



sartorius

PR 6221

Weighbridge Load Cell



20t... 75t, Typ C3/C4/C5/C6

- No corner adjustment necessary
- High overload capacity
- IP 68 (1.5 m / 10.000 hrs)
IP 69K (washdown cleaning)
- Proven rocker-pin principle
- Best overvoltage protection
- Highest reliability
- 100 % Maintenance free
- Ex - version available
- Patent pending:
WO 01/18504, EP 1 227 306 A1

Product Profile

The PR 6221 range of load cells is designed exclusively for use on road weighbridges. The unique design principle, combined with the installation kits, counterbalances movements caused by mechanical or thermal expansion or contraction of the weighbridge construction.

The unique combination of the selected geometry and material/surface hardness parameters guarantees perfect rolling characteristics, high restoring forces and long-term maintenance-free operation. A particular design characteristic is that the height and shape of the load cell remain constant over various load stages, whilst there is a particularly high overload range of, in part, up to 200%.

At the same time, this range distinguishes itself – in addition to its high measurement accuracy and repeatability – above all for its unmatched reliability, robustness and stability, which enable trouble-free operation without adjustment, year after year. The pendulum support principle, combined with patented measuring element geometry, ensures that force transmission into the sensor is always at the optimum level and, in this way, the effect on measurement accuracy is minimized. At the same time, the load cell offers a particularly high overload range.

The hermetically sealed enclosure and special TPE cable allow the unit to be used even under extreme operating conditions.

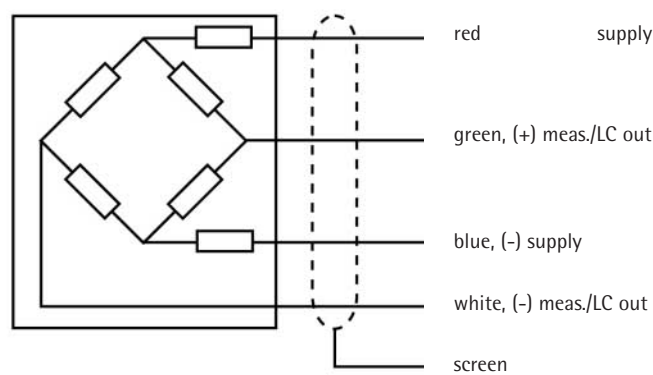
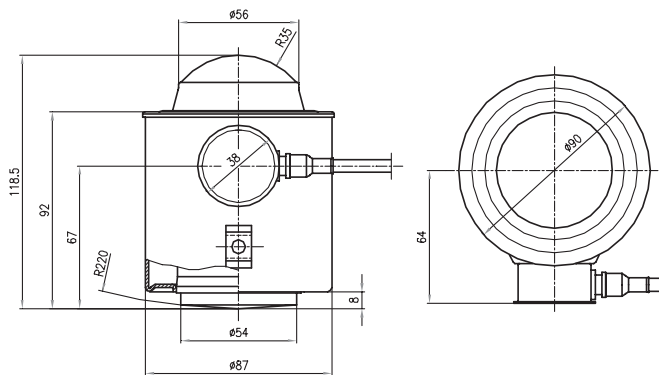
Special resistance strain gauge technology, in combination with the PR6021/.. cable junction boxes, provides for demonstrably improved lightning protection. The entire measurement chain can be calibrated without the use of a reference weight. Due to "matched output" technology, in many cases electrical corner adjustment is not required. This saves a tremendous amount of time during commissioning. An explosion-proof (Ex) version of this range of load cells is also available, as an option, for use in intrinsically safe environments.

Technical Data

Maximum capacity	highest limit of specified measuring range	E_{max}	20	30	50	60	75	t
Max. usable load	upper limit for measurements	E_u	40	60	75	75	75	t
Destructive load	danger of mechanical destruction	E_d	> 100	> 150	> 150	> 150	> 150	t
Rated output	relative output signal at nominal load for accuracy classes C4 at $E_{max} \geq 60t$, C5 at $E_{max} \geq 50t$	C_n	1 1.5	1 1.5	2 1,5	2.4	3	mV/V mV/V
Nominal deflection	max. elastic deformation under nominal load	s_{nom}	0.3	0.3	0.6	0.7	0,8	mm
Accuracy class			C3	C4	C5	C6*		
Accuracy class			0.015	0.012	0.010	0.008		% E_{max}
Minimum dead load	lowest limit of specified measuring range	E_{min}	0	0	0	0		% E_{max}
Min. LC verification interval	minimum load cell verification interval ($v_{min} = E_{max}/Y$)	Y	14,000	20,000	20,000	20,000		
Deadload Return	factor for min. dead load output return ($DR = 1/2 E_{max}/Z$) for $E_{max} 50t$:	Z	6,000	8,000	8,000	8,000		
Tolerance on rated output	permissible deviation from rated output	d_c	< 0.07	< 0.07	< 0.07	< 0.07		% C_n
Zero output signal	load cell output signal under unloaded condition	S_{min}	< 1.0	< 1.0	< 1.0	< 1.0		% C_n
Repeatability error	max. change in load cell output for repeated loading	ϵ_R	< 0.005	< 0.005	< 0.005	< 0.005		% C_n
Creep, during 30 min	max. change in load cell output under nominal load	d_{cr}	< 0.015	< 0.0125	< 0.010	< 0.008		% C_n
Non-linearity	max. deviation from best straight line through zero	d_{lin}	< 0.01	< 0.01	< 0.01	< 0.01		% C_n
Hysteresis	max. diff. in LC output between loading and unloading	d_{hy}	< 0.0165	< 0.0125	< 0.010	< 0.008		% C_n
Temperature effect on S_{min}	max. change of $S_{min} / 10K$ DT over B_T referred to C_n	$TK_{S_{min}}$	< 0.01	< 0.007	< 0.007	< 0.007		% $C_n / 10K$
Temperature effect on C_n	max. change of $C_n / 10K$ DT over B_T referred to C_n	TK_c	< 0.01	< 0.008	< 0.007	< 0.005		% $C_n / 10K$
Input impedance	between supply terminals	R_{IC}	1,080 ± 10	1,080 ± 10	1,080 ± 10	1,080 ± 10		Ω
Output impedance	between measuring terminals for accuracy classes C5 at $E_{max} = 50t$ C4, C5 at $E_{max} = 60t$ C4, C5 at $E_{max} = 75t$	R_O	1,010 ± 1 760 ± 1 635 ± 1 510 ± 1	1,010 ± 1 760 ± 1 635 ± 1 510 ± 1	1,010 ± 1 760 ± 1 635 ± 1 510 ± 1	1,010 ± 1 760 ± 1 635 ± 1 510 ± 1		Ω Ω Ω Ω
Insulation impedance	between measuring circuit and housing at 100V _{DC}	R_{IS}	> 5,000	> 5,000	> 5,000	> 5,000		M Ω
Insulation voltage	between circuit and housing		500	500	500	500		V _{DC}
Recommended supply voltage	to hold the specified performance	B_u	4... 24	4... 24	4... 24	4... 24		V
Max. supply voltage	permissible for continuous operation without damage	U_{max}	32	32	32	32		V
Nominal ambient temp. range	to hold the specified performance	B_T	-10... +55	-10... +55	-10... +55	-10... +55		°C
Usable ambient temp. range	permissible for continuous operation without damage	B_{Tu}	-40... +95	-40... +95	-40... +95	-40... +95		°C
Storage temperature range	transportation and storage	B_{Ti}	-40... +95	-40... +95	-40... +95	-40... +95		°C
Permissible eccentricity	permissible displacement from nominal load line	S_{ex}	10	10	10	10		mm
Vibration resistance	resistance against oscillation (IEC68-2-6 Fc)		20g, 100h, 10... 150Hz	20g, 100h, 10... 150Hz	20g, 100h, 10... 150Hz	20g, 100h, 10... 150Hz		
Air pressure effect	influence of ambient air pressure on S_{min}	$PK_{S_{min}}$	< 500	< 500	< 500	< 500		g/kPa

*) $E_{max} = 20t, 25t$ and $30t$, Definitionen nach 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

Product description

The PR 6221 range of load cells is designed exclusively for use on road weighbridges. The unique design principle, combined with the installation kits, counterbalances movements caused by mechanical or thermal expansion or contraction of the weighbridge construction.

Restoring force

For each mm of movement that the top of the load cell shifts from the vertical axis, a horizontal restoring force of 0.5 % of the applied vertical load is generated.

Load cell housing construction

Deep draw pulled housing, membrane and measuring element hermetically sealed, welded, filled with inert gas,

Material-Nr.

1.4301 (DIN 17440), 304 S15 (B.S.)

Ingress Protection

IP 68, IEC 529 / EN 60529: 1.5 m water column /10,000 h

IP 69K, DIN 40 050: water under high pressure, steam cleaning

Sealing equivalent to NEMA 6

Cable

robust, flexible, screened, sheath: TPE, colour: green (for PR 6221/..E: colour: blue), diameter: 5 mm, 4 x AWG22 (0.35 mm²), length: 16 m, bending radius: 50 mm (fix), 150 mm (flexible)

Bending radius

Fixed installation: ≥ 50mm

Flexible installation: ≥ 150mm

Certificate of conformity

Feature:

II 1G EEx ia IIC T6, II 1D IP65 85°C

Registration number:

PTB 02 ATEX 2059, TÜV 03 ATEX 2301x

Order information

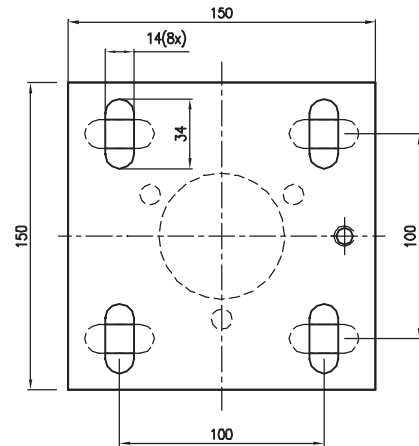
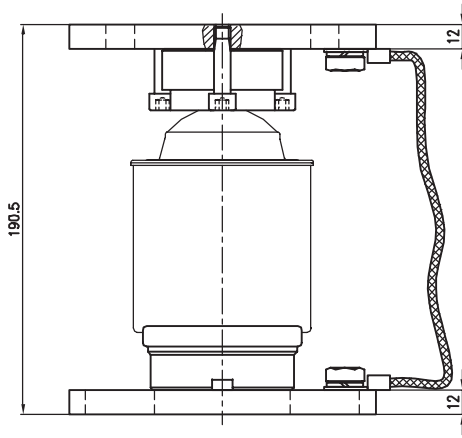
Type	Nominal Load E_{max}	Version	Nominal Load E_{max} (in % of E_{max})	Destructive load (in % of E_{max})
PR6221/20t	20t	C3/C4/C5/C6	200	> 500
PR6221/25t	25t	C3/C4/C5/C6	150	> 300
PR6221/30t	30t	C3/C4/C5/C6	200	> 250
PR6221/50t	50t	C3/C4/C5	150	> 300
PR6221/60t	60t	C3/C4/C5	125	> 250
PR6221/75t	75t	C3/C4/C5	100	> 200

For professional applications further options and a high number of additional mounting kits are available:

Type	Accessories	Order Number
PR6021/00N	Load and bottom disc Set of top and bottom load disc, mild steel, zinc plated, yellow chromated	9405 360 21001
PR6021/01N	Mounting Kit Mounting Kit for PR 6221, including top and bottom load disc, mild steel, zinc plated	9405 360 21011
PR6021/08	Cable Junction Box Plastic Cable Junction Box for PR 6221, including lightning protection circuit	9405 360 21081
PR6021/68	Cable Junction Box Ex S/S Cable Junction Box for PR 6221 for the use in EExi circuits in hazardous area Zone 1 and 2	9405 360 21682

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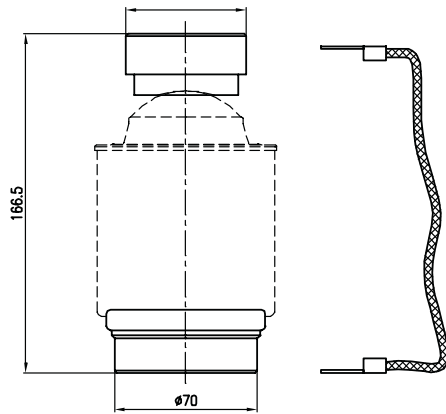
PR 6021/01N, Mounting Kit, complete



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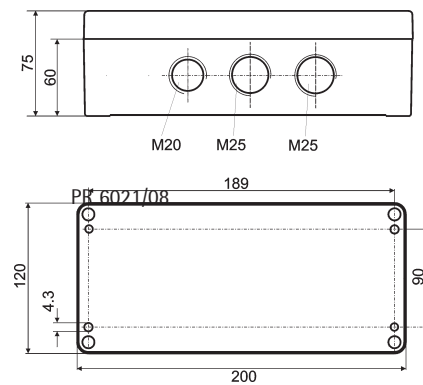
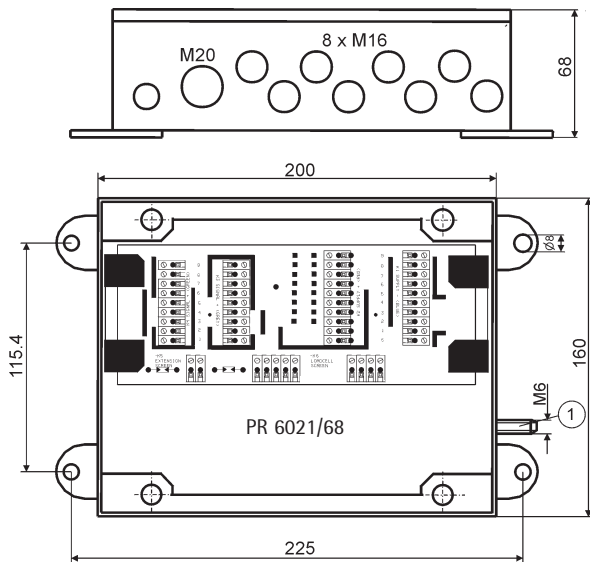
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PR 6021/00N, Top and Bottom Load disc incl. rubber ring and earthing strap



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Cable junction box



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* Dimensions in mm

Technische Änderungen vorbehalten
 Gedruckt in Deutschland
 n/sart • C
 9498 762 21001
 Stand 03.2005

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