S2M

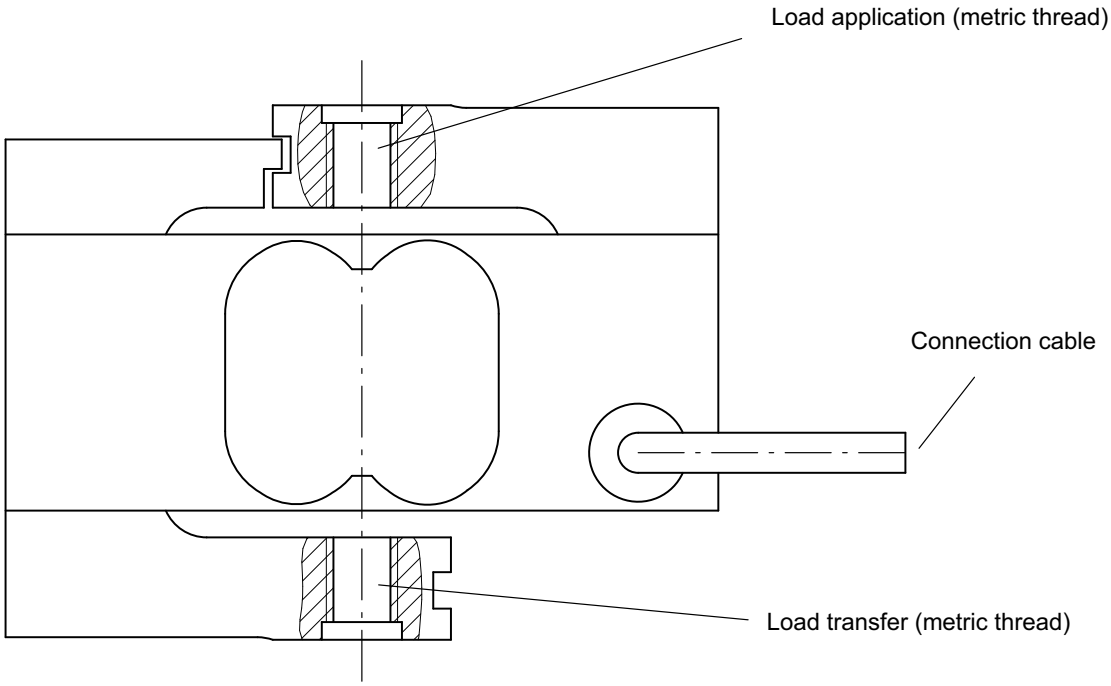
Force Transducer

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**

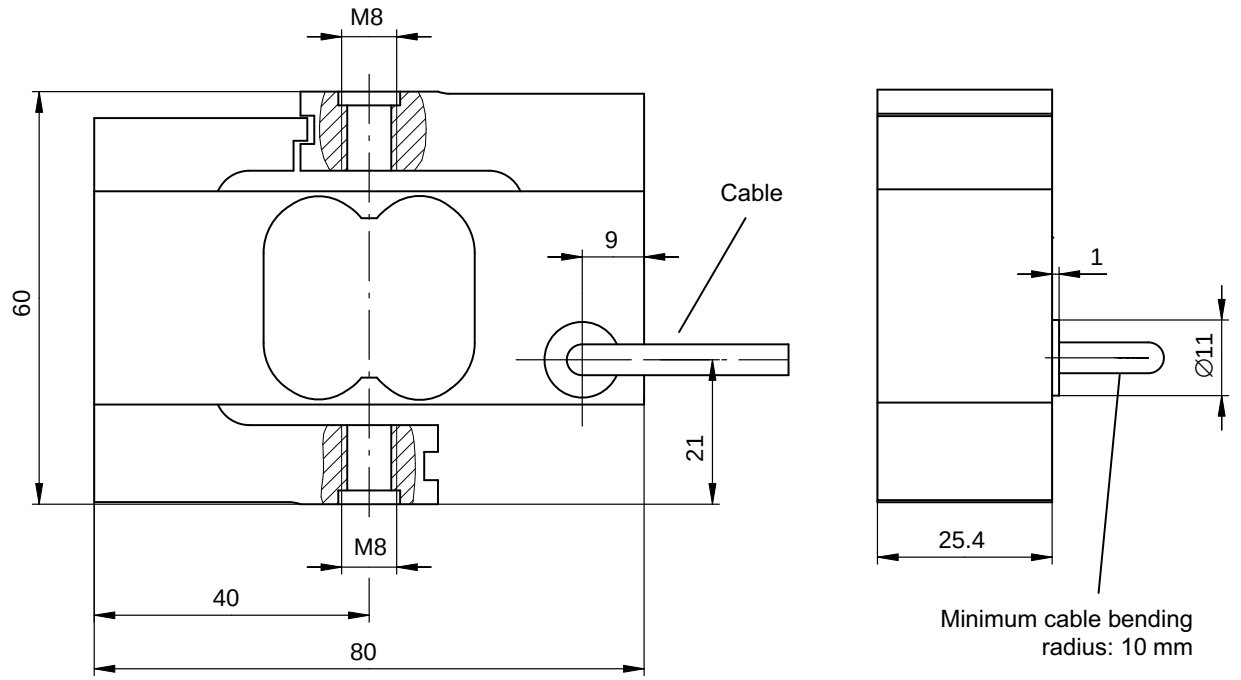
Data sheet

Principle of the S2M force transducer



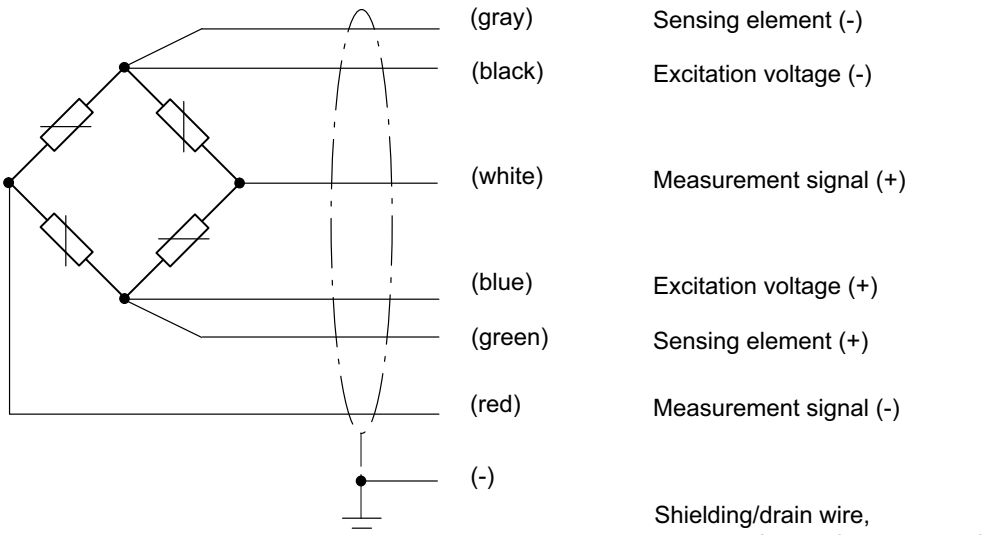
Dimensions

Dimensions (in mm; 1 mm = 0.03937 inches)



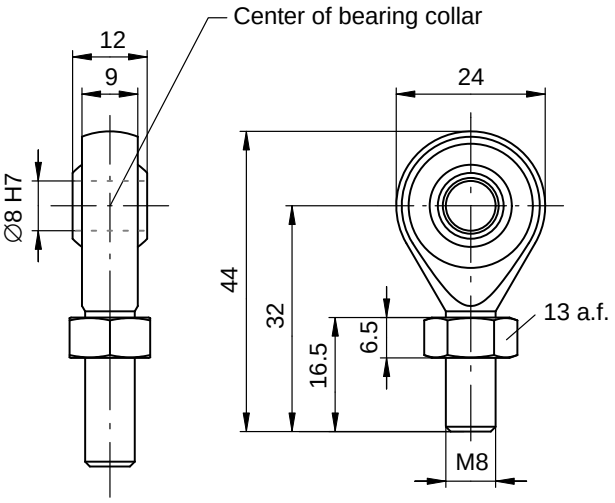
Cable assignment (six-wire configuration)

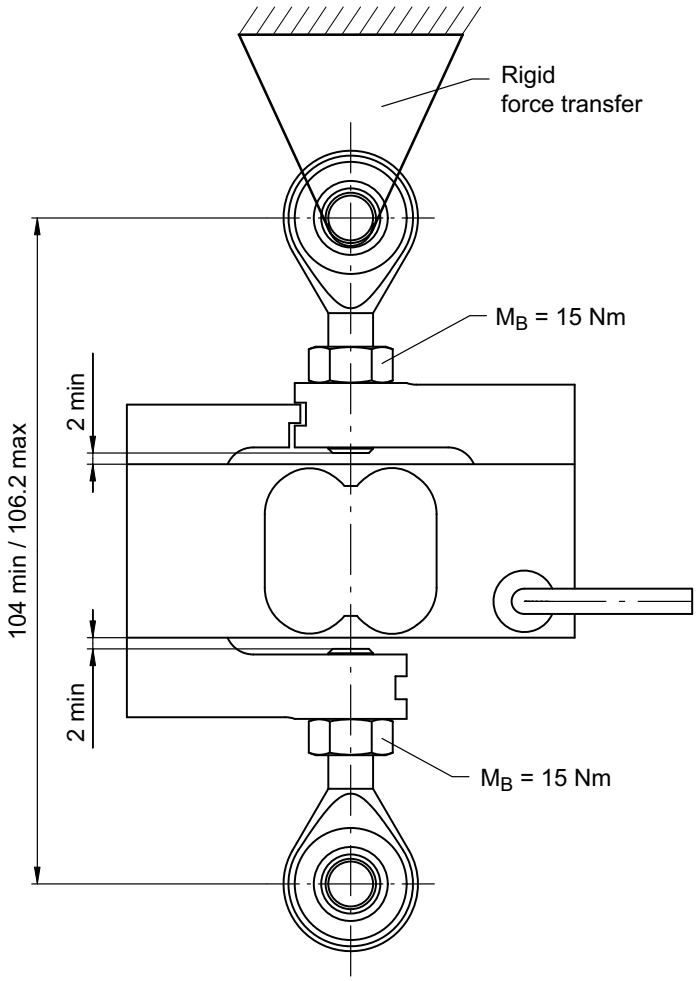
With this cable assignment, the output voltage at the measuring amplifier is positive in the pressure direction when the transducer is loaded.



Mounting accessories (to be ordered separately)

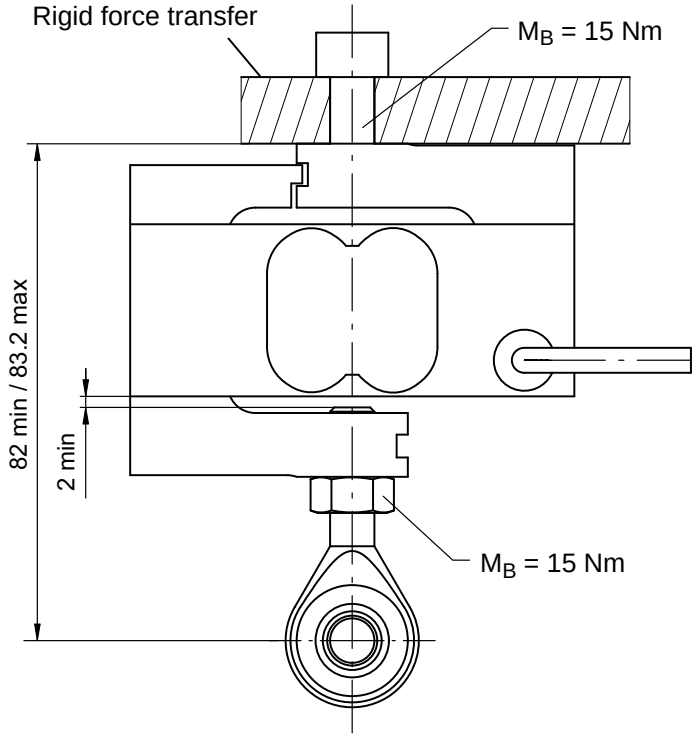
Dimensions (in mm; 1 mm = 0.03937 inches)





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 compliant						
Cable length		m	6						
Mass (with cable)	m	kg	0.5						

Versions and ordering numbers

Code	Measuring range	Stock item ordering number	The ordering numbers shown in gray are preferred types, they can be delivered rapidly. All force transducers with 6 m cable, open ends and without TEDS. The ordering number for the preferred types is 1-S2M.. The ordering number for customer-specific designs is K-S2M-MONT…
010N	10 N	1-S2M/10N-1	
020N	20 N	1-S2M/20N-1	
050N	50 N	1-S2M/50N-1	
100N	100 N	1-S2M/100N-1	
200N	200 N	1-S2M/200N-1	
500N	500 N	1-S2M/500N-1	
001K	1000 N	1-S2M/1000N-1	

Cable length	Plug version	Transducer identification
01M5 1.5 m	**Y** Free ends	**S** without TEDS
03M0 3 m	**F** D-Sub	**T** With TEDS
06M0 6 m	**Q** D-Sub HD	
	N ME3106PEMV	
	P CON P1016	

Example

K-S2M-MONT	**010N**	**03M0**	**Q**	**T**

The example shows an S2M with 10 N capacity, 3 m cable, a fitted plug for the Quantum system, and TEDS.

TEDS is only possible when a plug is fitted, TEDS and open ends cannot be combined.

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