

This document will soon
proudly feature our new
brand & design – Minebea Intec



sartorius

PR 6251 PanCake® Level Sensor



500 kg... 16 t L | LA | LE | LAC

- Easy mounting
- Stainless steel construction
- Hermetically welded sealed, IP68 (depth of 1.5 m for 10,000 hrs.), IP69K
- Ex-version available (LE)
- Direct 4... 20 mA output (LA)
- Only 25/35 mm installation height
- Application:
 - Level control for liquid and bulk materials

Product Profile

The PR 6251 range of load cells is specially designed for easy weighing of silos and horizontal tanks. The unique design principle ensures a very compact construction. As a result, existing applications can also be upgraded very easily.

The range distinguishes itself above all for its unmatched reliability, robustness and stability, which enable trouble-free operation without adjustment, year after year.

Special measuring element geometry ensures that the transmission of force into the sensor is always at the optimum level. This minimizes the effect on measurement accuracy whilst a high overload range, high repeatability and good linearity are maintained.

There is a particularly wide working temperature range attributable to special resistance strain gauge technology. The hermetically sealed enclosure and special TPE cable allow the unit to be used even under extreme operating conditions in harsh production environments.

The entire measurement chain can be calibrated without the use of a reference weight. A version is also available with a direct output of 4... 20 mA. This facilitates easy and cost-effective integration into an existing application. An explosion-proof (Ex) version of this range of load cells is also available, as an option, for use in intrinsically safe environments.

Load cell construction

Hermetically sealed, welded stainless steel construction, filled with Polyurethane

Material

- 500 kg... 5 t:
1.4021 (DIN 17440), 420 S 37 (B.S.)
- 10 t and 16 t:
1.4542 (DIN 17440), S 604/S 622 (B.S.),
17-4 PH (Int.)

Protection

IP68, IEC 529, equivalent to NEMA 6.
The load cell can be submerged in water to a depth of 1.5 m for 10,000 hours.

Cable

Robust, flexible, screened
Sheath: Thermopl. Elastomere,
Colour: grey (LE: blue, LA | LAC: green)
Diameter: 5 mm, wires 4 × 0.35 mm²
Length: 5 m

Bending radius

Fixed installation: ≥ 50 mm
Flexible installation: ≥ 150 mm

Certificate of conformity

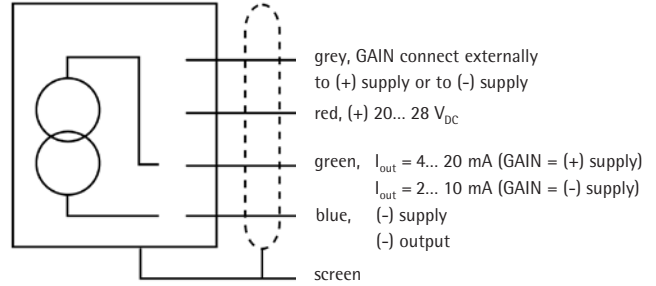
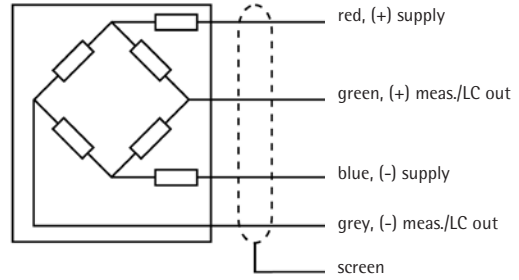
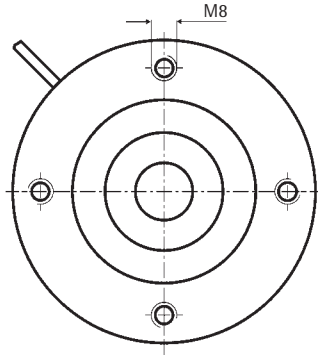
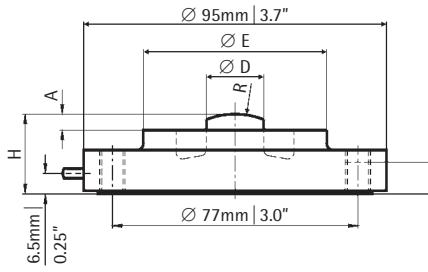
FM and CSA Approvals

Technical Data			L LE	LA LAC	
Accuracy class			0.5	0.5	%
Minimum dead load	lowest limit of specified measuring range	E_{min}	0	5	% E_{max}
Max. capacity	highest limit of specified measuring range	E_{max}	s. table	s. table	
Max. overload	upper limit for measurements	E_u	150	120	% E_{max}
Destructive load	danger of mechanical destruction	E_d	300	300	% E_{max}
Rated output	relative output at nominal load	C_n	2.0	16 mA	mV/V
Tolerance on rated output	permissible deviation from rated output	d_c	< 4	< 4	% C_n
Tolerance on zero signal	load cell output signal under unloaded condition	S_{min}	< 4	4 mA*	% C_n
Repeatability error	max. change in load cell output for repeated loading	ϵ_R	< 0.1	< 0.1	% C_n
Creep, during 30 min	max. change in load cell output under nominal load	d_{cr}	< 0.1	< 0.1	% C_n
Non-Linearity	max. deviation from best straight line through zero	d_{lin}	< 0.25	< 0.25	% C_n
Hysteresis	max. difference in load cell output when loading from zero to nominal load and unloading back to zero	d_{hy}	< 0.15	< 0.15	% C_n
Temperature effect (on zero)	max. change of $S_{min}/10$ K D T over B_T referred to C_n	TK_{Smin}	< 0.15	< 0.15	% $C_n/10$ K
Temperature effect (on output)	max. change of $C/10$ K D T over B_T referred to C_n	TK_c	< 0.1	< 0.1	% $C_n/10$ K
Input impedance	between supply terminals	R_{LC}	645 ± 60	-	Ω
Output impedance	between measuring terminals	R_O	635 ± 15	-	Ω
Insulation impedance	between measuring circuit and housing 100 V _{DC}	R_{IS}	> 5,000 × 10 ⁶	-	Ω
Recommended supply voltage	to hold the specified performance	B_u	4... 24	20... 28	V
Max. supply voltage	permissible for continuous operation without damage	U_{max}	32 25	28	V
Nominal ambient temp. range	to hold the specified performance	B_T	-10c 14f... +70c +158f	-10c +14f... +55c +131f	°C
Usable ambient temp. range	permissible for continuous operation without damage	B_{Tu}	-30c -22f... +95c +203f	-30c +22f... +70c +158f	°C
Storage temperature range	Transportation and storage	B_{TI}	-40c -40f... +95c +203f	-40c -40f... +80c +176f	°C
Permissible eccentricity	permissible displacement from nominal load line	S_{ex}	10	10	mm
Vibration resistance	resistance against oscillation (IEC 68-2-6 Fc)	-	20 g, 100 h, 10... 150 Hz	20 g, 100 h, 10... 150 Hz	
Air pressure effects	influence of ambient air pressure on S_{min}	PK_{Smin}	≤ 20	≤ 20	g/kPa
Nominal deflection	max. elastic deformation under nominal load	s_{nom}	up to 2 t < 0.1/ 16 t < 0.2 mm	up to 2 t < 0.1/ 16 t < 0.2 mm	

* Tolerance on zero output signal: ± 4% C_n

Definitions to VDI/VDE 2637

The technical data given here serve only as a product description and must not be interpreted as guaranteed characteristics in the legal sense.



Dimensions in mm

Order information

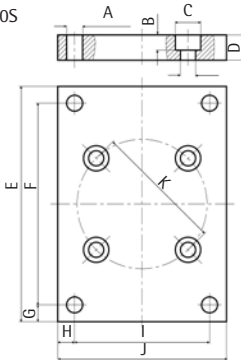
Type	Nominal Load Version E _{max}	Packing Size mm	Weight gross net	Dimensions (mm)				
				A	D	E	H	R
PR 6251/52	500kg 1100lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.2kg 2.6lb 0.9kg 2.0lb	5mm 0.2"	18mm 0.71"	57.5mm 2.2"	25mm 1.0"	25mm 1.0"
PR 6251/13	1t 32200lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.2kg 2.6lb 0.9kg 2.0lb	5mm 0.2"	18mm 0.71"	57.5mm 2.2"	25mm 1.0"	25mm 1.0"
PR 6251/23	2t 4400lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.2kg 2.6lb 0.9kg 2.0lb	5mm 0.2"	18mm 0.71"	57.5mm 2.2"	25mm 1.0"	35mm 1.4"
PR 6251/33	3t 6600lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.2kg 2.6lb 0.9kg 2.0lb	5mm 0.2"	18mm 0.71"	57.5mm 2.2"	25mm 1.0"	50mm 2.0"
PR 6251/53	5t 11,000lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.2kg 2.6lb 0.9kg 2.0lb	5mm 0.2"	18mm 0.71"	57.5mm 2.2"	25mm 1.0"	50mm 2.0"
PR 6251/14	10t 22,000lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.4kg 3.1lb 1.1kg 2.4lb	8mm 0.3"	21.7mm 0.9"	57.5mm 2.2"	35mm 1.4"	70mm 2.75"
PR 6251/24	16t 35,275lb ..L LA LE LAC	220 × 215 × 135mm 8.6" × 8.5" × 5.3"	1.4kg 3.1lb 1.1kg 2.4lb	5mm 0.2"	23mm 0.9"	67mm 2.6"	35mm 1.4"	100mm 3.9"

Further Options

Type	Description	Dimensions W × H × D	Order numbers
PR 6051/10S	Baseplate for 500 kg – 5 t	100 × 100 × 15 mm 3.9" × 3.9" × 0.6"	9405 360 51102
PR 6051/11S	Baseplate for 10 t – 16 t	100 × 100 × 20 mm 3.9" × 3.9" × 0.8"	9405 360 51112
PR 6051/00S	Transition plate for 500 kg – 16 t	140 × 100 × 15 mm 5.5" × 3.9" × 0.6"	9405 360 51002

Transition plate PR 6051/00S

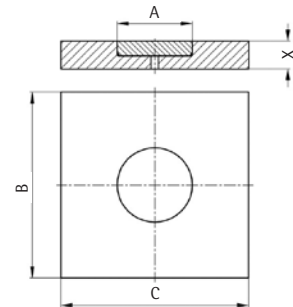
A = 9.5mm | 0.4" (4x)
 B = 9mm | 0.35"
 C = ∅15mm | 0.6"
 D = 15mm | 0.6"
 E = 140mm | 5.5"
 F = 120mm | 4.7"
 G = 10mm | 0.4"
 H = 10mm | 0.4"
 I = 80mm | 3.1"
 J = 100mm | 3.9"
 K = ∅77mm | 3.0"



Base plate

PR 6051/10S (500 kg... 5 t)
 X = 15mm | 0.6"
 PR 6051/11S (10 t... 16 t)
 X = 20mm | 0.8"

A = ∅40mm | 1.6"
 B = 100mm | 3.9"
 C = 100mm | 3.9"



Dimensions in mm | inch

Dimensions in mm | inch

PR 6130/08	Plastic Cable junction box	for all industrial applications, max. 8 load cells	200 × 120 × 75 mm 7.9" × 4.7" × 3.0"	9405 361 30081
PR 6130/04N	Cable junction box	Aluminium, grey painted, IP67, for all industrial applications, max. 4 load cells	175 × 80 × 57 mm 6.9" × 3.1" × 2.2"	9405 361 30041
PR 6130/64Sa	Stainless steel cable junction box	material stainless steel 1.4301, IP68, IP69K, for all industrial, intrinsically safe and W&M applications, max. 4 load cells	190 × 160 × 60 mm 7.5" × 6.3" × 2.4"	9405 361 30642
PR 6130/65S	Cable junction box	material 1.4301, Protection class IP68 IP69K, for all industrial, intrinsically safe and W&M applications, for up to 4 load cells	172 × 105 × 55 mm 6.8" × 4.1" × 2.2"	9405 361 30652
PR 6130/68S	Stainless steel cable junction box	material stainless steel 1.4404, IP68 IP69k, for all industrial, intrinsically safe and W&M applications, max. 8 load cells	240 × 170 × 70 mm 9.4" × 6.7" × 2.8"	9405 361 30682
PR 6135	Extension cable	for all applications	D = 9 mm 0.4"	9405 361 35..2
PR 6135/..A	Extension cable, armoured	for all applications, grey	D = 13 mm 0.5"	9405 361 35..9
PR 6136	Extension cable	for intrinsically safe applications, blue	D = 11 mm 0.4"	9405 361 36..2
PR 6136/..A	Extension cable, armoured	for intrinsically safe applications, blue	D = 13 mm 0.5"	9405 361 36..9
PR 6151/05C1	Connection cable	with 1 connectors 5 m		9405 361 51051
PR 6151/05C2	Connection cable	with 2 connectors 5 m		9405 361 51052
PR 6151/11C1	Connection cable	with 1 connectors 10 m		9405 361 51101
PR 6151/11C2	Connection cable	with 2 connectors 10 m		9405 361 51102
PR 6151/21C1	Connection cable	with 1 connectors 20 m		9405 361 51201
PR 6151/21C2	Connection cable	with 2 connectors 20 m		9405 361 51202
PR 6151/31C1	Connection cable	with 1 connectors 30 m		9405 361 51301
PR 6151/31C2	Connection cable	with 2 connectors 30 m		9405 361 51302
PR 6151/51C1	Connection cable	with 1 connectors 50 m		9405 361 51501
PR 6151/51C2	Connection cable	with 2 connectors 50 m		9405 361 51502
PR 6051/02	Connection unit	for connection of 1 or 2 load cells with a digital display in field housing		9408 360 51021

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Specifications subject to change without notice.
 Printed in Germany.
 Printed on paper bleached without chlorine. | W
 Publication No: HPR-2066-ae13081
 Order No: 9498 760 00020