Data Sheet

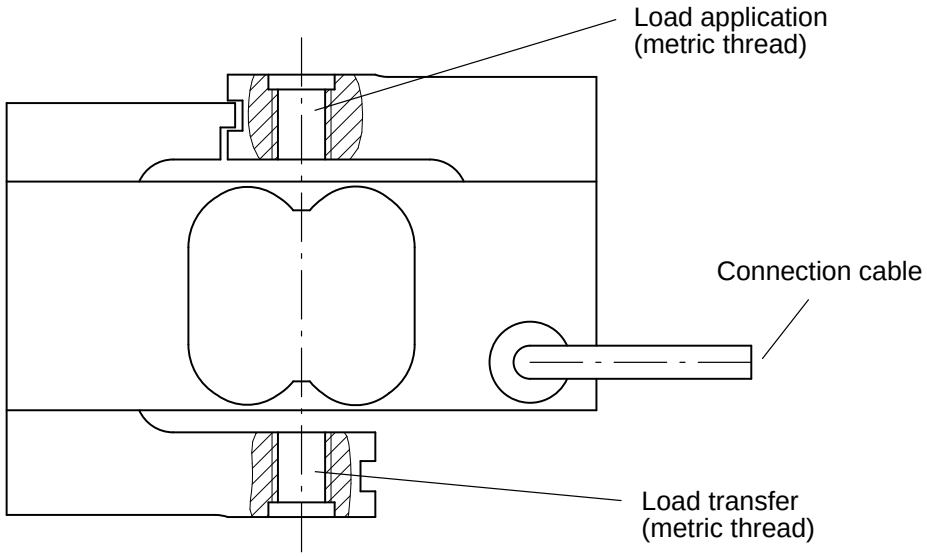
S2M

Force Transducer

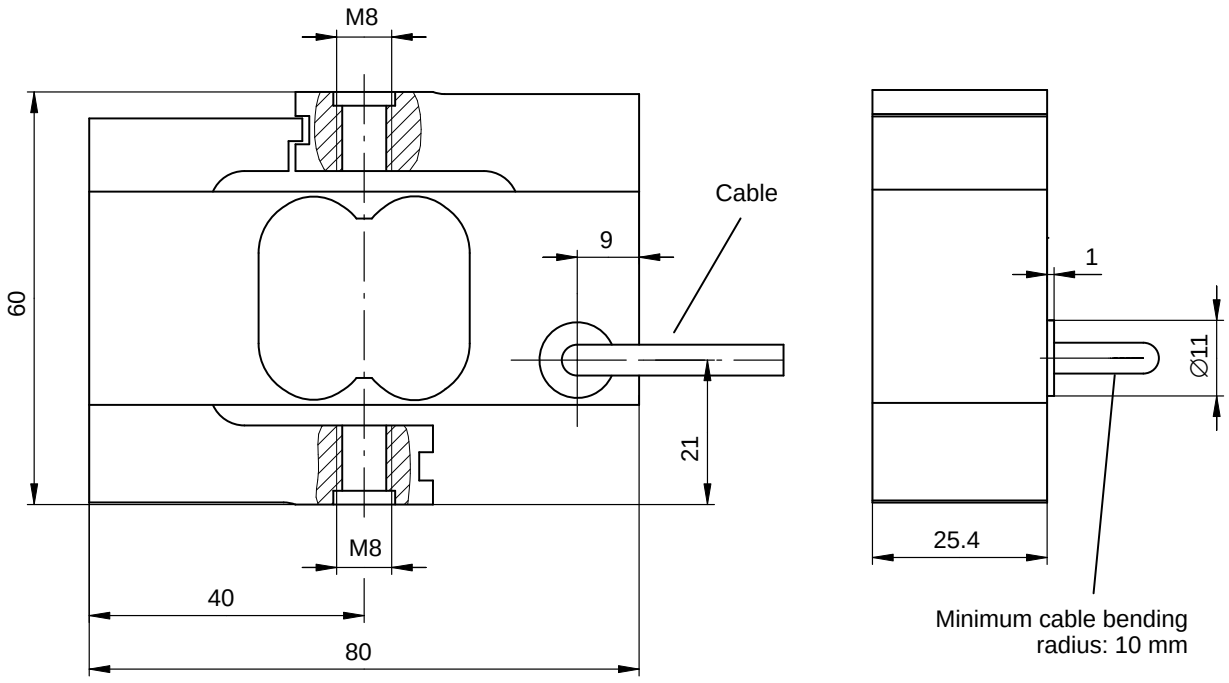
Special features

- **Tensile/compressive force transducer**
- **Accuracy class 0.02**
- **Nominal (rated) forces: 10 N … 1000 N**
- **High protection class (IP67)**
- **High lateral force stability**
- **Six-wire circuit**

Principle of the S2M force transducer

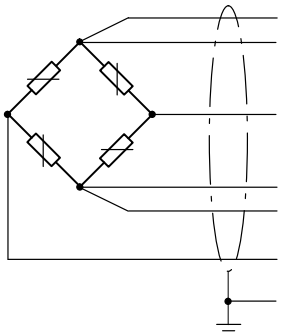


Dimensions (in mm; 1 mm = 0.03937 inches)



Cable assignment (six-wire configuration)

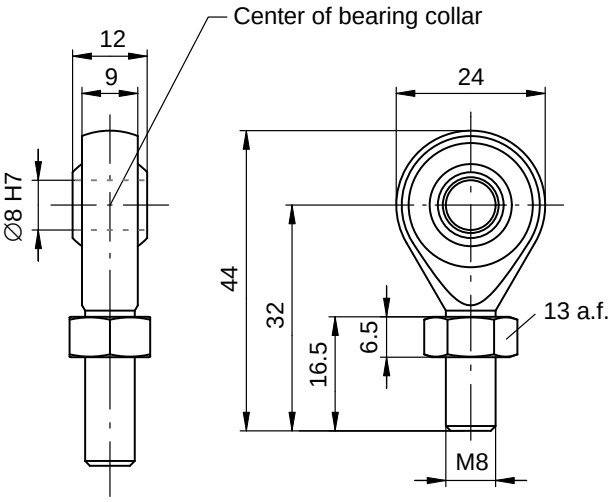
With this cable assignment, the output voltage at the measuring amplifier is positive in the pressure direction when the transducer is loaded.

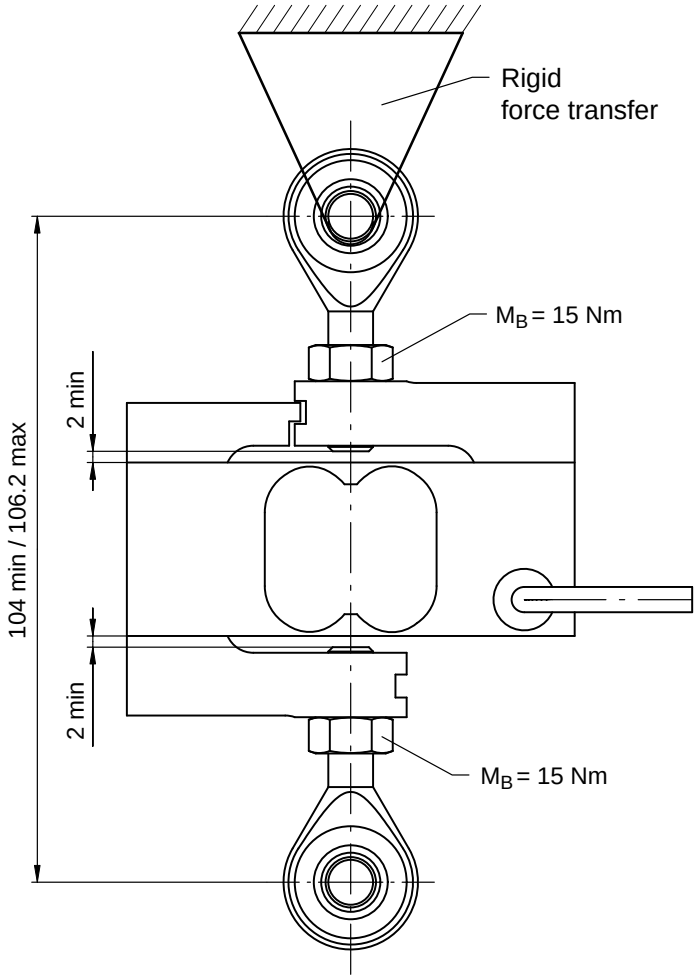


(gray)	Sensing element (−)
(black)	Excitation voltage (−)
(white)	Measurement signal (+)
(blue)	Excitation voltage (+)
(green)	Sensing element (+)
(red)	Measurement signal (−)
(−)	Shielding/drain wire, connected to enclosure ground

Mounting accessories (to be ordered separately)

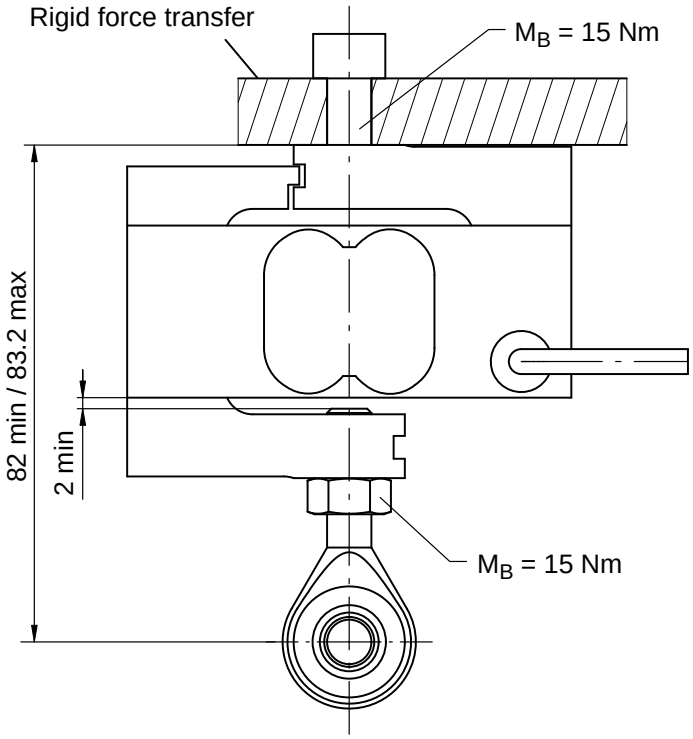
Dimensions (in mm; 1 mm = 0.03937 inches)





ZGW knuckle eye
Order no. 1−U1R/200KG/ZGW

Material: Tempered steel, galvanized
roller bearing steel
PTFE/bronze corrugated foil



Specifications (data per VDI/VDE/DKD 2638 standards)

Type			**S2M**						
Nominal (rated) force	F_{nom}	N	10	20	50	100	200	500	1000
Accuracy									
Accuracy class			0.02						
Relative reproducibility and repeatability errors without rotation	b_{rg}	%	0.02						
Relative reversibility error	v		0.02						
Non-linearity	d_{lin}		0.02						
Relative creep over 30 min.	$d_{cr,\ F+E}$		0.02						
Effect of the bending moment at 10% F_{nom} * 10 mm	d_{Mb}		0.02						
Effect of lateral forces (lateral force = 10% F_{nom})	d_Q		0.02						
Effect of temperature on sensitivity	TK_C	% / 10 K	0.02						
Effect of temperature on zero signal	TK_0		0.02						
Electrical characteristic values									
Nominal (rated) sensitivity	C_{nom}	mV/V	2						
Relative zero signal error	$d_{S,\ 0}$	%	5						
Relative sensitivity error	d_c		0.25						
Rel. tensile/compression sensitivity variation	d_{ZD}		0.1						
Input resistance	R_i	Ω	> 345						
Output resistance	R_o		350 ± 50						
Insulation resistance	R_{is}	GΩ	> 2						
Operating range of the excitation voltage	$B_{U,\ G}$	V	0.5 … 12						
Reference excitation voltage	U_{ref}		5						
Connection			Six-wire circuit						
Temperature									
Nominal (rated) temperature range	$B_{T,\ nom}$	°C	−10 … +45						
Operating temperature range	$B_{T,\ G}$		−10 … +70						
Storage temperature range	$B_{T,\ S}$		−10 … +85						
Mechanical characteristic quantities									
Max. operating force	F_G	%	150						
Limit force	F_L		1000						
Breaking force	F_B		1000						
Limit torque	M_L	Nm	4	8	25	28			
Limit bending moment	$M_{b\ perm}$		6	25	34	50	71	95	125
Static lateral limit force	F_Q	% of F_{nom}	100						
Nominal (rated) displacement	s_{nom}	mm	0.27	0.21	0.18	0.15	0.13	0.12	0.13
Fundamental resonance frequency	f_G	Hz	94.4	146	243	358	475	582	618
Relative permissible oscillatory stress	F_{rb}	% of F_{nom}	140						
General data									
Degree of protection per EN 60529			IP 67						
Measuring body material			Aluminum						
Potting material			Silicone						
Cable			Six-wire circuit, PUR insulation, drag chain						
Cable length		m	6						
Mass (with cable)	m	kg	0.5						

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