precix 6

SP4M…

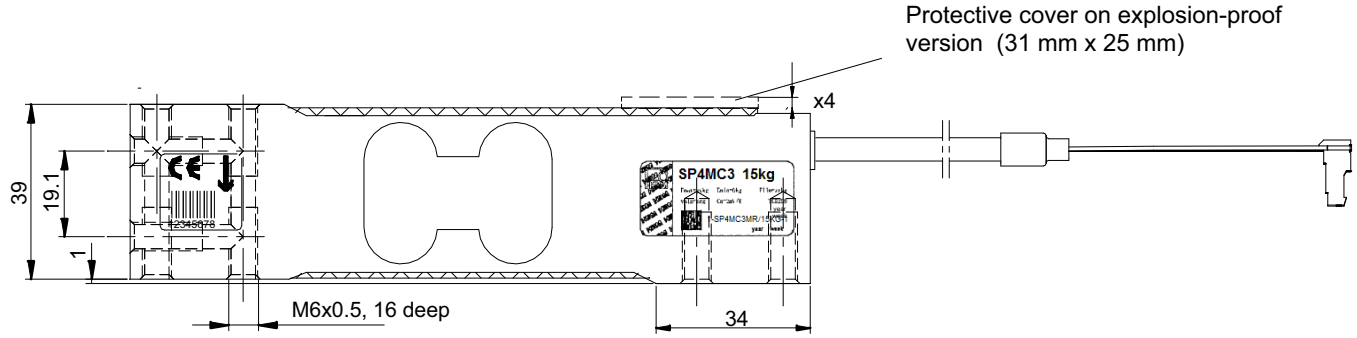
Single point load cells

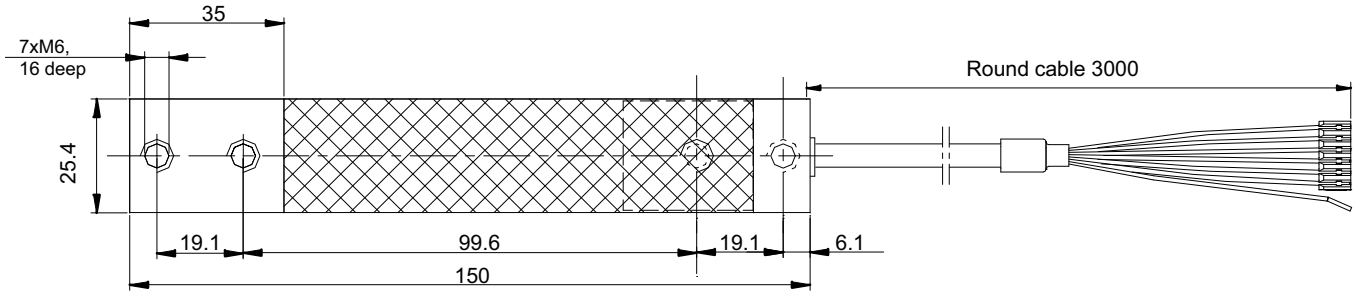
Special features

- **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)





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Specifications

Type			SP4M...												
Accuracy class[1]			C3 Multi Range (MR)												
Number of load cell verification intervals (n_{LC})			3000												
Maximum capacity (E_{max})[2]		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	Y		10,000	15,000	10,000	14,000	10,000	15,000	10,000	15,000	10,000	15,000	10,000	15,000	10,000
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[3] Temperature range +20 °C ... +40 °C -10 °C ... +20 °C	TC_S	% of C_n/10 K	± 0.0170 ± 0.0110												
Non-linearity[3]	d_{lin}	% of C_n	± 0.0166												
Relative reversibility error[3]	d_{hy}		± 0.0166												
Minimum dead load output return (MDLOR)			± 0.0166												
Off-center load error[4], 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}	V	5												
Nominal (rated) range of the excitation voltage	B_U		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												
Breaking load	E_d		300												
Rated displacement at E_{max}, approx.	s_{nom}	mm	< 0.5	< 0.3				< 0.25							
Weight, approx.	m	kg	0.45												
Degree of protection[5]			IP67												
Material: **Measuring body** **Application protection** **Cable sheath**			Aluminum Silicone rubber PVC												

1) As per OIML R60, with P_{LC} = 0.7
2) Max. eccentric loading as per OIML R76.
3) 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.
4) As per OIML R76
5) As per EN 60 529 (IEC 529)

Specifications (continued)

Type			SP4M…											
Accuracy class[1]			C6 Multi Range (MR)											
Number of load cell verification intervals (n_{LC})			6000											
Maximum capacity[2]	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	±0.0100	±0.0070	±0.0093	±0.0070	±0.0070	±0.0093	±0.0070	±0.0056	±0.0093	±0.0070	±0.0093	±0.0070
Ratio of minimum verification interval Y	Y		14,000	20,000	15,000	18,000	20,000	15,000	18,000	25,000	15,000	20,000	15,000	20,000
Max. platform size		mm	300 x 300		450 x 450					600 x 600				
Nominal sensitivity	C_n	mV/V	2.0 ±0.2			1.8 ±0.18	2.0 ±0.2		2.4 ±0.2	2 ±0.2	2 ±0.2	2 ±0.2	2 ±0.2	2 ±0.2
Zero signal			0 ±0.10											
Temperature coefficient of sensitivity[3] Temperature range: +20 ... +40 °C -10 ... +20 °C	TC_S	% of C_n/10 K	±0.0087 ±0.0058											
Relative reversibility error [3]	d_{hy}	% of C_n	±0.0083											
Non-linearity [3]	d_{lin}		±0.0083											
Minimum dead load output return (MDLOR)			±0.0083											
Off-center load error[4]			±0.0116											

1) As per OIML R60, with P_{LC} = 0.7
2) Max. eccentric loading as per OIML R76.
3) 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.
4) As per OIML R76

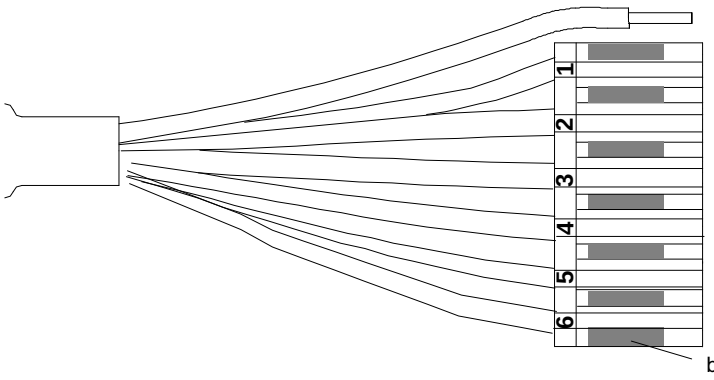
For further specifications, see Table SP4M..., Accuracy class C3 Multi Range (MR) (page 2)

Cable assignment

6-wire cable connection (24 AWG, available cable lengths: 1.5 m; 3 m; 6 m; 12 m)

Schematic diagram of a Pancon connector (CE100F26-6), 6-pin

Plug only with Option 4 = N (no Explosion Protection)



Shield (yellow) = cable shield connected to load cell body

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

Plug-in contact 2 (red) = measurement signal (-)

Plug-in contact 3 (black) = excitation voltage (-)

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

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

Plug-in contact 6 (gray) = sense line (-)

blue marking

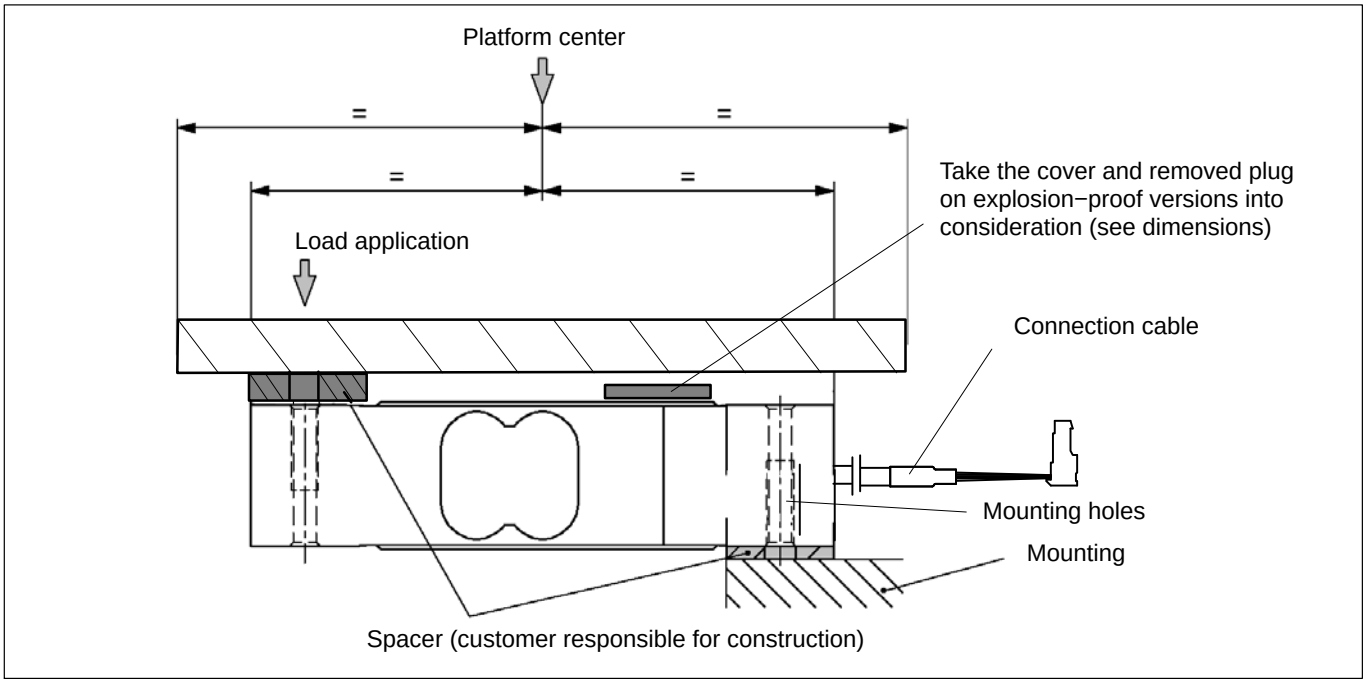
Mounting and load application

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	-
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 = 20 / 30]

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	
AI1/21	IECEx+ATEX Zone 1/21+FM, intrinsically safe II 2G Ex ia IIC T6/T4 Gb/ II 2D Ex ia IIIC T125°C Db*	[only with Option 2 = C3MR]
AI2/22	IECEx+ATEX Zone 2/22, not intrinsically safe 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 (adjusted output, suitable for parallel connection)	[only with Option 2 = C3MR, not with Option 3 = 1]
A1	1.8mV/V ±0.1% / 410 Ω ±0.2 Ω (adjusted output, suitable for parallel connection)	[only with Option 2 = C3MR, only with Option 3 = 1]

K-SP4M	-	N	-					-				-							-				-		

* Including EC-Type Examination Certificate/Certificate of Conformity BVS 13 ATEX X 108 X/IECEx BVS 13.0109 X

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

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