

Speed indicator DR 9648

Revolution per minute - speed - flow

Features

- LED-Display 14.2 mm red
- Display range 0 ... 99999
- 0 ... 3 decimal points or floating point programmable
- Inputs for switching contacts, pnp-initiators and Namur-initiators
- Programmable input-prescaler
- Time base min^{-1}
- Integrated transmitter-supply 24/8 V DC
- Hold-input
- Max. 4 outputs, SPDT relay or transistor
- Protection IP65



DIN 96x48 mm

General

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.

Short information

Programming	Parameters are programmed via front-side membrane keypad
Transmitter-supply	The integrated transmitter supply allows direct connection of pnp initiators, light barriers, mechanical switch contacts, proximity switches, rotary encoder (24 V DC) and Namur initiators (8 V DC).
Input prescaler	An input prescaler function for both inputs is programmable.
Preselect outputs	Preselect outputs can be programmed as continues contact or pulse contact. Switching performance min. or max., hysteresis, on-delay time and off-delay time are programmable in range from 1 s up to 9 h.
Hold function	Freezing the display by control voltage 24 V DC or voltage free contact.

For more features like math functions- summing, difference and display conversion, etc. please choose Productivity-Meter **PR9648**.

Technical data

Power supply

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

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

Operating temperature : $-10 \dots +55\text{ }^{\circ}\text{C}$ ($14 \dots 131\text{ }^{\circ}\text{F}$)

Rated voltage : 250 V~ acc. to VDE 0110 input/output/supply voltage

Degree of pollution 2, over-voltage category III

Conformity : CE

Input

pnp input : $R_i = 6.3\text{ k}\Omega$ level: $< 4\text{ V}$ low; $> 8.5\text{ V}$ high;

hysteresis $> 2.5\text{ V}$, max. 35 V

Namur input : R_i appr. $1\text{ k}\Omega$ ($< 4\text{ mA}$) level: $< 1\text{ mA}$ low; $> 2.2\text{ mA}$ high;

hysteresis $> 0.5\text{ mA}$ max. 35 V

Counting frequency max. : Input E1 = $1\text{ Hz} \dots 30\text{ Hz}$, (switch contact)

Input E2 = $1\text{ Hz} \dots 15\text{ kHz}$, (pnp-initiator or Namur)

Accuracy : $\leq 0.003\%$, ± 1 Digit

Min. pulse width : Electronic pulse $50\text{ }\mu\text{s}$, switch contact 5 ms

Transmitter supply : 8 V DC (Namur), 24 V DC (pnp), R_i appr. $150\text{ }\Omega$, max. 50 mA

Display

: LED red, 14.2 mm

Indicating range : 0 ... 99999 Digit with leading zero suppression

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

Output

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

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

Panel case

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

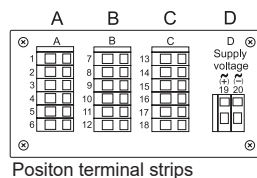
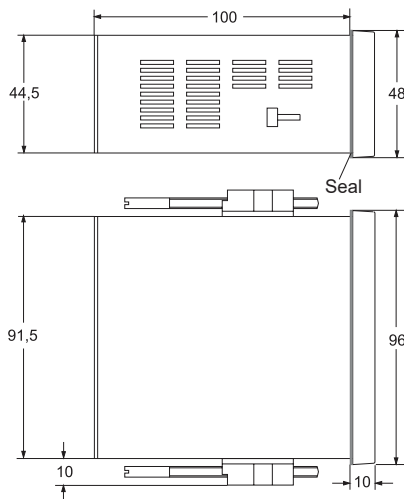
Dimensions : Front 96x48 mm, mounting depth 100 mm,

Weight : max. 390 g

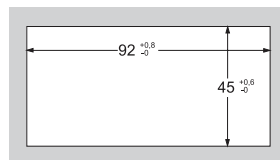
Electrical connection : Clamp terminals, 2 mm^2 single wire, 1.5 mm^2 flexible wire, AWG14

Protection : Front IP65, terminals IP20, finger safe acc. BGV A3

Dimensions



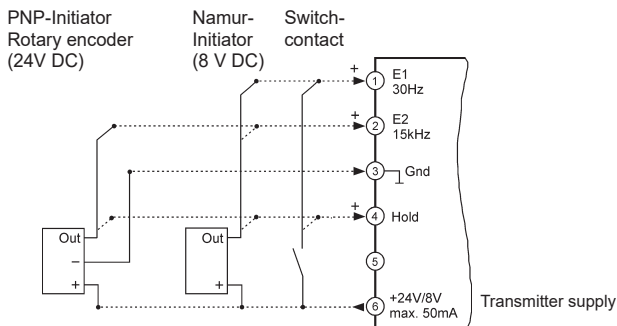
Position terminal strips



Panel cut-out

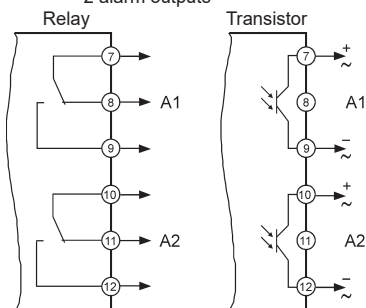
Connection diagrams

Terminal strip A



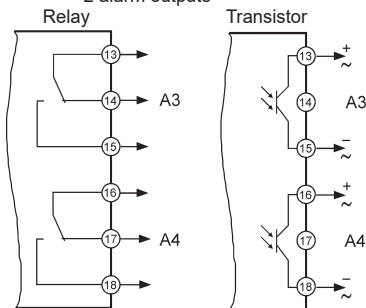
Terminal strip B (varies with version)

2 alarm outputs

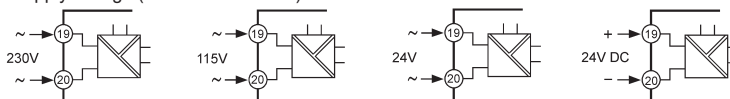


Terminal strip C (varies with version)

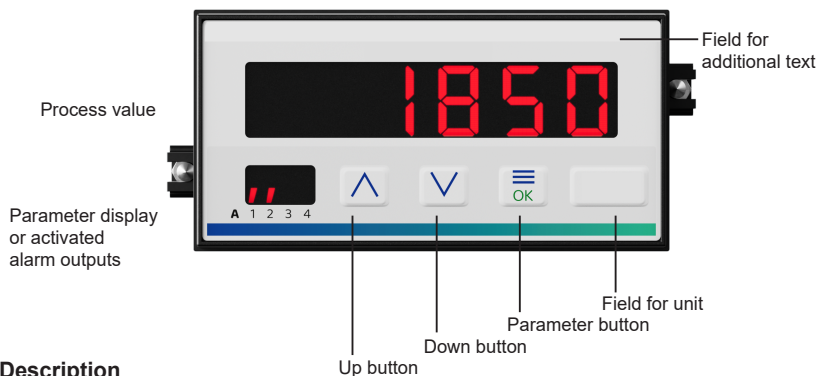
2 alarm outputs



Terminal strip D supply voltage (varies with version)



Controls and indicators



Description

Operation of the device is arranged in 2 levels. The requested parameter can be called by button . For selection within a parameter or for entering data, use buttons  and .

Button combinations:

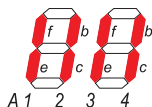
-  +  1 parameter back
-  +  setting parameter to zero or minimum value

After switching on the supply voltage, the device is located in the **Working level**. Setpoint of the alarm outputs can be programmed if they are installed.

Pressing the button  for more than 2 seconds, activates the **Configuration level**. Now all the parameters which defines the function of the device can be programmed.

After finishing the configuration or when no button was pushed for more than 2 minutes, the program returns to the working level. Leaving the configuration level is possible at any time by pressing the button  for more than 2 seconds.

Parameter display as status indicator for the alarm outputs A1-A4.



Segments f (A1 / A3) and/or b (A2 / A4) are flashing with 2 Hz, when delay time is active.

Segments e (A1 / A3) or c (A2 / A4) are output indicators.

Error codes:

P E Reading this message in the parameter display a parameter failure has been occurred. The display flashes. By pressing one of the buttons, the error code will be deleted and a copy of the factory settings will be reloaded to the EEPROM. The device will work with the factory settings. If this copy doesn't work, please ship the device for factory repair.

L o c Programming lock active. See configuration page 7.

o F Overflow

Start-up note:

Before the device can be used, it must be configured for the intended use.

⇒ see page 6

Notes to representation



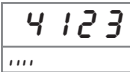
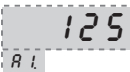
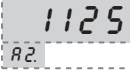
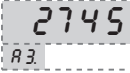
Parameter is only displayed when configured



Parameter is only displayed when feature is included (see order code)

Please Note: All parameters can be called if they are not blocked by other programmed parameters and if they are available. **Factory settings** are shown in the display.

Working level

Button	Display	Description
		Process value
		Output indication (only if installed and activated).
		
		Setpoint alarm output A1 Setting possible from 0 ... 99999 Digit with buttons  and  .
		
		Setpoint alarm output A2 Setting possible from 0 ... 99999 Digit with buttons  und  .
		
		Setpoint alarm output A3 Setting possible from 0 ... 99999 Digit with buttons  und  .
		
		Setpoint alarm output A4 Setting possible from 0 ... 99999 Digit with buttons  und  .
		

Configuration

Button

Display

Description (Display graphic shows factory settings)



Press
2s



1
U = 24
in

Transmitter supply / input level

$U = 24$

: 24V DC für pnp-Initiators

$U = 8$

: 8V DC für Namur-Initiators*

(* with ext. 5V supply also useful for TTL-signals)

$\pm 5 \pm$

: only for factory settings

Selection with buttons and .



2
1
d

Prescaler for input E1 and E2

Setting possible from 1 ... 9999 digit with buttons and .

(Only every nth pulse is displayed)



3
0.
dP

Decimal point position

$R u t o$

: floating point

.000

: 3 decimals

.00

: 2 decimals

.0

: 1 decimal

0.

: non

Maximum 3 decimal point positions possible. In the $R u t o$ -mode the decimal point changes automatically if the process value > 30.000 digit

Selection with buttons and .



4
oFF
FI

Digital filter

oFF

oFF

on

Selection with button and .



5
oFF
FI

Switching performance of alarm output A1

oFF

: off

on (min)

: continuous contact: on-off

on (max)

: continuous contact: off-on

Selection with buttons and .



6
0
FI

Set point of alarm output A1

Setting possible from 0 ... 99999 Digit

with buttons and .



$R u t o$ - mode without decimals.

continue
page 7

Button **Display** **Description** (Display graphic shows factory settings)



7



Hysteresis of alarm output A1
Setting possible from 1 ... 999999 digit
with buttons  and .

Auto mode without decimals.





8



Switch-on delay time alarm output A1.
Setting possible from 0.00.00 ... 9.00.00 (h.mm.ss)
with buttons  and .





9



Switch-off delay time alarm output A1.
Setting possible from 0.00.00 ... 9.00.00 (h.mm.ss)
with buttons  and .

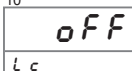


Note: The parameter settings for A2 ... A4 have to be configured the same way.



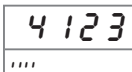


10



Parameter lock
off : no lock
Conf. : configuration level locked
All : all parameters locked
Selection with buttons  and .





Return to the working level

Ordering code

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

1. Terminal strip A

1 2 pulse inputs,
integrated transmitter supply,
hold input

2. Terminal strip B

00 not installed
2R 2 alarm outputs relay
2T 2 alarm outputs transistor

3. Terminal strip C

00 not installed
2R 2 alarm outputs relay
2T 2 alarm outputs transistor

4. Terminal strip D supply voltage

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

5. Options

00 no options

6. Unit (on the lid)

7. Additional text (on the lid, field for additional text, max. 3 x 90 mm, WxH)

Factory settings on request