

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 ... +55 °C (14 ... 131 °F)
Rated voltage	: 250 V \sim acc. to VDE 0110 input/output/supply voltage Degree of pollution 2, over-voltage category III
CE - conformity	: EN55022, EN60555, IEC61000-4-3/4/5/11/13

Input

pnp input	: $R_i = 6.3\text{ k}\Omega$ level: < 4 V low; > 8.5 V high; hysteresis > 2.5 V, max. 35 V
Namur input	: R_i appr. 1 k Ω (<4 mA) level: < 1 mA low; >2.2 mA high; hysteresis > 0.5 mA max. 35 V
Counting frequency max.	: Input E1 = 1 Hz ... 30 Hz, (switch contact) Input E2 = 1 Hz ... 15 kHz, (pnp-initiator or Namur)
Accuracy	: $\leq 0.003\%$, ± 1 Digit
Min. pulse width	: Electronic pulse 50 μ s, switch contact 5 ms
Transmitter supply	: 8 V DC (Namur), 24 V DC (pnp), R_i appr. 150 Ω , max.50 mA

Display

Indicating range	: 0 ... 99999 Digit with leading zero suppression
Additional display	: LED 2-digit red, 7 mm (parameter - and output indicator)

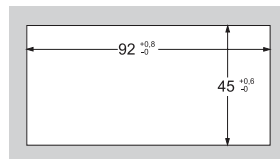
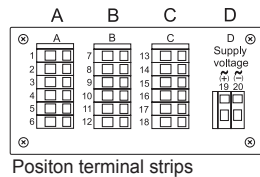
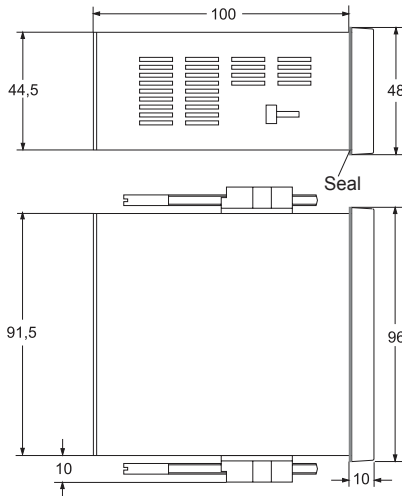
Output

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

Panel case

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

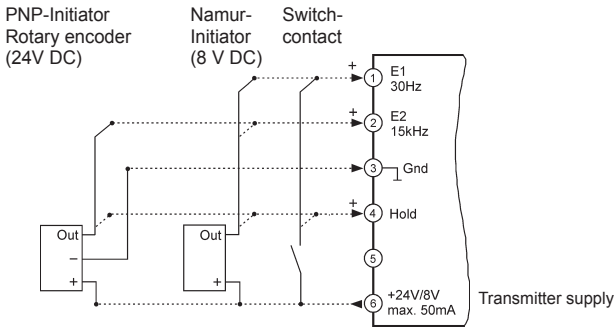
Dimensions



Panel cut-out acc. to
DIN 43700-96x48

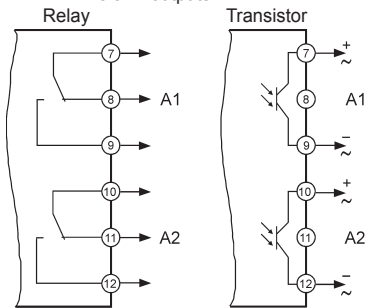
Connection diagrams

Terminal strip A



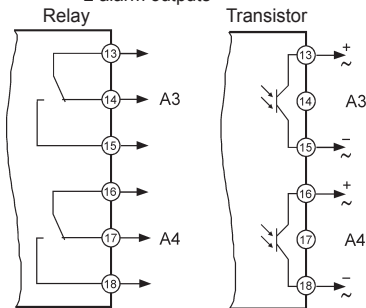
Terminal strip B (varies with version)

2 alarm outputs

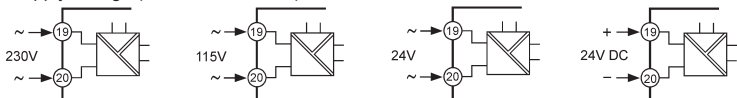


Terminal strip C (varies with version)

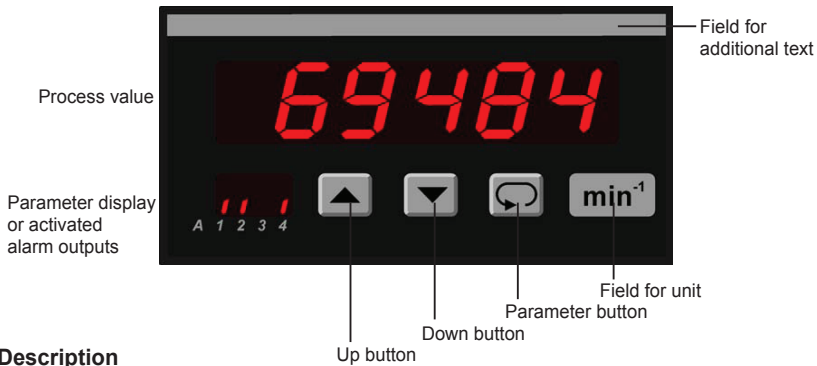
2 alarm outputs



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:

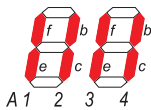
- + 1 parameter back
- + setting parameter to zero or minimum value

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.

σ 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





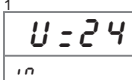



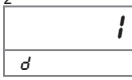




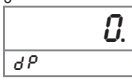




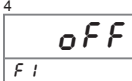













Parameter is only displayed when feature is included (see order code)

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 		Transmitter supply / input level <i>U = 24</i> : 24V DC für pnp-Initiators <i>U = 8</i> : 8V DC für Namur-Initiators* (* with ext. 5V supply also useful for TTL-signals) <i>EESt</i> : only for factory settings Selection with buttons  and  .
		Prescaler for input E1 and E2 Setting possible from <i>1</i> ... <i>9999</i> digit with buttons  and  . (Only every n th pulse is displayed)
 		Decimal point position <i>float</i> : floating point <i>000</i> : 3 decimals <i>00</i> : 2 decimals <i>0</i> : 1 decimal <i>0.</i> : non Maximum 3 decimal point positions possible. In the <i>float</i> -mode the decimal point changes automatically if the process value > 30.000 digit Selection with buttons  and  .
 		Digital filter <i>off</i> <i>on</i> Selection with button  and  .
 		Switching performance of alarm output A1 <i>off</i> : off <i>on L (min)</i> : continuous contact: on-off <i>on U (max)</i> : continuous contact: off-on Selection with buttons  and  .
 		Set point of alarm output A1 Setting possible from <i>0</i> ... <i>99999</i> Digit with buttons  and  .
		<i>float</i> - mode without decimals.

continue
page 7

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 ± 10 % 50-60 Hz
1 115 V AC ± 10 % 50-60 Hz
4 24 V AC ± 10 % 50-60 Hz
5 24 V DC ± 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