

DATA SHEET



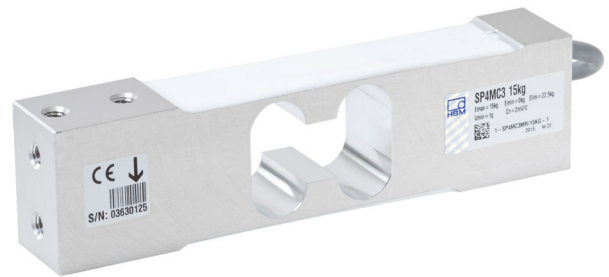
SP4M... Single point load cells

with
IO-Link
option

SPECIAL FEATURES

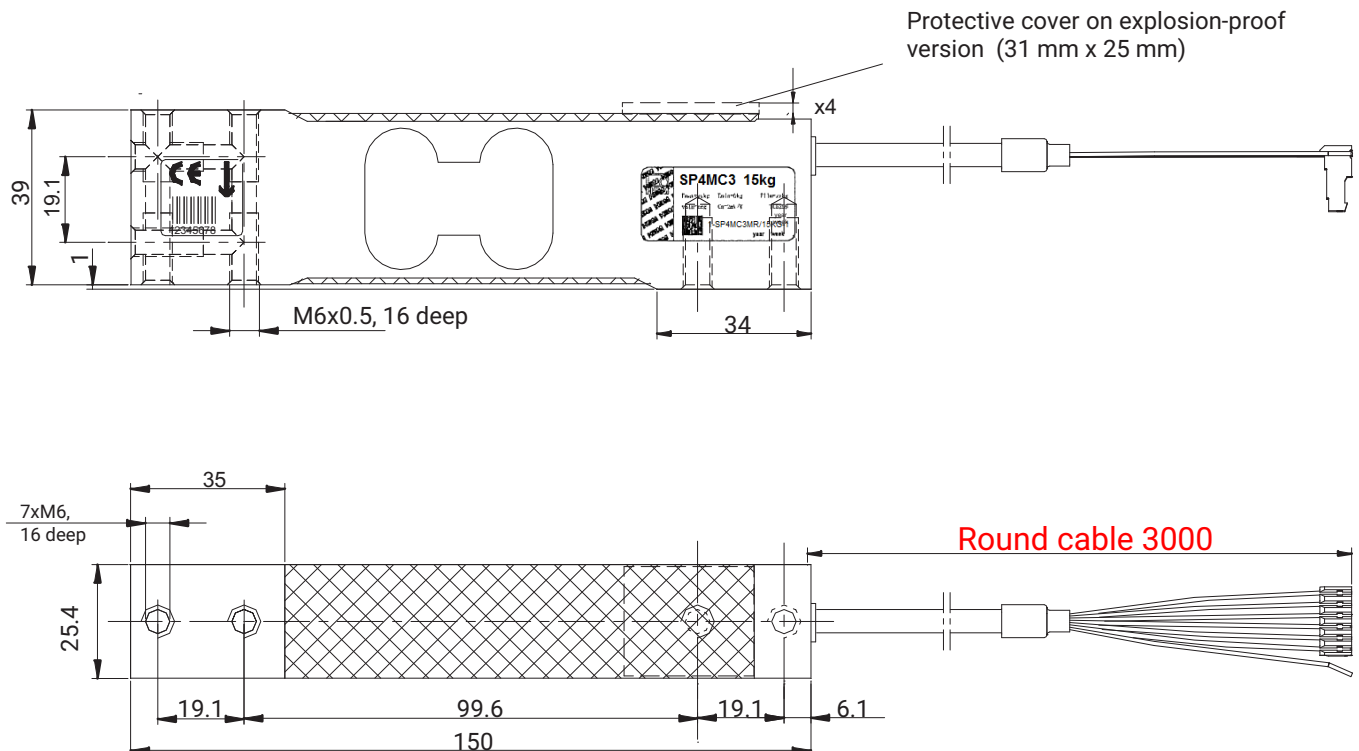
- 최대 용량: 1kg ~ 200kg
- 알루미늄 재질
- 높은 최소 검증 간격 Y 비율
- 중심에서 벗어난 부하 보상
- 차폐 연결 케이블
- 방폭형 및 기타 옵션 제공 가능
- 스마트 옵션 (IO-Link), 디지털 옵션 (CANopen 또는 RS-485), 아날로그 옵션 (4 ~ 20mA 또는 0 ~ 10V)을 갖춘 LCMC 측정 체인으로 제공 가능

precix  6



DIMENSIONS

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}	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												
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) OIML R76에 따른 최대 편심 하중.
- 2) 비선형성 (d_{lin}), 상대 가역성 오차 (d_{hy}) 및 온도 감도 계수 (TC_S) 값을 포함한 값이 OIML R60에 명시된 누적 오차 한계 내에 있습니다.
- 3) OIML R76에 따름
- 4) EN 60 529(IEC 529)에 따름

SPECIFICATIONS (CONTINUED)

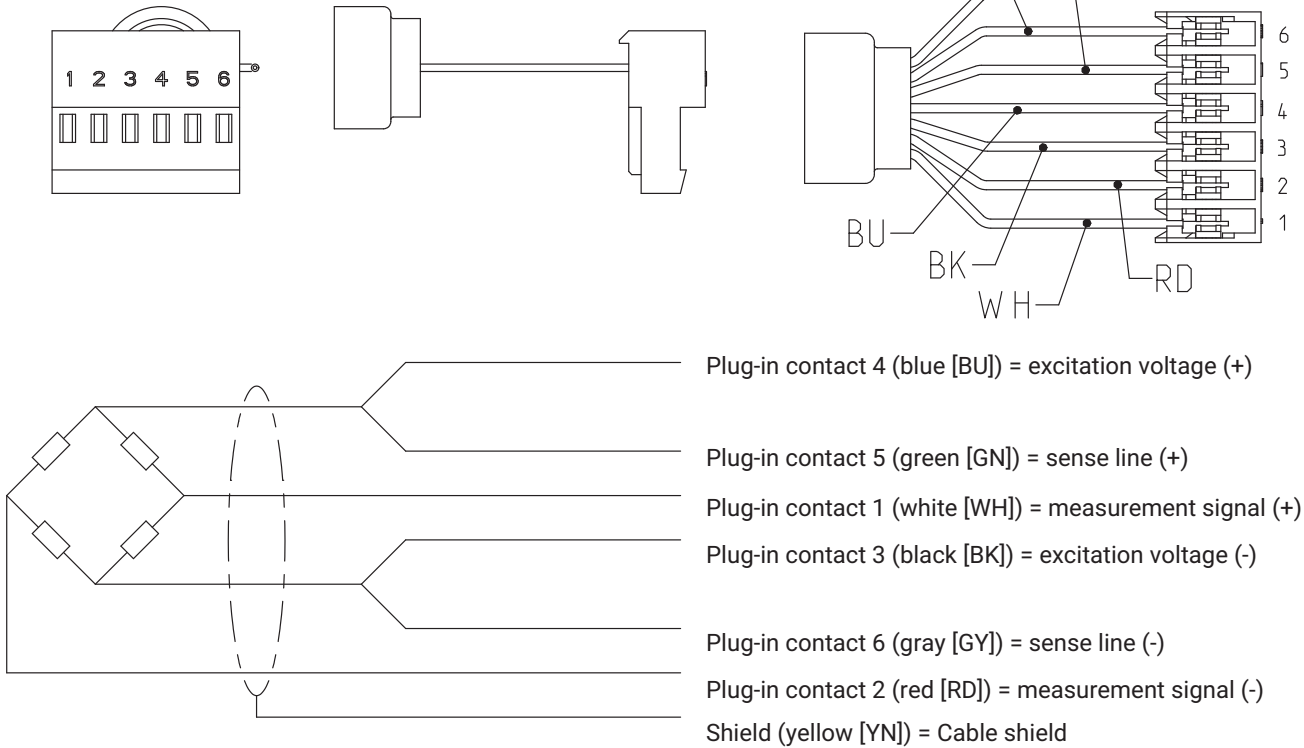
Type			SP4M...												
Accuracy class as per OIML R60			C6 Multi Range (MR)												
Number of load cell verification intervals	n_{LC}		6000												
Maximum capacity ¹⁾	E_{max}	kg	7	10	15	18	20	30	36	50	75	100	150	200	
Minimum load cell verification interval	v_{min}	g	0.5	0.5	1	1	1	2	2	2	5	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-linearity²⁾	d_{lin}		± 0.0083												
Minimum dead load output return	MDLOR	% of C_n	± 0.0083												
Off-center load error ³⁾			± 0.0116												

- 1) OIML R76에 따른 최대 편심 하중.
- 2) 비선형성(d_{lin}), 상대 가역 오차(d_{hy}) 및 온도 감도 계수(TC_S) 값은 권장 값입니다. 이 값들을 모두 더하면 OIML R60에 명시된 누적 오차 한계 내에 있습니다.
- 3) OIML R76에 따른
자세한 사양은 표 SP4M..., 정확도 등급 C3 다중 범위(MR)(2페이지)를 참조하십시오.

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)



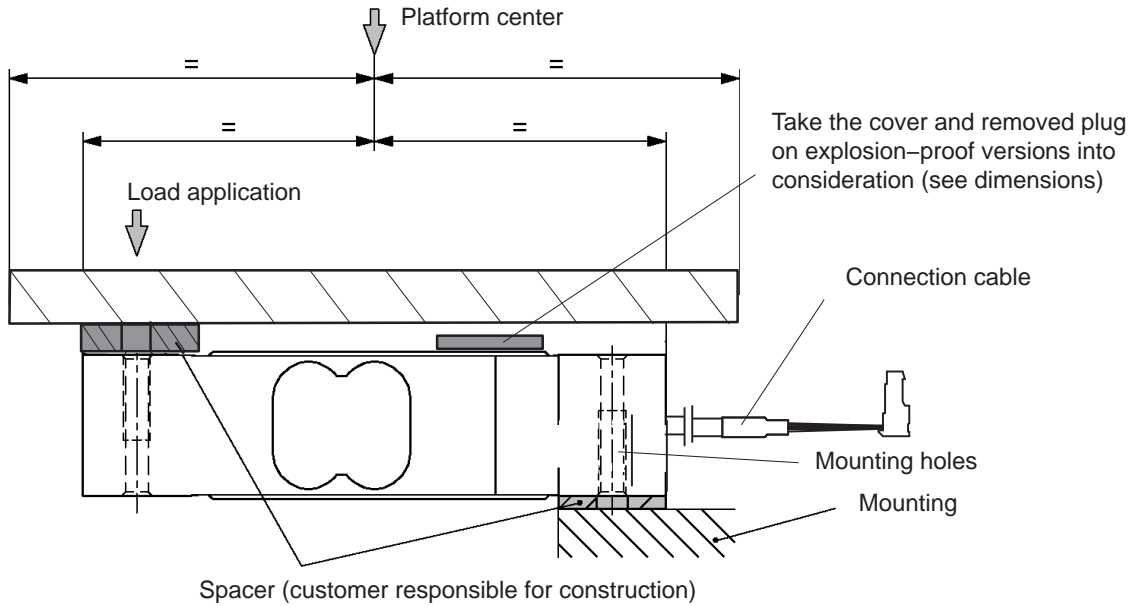
MOUNTING AND LOAD APPLICATION

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⁾ 지정된 속성 등급에 대한 권장 값입니다. 나사 치수에 관해서는 나사 제조업체의 지침을 준수하십시오.

케이블 연결부가 있는 쪽에 하중을 가해서는 안 됩니다. 하중을 가하면 힘이 한쪽으로 쏠리는 현상이 발생할 수 있습니다.



PRODUCT NUMBERS (OVERVIEW) 기본형 주문코드임

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	-
200	1-SP4MC3MR/200KG-1	1-SP4MC6MR/200KG-1

SP4M... (aluminum), optional versions

주문형 order code 임 : 장납기

K-SP4M				
1	Code	Option 1: Mechanical design		
	N	-		
2	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, Option 5: = 6, Option 6: = N]		
3	Code	Option 3: Nominal load	Code	Option 3: Nominal load
	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		
4	Code	Option 4: Explosion protection		
	N	No explosion protection		
	AI1/21	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		
	AI2/22	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		
5	Code	Option 5: Cable length		
	1.5	1.5 m		
	3	3 m		
	6	6 m		
	12	12 m		
6	Code	Option 6: Other		
	N	Without		
	A	2 mV/V ±0.1% / 410 Ω ± 0.2 Ω (adjusted output, suitable for parallel connection)		[not with option 3 = 1]
	A1	1.8 mV/V ±0.1% / 410 Ω ± 0.2 Ω (adjusted output, suitable for parallel connection)		[only with option 3 = 1]

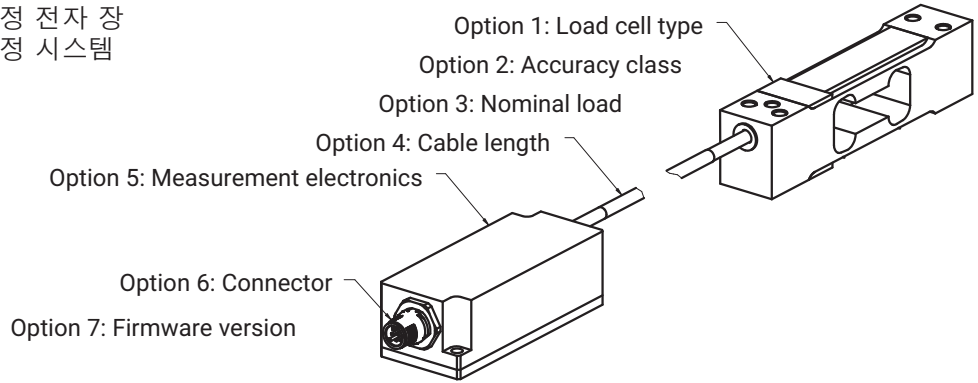
K-SP4M - - - - - - -

1 2 3 4 5 6

모든 코드를 서로 조합할 수 있는 것은 아닙니다. 대괄호 안의 조건을 꼭 확인하세요!

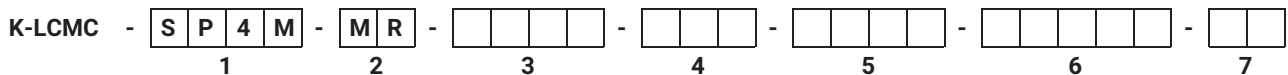
LCMC - LOAD CELL MEASURING CHAIN : 디지털출력 또는 아날로그 출력 옵션 선택 가능

다양한 유명 로드셀과 우수한 측정 전자 장치를 조합하여 맞춤형 로드셀 측정 시스템을 구축할 수 있습니다.



K-LCMC-SP4M ordering options

K-LCMC				
1	Code	Option 1: Load cell type		
	SP4M	SP4M		
2	Code	Option 2: Accuracy class		
	MR	C3 MR (OIML)		
3	Code	Option 3: Nominal load	Code	Option 3: Nominal load
	1K00	1 kg	30K0	30 kg
	3K00	3 kg	50K0	50 kg
	5K00	5 kg	75K0	75 kg
	7K00	7 kg	100K	100 kg
	10K0	10 kg	150K	150 kg
	15K0	15 kg	200K	200 kg
	20K0	20 kg		
4	Code	Option 4: Cable length		
	0M3	0.3 m		
	0M5	0.5 m		
	1M0	1.0 m		
	3M0	3.0 m		
5	Code	Option 5: Measurement electronics		
	105C	CAN (200 S/s)		
	105R	RS485 (200 S/s) 2-wire		
	112C	CAN (1,200 S/s)		
	112R	RS485 (1,200 S/s) 4-wire		
	RM42	Analog 4 ... 20 mA		
	RM43	Analog 0 .. 10 V		
RMIO	IO-link			
6	Code	Option 6: Connector		
	M12A8	M12 A-coded, male, 8-pin	[only with option 5 = 105C, 105R, 112C, 112R, RM42, RM43]	
	M12A4	M12 A-coded, male, 4-pin	[only with option 5 = RMIO]	
7	Code	Option 7: Firmware version		
	N	NA	[only with option 5 = 105C, 105R, 112C, 112R, RM42, RM43]	
	01	WTIO 1.07	[only with option 5 = RMIO]	



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