short-circuit-proof

Analog output : 0/4..20 mA burden $\leq 500\text{ }\Omega$;
0/2..10 V burden $> 500\text{ }\Omega$, isolated
output changes automatically

- Accuracy : 0.1 %; TK 0.01 %/K

Case : panel mounting DIN 96x48,
material PA6-GF; UL94V-0

Dimensions : front 96x48 mm, mounting depth 100 mm

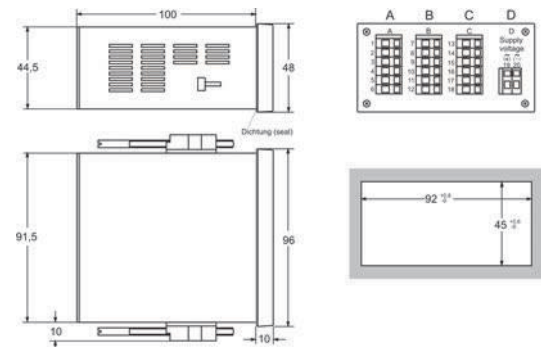
Weight : max. 390 g

Connection : clamp terminals, 0.08..1.5 mm²

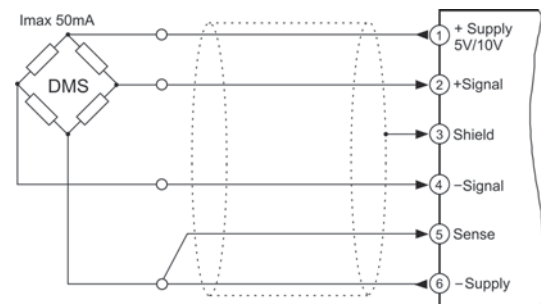
AWG28..AWG14

: front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DMS9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A

- | | |
|---|------------------------------------|
| 1 | input DMS bridge, 1 parameter set |
| 2 | input DMS bridge, 8 parameter sets |

2. Terminal strip B

- | | |
|----|----------------------|
| 00 | not installed |
| 2R | 2 relay outputs |
| 2T | 2 electronic outputs |

3. Terminal strip C

- | | |
|----|-------------------------------------|
| 00 | not installed |
| 2R | 2 relay outputs |
| 2T | 2 electronic outputs |
| AO | analog output 0/4..20 mA, 0/2..10 V |

4. Terminal strip D; supply voltage

- | | |
|---|-----------------------------|
| 0 | 230 V AC $\pm 10\%$ 50-60Hz |
| 1 | 115 V AC $\pm 10\%$ 50-60Hz |
| 4 | 24 V AC $\pm 10\%$ 50-60Hz |
| 5 | 24 V DC $\pm 15\%$ |

5. Options

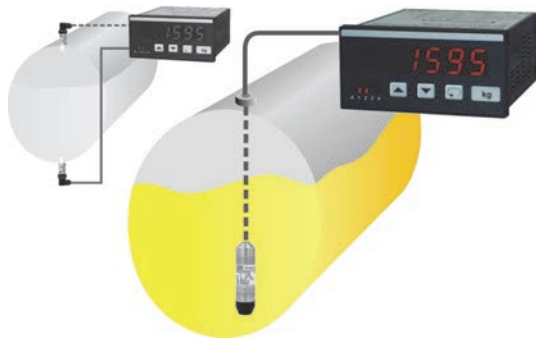
- | | |
|----|--|
| 00 | without option |
| 01 | min- and max- peak hold |
| 07 | display brightness programmable |
| 08 | analog output separately and independent from
the indicating range programmable
(only DMS9648-1) |

6. Unit (appears in the unit field)

7. Additional text placed above the display (3x90 mm HxW)

Connection diagram for terminal strips B-D see page Fehler:
Verweis nicht gefunden

Tank Display TA9648



- Inputs for standard signals 0/4..20 mA or 0/2..10 V
- 2nd input for pressure transmitter at pressure loaded tanks
- Input automatic level correction
- 6 standard- and custom sized tanks selectable
- Max. 4 alarm outputs, relay SPDT or transistor

Characteristics

The Tank Display TA9648 offers content measurement of tanks with no linear connection between level and content. Measurement will be realized by hydrostatic pressure or distance sensors. The device offers the possibility to connect a level sensor. Reaching a certain level, the displayed value will be corrected automatically to the value according to the position of the installed sensor.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$,
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption : max. 3.5 VA, with analog output 5 VA
Operating temp. : -10...+55 °C
CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Current : 0/4..20 mA; $R_i = 10\ \Omega$
overload 2-times; 4-times for max. 5 s
Voltage : 0/2..10 V DC; $R_i = 100\ k\Omega$
overload max. 100 V

Accuracy : $< 0.1\% \pm 2$ Digit
Transmitter supply : U_o appr. 24 V; R_i appr. 150 Ω ; max. 50 mA
(max. 25 mA, with 4 relays)

Display

: LED red, 14.2 mm
Indicating range : 999999 Digit with leading zero suppression
Parameter display : LED 2 digit red, 7 mm
(parameter - and output indicating)

Output

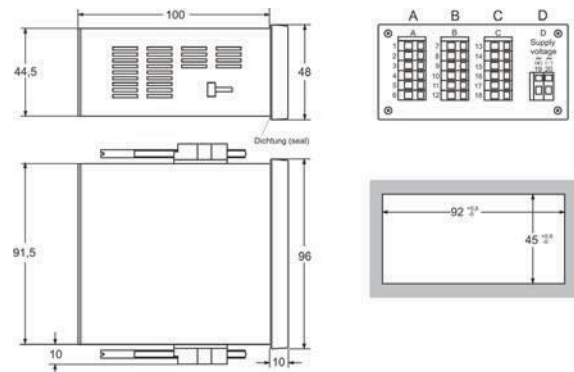
Relay : SPDT $< 250\ V\ AC < 250\ VA < 2\ A$,
 $< 300\ V\ DC < 50\ W < 2\ A$
Transistor : max. 35 V AC/DC max. 100 mA,
with short circuit protection
Analog : 0/4..20 mA burden $\leq 500\ \Omega$; 0/2..10 V
burden $> 500\ \Omega$, isolated
automatic output changing

- Accuracy : 0.1 %; TK 0.01 %/K

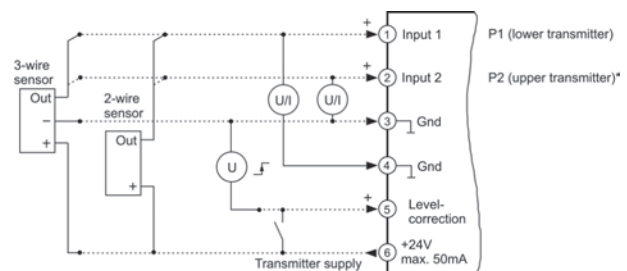
Case

: panel case DIN 96x48mm,
material PA6-GF; UL94V-0
Dimensions : front 96x48 mm, mounting depth 100 mm
Weight : max. 390 g
Connection : clamp terminals, 0.08..1.5 mm²
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



* only with pressure loaded tanks

Ordering code

TA9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	2 inputs 0/4..20 mA, 1 input for level correction, Integrated, transmitter supply 24V max. 50 mA
2	as 1, but inputs 0/2..10 V
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4..20 mA, 0/2..10 V
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
6. Unit (appears in the unit field)	
7. Additional text placed above the display (3x90 mm HxW)	

Flow Meter DF9648



- Measuring range programmable ± 99999 Digit
- Measuring unit programmable
- 2 totalizers programmable
- Pulse output for external evaluation
- Max. 4 alarm outputs, relay or electronic
- Isolated analog output 0/4..20 mA, 0/2..10 V

Characteristics

The Flow-Meter DF9648 is used in food technology, chemical and pharmaceutical industry and water technology. In connection with any type of pulse flow sensor the current flow rate and total flow can be measured, displayed and converted to an analog output signal. The dosage of quantity may be realized by using the alarm outputs. The optional pulse output allows an external summation of the flow quantity.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consump. : max. 3.5 VA, with analog output 5 VA

Operating temp. : -10..+55 °C

CE-conformity : EN 61326:2013; EN 60664-1:2007

Measuring input

Type : sensor with ac-output (coil), Namur-sensor or Hall-sensor (rectangular-signal) programmable
alternative external pulses 0/5..24 VDC

- Coil : switching threshold programmable $\pm 5.. \pm 2000$ mV, pull-down resistor 100 k Ω

- NPN sensor : low level < 0.9 V, high level > 2.1 V
pull-up resistor 20 k Ω

- PNP sensor : low level < 0.9 V, high level > 2.1 V
pull-down resistor 20 k Ω

- Namur : low level < 1.2 mA, high level > 2.1 mA,
hysteresis approx. 0.5 mA
pull-down resistor 1 k Ω

- Relay : pulse width min. 5 ms

Frequency : input A or B 0.1 Hz..15 kHz
(contact max. 30 Hz)
input A and B together 0.1 Hz..8 kHz
(contact max. 30 Hz)

Reset-input : low level < 0.9 V, high level > 2.1 V,
pull-down resistor 20 k Ω
pulse width min. 5 ms,
reset at rising edge

Accuracy : $\leq 0.1\%$ ± 1 Digit

Sensor supply : 8 V DC stabilized (Namur), 24 V DC
(coil, NPN, PNP, Push-Pull), Ri approx. 150 Ω ,
max. 50 mA (25 mA with 4 relay output)

Display : LED red, 14.2 mm
Parameter : LED 2-digit red, 7 mm
(parameter - and output indicator)
Display range : flow -99999..99999 Digit,
totalizer -99999..0..999999 Digit,
with leading zero suppression,
max. 3 decimals,
daily totalizer not voltage safe,
total totalizer voltage safe

Output

Relay : SPDT <250 V AC <250 VA <2 A,
<300 V DC <50 W <2 A

Transistor : max. 35 V AC/DC / 100 mA,
with short circuit protection

Analog : 0/4..20 mA burden ≤ 500 Ω ;
0/2..10 V load >500 Ω , isolated
automatic output changing
(burden dependent)

Accuracy : 0.1 %; TK 0.01 %/K

Pulse output : transistor ≤ 5 Hz, relays ≤ 0.1 Hz
(max. 500,000 switching cycles)
pulse width 100 ms

Case : panel case DIN96x48 mm,
material PA6-GF; UL94V-0

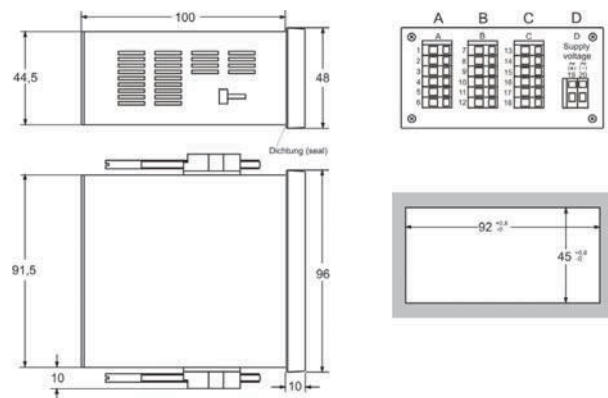
Dimensions : front 96x48 mm, mounting depth 100 mm,

Weight : max. 390 g

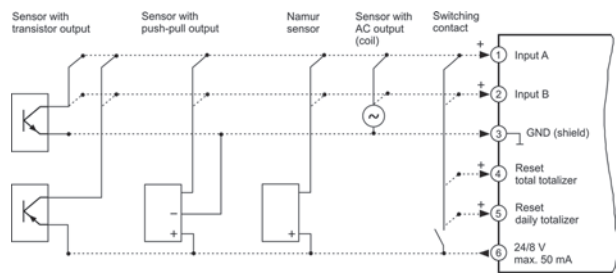
Connection : clamp terminals, 2 mm² single wire,
1.5 mm² flexible wire, AWG14

Protection class : front IP65, terminals IP20, acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DF9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	Input for sensors with AC-signals (coil), pulse signal (Namur, NPN, PNP, Push-Pull) or switching contact
2	as 1, but additional input for addition/subtraction
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs (alarm/pulse output)*
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output
4. Terminal strip D supply voltage	
0	230 V AC ±10 % 50-60Hz
1	115 V AC ±10 % 50-60Hz
4	24 V AC ±10 % 50-60Hz
5	24 V DC ±15 %
5. Options	
00	without option
11	*pulse output (only at terminal strip B)
6. Unit	
appears in the unit field	
7. Additional text above the display (3x90 mm HxW)	

* Strip B: output A1 = alarm, A2 = pulse output

Connection diagram for terminal strips B-D

Digital Amperemeter A9648



- Measuring range programmable 0..6/60 A
- LED-Display 14.2 mm red, indicating range $\pm 9999(0)$ Digit
- Max. 4 alarm outputs, relay SPDT or electronic

Characteristics

The Digital Amperemeter A9648 has been designed to measure DC and AC current signals. Five basic models are selectable and possible to measure currents from 0..0.900 mA to 0..60.0A. The measuring range is free programmable. Measuring of bipolar currents are possible. For example -20..+20 mA. Additional the free programmable display range within $\pm 9999(0)$ digit can be assigned to a programmed current measurement range. This can be important, if the measured current is a degree for another physical dimension.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$,
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA, with analog output 5 VA

Operat. temperature : -10..+55 °C

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input : model 1-4 = 0..0.9 mA up to 6 A DC/AC_{TRMS}
model 5 = 0..4.5 up to 60 A AC_{TRMS}

Input resistant : model 1 = 20 Ω , model 2 = 2 Ω ,
model 3 = 0.2 Ω , model 4 = 0.02 Ω ,
model 5 = integrated current transformer

Over load : 2-times; 4-times max. 5 s

Basic accuracy : < 0.1 % ± 2 Digit (DC); 0.5 % ± 2 Digit (AC)

Display : LED red, 14.2 mm, $\pm 9999(0)$ Digit

Parameter display : LED 2-digit red, 7 mm
(parameter and output indicator)

Output

Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Electronic : max. 35 V AC/DC max.100 mA,
short circuit protected

Analog : 0/4 ... 20 mA burden $\leq 500 \Omega$; 0/2 ... 10 V
burden > 500 Ω , isolated
automatic output changing

- Accuracy : 0.1 %; TK 0.01 %/K

Case : panel case DIN 96x48,
material PA6-GF; UL94V-0

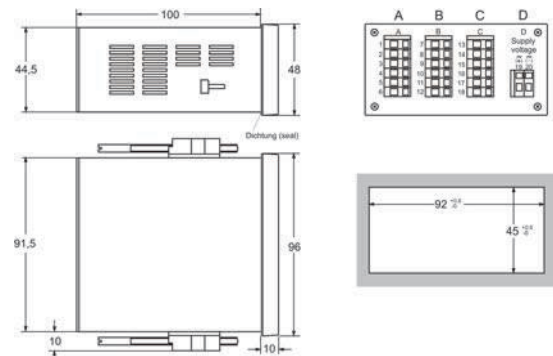
Dimensions : front 96x48 mm, mounting depth 100,
120 mm (with transformer)

Weight : max. 390 g

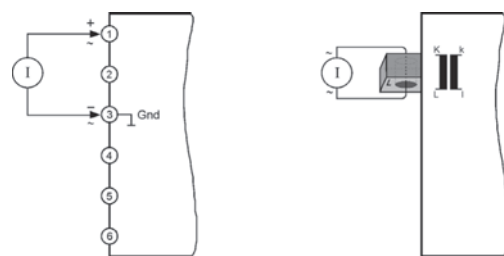
Connection : clamp terminals, 0.08..1.5 mm²
AWG28..AWG14

Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

A9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	0..9.999 mA DC/AC _{TRMS} clamp terminal
2	0..99.99 mA DC/AC _{TRMS} clamp terminal
3	0..999.9 mA DC/AC _{TRMS} clamp terminal
4	0..6.000 A DC/AC _{TRMS} clamp terminal
5	0..60.00 A AC _{TRMS} winding transformer
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
01	min- and max-peak hold
07	display brightness programmable
6. Unit appears in the unit field	
7. Additional text above the display (3x90 mm HxW)	

Digital Voltmeter V9648



- Measuring and indicating range separate programmable
- LED display 14.2 mm red, indicating range $\pm 9999(0)$ digit
- Max. 4 alarm outputs, relay SPDT or transistor

Characteristics

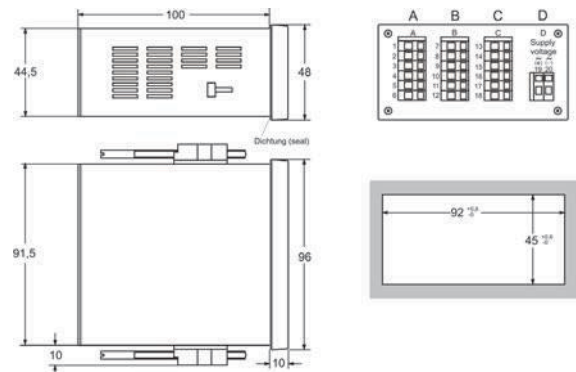
The Digital Voltmeter V9648 has been designed to measure DC and AC (TRMS) voltage signals.

Three basic models all are selectable and makes the possibility to measure voltages from 0..30.00 mV up to 0..999.9 V. Within a model the measurement range is free programmable. Measuring of bipolar voltages is also possible with basic models 1 and 2. For example -5..+5 V; or -10..+10 V in basic model 2. Additional a free programmable display range within $\pm 9999(0)$ digit can be assigned to a programmed voltage measurement range.

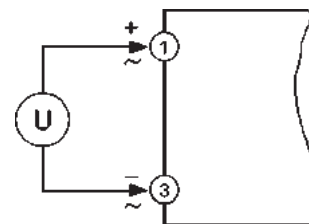
Technical data

Power supply	
Supply voltage	: 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$, 24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption	: max. 3.5 VA, with analog output 5 VA
Operating temp.	: -10..+55 °C
CE-conformity	: EN 61326-1:2013; EN 60664-1:2007
Input	
Input resistance	: model 1 = 130 k Ω , model 2 = 1.3 M Ω , model 3 = 2.6 M Ω
Overload	: model 1 and 2 = 300 V DC/AC _{TRMS} , model 3 = 1200 V DC/AC _{TRMS}
Accuracy	: < 0.1 % ± 2 digit (DC); 0.5 % ± 2 digit (AC) crest-factor < 3 $\Rightarrow$ max. 2 % error, crest-factor < 5 $\Rightarrow$ max. 5 % error
Display	
Indicating range	: LED red, 14.2 mm
Additional display	: LED 2-digit red, 7 mm (parameter - and output indicator)
Output	
Relay	: SPDT < 250 V AC < 250 VA < 2 A, < 300 V DC < 50 W < 2 A
Transistor	: max. 35 V AC/DC, 100 mA, with short circuit protection
Analog output	: 0/4..20 mA burden $\leq 500 \Omega$; 0/2..10 V, burden > 500 Ω , with isolation
-Accuracy	: 0.1 %; TK 0.01 %/K
Case	
	: panel case DIN 96x48 mm, material PA6-GF; UL94V-0
Dimensions	: front 96x48 mm, mounting depth 100mm
Weight	: max. 390 g
Connection	: clamp terminals, 0.08..1.5 mm ² , AWG28..AWG14
Protection class	: front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

V9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
Measuring range programmable:	
1	0..4000 mV DC/AC _{TRMS}
2	0..250.0 V* DC/AC _{TRMS} * includes e.g. ± 5 V, ± 10 V
3	0..999.9 V DC/AC _{TRMS}
2. Terminal strip B	
00	not installed
2R	2 relay outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4..20 mA, 0/2..10 V DC
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
01	min- and max-peak hold
07	display brightness programmable
6. Unit appears in the unit field	
7. Additional text above the display (3x90 mm HxW)	

Connection diagram for terminal strips B-D see page Fehler:
Referenz nicht gefunden

Speed Indicator DR9648



- Pulse inputs for switch contacts, PNP-, Namur-sensors and rotary encoder
- Programmable input prescaler
- Time base min^{-1}
- Integrated transmitter-supply
- Max. 4 alarm outputs, electronic or relay SPDT

Characteristics

The Speed Indicator DR9648 has been designed for field applications in process control and automation. Parameters for operation mode can be programmed. The DR9648 can be used wherever processes based per minute, just as speed should be measured and displayed.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Working temp. : $-20..+55\text{ }^{\circ}\text{C}$

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : $R_i = 6.3\text{ k}\Omega$
level: $< 4\text{ V}$ low; $> 8.5\text{ V}$ high;
hysteresis $> 2.5\text{ V}$; max. 35 V DC

Namur sensor : R_i approx. $1\text{ k}\Omega$ ($< 4\text{ mA}$)
level: $< 1\text{ mA}$ low; $> 2.2\text{ mA}$ high;
hysteresis $> 0.5\text{ mA}$; max. 35 V DC

Frequency max. : input E1 = 1 Hz..30 Hz, (switch contact)
input E2 = 1 Hz..15 kHz,
(PNP- or Namur sensor)

Time base : min^{-1}

Accuracy : $\leq 0.003\% \pm 1\text{ Digit}$

Min. pulse width : electronic 50 μs , contact 5 ms

Hold : 24 V DC or switch contact

Transmitter supply : 8 V (Namur), 24 V DC (PNP),
 R_i approx. 150Ω , max. 50 mA

Display

Indicating range : 0..99999 digit

Additional display : LED 2-digit red, 7 mm
(parameter- and switch indicator)

Output

Relay : SPDT $< 250\text{ V AC}$ $< 250\text{ VA}$ $< 2\text{ A}$,
 $< 300\text{ V DC}$ $< 50\text{ W}$ $< 2\text{ A}$

Transistor : max. 35 V AC/DC, 100mA,
short circuit proof

Case : panel case DIN 96x48,
material PA6-GF; UL94V-0

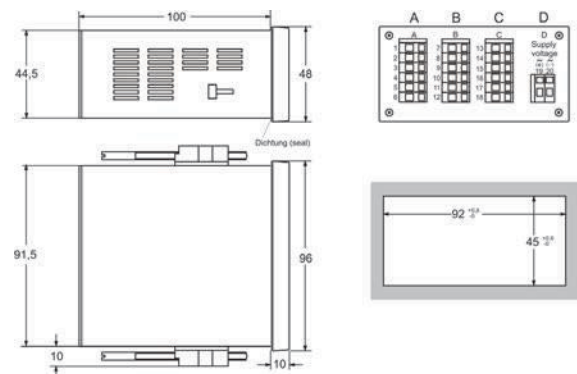
Dimensions : front 96x48 mm, mounting depth 100mm

Weight : max. 390 g

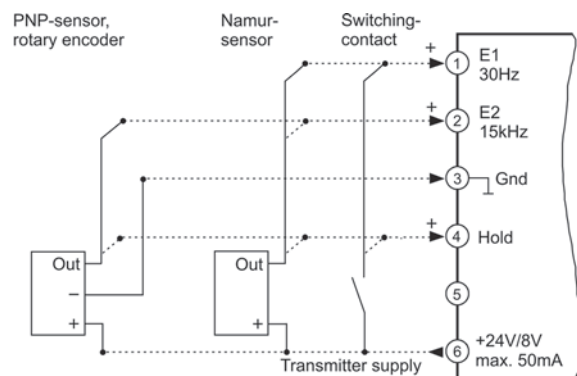
Connection : clamp terminals, 0.08..1.5 mm^2 ,
AWG28..AWG14

Protection class : front IP65, terminals IP20, acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DR9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	2 pulse inputs hold input, integrated transmitter supply 24V max. 50 mA
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
4. Terminal strip D; Supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
6. Unit appears in the unit field	
7. Additional text above the display (3x90 mm HxW)	

Productivity Meter PR9648



- 2 digital inputs for summation, difference and ratio measurement
- Input prescaler programmable
- LED-Display 14.2 mm red, ± 99999 Digit
- Max. 4 alarm outputs, relay SPDT or transistor

Characteristics

The Productivity-Meter PR9648 analysis impulse rates, representing a speed, flow, passing time or revolutions per time. The displayed values therefore always refer to a determined time unit and represent productivity. There are extensive functions programmable. Since impulses and unit of a displayed value can take any relation, the device offers extensive conversion possibilities.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption : max. 3.5 VA, with analog output 5 VA
Operating temp. : $-10..+55\text{ }^{\circ}\text{C}$
CE- conformity : EN 61326-1:2013
EN 60664-1:2007

Input

PNP sensor : $R_i = 6.3\text{ k}\Omega$
level: $< 4\text{ V}$ low; $> 8.5\text{ V}$ high;
hysteresis $> 2.5\text{ V}$; max. 35 V DC
Namur sensor : R_i approx. $1\text{ k}\Omega$ ($< 4\text{ mA}$)
level: $< 1\text{ mA}$ low; $> 2.2\text{ mA}$ high;
hysteresis $> 0.5\text{ mA}$; max. 35 V DC
Pulse frequency : input A or B = $0.1\text{ Hz}..15\text{ kHz}$,
A and B together = $0.1\text{ Hz}..8\text{ kHz}$,
contact = $0.1\text{ Hz}..30\text{ Hz}$,
2-channel rotary encoder = $0.1\text{ Hz}..10\text{ kHz}$
Min. pulse width : electronic $50\text{ }\mu\text{s}$, contact 5 ms
Time base : sec^{-1} , min^{-1} , h^{-1}
Accuracy : $\leq 0.003\%$ ± 1 Digit
Hold input : 24 V DC or contact
Transmitter supply : 8 V (Namur), 24 V DC (pnp), R_i appr. $150\text{ }\Omega$,
max. 50 mA (25 mA with 4 relay outputs)

Display

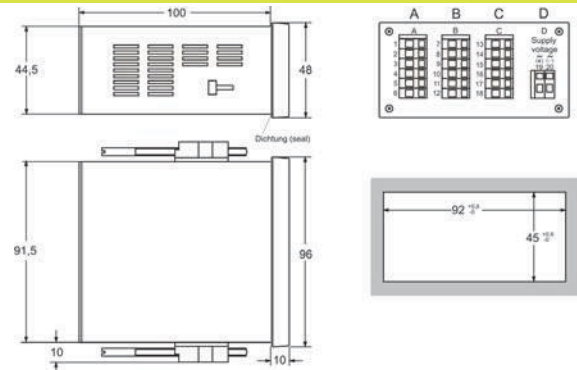
Parameter display : LED red, 14.2 mm, -99999..99999 Digit
(LED 2-digit red, 7 mm
(parameter and output indicator)

Output

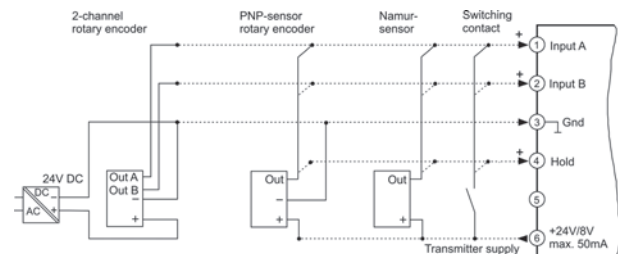
Relay : SPDT $< 250\text{ V AC}$ $< 250\text{ VA}$ $< 2\text{ A}$,
 $< 300\text{ V DC}$ $< 50\text{ W}$ $< 2\text{ A}$
Transistor : max. 35 V AC/DC, 100 mA,
with short circuit protection
Analog output : $0/4..20\text{ mA}$ burden $\leq 500\text{ }\Omega$; $0/2..10\text{ V}$,
burden $> 500\text{ }\Omega$, with isolation
-Accuracy : 0.1% ; TK 0.01% /K
Case : panel case DIN 96x48 mm,
material PA6-GF; UL94V-0
Dimensions : front 96x48 mm, mounting depth 100mm

Weight : max. 390 g
Connection : clamp terminals, $0.08..1.5\text{ mm}^2$,
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

PR9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	2 configurable impulse inputs, display conversion programmable, hold input, integrated transmitter supply 24V max. 50 mA
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output $0/4..20\text{ mA}$, $0/2..10\text{ V DC}$
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
01	min- and max- peak hold
6. Unit (appears in the unit field)	
7. Additional text placed above the display (3x90 mm HxW)	

Standard Counter SZ9648



- 1 input for contact (debounced) max. 30 Hz
- 1 input for electronic max. 15 kHz
- Auto reset or external reset
- LED-Display 14.2 mm red, indicating range 0..999999 Digit
- Max. 4 alarm outputs, relay SPDT or transistor

Characteristics

The Standard Counter SZ9648 is available as totalizing counter or preselect counter. It operates in up-counting function. The device offers separate counting inputs for proximity switch, light barriers, other electronic signals and for mechanical contacts.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Operating temp. : -10..+55 °C Standard

CE conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : Ri = 6,3 k Ω
level: < 4 V low; > 8.5 V high;
hysteresis > 2.5 V; max. 35 V DC

Namur sensor : Ri approx. 1 k Ω (< 4 mA)
level: < 1 mA low; > 2.2 mA high;
hysteresis > 0.5 mA; max. 35 V DC

Counting frequency : input A = 30 Hz max.,
debounced for contact

input B = 15 kHz, electronic

Counting loss : 100 μ s at reset;
20 ms changing of preselect value

Min. pulse width : electronic pulse 50 μ s, switch contact 5 ms

External reset : min. pulse width $\geq$ 10 ms

Transmitter supply : 8 V DC (Namur), 24 V DC (PNP),
Ri approx. 150 Ω , max. 50 mA
(25 mA with 4 relay outputs)

Display

Indicating range : 0..999999 Digit with leading zero
suppression

Additional display : LED 2-digit red, 7 mm
(parameter - and output indicator)

Output

Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Transistor : max. 35 V AC / DC, 100mA,
short circuit proof

Case : panel case DIN 96x48,
material PA6-GF; UL94V-0

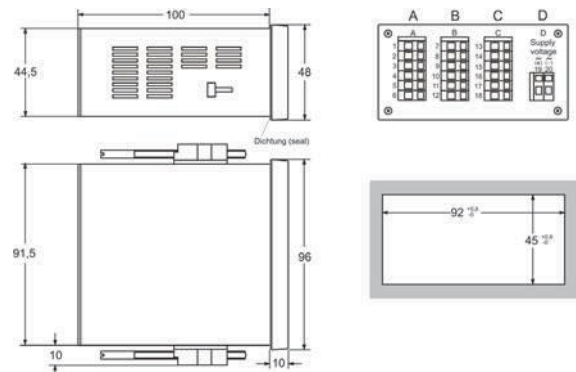
Dimensions : front 96x48 mm, mounting depth 100mm

Weight : max. 390 g

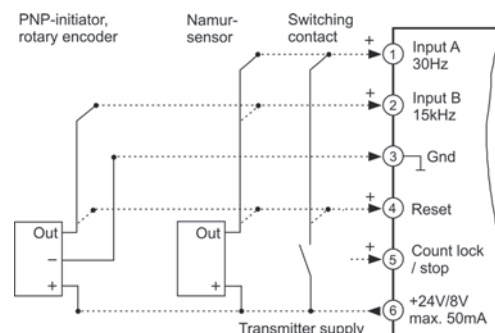
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14

Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

SZ9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	2 count inputs 30 Hz and 15 kHz, 2 additional control inputs, integrated transmitter supply 24V max. 50 mA
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
6. Unit (appears in the unit field)	
7. Additional text placed above the display (3x90 mm HxW)	

Connection diagram for terminal strips B-D see page Fehler:
Referenz nicht gefunden

Universal Counter UZ9648



- Counting, length measurement, metering, positioning
- 2 digital input channels for summation- and subtraction
- Integrated transmitter supply
- Max. 4 preselect outputs, relay SPDT or transistor

The universal counter UZ9648 has been designed for field application in process control and automation. Parameters for operation mode can be programmed. The counter can be used wherever quantity processes should be measured, displayed and monitored.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption : max. 3.5 VA, 5 VA with analog output
Operating temp. : -10...+55 °C
CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : Ri = 6.3 k Ω
level: < 4 V low; > 8.5 V high;
hysteresis > 2.5 V; max. 35 V DC
Namur sensor : Ri approx. 1 k Ω (< 4 mA)
level: < 1 mA low; > 2.2 mA high;
hysteresis > 0.5 mA; max. 35 V DC
Pulse frequency : input A or B = 15kHz,
A and B together = 6 kHz,
contact = 30 Hz debounced,
2-channel rotary encoder = 8 kHz

Counting loss : 100 μ s at reset;
20 ms changing of preselect value

Min. pulse width : electronic 50 μ s, contact 5 ms
External reset : reset impulse $\geq$ 10 ms

Transmitter supply : 8 V DC (Namur), 24 V DC (PNP),
Ri approx. 150 Ω , max. 50 mA
(25 mA with 4 relay outputs)

Display

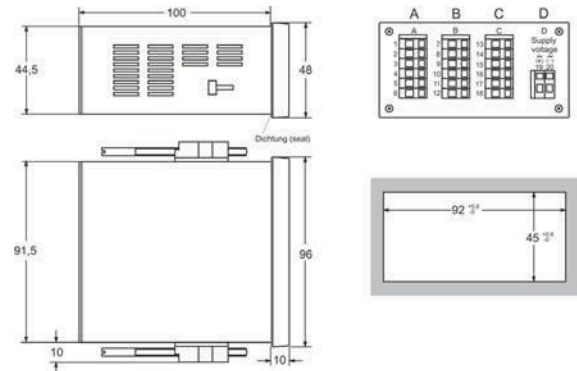
Indicating range : -99999..999999 Digit
Additional display : LED 2-digit red, 7 mm
(parameter - and output indicator)

Output

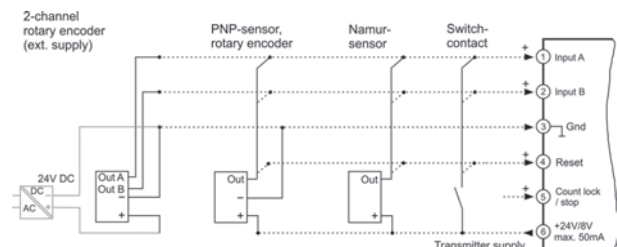
Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A
Transistor : max. 35 V AC/DC, 100 mA,
with short circuit protection
Analog output : 0/4..20 mA burden $\leq$ 500 Ω ; 0/2..10 V,
burden > 500 Ω , with isolation
-Accuracy : 0.1 %; TK 0.01 %/K
Case : panel case DIN 96x48 mm,
material PA6-GF; UL94V-0
Dimensions : front 96x48 mm, mounting depth 100mm

Weight : max. 390 g
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

UZ9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
1	2 configurable count inputs, display conversion, wide range of count functions, integrated transmitter supply 24V max. 50 mA
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4..20 mA, 0/2..10 V DC
4. Terminal strip D; supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
6. Unit (appears in the unit field)	
7. Additional text placed above the display (3x90 mm HxW)	

Conductivity Meter LF9648



Characteristics

The Conductivity Meter LF9648 has been designed for the measurement of conductivity, as a degree of the purity or concentration of a liquid. In connection with 4-electrode-conductivity cells a high accuracy and insensitivity of contamination can be achieved. A further advantage is a broad range of application with only one cell. Only for measurement in ultra-pure water a special 2-electrode conductivity cell must be used.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA, 5 VA with analog output

Operating temp. : -10...+55 °C

CE-conformity : EN 61326-1:2013
EN 60664-1:2007

Inputs

MR conductivity : 0..2.000(0) $\mu\text{S}/\text{cm}$ up to
0..2000 / 200(0) mS/cm (at 25 °C)

-Cell constant : 0.080..9.999

-Accuracy : 0.5 % of the measuring value, ± 2 Digit

-Temperature comp. : non linear for ultra pure water and natural
water or linear programmable from
0.000..9.999 %/K

MR temperature : -50.0...+200.0 °C; Sensor Pt100 or Pt1000

-Accuracy : ± 0.2 °C

Display : LED red, 14.2 mm

Indicating range : 2000(0) Digit with leading zero suppression

Parameter display : LED 2-digit red, 7 mm
(parameter - and output indicator)

Outputs

Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Transistor : transistor, <35 V AC/DC, max.100 mA,
short circuit protected

Analog output

Active : 0/4..20 mA burden $\leq 500 \Omega$;
0/2..10 V burden $> 500 \Omega$, isolated
automatic burden changing
(burden dependent)

Passive : 4..20 mA, ext.
burden = $RA[\Omega] \leq (\text{supply} - 5 \text{ V}) \div 0.02 \text{ A}$;
supply voltage 5..30 V DC,

Accuracy : 0.1 %; TK 0.01 %/K

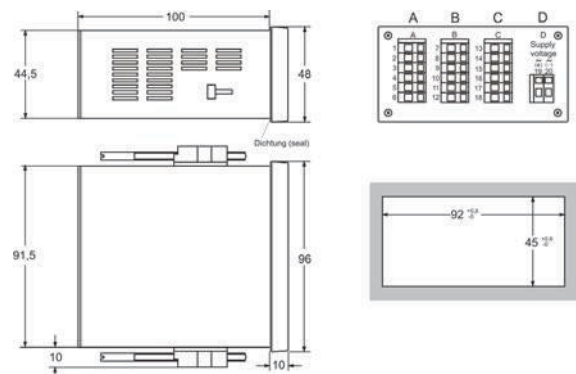
Case : panel mounting DIN 96x48 mm,
material PA6-GF; UL94V-0

Dimensions : front 96x48 mm, mounting depth 100 mm,

Weight : max. 390 g

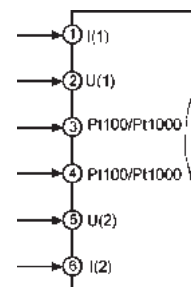
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14

Dimensions



Connection diagram

Terminal strip A



Ordering code

LF9648 - - - - - - -

1. Terminal strip A

1	input for 2- or 4-electrode-cells, temperature compensation via Pt100
3	as 1, but temperature compensation via Pt1000

2. Terminal strip B

00	not installed
2R	2 relay outputs
2T	2 electronic outputs

3. Terminal strip C

00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4..20 mA, 0/2..10 V DC
2A	2 analog outputs 4..20 mA passive

4. Terminal strip D Supply voltage

0	230 V AC	$\pm 10\%$ 50-60Hz
1	115 V AC	$\pm 10\%$ 50-60Hz
4	24 V AC	$\pm 10\%$ 50-60Hz
5	24 V DC	$\pm 15\%$

5. Options

00	without option
01	min- and max-peak hold
14	measuring/monitoring acc. to USP<645>

6. Unit appears on the unit field

7. Additional text above the display (3x90 mm HxW)

Connection diagram for terminal strip B-D see page Fehler:
Verweis nicht gefunden

pH and ORP Panelmeter pH9648



- LED-Display 14,2 mm red
- Measuring range programmable -1..+15 pH / ±1500 mV
- Temperature compensation via P100/Pt1000 sensor
- Analog output 0/4..20 mA or 0/2..10 V for pH/ORP
- Max. 4 alarm outputs relay or transistor

Characteristics

The pH and ORP Panelmeter pH9648 is suitable for pH and ORP measurement in food technology, chemistry within pharmaceutical and sewage-water technology. The pH9648 operates with all common pH- and ORP electrodes. It is recommended to connect the Impedance-Converter pH40 for cable length > 5 m.

Technical data

Power supply

Supply voltage : 230 V AC ±10 %; 115 V AC ±10 %;
24 V AC ±10 % or 24 V DC ±15 %
Power consumption: max. 3.5 VA, with analog output 5 VA
Operating temperature : -10..+55 °C
CE-conformity : EN 61326-1:2013
EN 60664-1:2007

Input

pH/ORP

Measuring range : -1.00..+15.00 pH or -1500..+1500 mV
 R_i : > $10^{12} \Omega$
Input current : < 10^{-12} A
Accuracy : 0.2 % measuring value, ±2 Digit
pH setup : electrode zero point 4.00..10.00 pH
slope 40.0..70.0 mV/pH
ORP setup : ± 200 mV
Calibration mode : - **1- or 2-point-calibration**

Buffer selection possible:
-Schott
-WTW
-Ingold (Mettler Toledo)
-Puffer acc. to DIN 19266
-or manual buffer input
- **Data** entering for zero point and slope
- **ORP** offset

Temperature

Sensor

: RTD, Pt100 or Pt1000,
(2- or 3-wire connection)
Unit : programmable °C, °F
Measuring range : -40.0..+160.0 °C (-40.0..+320.0 °F)
Accuracy : ± 0.1 %, ±1Digit
Transmitter supply : 24 V DC, R_i approx. 150 Ω ,
max. 50 mA (25 mA with 4 relay outputs)

Display

: LED red, 14.2 mm
Parameter display : LED 2-digit red, 7 mm
(Parameter - and output indicator)

Output

Relay SPDT : < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A
Transistor : < 35 V AC/DC, max.100 mA,
short-circuit-proof

Analog output active

: 0/4..20 mA burden ≤500 Ω ;
0/2..10 V burden > 500 Ω , isolated
automatic output changing
(burden dependent)

Analog output passive

: 4..20 mA, ext. burden =
 $RA[\Omega] \leq (U_B - 5 \text{ V}) \div 0,02 \text{ A}$;
supply voltage 5..30 V DC

Accuracy

: 0.1 %

Panel case

: DIN 96x48 mm, material PA6-GF; UL94V-0

Dimensions

: Front 96x48 mm, mounting depth 100 mm,

Weight

: max. 390 g

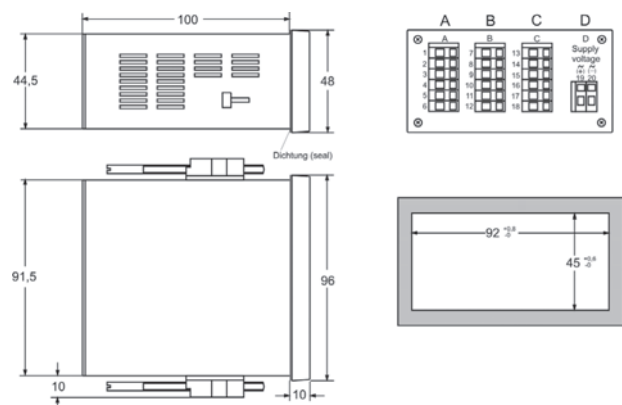
Connection

: clamp terminals, 2.5 mm² single wire,
1.5 mm² flex wire, AWG14

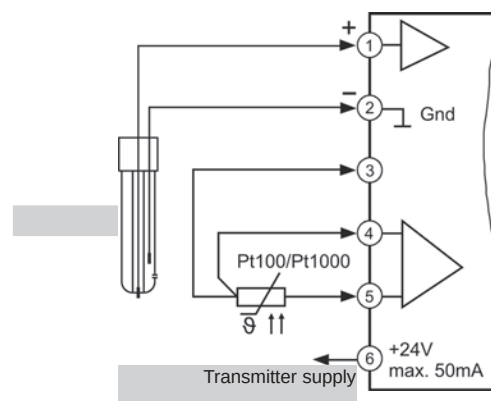
Protection class

: Front IP65, terminals IP20,
finger save acc. to BGV A3

Dimensions



Connection diagram input

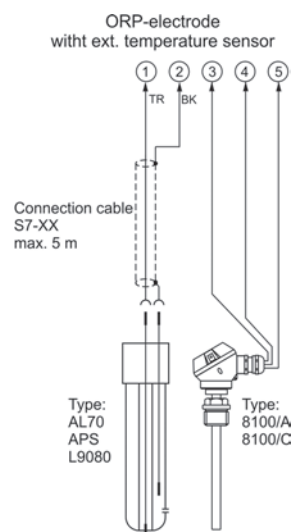
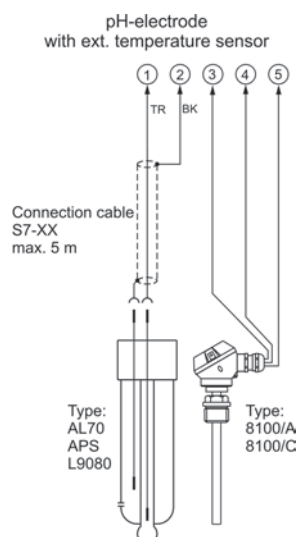
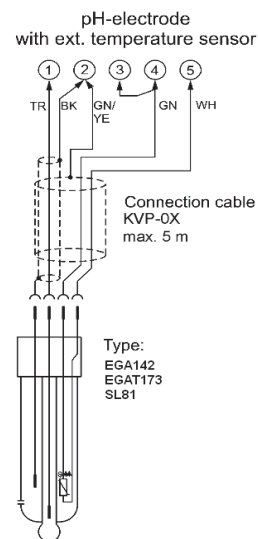
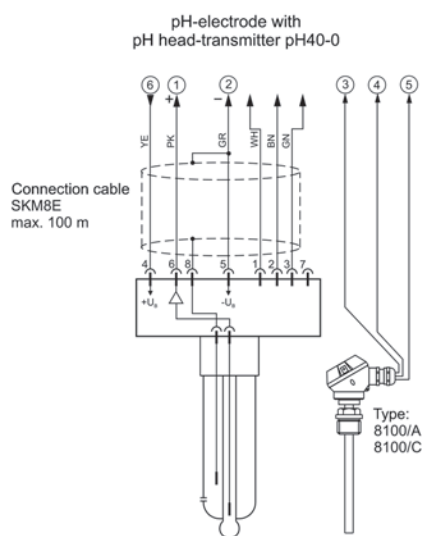


Ordering code

pH9648 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Terminal strip A	
13	input pH / ORP electrode, temperature compensation via Pt100 / Pt1000
2. Terminal strip B	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
3. Terminal strip C	
00	not installed
2R	2 relay outputs
2T	2 electronic outputs
AO	analog output 0/4..20 mA, 0/2..10 V DC
2A	2 analog outputs 4..20 mA passive
4. Terminal strip B supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
5. Options	
00	without option
6. Unit appears in the unit field	
7. Additional text above the display (3x90 mm HxW)	

Connection examples pH9648

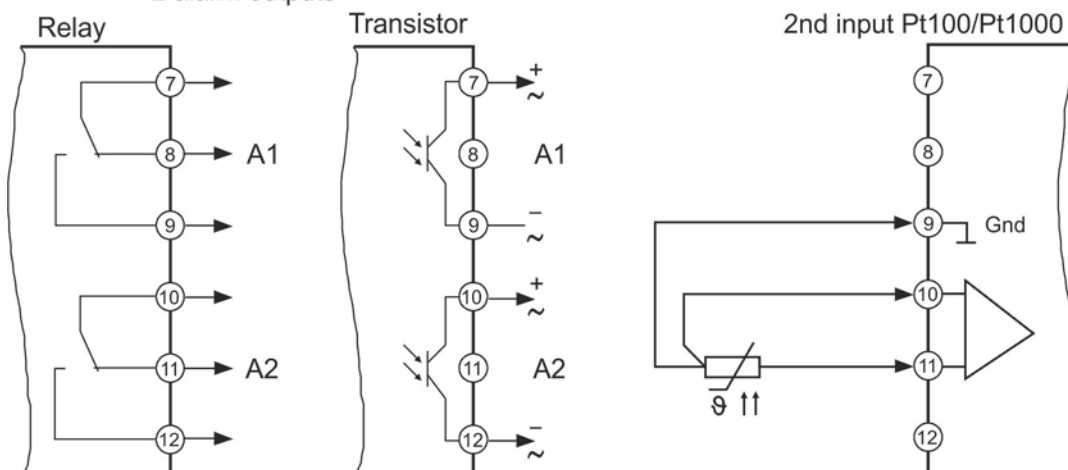


Connection Diagrams X9648, Terminals B-D

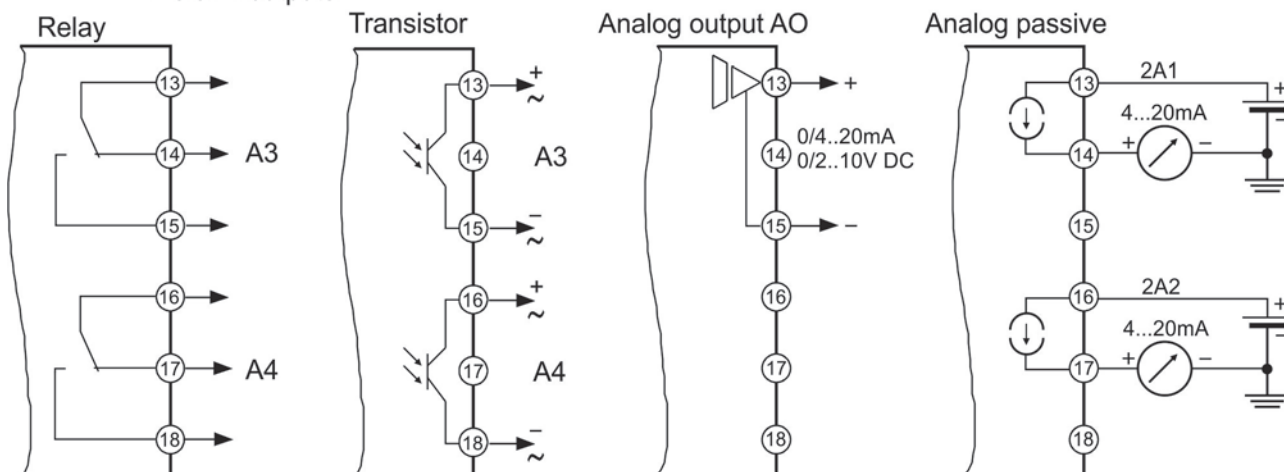
Terminal strips B, C, D

Terminal strip A belongs to each article.

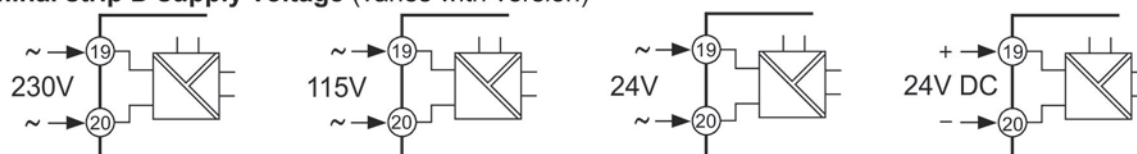
Terminal strip B (varies with versions) 2 alarm outputs



Terminal strip C (varies with versions) 2 alarm outputs



Terminal strip D supply voltage (varies with version)



Standard Signal Meter S1010



- Measuring input for standard signals 0/4..20 mA or 0..10 V
- LED display 14.2 mm red, indicating range ±9999(0) digit
- Max. 2 alarm outputs, relay SPDT
- Analog output 0/4..20 mA, 0/2..10 V
- Field case with snap-lid, cable glands 2 x M16x1.5

Characteristics

The Standard Signal Meter S1010 has been designed for measuring industry standard signals 0/4..20 mA or 0..10 V DC. The device offers an integrated transmitter supply for direct connection of 2- and 3-wire transmitters for e.g. pressure or temperature. Indicating range and decimal point are free programmable in the range ± 9999(0) digit.

Technical data

Power supply

Supply voltage : 230 V AC ±10 %; 115 V AC ±10 %, 24 V AC ±10 % or 24 V DC ±15 %

Power consumption : max. 3.5 VA

Operating temp. : -20..+55 °C

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Current : 0/4..20 mA Ri = 10 Ω

Voltage : 0..10 V Ri = >100 kΩ

Potentiometer : 0..1 kΩ / 100 kΩ

Accuracy : < 0.1 % ± 2 digit

Transmitter supply : Uo approx. 24 V, Ri ca. 150 Ω, max. 50 mA (max. 25 mA with relay and analog output)

Display : LED red, 14.2 mm

Indicating range : ±9999(0) digit with leading zero suppression

Parameter display : LED 2-digit red, 7 mm (parameter and output indicator)

Output

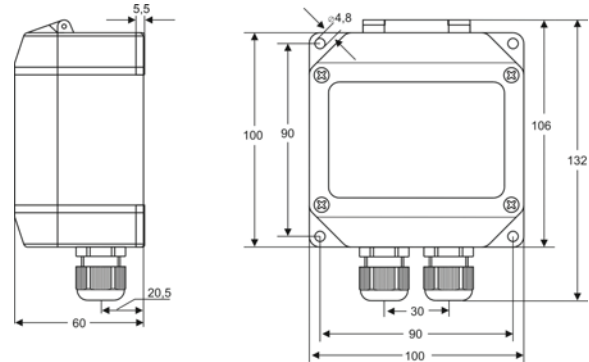
Relay : SPDT < 250 V AC < 250 VA < 2 A, < 300 V DC < 50 W < 2 A

Analog : 0/4..20 mA burden ≤ 500 Ω; 0/2..10 V burden > 500 Ω, without isolation, automatically output changing

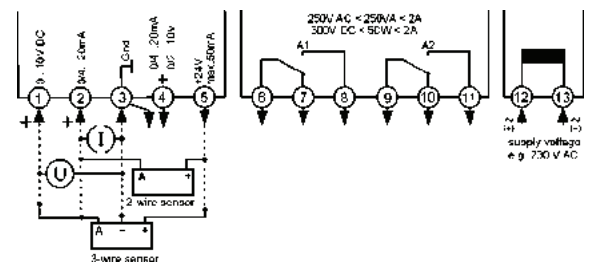
- accuracy : 0.1 %; TK 0.01 %/K

Field case : material PA6-GF 15/15
Dimensions : 100x100x60 mm
Weight : max. 350 g
Cable glands : 2 x M16x1.5
Connection : clamp terminals, 0.08..1.5 mm², AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

S1010 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Input	
1	standard signals 0/4..20 mA, 0..10 V DC, integrated transmitter supply 24V max. 50 mA
2. Alarm output	
00	not installed
2R	2 relay outputs
3. Analog output	
00	not installed
AO	analog output 0/4..20 mA, 0/2..10 V DC
4. Supply voltage	
0	230 V AC ±10 % 50-60Hz
1	115 V AC ±10 % 50-60Hz
4	24 V AC ±10 % 50-60Hz
5	24 V DC ±15 %
5. Options	
00	without option
01	min- and max-peak hold
07	display brightness programmable
08	analog output free programmable
09	1xM20x1,5 multi (2xØ6mm), 1xM20x1,5
6. Unit (appears in the unit field)	
7. Additional text placed above the display (3x70 mm HxW)	

Tank Display TA1010



- Inputs for standard signals 0/4...20 mA or 0/2...10 V
- 2nd input for pressure transmitter at pressure loaded tanks
- Input automatic level correction
- 6 standard- and custom sized tanks selectable
- Max. 2 alarm outputs, relay SPDT
- Field case with snap lid, cable glands 2 x M16x1.5

Characteristics

The Tank Display TA1010 offers content measurement of tanks with no linear connection between level and content. Measurement will be realized by hydrostatic pressure or distance sensors. The device offers the possibility to connect a level sensor. Reaching a certain level, the displayed value will be corrected automatically to the value according to the position of the installed sensor.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$,
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
Power consumption : max. 3.5 VA
Operating temp. : -20...+55 °C
CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

Current : 0/4...20 mA; $R_i = 10\ \Omega$
overload 2-times; 4-times for max. 5 s
Voltage : 0/2...10 V DC; $R_i = 100\ k\Omega$
overload max. 100 V

Accuracy : $< 0.15\% \pm 2$ digit

Transmitter supply : U_0 approx. 24 V;
 R_i approx. 150 Ω ; max. 50 mA

Display

Indicating range : 999999 Digit, with leading zero suppression
Parameter display : LED 2 digit red, 7 mm
(parameter - and output indicator)

Output

Relay : SPDT $< 250\ V\ AC < 250\ VA < 2\ A$,
 $< 300\ V\ DC < 50\ W < 2\ A$

Analog : 0/4...20 mA burden $\leq 500\ \Omega$; 0/2...10 V
burden $> 500\ \Omega$, **without** isolation,
automatic output changing

- Accuracy : 0.1 %; TK 0.01 %/K

Field case : material PA6-GFGFK 15/15

Dimensions : 100x100x60 mm

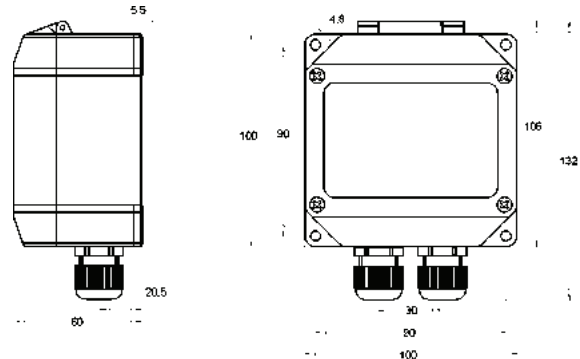
Weight : max. 450 g

Cable gland : 2 x M16x1.5

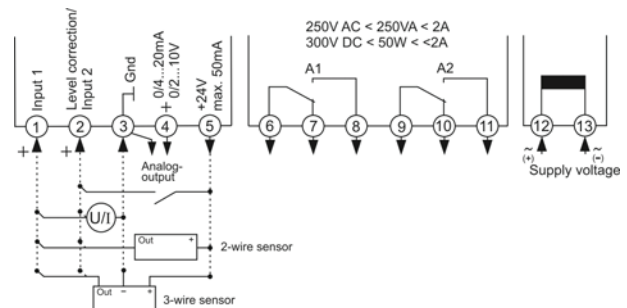
Connection : clamp terminals, 0.08...1.5 mm²,
AWG28...AWG14

Protection class : front IP65, terminals IP20, acc. to BGV A3

Dimensions



Connection diagram



Ordering code

TA1010 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Input

01	1 x 0/4...20 mA, 1 x input for level correction
11	2 x 0/4...20 mA
02	1 x 0/2...10 V, 1 x input for level correction
22	2 x 0/2...10 V

2. Alarm output

00	not installed
2R	2 relay

3. Analog output

00	not installed
AO	analog output 0/4...20 mA, 0/2...10 V DC

4. Supply voltage

0	230 V AC	$\pm 10\%$ 50-60Hz
1	115 V AC	$\pm 10\%$ 50-60Hz
4	24 V AC	$\pm 10\%$ 50-60Hz
5	24 V DC	$\pm 15\%$

5. Options

00	without option
09	1xM20x1.5 multi (2x $\varnothing$ 6mm), 1xM20x1.5

6. Unit (appears in the unit field)

7. Additional text placed above the display (3x70 mm HxW)

Temperature-Meter T1010



- Measuring input Pt100 -100.0..+600.0 °C
Pt1000 -50.0..+200.0 °C
- LED-Display 14.2 mm red, indicating range ±9999(0) Digit
- Max. 2 alarm outputs, relay SPDT
- Analog output 0/4..20 mA, 0/2..10 V
- Field case with snap lid, 2 x M16x1.5

Characteristics

The Temperature-Meter T1010 is suitable for measurement of temperatures in connection with RTD sensors Pt100, Pt1000. Devices for other temperature sensors are available on request. The measuring input is isolated. The measuring range can be limited in the configuration level. This is identical with the range of the analog output.

Technical data

Power supply

Supply voltage : 230 V AC ±10 %; 115 V AC ±10 %, 24 V AC ±10 % or 24 V DC ±15 %

Power consumption : max. 3.5 VA

Operating temp. : -20..+55 °C

CE-conformity : EN 61326-1:2013
EN 60664-1:2007

Input

Pt100; Pt1000 : -100..+600 °C ; -50..+200 °C

Accuracy : Pt100 or Pt1000 < 0.1% ±2 Digit,
max. 100 Ω line resistance

Display : LED red, 14.2 mm

Indicating range : ±9999(0) digit, with leading zero suppression

Additional display : LED 2-digit red, 7 mm
(Parameter - and output indicator)

Output

Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Analog : 0/4..20 mA burden ≤ 500 Ω; 0/2..10 V
burden > 500 Ω, **no** isolation,
automatic output changing
(burden dependent)

- Accuracy : 0.1 %; TK 0.01 %/K

Field case : Material PA6-GF/GFK 15/15

Dimensions : 100x100x60 mm

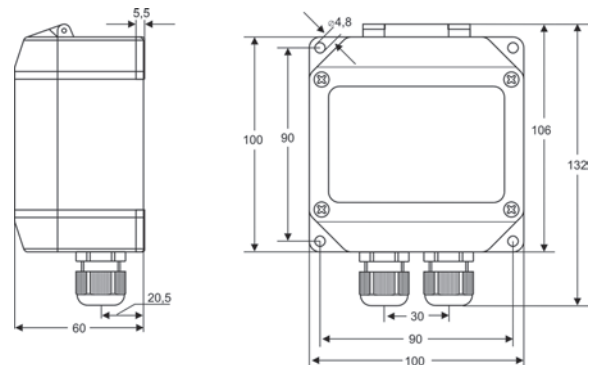
Weight : max. 450 g

Cable gland : 2 x M16x1.5

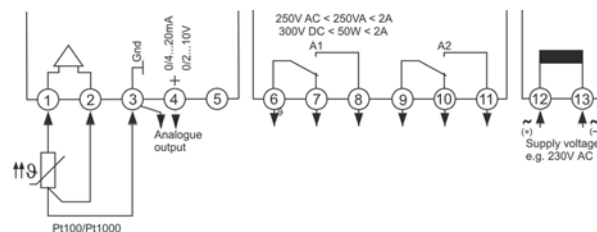
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14

Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

T1010 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Input			
1	Pt100	-100.0..+600.0°C	
3	Pt1000	-50.0..+200.0°C	
2. Alarm output			
00	not installed		
2R	2 relay SPDT		
3. Analog output			
00	not installed		
AO	analog output 0/4..20 mA, 0/2..10 V DC		
4. Supply voltage			
0	230 V AC	±10 %	50-60Hz
1	115 V AC	±10 %	50-60Hz
4	24 V AC	±10 %	50-60Hz
5	24 V DC	±15 %	
5. Options			
00	without option		
01	min-max-value hold		
07	display brightness programmable		
09	1xM20x1.5 multi (2xØ 6 mm), 1xM20x1.5		
6. Unit (appears in the unit field)			
7. Additional text above the display (3x70 mm HxW)			

Speed Indicator DR1010



- Pulse inputs for switch contacts, PNP-, Namur-sensors and rotary encoder
- Programmable input prescaler
- Time base min⁻¹
- Integrated transmitter-supply
- Max. 2 alarm outputs, relay SPDT
- Field case with snap-lid, 2 x M16x1.5

Characteristics

The Speed Indicator DR1010 has been designed for field applications in process control and automation. Parameters for operation mode can be programmed. The DR1010 can be used wherever processes based per minute, just as speed should be measured and displayed.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Operating temp. : -20...+55 °C

CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : Ri = 6.3 k Ω
- level : < 4 V low; > 8.5 V high;
- hysteresis : > 2.5 V; max. 35 V DC
Namur sensor : Ri approx. 1 k Ω (< 4 mA)
- level : < 1 mA low; > 2.2 mA high;
- hysteresis : > 0.5 mA; max. 35 V DC
Frequency max. : input E1 = 1 Hz..30 Hz, (switch contact)
input E2 = 1 Hz..15 kHz,
(PNP- or Namur sensor)

Time base : min⁻¹
Accuracy : $\leq 0.003\% \pm 1$ Digit
Min. pulse width : electronic 50 μ s, contact 5 ms
Hold : 24 V DC or switch contact
Transmitter supply : 8 V (Namur), 24 V DC (PNP), Ri appr. 150 Ω ,
max. 50 mA

Display

Indicating range : 0..99999 digit
Additional display : LED 2-digit red, 7 mm
(parameter- and switch indicator)

Output

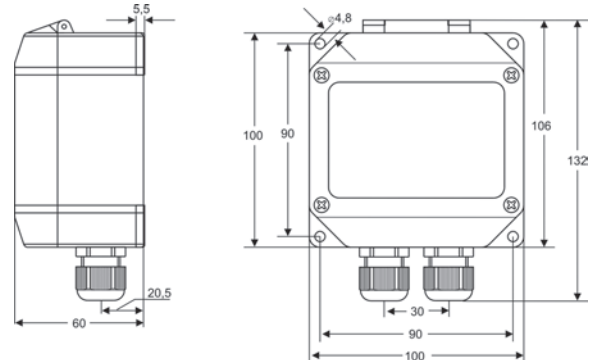
Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Field case : material PA6-GF 15/15

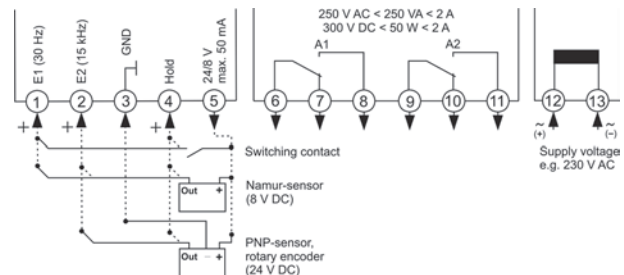
Dimensions : 100x100x60 mm

Weight : max. 450 g
Cable glands : 2 x M16x1.5
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14
Protection class : front IP65, terminals IP20, acc. to BGV A3

Dimensions



Connection diagram



Ordering code

DR1010 - 1. - 2. - 3. - 4. - 5. - 6.

1. Input	
1	2 pulse inputs, hold input, integrated transmitter supply 24V max. 50 mA
2. Alarm output	
00	not installed
2R	2 relay outputs
3. Supply voltage	
0	230 V AC $\pm 10\%$ 50-60Hz
1	115 V AC $\pm 10\%$ 50-60Hz
4	24 V AC $\pm 10\%$ 50-60Hz
5	24 V DC $\pm 15\%$
4. Options	
00	without option
09	1 x M20x1.5 multi (2 x Ø6 mm), 1 x M20x1.5
5. Unit (appears in the unit field)	
6. Additional text placed above the display (3x70 mm HxW)	

Productivity Meter PR1010



- 2 digital inputs for summation, difference, ratio measurement
- Input prescaler programmable
- LED-Display 14.2 mm red, ±99999 Digit
- Max. 2 alarm outputs, relay SPDT
- Field case with snap-lid, 2 x M16x1.5

Characteristic

The Productivity-Meter PR1010 analysis impulse rates, representing a speed, flow, passing time or revolutions per time. The displayed values therefore always refer to a determined time unit and represent productivity. There are extensive functions programmable. Since impulses and unit of a displayed value can take any relation, the device offers extensive conversion possibilities.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Operating temp. : -20...+55 °C

CE- conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : Ri = 6.3 kΩ
level: < 4 V low; > 8.5 V high;
hysteresis > 2.5 V; max. 35 V DC

Namur sensor : Ri approx. 1 kΩ (< 4 mA)
level: < 1 mA low; > 2.2 mA high;
hysteresis > 0.5 mA; max. 35 V DC

Pulse frequency : input A or B = 0.1 Hz..15 kHz,
A and B together = 0.1 Hz..8 kHz,
contact = 0.1 Hz..30 Hz,
2-channel encoder = 0.1 Hz..10 kHz

Min. pulse width : electronic 50 μs, contact 5 ms

Time base : sec⁻¹, min⁻¹, h⁻¹

Accuracy : $\leq 0.003\% \pm 1$ Digit

Transmitter supply : 8 V (Namur), 24 V DC, Ri approx. 150 Ω,
max. 50 mA

Display

Indicating range : -99999..99999 Digit

Parameter display : LED 2-digit red, 7 mm
(parameter and output indicator)

Output

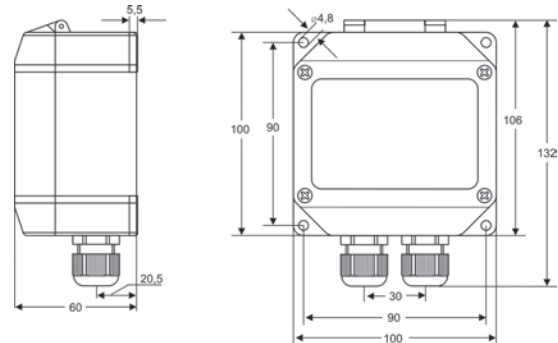
Relay : SPDT < 250 V AC < 250 VA < 2 A,
< 300 V DC < 50 W < 2 A

Analog output : 0/4..20 mA burden $\leq 500\ \Omega$; 0/2..10 V,
burden > 500 Ω, **without** isolation

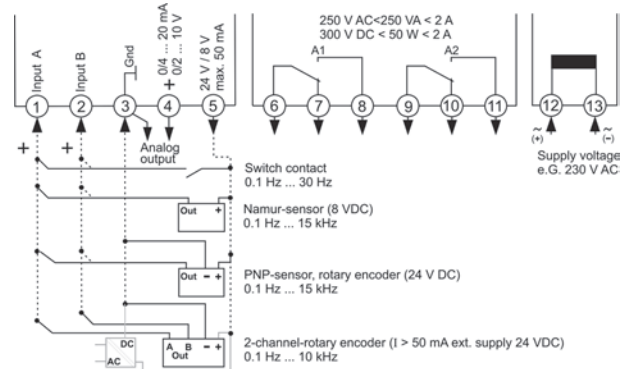
-Accuracy : 0.1 %; TK 0.01 %/K

Field case : material PA6-GF 15/15
Dimensions : 100x100x60 mm
Weight : max. 450 g
Cable gland : 2 x M16x1.5
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

PR1010 - 1. - 2. - 3. - 4. - 5. - 6. - 7.

1. Input		
1	2 configurable pulse inputs, display conversion programmable, integrated transmitter supply 24V 50 mA	
2. Alarm output		
00	not installed	
2R	2 relay outputs	
3. Analog output		
00	not installed	
AO	analog output 0/4..20 mA, 0/2..10 V DC	
4. Supply voltage		
0	230 V AC	$\pm 10\%$ 50-60Hz
1	115 V AC	$\pm 10\%$ 50-60Hz
4	24 V AC	$\pm 10\%$ 50-60Hz
5	24 V DC	$\pm 15\%$
5. Options		
00	without option	
09	1 x M20x1.5 multi (2 x Ø6 mm), 1 x M20x1.5	
6. Unit (appears in the unit field)		
7. Additional text placed above the display (3x70 mm HxW)		

Universal Counter UZ1010



- Counting, length measurement, metering, positioning
- 2 digital input channels for summation- and subtraction
- Integrated transmitter-supply
- Max. 2 preselect outputs, relay SPDT
- Field case with snap lid, cable glands 2xM16x1.5

Characteristics

The universal counter UZ1010 has been designed for field application in process control and automation. Parameters for operation mode can be programmed. The counter can be used wherever quantity processes should be measured, displayed and monitored.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Operating temp. : -20...+55 °C

CE- conformity : EN 61326-1:2013; EN 60664-1:2007

Input

PNP sensor : $R_i = 6.3 \text{ k}\Omega$
level: $< 4 \text{ V}$ low; $> 8.5 \text{ V}$ high;
hysteresis $> 2.5 \text{ V}$; max. 35 V DC

Namur sensor : R_i approx. $1 \text{ k}\Omega$ ($< 4 \text{ mA}$)
level: $< 1 \text{ mA}$ low; $> 2.2 \text{ mA}$ high;
hysteresis $> 0.5 \text{ mA}$; max. 35 V DC

Counting frequency : input A or B = 15 kHz
A and B together = 6 kHz,
debounced for contact= 30 Hz

Counting loss : 100 μs at reset;
20 ms changing of preselect value

Min. pulse width : electronic pulse 50 μs , switch contact 5 ms

External reset : min. pulse width $\geq 10 \text{ ms}$

Transmitter-supply : 8 V DC (Namur), 24 V DC (PNP),
 R_i approx. 150Ω , max. 50 mA

Display : LED red, 14.2 mm

Indicating range : -99999..999999 digit

Additional display : LED 2-digit red, 7 mm
(parameter- and output indicator)

Output

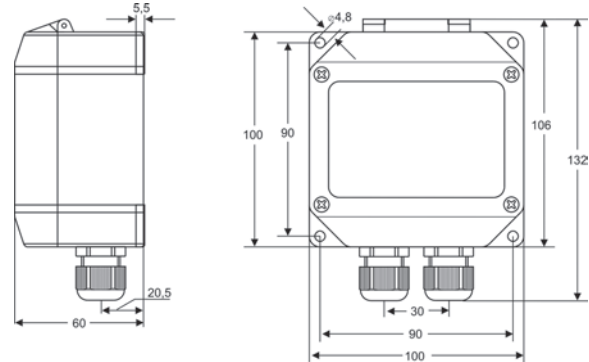
Relay : SPDT $< 250 \text{ V AC}$ $< 250 \text{ VA}$ $< 2 \text{ A}$,
 $< 300 \text{ V DC}$ $< 50 \text{ W}$ $< 2 \text{ A}$

Field case : material PA6-GF 15/15

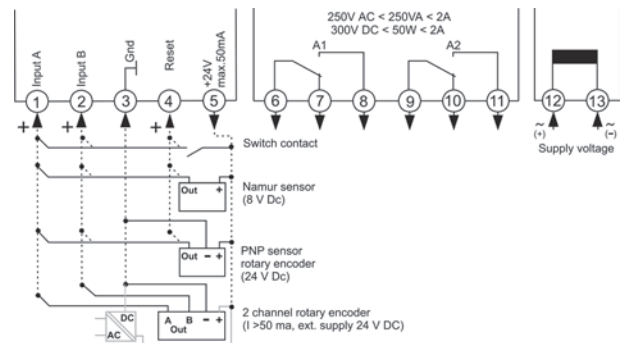
Dimensions : 100x100x60 mm

Weight : max. 450 g
Cable glands : 2 x M16x1.5
Connection : clamp terminals, 0.08..1.5 mm²,
AWG28..AWG14
Protection class : front IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

UZ1010 - 1. - 2. - 3. - 4. - 5. - 6.

1. Input		
1	2 configurable count inputs, wide range of count functions, display conversion, reset input, integrated transmitter supply 24V max. 50 mA	
2. Alarm output		
00	not installed	
2R	2 relay outputs	
3. Supply voltage		
0	230 V AC	±10 % 50-60Hz
1	115 V AC	±10 % 50-60Hz
4	24 V AC	±10 % 50-60Hz
5	24 V DC	±15 %
4. Options		
00	without options	
09	1xM20x1.5 multi (2xØ6 mm), 1xM20x1.5	
5. Unit (appears in the unit field)		
6. Additional text placed above the display (3x70 mm HxW)		

Conductivity Meter LF1010



Characteristics

The Conductivity-Meter LF1010 has been designed for the measurement of conductivity, as a degree of the purity or concentration of a liquid. In connection with 4-electrode-conductivity cells a high accuracy and insensitivity of contamination can be achieved. A further advantage is a broad range of application with only one cell. Only for measurement in ultra-pure water a special 2-electrode conductivity cell must be used.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 115 V AC $\pm 10\%$;
24 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$

Power consumption : max. 3.5 VA

Operating temp. : -20...+55 °C

CE-conformity : EN 61326-1:2013
EN 60664-1:2007

Inputs

MR conductivity : 0..2.000(0) $\mu\text{S}/\text{cm}$ up to
0..2000 / 200(0) mS/cm (at 25 °C)
-Cell constant : 0.080..9.999
-Accuracy : 0.5 % of the measuring value, ± 2 Digit
-Temperature comp. : non linear for ultra pure water and natural
water or linear programmable from
0.000..9.999 %/K

MR temperature : -50.0..200.0 °C; Sensor Pt100 or Pt1000
-Accuracy : ± 0.2 °C

Display : LED red, 14.2 mm
Indicating range : 2000(0) Digit with leading zero suppression
Parameter display : LED 2-digit red, 7 mm
(Parameter - and output indicator)

Outputs

Relay : SPDT < 250 V AC < 250 VA < 2 A,
 < 300 V DC < 50 W < 2 A

Field case : Material PA6-GF15/15, keypad polyester
Dimensions : 100x100x60 mm

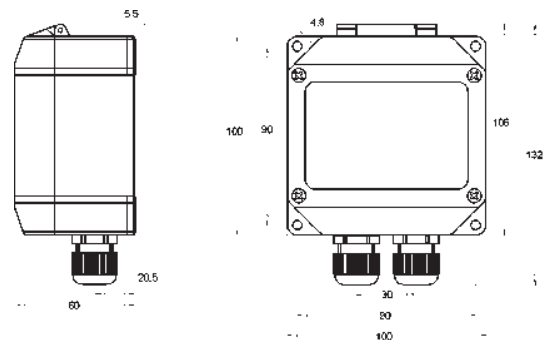
Weight : max. 450 g

Connection : clamp terminals

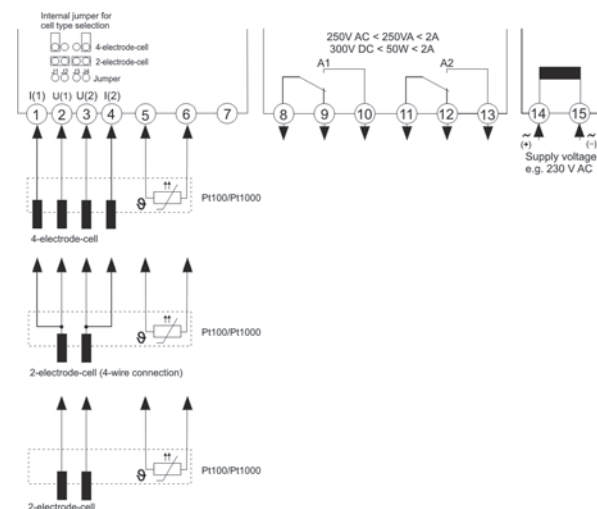
	<i>single wire</i>	<i>flexi wire</i>
Terminals 1-4	0.75 mm ² , AWG18	0.5 mm ² , AWG 20
Terminals 5-15	2.5 mm ² , AWG13	1.5 mm ² , AWG 15

Protection class : IP65, terminals IP20 acc. to BGV A3

Dimensions



Connection diagram



Ordering code

LF1010 - 1. - 2. - 3. - 4. - 5. - 6.

1. Input		
1	input for 2- or 4-electrode-cells, temperature compensation via Pt100	
3	as 1, but temperature compensation via Pt1000	
2. Alarm output		
00	not installed	
2R	2 relay	
3. Supply voltage		
0	230 V AC	±10 % 50-60Hz
1	115 V AC	±10 % 50-60Hz
4	24 V AC	±10 % 50-60Hz
5	24 V DC	±15 %
4. Options		
00	without option	
01	min- and max-peak hold	
09	1xM20x1.5 Multi (2xØ6 mm), 1xM20x1.5	
14	measuring and monitoring of ultra-pure water acc. to USP<645>	
5. Unit appears on the unit field		
6. Additional text above the display (3x70 mm HxW)		

Plug-In Display GIA 0420 VO(T)



Characteristics

The GIA 0420 VO is a microprocessor-controlled displaying device for 4..20 mA standard signals.

Any transmitter (with 4..20 mA output) can be connected to the device. The range adjustment of the GIA 0420 to the transmitter is done by entering the initial and final value and the decimal point position. No additional auxiliaries are needed for this adjustment, but the three buttons accessible after removal of the cover. The device is mounted by easy plug-in of the special adapter (elbow-type plug according to EN 175301-803/A)

The GIA 0420 VO doesn't need a separate auxiliary supply but is directly supplied by the measuring current. It has an integrated self-diagnostic which checks the device that it works correctly. This self-diagnostic together with the transmitter's check for "sensor break" and "sensor short circuit" and range exceeding or falling below ensures an optimum of operational reliability.

Technical data

Measuring input

Input signal : 4..20 mA (2-wire)
Accuracy : $\pm 0.2\%$ FS ± 1 digit
Measuring rate : 5 measurements / seconds
Filter : adjustable
Voltage load : approx. 2 V

at option S2: approx. 3 V
at option ex: approx. 3.5 V
Power supply : self-supplying: devices is supplied directly from measuring current

Working temperature : 0..50 °C

Display

Display : LCD display
Height : 10 mm
Display range : -1999..+9999 digit
Decimal point : any position
Scaling : freely scalable via 3 buttons (accessible after cover has been removed)

Connection

: special plug design for elbow-type plug (EN 175301-803/A) for easy plug-in

Housing

: ABS,
front screen made of polycarbonate

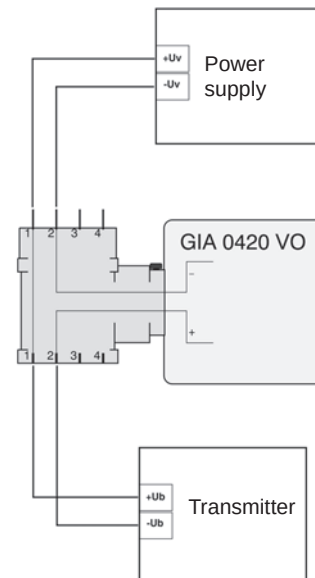
Protection class

: front IP65

Dimensions

Housing : 48.5 x 48.5 x 35.5 mm (L x W x D)
without elbow-type plug

Connection diagram



Design types

VO	With elbow-type plug special adapter design for elbow-type plug (EN 175301-803/A) for easy plug-in (standard, as per description)	
WK	With cable connection electric connection via 2 m long connection cable with loose ends for connection to any standard signal source 4..20 mA	

Ordering code

1. 2. 3.
GIA0420 - -

1. Design type	
VO	elbow-type plug (standard)
WK	cable connection
2. Buttons	
0	without buttons at front, buttons for scaling are accessible after top cover has been removed
T	with buttons, 3 operating buttons freely accessible
3. Option	
00	without option
S1	display with 1 electrically isolated switching output; delivered incl. 1 m connection cable (just in combination with option "ex")
S2	display with 2 electrically isolated switching outputs; delivered incl. 1 m connection cable (not in combination with option "ex")
ex	with ex-protection for explosive areas (available: end of 2 nd quarter 2011)

Other design types (input signal: 0..10 V) upon request.

Power-Meter Integra 1530



- Measuring and indicating of all mains parameter of 3- and 4-wire systems
- Mains line voltage from 100 up to 485 V AC
- Current and voltage transmitter programmable
- Measuring range programmable

Characteristics

The Integra will measure and communicate many electrical parameters, including THD values. Integra 1530 combines a basic accuracy of 0.2 % with fast response, a range of output options, and a large clear LED display. The display provides a wide viewing angle without parallax issues and fast response at low ambient temperatures. 52 electrical and mains power parameter could be configured and displayed. Additional an serial interface RS485 with protocol Modbus™ and JCNII is deliverable. The Integra 1530 detects the protocol automatically.

Technical data

Power supply

Supply voltage : 100..250 V AC or 12..48 V DC
 Frequency : 45..66 Hz
 Power consumption : 6 VA
 Operating temperature : 0..55 °C
 CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Measuring capabilities

Voltage : 80..120 % of the nominal value
 Current : 5..120 % of the nominal value
 Frequency : 45..66 Hz
 Active power [W] : 5..120 % of nominal
 Reactive power [VAR] : 5..120 % of nominal
 Apparent power [VA] : 5..120 % of nominal
 Power factor : lagging 0.8..1..0.8 leading
 Harmonic distortion : up to the 31st harmonic wave 0..40 %
 Basic accuracy : 0.2 %

Display : 3 x 11 mm LED red, 4-digit

Outputs

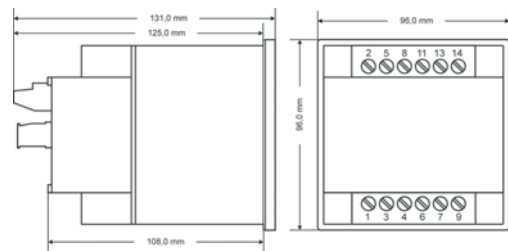
Relay : 2 relay SPDT
 Impulse : relay SPST, NO
 Analog : 0/4..20 mA, or -1..0..1 mA
 Serial interface : RS485 2400, 4800, 9600, 19200 Baud
 Protocol MODBUS

Case : DIN 96x96 mm, Polycarbonate

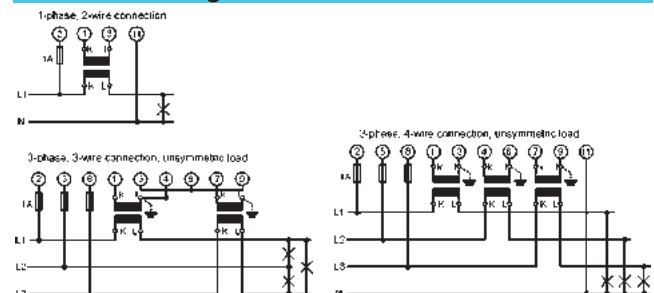
Connection : screw clamp (load) and
 slide-in terminals max. 3mm²

Protection class : front IP54

Dimensions



Connection diagram



Ordering code

1530 - 1. - 2. - 3. - 4. - 5. - 6. - 7. - 8.

1. Mains	
1	1-phase; L1-N
3	3-phase; L1-L2-L3, asymmetric load
4	3-phase; L1-L2-L3-N, asymmetric load
2. Measuring voltage	
1	L1-N; 1-phase, 57..139 V AC
2	L1-N; 1-phase, 140..277 V AC
3	L1-L2; 3-phase, 100..240 V AC
4	L1-L2; 3-phase, 241..480 V AC
3. Measuring current	
1	1 A AC
5	5 A AC
4. Supply voltage	
0	100..250 V AC
5	12..48 V DC
5. Relay output (relay 1 and 2)	
0	without
1	1 impulse output 1/kWh
2	2 impulse outputs
6. Analog output	
00	without
01	0/4..20 mA
03	-1..0..1 mA
11	2 outputs as 01
33	2 outputs as 03
7. Serial interface	
0	without
1	RS485 Modbus
2	Lonworks
3	Profibus
8. Options	
00	without option

Graphic display series migra SC/MC



- LED-dot matrix
- Character size 30..100 mm
- Single colour red (SC), multi colour red, yellow, green (MC)
- Up to 320 characters, depending on character height
- Interface RS485, Profibus, AS-Interface or Ethernet
- Protection class IP54 or IP65

Characteristics

The migra SC/MC graphics and text compatible large size LED display can be used universally for display of production data or as an information board.

The modular design allows cost-effective models of various sizes with different character heights and number of digits.

Thanks to the high resolution LED dot matrix display, characters as well as graphics are crystal clear.

Especially important information can be colour-highlighted with the multicolour model (MC).

Technical data

Power supply

Supply voltage : 230 V AC 50 Hz, 24 V DC $\pm 20\%$

Power consumption : 30 W max. depends to the character size

Operating temp. : 0..50 °C

Input

Digital : pulse counter, A/D-converter

Interface : Profibus, AS-Interface, Serial RS485, Ethernet, Modbus

Display

: LED dot matrix; 64x16 Pixel per module, 30, 40, 55 mm at 3 mm pixel diameter, 50, 75, 100 mm at 5 mm pixel diameter

SC : single color red

MC : multi color red, yellow, green

ASCII full graphic character set

Angle of radiation : $\pm 75^\circ$

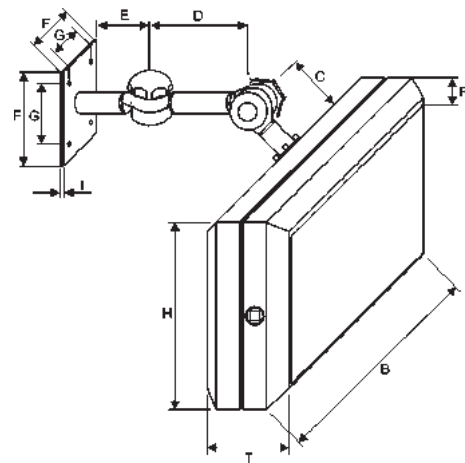
Field case

: material aluminum, powder coated, RAL 7016

Dimensions : see table

Protection class : IP54 or IP65

Dimensions



	[mm]
C	60
D	110
E	74
F	100
G	70
I	7
R	21
T	87

Dimensions H and B

Number of modules/pixel height [mm]

3 mm								
	1 module		2 modules		3 modules		4 modules	
	H	B	H	B	H	B	H	B
1 module	202	368	202	620	202	920	202	1150
2 modules	238	368	238	620	238	920	238	1150
3 modules	280	368	280	620	280	920	280	1150
4 modules	338	368	338	620	338	920	338	1150
5 mm								
	1 module		2 modules		3 modules		4 modules	
	H	B	H	B	H	B	H	B
1 module	202	620	202	1080	202	1559	202	2047
2 modules	238	620	238	1080	238	1559	238	2047
3 modules	448	620	448	1080	448	1559	448	2047
4 modules	571	620	571	1080	571	1559	571	2047

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Ordering code

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1. Display 1 basic module		
SC-3	3 mm single color red (indoor mounting)	
MC-3	3 mm multi color red/yellow/green (indoor mounting)	
SC-5	5 mm single color red (indoor mounting)	
MC-5	5 mm multi color red/yellow/green (indoor mounting)	
2. Extended module (1 module = 64x16 Pixel)		
n		
3. Mounting position (f.e. 1x4 = 1 line with 4 modules)		
For each 4x4 module 1 basic module is necessary		
4. Input		
0	pulse counter	
1	A/D converter 4-steps	
3	serial RS 485	
4	Profibus DP, include cable plug	
5	Ethernet TCP/IP	
6	AS-Interface	
B	radio controlled clock DCF77	
D	Modbus RTU	
E	WLAN	
5. Supply voltage		
0	230 V AC	±10 % 50-60Hz
5	24 V DC	±15 %
6. Protection class		
0	IP54	
1	IP65	
7. Mounting		
1	multi hinge*	
2	mounting angle *	
3	suspension eyes for chains	
8. Options		
00	without	
03	heating with controller	
06	sensor for display brightness (only SC-5, MC-5)	

* 2 multi hinge/mounting angle are necessary for more than 2 modules in line

* 3 multi hinge/mounting angle are necessary for more than 3 modules in line

Large size display series migan



- LED-7 Segment
- Character height 60..150 mm
- Max. 6/8 digit at digital and interface, 4 digit at analog input
- Analog inputs 0/4..20 mA, 0..10 V
- Digital pulse counter up to 15 kHz, Profibus, AS-Interface or Ethernet
- Protection class IP54 or IP65

Characteristics

The large size numeric display can be used universally as a process display unit or as an information board. The modular design allows for cost-effective models of various size, and with different character heights and number of digits. Thus integration into existing equipment or systems is easy and simple. The display can be controlled with different inputs.

For example: field bus systems , A-D converter, pulse converter....
Custom devices with different digits even units are possible.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$; 110 V AC $\pm 10\%$;
or 24 V DC $\pm 20\%$

Power consumption : max. 16 W per digit, it depends on the number and size of the digits.

Operating temp. : 0..50 °C

Input

Analogue : 0/4..20 mA, 0..10 V

Digital : pulse counter

Interface : Profibus, AS-interface or Ethernet

Count frequency : max. 15 kHz,

Display : LED red; 60, 100, and 150 mm height

Indicating range : max. 6 / 8 digit with digital- and interface input,

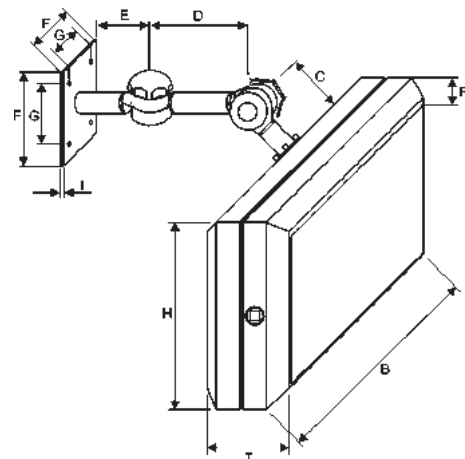
4 digit with analog input

Field case : material Aluminum, powder coated
RAL 7016

Dimensions : see table

Protection class : IP54 or IP65

Dimensions



	[mm]
C	60
D	110
E	74
F	100
G	70
I	7
R	21
T	87

Dimensions H and B

Number of digits / character height

	60mm		100mm		150mm	
	B	H	B	H	B	H
2 digits	305	202	305	202	368	238
3 digits	305	202	440	202	440	238
4 digits	305	202	440	202	620	238
5 digits	440	202	620	202	720	238
6 digits	440	202	620	202	820	238
7 digits	440	202	720	202	920	238
8 digits	620	202	820	202	1080	238

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Ordering code

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1. Character size [mm]	
1	60
2	100
3	150
4	200
5	250
2. Number of digits	
n	
3. Input	
0	pulse counter
1	A/D converter 4-times
4	Profibus DP, incl. cable plug
5	Ethernet TCP/IP
6	AS-Interface
7	BCD parallel
8	BCD multiplex
9	Pt100 2-, 3-wire
A	incremental input
B	radio controlled clock DCF77
C	Profinet IO
D	Modbus RTU
4. Supply voltage	
0	230 V AC ±10 % 50-60Hz
1	115 V AC ±10 % 50-60Hz
5	24 V DC ±15 %
5. Protection class	
0	IP54
1	IP65
6. Mounting	
1	multi hinge*
2	mounting angle *
3	suspension eyes for chains
4	multi hinge with hinge extension
5	mounting frame
7. Additional text on the face plate (please state in clear text)**	
8. Options	
00	without
03	heating with controller
04	colon for clock display
05	custom display color

* for more than 7 digits 100/150mm character heights 2 multi hinge or mounting angles are necessary.

**each unit character the case size changes with 1 digit.