

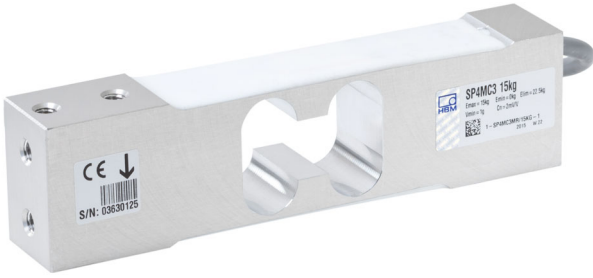
precix 6

SP4M...

Single point load cells

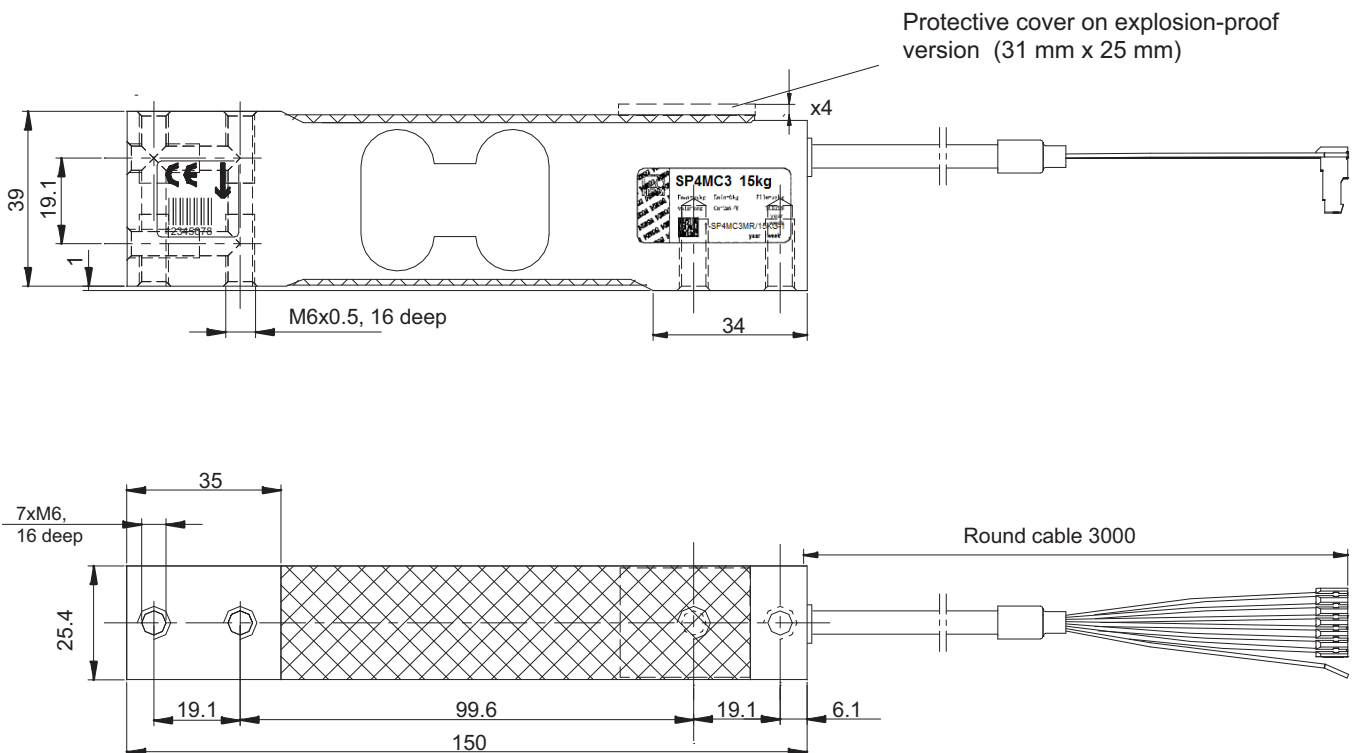
Special features

- Maximum capacities: 1 kg ... 200 kg
- Aluminum
- High ratio of minimum verification interval Y
- Off-center load compensation
- Shielded connection cable
- Explosion protection and other options deliverable



Data sheet

Dimensions in mm (1 mm = 0.03937 inches)



Specifications

Type			SP4M...												
Accuracy class as per OIML R60			C3 Multi Range (MR)												
Number of load cell verification intervals	n _{LC}		3000												
Maximum capacity ²⁾	E _{max}	kg	1	3	5	7	10	15	20	30	50	75	100	150	200
Minimum load cell verification interval	v _{min}	g	0.1	0.2	0.5	0.5	1	1	2	2	5	5	10	10	20
Temperature coefficient of zero signal	TC ₀	% of C _n /10 K	±0.0140	±0.0093	±0.0140	±0.0100	±0.0140	±0.0093	±0.0140	±0.0093	±0.0140	±0.0093	±0.0140	±0.0093	±0.0140
Ratio of minimum verification interval	Y		10000	15000	10000	14000	10000	15000	10000	15000	10000	15000	10000	15000	10000
General specifications															
Maximum platform size		mm	300 × 300				450 × 450				600 × 600				
Nominal sensitivity Maximum capacity 1 kg Maximum capacities 3 kg...200 kg	C _n	mV/V	1.8 +0.27 -0.18 (Option 6: A1 = 1.8 mV/V±0.1 %) 2.0±0.2 (Option 6: A = 2mV/V±0.1 %)												
Zero signal		mV/V	0±0.1												
Temperature coefficient of sensitivity ²⁾ Temperature range: +20 °C ... +40 °C -10 °C ... +20 °C	TC _S	% of C _n /10 K	±0.0170 ±0.0110												
Non-linearity ²⁾	d _{lin}	% of C _n	±0.0166												
Relative reversibility error ²⁾	d _{hy}		±0.0166												
Minimum dead load output return	MDLOR		±0.0166												
Off-center load error ³⁾ , as per OIML R76			±0.0233												
Input resistance	R _{LC}	Ω	300...500												
Output resistance	R ₀		300...500 (Option 6: A = 410 Ω±0.2 Ω)												
Reference voltage	U _{ref}		5												
Nominal (rated) range of the excitation voltage	B _U	V	1 ... 12												
Max. excitation voltage			15												
Insulation resistance at 100 V _{DC}	R _{is}	GΩ	>2												
Nominal (rated) range of the ambient temperature	B _T	°C	-10 ... +40												
Operating temperature range	B _{TU}		-10 ... +50												
Storage temperature range	B _{Tl}		-25 ... +70												
Limit load	E _L	% of E _{max}	150												
Limit lateral loading, static	E _{lq}		300												
Service load at max. 100 mm eccentricity	E _U		150												
Breaking load at 20 mm eccentricity	E _d	% of E _{max}	300												
Relative permissible oscillation stress at max. 20 mm eccentricity	F _{srel}		70												
Rated displacement at E _{max} , approx.	s _{nom}	mm	<0.5	<0.3				<0.25							
Weight, approx.	m	kg	0.45												
Degree of protection ⁴⁾			IP67												
Material Measuring body Application protection Cable sheath			Aluminum Silicone rubber PVC												

1) Max. eccentric loading as per OIML R76.

2) If the values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TC_S) are added together, they are within the cumulated error limit specified in OIML R60.

3) As per OIML R76

4) As per EN 60 529 (IEC 529)

Specifications (continued)

Type			SP4M...											
Accuracy class as per OIML R60			C6 Multi Range (MR)											
Number of load cell verification intervals	n_{LC}		6000											
Maximum capacity ¹⁾	E_{max}	kg	7	10	15	18	20	30	36	50	75	100	150	200
Minimum load cell verification interval	v_{min}	g	0.5	0.5	1	1	1	2	2	2	5	5	10	10
Temperature coefficient of zero signal	TC_0	% of $C_n/10$ K	± 0.0084	± 0.0070	± 0.0084	± 0.0070	± 0.0070	± 0.0093	± 0.0070	± 0.0056	± 0.0084	± 0.0070	± 0.0084	± 0.0070
Ratio of minimum verification interval	Y		14000	20000	15000	18000	20000	15000	18000	25000	15000	20000	15000	20000
Accuracy class as per NTEP			III S											
Number of load cell verification intervals	n_{LC}		5000											
Maximum capacity	E_{max}	kg	7	10	15	-	20	-	36	50	75	100	150	200
Minimum load cell verification interval	v_{min}	g	0.42	0.61	0.91	-	1.21	-	2.18	3.03	4.55	6.06	9.09	12.12
Ratio of minimum verification interval	Y		16667	16393	16484		16529		16514	16502	16484	16502	16502	16502
General specifications														
Max. platform size		mm	300 x 300			450 x 450				600 x 600				
Nominal sensitivity	C_n	mV/V	2.0 \pm 0.2			1.8 \pm 0.18	2.0 \pm 0.2		2.4 \pm 0.2	2 \pm 0.2	2 \pm 0.2	2 \pm 0.2	2 \pm 0.2	2 \pm 0.2
Zero signal			0 \pm 0.10											
Temperature coefficient of sensitivity ²⁾ Temperature range: +20 ... +40 °C -10 ... +20 °C	TC_S	% of $C_n/10$ K	± 0.0087 ± 0.0058											
Relative reversibility error ²⁾	d_{hy}		± 0.0083											
Non-linearity ²⁾	d_{lin}	% of C_n	± 0.0083											
Minimum dead load output return	MDLOR		± 0.0083											
Off-center load error ³⁾			± 0.0116											

1) Max. eccentric loading as per OIML R76.

2) The values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TC_S) are recommended values. If these values are added together, they are within the cumulated error limit specified in OIML R60.

3) As per OIML R76

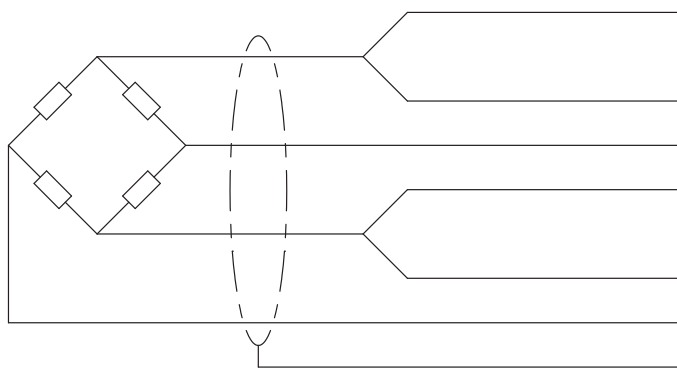
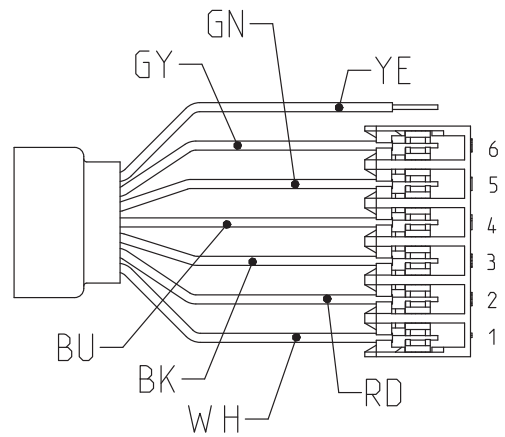
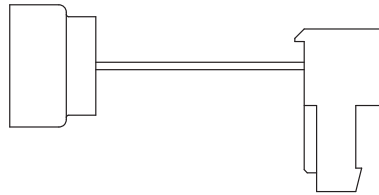
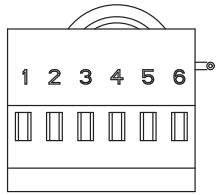
For further specifications, see Table SP4M..., Accuracy class C3 Multi Range (MR) (page 2)

Cable assignment

6-wire cable connection, 6 x 0.14 mm²/AWG 26 (available cable lengths: 1.5 m; 3 m; 6 m; 12 m)

Schematic diagram of a TE connector (TE 3-640442-6), 6-pin

Connector only with option 4 = N (no explosion protection)



Plug-in contact 4 (blue [BU]) = excitation voltage (+)

Plug-in contact 5 (green [GN]) = sense line (+)

Plug-in contact 1 (white [WH]) = measurement signal (+)

Plug-in contact 3 (black [BK]) = excitation voltage (-)

Plug-in contact 6 (gray [GY]) = sense line (-)

Plug-in contact 2 (red [RD]) = measurement signal (-)

Shield (yellow [YN]) = Cable shield

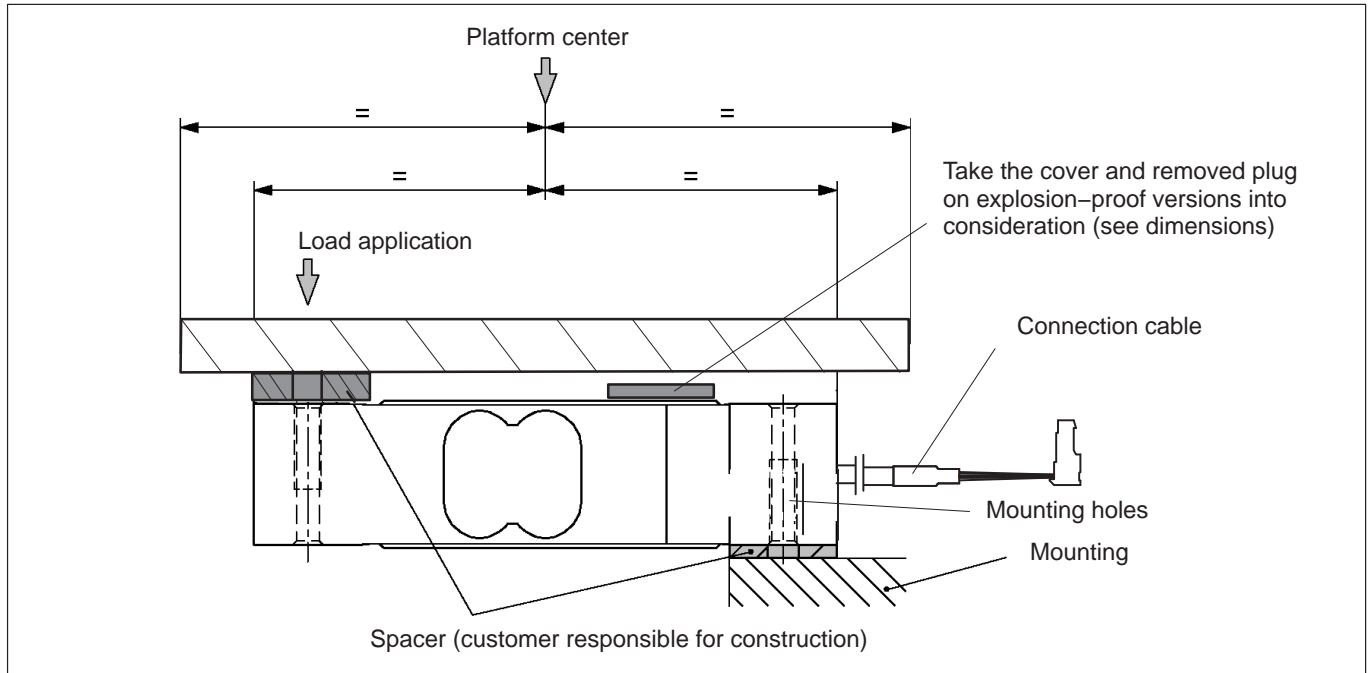
Mounting and load application

The load cells are firmly clamped at the mounting holes, the load is applied at the other end. The recommended screws and tightening torques can be found in the table below:

Maximum capacities	Thread	Min. property class	Tightening torque ¹⁾
1...36 kg	M6	8.8	6 N·m
50...200 kg	M6	10.9	14 N·m

¹⁾ Recommended value for the specified property class. Please comply with the screw manufacturer's instructions with regard to screw dimensions.

Load must not be applied to the side where the cable connection is located, as this would cause a force shunt.



Product numbers (overview)

SP4M... (aluminum)

Type	SP4M	
Accuracy class	C3-MR (OIML) (Multi Range)	C6-MR (OIML) (Multi Range)
Comments	Cable length 3 m (6-wire)	Cable length 3 m (6-wire)

Maximum capacity [kg]	Ordering number	Ordering number
1	1-SP4MC3MR/1KG-1	-
3	1-SP4MC3MR/3KG-1	-
5	1-SP4MC3MR/5KG-1	-
7	1-SP4MC3MR/7KG-1	1-SP4MC6MR/7KG-1
10	1-SP4MC3MR/10KG-1	1-SP4MC6MR/10KG-1
15	1-SP4MC3MR/15KG-1	1-SP4MC6MR/15KG-1
18	-	1-SP4MC6MR/18KG-1
20	1-SP4MC3MR/20KG-1	1-SP4MC6MR/20KG-1
30	1-SP4MC3MR/30KG-1	-
36	-	1-SP4MC6MR/36KG-1
50	1-SP4MC3MR/50KG-1	1-SP4MC6MR/50KG-1
75	1-SP4MC3MR/75KG-1	1-SP4MC6MR/75KG-1
100	1-SP4MC3MR/100KG-1	1-SP4MC6MR/100KG-1
150	1-SP4MC3MR/150KG-1	1-SP4MC6MR/150KG-1
200	1-SP4MC3MR/200KG-1	1-SP4MC6MR/200KG-1

SP4M... (aluminum), optional versions

Ordering number	
K-SP4M	

Code	Option 1: Mechanical design
N	-

Code	Option 2: Accuracy class
C3MR	C3-MR (OIML) (Multi Range)
C6MR	C6-MR (OIML) (Multi Range) [only with Option 3 = 15 / 20 / 30 / 50]

Code	Option 3: Maximum capacity	Code	Option 3: Maximum capacity
1	1 kg	30	30 kg
3	3 kg	50	50 kg
5	5 kg	75	75 kg
7	7 kg	100	100 kg
10	10 kg	150	150 kg
15	15 kg	200	200 kg
20	20 kg		

Code	Option 4: Explosion protection
N	No explosion protection
A11/21	ATEX+IECEX+FM Zone 1/21, intrinsically safe; ATEX/IECEX: II 2G Ex ia IIC T6/T4 Gb + II 2D Ex ia IIIC T125°C Db; FM(US/CA): Class I Zone 1 AEx/Ex ia IIC T4 Gb + Zone 21 AEx/Ex ia IIIC T125°C Db; FM(US): Class I, II, III Division 1, Groups A, B, C, D, E, F, G T4 [only with Option 2 = C3MR]
A12/22	ATEX+IECEX Zone 2/22, not intrinsically safe; ATEX/IECEX: II 3G Ex ec IIC T6/T4 Gc + II 3D Ex tc IIIC T125°C Dc [only with Option 2 = C3MR]

Code	Option 5: Cable length
1.5	1.5 m [only with Option 2 = C3MR]
3	3 m
6	6 m [only with Option 2 = C3MR]
12	12 m [only with Option 2 = C3MR]

Code	Option 6: Other
N	none
A	2mV/V ±0,1% / 410 Ω ±0,2 Ω [only with Option 2 = C3MR, not with Option 3 = 1] (adjusted output, suitable for parallel connection)
A1	1.8mV/V ±0.1% / 410 Ω ±0.2 Ω [only with Option 2 = C3MR, only with Option 3 = 1] (adjusted output, suitable for parallel connection)

K-SP4M	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Not all codes can be combined with one another. Take note of the conditions in square brackets!

Subject to modifications.
All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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