

# Strain Probe with Integrated Amplifier

## DSRH x12/x16/x20/x24

### Features

- Simple strain measurements in deep holes
- Characteristic curve deviation < 1%
- For cyclical applications only
- Integrated amplifier with voltage or current output
- Optional sensor tip of steel for repeated installation



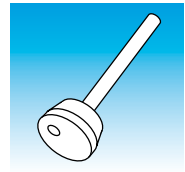
Electrical Data	DSRH U	DSRH I
Measuring range	$\pm 1000 \mu\epsilon$	0 - 1000 $\mu\epsilon$
Strain gage type	Foil gages	
S/G circuit	2 x 1/4 bridge bending compensated	
Output signal	$\pm 10$ V calibrated (max. $\pm 12$ V)	4 - 20 mA max. load 500 $\Omega$
Combined error	< 1% FS	
Linearity	< 0,5% FS	
Hysteresis	< 0,5% FS	
Supply voltage range	18 - 36 VDC	
Current draw	< 30 mA	< 45 mA
Output impedance	50 $\Omega$	-
Zero reset active	< $\pm 10$ mV	< $\pm 20 \mu\text{A}$
Reset input galvanically isolated	15 - 45 VDC	
Reset/operate offset	< $\pm 4$ mV	< $\pm 10 \mu\text{A}$
Reset pulse (t1)	> 1 ms	
Reset settle time (t2)	$\approx 60$ ms	
Frequency range (3 dB)	120 Hz	
Rise time 10 - 90%	< 3 ms	
Signal polarity tensile load	positive	positive (only tensile load possible)

### Mechanical Data

Connection	7 pin male (Series 680/SGR 70)
Material	
- Sensor tip (option)	Aluminum anodized (stainless steel)
- Amplifier enclosure	Aluminum anodized
- Tube	Stainless steel
- Support ring (Type 20)	Aluminum anodized
Hexagon socket	6 mm
Installation torque	3 Nm

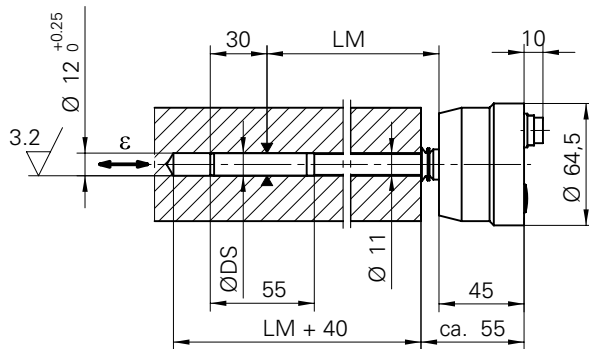
### Environmental Conditions

Surface installation spot	Ra 3.2 (N8) or better
Operating temp. range	-5...+60 °C non condensing
Storage temperature	-20...+80 °C
Protection class	IP 54

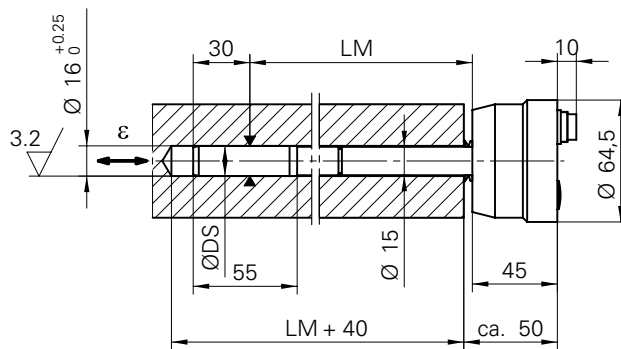


Dimensions (mm)

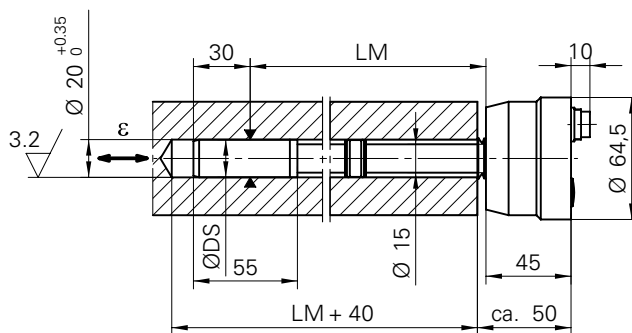
Type 12



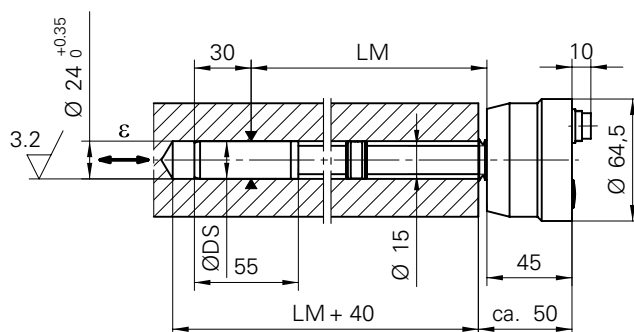
Type 16



Type 20



Type 24



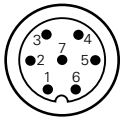
$\varnothing DS$  = Tip diameter  
 $LM$  = Measurement depth  
 $\epsilon$  = Strain  
 $\blacktriangle$  = Gage location

# Strain Probe with Integrated Amplifier

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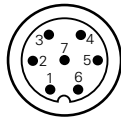
### Electrical Connections

#### Current Output



Pin	Signal	Pin	Signal
1	+Vs (18 - 35 VDC)	1	+Vs (18 - 35 VDC)
2	Test <sub>OUT</sub>	2	Test <sub>OUT</sub>
3	Reset (bipolar)	3	Reset (bipolar)
4	Reset (bipolar)	4	Reset (bipolar)
5	+I <sub>OUT</sub> (4 - 20 mA)	5	+V <sub>OUT</sub> (±10 V)
6	-I <sub>OUT</sub>	6	-V <sub>OUT</sub>
7	GND	7	GND

#### Voltage Output



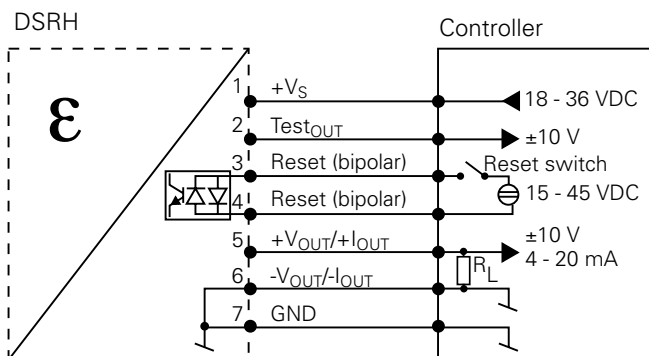
Pin	Signal	Pin	Signal
1	+Vs (18 - 35 VDC)	1	+Vs (18 - 35 VDC)
2	Test <sub>OUT</sub>	2	Test <sub>OUT</sub>
3	Reset (bipolar)	3	Reset (bipolar)
4	Reset (bipolar)	4	Reset (bipolar)
5	+V <sub>OUT</sub> (±10 V)	5	+V <sub>OUT</sub> (±10 V)
6	-V <sub>OUT</sub>	6	-V <sub>OUT</sub>
7	GND	7	GND

### Order Code

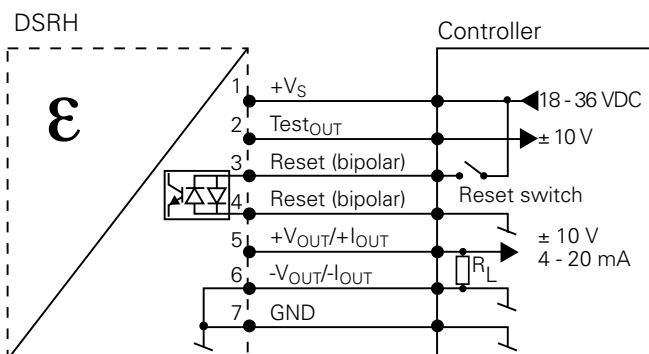
DSRH		-		M	/		
							Option
							/ST Sensor tip of steel
							Tip diameter (Ø DS) - Length (LM)
							12-0200 16-0200 20-0200 24-0200
							12-0220 16-0240 20-0240 24-0240
							12-0230 16-0320 20-0320 24-0320
							12-0240 16-0400 20-0400 24-0400
							12-0400 16-0500 20-0500 24-0500
							12-0600 16-0600 20-0600 24-0600
							16-0760 20-0760 24-0760
							16-0800 20-0800 24-0800
							16-0900 20-0900 24-0900
							16-1050 20-1050 24-1050
							16-1300 20-1300 24-1300
							16-1400 20-1400 24-1400
							24-1500
							24-1700
							24-1800
							24-2000
							Output signal
							U Voltage output ±10 V
							±1000 µε = ±10 V
							I Current output 4 - 20 mA
							+1000 µε = 20 mA

### Control

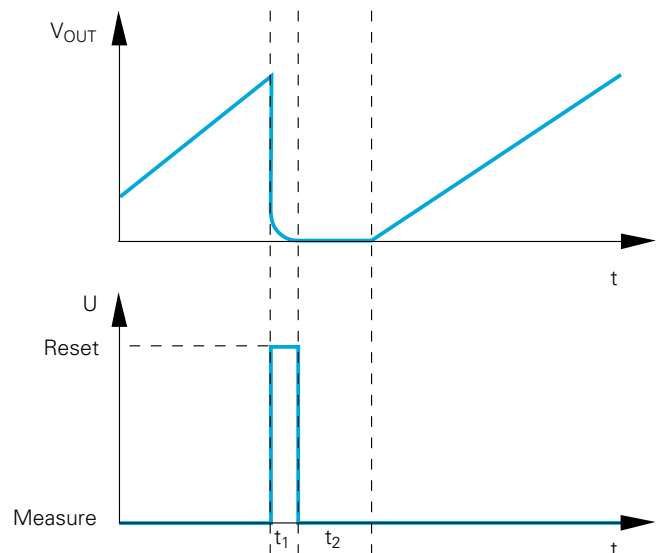
#### Reset galvanically isolated



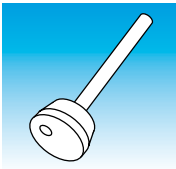
#### Reset not galvanically isolated



### Reset Function

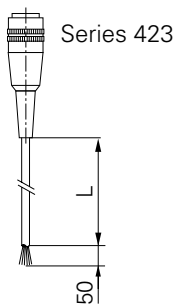


V/I <sub>OUT</sub>	Output signal
Reset	Reset input (active high)
t <sub>1</sub>	Reset pulse (> 1 ms)
t <sub>2</sub>	Reset settle time after reset pulse (≈ 60 ms)

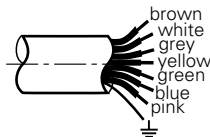


Accessories and Control Elements

Connecting Cable with Flying Leads

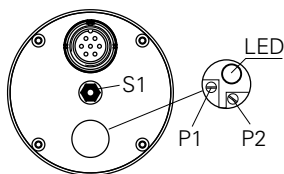


Length	Order Code
5 m	<b>DZCS 05/404155</b>
10 m	<b>DZCS 10/404155</b>



Color	Signal
white	+Vs (18 - 35 VDC)
brown	Testout
green	Reset (bipolar)
yellow	Reset (bipolar)
grey	+IOUT / +VOUT
blue	-IOUT / -VOUT
pink	GND

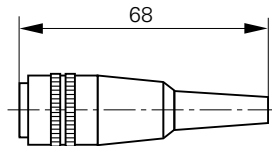
Control Elements



P1	Adjustment Testout
P2	Adjustment Gain (factory set)
LED	Control-LED for Testout
S1	Mounting screw with 6 mm hex

Straight Connector

Series 423



Part No. 10146423

Torque Wrench



Order code: DZMT TW-A1-6  
adjustable from 1 - 6 Nm  
Part No. 11034496

Order code: DZMT TW-F3  
preset fix to 3 Nm  
Part No. 11034494