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Setpoint adjuster SG 9648

Output standard signals 0/4 ... 20 mA or 0/2 ... 10 V DC

Features

- LED-Display 14.2 mm red
- Display range ± 9999(0) digit
- Indicating range and decimal point free programmable
- Set point adjustment with front buttons or external control signals
- Set point limit programmable
- Regulating time programmable
- Max. 2 outputs SPDT relay or transistor
- Isolated analog output 0/4 ... 20 mA or 0/2 ... 10 V DC
- Front protection IP65

DIN 96x48 mm

General information

The Set point adjuster SG9648 has been designed for generating adjustable set point value signals 0/4 ... 20 mA and 0/2 ... 10 V DC. Any display value can be assigned to the respective output signal. The operator can work with real values. The adjustment speed is programmable.

Short information

Programming	Parameters are programmed via front-side membrane keypad.
Alarm outputs	Switching performance of the alarm output is programmable as minimum or maximum function.
Int. setpoint adjustment	The setpoint can be adjusted with front buttons. The adjustment is running dynamically, i.e. the regulating speed increases with the operation time of the buttons.
Ext. setpoint adjustment	The setpoint can be adjusted with external signals. The adjustment is running dynamically or linear. In the linear adjustment mode the speed is constant, i.e. the output signal changes linear. The adjustment time is programmable from 1 to 100 s.
Power-on-reset	Setpoint can be set to the last stored value or to a programmed reset value.
External reset	The setpoint will be set to a programmed reset value.
Analog output	Proportional to the display value an isolated analog output signal 0 ... 20 mA/ 0 ... 10 V DC or 4 ... 20 mA/2 ... 10 V DC will be generated. The output signal is limited to the range of the minimum and maximum value. Output changed automatically from current signal to voltage signal depending on burden.

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	:	5 VA
Operating temperature	:	-20 ... +55 °C (-4 ... 131°F)
Rated voltage	:	250V≃ acc VDE 0110 between input/output/supply voltage, degree of pollution 2, overvoltage categoric III
Test voltage	:	4 kV=, between input/output/supply voltage
CE - conformity	:	EN55022, EN60555, IEC61000-4-3/4/5/11/13

Input

Control input	:	0/24 V DC Ri 6.3 kΩ <4 V low, > 8.5 V high, Hysteresis >2.5 V, max. 35 V DC
Switch contact supply	:	24 V DC (pnp), Ri appr. 150 Ω, max. 50 mA

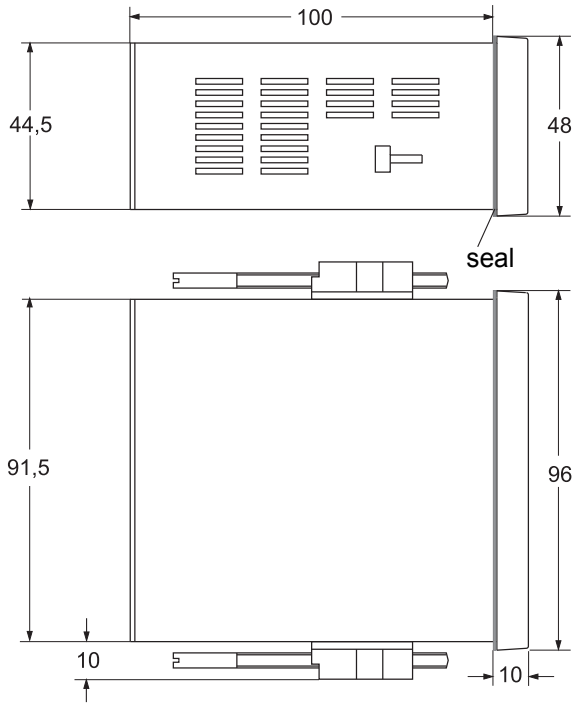
Display	:	LED red, 14.2 mm
Indicating range	:	± 9999(0) digit
Add. display	:	LED 2-digit red, 7 mm (parameter - and status indicator)

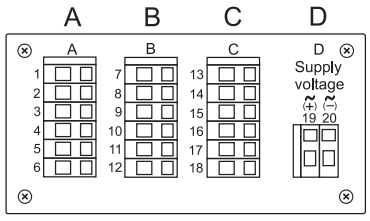
Output

Relay	:	SPDT < 250 V AC < 250 VA < 2 A, < 300 V DC < 50 W < 2 A
Transistor	:	max. 35V AC/DC, max. 100mA, short circuit protected
Analog output	:	0/4 ... 20 mA burden ≤500 Ω; 0/2 ... 10 V burden >500 Ω, isolated output changes burden dependant
-accuracy	:	0.1 %; TK 0.01 %/K
-resolution	:	12 Bit

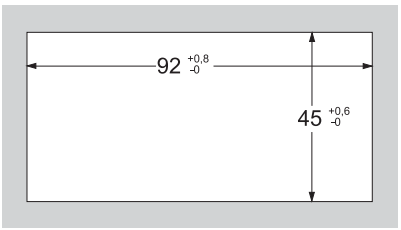
Panel case	:	DIN 96x48mm, material PA6-GF; UL94V-0
Dimensions	:	Front 96x48mm, mounting depth 100mm,
Weight	:	max. 390g
Electrical connection	:	Clamp terminals, 2 mm² single wire, 1.5 mm² flexible wire, AWG14
Protection	:	Front IP65, terminals IP20, fingersafe acc. to German BGV A3

Dimensions





Position terminal strips

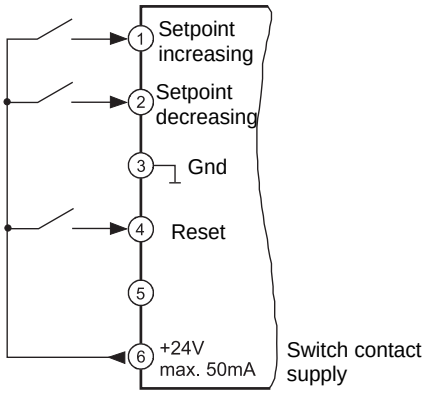


Panel cut-out
DIN 43700-96x48 mm

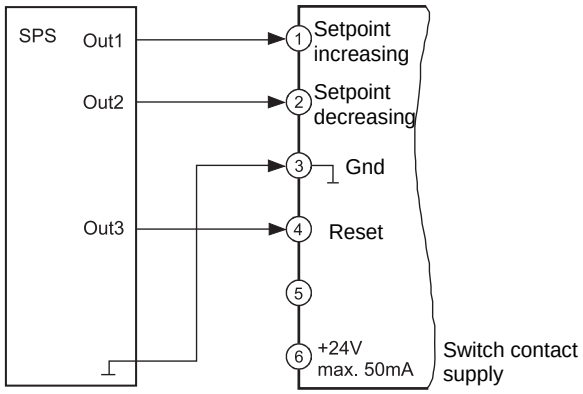
Connection diagrams

Terminal strip A (only installed in connection with external set point adjustment)

Actuation with voltage free contacts



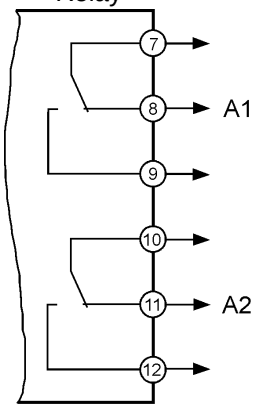
Actuation with ext. logic signals (e.g. PLC-outputs)



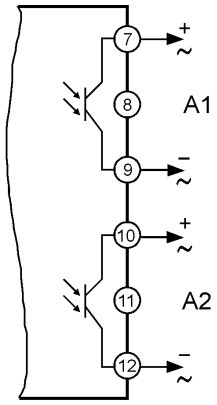
Terminal strip B (varies with version)

2 alarm outputs

Relay

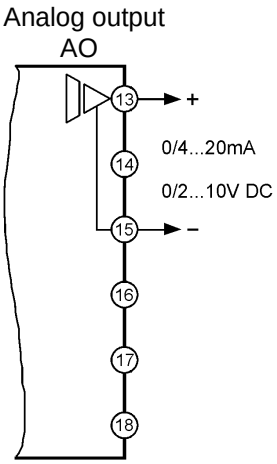


Transistor

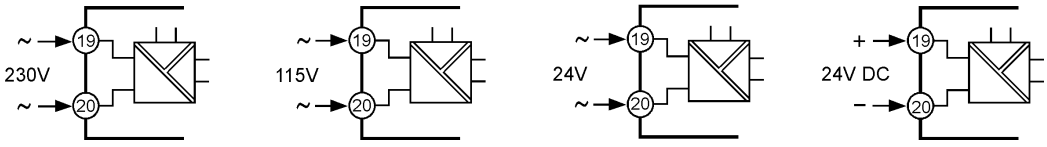


Terminal strip C (varies with version)

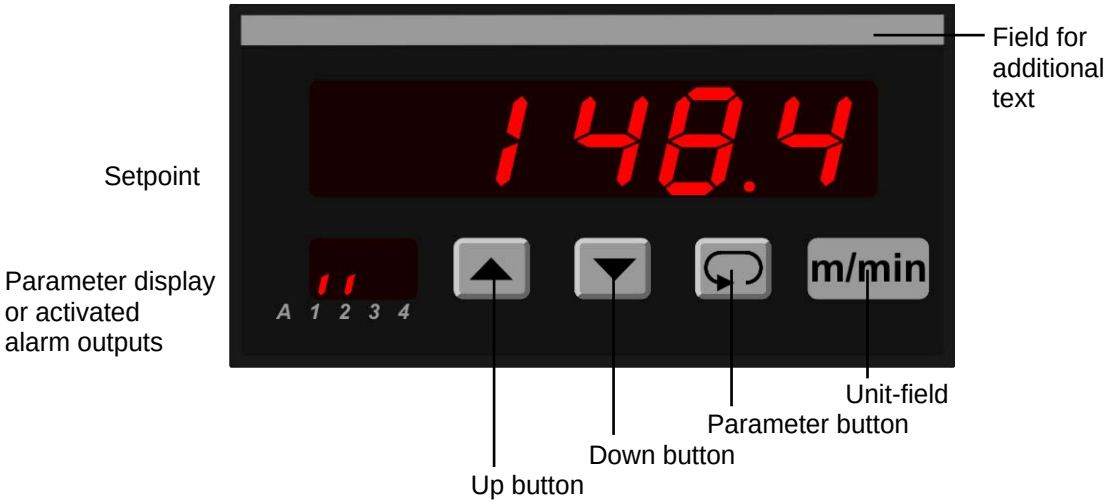
Analog output AO



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 button 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 leve**l.
Setpoint can be adjusted.

Pressing the button for more than 2 seconds, activates the **Configuration leve**l. Now all the parameters which definines 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.

Error codes:

P E	Reading this message in the parameter display a parameter failure has been occured. The display flashes. By pressing one of the front side 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.
Lo 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 5

Notes to representation

Parameter is only displayed when configurated

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.

Configuration

Button	Display	Description
Press 2 s	148.8	**Actual setpoint value** Setting with buttons ▲ and ▼. Output indication (only if installed and activated)
	1 · 0-20 · AO	Configuration of the analog output 0 - 20 mA (0 - 10 V DC) 4 - 20 mA (2 - 10 V DC) Changing from current to voltage output is load-dependent (≤ 500 Ω = current output, > 500 Ω = voltage output). Selection with buttons ▲ and ▼.
	2 · rESEt · Po	Setpoint value after power-on. rESEt = loading reset value (rE) (⇒see page 6) rEStor = set point stored zero-voltage safe tESt = only for factory settings Selection with buttons ▲ and ▼.
	3 · no · FO	Fixed zero 0, e.g. 3690+0 no , YES Selection with buttons ▲ and ▼.
	4 · 0. · dP	Decimal point position. if FO = no : 0. .0 .00 if FO = YES : 0. .0 .000 Selection with buttons ▲ and ▼.
	5 · 0. · St	Start value for indicating range (setpoint) Setting possible from -9999(0) ... 9999(0) Digit with buttons ▲ and ▼.

continue page 6

Button	Display	Description
↓	6 100 En	End value for indicating range (set point) Setting possible from -9999(0) ... -9999(0) digit with buttons ▲ and ▼. If the value St > En, the output works with a decreasing characteristic.
↻	7 oFF LE	Setpoint limit on - oFF Selection with buttons ▲ and ▼.
↻	8 0 LL	Setpoint low limit Setting possible from -9999(0) ... -9999(0) digit with buttons ▲ and ▼.
↻	9 100 LH	Setpoint high limit Setting possible from -9999(0) ... -9999(0) digit with buttons ▲ and ▼.
↻	10 0 rE	Reset value, after power-on or reset. More details see parameter Po page 5 Setting possible from -9999(0) ... -9999(0) digit with buttons ▲ and ▼.
↻	11 dyn rF	Adjustment function (only external adjustment) Lin = the setpoint adjustment is running linear in range of the programmed time (see following parameter) dyn = the setpoint adjustment is running dynamically. The regulating speed increases with operation time. Selection with buttons ▲ and ▼.
↻	12 10 tr	Adjustment time increasing (St ... En) Setting possible from 1 ... 100 s with buttons ▲ and ▼.
↻	13 10 tF	Adjustment time decreasing (En ... St) Setting possible from 1 ... 100 s with buttons ▲ and ▼.
↻		

continue
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Button	Display	Description
↓	14 oFF A 1	Switching performance output A1 Function oFF; onL (min); or onJ (max). If activated the start value will be loaded for set point. Selection with buttons ▲ and ▼.
↻		
↓	15 0 A 1.	Setpoint output A1 Setting possible from St (start value) ... En (end value) with buttons ▲ and ▼.
↻		
↓	16 10 H 1	Hysteresis output A1 Setting possible from 1 ... 9999 digit with buttons ▲ and ▼. Note: Parameters for alarm output A2 has to be configured in the same way.
↻		
↓	17 oFF Lc	Parameter lock. oFF = no lock Conf. = configuration level locked ALL = configuration level and internal setpoint adjusting locked CAL = only for factory settings Selection with buttons ▲ and ▼.
↻		
	148.8 ' '	Return to the working level

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Ordering code

	1.		2.		3.		4.		5.		6.		7.
SG9648 -		-		-		-		-		-		-	

1. Terminal strip A

0	Setpoint adjustment with front buttons, adjustment speed dynamically, (Power-on)-reset to the last stored value or programmed reset value.	
1	as 0, but 2 additional control inputs for external setpoint adjustment, adjustment speed dynamically or linear programmable, the external reset input is not available.	

2. Terminal strip B

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

3. Terminal strip C (standard)

AO	Analog output	0/4 ... 20 mA or 0/2 ... 10 V DC isolated to the supply voltage

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. Option

00	without option

6. Unit (on the front panel)

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

Factory settings on request