

FLINTEC

...the right weigh



Product Catalogue
Load Cells and Accessories

No **05**

Single Point Load Cells

Planar Beam Load Cells

Beam Type Load Cells

Tension Load Cells

Compression Load Cells

Special Sensors

Junction Boxes

Weighing Electronics

Miscellaneous


Single Point Load Cells

Load Cell Type	PC1	PC2/PC2H	PC6	PC12	PCB	PC22*	PC42*	PC60*
OIML / NTEP	Yes/Yes	Yes/No	Yes/Yes	Yes/No	Yes/Yes	Yes/No	Yes/No	Yes/No
EEx (ATEX)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Material	Stainless steel					Aluminium		
Hermetic sealing	No	Yes	Yes	Yes	Yes	No	No	No
Protection	IP 67	IP 68	IP 68	IP 68	IP 68	IP 67	IP 67	IP67
Maximum Capacity								
kg								
5						•	•	
6	•							
10	•		•			•	•	
11			•					
15	•							
20		•	•	•		•	•	
22			•					
30	•							•
40						•		
50	•		•		•		•	•
60								
75	•							
100	•		•		•		•	•
150		•						
200	•		•					•
250					•			
300								•
500					•			•
750								•
1000					•			
2000		•						

* Available first quarter 2005

data sheet


PC1



price list

PC2 | PC2H


PC2/PC2H



price list

data sheet


PC6



price list

data sheet


PC12



price list

data sheet

PCB



price list

data sheet


PC22



price list

data sheet


PC42



price list

data sheet

PC60



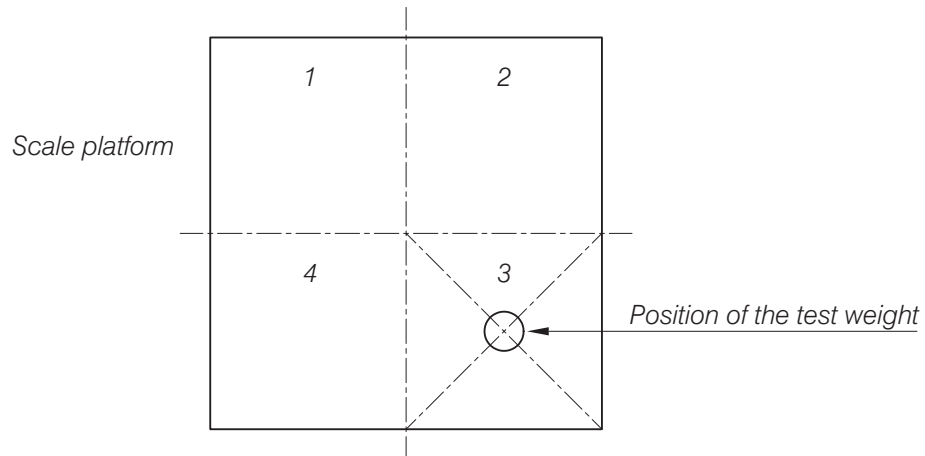
price list

Characteristics of Single Point Load Cells

Usually a Single Point Load Cell is mounted in the center of a scale, directly bolted to the base frame and load carrier.

Special characteristic is the low sensitivity against off center load.

According the drawing below, the measuring error at off center loading is maximal $\pm 1 e$ according to OIML R76 with a load of 1/3 of the nominal scale capacity, positioned in the center of the 4 quadrants.



Besides the common Aluminium Single Point Load Cells, the Flintec program offers a unique line of hermetically sealed stainless steel Single Point Load Cells from 10 kg to 2000 kg.

Typical Applications

Bench and floor scales with platform sizes from 150 x 200 mm to 600 x 800 mm and weighing capacities from 1,5 kg to 600 kg.

In addition, Single Point Load Cells are used in various special weighing applications.

Type PC1 Load Cell



PC1 6 kg and 10 kg

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The PC1 platform load cells are available in the capacities 6 kg to 200 kg and include Accuracy Classifications GP, C3, C3 MI 6, and C4 according to OIML R 60; NTEP $n_{max} = 4500$.

They offer stainless steel construction and improved potting, making them suitable for use in tough industrial environments.

Designed to withstand shock and fatigue loading.

The off center load performance according OIML allows a maximum platform size of 600 x 600 mm.

The version PC1B is available with M10 thread in the capacities 50 kg, 75 kg and 100 kg.

The PC1 / PC1B is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacity: 6 kg to 200 kg.
- High accuracy.
- Stainless steel construction.
- Protection IP 67 (IP 65 for 6 kg and 10 kg).
- Maximum platform size 600 x 600 mm.
- Integral mounting spacer.
- W&M certified for 5000 intervals (PTB: D09-97.28 Rev. 2).
- Factory Mutual approved.

Option

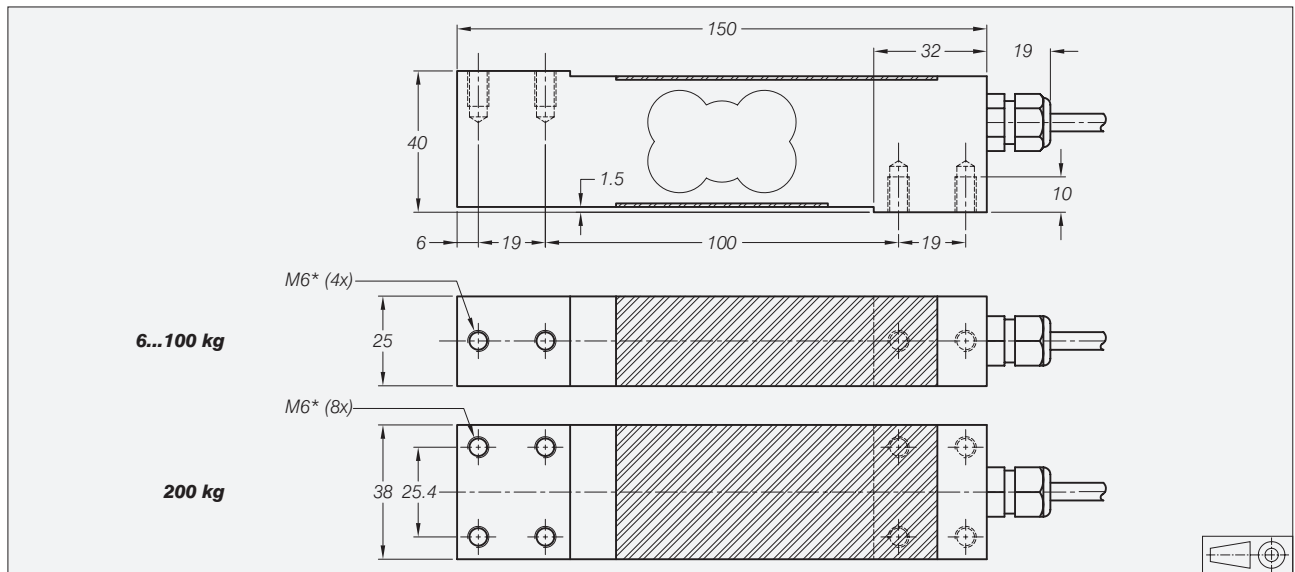
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX (except 6 kg and 10 kg).
- C3, C3 MI 6 and C4 with Y=15000.

PC1 Specifications

Maximum capacity	(E _{max})	kg	6 / 10 / 15 / 30 / 50 / 75 / 100 / 200			
Rated Output	(Cn)	mV/V	2 ± 0.1			
Accuracy class according to OIML R 60			(GP)	C3	C3 MI 6	C4
Maximum number of verification intervals	(n _{max})		n.a.	3000	3000	4000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /10000		
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0014		
Option	Min. load cell verification interval	(v _{min})	n.a.	E _{max} /15000		
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.00093		
Combined error		%Cn	≤ ± 0.040	≤ ± 0.015	≤ ± 0.012	≤ ± 0.012
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.024	≤ ± 0.012	≤ ± 0.018
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0010	≤ ± 0.0010	≤ ± 0.0008
Excitation voltage		V	5...15			
Zero balance		%Cn	≤ ± 5			
Input resistance		Ω	390 ± 20			
Output resistance		Ω	330 ± 25			
Insulation resistance (100 DC)		MΩ	≥ 5000			
Compensated temperature range		°C	-10...+40			
Operating temperature range		°C	-40...+65			
Safe load limit	(E _{lim})	%E _{max}	200			
Ultimate load		%E _{max}	300			
Safe side load		%E _{max}	100			
Maximum platform size; loading according OIML		mm	350x350 for 6...15 kg / 450x450 for 30...75 kg / 600x600 for 100...200 kg			
Maximum off center distance at maximum capacity		mm	115 for 6...15 kg / 150 for 30...75 kg / 200 for 100...200 kg			
Load cell material			stainless steel 17-4 PH (1.4548)			
Sealing			plastic covered			
Protection according DIN 40.050			IP 67*			

* Attention: Maximum capacity 6 kg and 10 kg only available with protection IP 65

Dimensions



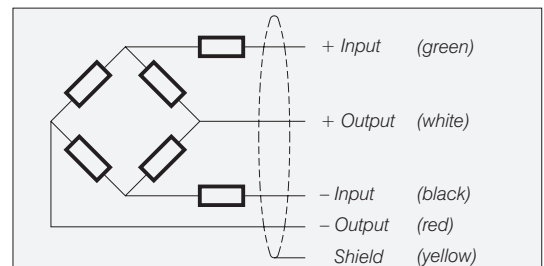
All dimensions in mm. Dimensions and specifications are subject to change without notice.

PC1: Mounting bolts M6 8.8; torque 10 Nm. Torque value assumes oiled threads.
* Unified thread 1/4-20 UNC is available.

PC1B: Mounting bolts M10 8.8; torque 50 Nm (50/75/100 kg). Torque value assumes oiled threads.
If countersunk mounting screws are used, ask for detailed drawing.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is connected to the load cell body.



Type PC2 kg Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements.

The PC2 load cell is available in the capacities 20 and 150 kg and include Accuracy Classifications GP and C3 according to OIML R 60.

Total stainless steel construction and complete hermetic sealing, making the cell suitable for use in the toughest industrial environments.

Designed to withstand shock and fatigue loading.

Applications are platform scales, hopper and tank weighing systems.

The off center load performance according OIML allows a maximum platform size of 1000 x 1000 mm.

The PC2 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities 20 and 150 kg.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Maximum platform size 1000 x 1000 mm.
- High input resistance: 1100 Ω.
- No additional flexures required.
- Easy cable replacement.
- Factory Mutual approved.

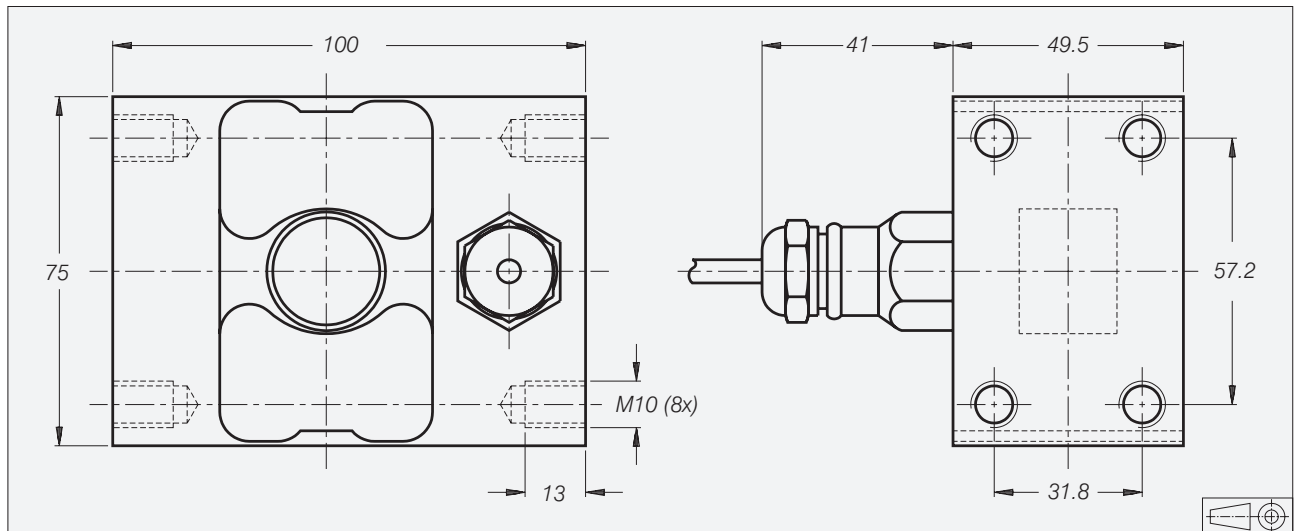
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

PC2 Specifications

Maximum capacity	(E _{max})	kg	20 / 150	
Rated Output	(Cn)	mV/V	2 ± 5%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /10000
Combined error	%Cn		≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes)	%Cn		≤ ± 0.060	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0012
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0011
Excitation voltage	V		5...15	
Zero balance	%Cn		≤ ± 5	
Input resistance	Ω		1100 ± 50	
Output resistance	Ω		960 ± 50	
Insulation resistance	MΩ		≥ 5000	
Compensated temperature range	°C		-10...+40	
Operating temperature range	°C		-40...+80	
Safe load limit	(E _{lim})	%E _{max}	200	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Maximum platform size; loading according OIML	mm		600 x 600 for 20kg / 1000 x 1000 for 150 kg	
Maximum off center distance at maximum capacity	mm		250 for 20 kg / 400 for 150 kg	
Load cell material			stainless steel 17-4 PH (1.4548)	
Sealing			complete hermetic sealing; cable entry sealed by using a glass to metal header	
Protection according DIN 40.050			IP 68	

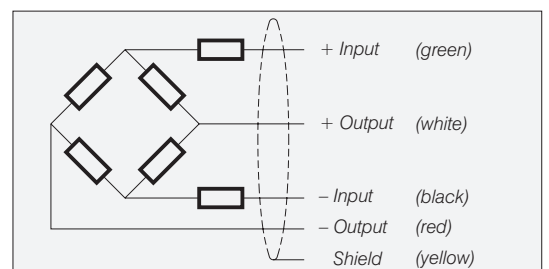
Dimensions



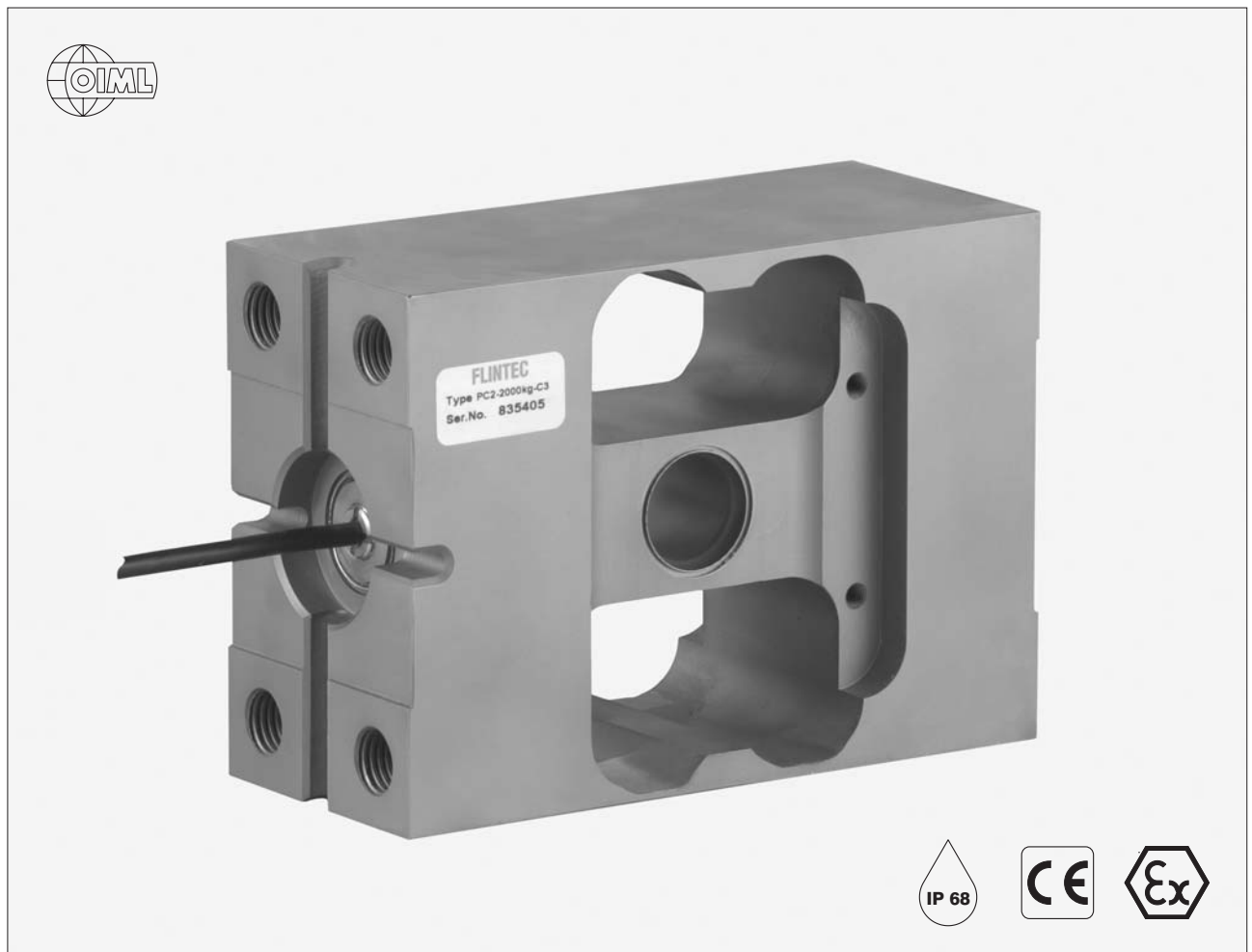
All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Mounting bolts M10 8.8; torque 50 Nm. Torque value assumes oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type PC2H Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

This PC2H load cell is available in the capacity 2000 kg and include Accuracy Classification GP and C3 according to OIML R 60.

Total stainless steel construction and complete hermetic sealing, making the cell suitable for use in the toughest industrial environments.

Designed to withstand shock and fatigue loading.

Applications are on-board weighing, platform scales, hopper and tank weighing systems.

The off center load performance according OIML allows a maximum platform size of 1200 x 1200 mm.

The PC2H is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacity 2000 kg.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- W&M certified for 3000 intervals (in preparation).
- Maximum platform size 1200 x 1200 mm.
- High input resistance: 1100 Ω.
- No additional flexures required.

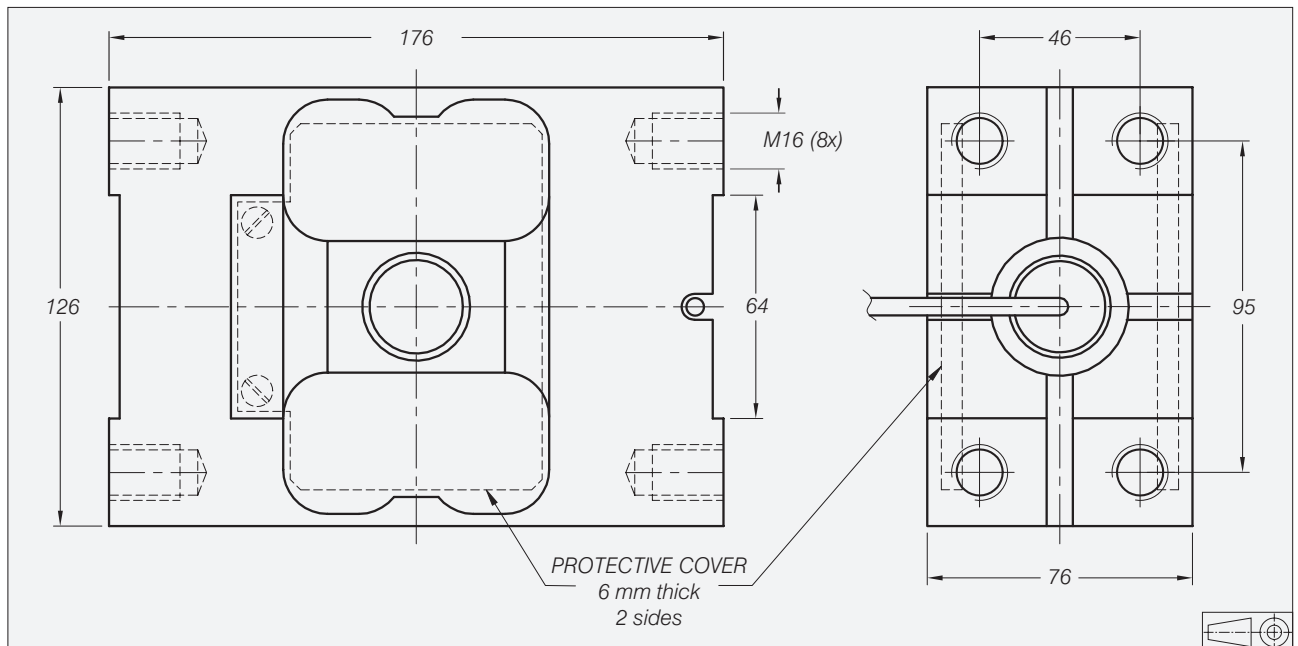
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

PC2H Specifications

Maximum capacity	(E _{max})	kg	2000	
Rated Output	(Cn)	mV/V	2 ± 10%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /10000
Combined error		%Cn	< ± 0.040	< ± 0.020
Creep error (30 minutes) / DR		%Cn	< ± 0.060	< ± 0.016
Temperature effect on minimum dead load output		%Cn/°C	< ± 0.0040	< ± 0.0012
Temperature effect on sensitivity		%/°C	< ± 0.0020	< ± 0.0011
Excitation voltage		V	5...15	
Zero balance		%Cn	< ± 5	
Input resistance		Ω	1100 ± 50	
Output resistance		Ω	960 ± 50	
Insulation resistance		MΩ	> 5000	
Compensated temperature range		°C	-10...+40	
Operating temperature range		°C	-40...+80	
Safe load limit	(E _{lim})	%E _{max}	150	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Maximum platform size; loading according OIML		mm	1200 x 1200	
Maximum off center distance at maximum capacity		mm	400	
Load cell material			stainless steel 17-4 PH (1.4548)	
Sealing			hermetic sealing; cable entry sealed by using cable gland PG7 and potting	
Protection according DIN 40.050			IP 68	

Dimensions

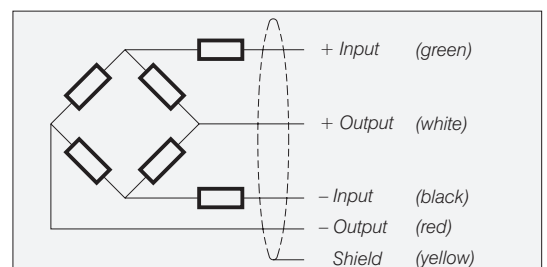


All dimensions in mm. Dimensions and specifications are subject to change without notice.

Mounting bolts M16 8.8; torque 200 Nm. Torque value assumes oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type PC6 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

PC6 platform load cells are available in the capacities 10 kg to 200 kg and include Accuracy Classifications GP, C3, C3 MI 6, C3 MI 12 and C4 according to OIML R 60.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

Designed to withstand shock and fatigue loading.

The off center load performance according OIML allows a maximum platform size of 600 x 600 mm.

The PC6 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 10 kg to 200 kg.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Maximum platform size 600 x 600 mm.
- Integral mounting spacer.
- High input resistance: 1100 Ω.
- W&M certified for 4000 intervals (PTB: D09-00.02 Rev. 4).
- Easy cable replacement.
- Factory Mutual approved.

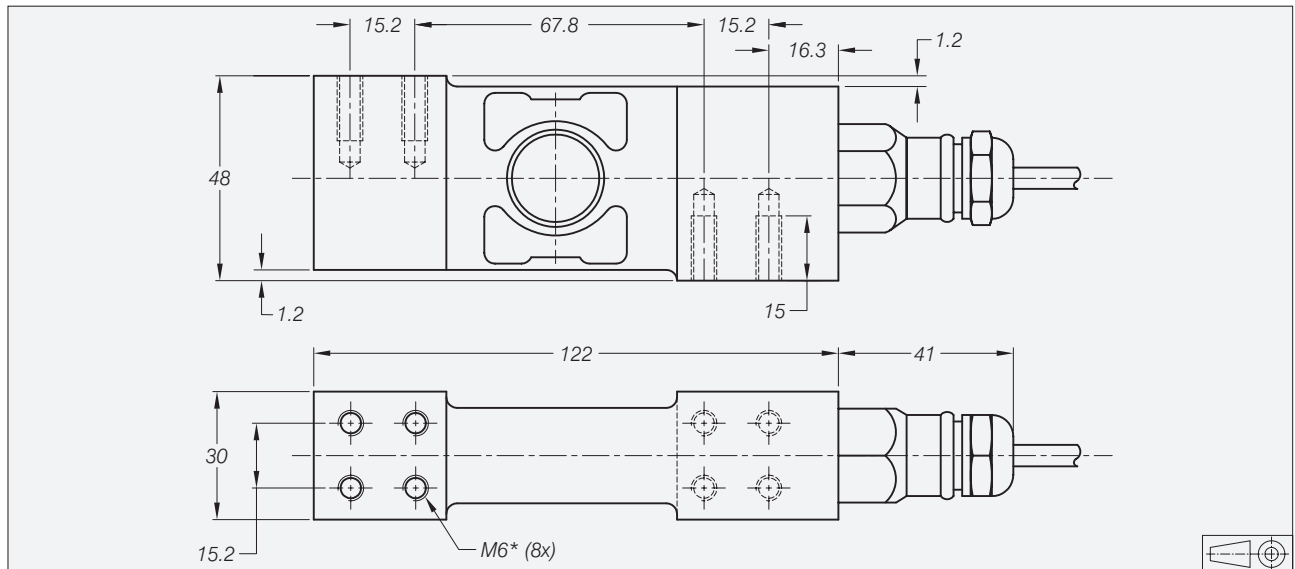
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3, C3 MI 6, C3 MI 12 and C4 with Y=22000.

PC6 Specifications

Maximum capacity	(E _{max})	kg	10 / 11 / 20 / 22 / 50 / 100 / 200				100 / 200
Rated Output	(Cn)	mV/V	2 ± 5% (2.2 ± 5% for 11 and 22 kg)				
Accuracy class according to OIML R 60		(GP)	C3	C3 MI 6	C4	C3 MI 12	
Maximum number of verification intervals	(n _{max})		n.a.	3000	3000	4000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /10000 (E _{max} /11000 for 11 and 22 kg)			
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0014 (≤ ± 0.0012 for 11 and 22 kg)			
Option	Min. load cell verification interval (v _{min})		n.a.	E _{max} /20000 (E _{max} /22000 for 11 and 22 kg)			
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.0007 (≤ ± 0.0006 for 11 and 22 kg)			
Combined error		%Cn	≤ ± 0.040	≤ ± 0.020	≤ ± 0.020	≤ ± 0.018	≤ ± 0.020
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.016	≤ ± 0.008	≤ ± 0.012	≤ ± 0.004
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0010	≤ ± 0.0010	≤ ± 0.0008	≤ ± 0.0010
Excitation voltage		V	5...15				
Zero balance		%Cn	≤ ± 5				
Input resistance		Ω	1100 ± 50				
Output resistance		Ω	960 ± 50				
Insulation resistance (100 DC)		MΩ	≥ 5000				
Compensated temperature range		°C	-10...+40				
Operating temperature range		°C	-40...+80				
Safe load limit	(E _{lim})	%E _{max}	200				
Ultimate load		%E _{max}	300				
Safe side load		%E _{max}	100				
Maximum platform size; loading according OIML		mm	350x350 for 10...22 kg / 450x450 for 50 kg / 600x600 for 100...200 kg				
Maximum off center distance at maximum capacity		mm	115 for 10...22 kg / 150 for 50 kg / 200 for 100...200 kg				
Load cell material			stainless steel 17-4 PH (1.4548)				
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header				
Protection according DIN 40.050			IP 68				

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

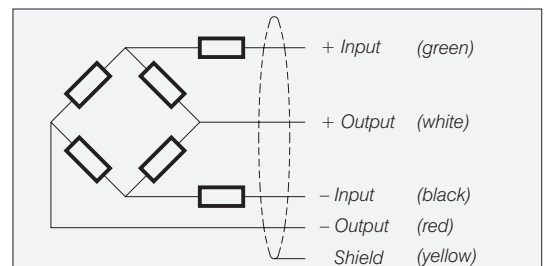
Mounting bolts M6 8.8; torque 10 Nm. Torque value assumes oiled threads.

* Unified thread 1/4-20 UNC is available.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating.

(On request 6 conductor cable and the shield connected to the load cell body available)



Type PC12 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

PC12 platform load cell is available in the capacity 20 kg and include Accuracy Classifications C3, C3 MI 6, and C4 with Y=20000 according to OIML R 60.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

Designed to withstand shock and fatigue loading.

The off center load performance according OIML allows a maximum platform size of 600 x 600 mm.

The PC12 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacity 20 kg.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Maximum platform size 600 x 600 mm.
- High input resistance: 1100 Ω.
- W&M certified for 4000 intervals and Y=20000 (in preparation).
- Easy cable replacement.

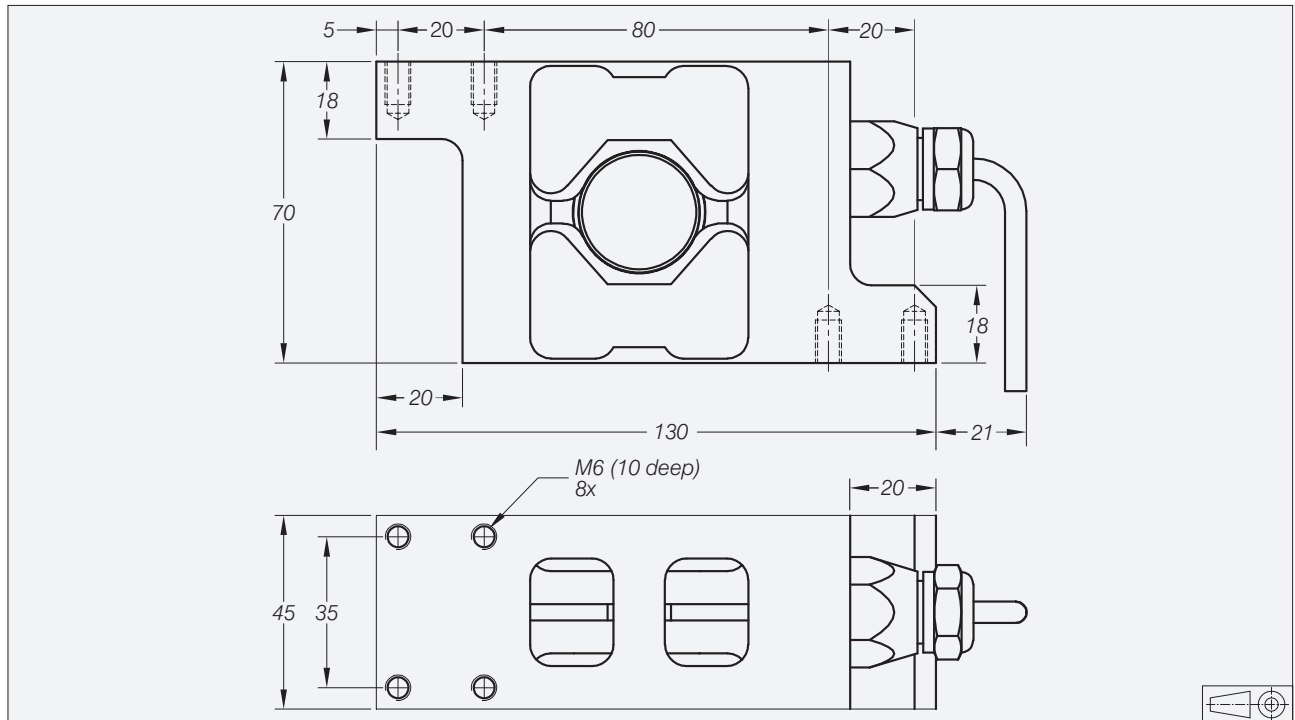
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

PC12 Specifications

Maximum capacity	(E _{max})	kg	20		
Rated Output	(Cn)	mV/V	2 ± 5%		
Accuracy class according to OIML R 60			C3	C3 MI 6	C4
Maximum number of verification intervals	(n _{max})		3000	3000	4000
Minimum load cell verification interval	(v _{min})		E _{max} /20000		
Combined error	%Cn		≤ ± 0.020	≤ ± 0.020	≤ ± 0.018
Creep error (30 minutes) / DR	%Cn		≤ ± 0.016	≤ ± 0.008	≤ ± 0.012
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0006	≤ ± 0.0006	≤ ± 0.0006
Temperature effect on sensitivity	%/°C		≤ ± 0.0011	≤ ± 0.0011	≤ ± 0.0008
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		1100 ± 50		
Output resistance	Ω		960 ± 50		
Insulation resistance (100 DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-40...+80		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Safe side load		%E _{max}	100		
Maximum platform size; loading according OIML	mm		600 x 6 00		
Maximum off center distance at maximum capacity	mm		200		
Load cell material			stainless steel 17-4 PH (1.4548)		
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header		
Protection according DIN 40.050			IP 68		

Dimensions

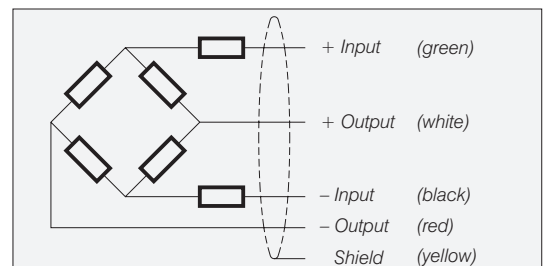


All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Mounting bolts M6 8.8; torque 10 Nm. Torque value assumes oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating.

(On request 6 conductor cable and the shield connected to the load cell body available)



Type PCB Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

PCB load cells are available in the capacities 50 kg to 1000 kg and include Accuracy Classifications GP, C3, C3 MI 6, C5 and C5 MI 7.5 according to OIML R 60; NTEP $n_{max}=3000$.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

Designed to withstand shock and fatigue loading.

Applications are platform scales, hopper and tank weighing systems.

The off center load performance according OIML allows a maximum platform size of 1000 x 1000 mm.

The version PCB is available with M12 thread in the capacities 500 kg and 1000 kg.

The PCB / PCB is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 50 kg to 1000 kg.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Maximum platform size 1000 x 1000 mm.
- High input resistance: 1100 Ω .
- W&M certified for 5000 intervals. (PTB: D09-01.02 Rev. 1)
- No additional flexures required.
- Easy cable replacement.

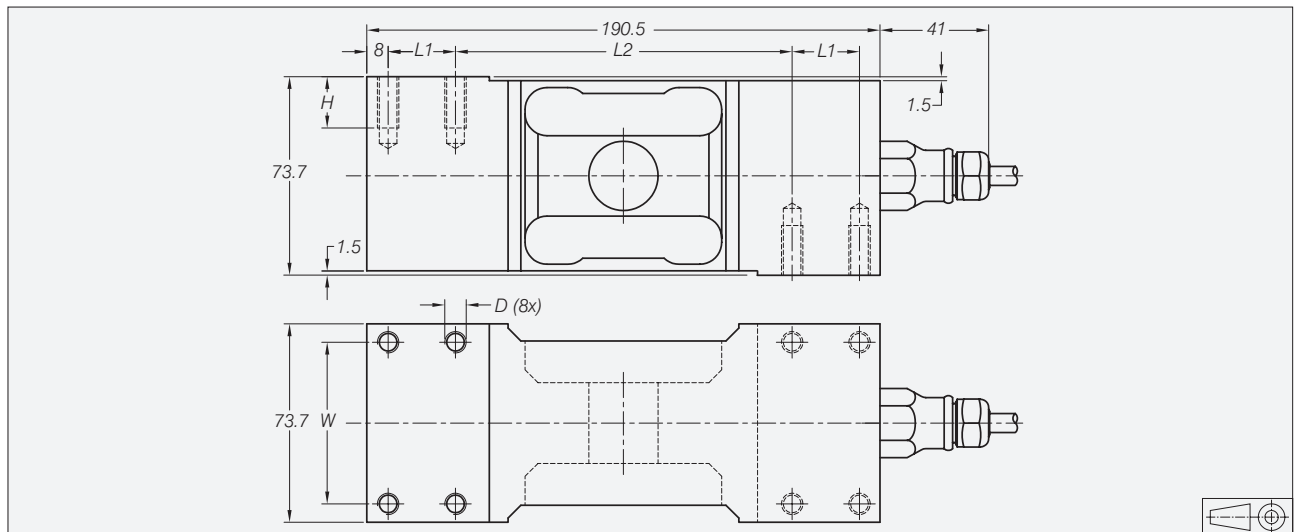
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3, C3 MI 6, C5 and C5 MI 7.5 with Y=20000.

PCB Specifications

Maximum capacity	(E _{max})	kg	50 / 100 / 250 / 500 / 1000				50 / 100 / 250	
Rated Output	(Cn)	mV/V	2 ± 5%					
Accuracy class according to OIML R 60			(GP)	C3	C3 MI 6	C5	C5 MI 7.5	
Maximum number of verification intervals	(n _{max})		n.a.	3000	3000	5000	5000	
Minimum load cell verification interval (V _{min})			n.a.	E _{max} /12500				
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0011				
Option	Min. load cell verification interval (V _{min})		n.a.	E _{max} /20000				
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.0007				
Combined error	%Cn		≤ ± 0.040	≤ ± 0.020	≤ ± 0.018	≤ ± 0.015	≤ ± 0.014	
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.016	≤ ± 0.008	≤ ± 0.016	≤ ± 0.006	
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0011	≤ ± 0.0011	≤ ± 0.0007	≤ ± 0.0007	
Excitation voltage	V		5...15					
Zero balance	%Cn		≤ ± 5					
Input resistance	Ω		1100 ± 50					
Output resistance	Ω		960 ± 50					
Insulation resistance (100 V DC)	MΩ		≥ 5000					
Compensated temperature range	°C		-10...+40					
Operating temperature range	°C		-40...+80					
Safe load limit	(E _{lim})	%E _{max}	200					
Ultimate load		%E _{max}	300					
Safe side load		%E _{max}	100					
Maximum platform size; loading according OIML	mm		600 x 600 for 50 kg / 800 x 800 for 100...500 kg / 1000 x 1000 for 1000 kg					
Maximum off center distance at maximum capacity	mm		200 for 50 kg / 250 for 100...500 kg / 300 for 1000 kg					
Load cell material			stainless steel 17-4 PH (1.4548)					
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header					
Protection according DIN 40.050			IP 68					

Dimensions



Type	L1	L2	H	W	D	Mounting bolts**	Torque*
PCB-50/100/250/500/1000 kg	25	125	19	60	M8	M8 8.8	25 Nm
PCBB-500/1000 kg	35	105	30	57	M12	M12 8.8	90 Nm

Dimensions and specifications are subject to change without notice.

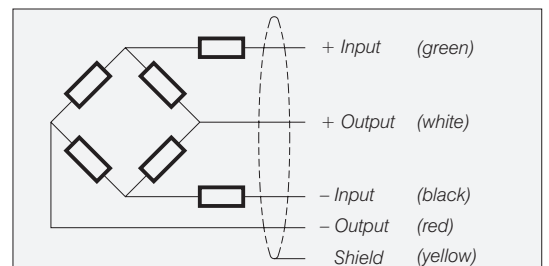
* Torque values assume oiled threads.

** Unified thread 5/16-18 UNC is available (PCB only).

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating.

(On request 6 conductor cable and the shield connected to the load cell body available)



Type PC22 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The PC22 platform load cells are available in the capacities 5 kg to 40 kg and include Accuracy Classifications GP and C3 according to OIML R 60.

They offer aluminium construction and improved potting, making them suitable for use in industrial environments.

The off center load performance according OIML allows a maximum platform size of 350 x 350 mm.

The PC22 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacity: 5 kg to 40 kg.
- High accuracy.
- Aluminium construction.
- Protection IP 67.
- Maximum platform size 350 x 350 mm.
- W&M certified for 3000 intervals.

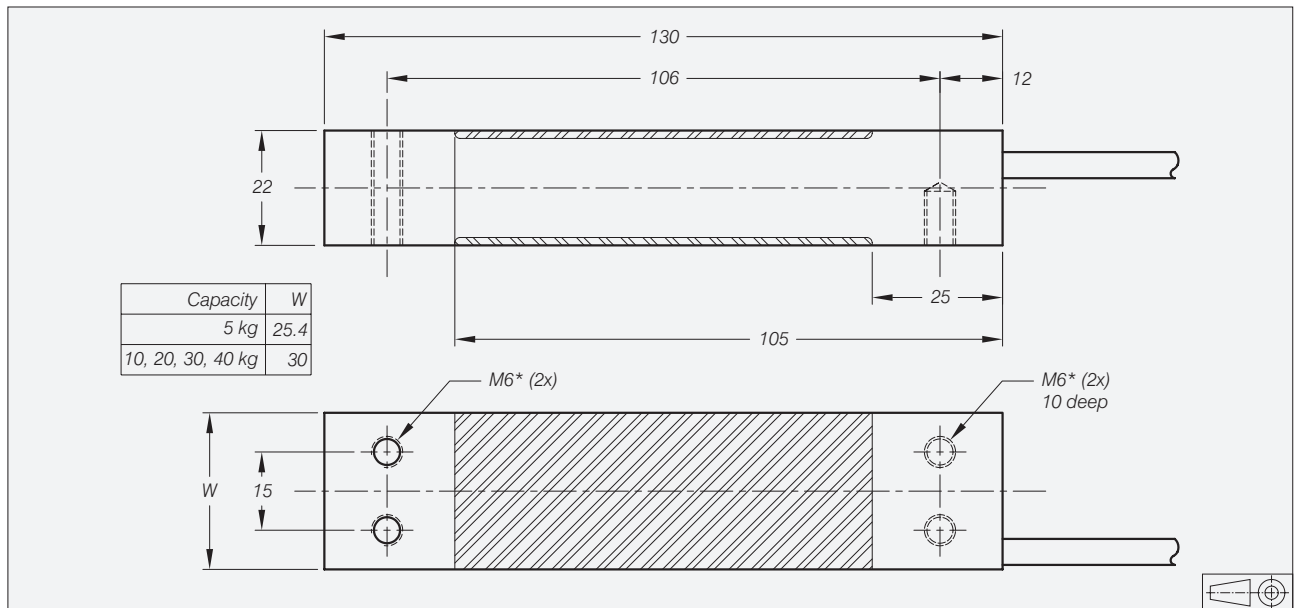
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 with Y=15000.

PC22 Specifications

Maximum capacity	(E _{max})	kg	5 / 10 / 20 / 30 / 40	
Rated Output	(Cn)	mV/V	2 ± 10%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /6000
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0023
Option	Min. load cell verification interval (v _{min})		n.a.	E _{max} /15000
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.0009
Combined error		%Cn	≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.016
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0011
Excitation voltage		V	5...15	
Zero balance		%Cn	≤ ± 5	
Input resistance		Ω	413 ± 20	
Output resistance		Ω	350 ± 25	
Insulation resistance (100 V DC)		MΩ	≥ 5000	
Compensated temperature range		°C	-10...+40	
Operating temperature range		°C	-20...+65	
Safe load limit	(E _{lim})	%E _{max}	150	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Maximum platform size; loading according OIML		mm	350 x 350	
Maximum off center distance at maximum capacity		mm	115	
Load cell material			aluminium	
Sealing			potted	
Protection according DIN 40.050			IP 67	

Dimensions



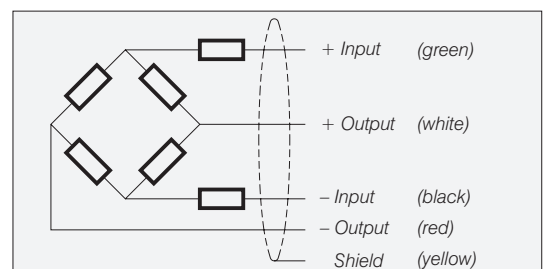
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Mounting bolts M6 8.8; torque 10 Nm. Torque value assumes oiled threads.

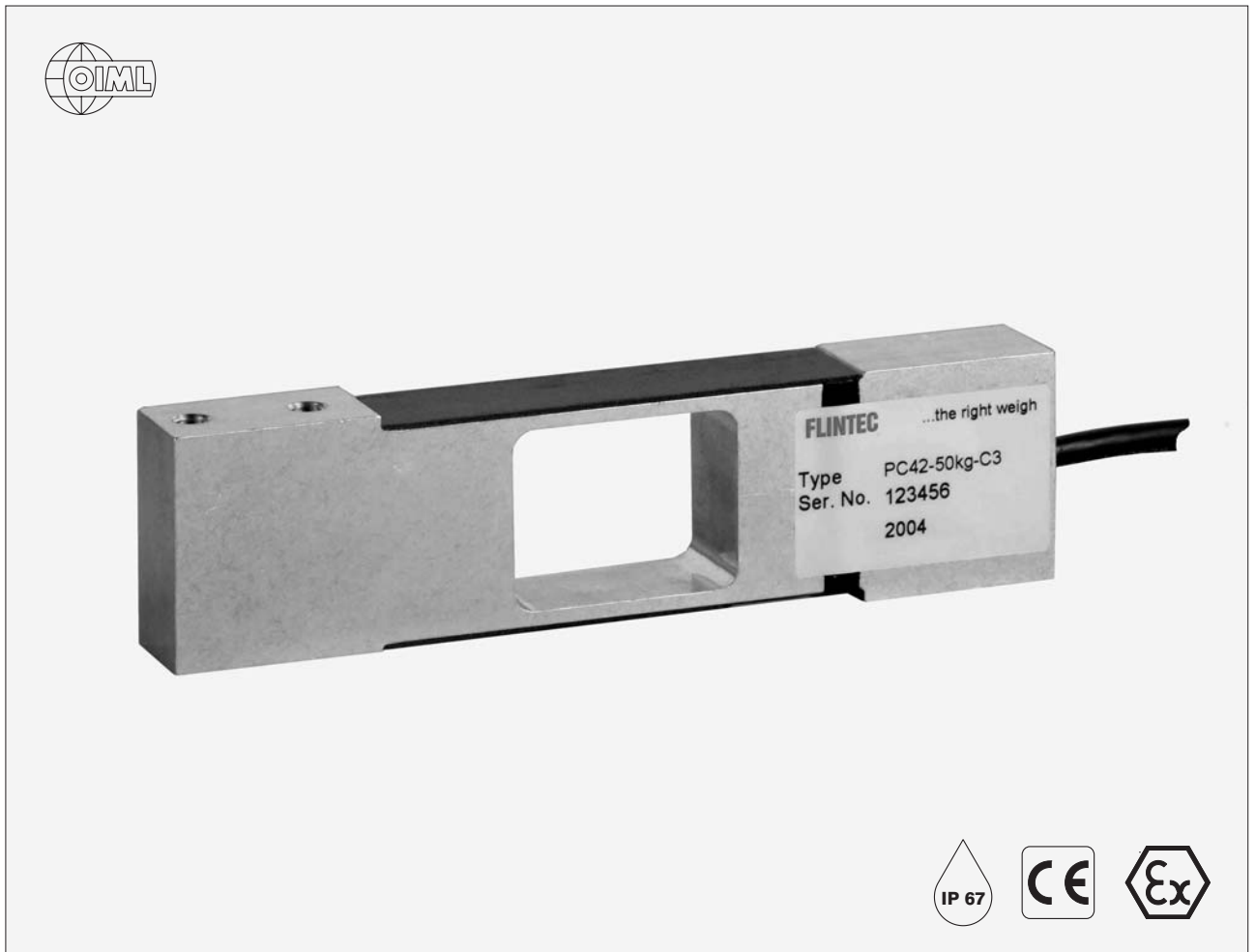
* Unified thread 1/4-20 UNC is available.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 0.5 m.
- Cable diameter: 5 mm.
- The shield is connected to the load cell body.



Type PC42 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The PC42 platform load cells are available in the capacities 5 kg to 100 kg and include Accuracy Classifications GP and C3 according to OIML R 60.

They offer aluminium construction and improved potting, making them suitable for use in industrial environments.

The off center load performance according OIML allows a maximum platform size of 400 x 400 mm.

The PC42 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacity: 5 kg to 100 kg.
- High accuracy.
- Aluminium construction.
- Protection IP 67.
- Maximum platform size 400 x 400 mm.
- W&M certified for 3000 intervals.

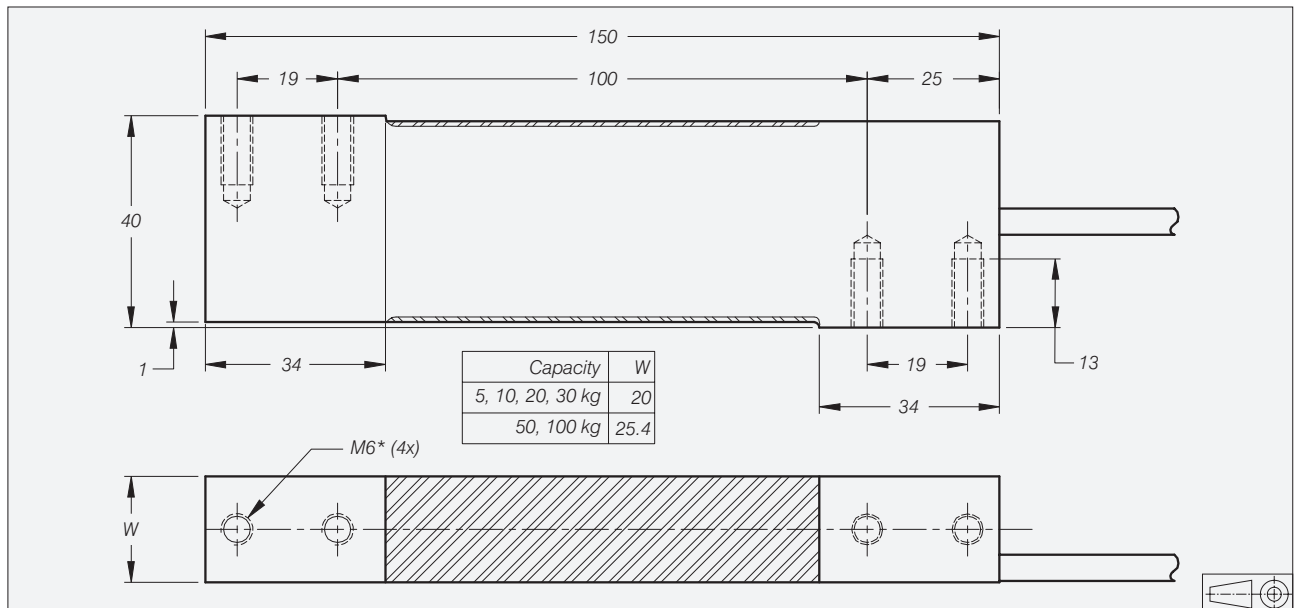
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 with Y=15000.

PC42 Specifications

Maximum capacity	(E _{max})	kg	5 / 10 / 20 / 30 / 50 / 100	
/Rated Output	(Cn)	mV/V	2 ± 10%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /6000
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0023
Option	Min. load cell verification interval (v _{min})		n.a.	E _{max} /15000
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.0009
Combined error		%Cn	≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.016
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0011
Excitation voltage		V	5...15	
Zero balance		%Cn	≤ ± 5	
Input resistance		Ω	413 ± 20	
Output resistance		Ω	350 ± 25	
Insulation resistance (100 V DC)		MΩ	≥ 5000	
Compensated temperature range		°C	-10...+40	
Operating temperature range		°C	-20...+65	
Safe load limit	(E _{lim})	%E _{max}	150	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Maximum platform size; loading according OIML		mm	400 x 400	
Maximum off center distance at maximum capacity		mm	135	
Load cell material			aluminium	
Sealing			potted	
Protection according DIN 40.050			IP 67	

Dimensions



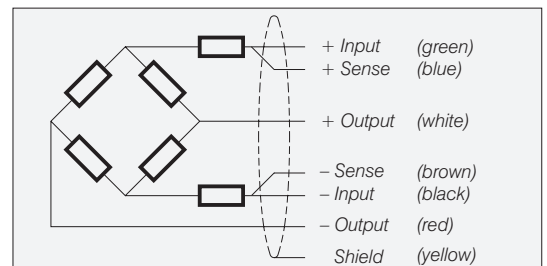
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Mounting bolts M6 8.8; torque 10 Nm. Torque value assumes oiled threads.

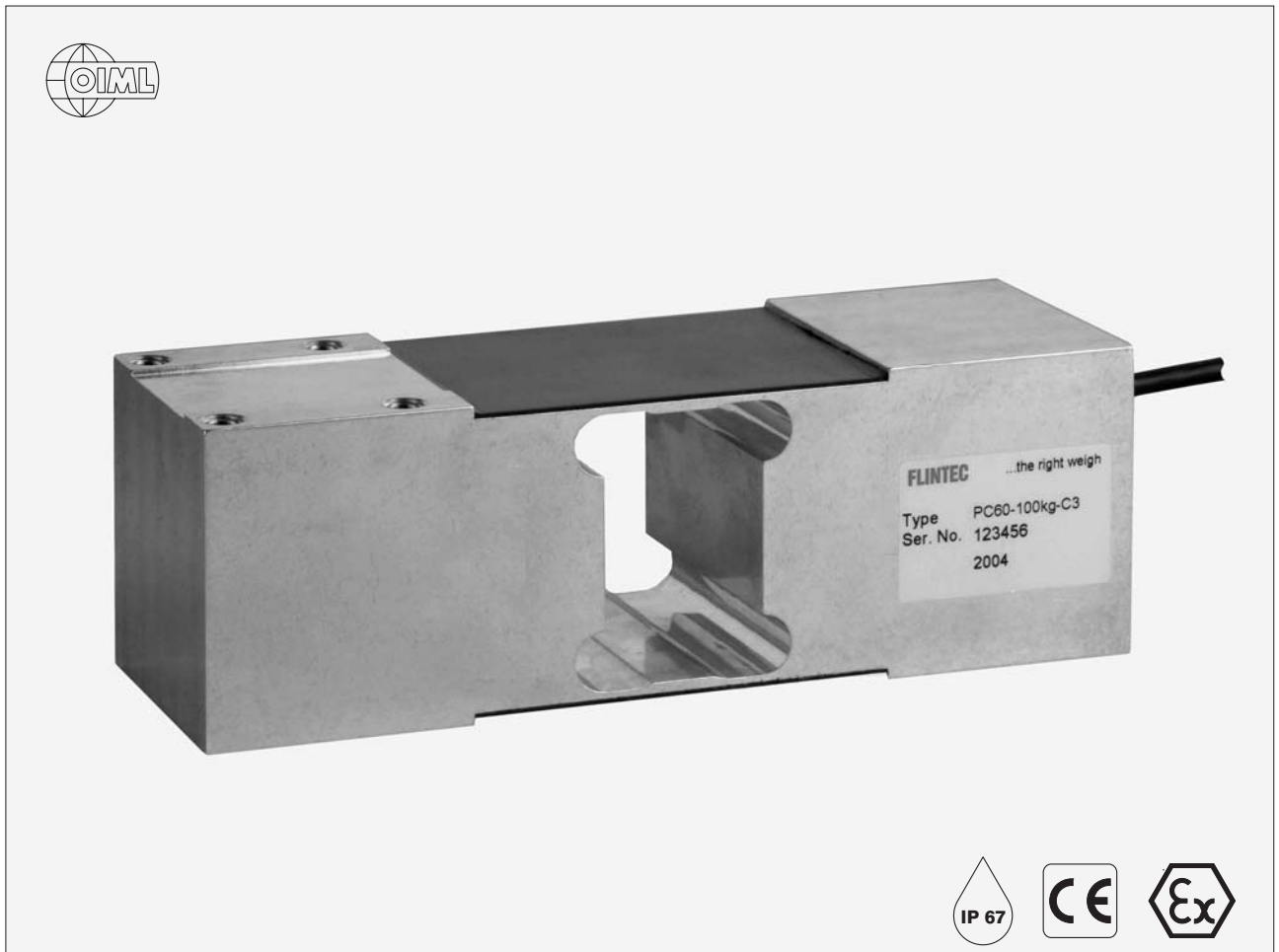
* Unified thread 1/4-20 UNC is available.

Wiring

- The load cell is provided with a shielded, 6 conductor cable (AWG 26). Cable jacket polyurethane.
- Cable length: 1 m.
- Cable diameter: 5.8 mm.
- The shield is connected to the load cell body.



Type PC60 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The PC60 platform load cells are available in the capacities 30 kg to 750 kg and include Accuracy Classifications GP and C3 according to OIML R 60.

They offer aluminium construction and improved potting, making them suitable for use in industrial environments.

The off center load performance according OIML allows a maximum platform size of 600 x 600 mm.

The PC60 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacity: 30 kg to 750 kg.
- High accuracy.
- Aluminium construction.
- Protection IP 67.
- Maximum platform size 600 x 600 mm.
- W&M certified for 3000 intervals.

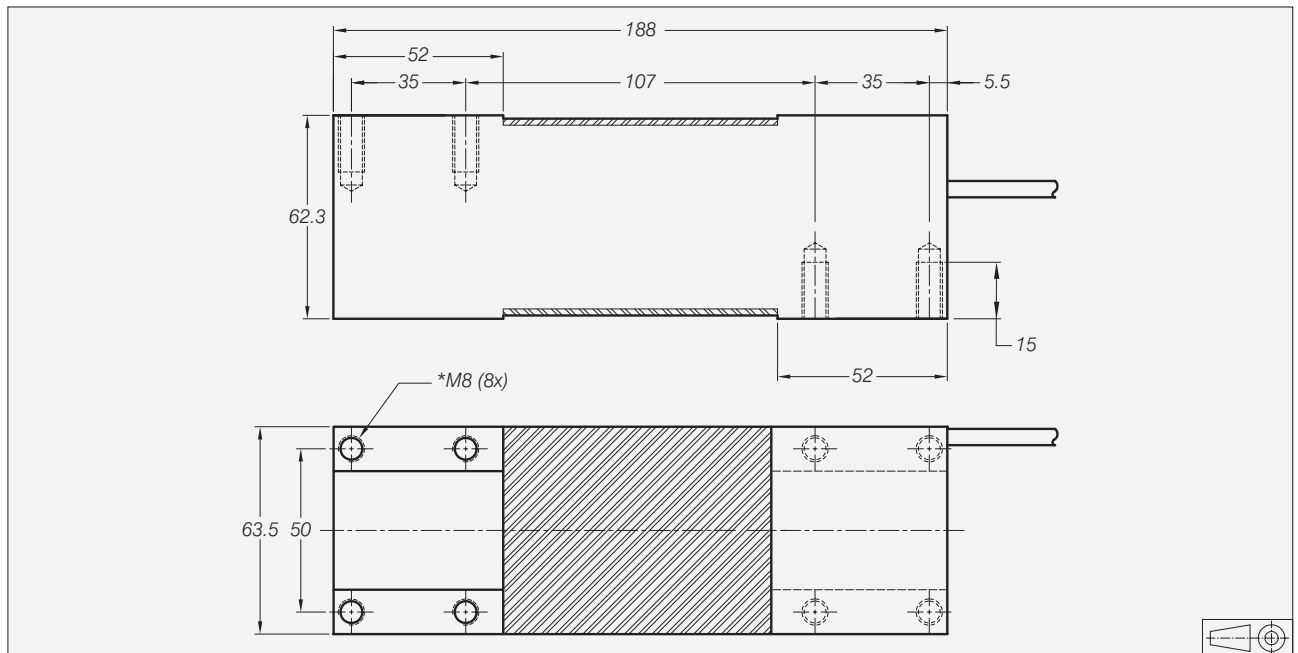
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 with Y=15000.

PC60 Specifications

Maximum capacity	(E _{max})	kg	30 / 50 / 100 / 200 / 300 / 500 / 750	
Rated Output	(Cn)	mV/V	2 ± 10%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /6000
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0023
Option	Min. load cell verification interval (v _{min})		n.a.	E _{max} /15000
	Temp. effect on min. dead load output	%Cn/°C	n.a.	≤ ± 0.0009
Combined error		%Cn	≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.016
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0011
Excitation voltage		V	5...15	
Zero balance		%Cn	≤ ± 5	
Input resistance		Ω	413 ± 20	
Output resistance		Ω	350 ± 25	
Insulation resistance (100 V DC)		MΩ	≥ 5000	
Compensated temperature range		°C	-10...+40	
Operating temperature range		°C	-20...+65	
Safe load limit	(E _{lim})	%E _{max}	150	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Maximum platform size; loading according OIML		mm	600 x 600	
Maximum off center distance at maximum capacity		mm	200	
Load cell material			aluminium	
Sealing			potted	
Protection according DIN 40.050			IP 67	

Dimensions



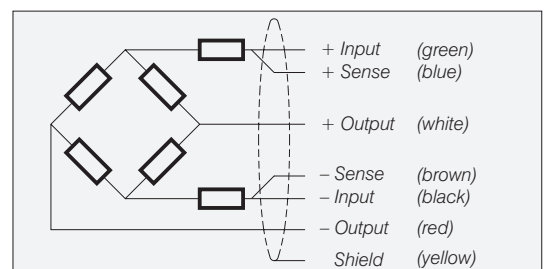
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Mounting bolts M8 8.8; torque 25 Nm. Torque value assumes oiled threads.

* Unified thread 5/16-18 UNC is available.

Wiring

- The load cell is provided with a shielded, 6 conductor cable (AWG 26). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5.8 mm.
- The shield is connected to the load cell body.



Planar Beam Load Cells


Planar Beam Load Cells

Load Cell Type		CPB	PB	PBW	ZLB
OIML / NTEP		No/No	Yes/No	Yes/No	Yes/No
EEx (ATEX)		No	No	No	Yes
Material		Aluminium			
Hermetic sealing		No	No	No	No
Protection		IP 65	IP 65	IP 65	IP 67
Maximum Capacity *					
kg	lb				
3		•			
3.75			•		
5.7	12.5			•	
6		•			
7.5			•		
8.5	18.75			•	
11.3	25			•	
15		•	•		
17	37.5			•	
20					•
22.7	50			•	
30		•			
37.5			•		
45.4	100			•	
50					•
60		•			
75			•		
91	200			•	
100					•
136	300			•	
150			•		
200					•
375			•		

* The load cells are calibrated in kg or lb depending on load cell type (bold print).

data sheet


CPB



price list

data sheet


PB



price list

data sheet

PBW



price list

data sheet

ZLB



price list

Characteristics of Planar Beams

Planar Beams are a unique Flintec design. The characteristics are low profile, and fairly low cost. The range covers nominal capacities from 3,7 kg to 375 kg.

Scales are built with 3 or 4 type PB Planar Beams and a suitable load introduction. The type CPB, is a Single Point Load Cell and is used alone.

The use of Planar Beams (PB type) eliminates restrictions regarding the size of the platform compared to Single Point Load Cells.

Typical Applications

Bench, and platform scales, as well as special applications in medical, retail, and other areas.

Load Mounts for Planar Beam Load Cells

Type	PB	ZLB
Rubber load mount for PB	•	
Rubber load mount for ZLB		•

data sheet
for PB



price list

data sheet
for ZLB



price list

Type CPB Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements.

The unique, very low profile Compact Planar Beam load cells offer a very low scale profile design while at the same time offering 3000 divisions scale performance.

CPB platform load cells are available in the capacities 3 kg to 60 kg, and include Accuracy Classifications GP and C3 according to OIML R 60.

The off center load performance according OIML allows a maximum platform size of 350 x 350 mm.

One single load cell can be employed, directly coupled to the weighing platform and the supporting base, "Spiders" are not required in this configuration.

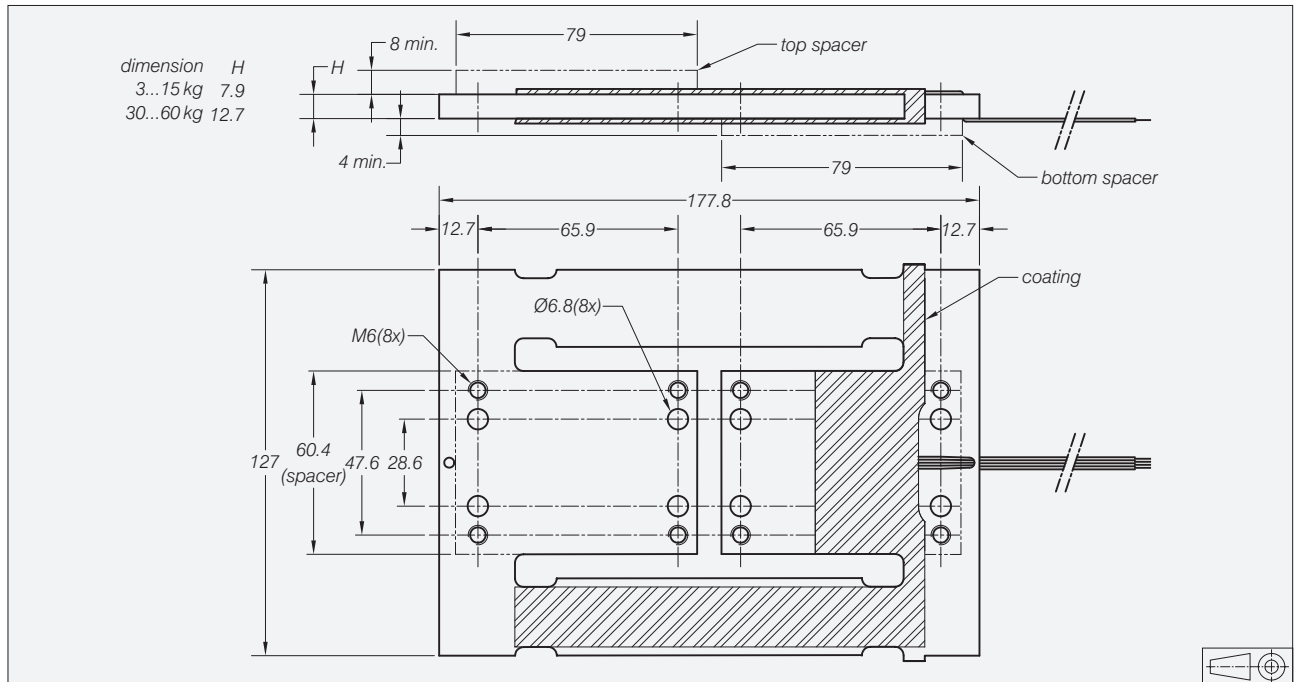
Important Features

- Capacities: 3 kg to 60 kg.
- High accuracy.
- Very low profile.
- Maximum platform size 350 x 350 mm.

CPB Specifications

Maximum capacity	(E _{max})	kg	3 / 6 / 15 / 30 / 60	
Rated Output	(Cn)	mV/V	1 ± 10%	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /7500
Combined error	%Cn		≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0014
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0011
Excitation voltage	V		5...15	
Zero balance	%Cn		≤ ± 5	
Input resistance	Ω		390 ± 20	
Output resistance	Ω		330 ± 25	
Insulation resistance (100 V DC)	MΩ		≥ 5000	
Compensated temperature range	°C		-10...+40	
Operating temperature range	°C		-10...+65	
Safe load limit	(E _{lim})	%E _{max}	300	
Ultimate load		%E _{max}	400	
Safe side load		%E _{max}	200	
Maximum platform size; loading according OIML	mm		300 x 300 for 3 to 15 kg / 350 x 350 for 30 and 60 kg	
Load cell material			aluminium	
Sealing			environmentally sealed	
Protection according DIN 40.050			IP 65	

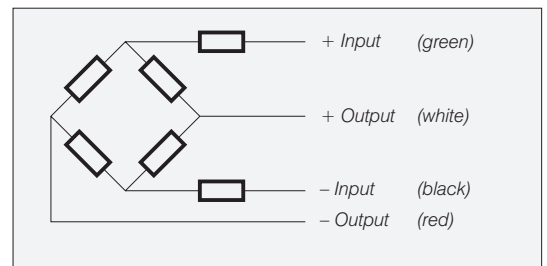
Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a 4 conductor ribbon cable.
- Cable length: 250 mm.



Type PB Load Cell



Planar Beam Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The unique, very low profile Planar Beam load cells offer very low scale profile design while at the same time offering 4000 divisions scale performance.

PB platform load cells are available in the capacities 3.75 kg to 375 kg; offering recommended scale capacities from 6 kg to 600 kg by using 4 PB load cells.

Available in the Accuracy Classifications GP, C3, C3 MI 6 and C4 according to OIML R 60.

They are used in each corner resulting in a “full load cell scale” with maximum mechanical stability. “Spiders” are eliminated as well as the platform size limitations dictated by conventional single point load cells.

The Flintec calibration technique (in mV/V/Ω) for the C3, C3 MI 6 and 4 classification eliminates time consuming corner calibration in multiple load cell systems.

Important Features

- Capacities: 3.75 kg to 375 kg.
- Scale capacity: 6 kg to 600 kg.
- High accuracy.
- W&M certified for 4000 intervals (PTB: D09-03.03 Rev.1).
- Very low profile.
- Calibration in mV/V/Ω for C3 classification.

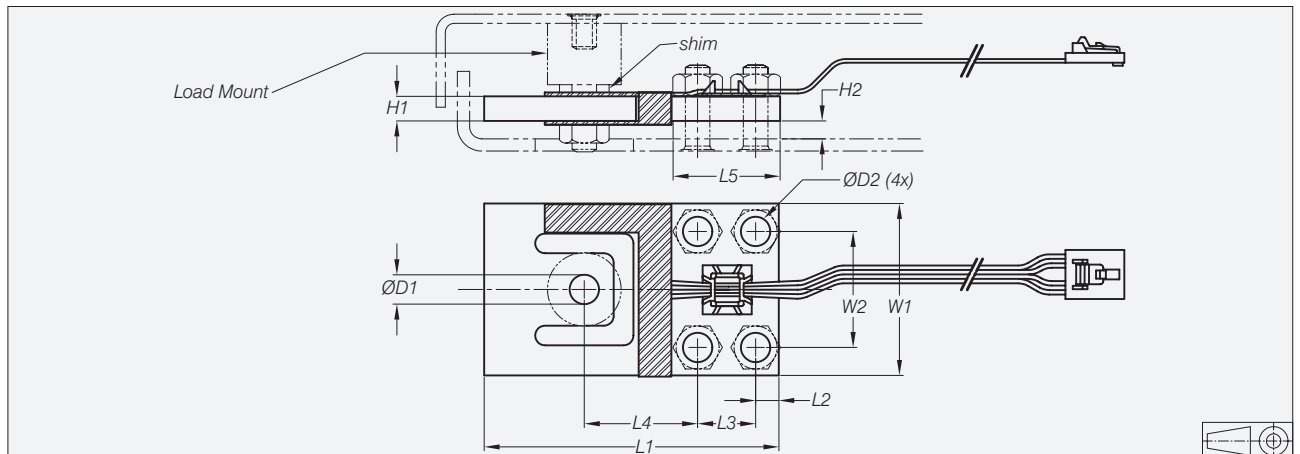
Mounting parts

- Load mount (See page 34).

PB Specifications

Maximum capacity (E _{max})	kg	3.75 / 7.5 / 15 / 37.5 / 75 / 150 / 375	375		
Recommended scale capacity (Max = 400% E _{max})	kg	6 / 15 / 30 / 60 / 150 / 300 / 600	600		
Rated Output (C _n)	mV/V	1 ± 10%	0.9 ± 0.1%		
Calibration in mV/V/Ω	%C _n	n.a.	≤ ± 0.05		
Accuracy class according to OIML R 60		(GP)	C3	C3 Ml 6	C4
Maximum number of verification intervals (n _{max})		n.a.	3000	3000	4000
Minimum load cell verification interval (v _{min})		n.a.	E _{max} /7500		
Combined error	%C _n	≤ ± 0.040	≤ ± 0.020	≤ ± 0.020	≤ ± 0.018
Creep error (30 minutes) / DR	%C _n	≤ ± 0.060	≤ ± 0.016	≤ ± 0.008	≤ ± 0.012
Temperature effect on minimum dead load output	%C _n /°C	≤ ± 0.0040	≤ ± 0.0018	≤ ± 0.0018	≤ ± 0.0018
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0011	≤ ± 0.0011	≤ ± 0.0008
Excitation voltage	V	5...15			
Zero balance	%C _n	≤ ± 5			
Input resistance	Ω	1180 ± 50			
Output resistance	Ω	1000 ± 10			
Insulation resistance (100 V DC)	MΩ	≥ 5000			
Compensated temperature range	°C	-10...+40			
Operating temperature range	°C	-10...+65			
Safe load limit (E _{lim})	%E _{max}	300			
Ultimate load	%E _{max}	400			
Safe side load	%E _{max}	200			
Load cell material		aluminium			
Sealing		environmentally sealed			
Protection according DIN 40.050		IP 65			

Dimensions



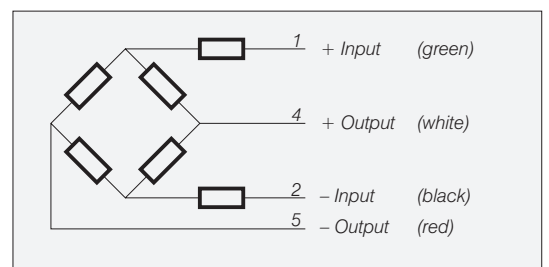
Type	L1	L2	L3	L4	L5	W1	W2	H1	H2(min)	D1	D2	Deflection (mm) at E _{max}
PB-3.75 kg-RH	70	4.9	14	28	23.7	39	27.8	2	3	5.1	5.1	0.46
PB-7.5 kg-RH	70	4.9	14	28	23.7	39	27.8	2.5	3	5.1	5.1	0.40
PB-15 kg-RH	70	4.9	14	28	23.7	39	27.8	4.1	4.5	7.6	5.1	0.27
PB-37.5 kg-RH	76.2	6	15	29.3	27	44.5	30	4.8	5	7.6	6.6	0.36
PB-75 kg-RH	84.4	6.4	15	34	27.7	54.8	30	6.4	5	7.6	6.6	0.35
PB-150 kg-RH	107.3	7.8	22.9	45.9	38.4	69.9	44.5	7.9	6	9.1	8.1	0.56
PB-375 kg-RH	119.4	9.1	25.4	52.6	43.7	76.1	50.8	12.7	6	9.1	9.8	0.68

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a 4 conductor ribbon cable and with AMP #103957-4 connector.
- Cable length: 1.0 m for 3.75/7.5/15 kg, 1.5 m for 37.5/75/150/375 kg.

A special Junction Box, Type KPB-4 is available.



Type PBW Load Cell



Planar Beam
Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

The unique, very low profile Wing Beam load cells offer very low scale profile design while at the same time offering 3000 divisions scale performance.

PBW load cells are available in the capacities 12.5 lb to 300 lb (5.7 to 136 kg) and available in the Accuracy Classifications GP and C3 according to OIML R 60.

The Flintec calibration technique (in $mV/V/\Omega$) for the C3 classification eliminates time consuming corner calibration in multiple load cell systems.

Important Features

- Capacity 12.5 to 300 lb.
- High accuracy.
- W&M certified for 3000 intervals (PTB: D09-03.03 Rev.1).
- Very low profile.
- Calibration in $mV/V/\Omega$ for C3 classification.

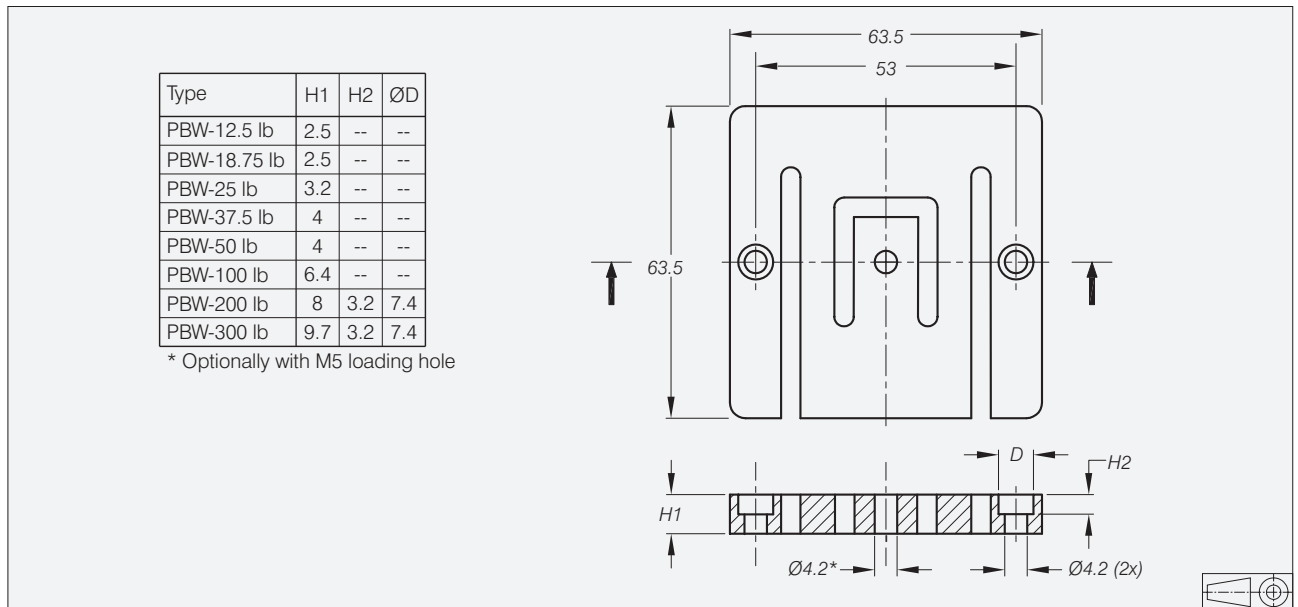
Option

- Loading hole M5.

PBW Specifications

Maximum capacity	(E _{max})	lb	12.5 / 18.75 / 25 / 37.5 / 50 / 100 / 200 / 300	
Metric equivalent (1 lb=0.45359 kg)		kg	5.7 / 8.5 / 11.3 / 17 / 22.7 / 45.4 / 91 / 136	
Rated Output	(Cn)	mV/V	1 ± 10%	0.9 ± 0.1%
Accuracy class according to OIML R 60		(GP)	C3	
Calibration in mV/V/Ω		%Cn	n.a.	≤ ± 0.05
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(V _{min})		n.a.	E _{max} /7500
Combined error		%Cn	≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.016
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0018
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0011
Excitation voltage		V	5...15	
Zero balance		%Cn	≤ ± 5	
Input resistance		Ω	1180 ± 50	
Output resistance		Ω	1000 ± 10	
Insulation resistance (100 V DC)		MΩ	≥ 5000	
Compensated temperature range		°C	-10...+40	
Operating temperature range		°C	-10...+65	
Safe load limit	(E _{lim})	%E _{max}	300	
Ultimate load		%E _{max}	400	
Safe side load		%E _{max}	200	
Load cell material			aluminium	
Sealing			environmentally sealed	
Protection according DIN 40.050			IP 65	

Dimensions

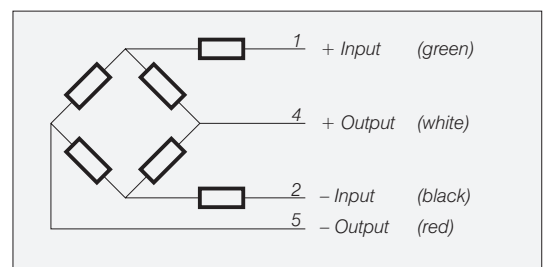


All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a 4 conductor ribbon cable and with AMP #103957-4 connector.
- Cable length: 1.0 m for 12.5...50 lb, 1.5 m for 100...300 lb.

A special Junction Box, Type KPB-4 is available.



Type ZLB Load Cell

Planar Beam
Load Cells



Detail front end with loading arrow

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

ZLB load cells are available in the capacities 20 kg to 200 kg and include Accuracy Classifications GP, C1 and C3 according to OIML R 60.

They offer aluminium construction with industrial potting, making them suitable for use in tough industrial environments.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

The Flintec calibration technique (in mV/V/Ω) eliminates time consuming corner calibration in multiple load cell systems.

The ZLB is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacities: 20 kg to 200 kg.
- High accuracy.
- Protection IP 67.
- Low profile.
- High input resistance: 1100 Ω.
- W&M certified for 3000 intervals (PTB: D09-02.13).
- Calibration in mV/V/Ω.
- Factory Mutual approved.

Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

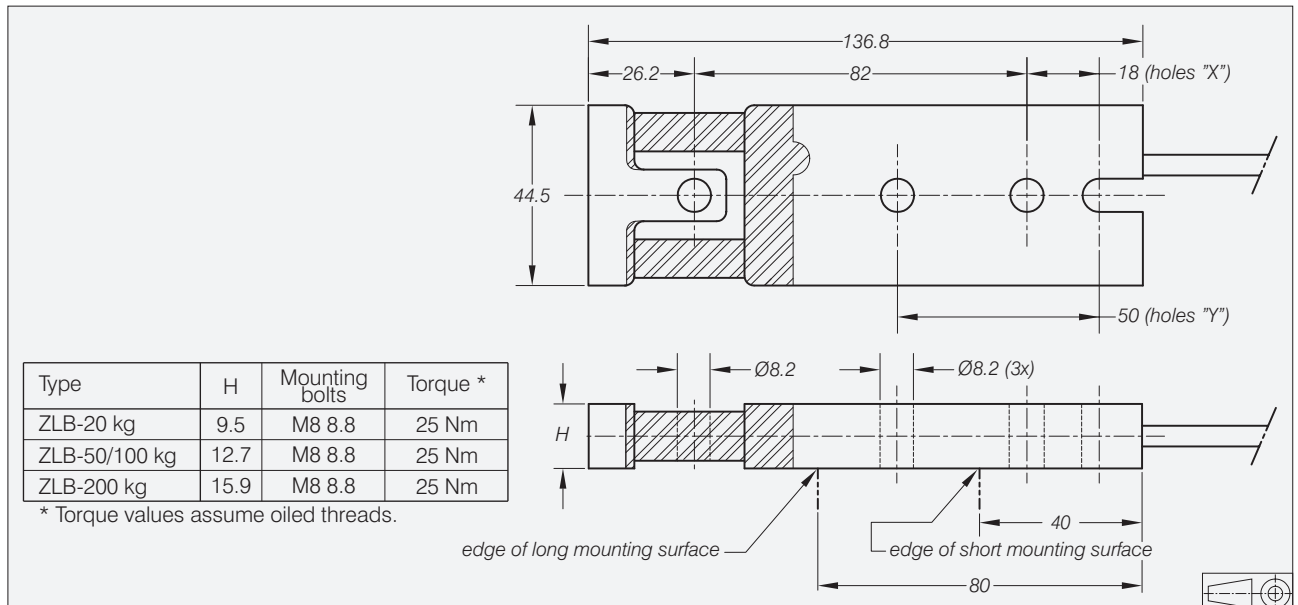
Mounting parts

- Load mount (See page 34).
- Spacer plate.

ZLB Specifications

Maximum capacity	(E _{max})	kg	20 / 50 / 100 / 200		
Rated Output	(Cn)	mV/V	2 ± 0.1%		
Calibration in mV/V/Ω		%Cn	≤ ± 0.05		
Accuracy class according to OIML R 60			(GP)	C1	C3
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} / 5000	E _{max} / 10 000
Combined error	%Cn		≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0012
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		1180 ± 50		
Output resistance	Ω		1000 ± 2		
Insulation resistance (100 V DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-20...+65		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Safe side load		%E _{max}	100		
Load cell material			aluminium		
Sealing			potting		
Protection according DIN 40.050			IP 67		

Dimensions



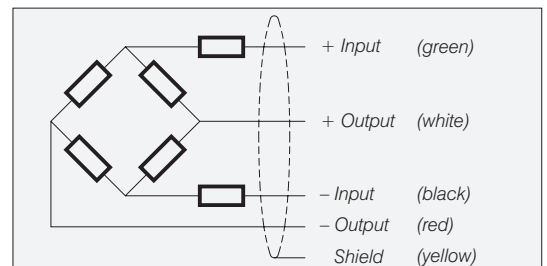
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Note:

- It is recommended to use mounting holes "Y" on an 80 mm mounting surface. Mounting holes "X" can be used on a short (40 mm) mounting surface. If so, a steel spacer (80 mm long and 10 mm thick) is required for the 200 kg load cell.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



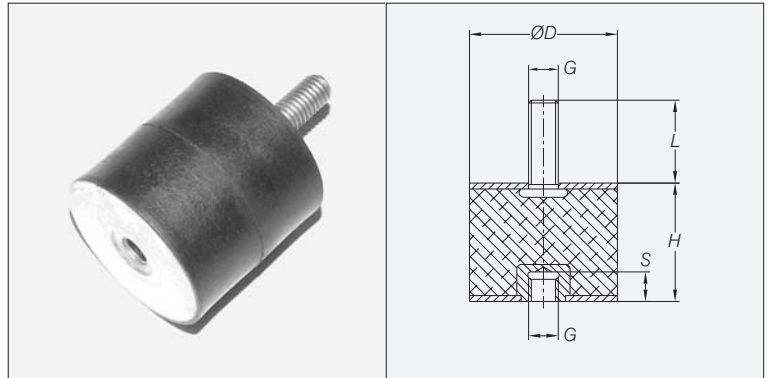
Load Mounts for Planar Beam Load Cells

Material: Natural rubber with steel, zinc plated.

Planar Beam Load Cells

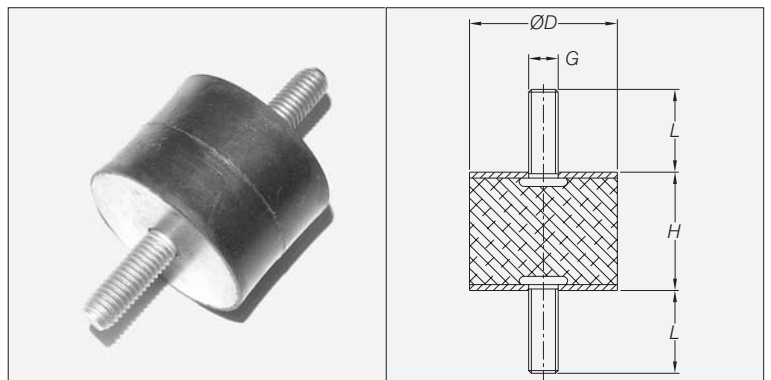
Load Mount for PB Load Cell

	ØD x H	G	L	S
3.75 kg	10 x 15	M4	10	4
7.5 kg	10 x 15	M4	10	4
15 kg	15 x 15	M4	13	4
37.5 kg	20 x 15	M6	15	6
75 kg	20 x 15	M6	15	6
150 kg	30 x 15	M8	20	6
375 kg	40 x 15	M8	23	8



Load Mount for ZLB Load Cell

	ØD x H	G	L
20 kg	30 x 15	M8	15
50 kg	30 x 15	M8	20
100 kg	30 x 15	M8	20
200 kg	30 x 15	M8	27



Beam Type Load Cells

Load Cell Type			SLB	SB14	SB4	SB5	SB6	SB8**	BK2	SB2	
OIML / NTEP			Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/No	Yes/No	Yes/No	Yes/No	
EEx (ATEX)			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Material			stainless steel							tool steel	
Hermetic sealing			No	Yes	Yes	No	Yes	Yes	No	Yes	
Protection			IP 67	IP 68	IP 68	IP 68	IP 68	IP 68	IP 67	IP 68	
Maximum Capacity *											
kg	N	lb									
10								•			
20								•			
20.4	200						•				
50								•			
51	500						•				
91		200	•								
100								•			
102	1000						•				
200								•	•		
204	2000						•				
227		500	•	•							
454		1000	•	•							
500								•	•		
510	5000				•	•					
1000									•		
1020	10000				•	•					
1134		2500	•	•							
2000						•			•		
2039	20000				•	•					
2268		5000	•	•							
4536		10000		•							
5099	50000				•	•					
10197	100000				•	•					
20412		45000								•	
34020		75000								•	
45360		100000								•	

Beam Type Load Cells

* The load cells are calibrated in kg, N or lb depending on load cell type (bold print).

** Available first quarter 2005

data sheet

SLB



price list

data sheet

SB14



price list

data sheet

SB4



price list

data sheet

SB5



price list

data sheet

SB6



price list

data sheet

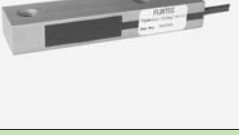
SB8



price list

data sheet

BK2



price list

data sheet

SB2



price list

Characteristics of Beam Type Load Cells

Single ended Beam Type Load Cells in combination with application related mechanical application parts are used in various standard scale applications of the weighing industry.

The Flintec range covers nominal capacities from 10 kg to 45 t. It utilizes the benefits of a blind hole for the load introduction in most types of load cells. A special loading pin in the blind hole takes care of a centered load introduction on the neutral axis of the load cell. This guarantees best weighing results.

Other special features are:

- Calibration for the use of multiple load cells in a scale (corner accuracy)
- Simple overload, and lift off protection solutions
- Insensitive against damage through horizontal forces up to nominal load
- Large variety of application parts for individual solutions

Typical Applications

Industrial platform scales from simple pallet weighers to heavy duty scales in steel works, hopper scales, mixer scales as well as hybrid systems with one load cell and lever work.

Beam Type Load Cells

Mechanical Application Parts

Type		SLB / SB14	SB4/5	SB6	BK2	SB2
52-00 *	Base Plate	•	•	•		
52-02 *	Rubber Foot	•	•			
52-10 *	Height Adjustable Foot	•	•	•		
Fixation Plates for Feet 52-02/10/15		•	•	•	•	
52-05 *	Rubber Element with Flange	•	•	•		
52-08	Rocker Pin (stainless steel)	•	•			
52-13 *	Sliding System	•	•	•		
56-01	Dummy Support	•	•			
52-31	Tension Adapter	•	•	•		
52-15	Height Adjustable Foot (stainless steel)				•	
52-01HD	Sliding System					•

* Optionally available in stainless steel.

data sheet

52-00



price list

data sheet


52-02



price list

data sheet

52-10



price list

data sheet

52-05



price list

data sheet

52-08



price list

data sheet

52-13



price list

data sheet

56-01



price list

data sheet


52-31



price list

data sheet


52-15



price list

data sheet


52-01HD



price list

data sheet

Fixation Plates for 52-02/10/15



price list

Type SLB Load Cell



Beam Type Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SLB load cells are available in the capacities 200 lb to 5000 lb (91 kg to 2268 kg) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60; NTEP $n_{max} = 7500$.

They offer stainless steel construction and improved potting, making them suitable for use in tough industrial environments.

The unique “blind” loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

A version with metric or unified threaded loading hole is available as well.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The SLB is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacities: 200 lb to 5000 lb.
- High accuracy.
- Stainless steel construction.
- Protection IP 67.
- Low profile.
- High input resistance: 1100 Ω .
- W&M certified for 3000 intervals (PTB: D09-97.01 Rev. 1).
- Unique “blind” loading hole.
- Calibration in $mV/V/\Omega$.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

Mounting parts

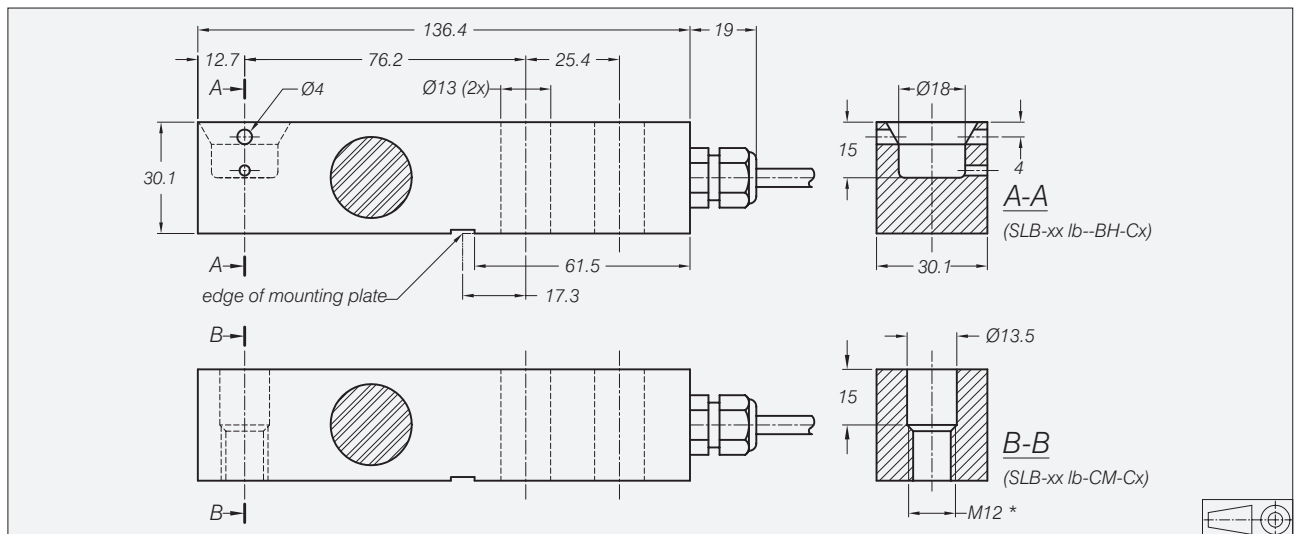
- Spacer plate.

SLB Specifications

Maximum capacity	(E _{max})	lb	200 / 500 / 1000 / 2500 / 5000
Metric equivalents (1 lb=0.45359 kg)		kg	91 / 227 / 454 / 1134 / 2268
Rated Output	(Cn)	mV/V	2 ± 0.1%
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)
Accuracy class according to OIML R 60		(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.
Minimum load cell verification interval	(v _{min})		n.a.
Combined error	%Cn		≤ ± 0.040
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040
Temperature effect on sensitivity	%/°C		≤ ± 0.0020
Excitation voltage	V		5...15
Zero balance	%Cn		≤ ± 5
Input resistance	Ω		1100 ± 50
Output resistance	Ω		1000 ± 2
Insulation resistance (100 V DC)	MΩ		≥ 5000
Compensated temperature range	°C		-10...+40
Operating temperature range	°C		-20...+65
Safe load limit	(E _{lim})	%E _{max}	200
Ultimate load		%E _{max}	300
Safe side load		%E _{max}	100
Load cell material			stainless steel 17-4 PH (1.4548)
Sealing			potted
Protection according DIN 40.050			IP 67

Beam Type Load Cells

Dimensions



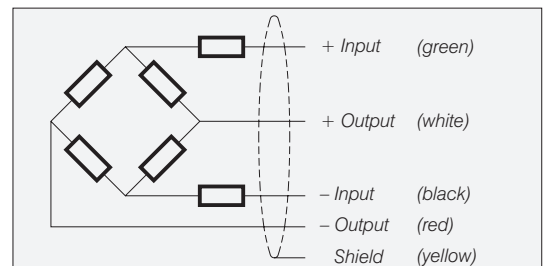
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Mounting bolts for 200 lb to 2500 lb: M12 8.8 / torque 90 Nm; for 5000 lb: M12 10.9 / torque 120 Nm. Torque values assume oiled threads.

* Unified thread 1/2-20 UNF is available (type designation SLB-xx lb-Cx-CU).

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



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Type SB14 Load Cell



Beam Type Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB14 load cells are available in the capacities 500 lb to 10000 lb (227 kg to 4536 kg) and include Accuracy Classifications GP, C3 and C3 MI 6 according to OIML R 60; NTEP $n_{max}=5000$.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The unique “blind” loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

A version with metric or unified threaded loading hole is available as well.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The SB14 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 500 lb to 10000 lb.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Low profile.
- High input resistance: 1100 Ω .
- W&M certified for 3000 intervals (PTB: D09-97.15 Rev. 2).
- Unique “blind” loading hole.
- Calibration in $mV/V/\Omega$.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

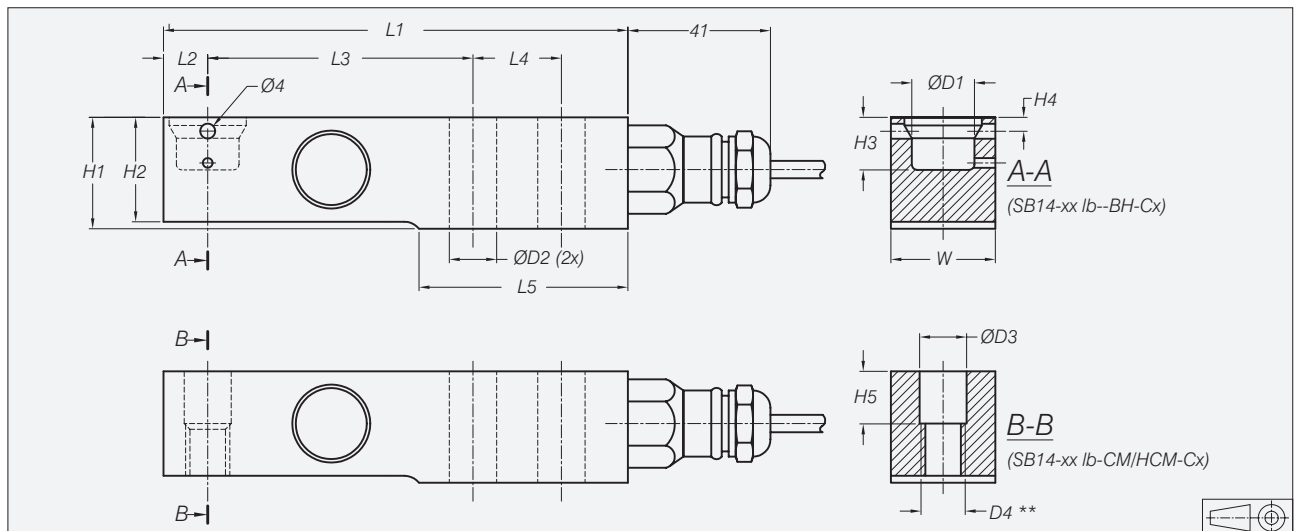
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 and C3 MI 6 with $Y=23000$.

SB14 Specifications

Maximum capacity (E_{max})	lb	500 / 1000 / 2500 / 5000 / 10000	500 / 1000 / 2500
Metric equivalents (1 lb=0.45359 kg)	kg	227 / 454 / 1134 / 2268 / 4536	227 / 454 / 1134
Rated Output (C_n)	mV/V	2 ± 0.1%	
Calibration in mV/V/Ω (A...I classified)	%Cn	≤ ± 0.05 (≤ ± 0.005)	
Accuracy class according to OIML R 60		(GP)	C3 C3 MI 6
Maximum number of verification intervals (n_{max})		n.a.	3000 3000
Minimum load cell verification interval (v_{min})		n.a.	$E_{max} / 11\ 500$
Temperature effect on minimum dead load output	%Cn/°C	≤ ± 0.0040	≤ ± 0.0011 ≤ ± 0.0011
Option (500/1000/2500 lb)	Min.load cell verification interval (v_{min})	n.a.	$E_{max} / 23000$
	Temp. effect on min. dead load output	%Cn/°C	n.a. ≤ ± 0.0006 ≤ ± 0.0006
Combined error	%Cn	≤ ± 0.040	≤ ± 0.020 ≤ ± 0.020
Creep error (30 minutes) / DR	%Cn	≤ ± 0.060	≤ ± 0.016 ≤ ± 0.008
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0011 ≤ ± 0.0011
Excitation voltage	V	5...15	
Zero balance	%Cn	≤ ± 5	
Input resistance	Ω	1100 ± 50	
Output resistance	Ω	1000 ± 2	
Insulation resistance (100 V DC)	MΩ	≥ 5000	
Compensated temperature range	°C	-10...+40	
Operating temperature range	°C	-40...+80	
Safe load limit (E_{lim})	% E_{max}	200	
Ultimate load	% E_{max}	300	
Safe side load	% E_{max}	100	
Load cell material		stainless steel 17-4 PH (1.4548)	
Sealing		complete hermetic sealing; cable entry sealed by glass to metal header	
Protection according DIN 40.050		IP 68	

Beam Type Load Cells

Dimensions



Type	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	W	D1	D2	D3	D4	Mounting bolts	Torque *
SB14-500 lb/1000 lb	133.4	12.7	76.2	25.4	59.9	31	28.8	15	4	15	30	18	13	13.5	M12	M12 8.8	90 Nm
SB14-2500 lb	133.4	12.7	76.2	25.4	59.9	31	30.5	15	4	15	30	18	13	13.5	M12	M12 8.8	90 Nm
SB14-5000 lb	133.4	12.7	76.2	25.4	59.9	31	30.5	15	4	15	30	18	13	13.5	M12	M12 10.9	120 Nm
SB14-10000 lb	177.8	19.1	95.3	38.1	92.7	43.6	38.1	20.5	8	20.1	43	25	21	30.2	M20	M20 8.8	400 Nm

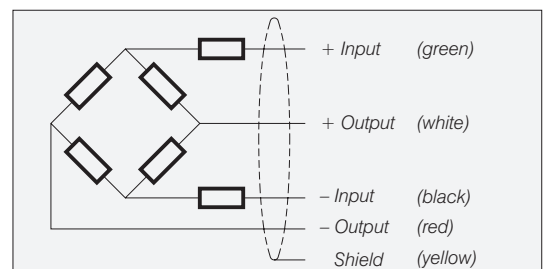
All dimensions in mm. Dimensions and specifications are subject to change without notice.

* Torque values assume oiled threads.

** Unified thread 1/2-20 UNF (500...5000 lb) and 3/4-16 UNF (10000 lb) is available. Type designation SB14-xx-CU.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m for SB14-500 lb to 5000 lb, 4.5 m for SB14-10000 lb.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type SB4 Load Cell



Beam Type Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB4 load cells are available in the capacities 5 kN to 100 kN (510 kg to 10197 kg) and include Accuracy Classifications GP, C1, C3, C3 MI 7.5, C4 and C4 MI 7.5 according to OIML R 60; NTEP $n_{max}=5000$.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The unique “blind” loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The SB4 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 5 kN to 100 kN.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Low profile.
- High input resistance: 1100 Ω .
- W&M certified for 4000 intervals (PTB: D09-97.02 Rev. 1).
- Multi range and multi interval accuracy.
- Unique “blind” loading hole.
- Calibration in $mV/V/\Omega$.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

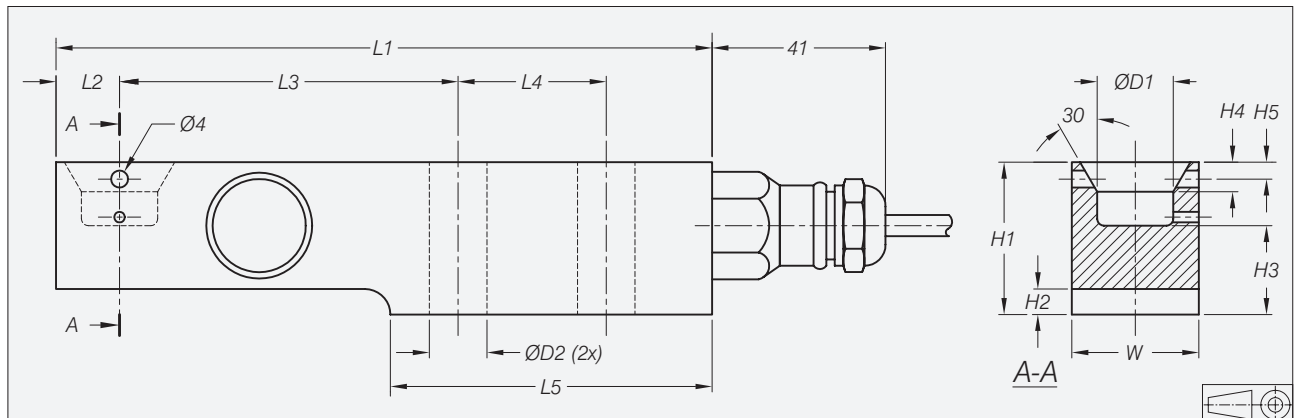
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

SB4 Specifications

Maximum capacity (E _{max})	kN	5 / 10 / 20 / 50 / 100					5 / 10 / 20 / 50	
Metric equivalents (1 N=0.10197 kg)	kg	510 / 1020 / 2039 / 5099 / 10197					510 / 1020 / 2039 / 5099	
Rated Output (C _n)	mV/V	2 ± 0.1%						
Calibration in mV/V/Ω (A...I classified)	%C _n	≤ ± 0.05 (≤ ± 0.005)						
Accuracy class according to OIML R 60		(GP)	C1	C3	C3 MI 7.5	C4	C4 MI 7.5	
Maximum number of verification intervals (n _{max})		n.a.	1000	3000	3000	4000	4000	
Minimum load cell verification interval (v _{min})		n.a.	E _{max} /5100	E _{max} /11000	E _{max} /11000	E _{max} /11000	E _{max} /11000	
Combined error	%C _n	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020	≤ ± 0.020	≤ ± 0.018	≤ ± 0.018	
Creep error (30 minutes) / DR	%C _n	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016	≤ ± 0.0066	≤ ± 0.012	≤ ± 0.0066	
Temperature effect on minimum dead load output	%C _n /°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0012	≤ ± 0.0007	≤ ± 0.0012	≤ ± 0.0012	
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011	≤ ± 0.0011	≤ ± 0.0008	≤ ± 0.0008	
Excitation voltage	V	5...15						
Zero balance	%C _n	≤ ± 5						
Input resistance	Ω	1100 ± 50						
Output resistance	Ω	1000 ± 2						
Insulation resistance (100 DC)	MΩ	≥ 5000						
Compensated temperature range	°C	-10...+40						
Operating temperature range	°C	-40...+80						
Safe load limit (E _{lim})	%E _{max}	200						
Ultimate load	%E _{max}	300						
Safe side load	%E _{max}	100						
Load cell material		stainless steel 17-4 PH (1.4548)						
Sealing		complete hermetic sealing; cable entry sealed by glass to metal header						
Protection according DIN 40.050		IP 68						

Beam Type Load Cells

Dimensions



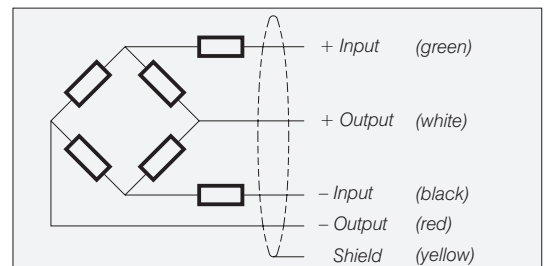
Type	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	W	D1	D2	Mounting bolts	Torque *
SB4-5 kN/10 kN/20 kN	155	15	80	35	76	36	6	21	7	4	30	18	13	M12 8.8	90 Nm
SB4-50 kN	190	21	105	40	93	49	8	28.5	6	8	43	25	21	M20 8.8	400 Nm
SB4-100 kN	245	30	135	50	120	73	12.5	42	10	n.a.	60	30	27	M24 8.8	700 Nm

All dimensions in mm. Dimensions and specifications are subject to change without notice.

* Torque values assume oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m for SB4-5 kN/10 kN/20 kN, 4.5 m for SB4-50 kN/100 kN.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



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Type SB5 Load Cell



Beam Type Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB5 load cells are available in the capacities 5 kN to 100 kN (510 kg to 10197 kg) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60; NTEP $n_{max}=5000$.

They offer stainless steel construction and improved potting, making them suitable for use in tough industrial environments.

The unique “blind” loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The SB5 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacities: 5 kN to 100 kN
- High accuracy.
- Stainless steel construction.
- Protection IP 67.
- Low profile.
- High input resistance: 1100 Ω .
- W&M certified for 3000 intervals (PTB: D09-97.03).
- Unique “blind” loading hole.
- Calibration in $mV/V/\Omega$.
- Easy cable replacement.
- Complete range of loading hardware available.
- Fully compatible with load cell type SB4.
- Factory Mutual approved.

Option

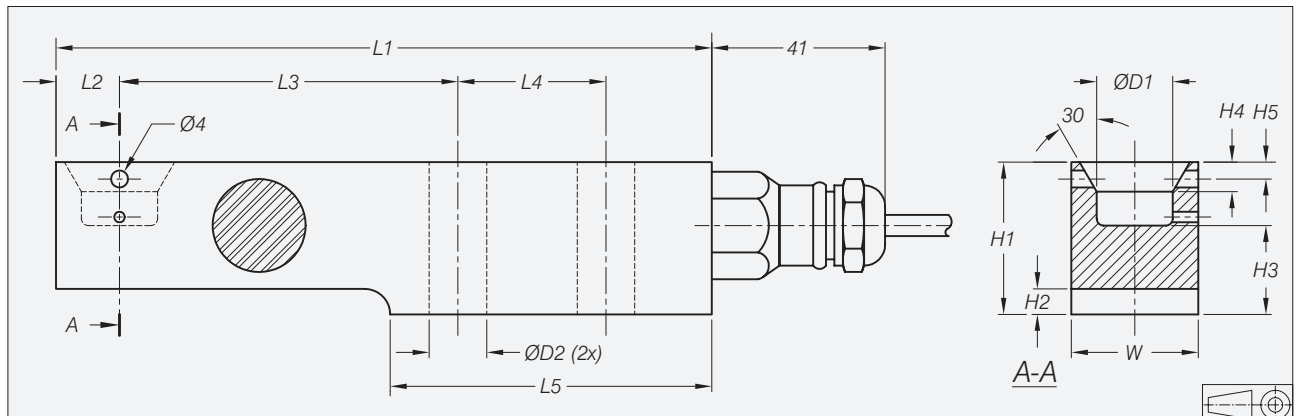
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

SB5 Specifications

Maximum capacity (E _{max})	kN	5 / 10 / 20 / 50 / 100	5 / 10 / 20 / 50
Metric equivalents (1 N=0.10197 kg)	kg	510 / 1020 / 2039 / 5099 / 10197	510 / 1020 / 2039 / 5099
Rated Output (C _n)	mV/V	2 ± 0.1%	
Calibration in mV/V/Ω (A...I classified)	%C _n	≤ ± 0.05 (≤ ± 0.005)	
Accuracy class according to OIML R 60		(GP)	C1 C3
Maximum number of verification intervals (n _{max})		n.a.	1000 3000
Minimum load cell verification interval (v _{min})		n.a.	E _{max} /5100 E _{max} /10200
Combined error	%C _n	≤ ± 0.040	≤ ± 0.030 ≤ ± 0.020
Creep error (30 minutes) / DR	%C _n	≤ ± 0.060	≤ ± 0.049 ≤ ± 0.016
Temperature effect on minimum dead load output	%C _n /°C	≤ ± 0.0040	≤ ± 0.0028 ≤ ± 0.0012
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0016 ≤ ± 0.0011
Excitation voltage	V	5...15	
Zero balance	%C _n	≤ ± 5	
Input resistance	Ω	1100 ± 50	
Output resistance	Ω	1000 ± 2	
Insulation resistance (100 V DC)	MΩ	≥ 5000	
Compensated temperature range	°C	-10...+40	
Operating temperature range	°C	-20...+65	
Safe load limit (E _{lim})	%E _{max}	200	
Ultimate load	%E _{max}	300	
Safe side load	%E _{max}	100	
Load cell material		stainless steel 17-4 PH (1.4548)	
Sealing		potted	
Protection according DIN 40.050		IP 67	

Beam Type Load Cells

Dimensions



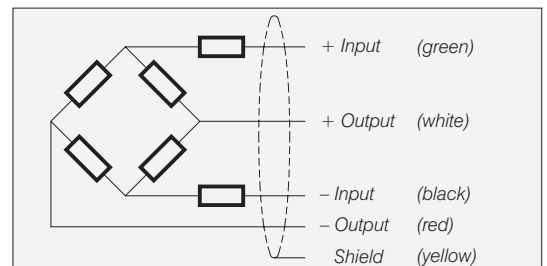
Type	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	W	D1	D2	Mounting bolts	Torque *
SB5-5 kN/10 kN/20 kN	155	15	80	35	76	36	6	21	7	4	30	18	13	M12 8.8	90 Nm
SB5-50 kN	190	21	105	40	93	49	8	28.5	6	8	43	25	21	M20 8.8	400 Nm
SB5-100 kN	245	30	135	50	120	73	12.5	42	10	n.a.	60	30	27	M24 8.8	700 Nm

All dimensions in mm. Dimensions and specifications are subject to change without notice.

* Torque values assume oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m for SB5-5 kN/10 kN/20 kN, 4.5 m for SB5-50 kN/100 kN.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type SB6 Load Cell



Beam Type
Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB6 load cells are available in the capacities 0.2 kN to 2 kN (20.4 kg to 204 kg) and include Accuracy Classifications GP, C1, C3 and C4 according to OIML R 60.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The special loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

The Flintec calibration technique (in mV/V/Ω) eliminates time consuming corner calibration in multiple load cell systems.

The SB6 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 0.2 kN to 2 kN.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- Low profile.
- High input resistance: 1100 Ω.
- W&M certified for 4000 intervals (PTB: D09-97.04 Rev. 1).
- Calibration in mV/V/Ω.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 and C4 with Y=20400.

Mounting parts

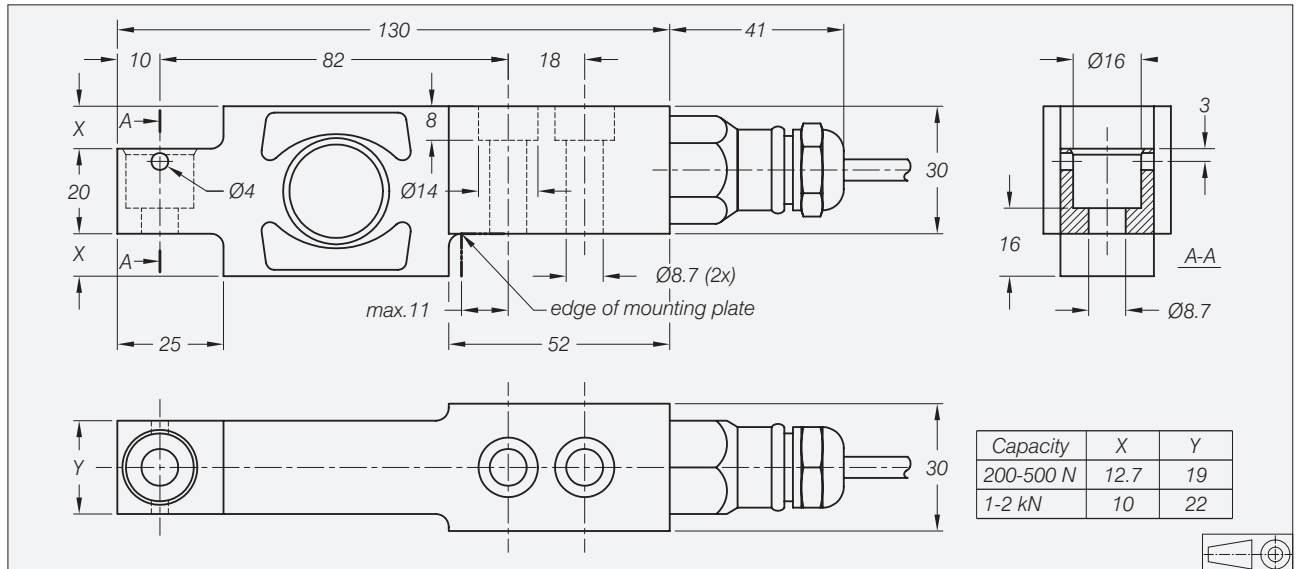
- Insert for loading hole.
- Spacer plate.

SB6 Specifications

Maximum capacity (E _{max})	kN	0.2 / 0.5 / 1 / 2			0.2 / 0.5 / 1
Metric equivalents (1 N=0.10197 kg)	kg	20.4 / 51 / 102 / 204			20.4 / 51 / 102
Rated Output (C _n)	mV/V	2 ± 0.1%			
Calibration in mV/V/Ω (A...I classified)	%C _n	≤ ± 0.05 (≤ ± 0.005)			
Accuracy class according to OIML R 60		(GP)	C1	C3	C4
Maximum number of verification intervals (n _{max})		n.a.	1000	3000	4000
Minimum load cell verification interval (v _{min})		n.a.	E _{max} /5100	E _{max} /10200	E _{max} /10200
Temperature effect on minimum dead load output	%C _n /°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0012	≤ ± 0.0012
Option	Min. load cell verification interval (v _{min})	n.a.	n.a.	E _{max} /20400	E _{max} /20400
	Temp. effect on min. dead load output	%C _n /°C	n.a.	≤ ± 0.006	≤ ± 0.006
Combined error	%C _n	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020	≤ ± 0.018
Creep error (30 minutes) / DR	%C _n	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016	≤ ± 0.012
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011	≤ ± 0.0008
Excitation voltage	V	5...15			
Zero balance	%C _n	≤ ± 5			
Input resistance	Ω	1100 ± 50			
Output resistance	Ω	1000 ± 2			
Insulation resistance (100 V DC)	MΩ	≥ 5000			
Compensated temperature range	°C	-10...+40			
Operating temperature range	°C	-40...+80			
Safe load limit (E _{lim})	%E _{max}	200			
Ultimate load	%E _{max}	300			
Safe side load	%E _{max}	100			
Load cell material		stainless steel 17-4 PH (1.4548)			
Sealing		complete hermetic sealing; cable entry sealed by glass to metal header			
Protection according DIN 40.050		IP 68			

Beam Type Load Cells

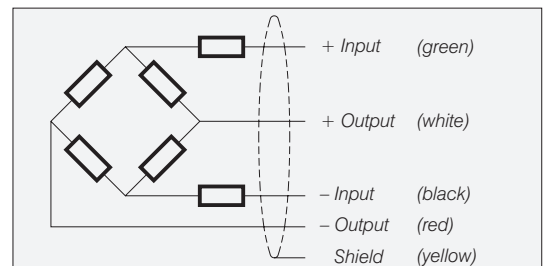
Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Mounting bolts M8 8.8; torque: 25 Nm. Torque value assumes oiled threads.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type SB8 Load Cell



Beam Type
Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB8 load cells are available in the capacities 10 kg to 500 kg and include Accuracy Classifications GP, C1 and C3 according to OIML R 60.

The Flintec calibration technique (in mV/V/Ω) eliminates time consuming corner calibration in multiple load cell systems.

The SB8 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 10 kg to 500 kg.
- High accuracy.
- Total stainless steel construction.
- Protection IP 67.
- Low profile.
- W&M certified for 3000 intervals (in preparation).
- Calibration in mV/V/Ω.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

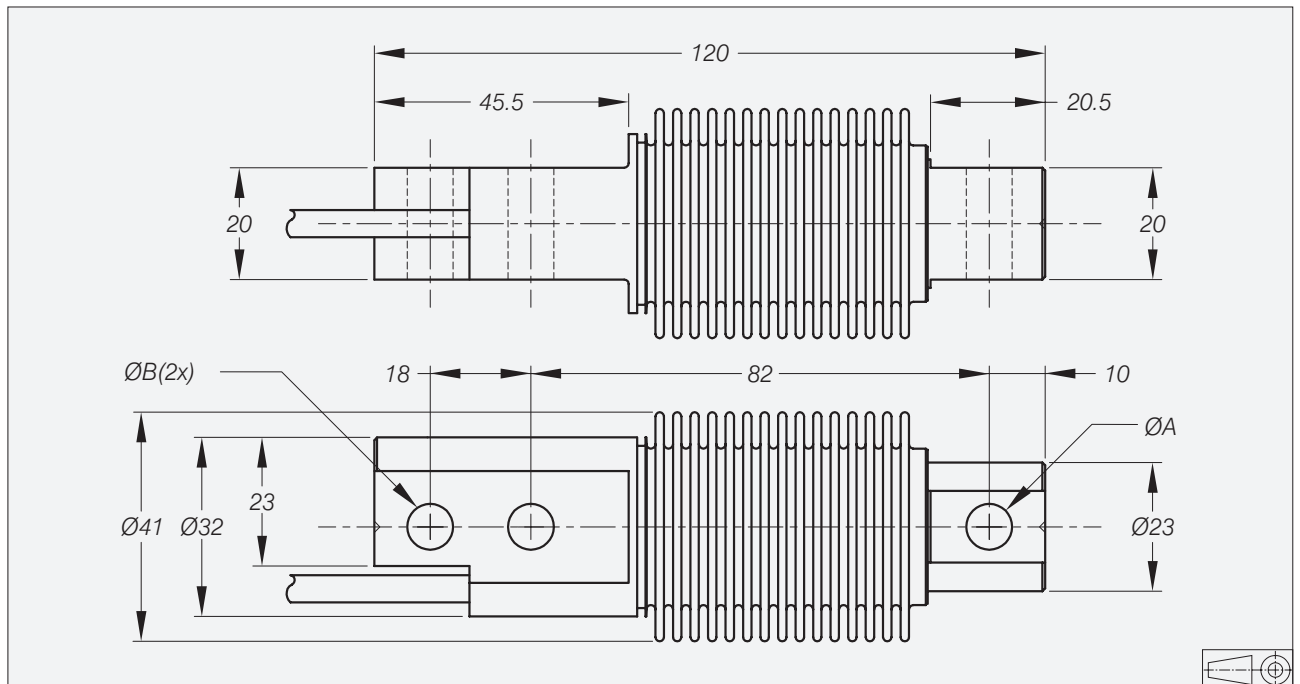
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

SB8 Specifications

Maximum capacity	(E _{max})	kg	10 / 20 / 50 / 100 / 200 / 500		
Rated Output	(Cn)	mV/V	2 ± 0.1%		
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)		
Accuracy class according to OIML R 60			(GP)	C1	C3
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /5000	E _{max} /10000
Combined error	%Cn		≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0014
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		380 ± 10		
Output resistance	Ω		350 ± 3		
Insulation resistance (100 V DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-40...+80		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Safe side load		%E _{max}	100		
Load cell material			stainless steel 17-4 PH (1.4548)		
Protection according DIN 40.050			IP 67		

Beam Type Load Cells

Dimensions

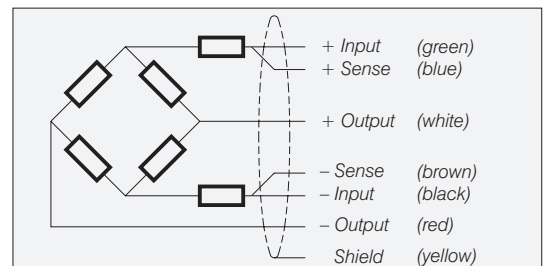


Type	A	B	Mounting bolts	Torque*
10...200 kg	8.2	8.2	M8 8.8	25 Nm
500 kg	10.5	10.5	M10 8.8	50 Nm

* Torque value assumes oiled thread.
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a shielded, 6 conductor cable (AWG 26).
- Cable length: 3 m.
- Cable diameter: 5.8 mm.
- The shield is connected to the load cell body.



Type 52-00 Base Plate

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-00 is a base plate assembly, used to support the SB4, SB5, SB6, SB14 and SLB load cells. The assembly includes base plate and load cell mounting bolts.

For SLB and SB14 load cells the base plate is supplied with a lateral load cell locking system for reacting side loads. Optionally available for SB4 and SB5 load cells.

It can also be provided with an overload stop, to protect the load cell.

Material: steel, zinc plated; alternatively stainless steel.

Important Features

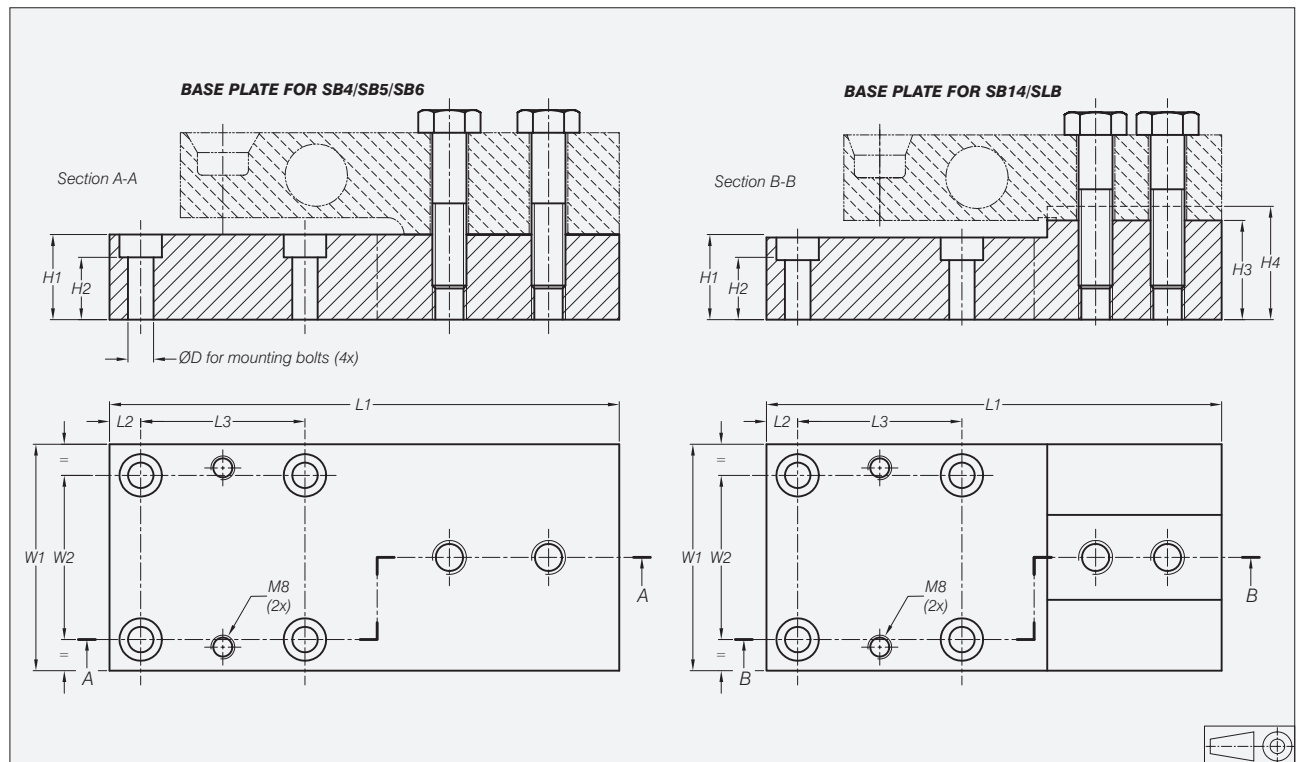
- Capacity range: 20 kg to 10 000 kg.
- Very easy to install.

Options

- Lateral load cell locking system for SB4 and SB5.
- Overload protection system.

Beam Type Load Cells

Dimensions

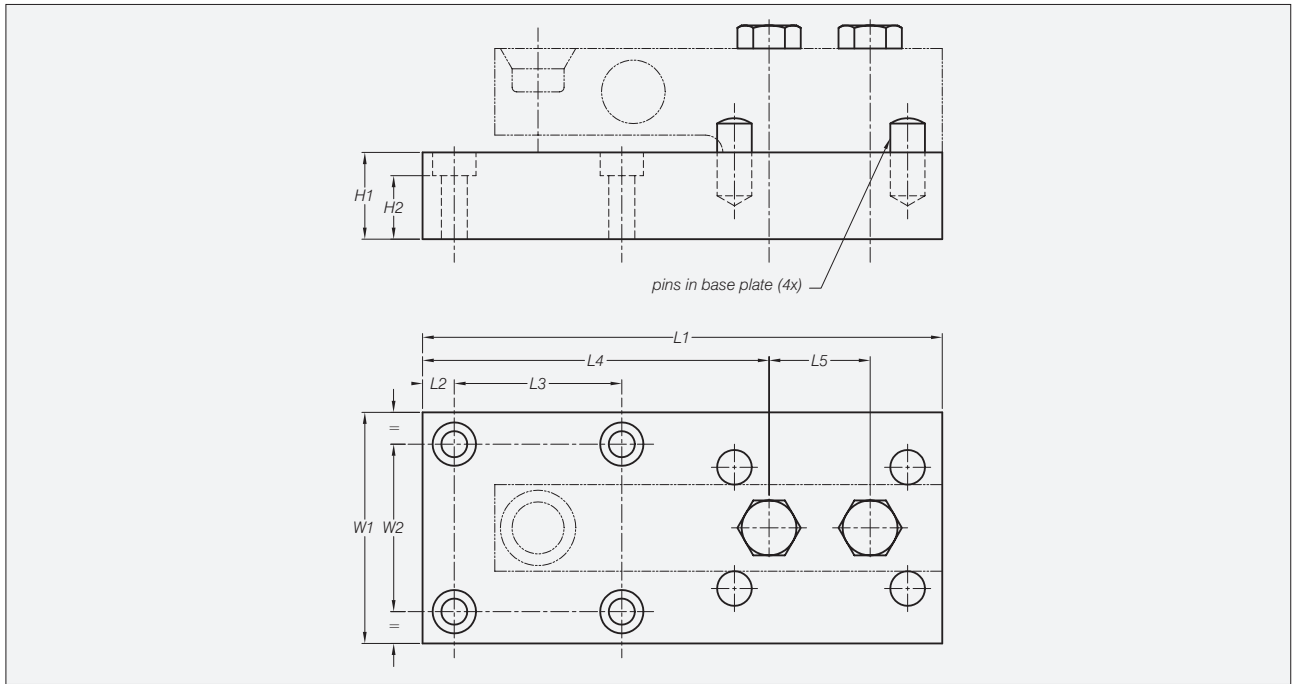


Load Cell Type	Capacity in kg	L1	L2	L3	H1	H2	H3	H4	W1	W2	ØD	Mounting bolts
SB6-200 N/500 N/1 kN/2 kN*	20.4/51/102/204	150	8	44	15	8	n.a.	n.a.	60	44	7	M6
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	180	11	58	30	21	n.a.	n.a.	80	58	9	M8
SB4/SB5-50 kN	5099	220	12	76	40	29	n.a.	n.a.	100	76	11	M10
SB4/SB5-100 kN	10197	275	15	90	60	47	n.a.	n.a.	120	90	14.5	M12
SB14-500 lb/1 klb/2.5 klb/5 klb	227/454/1134/2268	164	11	58	29	20	35	40	80	58	9	M8
SLB-200 lb/500 lb/1 klb/2.5 klb/5 klb	91/227/454/1134/2268											

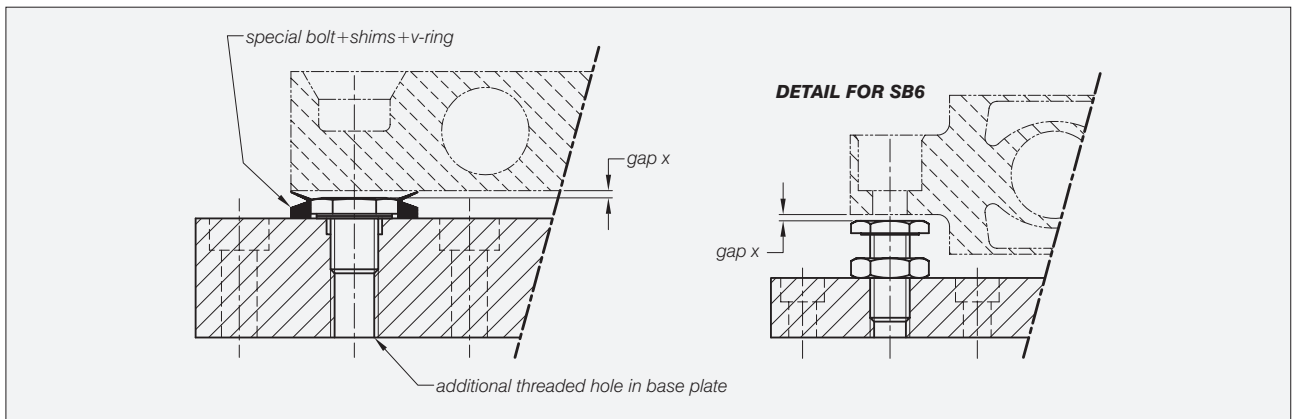
* To be mounted including spacer (height 15 mm).

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Options



Load cell locking system for SB4/SB5 (option)



Overload protection system (option)

Load cell deflection

Load cell SB6	Deflection *	Gap "x" setting**	Load cell SB4/SB5	Deflection *	Gap "x" setting**	Load cell SLB	Deflection *	Gap x setting**	Load cell SB14	Deflection *	Gap "x" setting**
200 N	0.21 mm	0.25 mm	5 kN	0.21 mm	0.25 mm	200 lb	0.27 mm	0.35 mm	500 lb	0.21 mm	0.30 mm
500 N	0.30 mm	0.40 mm	10 kN	0.29 mm	0.35 mm	500 lb	0.24 mm	0.30 mm	1 klb	0.24 mm	0.30 mm
1 kN	0.26 mm	0.35 mm	20 kN	0.49 mm	0.60 mm	1 klb	0.25 mm	0.30 mm	2.5 klb	0.32 mm	0.40 mm
2 kN	0.36 mm	0.45 mm	50 kN	0.52 mm	0.65 mm	2.5 klb	0.33 mm	0.40 mm	5 klb	0.47 mm	0.60 mm
			100 kN	0.74 mm	0.95 mm	5 klb	0.56 mm	0.70 mm	10 klb		

Remarks:

* Deflection is defined as the sum of load cell deflection and base plate bending.

** Settings for utilisation to Maximum Capacity of the load cell. If utilisation of load cell is lower, the setting value could be reduced in proportion to the load.

Beam Type
Load Cells

Type 52-02 Rubber Foot



Rubber foot 52-02 and SB4 load cell

Beam Type
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-02 is a self aligning rubber foot, combining excellent load introduction with low profile design.

A special low profile foot is available.

The height is adjustable by shims.

Especially designed for the SB4, SB5, SB14 and SLB load cells.

Material: steel, zinc plated; alternatively stainless steel.

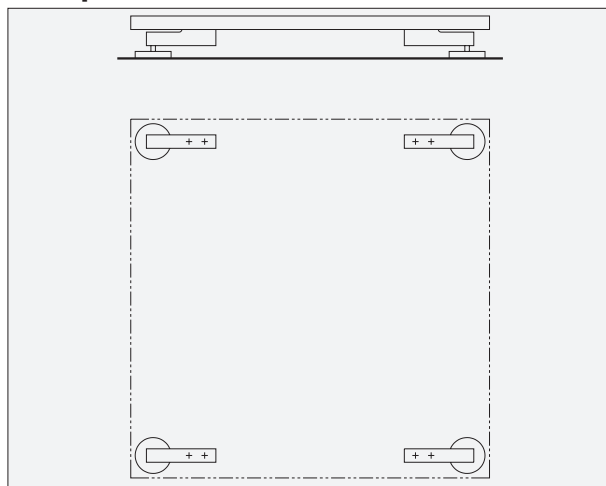
Important Features

- Blind hole load introduction.
- Capacity range: 100 kg to 10000 kg.
- Low profile.
- Height adjustable with shims.
- Very easy to install.
- Especially designed for platform scales.
- W&M certified.
- A special low profile foot is available.

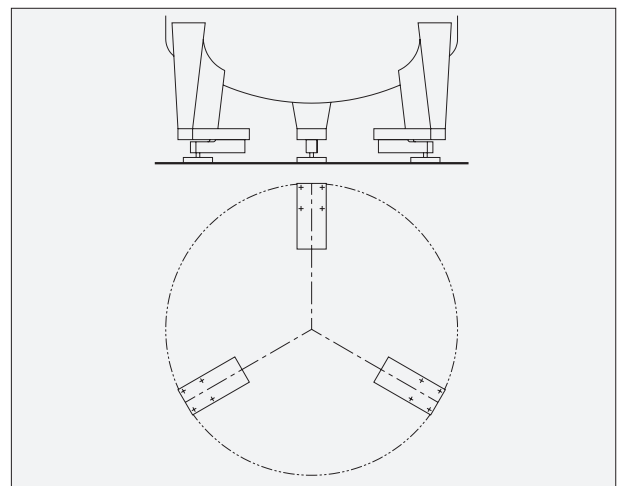
Accessory

- Fixation plate (see Miscellaneous).

Examples

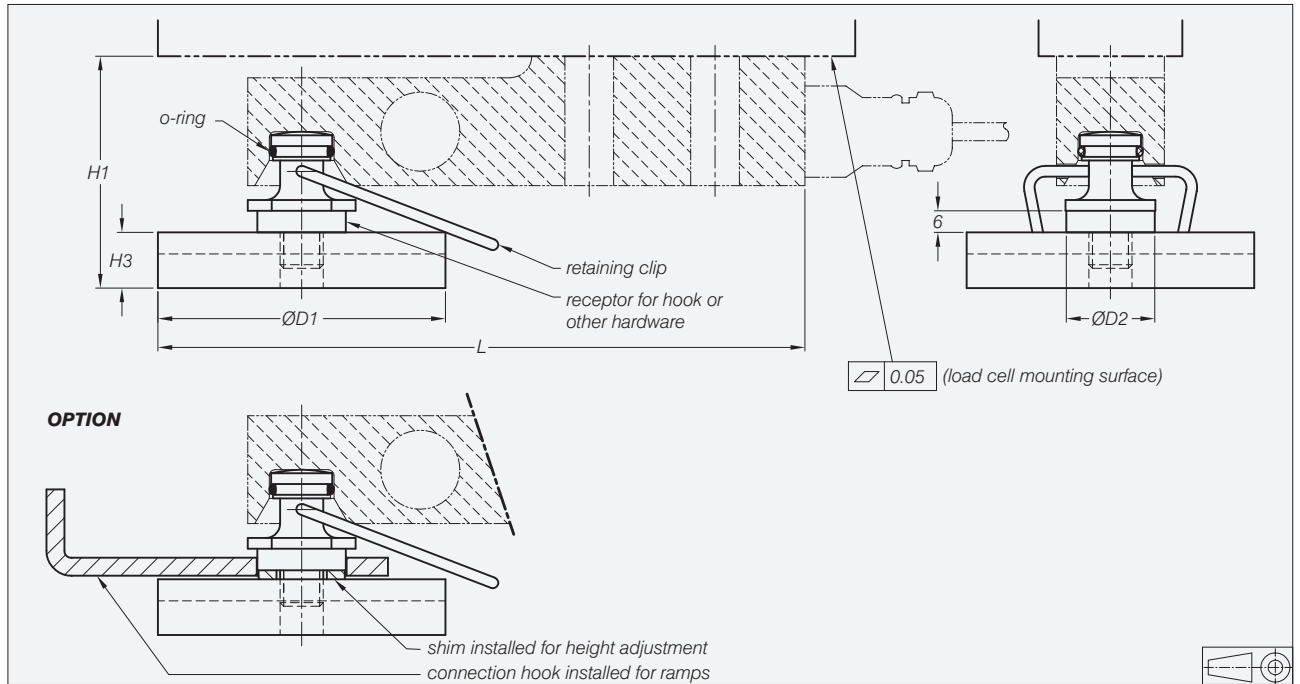


Platform scale with 4 load cells



Tank weighing system with 3 load cells
(recommended base plate 52-00 included)

Dimensions



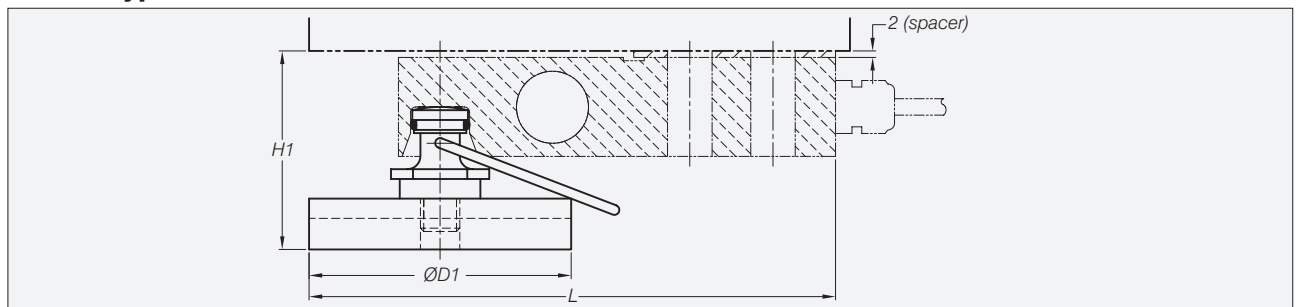
Load Cell Type	Capacity in kg	L	H1	H2	H3	D1	D2
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	180	65	58	16	80	24.5
SB4/SB5-50 kN	5099	219	90	n.a.	18	100	34.5
SB4/SB5-100 kN**	10179	278	109	n.a.	26	125	44
SB14-500 lb/1 klb	227/454	164	60	53	16	80	24.5
SB14-2.5 klb/5 klb	1134/2268	164	62*	55*	16	80	24.5
SLB-200 lb/500 lb	91/227	154	61*	54*	16	60	24.5
SLB-1 klb/2.5 klb/5 klb	454/1134/2268	164	61*	54*	16	80	24.5

* Including spacer.

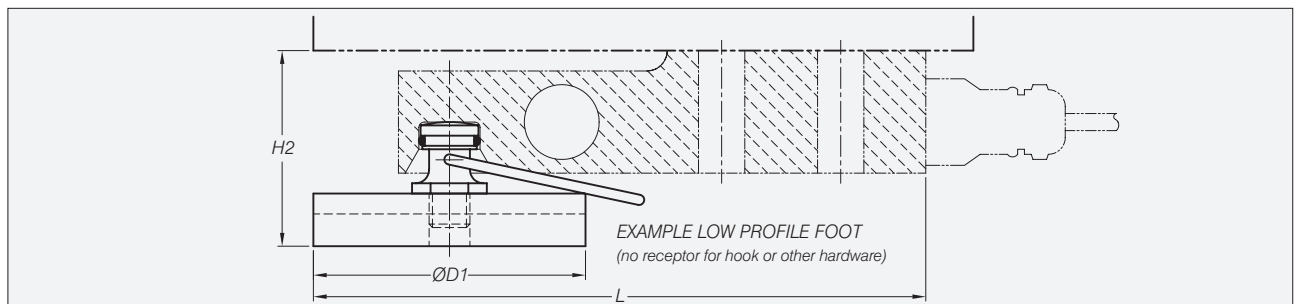
** A special retaining clip is available.

All dimensions in mm. Dimensions and specifications are subject to change without notice.
CAD files for customer's own application drawings are available on request.

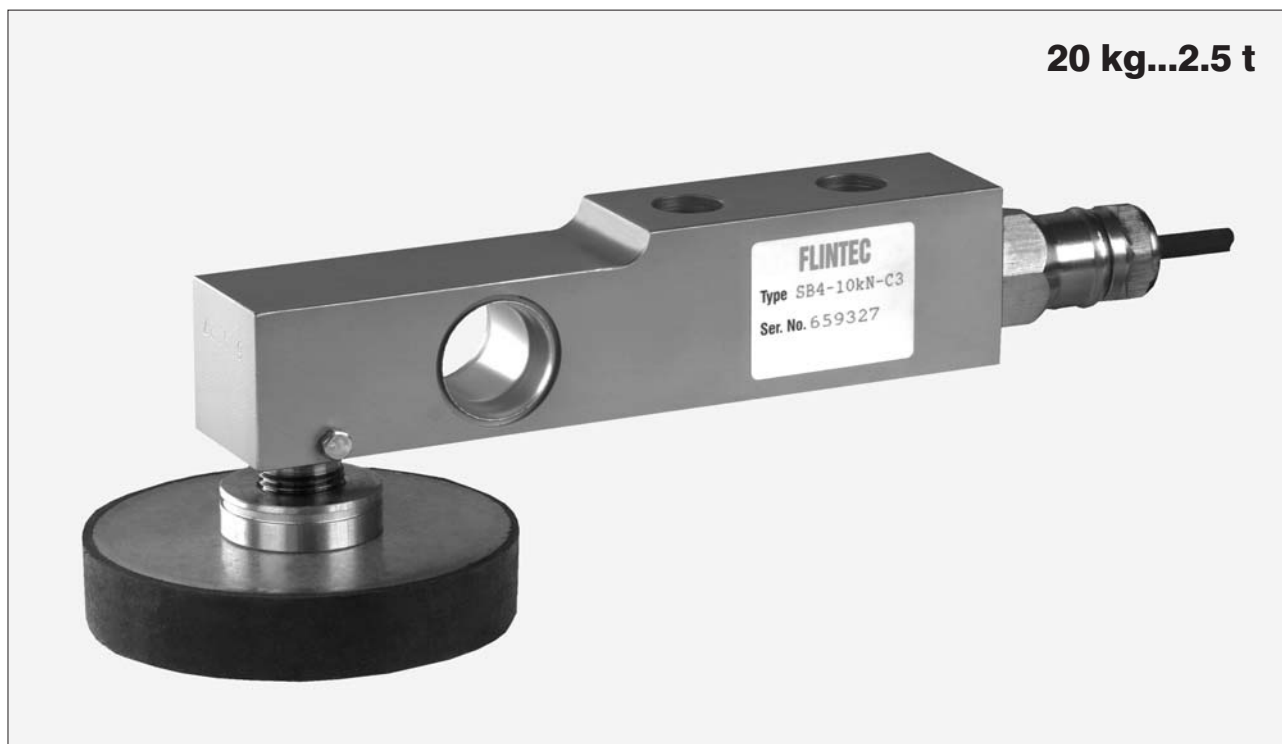
Details Type SLB Load Cell



Low Profile Foot



Type 52-10 Height Adjustable Rubber Foot



Height adjustable rubber foot 52-10 and SB4 load cell

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-10 is an height adjustable, self aligning rubber foot; combining excellent load introduction with low profile design. Height adjustable by rotation of the foot.

Especially designed for the SB4, SB5, SB6, SB14 and SLB load cells.

Material: steel, zinc plated; alternatively stainless steel.

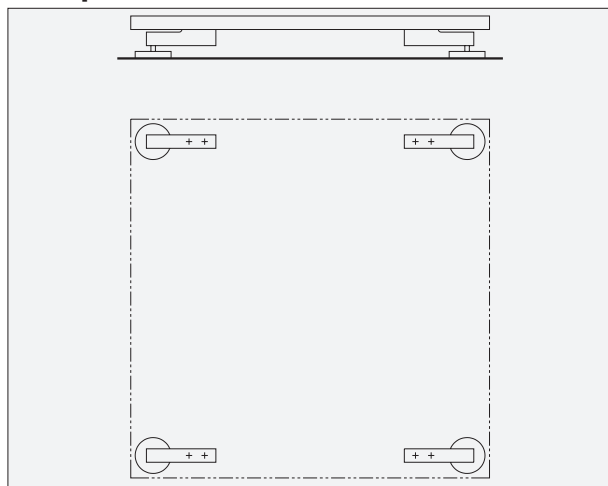
Important Features

- Blind hole load introduction.
- Capacity range: 20 kg to 2 500 kg.
- Low profile.
- Height adjustable by rotation.
- Very easy to install.
- Especially designed for platform scales.
- W&M certified.

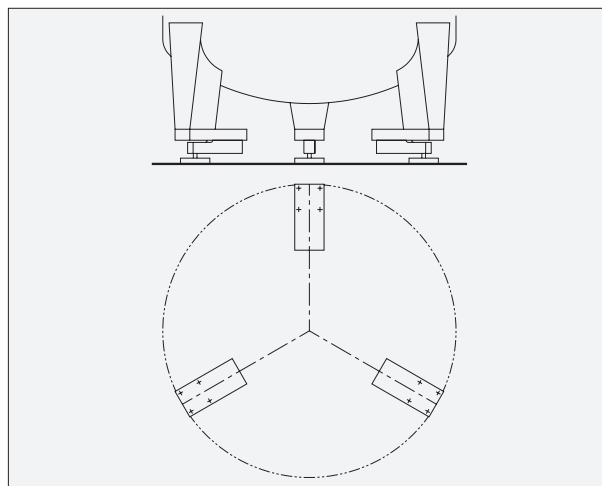
Accessory

- Fixation plate (see Miscellaneous).

Examples

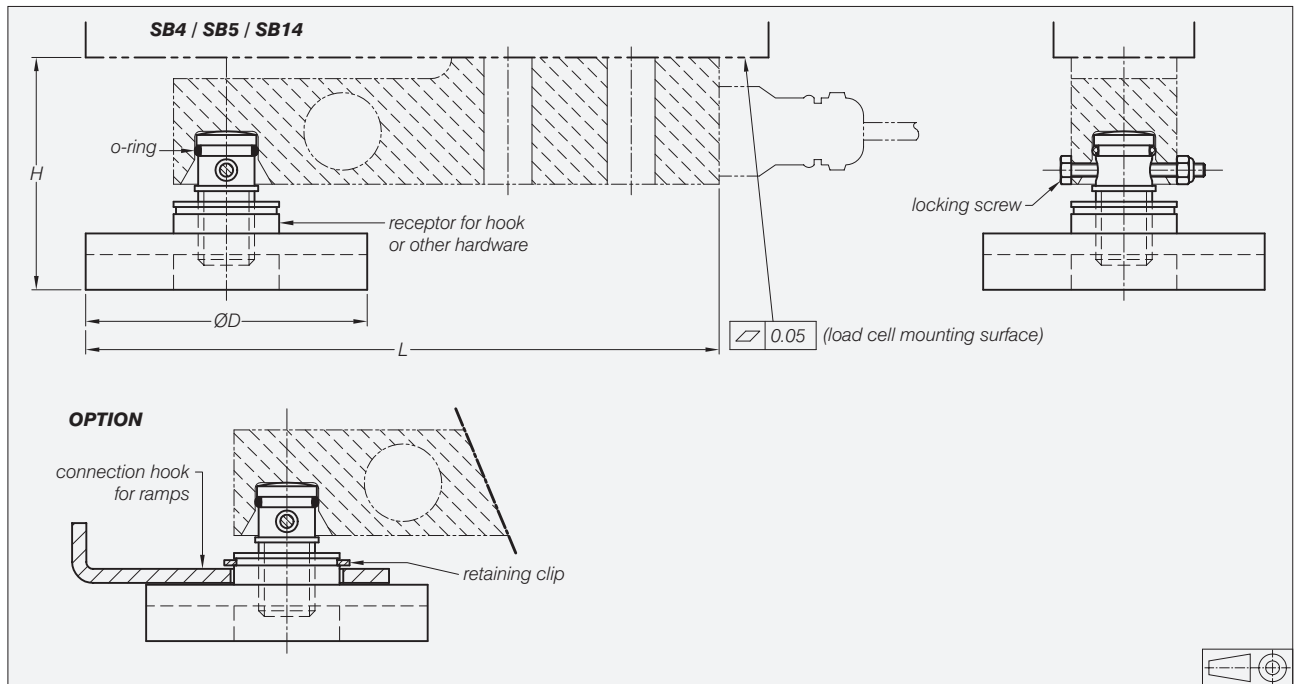


Platform scale with 4 load cells



Tank weighing system with 3 load cells
(recommended base plate 52-00 included)

Dimensions



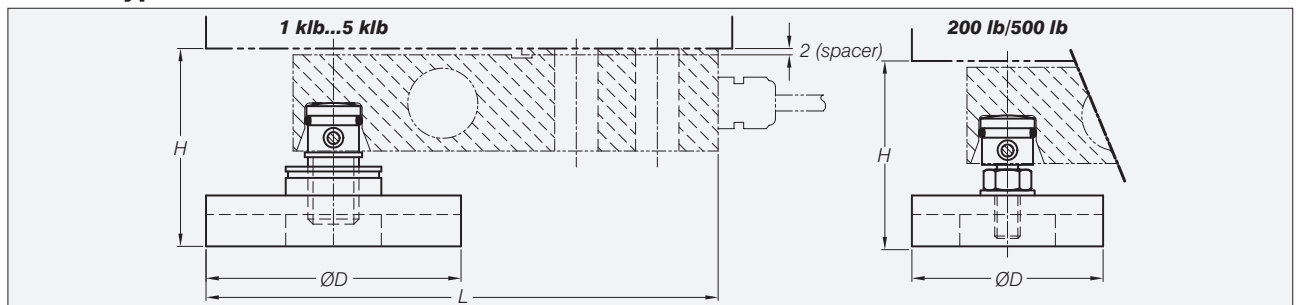
Load Cell Type	Capacity in kg	L	H	D
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	180	63...71	80
SB6-200 N/500 N1 kN/2 kN	20.4/51/102/204	150	65...71*	60
SB14-500 lb/1 klb	227/454	164	58...66	80
SB14-2.5 klb/5 klb	1134/2268	164	60...68*	80
SLB-200 lb/500 lb	91/227	154	57...63*	60
SLB-1 klb/2.5 klb/5 klb	454/1134/2268	164	59...67*	80

* Including spacer.

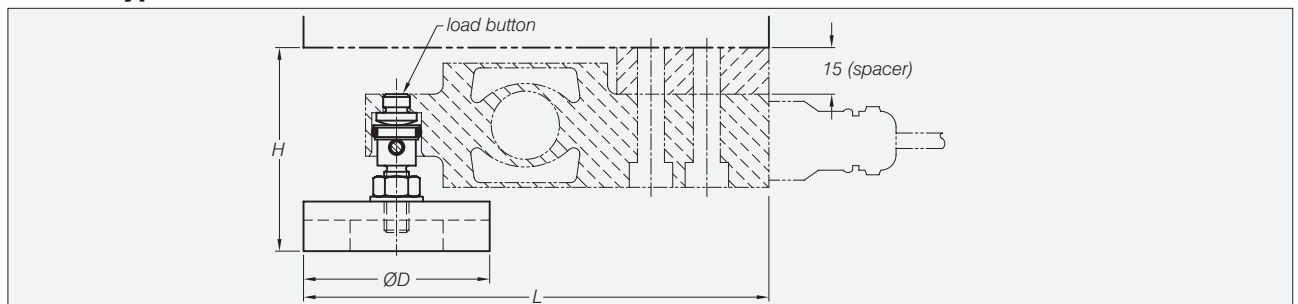
All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Beam Type Load Cells

Details Type SLB Load Cell



Details Type SB6 Load Cell

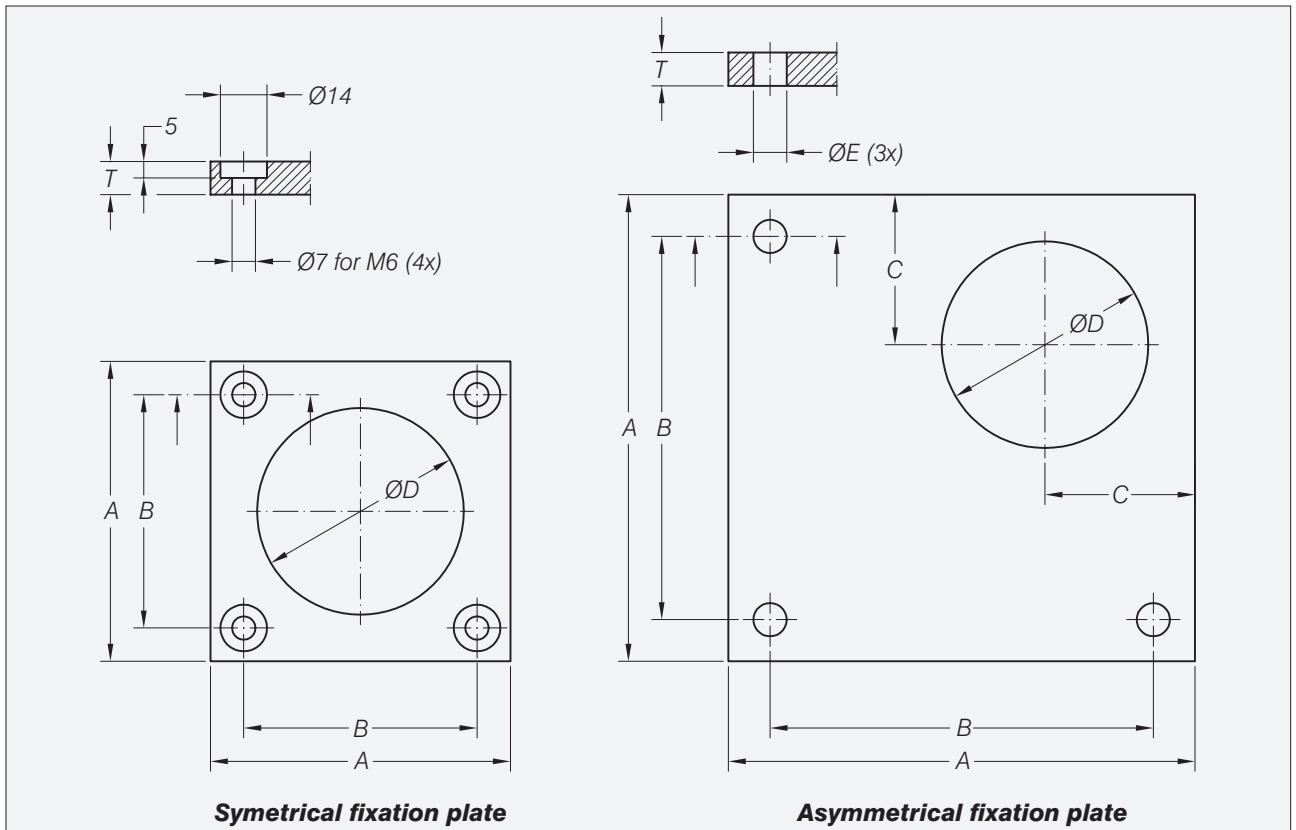


Fixation Plates for Feet 52-02/10/15

Material: black polypropylen

- Symmetrical for foot with diameter Ø60.
- Symmetrical for foot with diameter Ø80.
- Asymmetrical for foot with diameter Ø60.
- Asymmetrical for foot with diameter Ø80.
- Asymmetrical for foot with diameter Ø100.

Dimensions Fixation Plates



	A	B	C	D	E	T
Symmetrical for foot with diameter Ø60	90	70	n.a.	62	n.a.	10
Symmetrical for foot with diameter Ø80	110	90	n.a.	83	n.a.	10
Asymmetrical for foot with diameter Ø60	140	115	45	62	10 for M8	10
Asymmetrical for foot with diameter Ø80	160	135	55	83	10 for M8	10
Asymmetrical for foot with diameter Ø100	160	155	65	104	12 for M10	15

Beam Type
Load Cells

Type 52-05 Rubber Element with Flange



Rubber element with flange 52-05 and SB4 load cell combined with base plate 52-00

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-05 is a self aligning rubber element with flange, combining excellent load introduction with low profile design.

Especially designed for the SB4, SB5, SB6, SB14 and SLB load cells.

Material: steel, zinc plated; alternatively stainless steel.

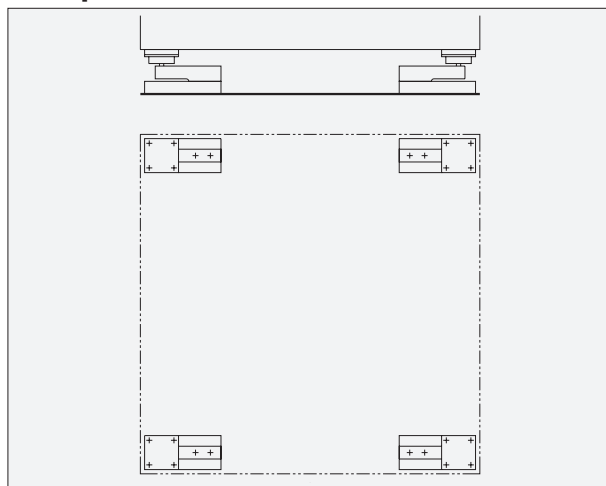
Important Features

- Blind hole load introduction.
- Capacity range: 20 kg to 5 000 kg.
- High lateral compliance.
- Very easy to install.
- Especially designed for hopper, mixer and platform scales.
- W&M certified.

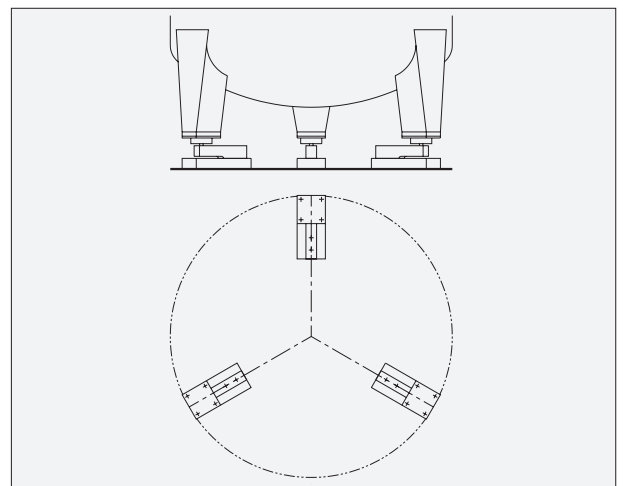
Accessory

- Welding plate.

Examples

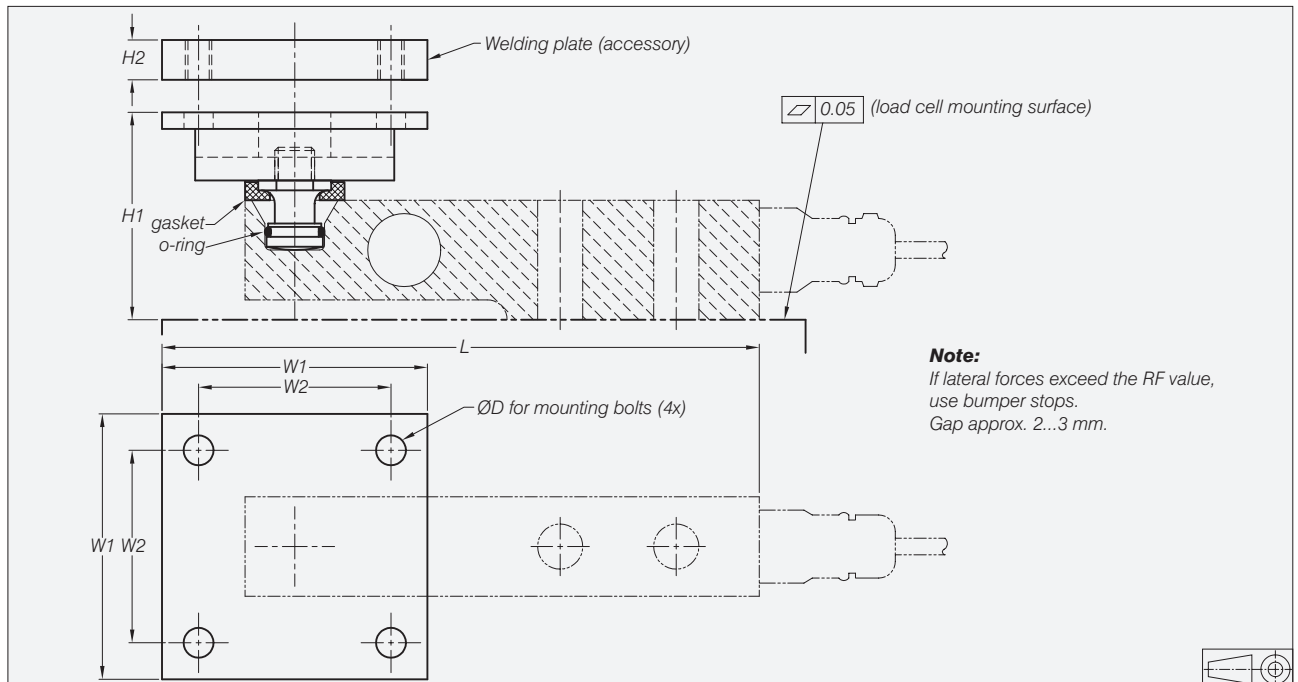


Platform or hopper scale with 4 load cells



Tank weighing system with 3 load cells

Dimensions



Load Cell Type	Capacity in kg	L	H1	H2	W1	W2	Mounting bolts D	S _{max} **	RF***
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	180	63	12	80	58	M8	5 mm	1600 N
SB4/SB5-50 kN	5099	219	78	12	100	76	M10	5 mm	5000 N
SB6-200 N/500 N/1 kN/2 kN	20.4/51/102/204	150	65*	6	60	44	M6	6 mm	700 N
SB14-500 lb	227	154	54	6	60	44	M6	6 mm	700 N
SB14-1 klb/2.5 klb/5 klb	454/1134/2268	164	60*	12	80	58	M8	5 mm	1600 N
SLB-200 lb/500 lb	91/227	154	55*	6	60	44	M6	6 mm	700 N
SLB-1 klb/2.5 klb/5 klb	454/1134/2268	164	59*	12	80	58	M8	5 mm	1600 N

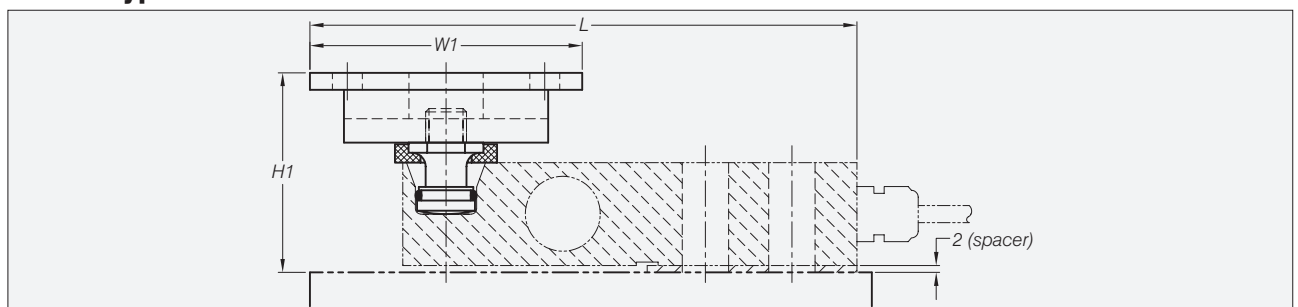
* Including spacer.

** S_{max} = maximum lateral displacement of load introduction.

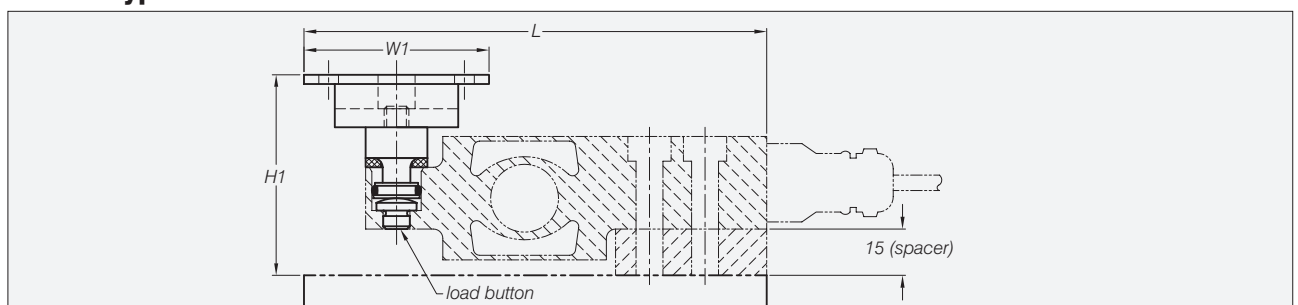
*** RF = restoring force at S_{max}.

All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Details Type SLB Load Cell



Details Type SB6 Load Cell



Type 52-08 Rocker Pin



Rocker pin 52-08 and SB4 load cell combined with base plate 52-00

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance. The Type 52-08 is a self aligning rocker pin assembly; combining excellent load introduction with low profile design. Especially designed for the SB4, SB5, SB14 and SLB load cells. An Installation Guide Pin is available for easy alignment. Material: stainless steel.

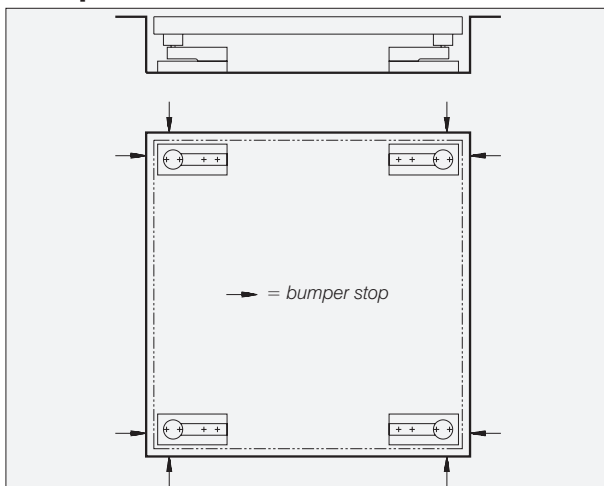
Important Features

- Blind hole load introduction.
- Capacity range: 100 kg to 10 000 kg.
- Excellent reproducibility of load application.
- Low profile.
- Very easy to install.
- W&M certified.

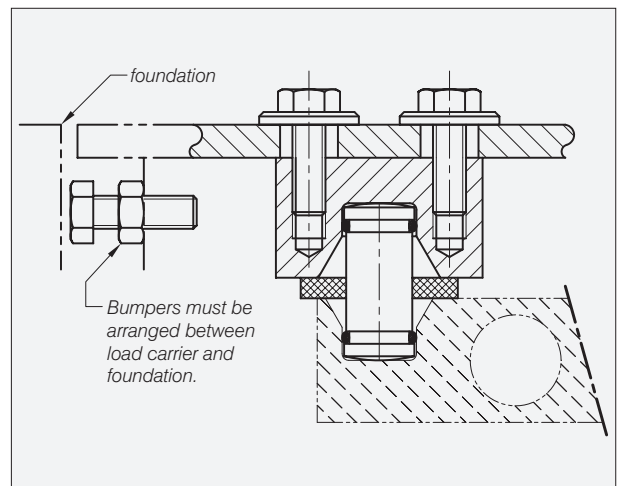
Accessory

- Installation guide pin.

Examples

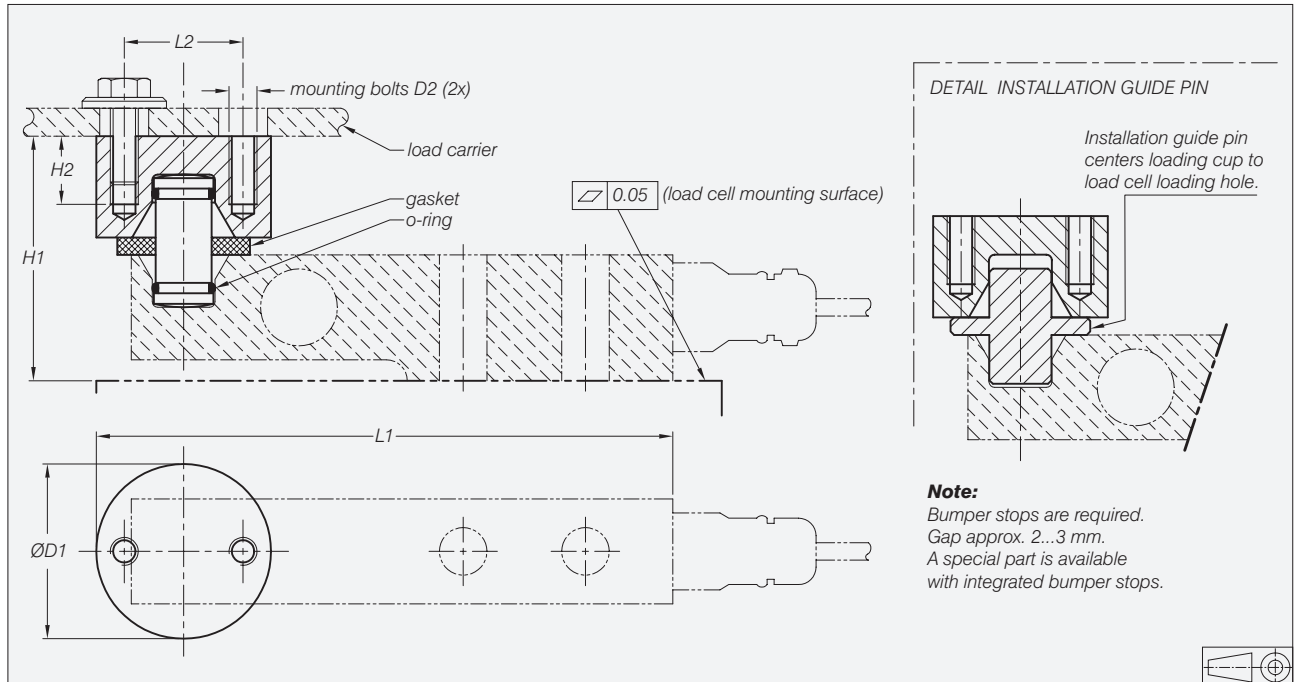


Platform or hopper scale with 4 load cells



Bumper stop detail

Dimensions



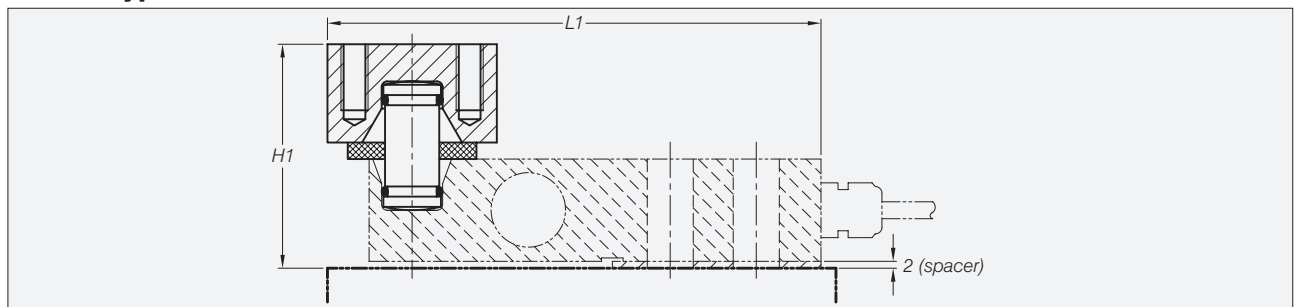
Load Cell Type	Capacity in kg	L1	L2	H1	H2	D1	Mounting bolts D2
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	165	34	70	16	50	M8
SB4/SB5-50 kN	5099	199	44	90	20	60	M10
SB4/SB5-100 kN	10197	250	50	115	20	68	M10
SB14-500 lb/1 klb	227/454	149	34	65	16	50	M8
SB14-2.5 klb/5 klb	1134/2268	149	34	67*	16	50	M8
SLB-200 lb/500 lb/1 klb/2.5 klb/5 klb	91/227/454/1134/2268	149	34	66*	16	50	M8

* Including spacer

Restoring force: approx. 3% of actual load / mm lateral displacement of load introduction.

All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Details Type SLB Load Cell

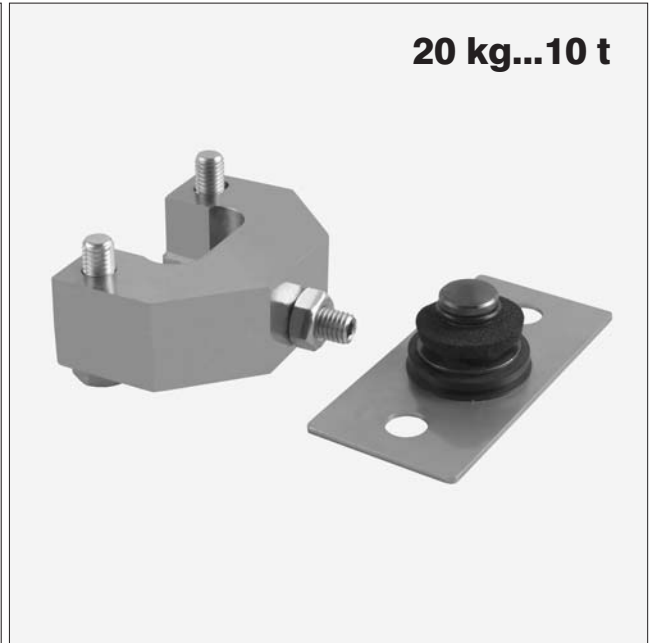


Beam Type Load Cells

Type 52-13 Sliding System



2-Directional Bumper 52-13



20 kg...10 t

3-Directional Bumper 52-13

Beam Type
Load Cells



2-Directional 52-13 with base plate,
lift off protection and upper welding plate



Base plate with welding fixture



3-Directional 52-13 with base plate,
lift off protection and upper welding plate

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-13 is a sliding system designed for hopper, tank and mixer weighing; combining excellent load introduction with low profile design and low cost for the basic system.

The system is available in 2 versions:

- 2-directional bumper for standard applications,
- 3-directional bumper for special applications.

Both variants can be used with free sliding units.

The available options and accessories like base plate, lift off protection, upper welding plate, and welding fixture make installation easy and contribute to a totally very versatile and rugged design.

Especially designed for SB4, SB5, SB6, SB14 and SLB load cells.

Material: steel, zinc plated; alternatively stainless steel.

Important features

- 2 Versions available: 2-directional and 3-directional bumper.
- Blind hole load introduction.
- Capacity range 20 kg to 10000 kg.
- Low profile.
- Very easy to install.
- No check links needed.
- Installation by bolting or welding.
- W&M certified for 3000 intervals.

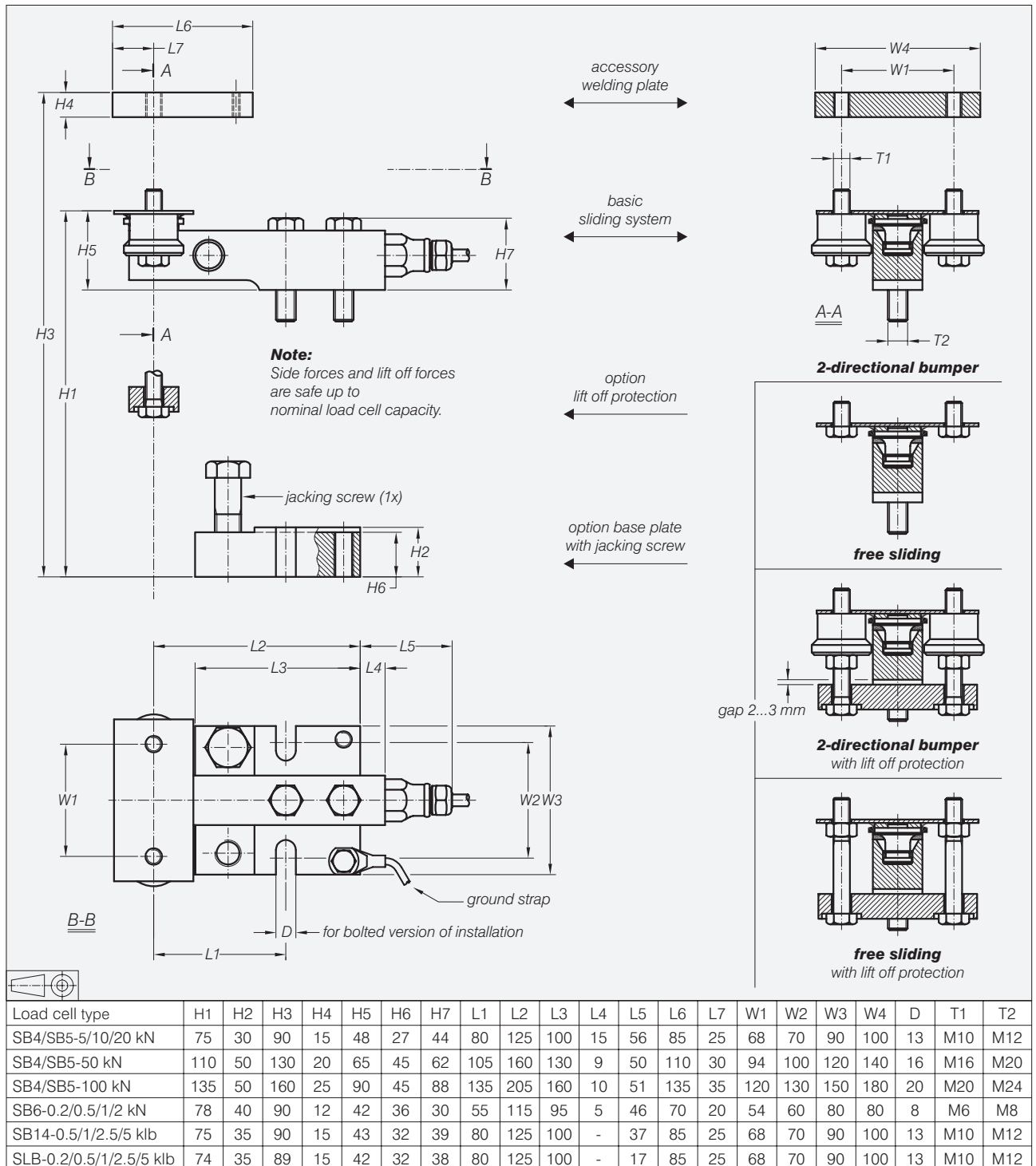
Options

- Base plate, with jacking bolt.
- Lift off protection.

Accessories

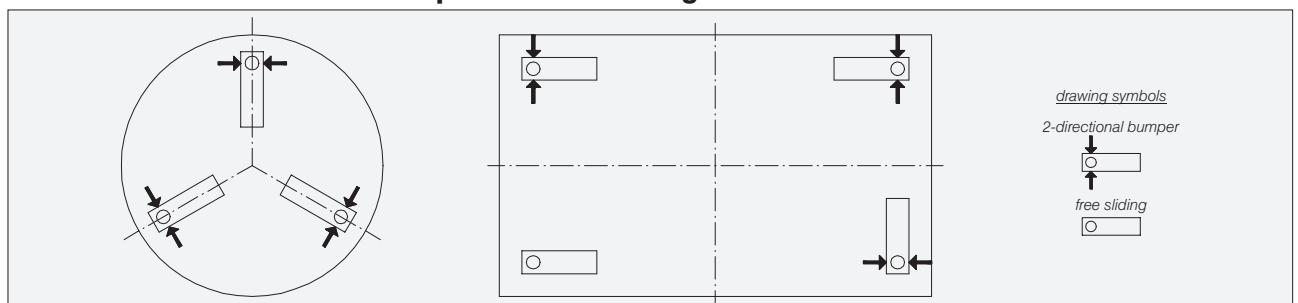
- Upper welding plate.
- Welding fixture.

Dimensions 2-directional bumper and free sliding units

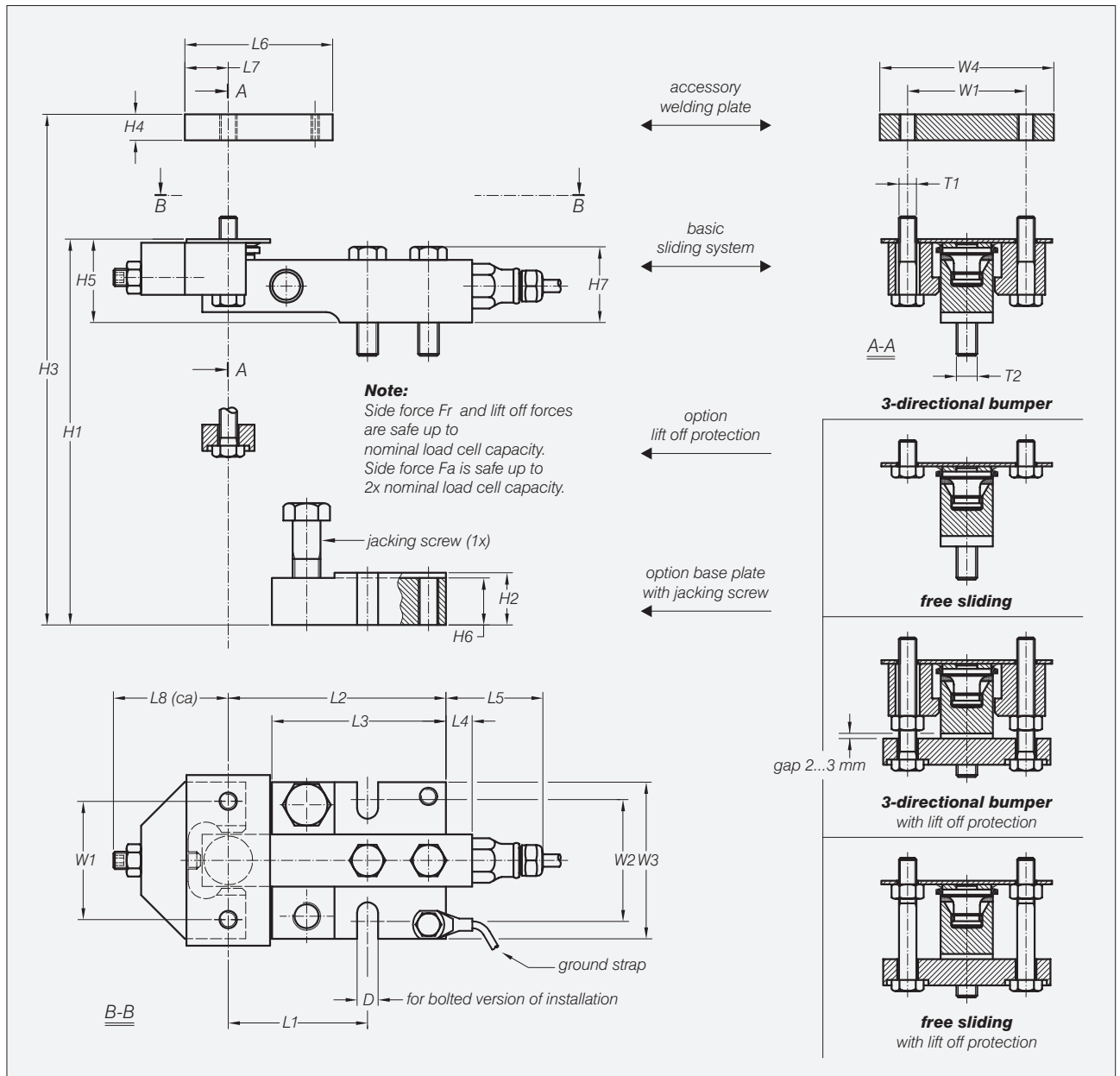


All dimensions in mm. Dimensions and specifications are subject to change without notice.
Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Orientation of 2-directional bumper and free sliding units

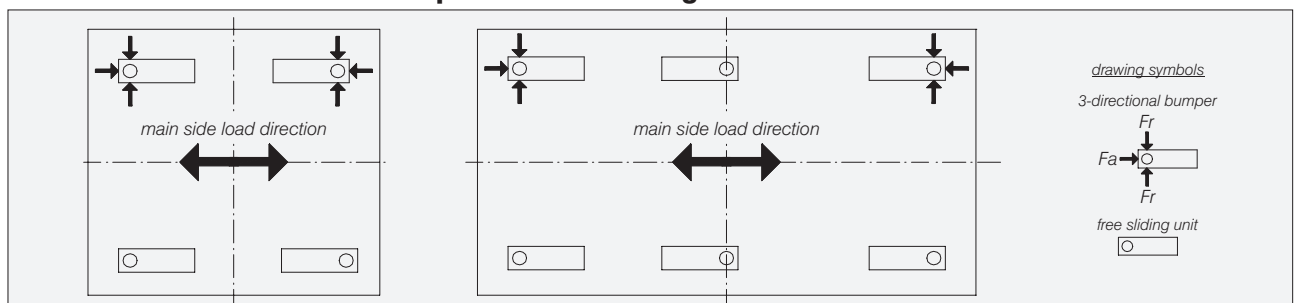


Dimensions 3-directional bumper and free sliding units

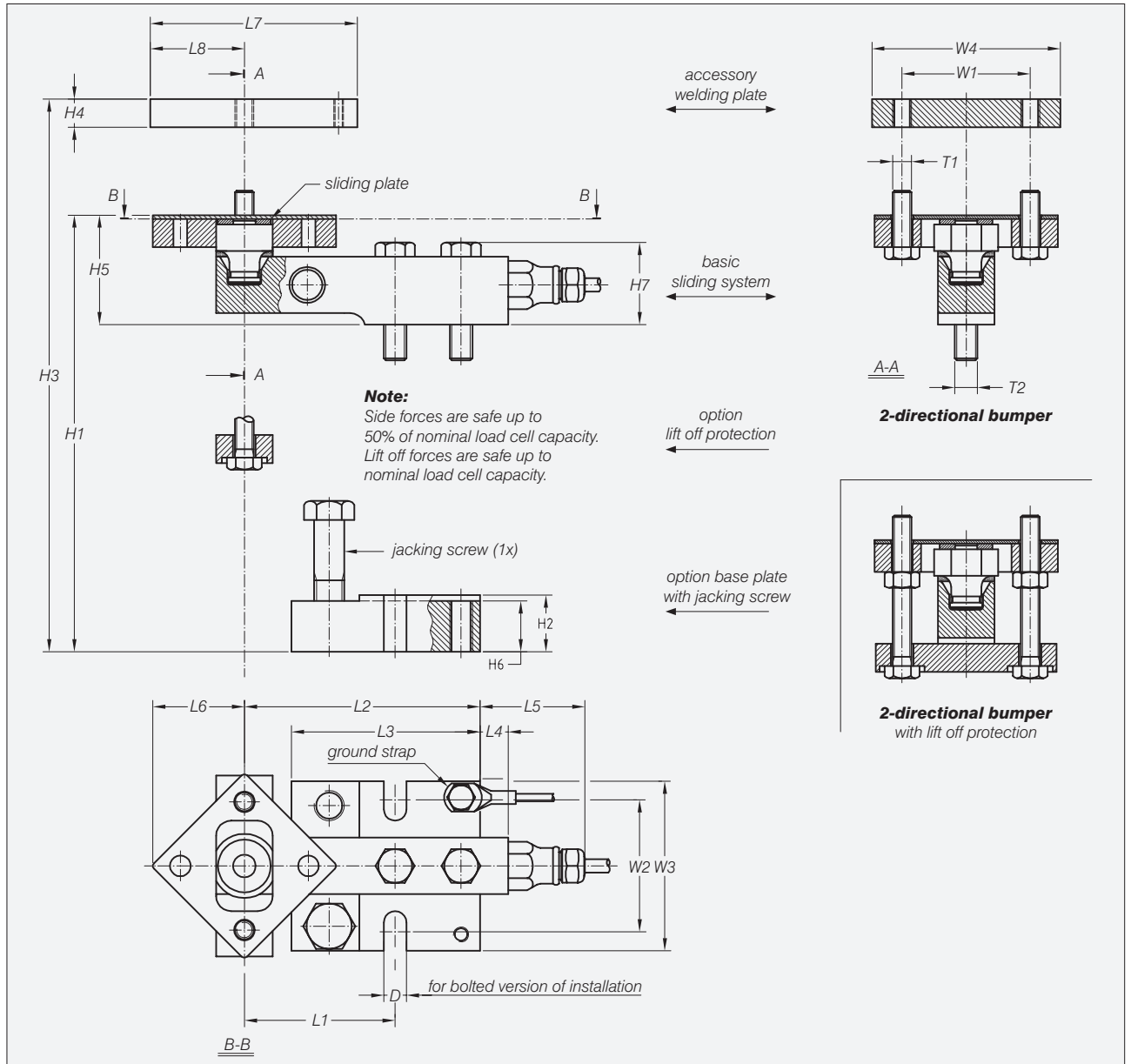


Load cell type	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6	L7	L8	W1	W2	W3	W4	D	T1	T2
SB4/SB5-5/10/20 kN	75	30	90	15	48	27	44	80	125	100	15	56	85	25	67	68	70	90	100	13	M10	M12
SB4/SB5-50 kN	110	50	130	20	65	45	62	105	160	130	9	50	110	30	103	94	100	120	140	16	M16	M20
SB4/SB5-100 kN	135	50	160	25	90	45	88	135	205	160	10	51	135	35	132	120	130	150	180	20	M20	M24
SB6-0.2/0.5/1/2 kN	78	40	90	12	42	36	30	55	115	95	5	46	70	20	?	54	60	80	80	8	M6	M8
SB14-0.5/1/2.5/5 klb	75	35	90	15	43	32	39	80	125	100	-	37	85	25	65	68	70	90	100	13	M10	M12
SLB-0.2/0.5/1/2.5/5 klb	74	35	89	15	42	32	38	80	125	100	-	17	85	25	65	68	70	90	100	13	M10	M12

Orientation of 3-directional bumper and free sliding units

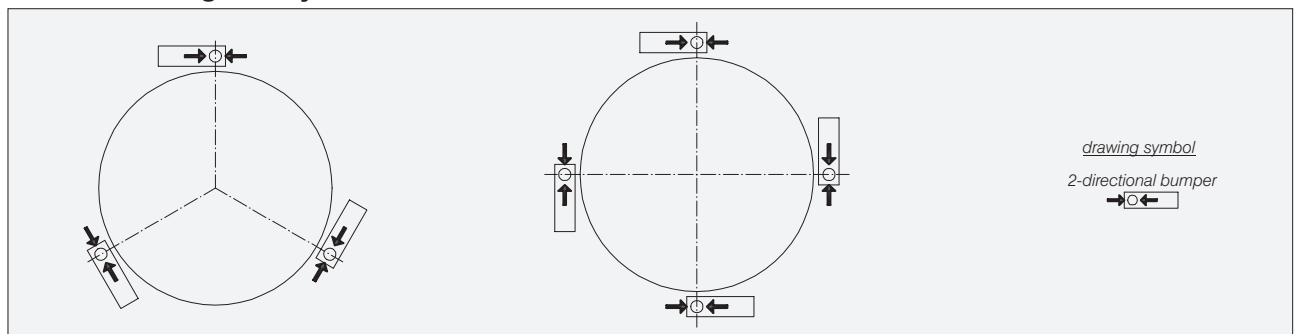


Type 52-13T Sliding System (allows tangential mounting) Dimensions



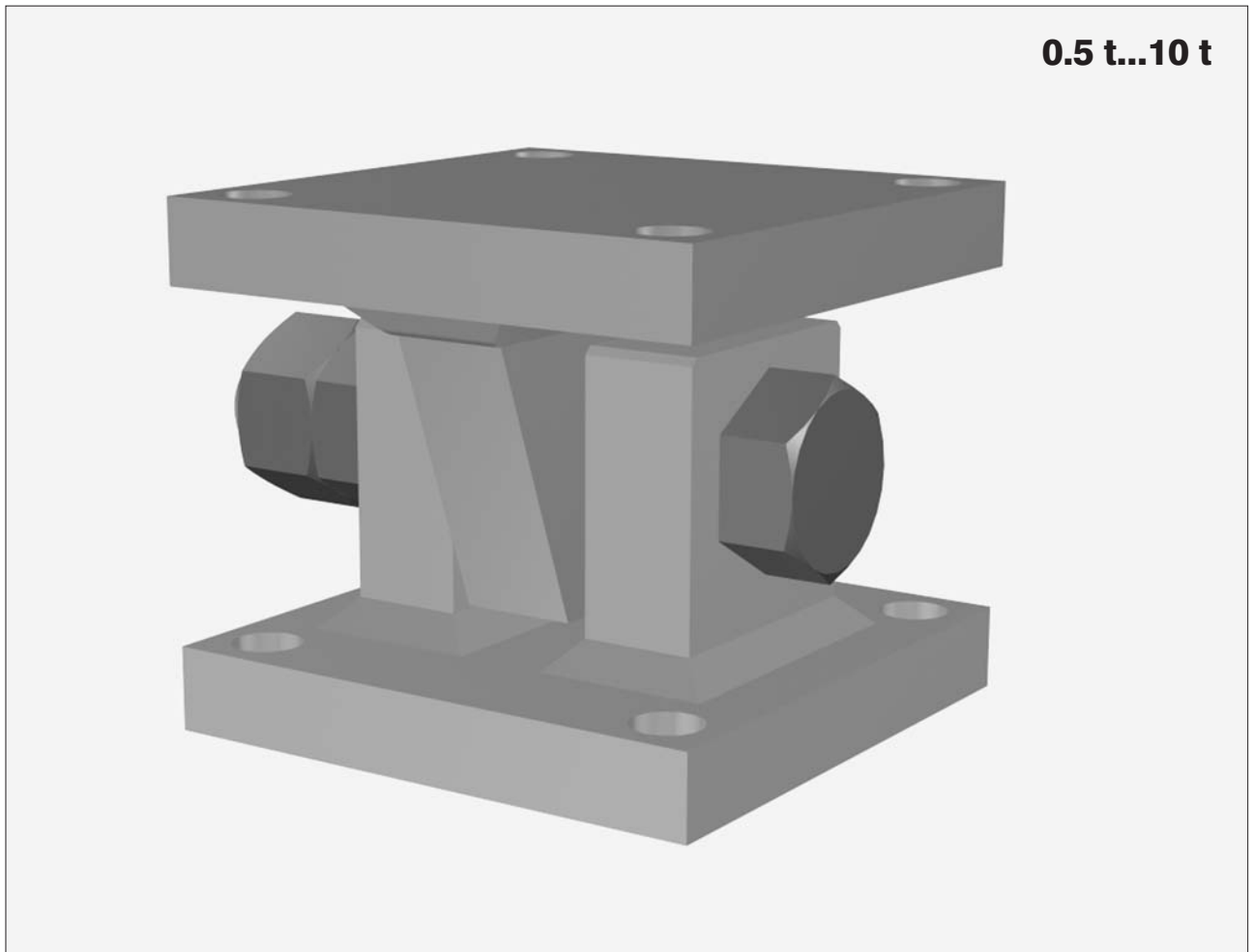
Load cell type	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6	L7	L8	W1	W2	W3	W4	D	T1	T2
SB4/SB5-5/10/20 kN	85	30	1000	15	58	27	44	80	125	100	15	56	49	110	50	68	70	90	100	13	M10	M12
SB4/SB5-50 kN	under development																					
SB4/SB5-100 kN	under development																					
SB6-0.2/0.5/1/2 kN	under development																					
SB14-0.5/1/2.5/5 klb	85	35	1000	15	53	32	39	80	125	100	-	37	49	110	50	68	70	90	100	13	M10	M12
SLB-0.2/0.5/1/2.5/5 klb	84	35	99	15	52	32	38	80	125	100	-	17	49	110	50	68	70	90	100	13	M10	M12

Tanks with tangentially mounted load cells



Type 56-01 Dummy Support

0.5 t...10 t



The type 56-01 dummy supports have same height and can be combined with corresponding capacity of weigh module type 52-13.

The dummy supports are typically used in scale systems for level control in tanks. They replace two of the weigh modules in tanks on 3 or 4 legs and give a very cost effective scale solution.

The supports are dimensioned to take side forces in any horizontal direction as well as lift off forces, up to 100% of maximum capacity. The weigh module can therefore be of simplest free sliding type and fitted with lift off protection only if required.

If foundation plates and tank feet are prepared also with mounting holes for the weigh module, the scale can later easily be upgraded to a high accuracy load cell system by replacing the dummy supports with weigh modules.

Material: Mild steel, zinc plated.

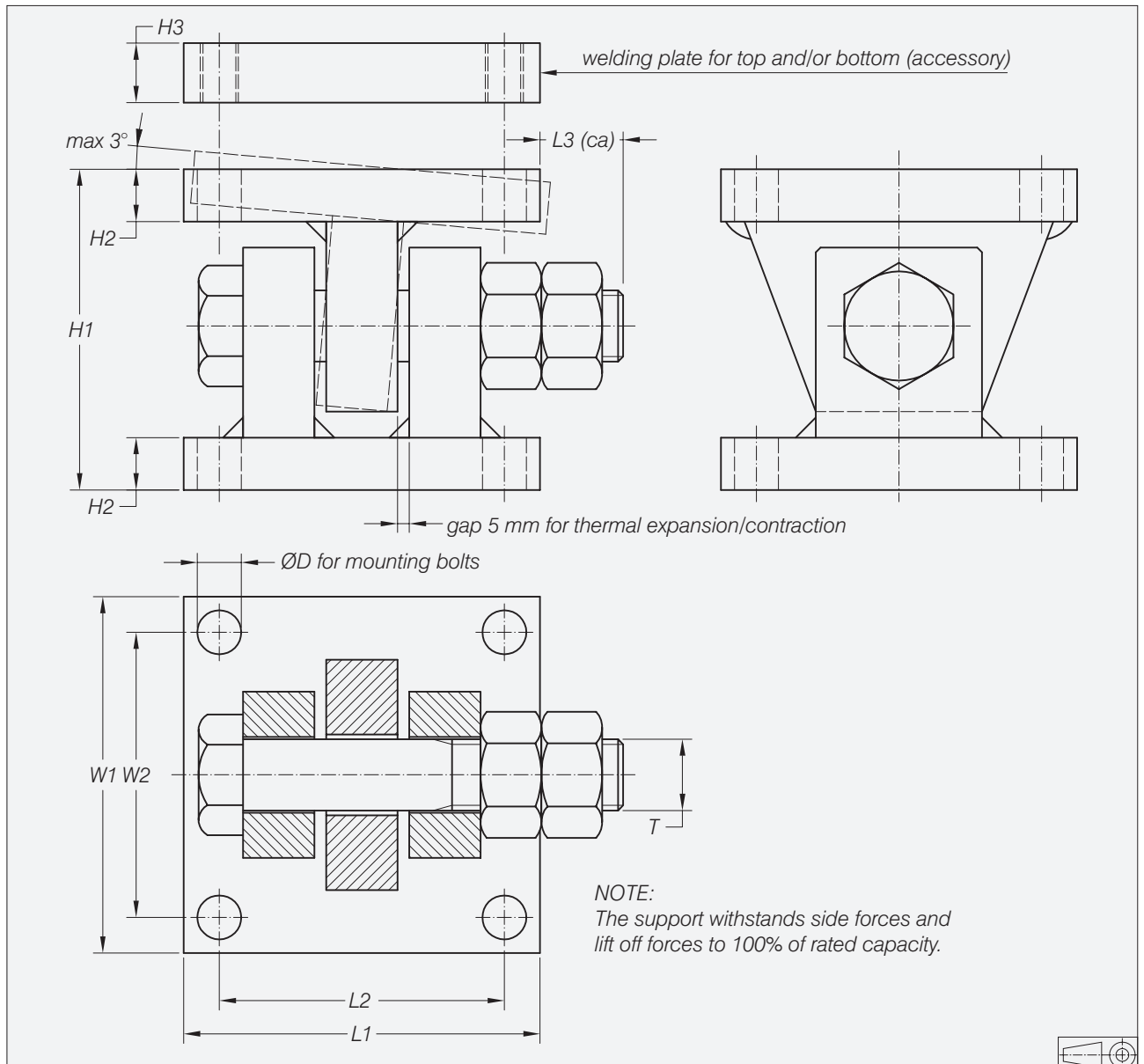
Important Features

- Capacities 5 kN to 100 kN.
- Easy installation by bolting or welding.
- Tolerates large angular errors for tank foot and foundation plate.
- Allows thermal expansion/contraction.
- Very rugged design.

Accessory

- Welding plates top and /or bottom

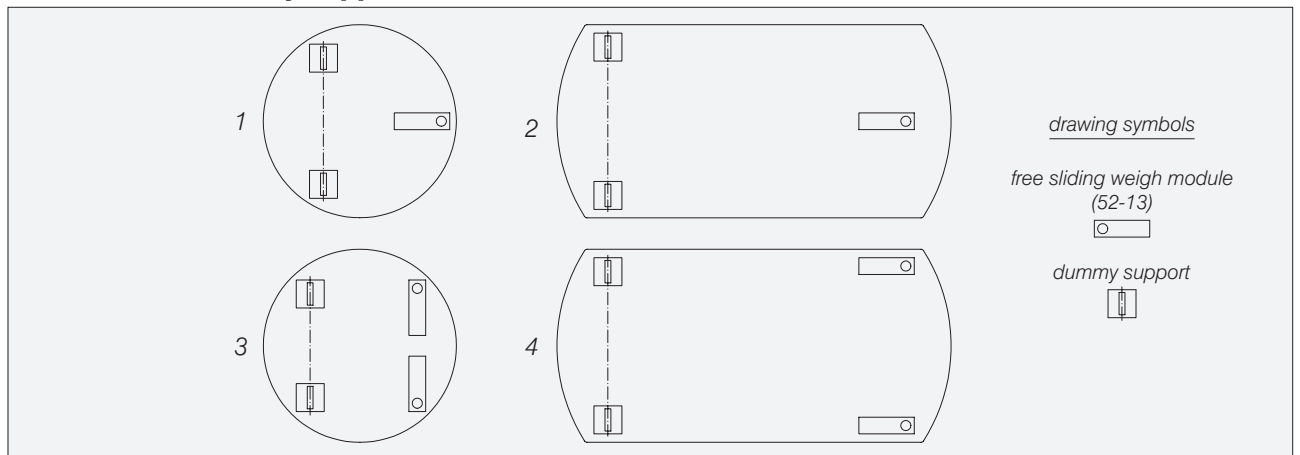
Dimensions



Capacity	Capacity in kg	H1	H2	H3	L1	L2	L3	W1	W2	T	D	Mounting bolts
2/10/20 kN	510/1020/2039	75	10	15	100	80	28	100	80	M20	10	M8 8.8
50 kN	5099	110	18	20	120	94	35	120	94	M24	14.5	M12 8.8
100 kN	10179	135	22	25	150	120	35	150	120	M30	18.5	M16 8.8

All dimensions in mm. Dimensions and specifications are subject to change without notice.
CAD files for customer's own application drawings are available on request.

Orientation of dummy support



Type 52-31 Tension Adapter



Tension adapter 52-31 and SB4 load cell

Beam Type Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 52-31 is a self aligning tension adapter assembly.

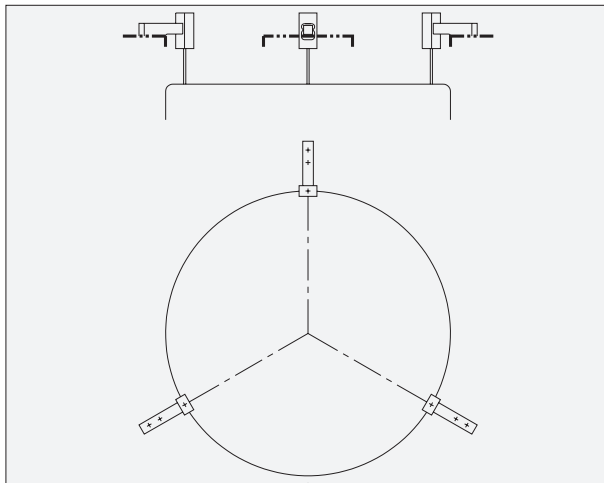
Especially designed for the SB4, SB5, SB6, SB14 and SLB load cells.

Standard version: steel, zinc plated.

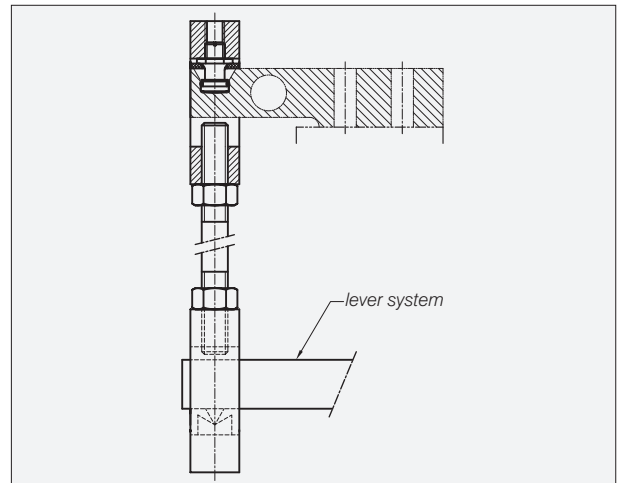
Important Features

- Blind hole load introduction.
- Capacity range: 20 kg to 5 000 kg.
- Very easy to install.
- Especially designed to support suspended loads and for hybrid scale conversions.
- W&M certified.

Examples



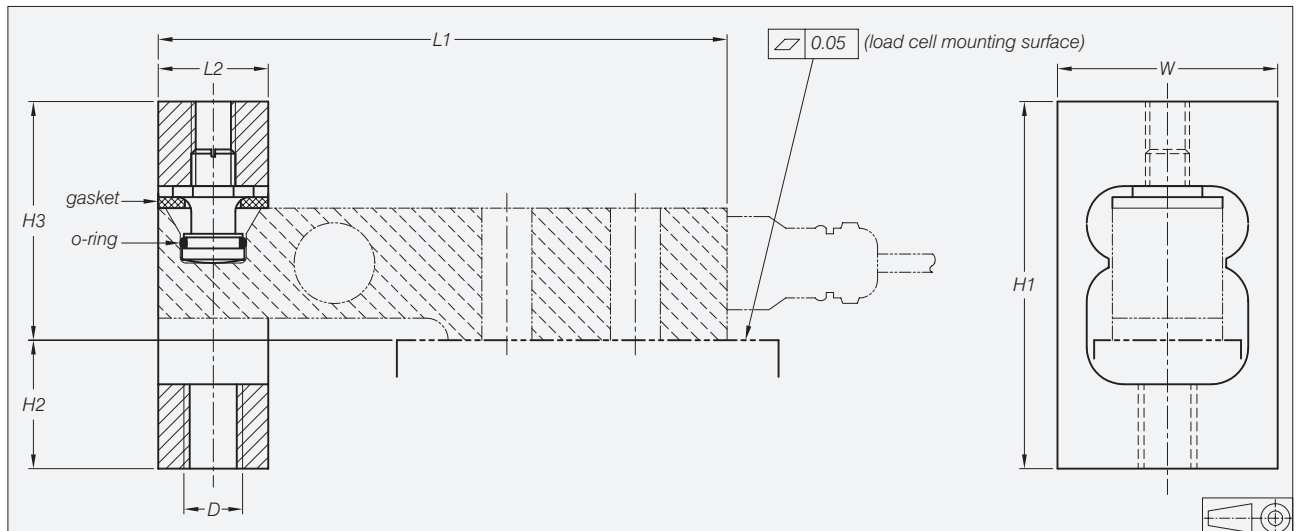
Tank weighing system with 3 load cells



Hybrid scale conversion

B14 Rev1 UK 1(2)

Dimensions

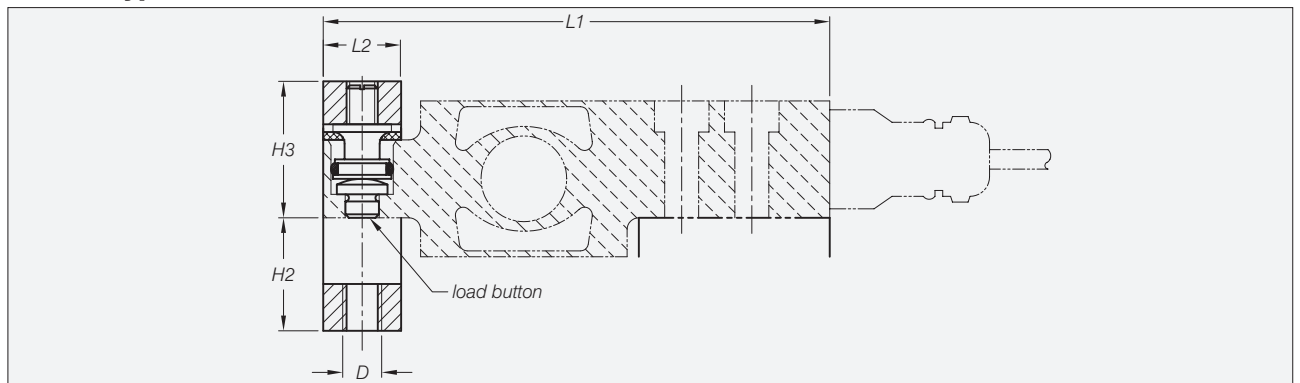


Load Cell Type	Capacity in kg	L1	L2	H1	H2	H3	W	Tension rod D
SB4/SB5-5 kN/10 kN/20 kN	510/1020/2039	155	30	115	45	70	60	M16
SB4/SB5-50 kN	5099	190	40	165	70	95	80	M24
SB6-200 N/500 N/1 kN/2 kN	20.4/51/102/204	130	20	64	29	35	50	M10
SB14-500 lb/1 klb/2.5 klb/5 klb	227/454/1134/2268	139	30	115	50	65	60	M16
SLB-200 lb/500 lb/1 klb/2.5 klb/5 klb	91/227/454/1134/2268	139	30	115	51	64	60	M16

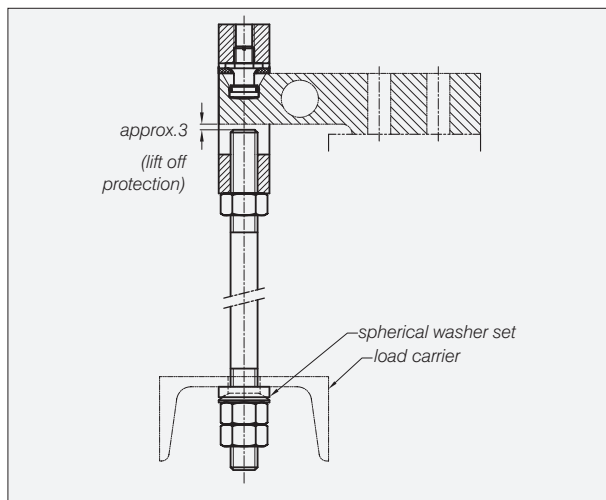
All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Beam Type Load Cells

Details Type SB6 Load Cell



Details of connection to a load carrier



Type BK2 Load Cell



Beam Type Load Cells



Detail front end with loading arrow

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

BK2 load cells are available in the capacities from 200 kg to 2000 kg and include Accuracy Classifications GP and C3 according to OIML R 60.

They offer stainless steel construction and improved potting, making them suitable for use in tough industrial environments.

These load cells allow very low profile platform design and offer advantages in all kinds of weighing applications.

Load introduction via threaded hole or through hole.

The Flintec calibration technique (in mV/V/Ω) avoids time consuming corner calibration in multiple load cell systems.

The BK2 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacities: 200 to 2000 kg.
- High accuracy.
- Stainless steel construction.
- Protection IP 67.
- Very low profile.
- High input resistance: 1100 Ω.
- W&M certified for 3000 intervals (NMI: TC6024).
- Calibration in mV/V/Ω.
- Factory Mutual approved.

Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

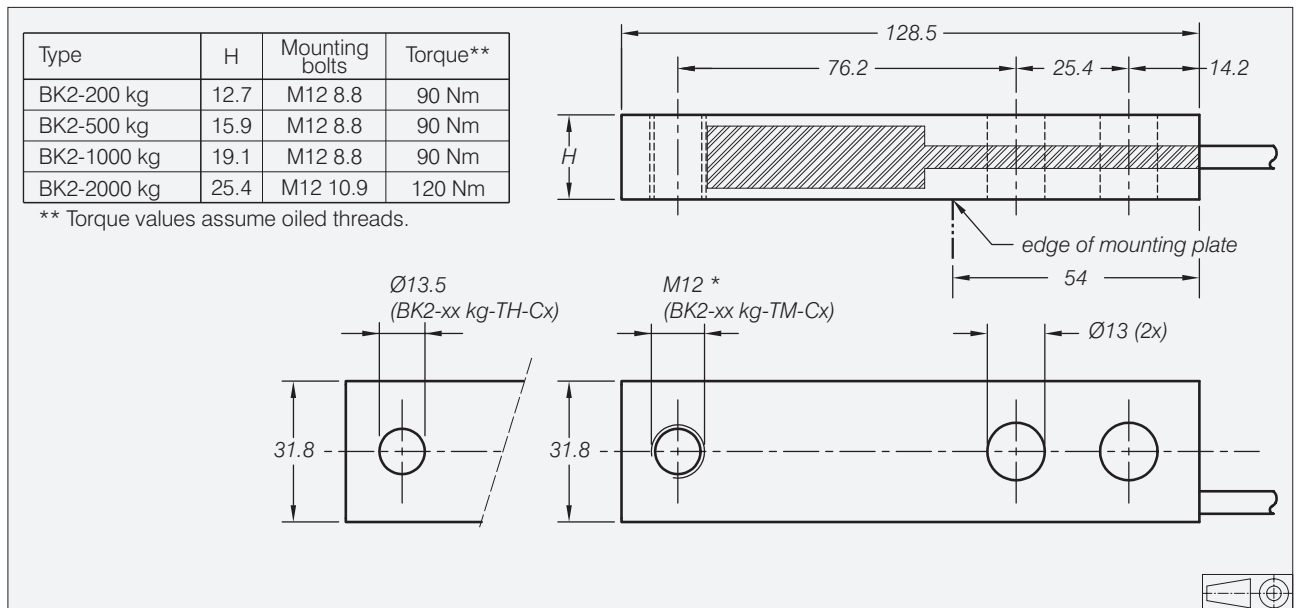
Mounting parts

- Spacer plate.

BK2 Specifications

Maximum capacity	(E _{max})	kg	200 / 500 / 1000 / 2000	
Rated Output	(Cn)	mV/V	2 ± 0.1%	
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)	
Accuracy class according to OIML R 60			(GP)	C3
Maximum number of verification intervals	(n _{max})		n.a.	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} / 10000
Combined error	%Cn		≤ ± 0.040	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0012
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0011
Excitation voltage	V		5...15	
Zero balance	%Cn		≤ ± 5	
Input resistance	Ω		1100 ± 50	
Output resistance	Ω		1000 ± 2	
Insulation resistance (100 V DC)	MΩ		≥ 5000	
Compensated temperature range	°C		-10... +40	
Operating temperature range	°C		-20... +65	
Safe load limit	(E _{lim})	%E _{max}	200	
Ultimate load		%E _{max}	300	
Safe side load		%E _{max}	100	
Load cell material			stainless steel 17-4 PH (1.4548)	
Sealing			potted	
Protection according DIN 40.050			IP 67	

Dimensions

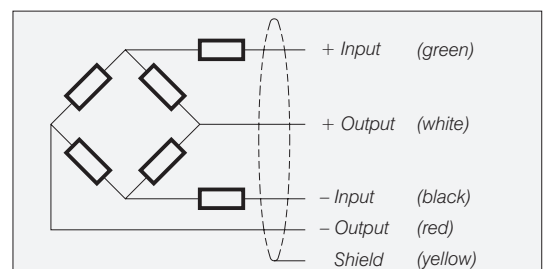


All dimensions in mm. Dimensions and specifications are subject to change without notice.

* Unified thread 1/2-20 UNF is available (BK2-xx kg-TU-Cx).

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type 52-15 Height Adjustable Rubber Foot



Height adjustable rubber foot 52-15 and BK2 load cell (Height adjustable by rotation of the foot)

Beam Type Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance. The Type 52-15 is an height adjustable, self aligning rubber foot; combining excellent load introduction with low profile design.

Especially designed for the BK2 load cells (BK2-xxx kg-TM-Cx and BK2-xxx kg-TU-Cx).

Available in 2 versions:

- Metric version: Height adjustable by rotation of the foot,
- Unified version: Height adjustable by rotation of pin from top.

Material: stainless steel.

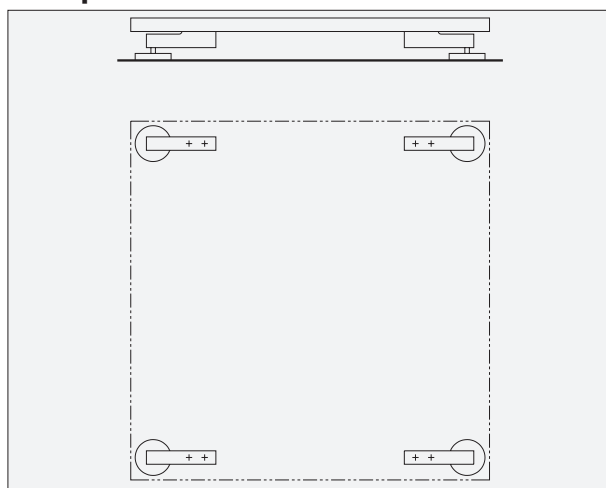
Important Features

- Capacity range: 200 kg to 2000 kg.
- Low profile.
- Available in 2 versions.
- Very easy to install.
- Especially designed for platform scales.
- W&M certified.

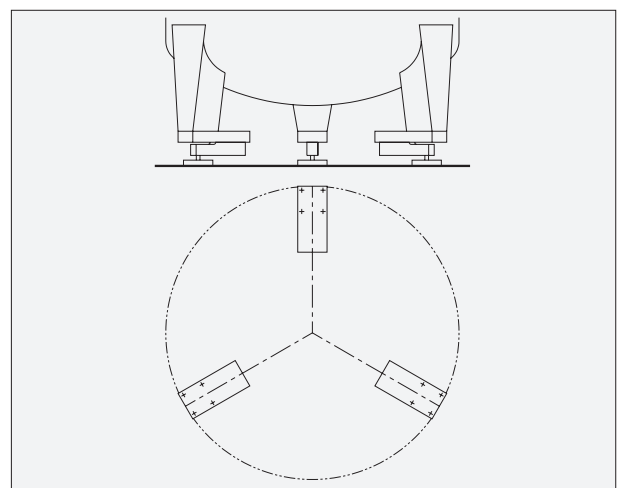
Accessory

- Fixation plate (see Miscellaneous).

Examples



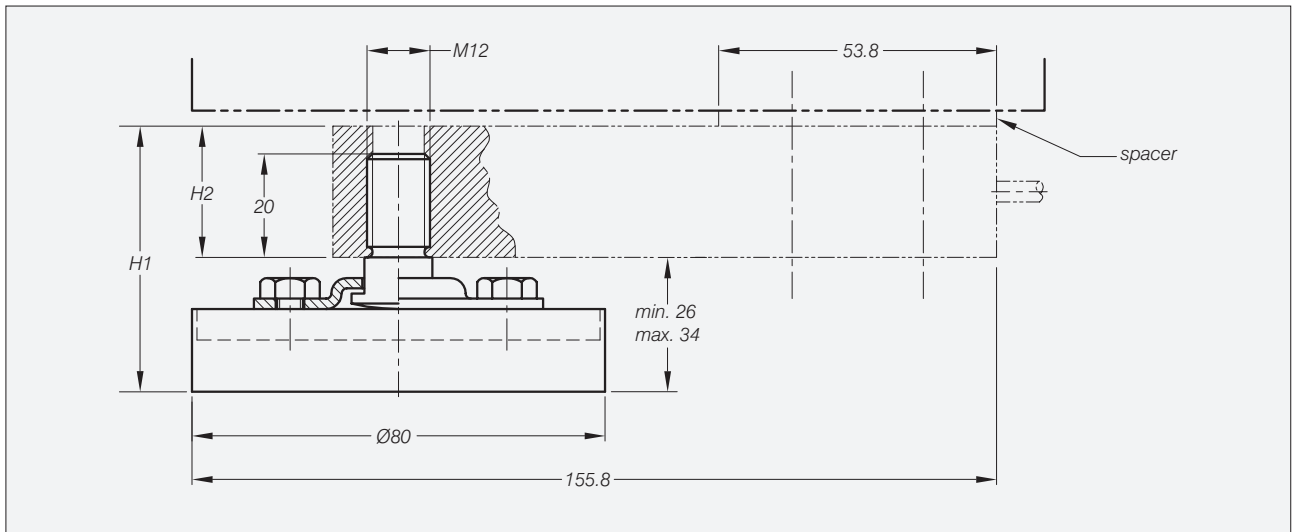
Platform scale with 4 load cells



Tank weighing system with 3 load cells (recommended base plate 52-00 included)

Metric version

Height adjustable by rotation of the foot (BK2-xxx kg-TM-Cx)

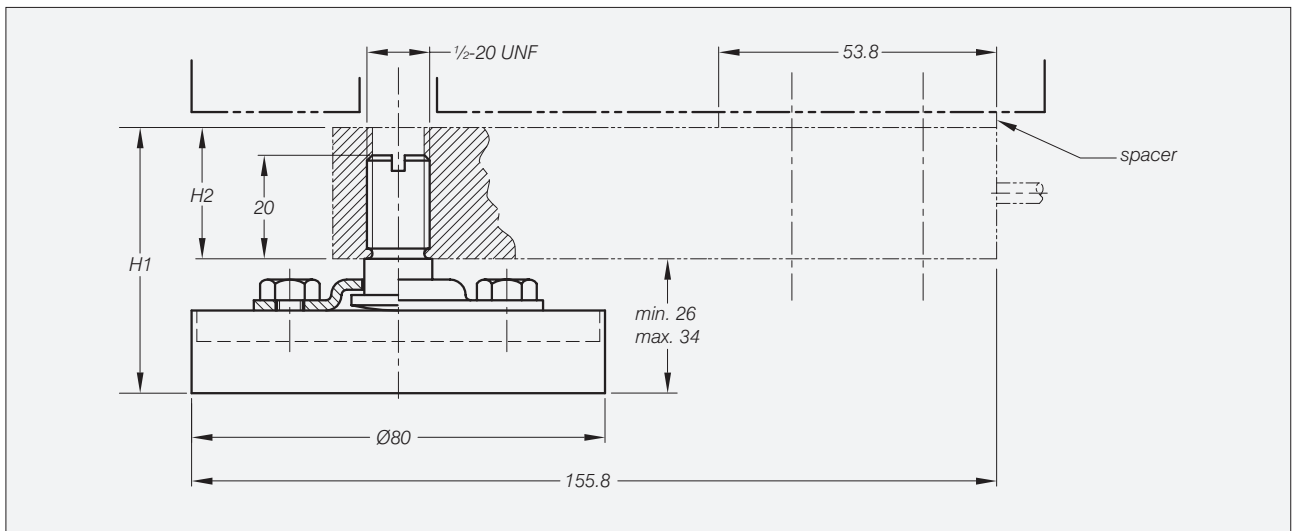


Load Cell	Total height H1	Load cell height H2	*Extension above load cell	*Remark:
BK2-200 kg	38.7...46.7	12.7	0...7.3	The height of the BK2 load cell (H2) depends on its maximum capacity. The loading pin has a thread length of 20 mm. At the minimum total height (H1) the loading pin extends significantly above the load cell for the maximum capacities 200 and 500 kg. This value is calculated in the column "Extension above load cell" The height of the spacer should be adapted accordingly.
BK2-500 kg	41.9...49.9	15.9	0...4.1	
BK2-1000 kg	45.1...53.1	19.1	0...0.9	
BK2-2000 kg	51.4...59.4	25.4	n.a.	

All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Unified version

Height adjustable by rotation of pin from top (BK2-xxx kg-TU-Cx)



Type SB2 Load Cell



Beam Type Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

SB2 load cells are available in the capacities 45000 lb to 100000 lb (20412 kg to 45360 kg) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60. (The SB2 45000 lb is also available in a low profile version: Type SB2-45 klb-M)

SB2 load cells offer complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The unique “blind” loading hole combined with the available Flintec loading hardware provides an excellent price-performance ratio.

It allows very low profile platform design and offers advantages in all kinds of weighing applications.

The Flintec calibration technique (in mV/V/Ω) eliminates time consuming corner calibration in multiple load cell systems.

The SB2 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities 45000 to 100000 lb.
- High accuracy.
- Complete hermetic sealing.
- Protection IP 68.
- W&M certified for 3000 intervals (PTB: D09-03.04).
- Unique “blind” loading hole.
- Calibration in mV/V/Ω.
- Easy cable replacement.
- Factory Mutual approved.

Option

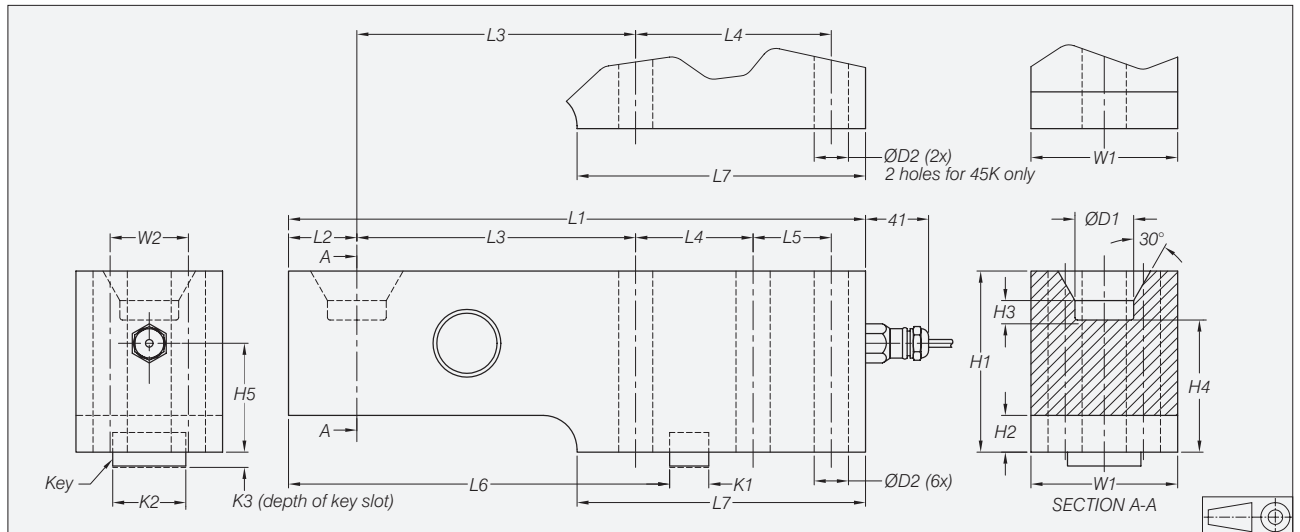
- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

SB2 Specifications

Maximum capacity	(E _{max})	lb	45 000 / 75 000 / 100 000		
Metric equivalents (approx.)		kg	20 412 / 34 020 / 45 360		
Rated Output	(Cn)	mV/V	2 ± 0.1%		
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)		
Accuracy class according to OIML R 60			GP	C1	C3
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /5100	E _{max} /11200
Combined error	%Cn		≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0011
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0015	≤ ± 0.0011
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		385 ± 20		
Output resistance	Ω		351 ± 1		
Insulation resistance (100 V DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-40...+80		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Safe side load		%E _{max}	100		
Load cell material			tool steel; painted		
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header		
Protection according DIN 40.050			IP68		

Beam Type Load Cells

Dimensions

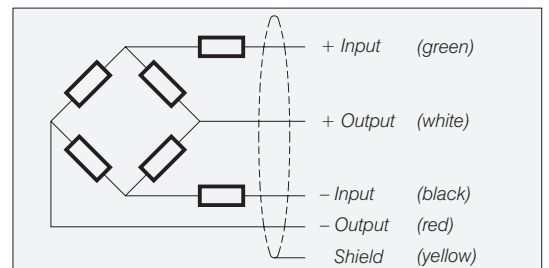


Type	L1	L2	L3	L4	L5	L6	L7	H1	H2	H3	H4	H5	W1	W2	D1	D2	K1	K2	K3	Mounting bolts	Torque *
SB2-45 klb	318	38	159	89	n.a.	n.a.	159	95	27	12	73	61	70	n.a.	38.1	31	n.a.	n.a.	n.a.	M30 8.8	1500 Nm
SB2-45 klb-M	318	38	159	89	n.a.	n.a.	148	82	12	12	58	47	70	n.a.	38.1	31	n.a.	n.a.	n.a.	M30 8.8	1500 Nm
SB2-75 klb	375	44	181	76	51	248	187	118	24	13	86	71	95	51	38.1	22	25.4	47.6	10	M20 8.8	430 Nm
SB2-100 klb	416	48	197	92	54	276	210	143	41	14	111	92	95	54	50.8	27	25.4	47.6	10	M24 8.8	750 Nm

All dimensions in mm. Dimensions and specifications are subject to change without notice.
 * Torque values assume oiled threads.

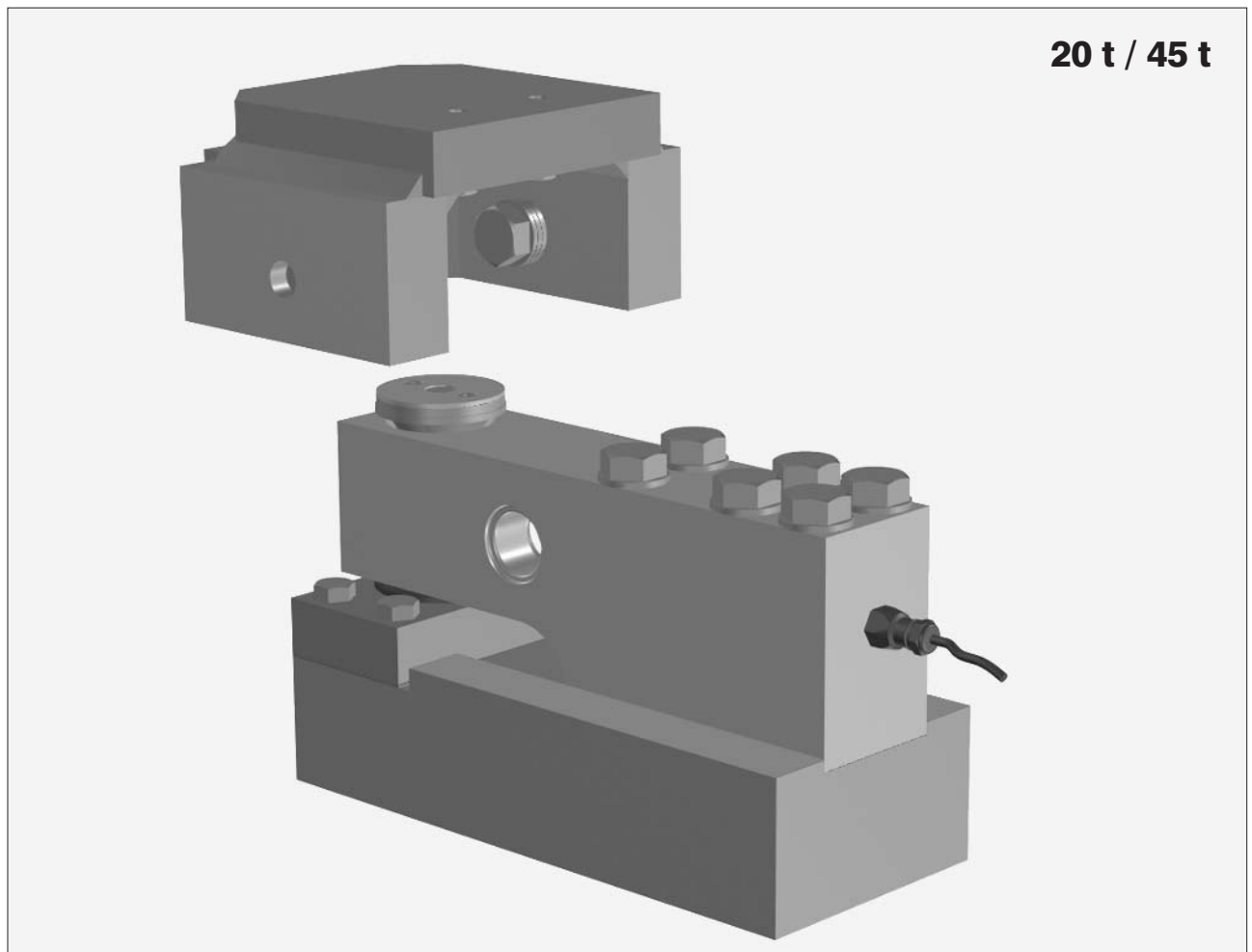
Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 20). Cable jacket polyurethane.
- Cable length: 9.1 m for 45 klb, 10.7 m for 75 and 100 klb.
- Cable diameter: 7.6 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



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Type 52-01HD Weigh Module



Weigh Module Type 52-01HD with SB2 load cell

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The type 52-01HD weigh module with type SB2 load cell is designed for high capacity, heavy duty, platform scales. It is especially well suited for scales in the steel industry. For example ladle and scrap basket scales where the load is handled with crane on and off the scale and frequent overloading occurs.

For scrap basket scales the built in overload stop efficiently protects the load cell from impact loads when scrap is loaded and being dropped from sometimes several meters height into the basket.

Available as 3-directional bumper module resp. free sliding module.

The bumpers of the 3-directional module can be rearranged to achieve a number of different bumping configurations. See examples on page 2(2).

A machined slot in the base plate prevents the load cell from sliding when subjected to high side forces.

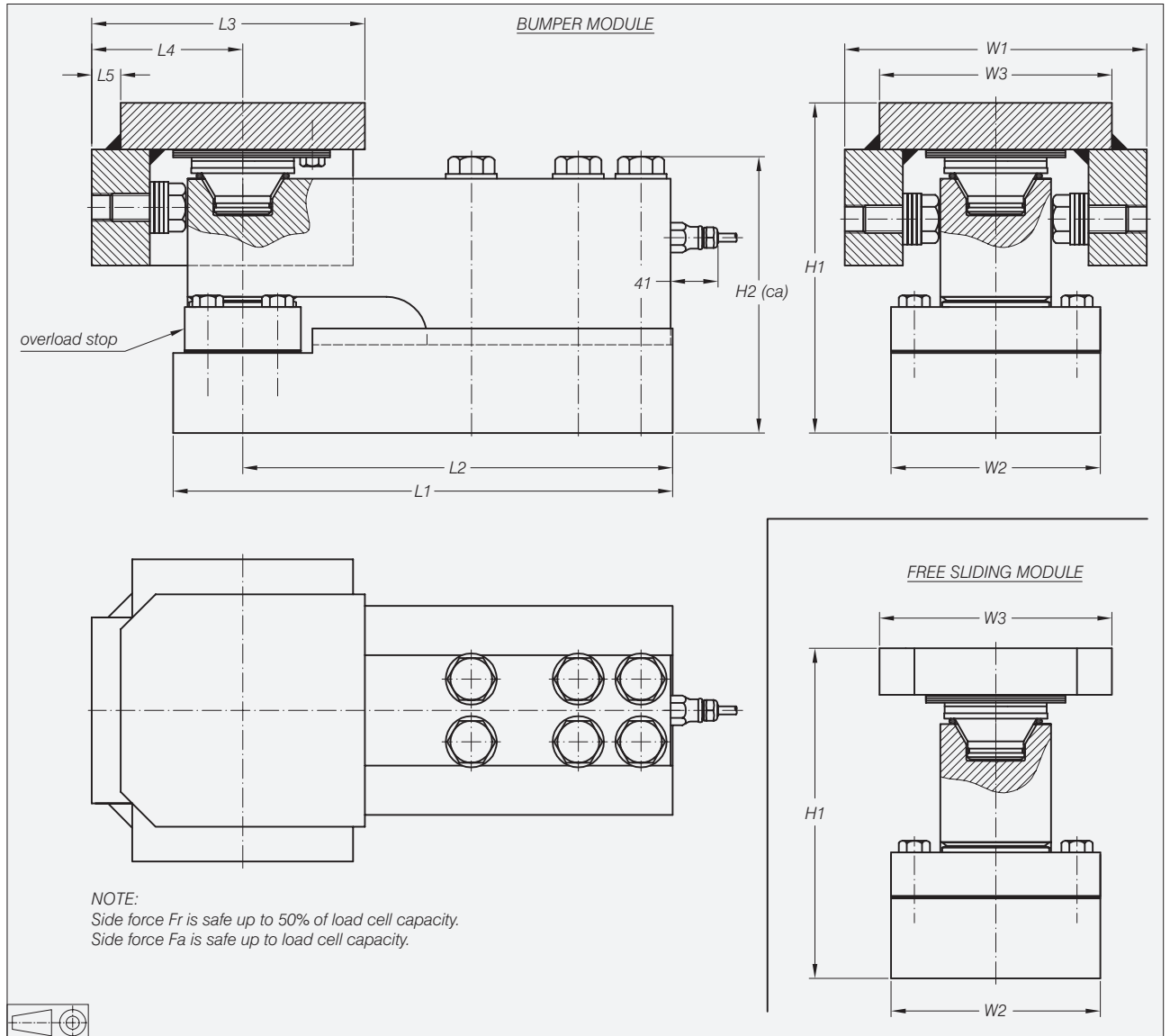
An overload stop can be added as an option and protects the load cell from overloads up to at least 500% of rated load.

Material: Mild steel, painted.

Important Features

- Capacities: 20t and 45t.
- Ideal for high capacity, heavy duty, platform scales.
- Blind hole load introduction.
- W&M certified.
- Optional overload stop.
- Extremely rugged design.
- Easy installation by welding.

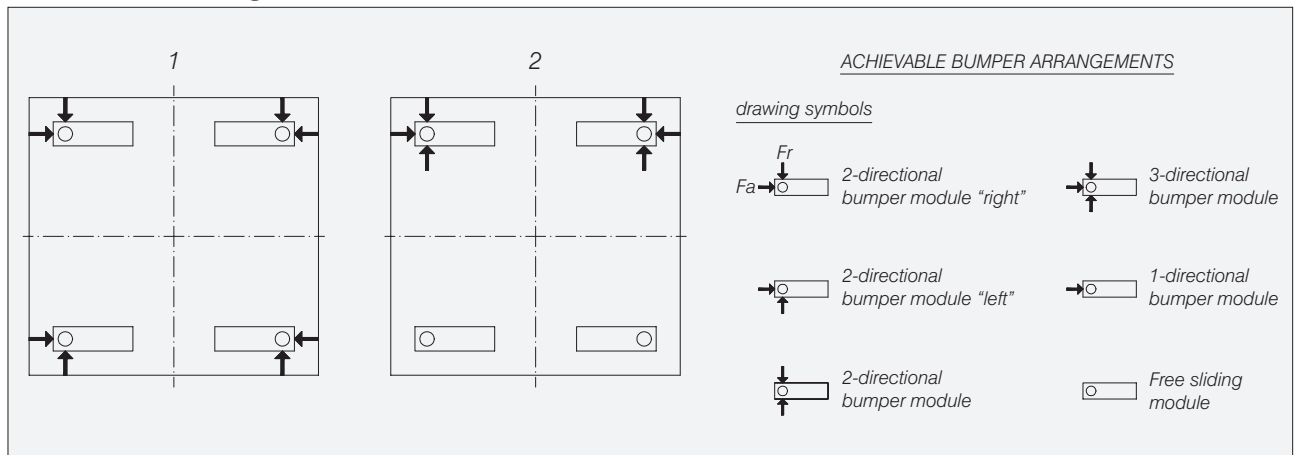
Dimensions



Load cell type	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	Weight incl. load cell (kg)
SB2-45 klb	320	281	195	91	15	176	150	150	200	171	54
SB2-100 klb	430	370	235	130	25	260	180	200	284	238	128

All dimensions in mm. Dimensions and specifications are subject to change without notice. CAD files for customer's own application drawings are available on request.

Orientation of weigh modules



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Beam Type Load Cells

Tension Load Cells

Load Cell Type		ULB	UB1	UB6
OIML / NTEP		No/No	Yes/No	Yes/No
EEx (ATEX)		Yes	Yes	Yes
Material		Stainless steel		
Hermetic sealing		No	Yes	Yes
Protection		IP 67	IP 68	IP 68
Maximum Capacity *				
kg	N			
50		•		
100		•		
102	1000			•
200		•		
204	2000			•
500		•		
510	5000			•
1000		•		
1020	10000		•	
2039	20000		•	
5099	50000		•	

* The load cells are calibrated in kg or N depending on load cell type (bold print).

data sheet


ULB



price list

data sheet


UB1



price list

data sheet

UB6



price list

Tension Load Cells

Characteristics of Tension Load Cells

Due to their design, Tension Load Cells are also called S-Type Load Cells. These load cells are especially designed for applications with pulling forces or hanging load carriers. In combination with the application kit using two eye bolts, a perfect load introduction is available.

It is also possible to use Tension Load Cells for applications with compression loads.

The Flintec range covers nominal capacities from 50 kg to 5 t. Hermetically sealed Tension Load Cells are available from 100 kg to 5 t.

Typical Applications

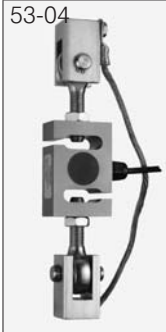
Hybrid Systems with one load cell and lever work, hanging hoppers, weighing belts or other load carriers with multiple load cells.

Mechanical Application Parts

Type	ULB / UB1 / UB6	
53-04	Tension Assembly	•

data sheet

53-04



price list

Tension Load Cells

Type ULB Load Cell



Tension
Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

ULB universal load cells are available in the capacities 50 kg to 5000 kg and include Accuracy Classifications GP, C1 and C3 according to OIML R 60.

Approved for tension loading only.

Tension and/or compression loading possible.

They offer stainless steel construction and improved potting, making them suitable for use in tough industrial environments..

The ULB is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T150°C ATEX.

Important Features

- Capacities: 50 kg to 5000 kg.
- High accuracy.
- Total stainless steel construction.
- Protection IP 67.
- High input resistance: 1100 Ω .
- W&M certified for 3000 intervals (in preparation).
- Complete range of loading hardware available.

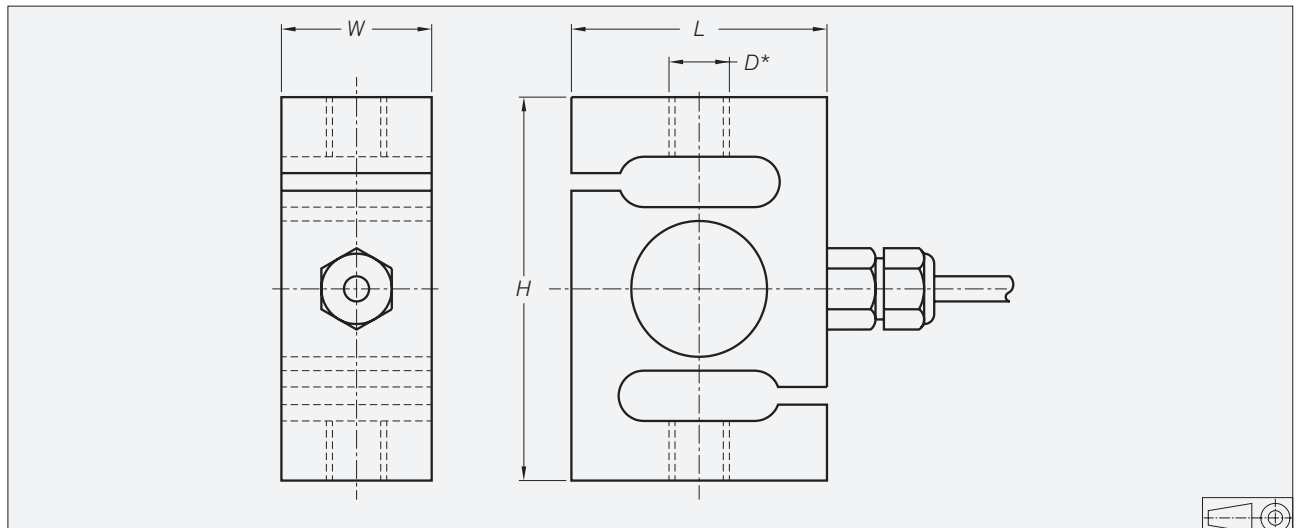
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

ULB Specifications (Tension or compression loading possible)

Maximum capacity	(E _{max})	kg	50 / 100 / 200 / 500 / 1000 / 2000 / 3000 / 5000		
Rated Output	(Cn)	mV/V	2 ± 0.1%		
Accuracy class according to OIML R 60			(GP)	C1	C3
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(V _{min})		n.a.	E _{max} / 6000	E _{max} / 12000
Combined error	%Cn		≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn		≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C		≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0011
Temperature effect on sensitivity	%/°C		≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		1100 ± 50		
Output resistance	Ω		1000 ± 2		
Insulation resistance (100 V DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-20...+65		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Load cell material			stainless steel 17-4 PH (1.4548)		
Sealing			potted		
Protection according DIN 40.050			IP 67		

Dimensions



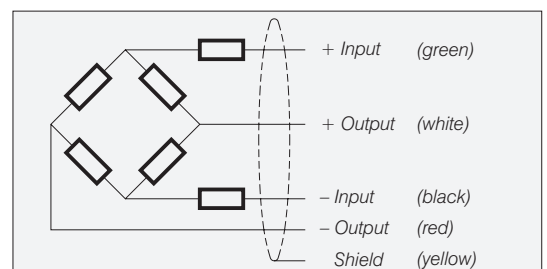
Type	H	L	W	Metric thread D -M	Unified thread D -U	Unified thread D -H
ULB-50 kg...500 kg	76.2	49	30	M12 x 1.75	1/2-20	
ULB-1000 kg	76.2	49	30	M16 x 2	1/2-20	5/8-18
ULB-2000 kg	86.1	76.2	30	M16 x 2	5/8-18	
ULB-3000 kg	88.7	88.7	40	M20 x 1.5	3/4-16	
ULB-5000 kg	146	91.2	56.4	M24 x 2	1-12	

* Versions with unified thread available: -U / -H.

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 6 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type UB1 Load Cell



Tension
Load Cells

Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

UB1 universal load cells are available in the capacities 10 kN to 50 kN (1020 kg to 5099 kg) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60. Approved for tension loading only.

Tension and/or compression loading possible.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The UB1 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 10 kN to 50 kN.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- High input resistance: 1100 Ω.
- W&M certified for 3000 intervals (SP: No 0402-MVm002).
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

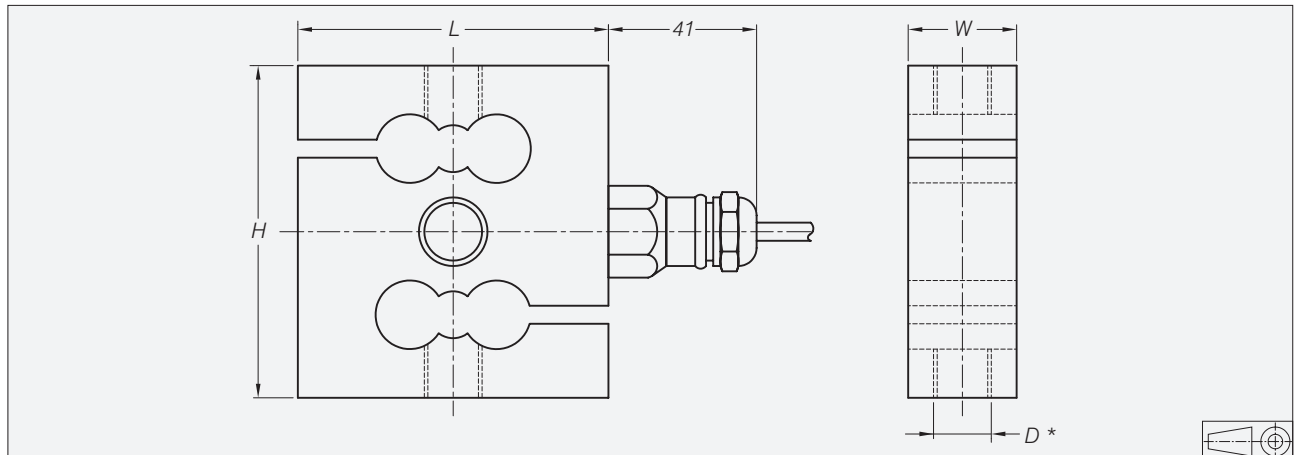
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

UB1 Specifications (Tension or compression loading possible)

Maximum capacity	(E_{max})	kN	10 / 20 / 50	
Metric equivalents (1 N=0.10197 kg)		kg	1020 / 2039 / 5099	
Rated Output	(Cn)	mV/V	2 ± 0.1%	
Accuracy class according to OIML R 60		(GP)	C1	C3
Maximum number of verification intervals	(n_{max})		1000	3000
Minimum load cell verification interval	(v_{min})		$E_{max} / 5000$	$E_{max} / 5700$
Combined error	%Cn	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR	%Cn	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on minimum dead load output	%Cn/°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0024
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011
Excitation voltage	V		5...15	
Zero balance	%Cn		≤ ± 5	
Input resistance	Ω		1100 ± 50	
Output resistance	Ω		1000 ± 2	
Insulation resistance (100 V DC)	MΩ		≥ 5000	
Compensated temperature range	°C		-10...+40	
Operating temperature range	°C		-40...+80	
Safe load limit	(E_{lim})	% E_{max}	200	
Ultimate load		% E_{max}	300	
Load cell material			stainless steel 17-4 PH (1.4548)	
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header	
Protection according DIN 40.050			IP 68	

Dimensions



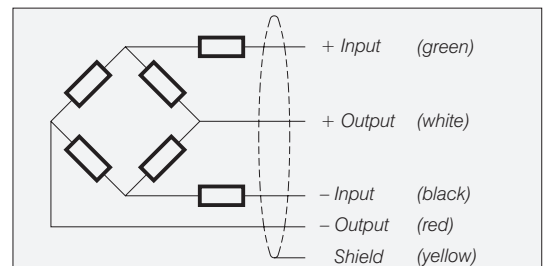
Type	H	L	W	Thread D
UB1-10k N/20 kN	92	86	30	M16
UB1-50 kN	136	143	43	M24x2

All dimensions in mm. Dimensions and specifications are subject to change without notice.

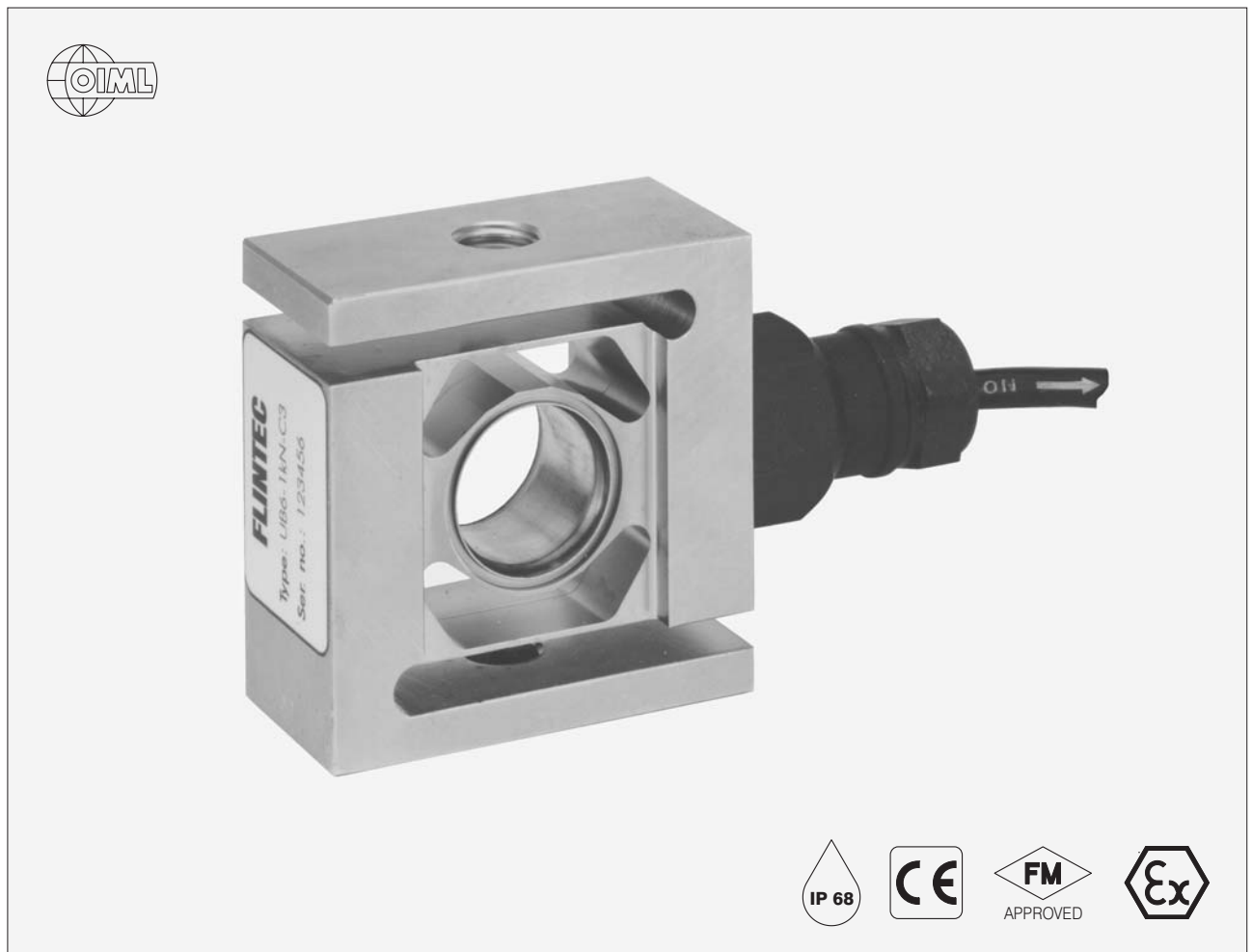
* Unified thread 5/8-18 UNF (10...20 kN) and 1-12 UNF (50 kN) is available.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 6 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type UB6 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

UB6 universal load cells are available in the capacities 1 kN to 5 kN (102 kg to 510 kg) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60. Approved for tension or compression loading.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The UB6 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 1 kN to 5 kN.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- High input resistance: 1100 Ω .
- W&M certified for 3000 intervals (PTB: D09-97.05).
- Multi range accuracy.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

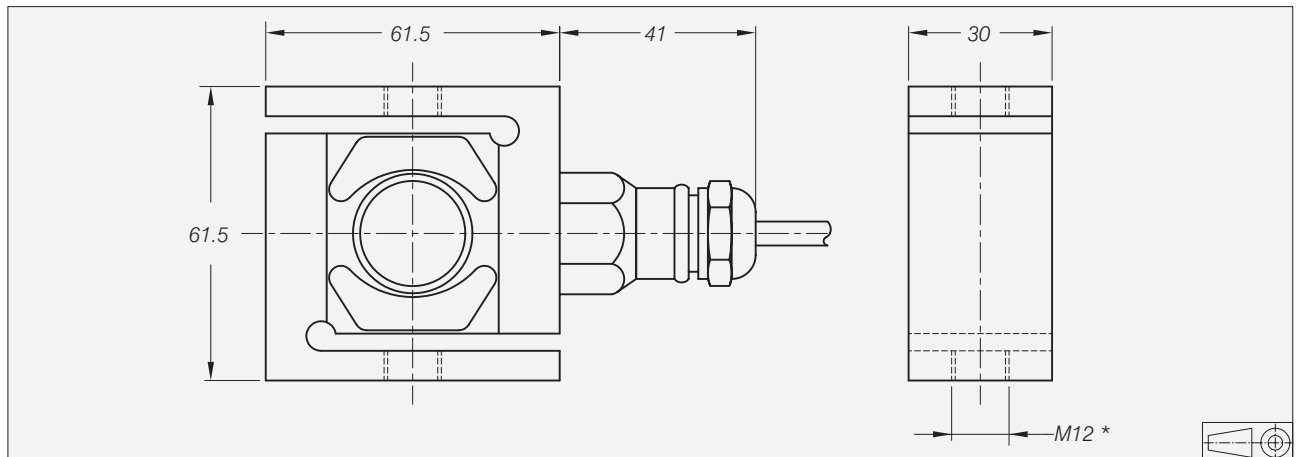
Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- C3 with Y=20400 (C3 MR).

UB6 Specifications (Tension or compression loading possible)

Maximum capacity	(E _{max})	kN	1 / 2 / 5		
Metric equivalents (1 N=0.10197 kg)		kg	102 / 204 / 510		
Rated Output	(C _n)	mV/V	2 ± 0.1%		
Accuracy class according to OIML R 60		(GP)	C1	C3	
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /5100	E _{max} /10200
Temperature effect on minimum dead load output		%C _n /°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0012
Option	Min. load cell verification interval (v _{min})		n.a.	n.a.	E _{max} /20400
	Temp. effect on min. dead load output	%C _n /°C	n.a.	n.a.	≤ ± 0.0006
Combined error		%C _n	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020
Creep error (30 minutes) / DR		%C _n	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011
Excitation voltage		V	5...15		
Zero balance		%C _n	≤ ± 5		
Input resistance		Ω	1100 ± 50		
Output resistance		Ω	1000 ± 2		
Insulation resistance (100 V DC)		MΩ	≥ 5000		
Compensated temperature range		°C	-10...+40		
Operating temperature range		°C	-40...+80		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Load cell material			stainless steel 17-4 PH (1.4548)		
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header		
Protection according DIN 40.050			IP68		

Dimensions

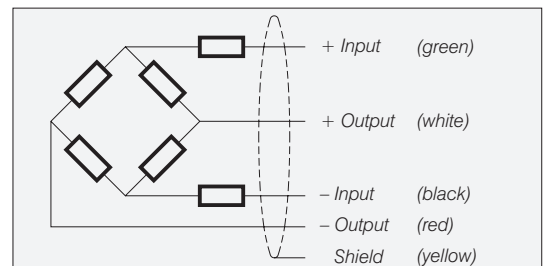


All dimensions in mm. Dimensions and specifications are subject to change without notice.

* Unified thread 1/2-20 UNF is available.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24).
- Cable length: 6 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Type 53-04 Tension Assembly

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 53-04 is a self aligning tension assembly.

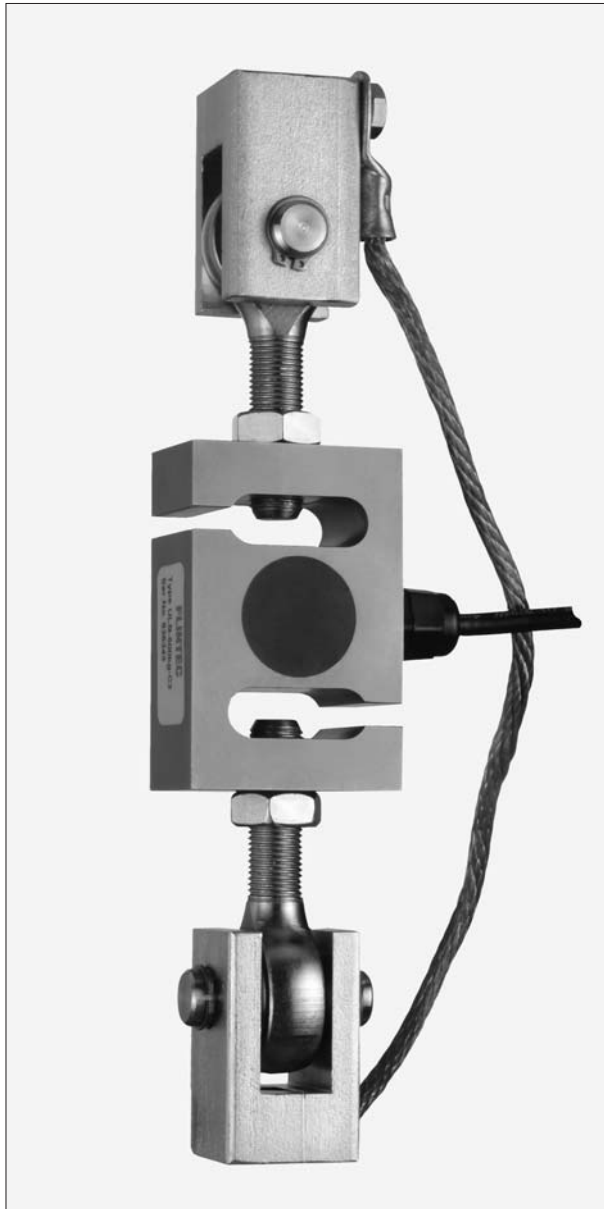
Especially designed for the UB1, UB6 and UB5 load cells.

Standard version: steel, zinc plated.

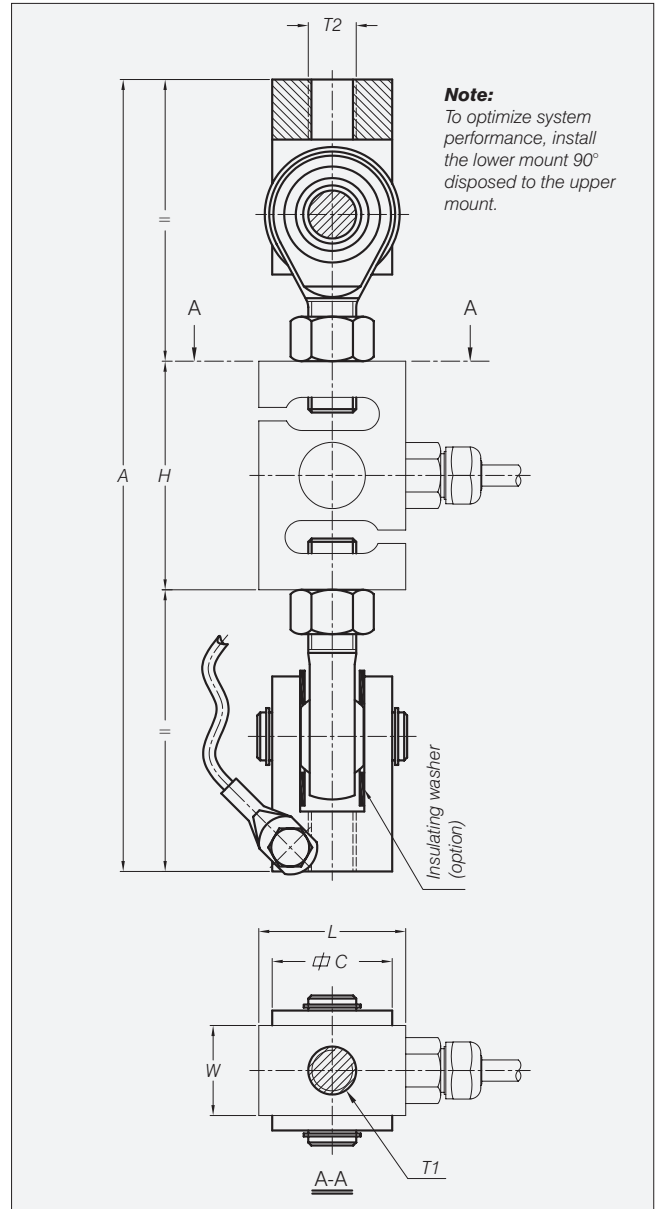
Important Features

- Capacity range: 100 kg to 5 000 kg.
- Very easy to install.
- Especially designed for hopper scales, tank weighing systems and hybrid scale conversions.

Dimensions



Tension assembly 53-04 and ULB load cell

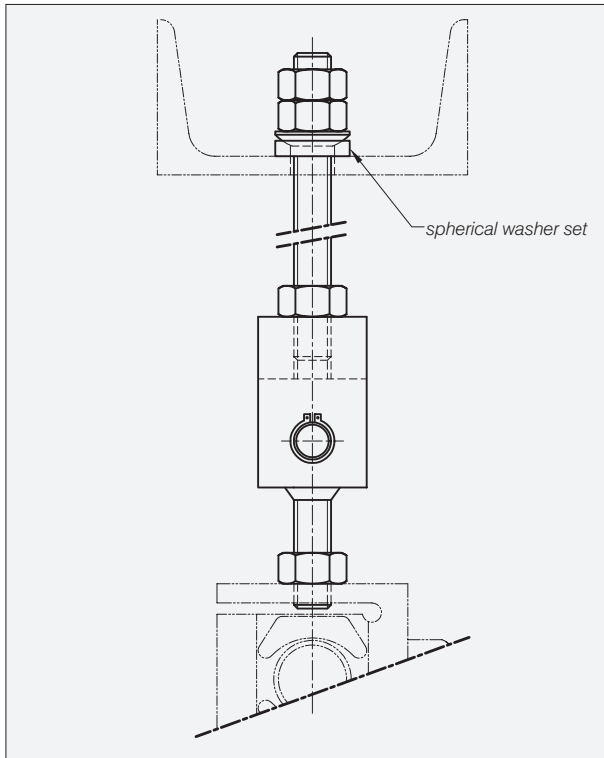


Tension Load Cells

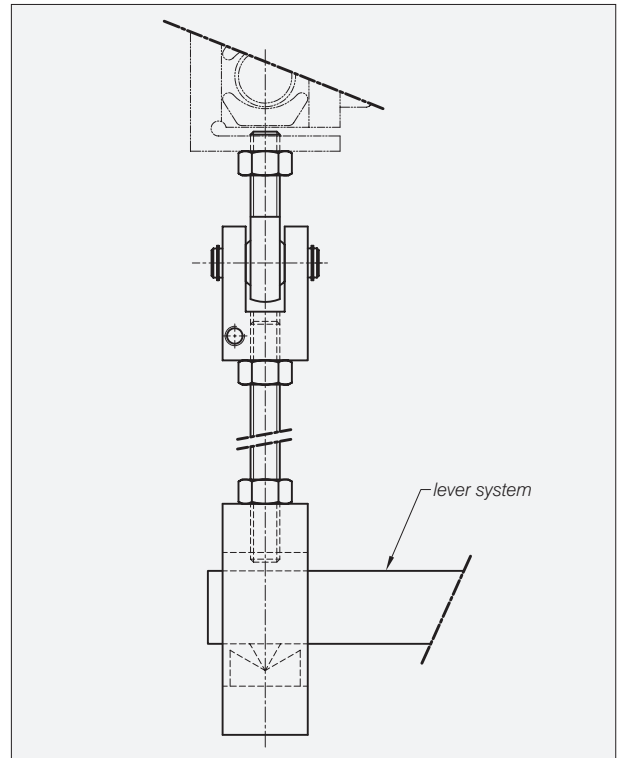
Load Cell Type	Capacity in kg	H	L	W	A	C	T1	T2	max. safe static load in kN
UB6-1/2/5 kN	102/204/510	61.5	61.5	30	220	30	M12	M12	2/4/10
ULB-100/200/500 kg		76.2	49	30	220	30	M12	M12	2/4/10
UB1-10/20 kN	1020/2039	92	86	30	275	40	M16	M16	20/30
ULB-1000 kg		76.2	49	30	264	40	M16	M16	20
ULB-2000 kg		86.1	76.2	30	270	40	M16	M16	30
ULB-3000 kg		88.7	88.7	40	310	50	M20x1.5	M20	45
UB1-50 kN	5099	136	143	43	400	60	M24x2	M24	75
ULB-5000 kg		146	91.2	56.4	420	60	M24x2	M24	75

All dimensions in mm. Dimensions and specifications are subject to change without notice.

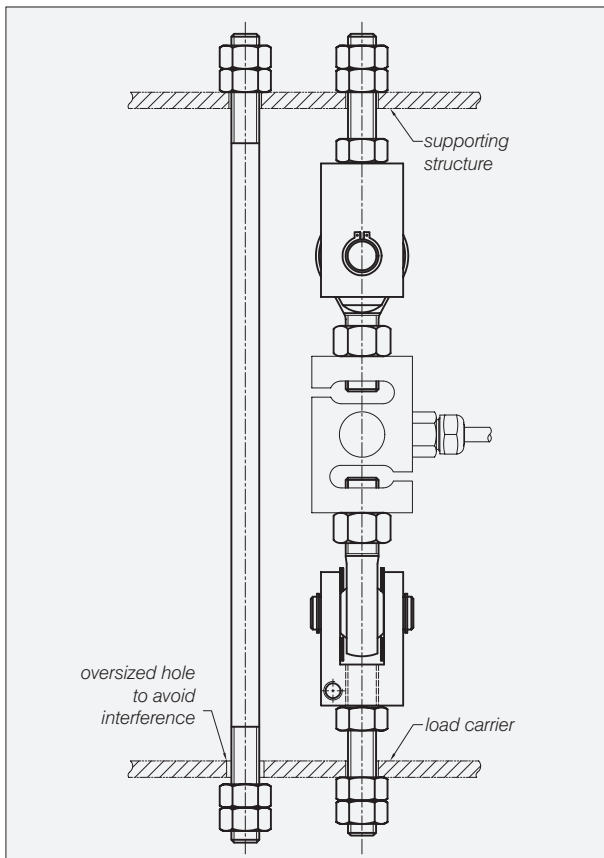
Examples



Improved connection to support structure



Hybrid scale conversion



Vertical safety check rod


Compression Load Cells

Load Cell Type		RC1	RC3	RC3D
OIML / NTEP		Yes/Yes	Yes/Yes	Yes/No
EEx (ATEX)		Yes	Yes	No
Material		Stainless steel		
Hermetic sealing		Yes	Yes	Yes
Protection		IP 68	IP 68	IP68
Maximum Capacity *				
t	kN			
7.5			•	
15			•	
22.5			•	
25.5	250	•		
30			•	•
40			•	•
40.8	400	•		
50			•	•
61.2	600	•		
91.8	900	•		
100			•	
150			•	
300			•	

* The load cells are calibrated in t or kN depending on load cell type (bold print).

data sheet

RC1



price list

data sheet

RC3



price list

data sheet

RC3D



price list

Compression Load Cells

Characteristics of Compression Load Cells

Flintec Compression Load Cells are designed as Rocker Load Cells with a single column and offer an economic and reliable solution in combination with a set of hardened loading cups.

The design provides a self centering function with a defined restoring force.

The range covers nominal capacities from 7,5 t to 300 t, all manufactured in stainless steel and hermetically sealed according to IP 68.

A number of Weigh Modules with integrated bumper and lift off protection are available for hopper, silo, and tank weighing applications.

Typical Applications

Weighbridges, big hoppers, tanks and silos.

Mechanical Application Parts

Type		RC1	RC3	RC3D
55-01-07A	Rocker System RC1 250...900 kN	•		
55-01-07C	Rocker System RC3 30...50 t		•	•
55-01-07H	Rocker System RC3 30...50 t		•	•
55-01-07D	Rocker System RC3 7.5...22.5 t		•	
55-01-10	Weigh Module 7.5...22.5 t bumper (stainless steel)		•	
55-01-11	Weigh Module 7.5...22.5 t check link (stainless steel)		•	
55-20	Weigh Module 7.5...300 t		•	•
56-02	Dummy Support		•	•

Remark: Weigh Modules are completely pre-assembled.

Compression Load Cells

data sheet

55-01-07A



price list

data sheet

55-01-07C



price list

data sheet

55-01-07H



price list

data sheet

55-01-07D



price list

data sheet

55-01-10



price list

data sheet

55-01-11



price list

data sheet

55-20



price list

data sheet

56-02



price list

Type RC1 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

RC1 rocker column load cells are available in the capacities 250 kN to 900 kN (25.5 t to 91.8 t) and include Accuracy Classifications GP, C1 and C3 according to OIML R 60; NTEP $n_{max}=10000$.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The RC1 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 250 kN to 900 kN.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- W&M certified for 3000 intervals. (NMI: TC2097 Rev. 4)
- Calibration in $mV/V/\Omega$.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

Option

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.

RC1 Specifications

Maximum capacity	(E _{max})	kN	250 / 400 / 600 / 900		
Metric equivalents (1 N=0.10197 kg)		t	25.5 / 40.8 / 61.2 / 91.8		
Rated Output	(Cn)	mV/V	2 ± 0.1%		
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)		
Accuracy class according to OIML R 60		(GP)	C1	C3	
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /4667	E _{max} /10000
Combined error	%Cn	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020	
Creep error (30 minutes) / DR	%Cn	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016	
Temperature effect on minimum dead load output	%Cn/°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0012	
Temperature effect on sensitivity	%/°C	≤ ± 0.0020	≤ ± 0.0016	≤ ± 0.0011	
Excitation voltage	V		5...15		
Zero balance	%Cn		≤ ± 5		
Input resistance	Ω		400 ± 15		
Output resistance	Ω		351 ± 1		
Insulation resistance (100 V DC)	MΩ		≥ 5000		
Compensated temperature range	°C		-10...+40		
Operating temperature range	°C		-40...+80		
Safe load limit	(E _{lim})	%E _{max}	200		
Ultimate load		%E _{max}	300		
Load cell material			stainless steel 17-4 PH (1.4548)		
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header		
Protection according DIN 40.050			IP 68		

Dimensions

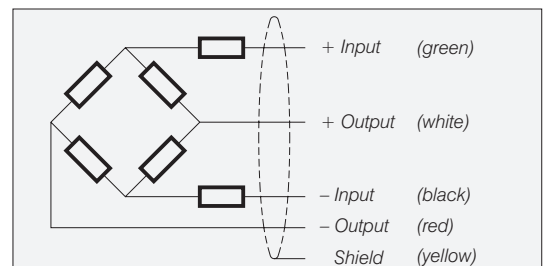
Type	L1	L2	H1	H2	H3	H4	D1	D2	D3	S _{max} *	RF**
RC1-250 kN	62	33	192	34	51	15	72	50	37	10.5	19 kN
RC1-400 kN	69	26	225	36	57	16	85	64	37	11	20 kN
RC1-600 kN	69	26	225	36	57	16	85	64	54.4	12.5	63 kN
RC1-900 kN	69	26	225	36	57	16	85	64	54.4	9	94 kN

* S_{max} = maximum lateral displacement of load introduction. Recommended gap 3...5 mm.
 ** RF = restoring force at S_{max} and E_{max}.

All dimensions in mm. Dimensions and specifications are subject to change without notice.

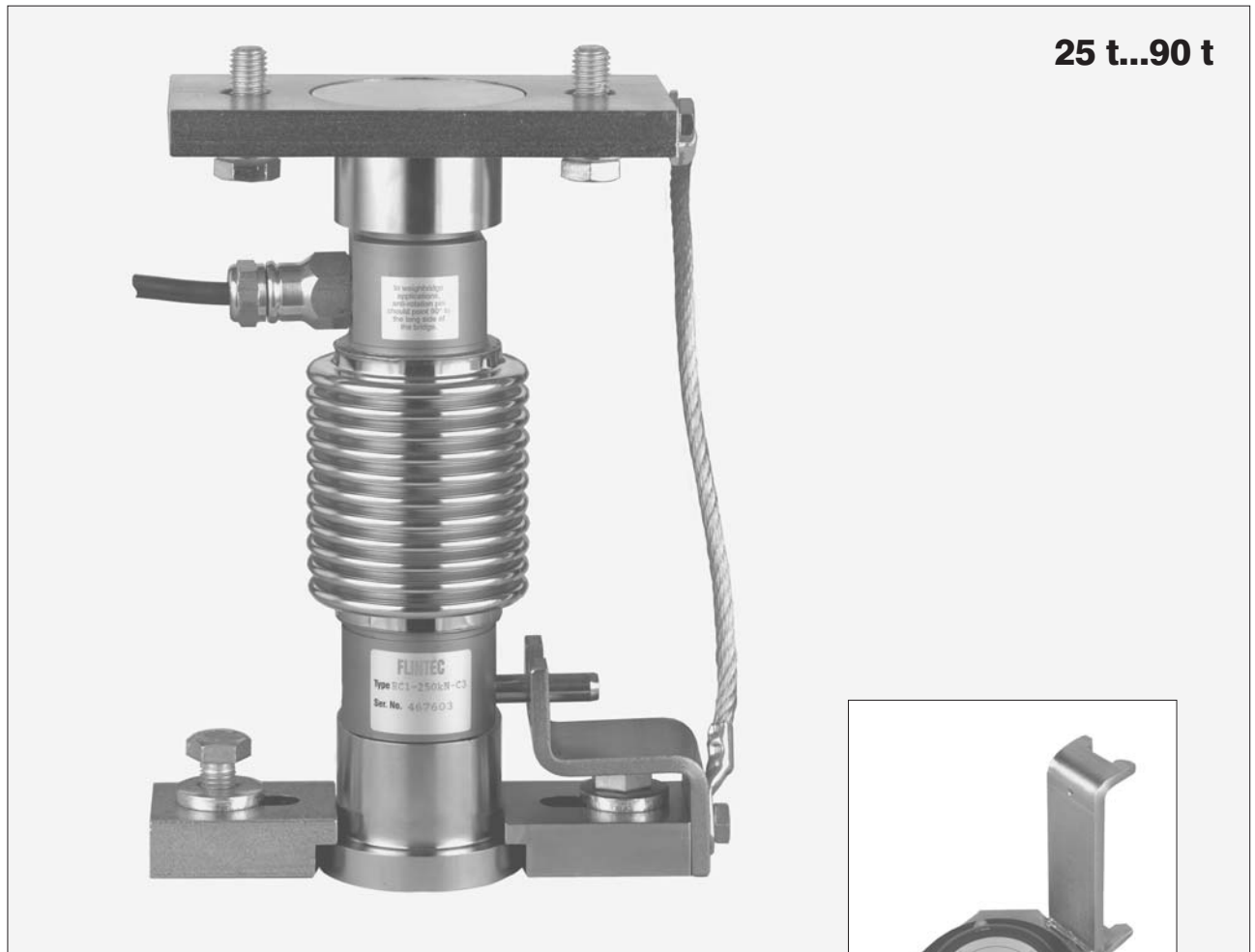
Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 20). Cable jacket polyurethane.
- Cable length: 12 m for RC1-250 kN, 16 m for RC1-400 kN, 18 m for RC1-600 and 900 kN.
- Cable diameter: 7.8 mm.
- The shield is floating (On request the shield can be connected to the load cell body).



Compression Load Cells

Type 55-01-07A Rocker System



Rocker System 55-01-07A with RC1 Load Cell

Flintec Bubble Level

Compression
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 55-01-07A is a self aligning rocker system, combining excellent load introduction with low profile design.

Especially designed for the RC1 load cells.

Material: steel, zinc plated.

A mounting fixture is available for easy and accurate positioning of foundation plates.

The unique Flintec bubble level is available for accurate vertical alignment of the load cell.

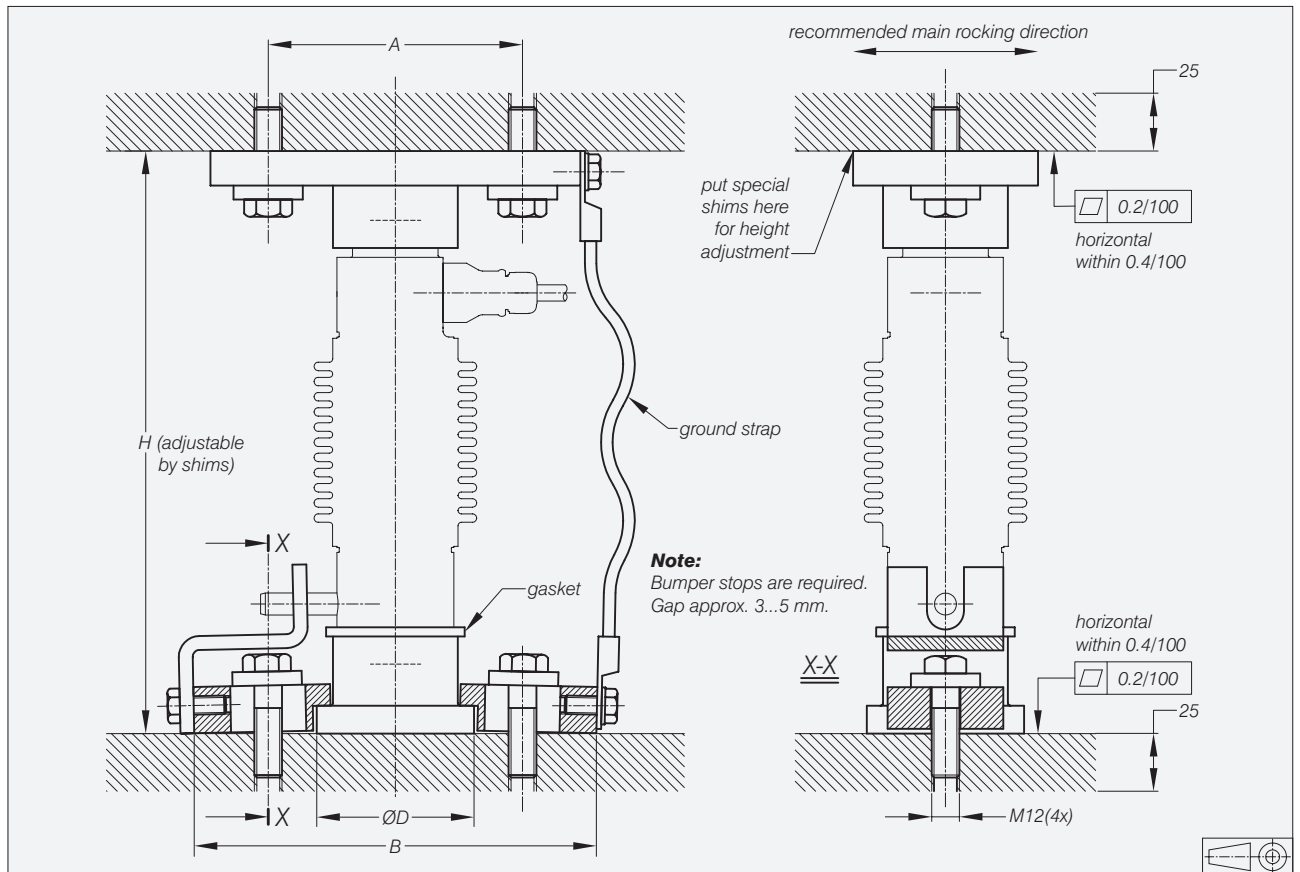
Important Features

- Capacities 25 t, 40 t, 60 t and 90 t.
- Low cost.
- Very easy to install.
- Especially designed for weighbridges.
- W&M certified.

Accessories

- Mounting fixture.
- Bubble level.
- Welding plate.

Dimensions

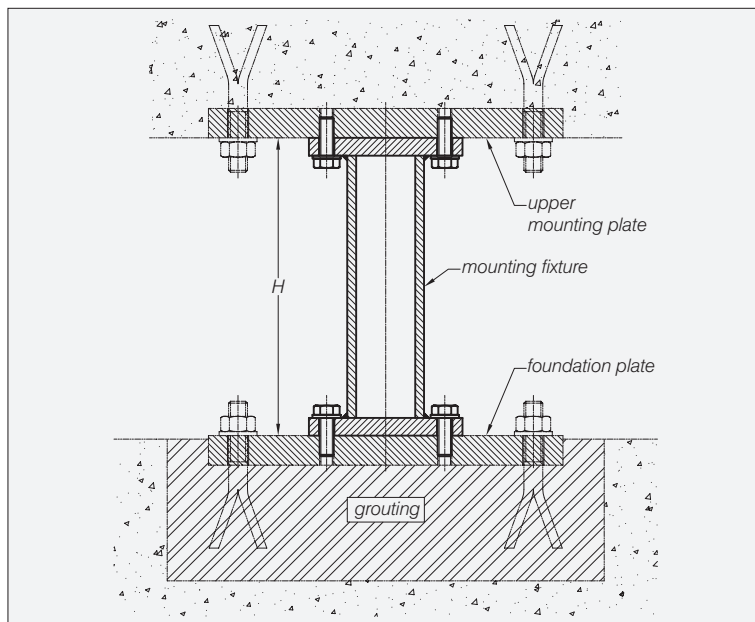


Load cell type	A	B	D	H
RC1-250 kN	110	176	68	252
RC1-400 kN	110	176	68	285
RC1-600 kN	130	196	88	300
RC1-900 kN	130	196	88	300

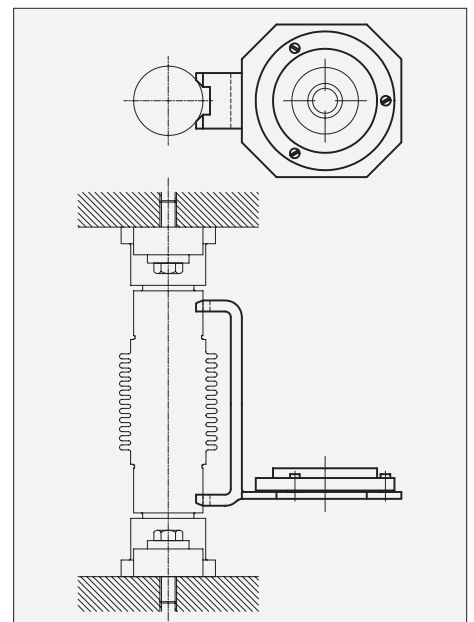
All dimensions in mm. Dimensions and specifications are subject to change without notice. Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Compression Load Cells

Accessories



The mounting fixture is used for easy and accurate positioning of the foundation plate.



The Flintec bubble level.

Type RC3 Load Cell



Flintec load cells are designed to meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide.

RC3 rocker column load cells are available in the capacities 7.5 t to 300 t and include Accuracy Classifications GP, C1, C3, C4, and C3 MI 8 according to OIML R 60; NTEP $n_{max} = 10000$.

They offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

This load cell design, in combination with a low cost self aligning rocker assembly, unites excellent load introduction with a low profile outline.

The Flintec calibration technique (in $mV/V/\Omega$) eliminates time consuming corner calibration in multiple load cell systems.

The RC3 is available for use in hazardous areas zone 0, 1, 2 (gas) and 20, 21, 22 (dust) according to EEx ia IIC T6...T4 T130°C ATEX.

Important Features

- Capacities: 7,5 t to 300 t.
- High accuracy.
- Total stainless steel construction.
- Complete hermetic sealing.
- Protection IP 68.
- High input resistance: 1100 Ω .
- W&M certified for 4000 intervals. (PTB: D09-99.09 Rev. 2)
- Calibration in $mV/V/\Omega$.
- Easy cable replacement.
- Complete range of loading hardware available.
- Factory Mutual approved.

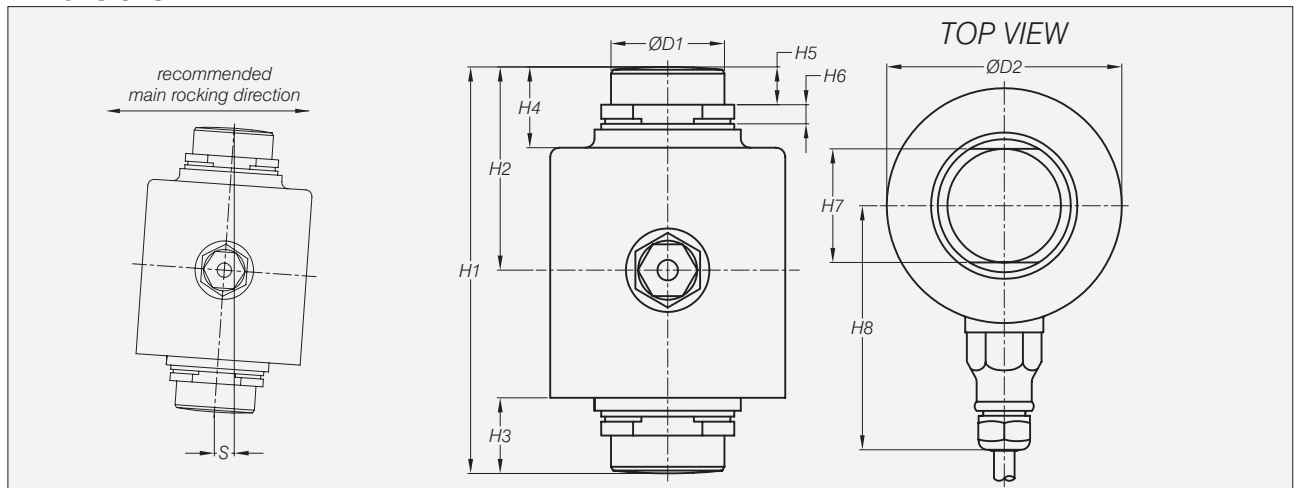
Options

- Explosion protection zone 0, 1, 2 and 20, 21, 22 ATEX.
- Integrated surge arrestors (4x).

RC3 Specifications

Maximum capacity	(E _{max})	t	7.5 / 15 / 22.5 / 30 / 40 / 50 / 100 / 150 / 300	7.5 / 15 / 22.5 / 30 / 40 / 50			
Rated Output	(Cn)	mV/V	2 ± 0.1%				
Calibration in mV/V/Ω (A...I classified)		%Cn	≤ ± 0.05 (≤ ± 0.005)				
Accuracy class according to OIML R 60			(GP)	C1	C3	C4	C3 MI 8
Maximum number of verification intervals	(n _{max})		n.a.	1000	3000	4000	3000
Minimum load cell verification interval	(v _{min})		n.a.	E _{max} /5000	E _{max} /15000		
Combined error		%Cn	≤ ± 0.040	≤ ± 0.030	≤ ± 0.020	≤ ± 0.018	≤ ± 0.015
Creep error (30 minutes) / DR		%Cn	≤ ± 0.060	≤ ± 0.049	≤ ± 0.016	≤ ± 0.012	≤ ± 0.006
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.0040	≤ ± 0.0028	≤ ± 0.0009	≤ ± 0.0009	≤ ± 0.0009
Temperature effect on sensitivity		%/°C	≤ ± 0.0020	≤ ± 0.0015	≤ ± 0.0010	≤ ± 0.0008	≤ ± 0.0010
Excitation voltage		V	5...15				
Zero balance		%Cn	≤ ± 5				
Input resistance		Ω	1150 ± 50				
Output resistance		Ω	1000 ± 2				
Insulation resistance (100 DC)		MΩ	≥ 5000				
Compensated temperature range		°C	-10...+40				
Operating temperature range		°C	-40...+80				
Safe load limit	(E _{lim})	%E _{max}	200				
Ultimate load		%E _{max}	300				
Load cell material			stainless steel 17-4 PH (1.4548)				
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header				
Protection according DIN 40.050			IP 68				

Dimensions



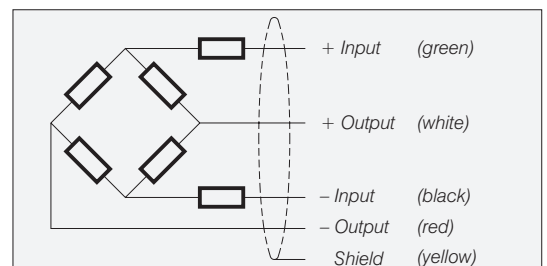
Type	H1	H2	H3	H4	H5	H6	H7	H8	D1	D2	S _{max} *	RF**
RC3-7.5 t	89	44	17	23	11	6	28	75	28	65	8	11 kN
RC3-15 t	89	44	17	23	11	6	28	75	28	65	7	20 kN
RC3-22.5 t	89	44	17	23	11	6	28	75	28	65	4.5	30 kN
RC3-30 t	140	70	26	28	13	6.5	39	84	39	81	10.5	34 kN
RC3-40 t	150	75	31	33	13	11.7	39	84	39	81	10	37 kN
RC3-50 t	178	89	32	34	17	8.5	44	94	44	99	9	51 kN
RC3-100 t	178	87	34.2	36	17	12	62	90	62	120	11.5	152 kN
RC3-150 t	210	101.4	40.4	38.6	20.6	12.8	76.2	109	76.2	160	14.5	240 kN
RC3-300 t	280	143.4	53.4	51.6	25	21.5	100	119	100	180	15	468 kN

* S_{max} = maximum lateral displacement of load introduction. Recommended gap 2...3 mm for 7.5...22.5 t, 3...5 mm for 30...300 t.
 ** RF = restoring force at S_{max} and E_{max}.

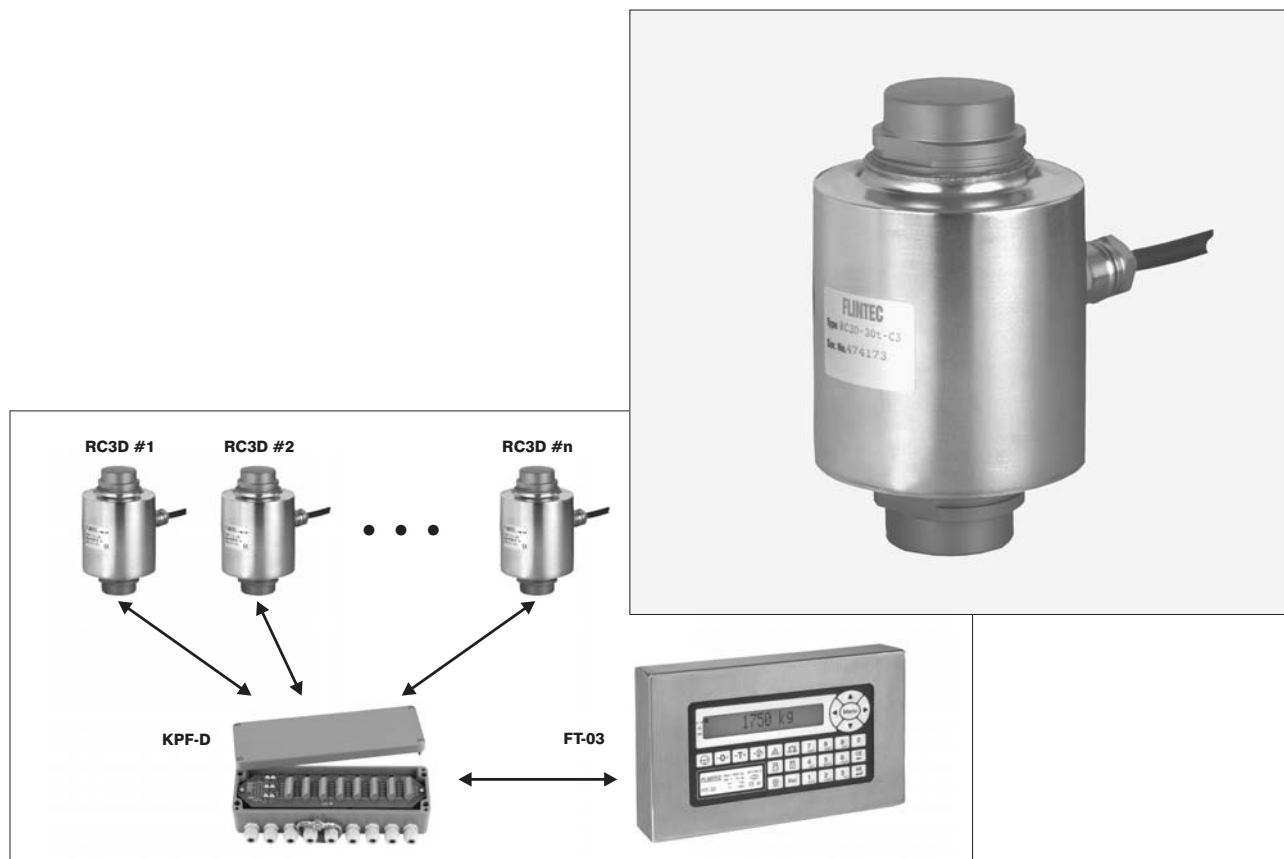
All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 24 for 7.5 to 22.5 t / AWG 20 for 30 to 300 t). Cable jacket polyurethane.
- Cable length: 12 m for 7.5 to 22.5 t, 18 m for 30 to 300 t.
- Cable diameter: 5 mm for 7.5 to 22.5 t, 7.8 mm for 30 to 300 t.
- The shield is floating (On request the shield can be connected to the load cell body).



Type RC3D Digital Load Cell



System Configuration with RC3D Components

The RC3D is the *DIGITAL* version of the very successful RC3. Flintec integrated a state of the art microprocessor system into the load cell to improve system accuracy, and load cell handling. RC3D rocker column load cells are available in the capacities 30 t to 50 t and include Accuracy Classifications GP, C1, C3, C4 and C6 according to OIML R 60.

The digital output enables the user to communicate with each load cell independently of the others in the system. It offers advantages in system setup, corner adjustment, system calibration, fault finding and load cell replacement.

The digital output from the RC3D can be directly connected to a computer, PLC or others. Flintec added two more components to help the user with his system configuration: a junction box and a weight indicator.

The junction box KPF-D connects multiple RC3D load cells. The polyester box is designed to connect 4 to 8 load cells in a bus configuration (cascade).

The Flintec FT-03 weight indicator (with alibi memory) can be used with analogue load cells and the RC3D load cells. Analogue / Digital load cells selection by parameter setting. Programming and calibration of the individual RC3D load cells is possible via the keys available or more comfortably via laptop or PC connected. The unit incorporates the power supply for all RC3D load cells connected. The unit can be connected to a PC system for further data management.

The load cells offer total stainless steel construction and complete hermetic sealing, making them suitable for use in the toughest industrial environments.

This load cell design in combination with a low cost self aligning rocker assembly unites excellent load introduction with a low profile outline.

Important Features

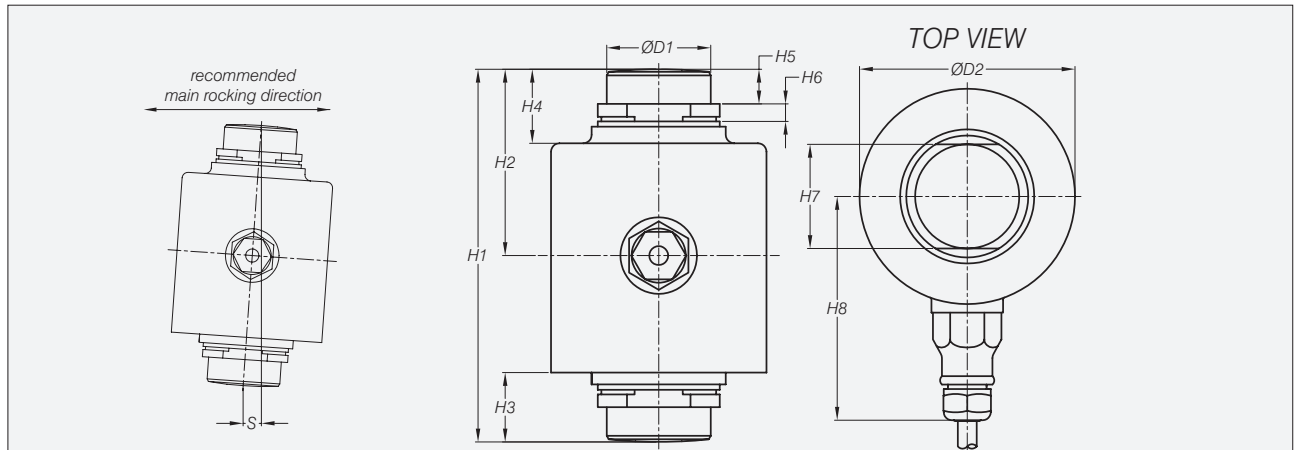
- Capacities: 30 t to 50 t.
- High accuracy.
- Easy communication and system setup.
- Additional RC3D system components available: KPF-D junction box and FT-03 weight indicator.
- Total stainless steel construction.
- Complete hermetic sealing, protection IP 68.
- Easy cable replacement.
- Complete range of loading hardware available.

Compression Load Cells

RC3D Specifications

Maximum capacity	(E_{max})	t	30 / 40 / 50			
Rated Output	(=RO)	counts	200 000			
Accuracy class according to OIML R 60			(GP)	C1	C3	C4
Maximum number of verification intervals	(n_{max})		n.a.	1000	3000	4000
Minimum load cell verification interval	(V_{min})		n.a.	$E_{max}/5000$	$E_{max}/15000$	
Combined error	%RO	$\leq \pm 0.040$	$\leq \pm 0.030$	$\leq \pm 0.020$	$\leq \pm 0.018$	
Creep error (30 minutes) / DR	%RO	$\leq \pm 0.060$	$\leq \pm 0.049$	$\leq \pm 0.016$	$\leq \pm 0.012$	
Temperature effect on minimum dead load output	%RO/°C	$\leq \pm 0.0040$	$\leq \pm 0.0028$	$\leq \pm 0.0009$	$\leq \pm 0.0009$	
Temperature effect on sensitivity	%/°C	$\leq \pm 0.0020$	$\leq \pm 0.0015$	$\leq \pm 0.0010$	$\leq \pm 0.0008$	
Converter type			Sigma-Delta ratiometric			
Conversion rate			3 to 70 Hertz (selectable)			
Digital filter			FIR automatically adjusted to conversion rate plus Rolling Average (1, 2, 4, 8, 16, 32 samples) post filtering			
Internal resolution	counts		550 000			
Asynchrone interface			RS485A half duplex, multidrop with networking address, 2400 to 38400 baud Baudrate, data bits, parity and data output are programmable			
Number of bus addresses			32			
Excitation voltage	V		9...12			
Current consumption	mA		40			
Compensated temperature range	°C		-10... +40			
Operating temperature range	°C		-40... +80			
Safe load limit	(E_{lim})	% E_{max}	200			
Ultimate load		% E_{max}	300			
Load cell material			stainless steel 17-4 PH (1.4548)			
Sealing			complete hermetic sealing; cable entry sealed by glass to metal header			
Protection according DIN 40.050			IP 68			

Dimensions



Type	H1	H2	H3	H4	H5	H6	H7	H8	D1	D2	S_{max}^*	RF**
RC3D-30 t / 40 t	150	70	26	28	13	6.5	39	84	39	81	12	27 kN
RC3D-50 t	178	89	32	34	17	8.5	44	94	44	99	9	51 kN

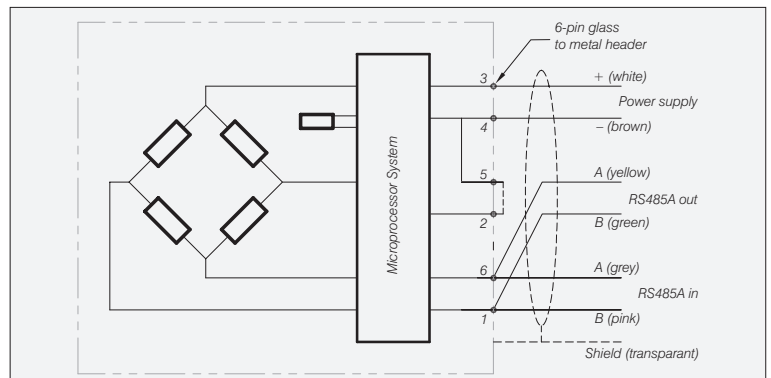
* S_{max} = maximum lateral displacement of load introduction. Recommended gap 3...5 mm.

** RF = restoring force at S_{max} and E_{max} .

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load cell is provided with a 3x twisted pair cable (AWG 24) and shield according DIN 47 100.
- Cable length: 18 m.
- Cable diameter: 7.4 mm.
- The shield is connected to the load cell body.



Type 55-01-07C Rocker System



Rocker System 55-01-07C with RC3 Load Cell



Flintec Bubble Level

Compression
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 55-01-07C is a self aligning rocker system, combining excellent load introduction with low profile design.

Especially designed for the RC3/RC3D load cells.

Material: steel, zinc plated.

A mounting fixture is available for easy and accurate positioning of foundation plates.

The unique Flintec bubble level is available for accurate vertical alignment of the load cell.

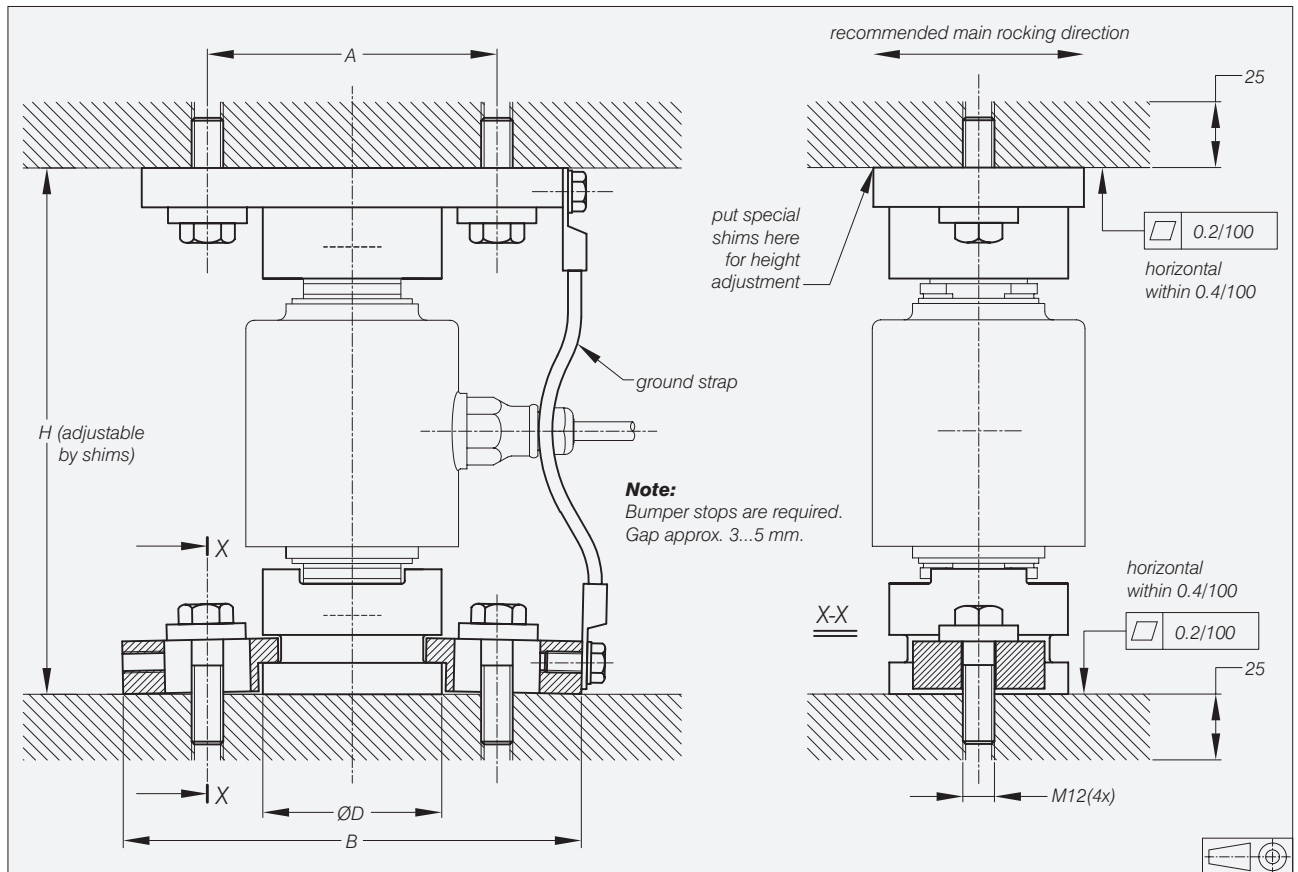
Important Features

- Capacity 30 t, 40 t and 50 t.
- Low cost.
- Very easy to install.
- Especially designed for weighbridges.
- W&M certified.

Accessories

- Mounting fixture.
- Bubble level.
- Welding plate.

Dimensions

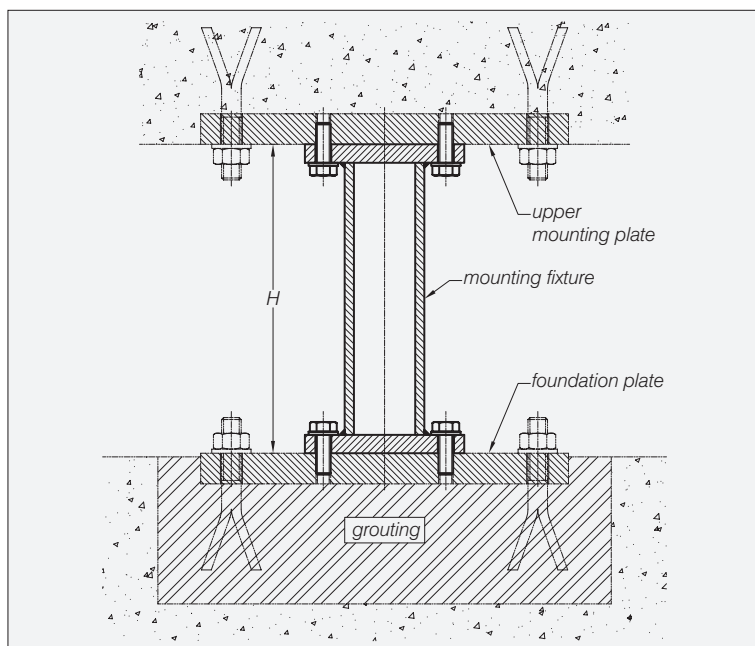


Load Cell Type	A	B	D	H
RC3-30 t / RC3D-30 t	110	176	68	200 / 210
RC3-40 t / RC3D-40 t	110	176	68	210
RC3-50 t / RC3D-50 t	130	196	88	240

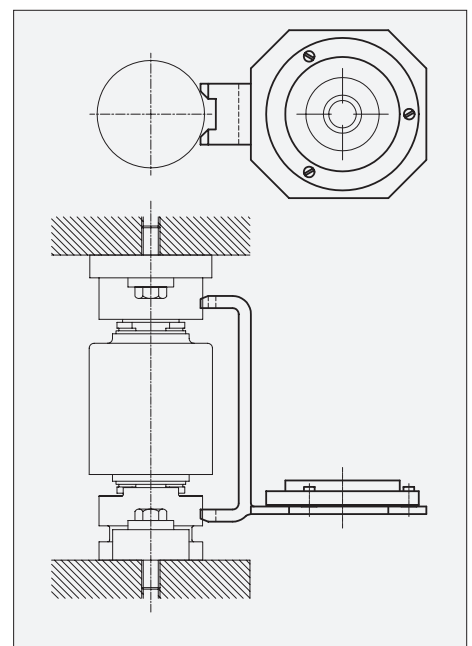
All dimensions in mm. Dimensions and specifications are subject to change without notice. Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Compression Load Cells

Accessories



The mounting fixture is used for easy and accurate positioning of the foundation plate.



The Flintec bubble level.

Type 55-01-07H Rocker System

30 t and 40 t



Rocker System 55-01-07H with RC3 Load Cell



Flintec Bubble Level

Compression Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 55-01-07H is a self aligning rocker system, combining excellent load introduction with low profile design.

Especially designed for the RC3/RC3D load cells.

Material: steel, zinc plated.

The unique Flintec bubble level is available for accurate vertical alignment of the load cell.

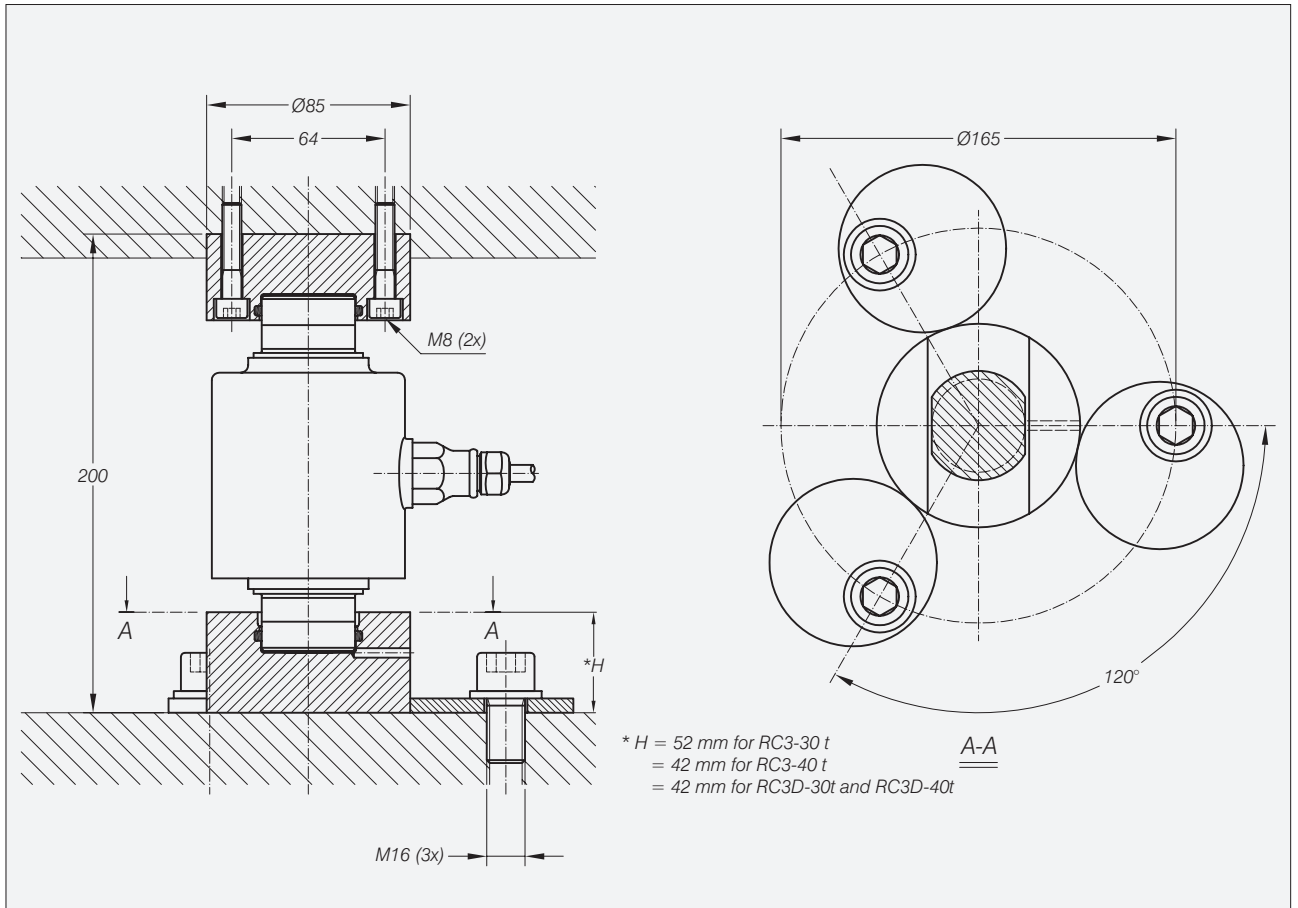
Important Features

- Capacity 30 t and 40 t.
- Low cost.
- Very easy to install.
- Especially designed for weigh bridges.
- W&M certified.

Accessories

- Bubble level.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Type 55-01-07D Rocker System

7.5 t...22.5 t



Rocker System 55-01-07D with RC3 Load Cell

Compression
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 55-01-07D is a self aligning rocker system, combining excellent load introduction with low profile design.

Especially designed for the RC3/RC3D load cells.

Material: steel, zinc plated.

An alignment fixture is available for accurate vertical alignment of the load cell.

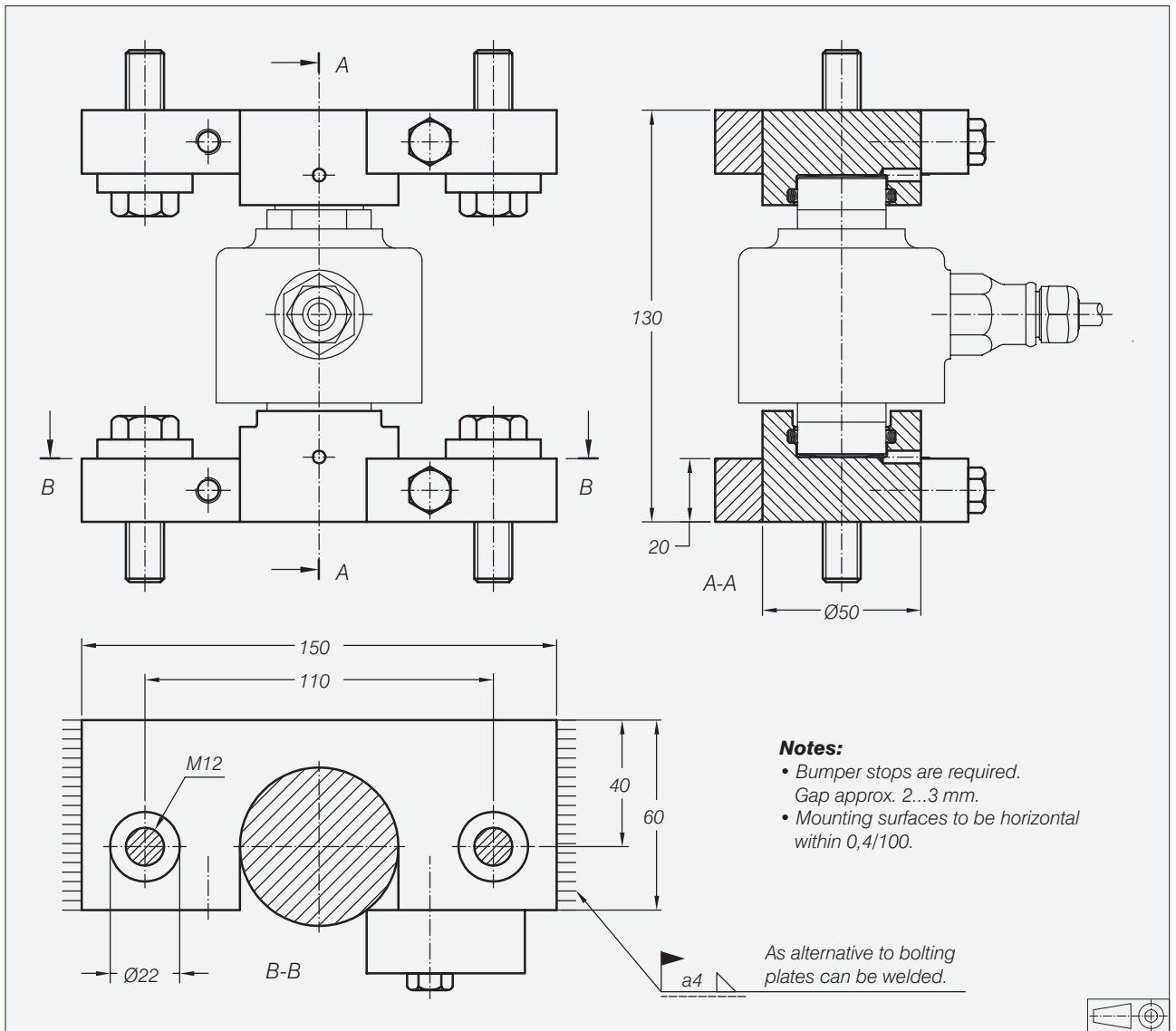
Important Features

- Capacity 7.5 t, 15 t and 22.5 t.
- Very low profile.
- Low cost.
- Very easy to install.
- Especially designed for medium and high capacity platform scales.
- W&M certified.

Accessories

- Alignment fixture.
- Welding plate.

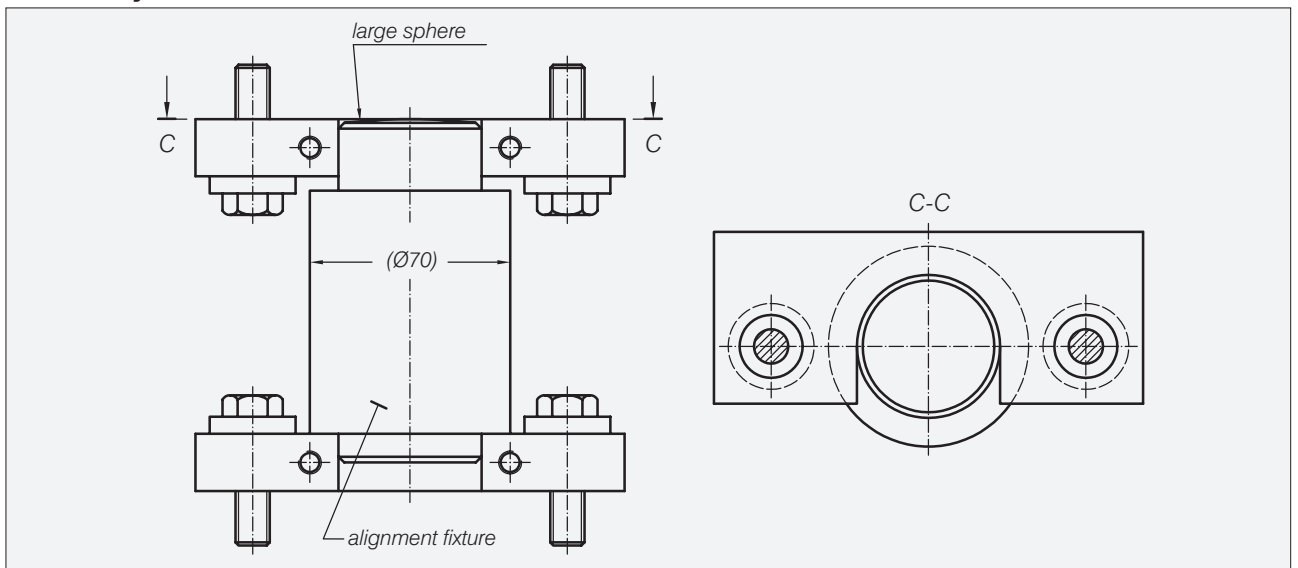
Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice. Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Compression Load Cells

Accessory



The alignment fixture is used for easy and accurate positioning.

Type 55-01-10 Weigh Module

7.5 t...22.5 t



Weigh Module 55-01-10 with RC3 Load Cell



Pre-assembled module

**Compression
Load Cells**

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance.

The Type 55-01-10 is a self aligning weigh module, with excellent load introduction.

The module is especially designed for using Flintec rocker column load cells in hopper and tank weighing applications. The module incorporates an integrated bumper stop eliminating the need for check links thereby offering highest possible precision.

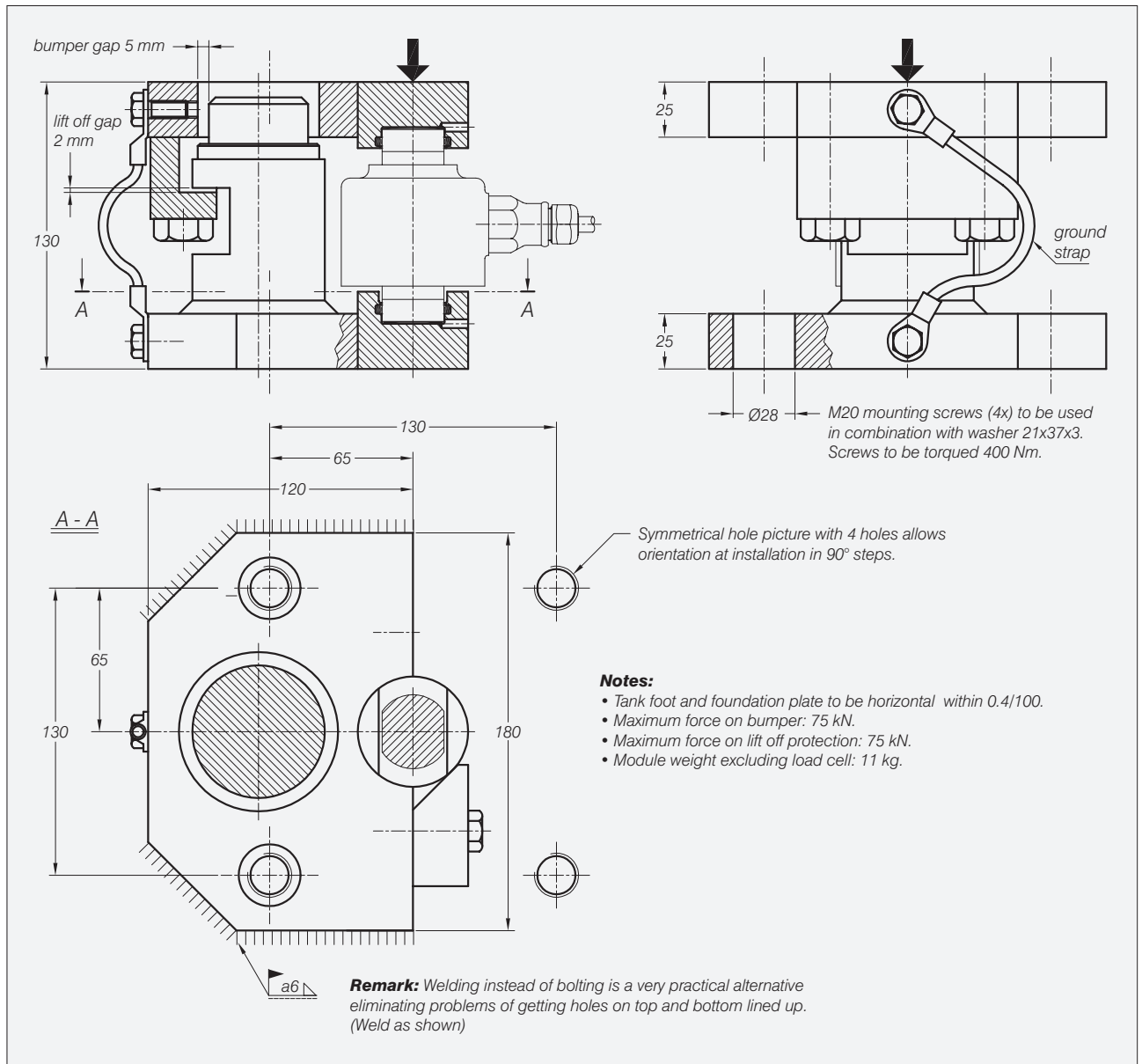
The Weigh Module will be shipped pre-assembled; ready for installation by bolting or welding.

Material: stainless steel.

Important Features

- Capacities 7.5 t, 15 t and 22.5 t.
- Very easy to install.
- Very rugged.
- Especially designed for hopper and tank weighing.
- Integrated bumper stop for highest accuracy.
- Integrated lift off protection.
- Load cell replacement requires minimum lifting height.
- W&M certified.

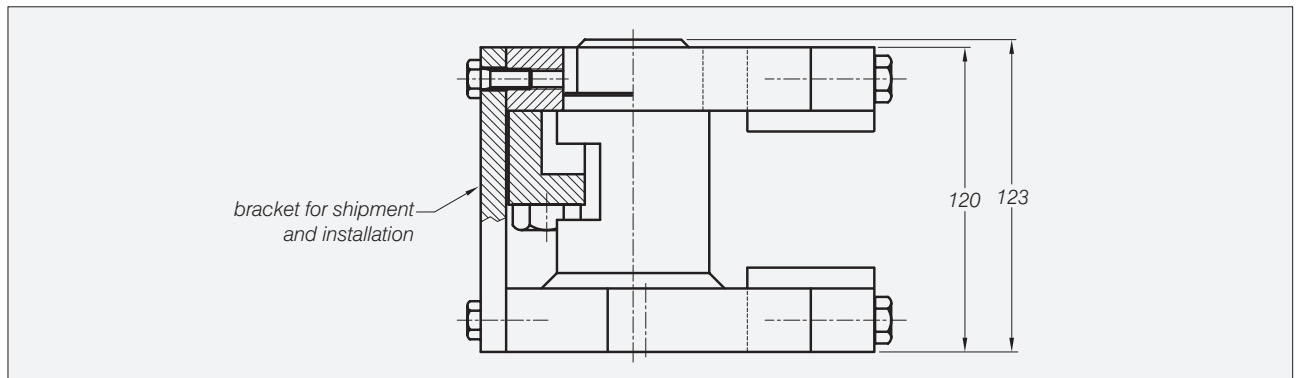
Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Compression Load Cells

Module assembled for shipment and installation

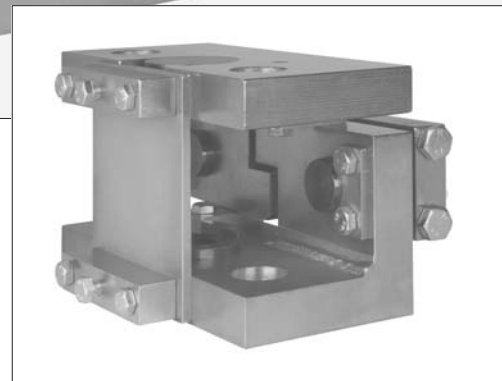


Type 55-01-11 Weigh Module

7.5 t...22.5 t



Weigh Module 55-01-11 with RC3 Load Cell



Pre-assembled module

Compression
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance. The Type 55-01-11 is a self aligning weigh module, with excellent load introduction.

The module is especially designed for using Flintec rocker column load cells in hopper and tank weighing applications and incorporates an integrated check link to eliminate oscillations caused by slow moving agitators etc.

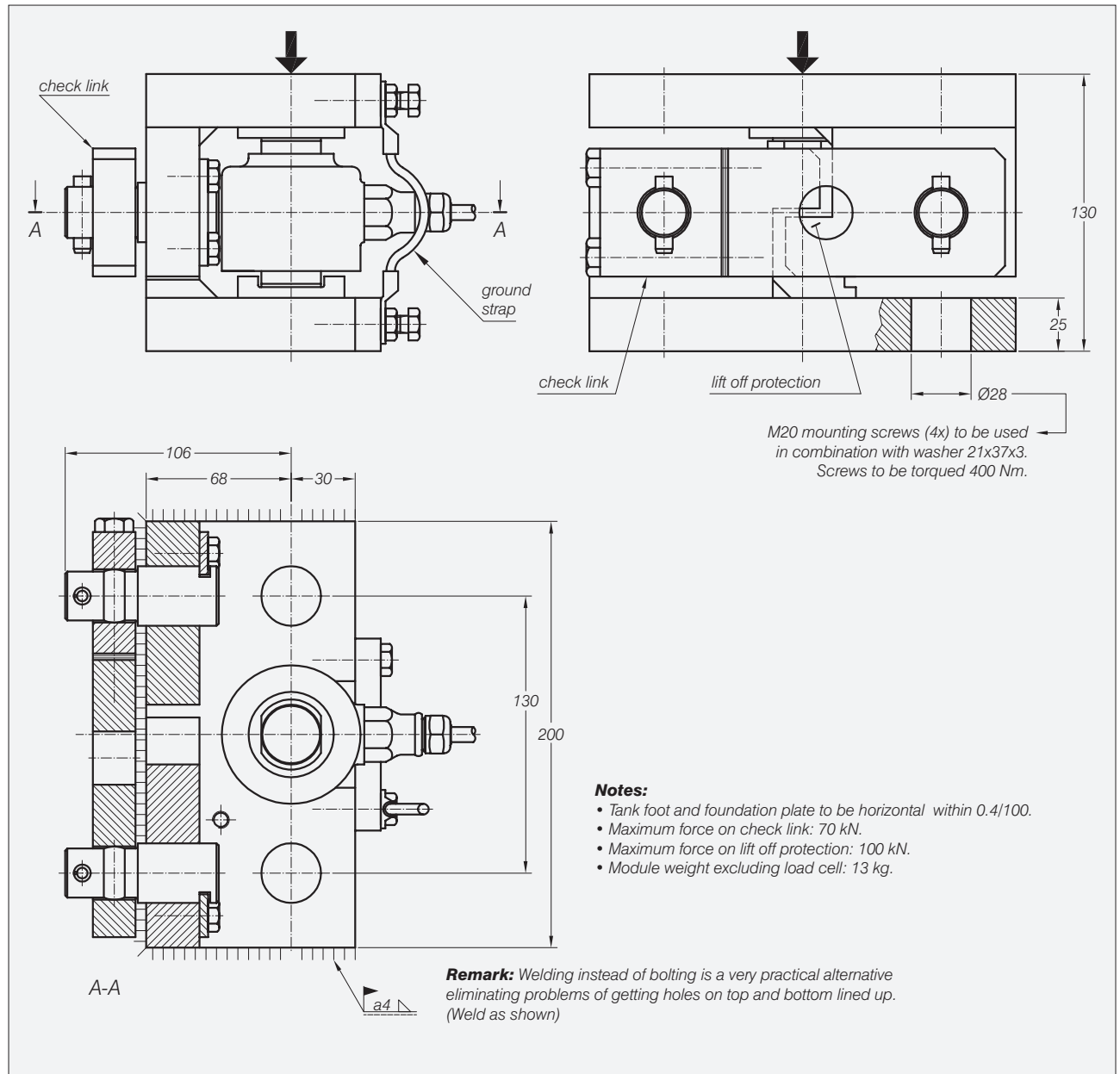
The Weigh Module will be shipped completely pre-assembled including a blocking plate; ready for installation by welding or bolting.

Material: steel, zinc plated; alternatively stainless steel.

Important Features

- Capacities 7.5 t, 15 t and 22.5 t.
- Very easy to install.
- Very rugged.
- Especially designed for hopper and tank weighing with slow moving agitators.
- With integrated lift off protection.
- Load cell replacement requires minimum lifting height.

Dimensions

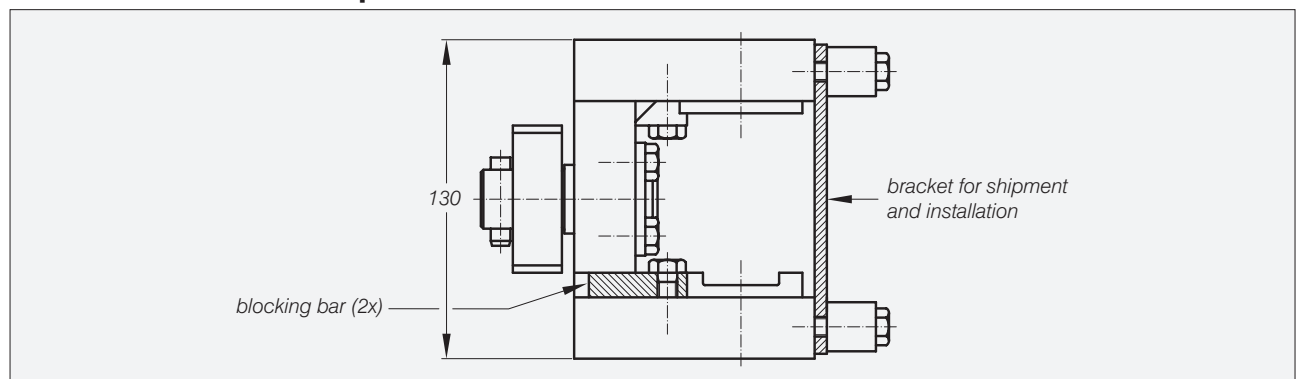


All dimensions in mm. Dimensions and specifications are subject to change without notice. Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Note:

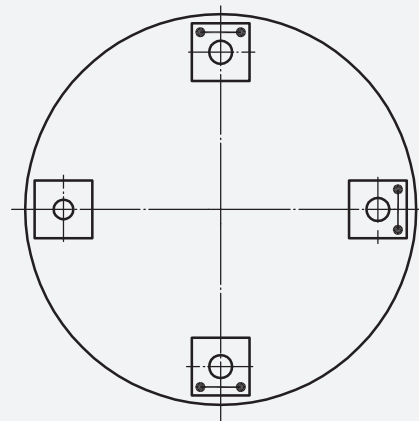
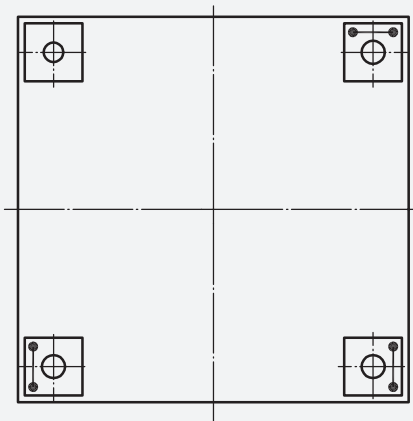
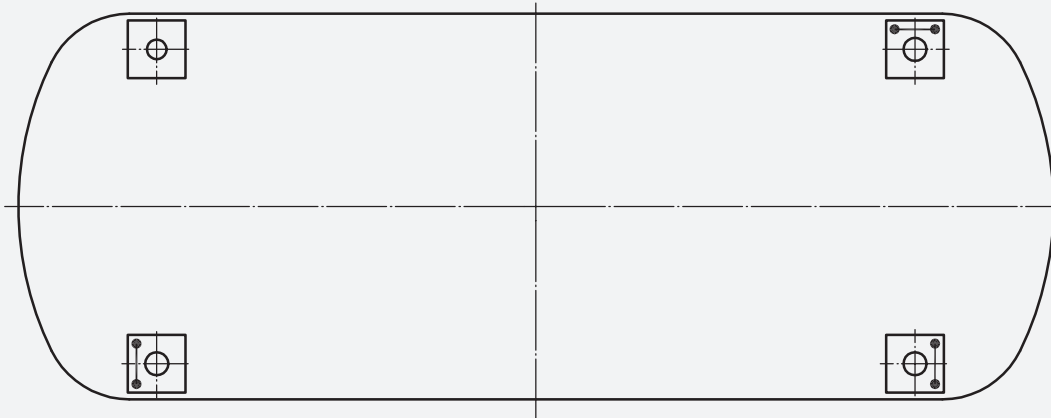
3 Loading points are equipped with check links; all others without check link. See page 105: Check link orientation.

Module assembled for shipment and installation

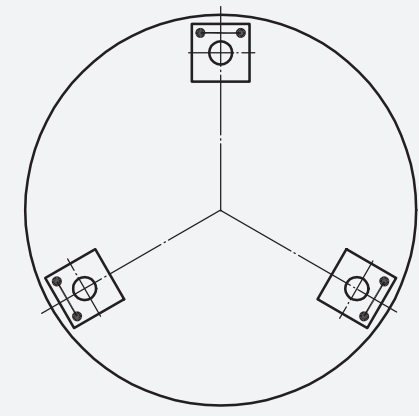
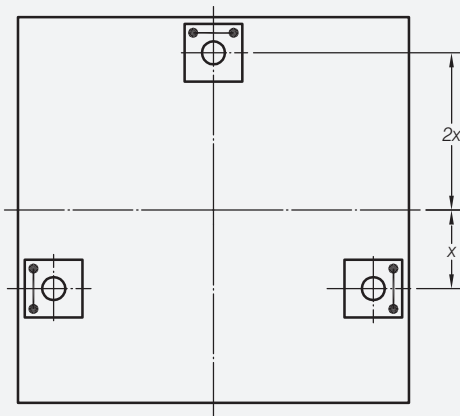


Check link orientation for Weigh Module 55-01-11

4 LOAD CELLS



3 LOAD CELLS



drawing symbols



unit with check link



unit without check link

**Compression
Load Cells**

Type 55-20 Weigh Module

7.5 t...300 t



Weigh Module 55-20 with RC3 Load Cell



Pre-assembled module ready for installation

Compression
Load Cells

Flintec load cell supports are designed to prevent unwanted forces from affecting load cell performance. The Type 55-20 is a self aligning weigh module, with excellent load introduction.

The module is especially designed for using Flintec rocker column load cells in hopper and tank weighing applications. The module incorporates an integrated bumper stop eliminating the need of using check links thereby offering highest possible precision.

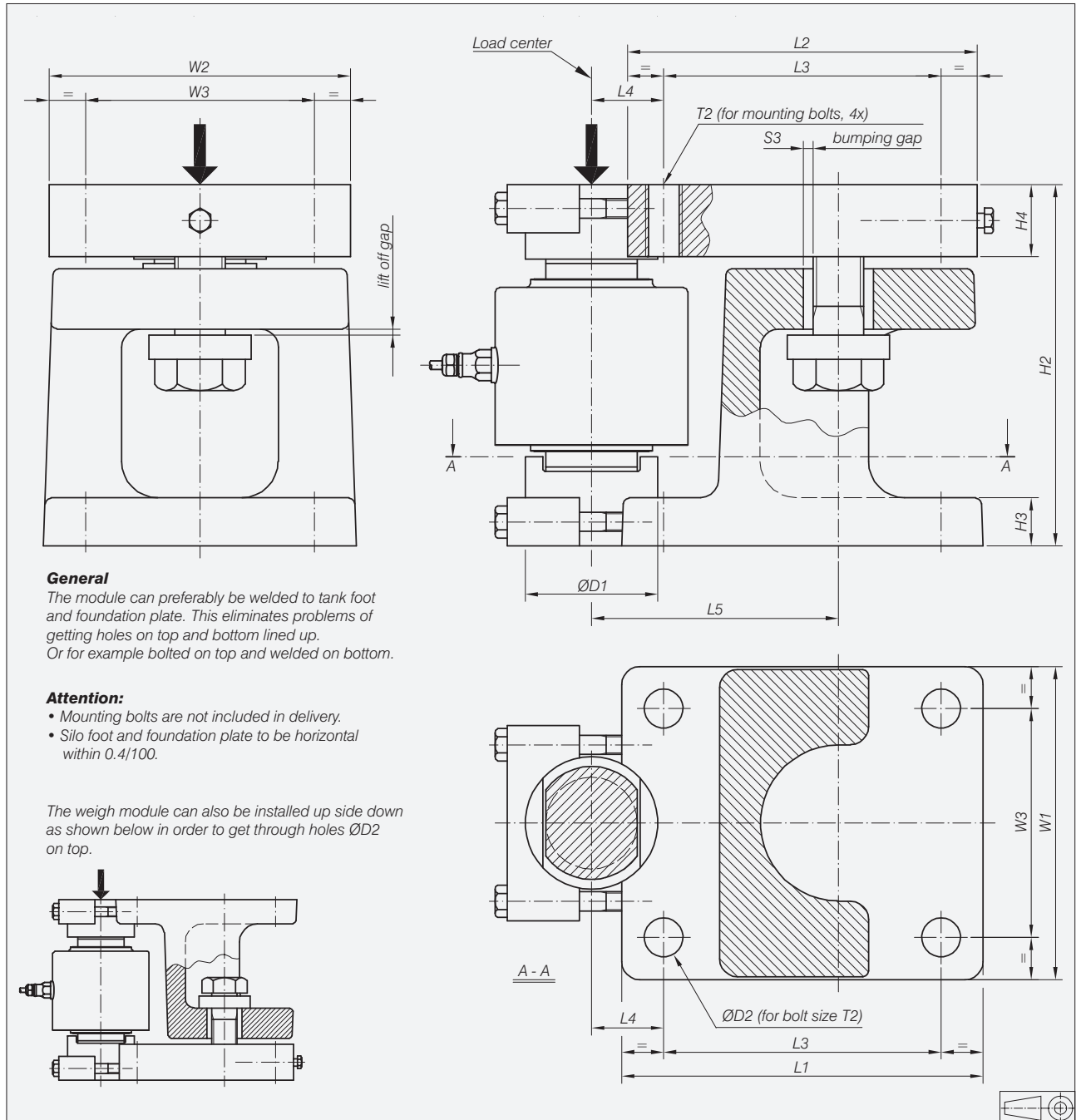
The Weigh Module will be shipped completely pre- assembled ; ready for installation by welding or bolting.

Material: cast mild steel, painted.

Important Features

- Capacities 7.5 t...300 t.
- Very easy to install.
- Especially designed for hopper and tank weighing.
- With integrated bumper stop for highest precision.
- With integrated lift off protection.
- Load cell replacement requires minimum lifting height.
- W&M certified.

Dimensions

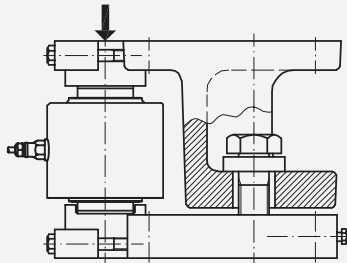


General
 The module can preferably be welded to tank foot and foundation plate. This eliminates problems of getting holes on top and bottom lined up.
 Or for example bolted on top and welded on bottom.

Attention:

- Mounting bolts are not included in delivery.
- Silo foot and foundation plate to be horizontal within 0.4/100.

The weigh module can also be installed up side down as shown below in order to get through holes ØD2 on top.



Load cell type	D1	D2	H2	H3	H4	L1	L2	L3	L4	L5	W1	W2	W3	S3	T2	Max lift off force (kN) *	Max side force (kN) *	Weigh excl load cell (kg)
RC3-7.5/15/22.5 t	50	17.5	130	20	30	166	160	130	25	100	136	130	100	5	M16	100	50	15
RC3-30/40 t	60	22	200	28	40	220	210	170	30	125	160	150	110	6	M20	180	90	33
RC3-50/100 t	85	26	250	34	50	260	250	200	45	165	210	200	150	7	M24	300	150	65
RC3-150 t	110	33	300	40	60	300	290	230	60	205	260	250	190	8	M30	400	200	113
RC3-300 t	135	39	400	60	70	370	350	280	65	235	320	300	230	10	M36	600	300	225

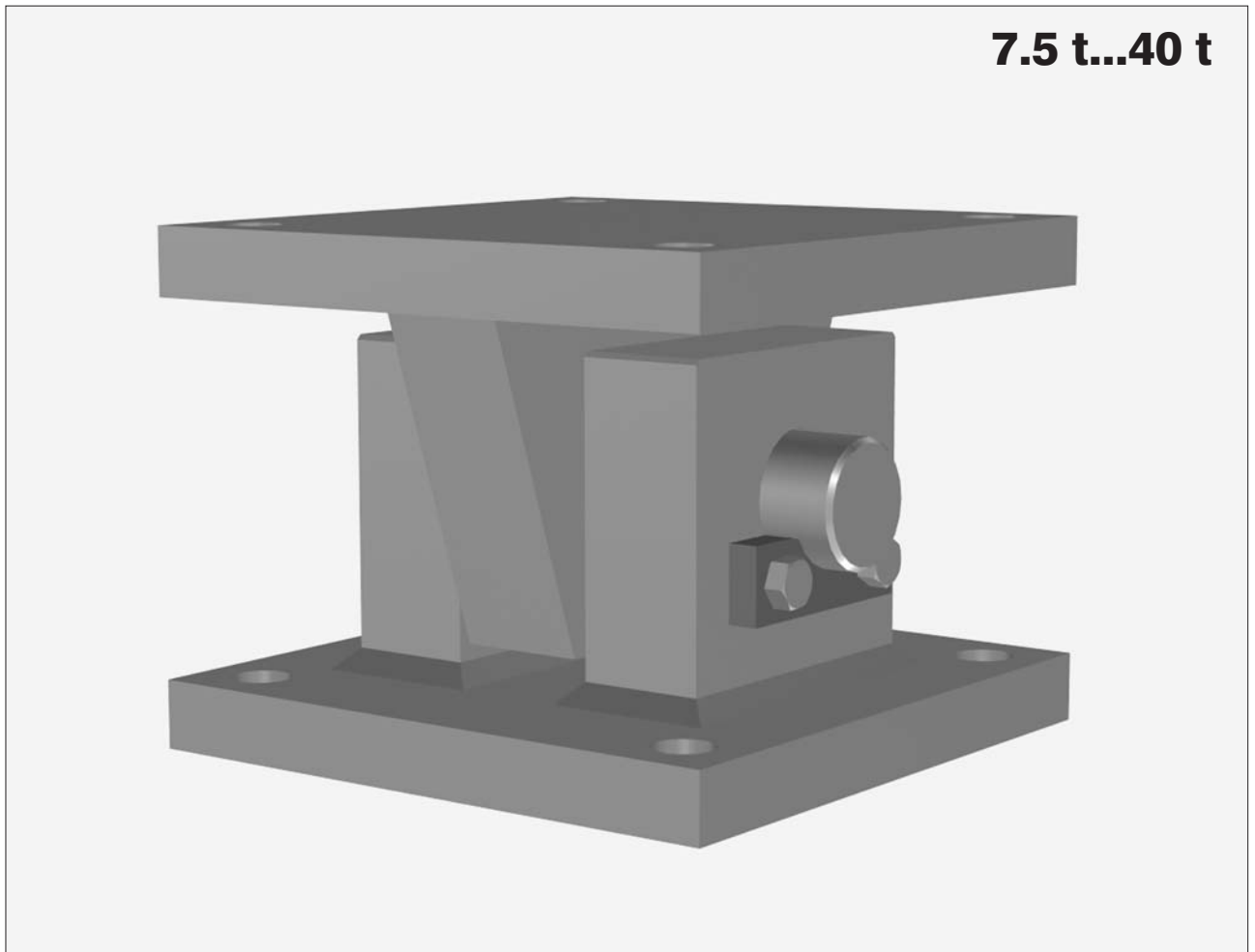
*** Note**

- In tank / silo applications with 3 respectively 4 weigh modules can be assumed that minimum 2 modules will equally share actual side force (wind) on the tank / silo.
- Actual lift off force shall, for worst case, be assumed being taken by one module.

All dimensions in mm. Dimensions and specifications are subject to change without notice.
 Assembly drawings with installation instructions and CAD files for customer's own application drawings are available on request.

Type 56-02 Dummy Support

7.5 t...40 t



The type 56-02 dummy supports have same height and can be combined with corresponding capacity of weigh modules type 55-20, 55-01-10 and 55-01-07C/D rocker system.

The dummy supports are typically used in scale systems for level control in tanks. They replace two of the weigh modules in tanks on 3 or 4 legs and give a very cost effective scale solution.

The supports are dimensioned to take side forces in any horizontal direction up to 100% of maximum capacity.

Lift off forces are safe to 50% for the 7.5/15/22.5 t unit and to 100% for the 30/40 t unit.

If foundation plates and tank feet are prepared also with mounting holes for the weigh module, the scale can later easily be upgraded to a high accuracy load cell system by replacing the dummy supports with weigh modules.

Material: Mild steel, zinc plated.

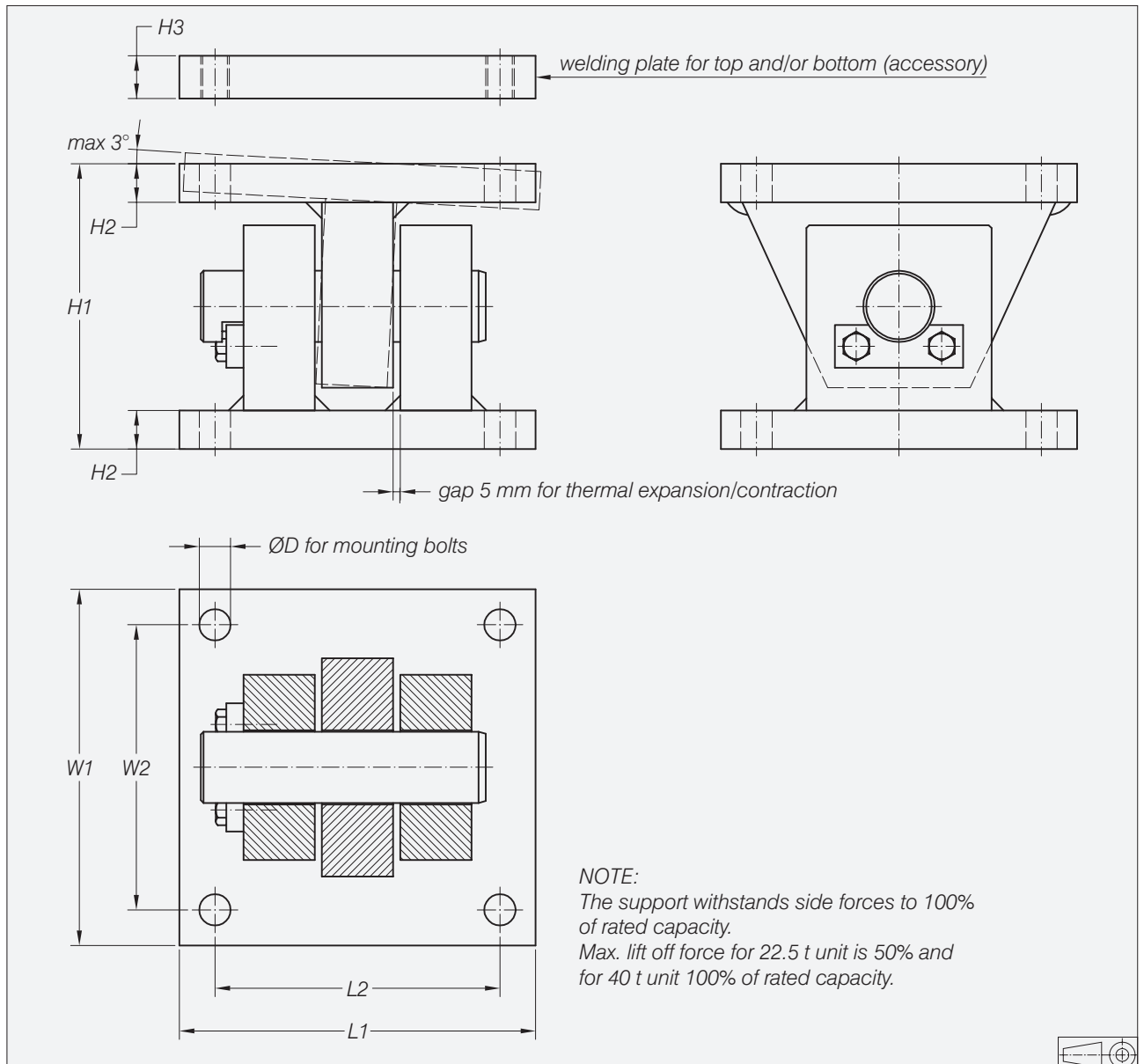
Important Features

- Capacities 7.5 t to 40 t.
- Easy installation by bolting or welding.
- Tolerates large angular errors for tank foot and foundation plate.
- Allows thermal expansion/contraction.
- Very rugged design.

Accessory

- Welding plates top and /or bottom

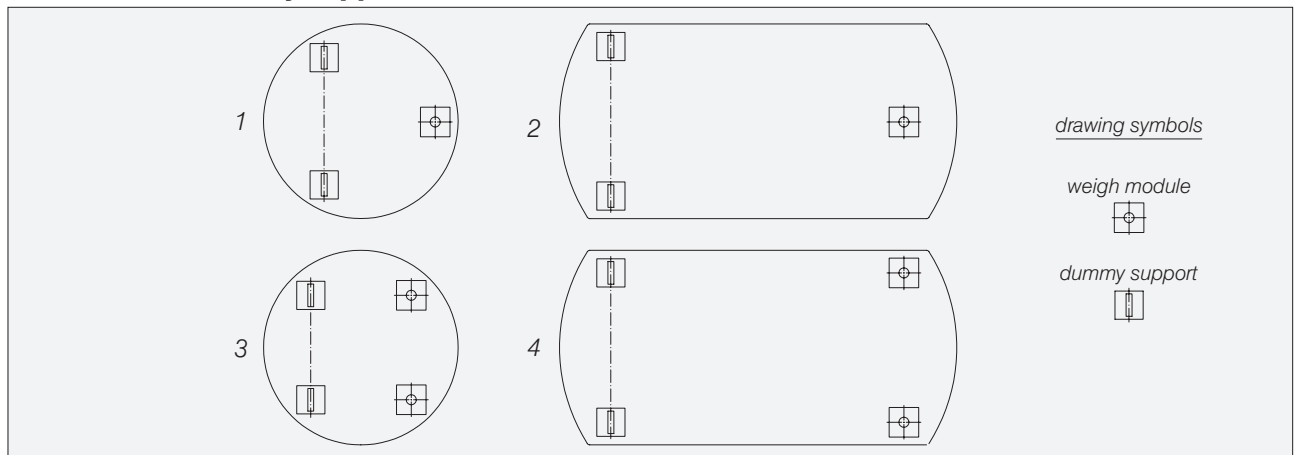
Dimensions



Capacity	Matches height of	H1	H2	H3	L1	L2	W1	W2	D	Mounting bolts
7.5/15/22.5 t	55-20 / 55-01-10 / 55-01-07D	130	22	25	180	140	180	140	18.5	M16 8.8
30/40 t	55-20 / 55-01-07C*	200	27	30	250	200	250	200	22	M20 8.8

* Requires special cups for 40 t.
 All dimensions in mm. Dimensions and specifications are subject to change without notice.
 CAD files for customer's own application drawings are available on request.

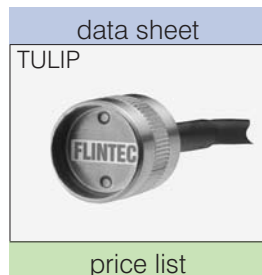
Orientation of dummy support



Compression Load Cells

Special Sensors

Type	Short Description
TULIP	The TULIP Transducer is designed to be implanted into the heart of the structure to provide dependable strain sensing. The Press-Fit construction allows easy installation. This load sensor gives the machine, device or structure an accurate load sensing capability by simply drilling a hole.
LP1	In addition to a standard range of load pins, Flintec is able to design and manufacture load pins to suit specific customer applications. Typical applications include crane and hoist load/condition monitoring as well as numerous applications in the fields of safety, industrial measurement, vehicles and aerospace industries.



data sheet

TULIP

price list



data sheet

LP 1

price list

This catalogue includes two types of special sensors; the Tulip press fit sensor and the load pin Type LP1. Both can be used in various applications and are just examples in the wide field of individual strain gauge sensors, the Flintec engineering team may develop on request.

The TULIP Transducer

The TULIP Transducer is designed to be implanted into the heart of the structure to provide dependable strain sensing. The Press-Fit construction allows easy installation.

This load sensor gives the machine, device or structure an accurate load sensing capability by simply drilling a hole.

The economic solution for:

- Industrial weighing
- Level control systems
- Machine control systems



Its small size is remarkable; the knurled part "bites" into your structure

The idea of developing a sensor capable of being integrated into a mechanical structure has resulted in the TULIP Transducer.

Its unique shape (sensing strain in 2 axes) combined with proven strain gauge technology solves a wide range of actual application problems.

Installation normally requires only machining a suitable hole in the structural part, and insertion of the sensor.

The sensor's accuracy combined with its stainless steel and hermetically sealed housing guarantees success in the worst hostile environments.

The sensor has unchallenged application versatility; virtually any machine, device or structure can use this sensor as a cost effective, accurate solution to your

sensing needs. Only the designer's ingenuity limits the application of this concept.

Compared to similar products in the market like Bolt-On types, the TULIP has specific advantages:

- Because of its unique ability to sense strain in 2 axes, zero shift due to thermal effects are greatly reduced.
- The TULIP is hermetically sealed.
- The press-fit construction allows better long term stability.
- The press-fit construction allows installation in the neutral axis of the structure.

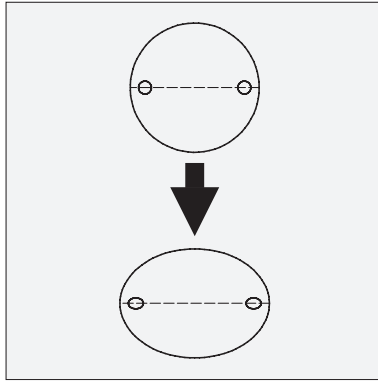
Applications

- Silo weighing systems.
- Tank weighing systems.
- Agricultural equipment.
- Lift trucks.
- Structural load measuring.
- Crane weighing.
- Crane overload protection sensing.
- Rolling mill sensing.
- Machine tool wear sensing.
- One-off special load cells.
-and your load sensing application.

Features

- Capacity ranging from hundreds of kg to thousands of t, all with the same sensor; depending on your structure.
- Simple press fit mounting.
- Easily installable in existing structures.
- Stainless steel construction.
- Hermetically sealed.
- Minimal temperature effect.
- Measures:
 - Compression,
 - Tension,
 - Shear,
 - Bending,
 - Torsion.
- Easy adaptable in OEM products.

Principle of operation



circular → oval

The TULIP Transducer operates on the following principle:

When a mechanical structure is subjected to an external load, the structure changes shape to resist the force. Although the change is microscopic it can be monitored by the sensor. If a small hole is made in the structure, the hole will deform as the structure deforms in direct proportion to the load.

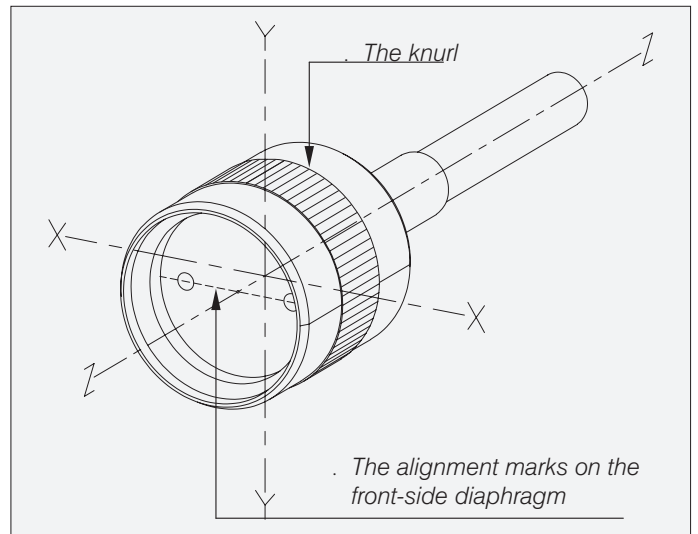
By inserting the sensor tightly into the hole, this deformation can be measured extremely accurately (circular → oval = strain). Thus, the sensor effectively turns the entire structure into a load or force transducer.

The figure shows the TULIP Transducer with its 3 principal axes.

The sensor has two principle axes of strain measurement, disposed 90° to each other, marked X-axis and Y-axis.

These sensitive axes are aligned in the middle of the knurl. The sensor is not sensitive in the Z-axis.

The X-axis is the alignment-axis for the sensor. The alignment marks show this axis on the front and back diaphragms of the sensor.



The principal axes of the sensor

The alignment

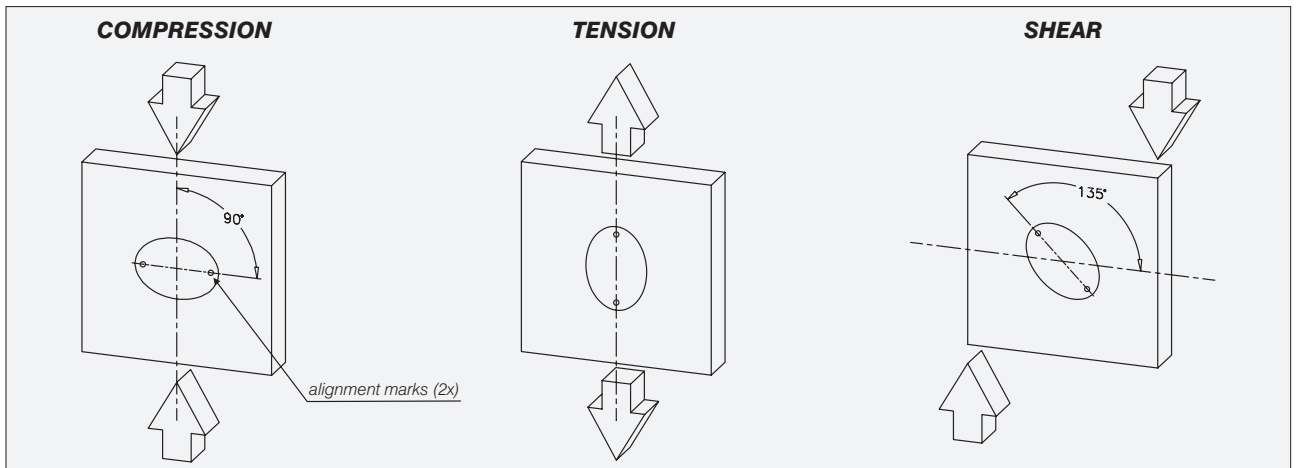
Care must be taken to properly align the sensor in the strain field in order to obtain correct polarity of the output signal. The alignment mark on the sensor must be aligned with the principal axis of strain.

The alignment marks on the sensor indicate the X-axis. These marks have to be aligned with the principal axis of the strain in the mechanical structure.

Depending on the mechanical structure and the applied load, various sensing methods may be employed. The alignment of the sensor depends on these sensing methods.

The main sensing methods are: compression, tension and shear. But also bending and torsion can be measured.

Sensing methods are indicated below.



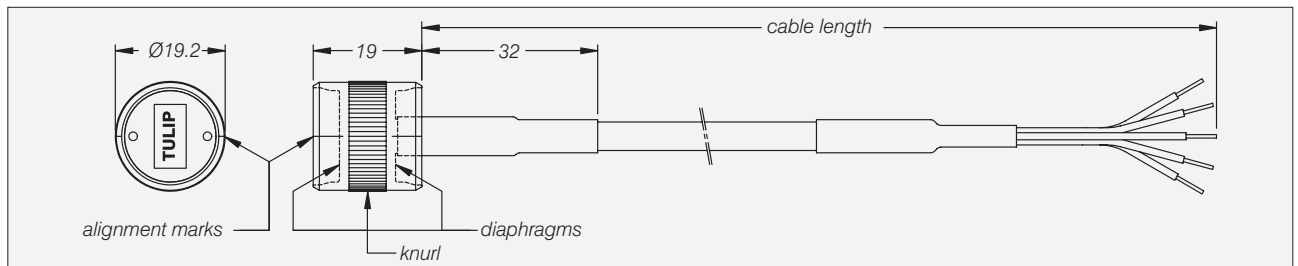
The main sensing methods

Specifications

		TULIP
Excitation voltage	V	5...12
Input Resistance	Ω	700 \pm 20
Output Resistance	Ω	700 \pm 20
Minimum stress level: For steel in compression/tension applications For steel in shear applications	N/mm ² N/mm ²	\geq 20 \geq 10
Output Voltage at this minimum stress level (=FS): For steel in compression/tension applications For steel in shear applications	mV/V mV/V	\geq 0.2 \geq 0.2
Zero Balance	mV/V	$\leq \pm$ 0.25
Non-Repeatability	%FS	$\leq \pm$ 0.1
Temperature Effect	%FS/°C	$\leq \pm$ 0.035
Operating Temperature Range	°C	-40...+80
Storage Temperature Range	°C	-50...+90
Insulation Resistance	M Ω	\geq 5000
Sealing (DIN 40 050)	IP	68
Cable length: standard optionally	m m	0.5 10

A total system accuracy can be achieved between 0.5% and 5%, depending on the mechanical structure and the environmental conditions.

Dimensions



The press-fit construction requires a precision hole.

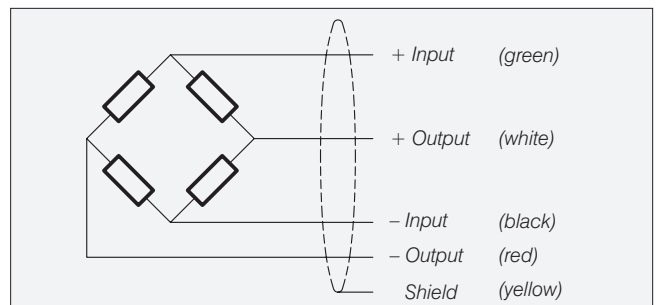
This insertion-hole should be machined properly; dimension of the hole must be $\varnothing 19.05 \pm 0.05$ mm.

The TULIP Toolkit is available to drill the hole and to press the TULIP inside.

Wiring

The TULIP Transducer is configured with a full bridge circuit (Wheatstone bridge). This offers low non-linearity, hysteresis and non-repeatability.

The sensor is provided with a 4 conductor shielded cable, cable diameter 5 mm.



Installation

For field installation, the TULIP Toolkit is available.

This toolkit should be used to drill the hole properly. It avoids problems of a lack of perpendicularity to the load axis, improper hole tolerances and ovality.

The same tool can also press the sensor into place.



Notes

The location of the TULIP Transducer is very important. Ideally, the sensor should be applied to a structural member at a point which is characterized by a uniform strain pattern.

Position the sensor as close as possible to the neutral axis of the force you wish to ignore. As an example: in the drawing on this page the object is to measure the compression in the bar. Install the sensor in the centerline of the bar to avoid bending influences. Align the sensor properly.

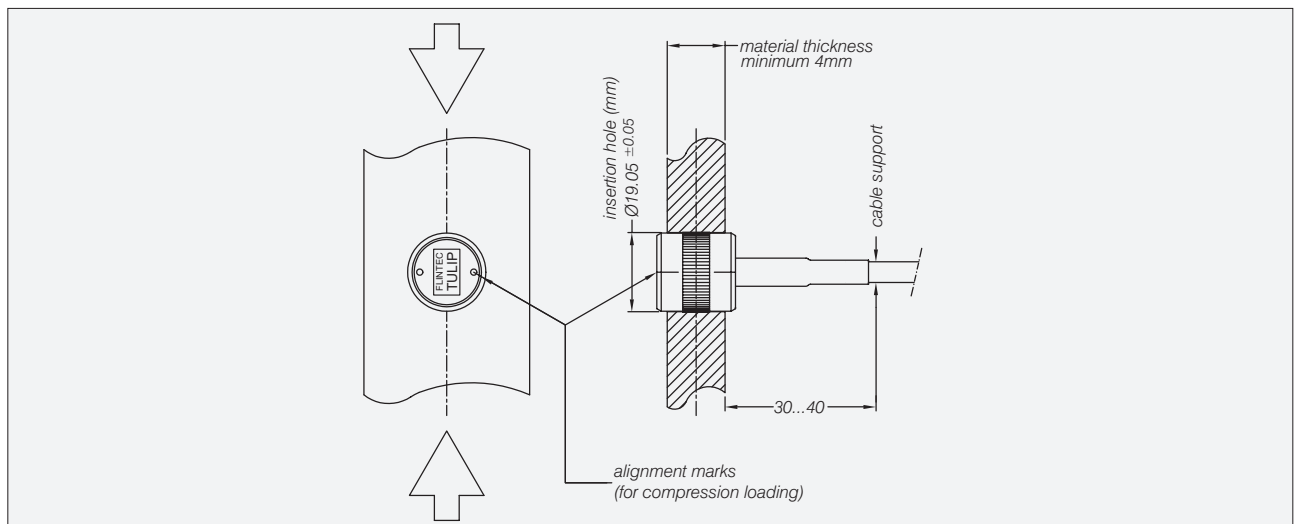
The diaphragms are very sensitive. Take care not to damage the diaphragms during installation.

After installation, protect the sensor, hole and beam from corrosion by using primer, paint or other anti-corrosion system.

After installation the sensor's output can be calibrated to meet your systems needs. The maximum load depends on your structure. Applications can have full scale loads ranging from hundreds of kg to thousands of t.

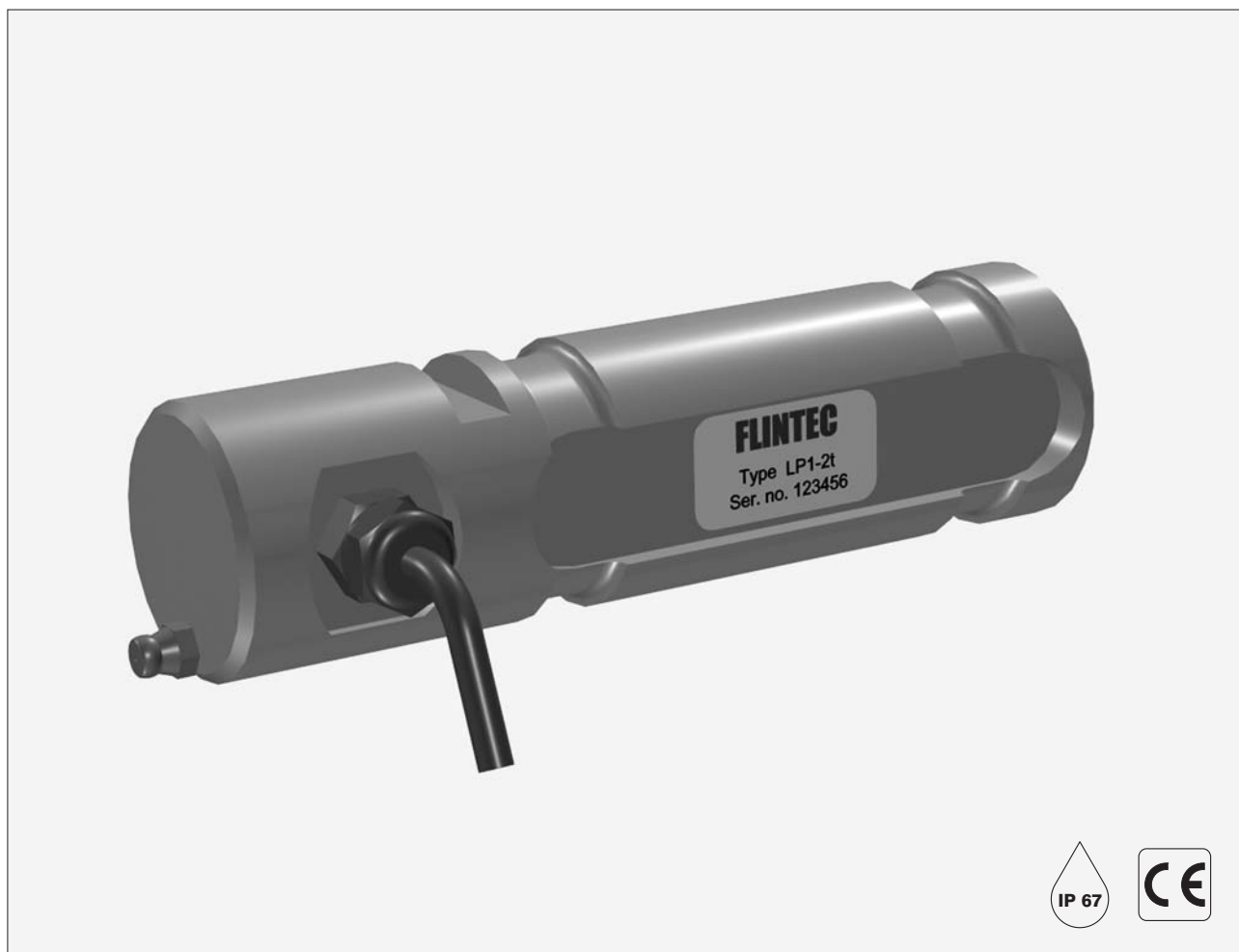
Attention: A zero shift will usually occur upon installation. The magnitude of the shift depends on the ovality of the hole and the installation procedure used. This zero shift can be compensated in the electronic instrumentation attached.

For much more details the TULIP Manual is available.



The structural arrangement

Type LP1 Load Pin



Flintec load pins are designed to meet the most stringent accuracy and environmental conditions.

In addition to a standard range of load pins, Flintec is able to design and manufacture load pins to suit specific customer applications. Typical applications include crane and hoist load/condition monitoring as well as numerous applications in the fields of safety, industrial measurement, vehicles and aerospace industries.

Load pins can be supplied with alloy or stainless steel construction and in a range of capacities. Designed to measure force in a single axis, the internal strain gage sensing circuit is employed to ensure highest accuracy and optimum reliability.

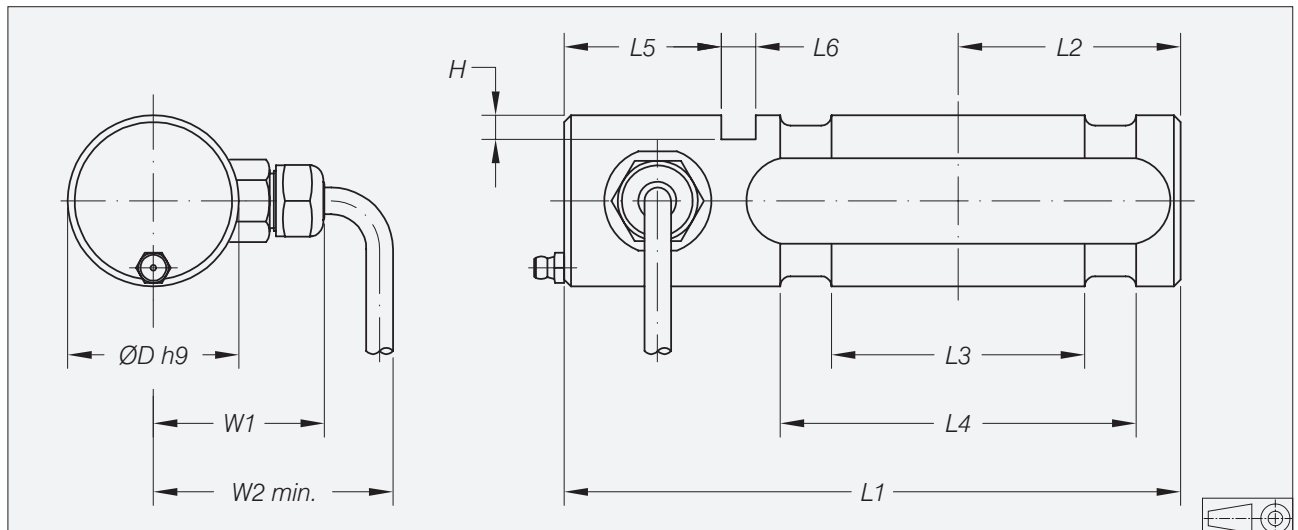
In addition, Flintec load pins are (can be) supplied with the calibration technique (in mV/V/Ohm) which eliminates time consuming calibration in multi-pin applications.

Other designs of load pin with integrated electronic amplifiers are also available.

LP1 Specifications

Maximum capacity	(E_{max})	t	1 / 2 / 2.5 / 5	10
Rated Output	(Cn)	mV/V	1.5 ± 0.1%	2 ± 0.1%
Accuracy		%Cn	≤ ± 0.5	
Repeatability		%Cn	≤ ± 0.1	
Temperature effect on minimum dead load output		%Cn/°C	≤ ± 0.025	
Temperature effect on sensitivity		%/°C	≤ ± 0.010	
Excitation voltage		V	5...10	
Zero balance		%Cn	≤ ± 2	
Input resistance		Ω	375 ± 10	
Output resistance		Ω	375 ± 10	
Insulation resistance (100 DC)		MΩ	≥ 5000	
Operating temperature range		°C	-30...+70	
Safe load limit	(E_{lim})	% E_{max}	150	
Load cell material			stainless steel 17-4 PH (1.4548)	
Sealing			potted	
Protection according DIN 40.050			IP 67	

Dimensions

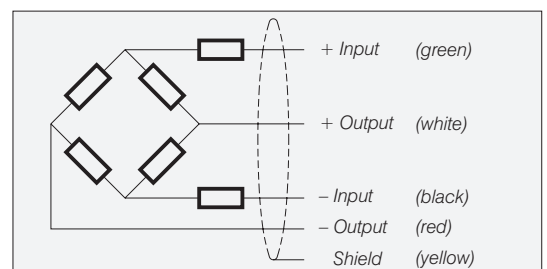


Type	D	W1	W2	L1	L2	L3	L4	L5	L6	H
LP1-1/2 t	25	25	35	90	32.5	37	52	23	5	3.5
LP1-2.5/5 t	31.75	29	39	120	45.5	50.8	72.75	26	5	5
LP1-10 t	31.75	29	39	120	45.5	50.8	66.8	26	5	5

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring

- The load pin is provided with a shielded, 4 conductor cable (AWG 24). Cable jacket polyurethane.
- Cable length: 3 m.
- Cable diameter: 5 mm.
- The shield is floating (On request the shield can be connected to the load cell body).




Junction Boxes

Type	Specification	Special
KA-1	Aluminium for 1 load cell	
KA-4/6	Aluminium for 4/6 load cells	
KAEX-4	Aluminium for 4 load cells	For hazardous areas, EEx(i)
KE-4	Stainless steel for load cells	
KPK-4	Polyester for load cells	With screw terminals
KP-4	Polyester for 4 load cells	
KPF-4/6/8/10	Polyester for 4, 6, 8, 10 load cells	With surge arrestors, for outdoor applications
KPB-4	Plastic for 4 load cells	For PB/PBW load cells only

data sheet

KA-1



price list

data sheet


KA-4/6



price list

data sheet


KAEX-4



price list

data sheet

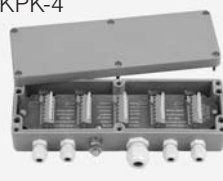
KE-4



price list

data sheet

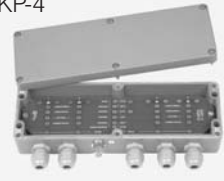
KPK-4



price list

data sheet


KP-4



price list

data sheet


KPF-4/6/8/10



price list

data sheet

KPB-4



price list

Flintec Junction Boxes

Flintec offers a complete range of Junction Boxes for the connection of 1 to 10 load cells in different applications, with the housing in polyester, aluminium or stainless steel.

Provisions for corner trimming are included.

The specific advantages are:

- Polyester
No corrosion in aggressive or wet environments.
Little tendency for moisture condensation with big temperature differences.
In most cases a polyester junction box is recommendable.
- Aluminium
Offers a certain electromagnetic shielding for the connection itself.
ATEX-Version available.
- Stainless Steel
Special low profile.
Fits perfectly to stainless steel constructions.

All junction boxes can be filled with a special potting material for perfect sealing against any moisture influence.

Most of the Flintec Junction Boxes are designed for connection through soldering.

Exceptions are ATEX-Junction Boxes and Type KPF-Junction Boxes for weighbridges, equipped with screw or spring connectors to avoid soldering in hazardous atmosphere and at low temperature during weighbridge installation.

Type KA-1 Junction Box, Aluminium



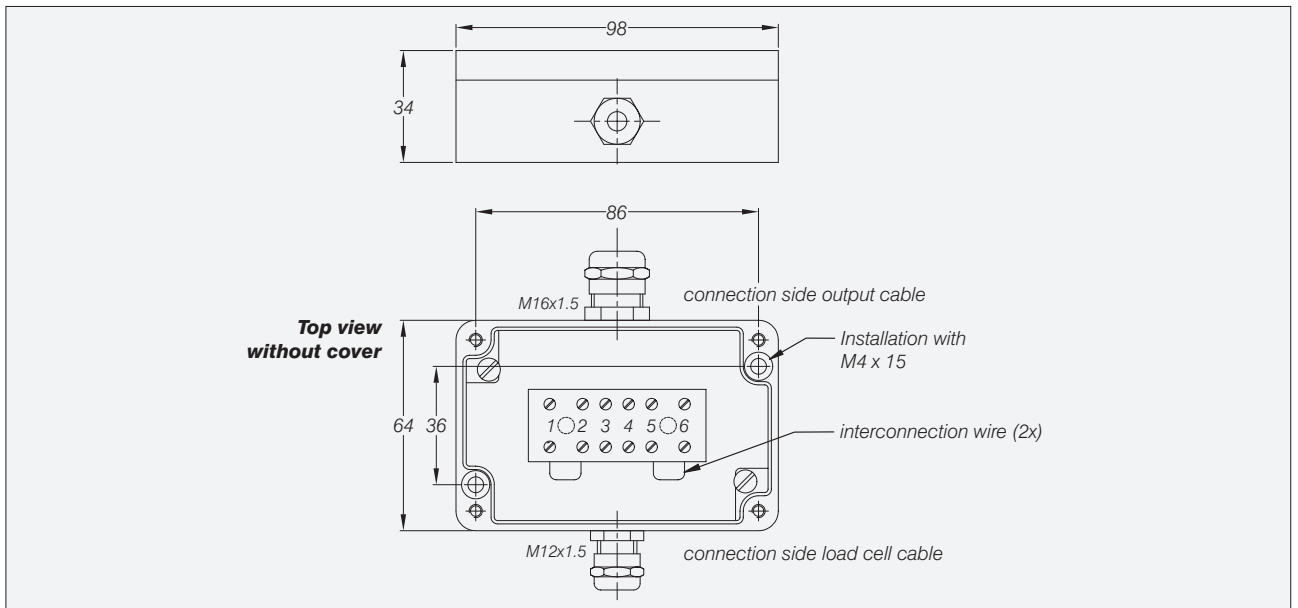
The painted aluminium junction box is designed to connect 1 load cell.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

Important Features

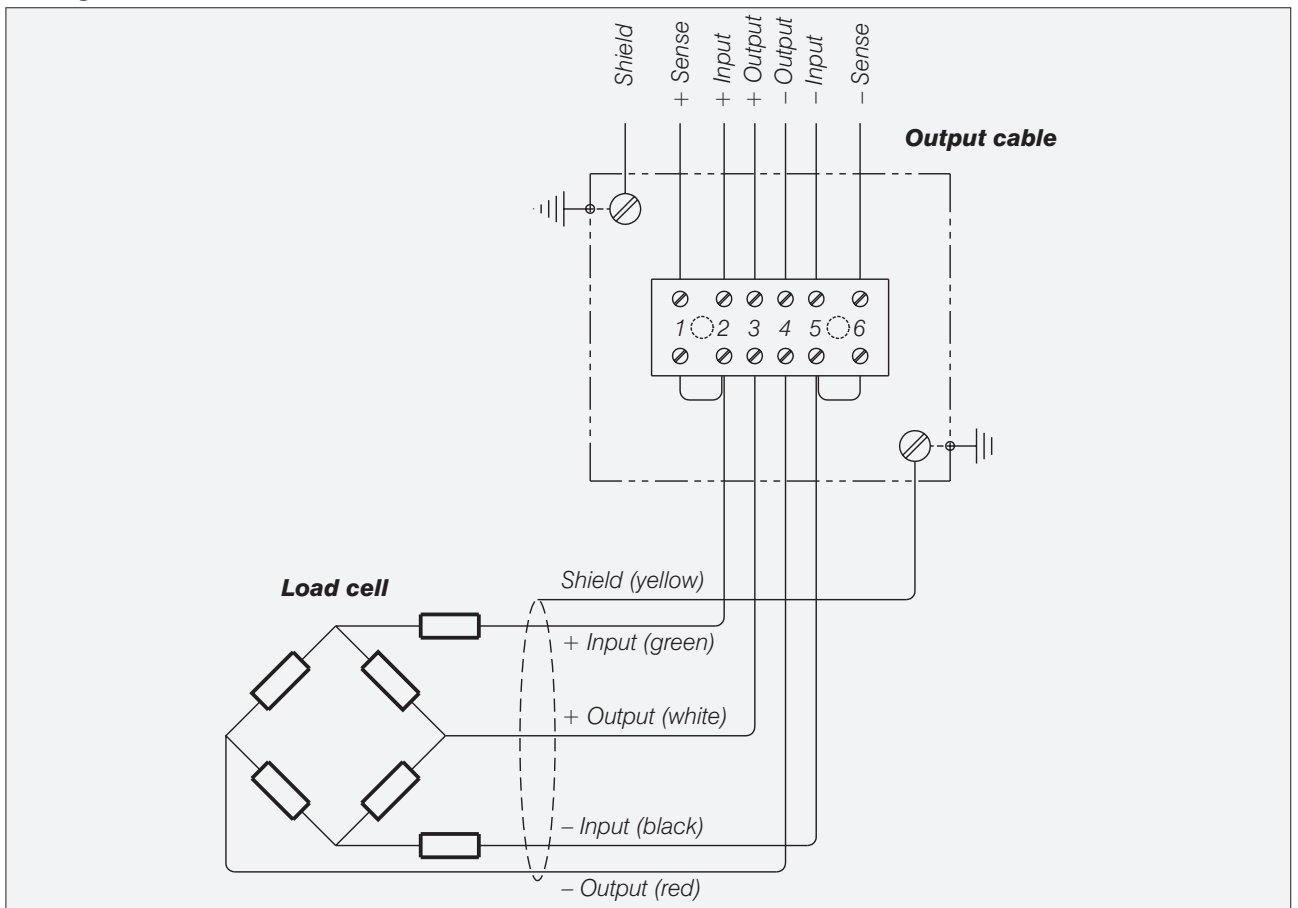
- Connection for 1 load cell.
- Rugged aluminium industrial box.
- Protection IP 66.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring



Note:

- Cable gland M12x1.5 for cable diameter 3...6 mm.
- Cable gland M16x1.5 for cable diameter 5...9 mm.

Type KA-4/6 Junction Box, Aluminium



Type KA-4 shown

The painted aluminium junction box is available in 2 versions:
 Junction box KA-4 to connect 4 load cells in parallel,
 Junction box KA-6* to connect 6 load cells in parallel.

The painted aluminium junction box is designed to connect 3, 4 or 6 load cells in parallel.

One gland is sealed as indicated in the drawing.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

Corner trimming by resistors.

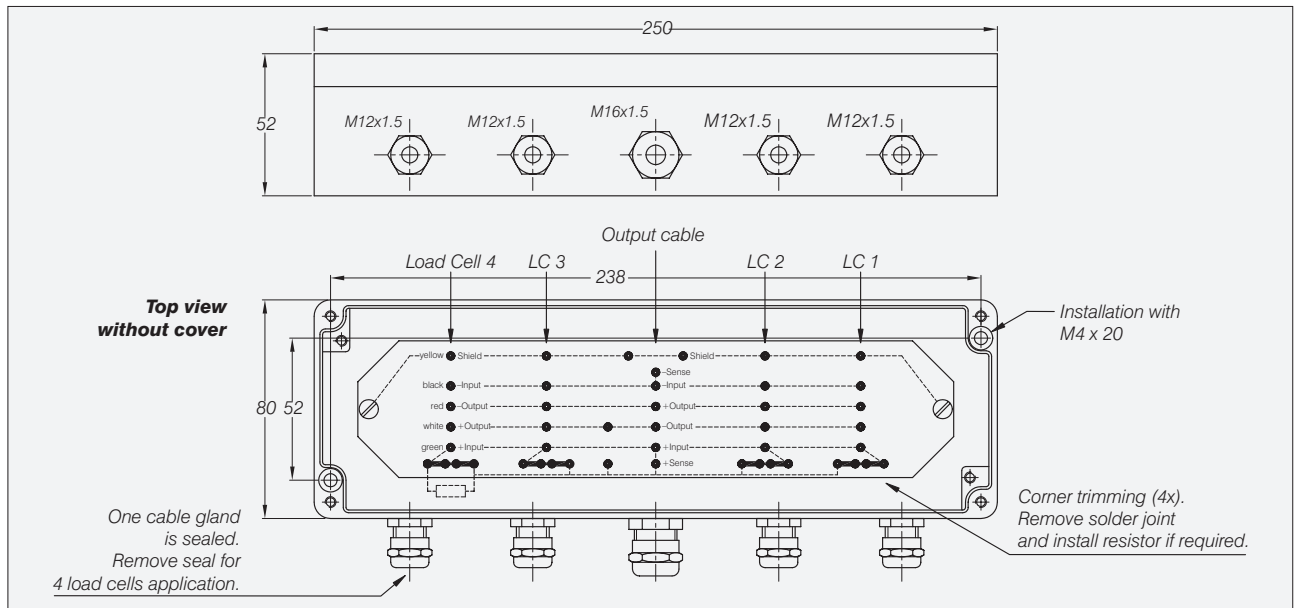
Important Features

- Connection for 4 or 6 load cells.
- Rugged aluminium industrial box.
- Protection IP 66.

*Attention:

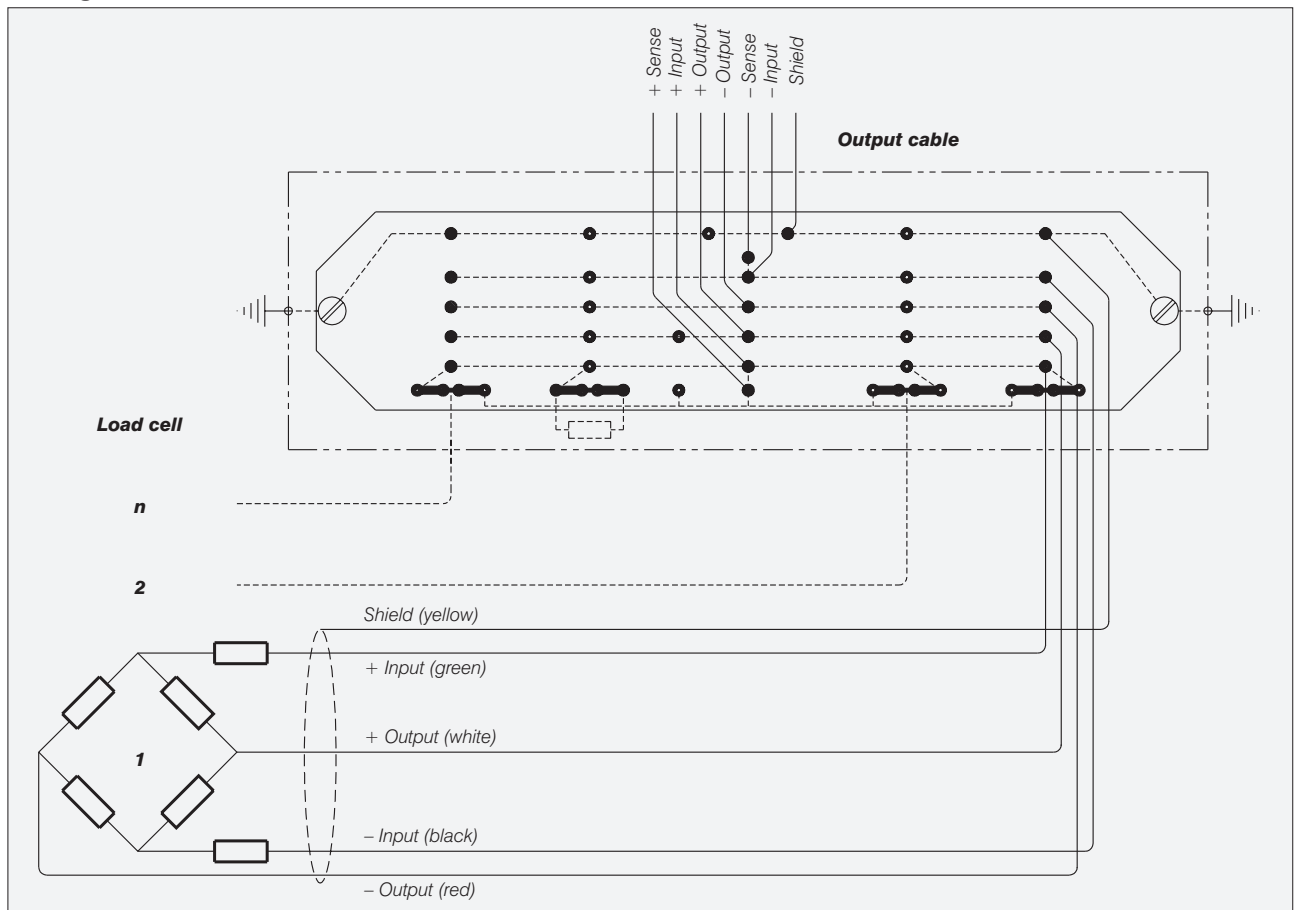
KA-6 in same box, but different printed circuit board and 2 more cable glands.

Dimensions



Type KA-4 shown.
All dimensions in mm. Dimensions and specifications are subject to change without notice.

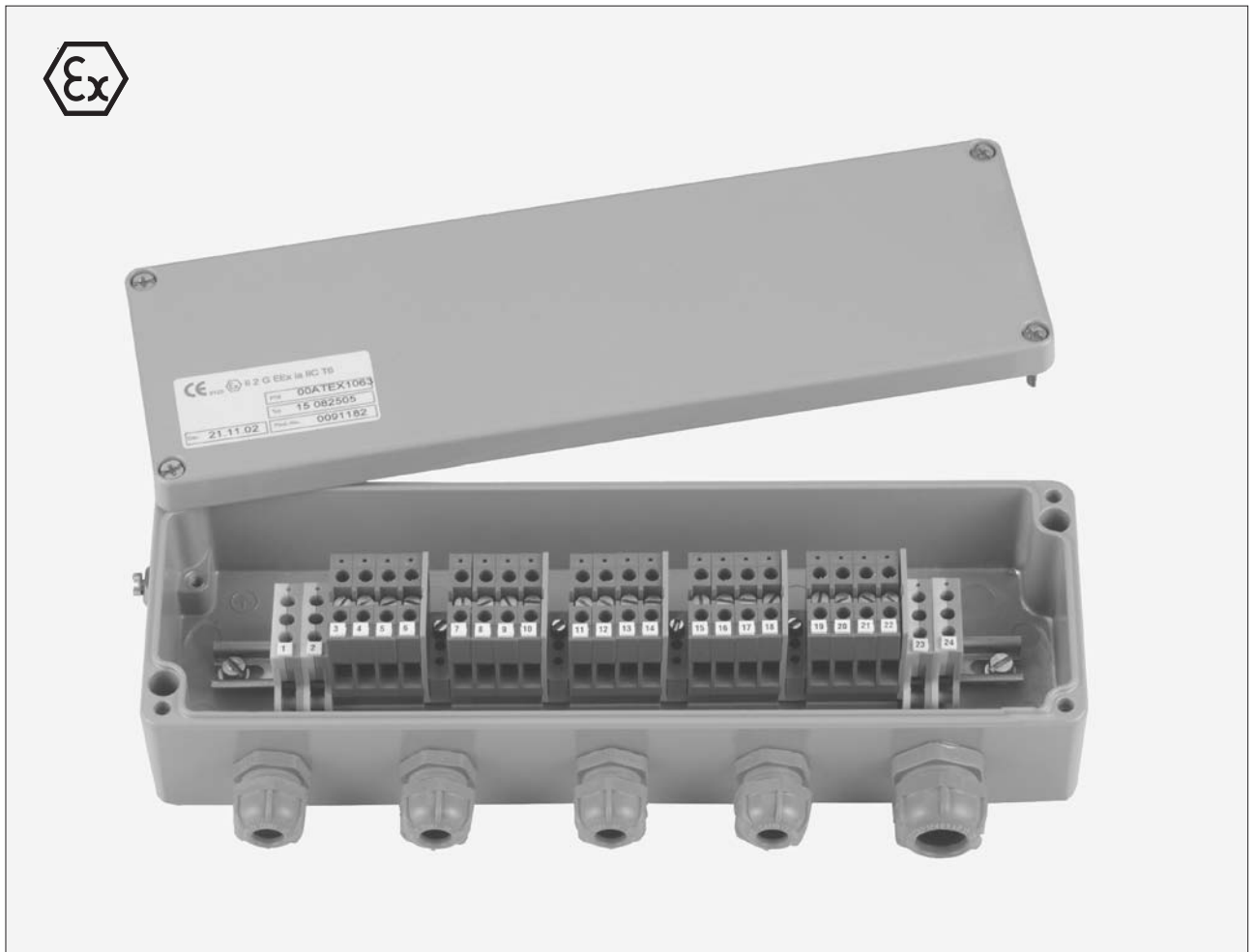
Wiring



Note:

- Cable gland M12x1.5 for cable diameter 3...6 mm.
- Cable gland M16x1.5 for cable diameter 5...9 mm.

Type KAEX-4 Junction Box, Aluminium, EEx (ATEX)



The painted aluminium junction box is designed to connect up to 4 load cells in parallel.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

Explosion protection according:

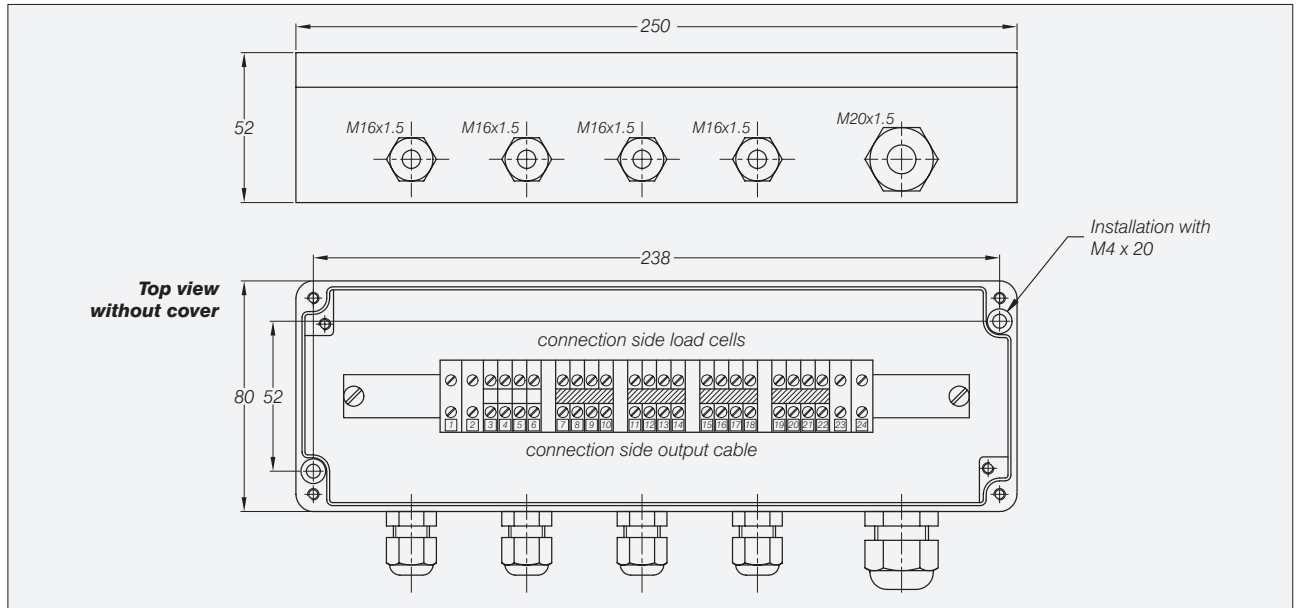
- EEx ia II C T6

Corner trimming by resistors.

Important Features

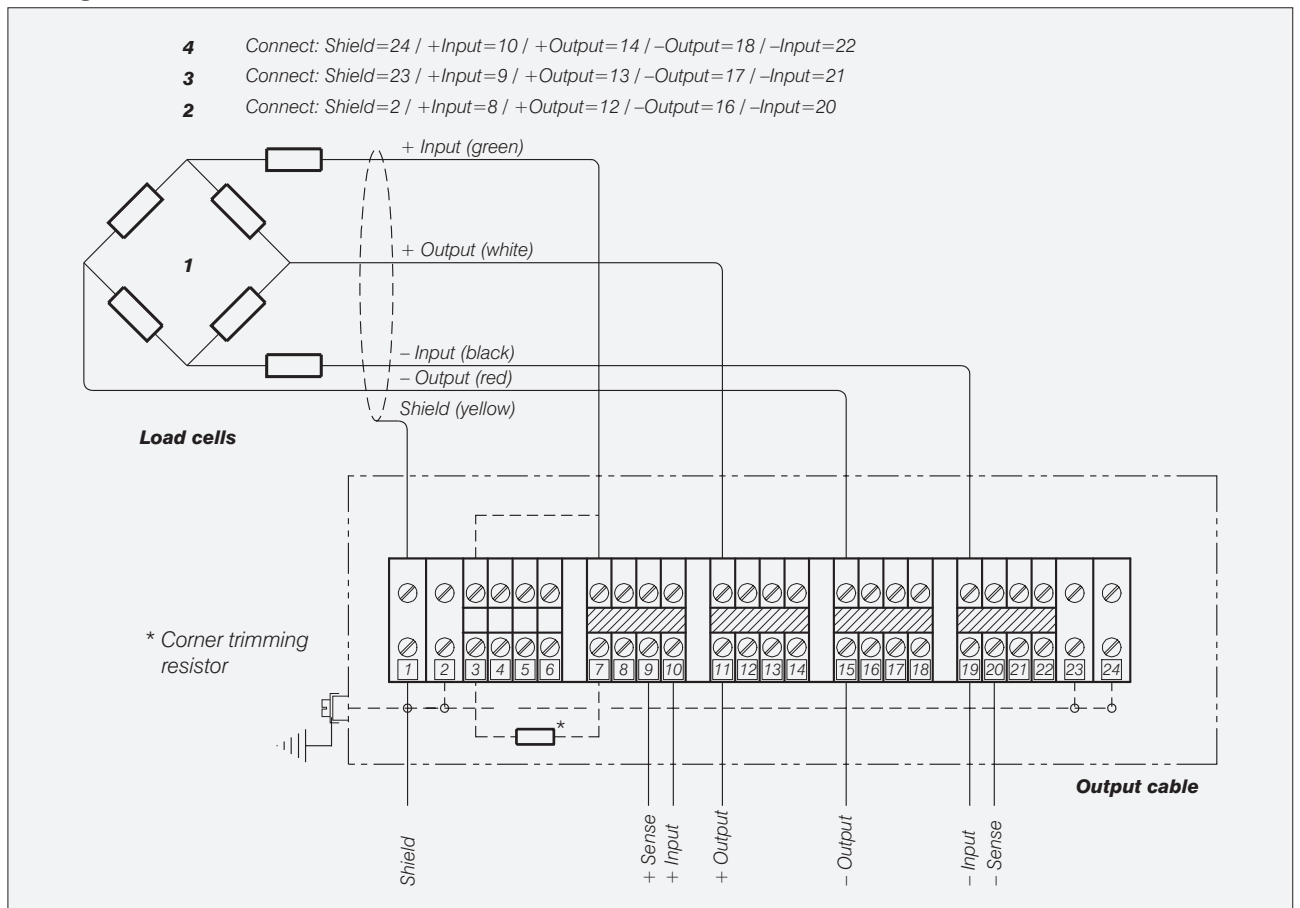
- Connection up to 4 load cells.
- Rugged aluminium industrial box.
- Protection IP 66.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring



Notes:

- Cable gland M16x1.5 for cable diameter 5...8 mm.
- Cable gland M20x1.5 for cable diameter 8...13 mm.

Type KE-4 Junction Box, Stainless Steel



The stainless steel box is designed to connect 3 or 4 load cells in parallel.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

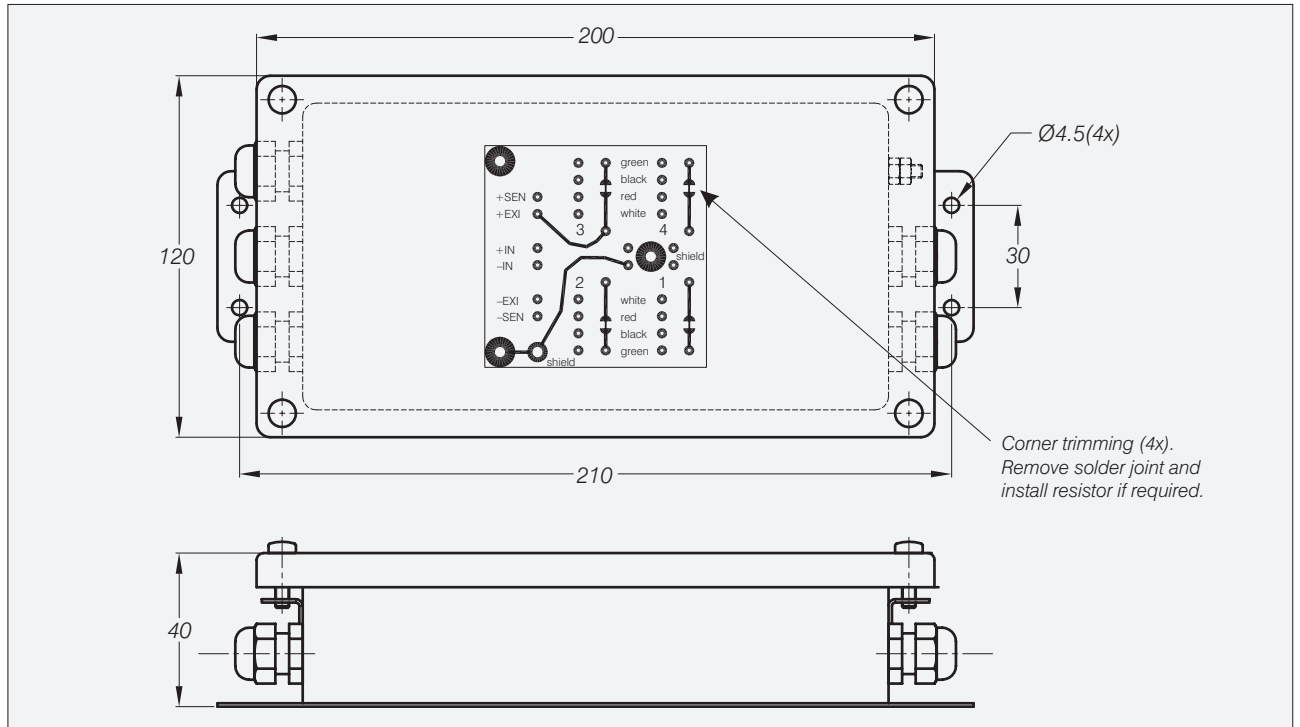
Corner trimming by resistors.

One cable gland is sealed. Remove seal for 4 load cells application.

Important Features

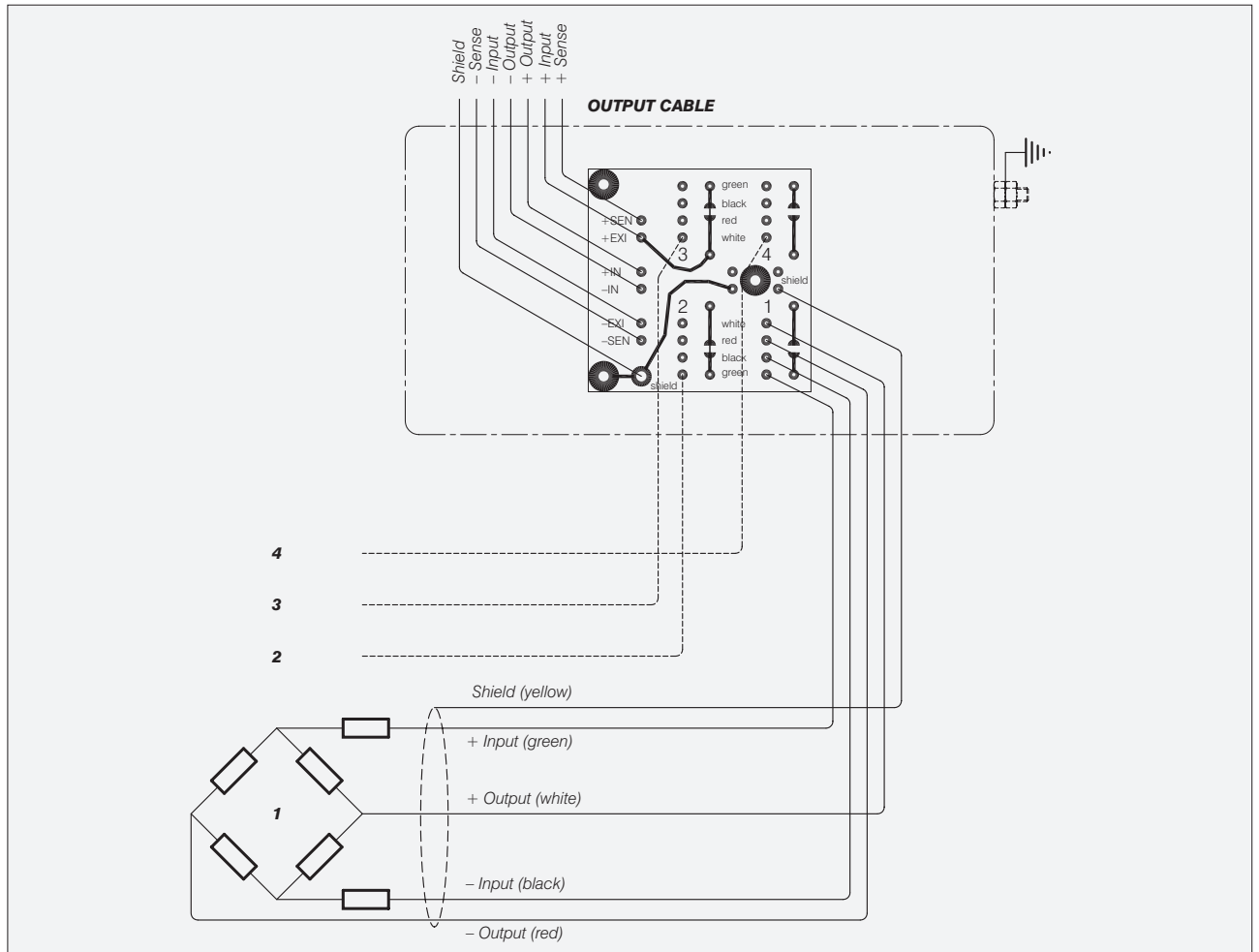
- Connection for 3 or 4 load cells.
- Rugged stainless steel industrial box.
- Protection IP 65.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

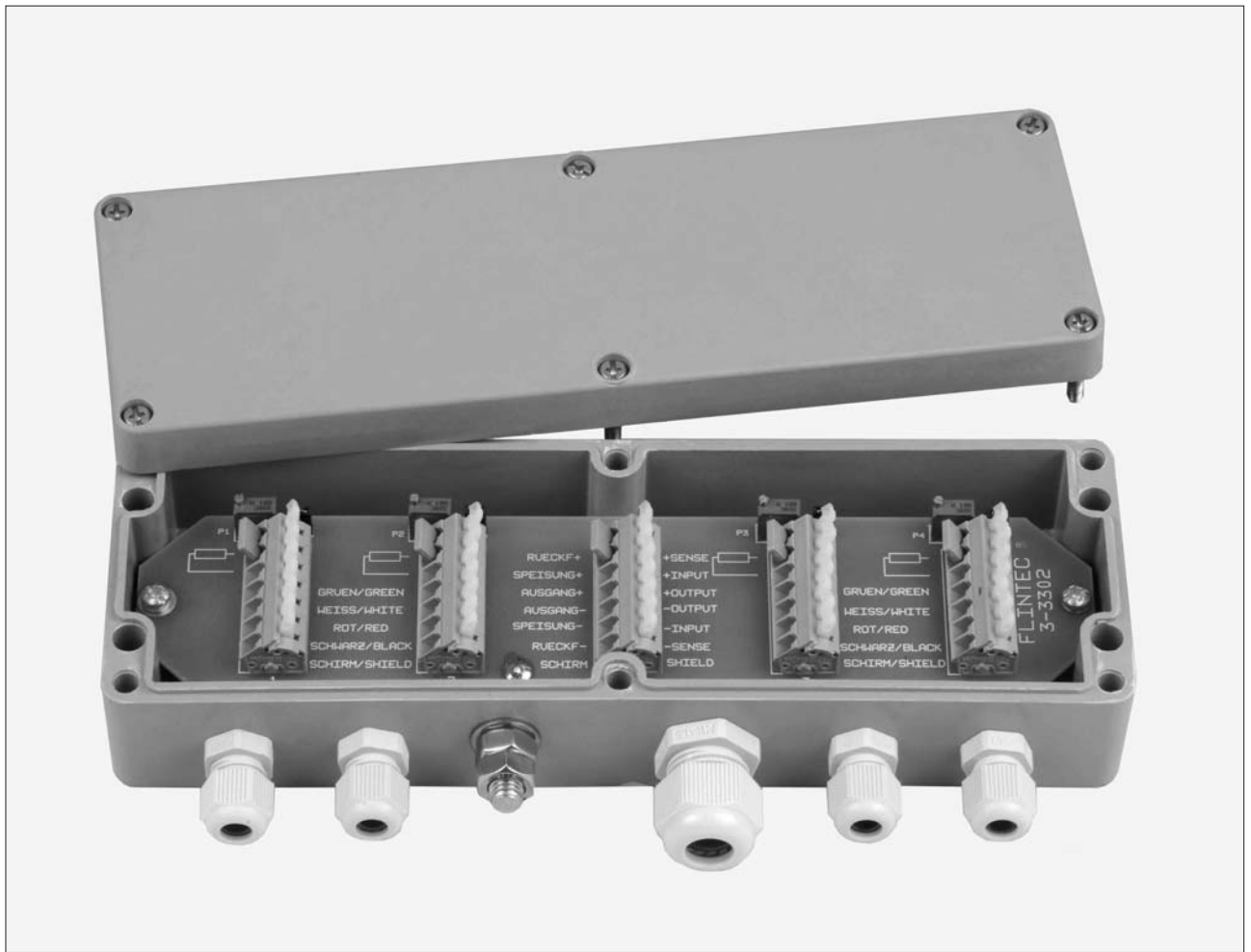
Wiring



Note:

All cable glands PG9 for cable diameter 4...8 mm.

Type KPK-4 Junction Box, Polyester



The polyester junction box is designed to connect 3 or 4 load cells in parallel.

One gland is sealed as indicated in the drawing.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

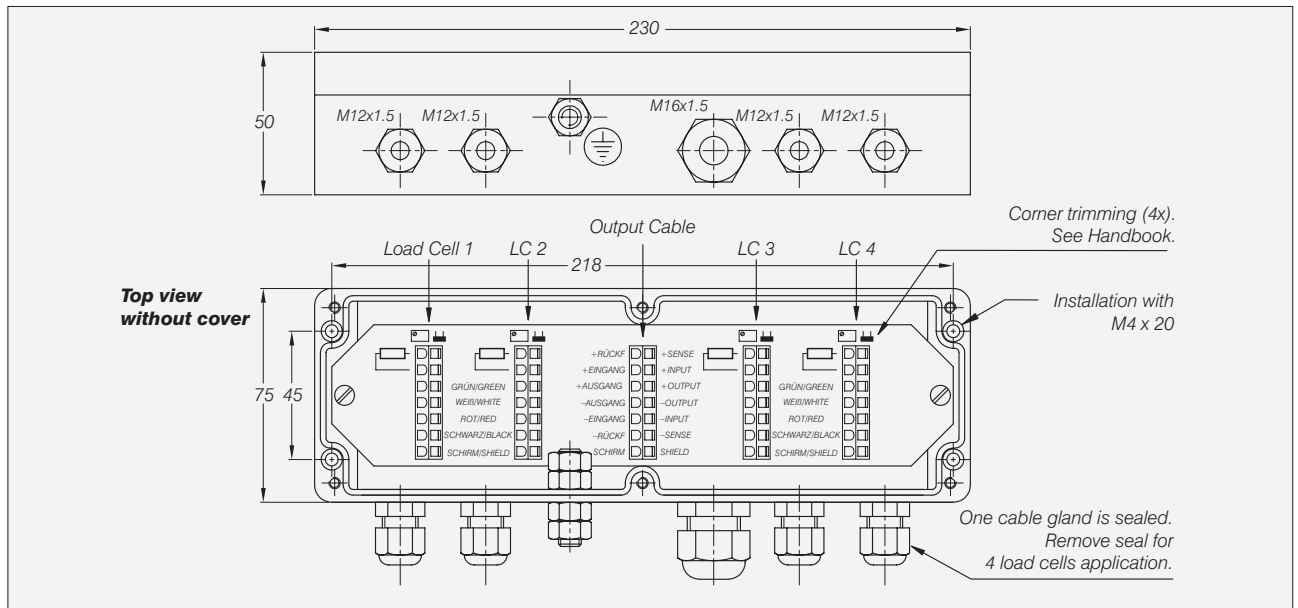
Cable connection with clamping terminals.

Corner trimming by resistors and/or potentiometer.

Important Features

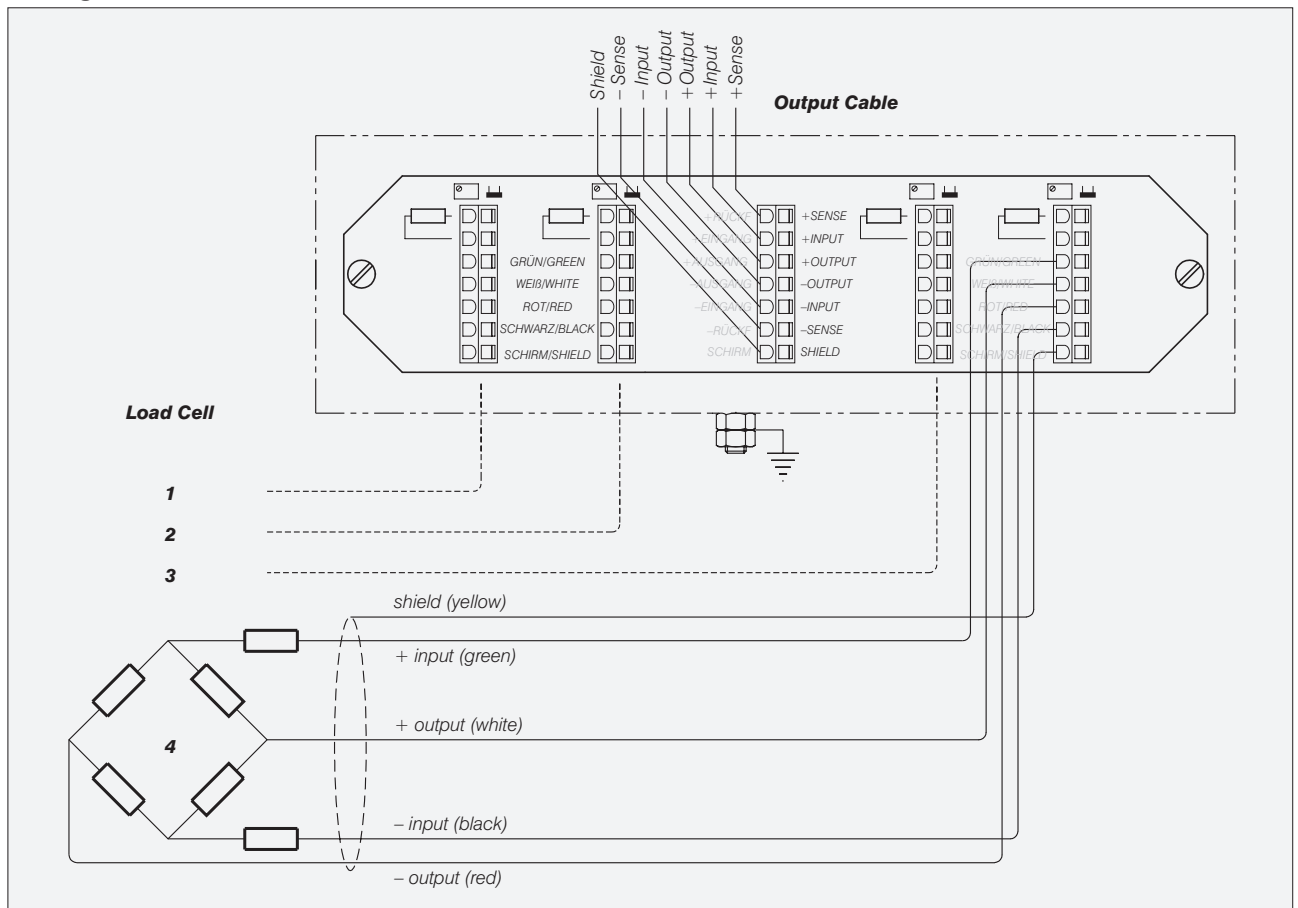
- Connection for 3 or 4 load cells.
- Rugged polyester industrial box.
- Cable connection with clamping terminals.
- Protection IP 66.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring



Note:

- Cable gland M12x1.5 for cable diameter 3...6.5 mm.
- Cable gland M16x1.5 for cable diameter 5...10 mm.

Type KP-4 Junction Box, Polyester



The polyester junction box is designed to connect 3 or 4 load cells in parallel.

One gland is sealed as indicated in the drawing.

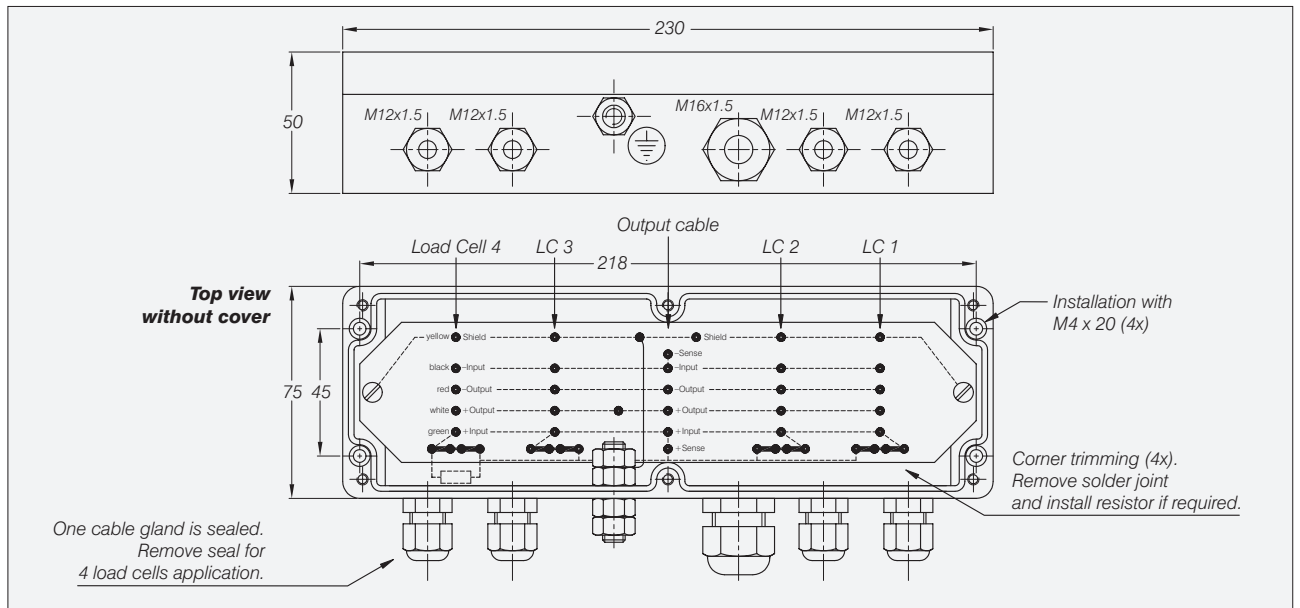
The junction box can be connected with a shielded 6-wire cable to the instrumentation.

Corner trimming by resistors.

Important Features

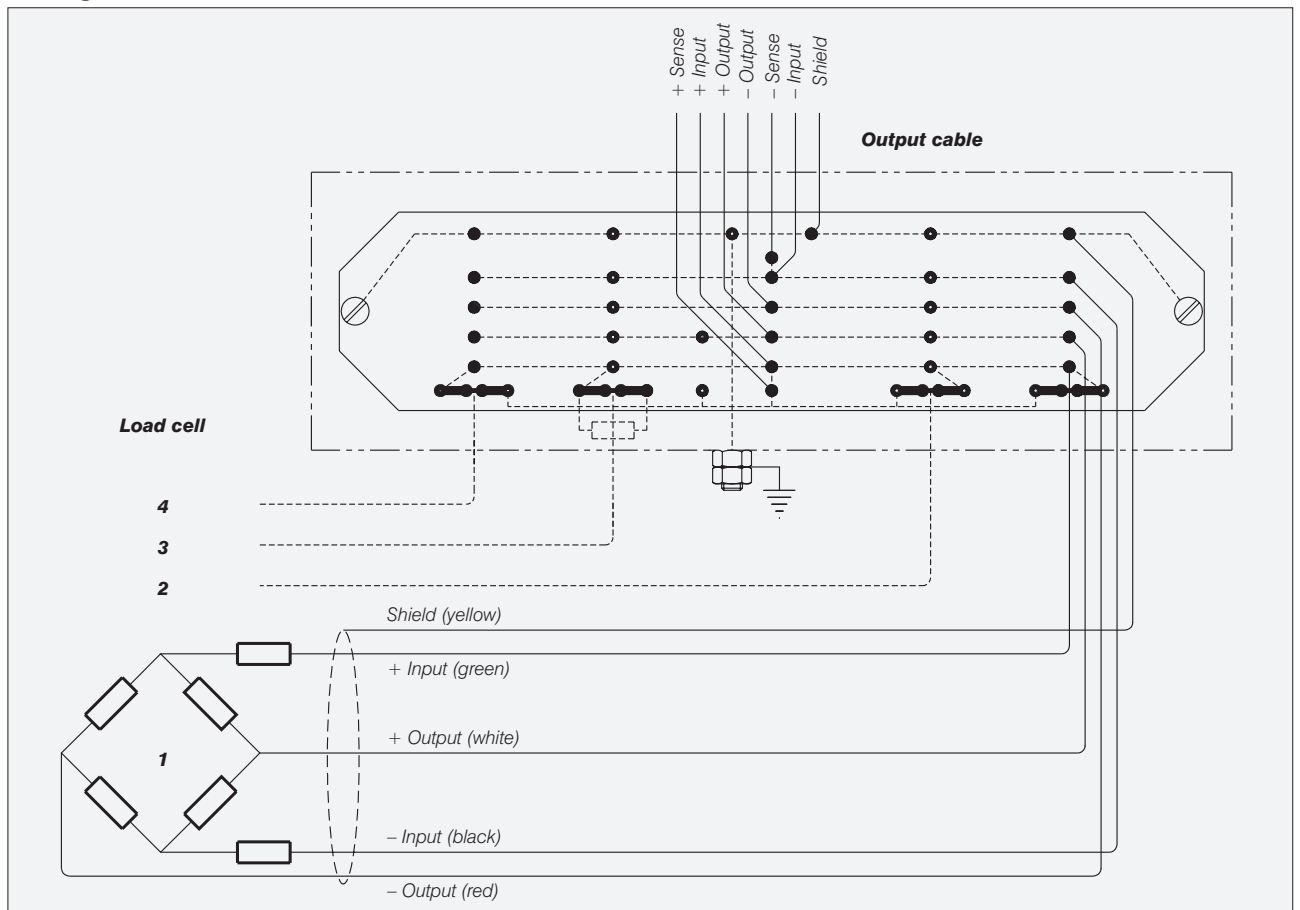
- Connection for 3 or 4 load cells.
- Rugged polyester industrial box.
- Protection IP 66.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring



Note:

- Cable gland M12x1.5 for cable diameter 3...6.5 mm.
- Cable gland M16x1.5 for cable diameter 5...10 mm.

Type KPF-4/6/8/10 Junction Boxes, Polyester



The version KPF-8 is shown.

The polyester junction box is available in 3 versions:

- Junction box KPF-4 to connect 4 load cells in parallel.
- Junction box KPF-6 to connect 6 load cells in parallel.
- Junction box KPF-8 to connect 8 load cells in parallel.
- Junction box KPF-10* to connect 10 load cells in parallel.

Special designed for weigh bridges and silos, including surge arrestors for lightning protection.

The junction box can be connected with a shielded 6-wire cable to the instrumentation.

Corner trimming by resistors.

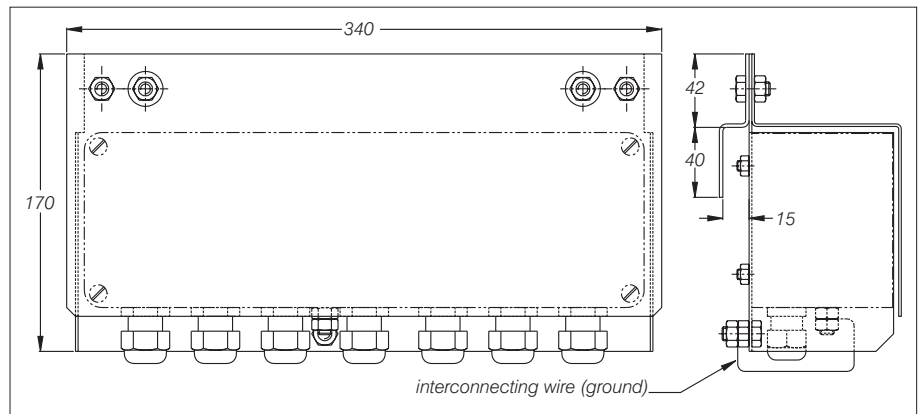
A special mounting plate and shield (stainless steel) is available for easy installation and additional protection.

Important Features

- Connection for 4, 6, 8 or 10 load cells.
- Rugged polyester industrial box.
- Protection IP 66.
- Including surge arrestors.
- Additional mounting plate available.

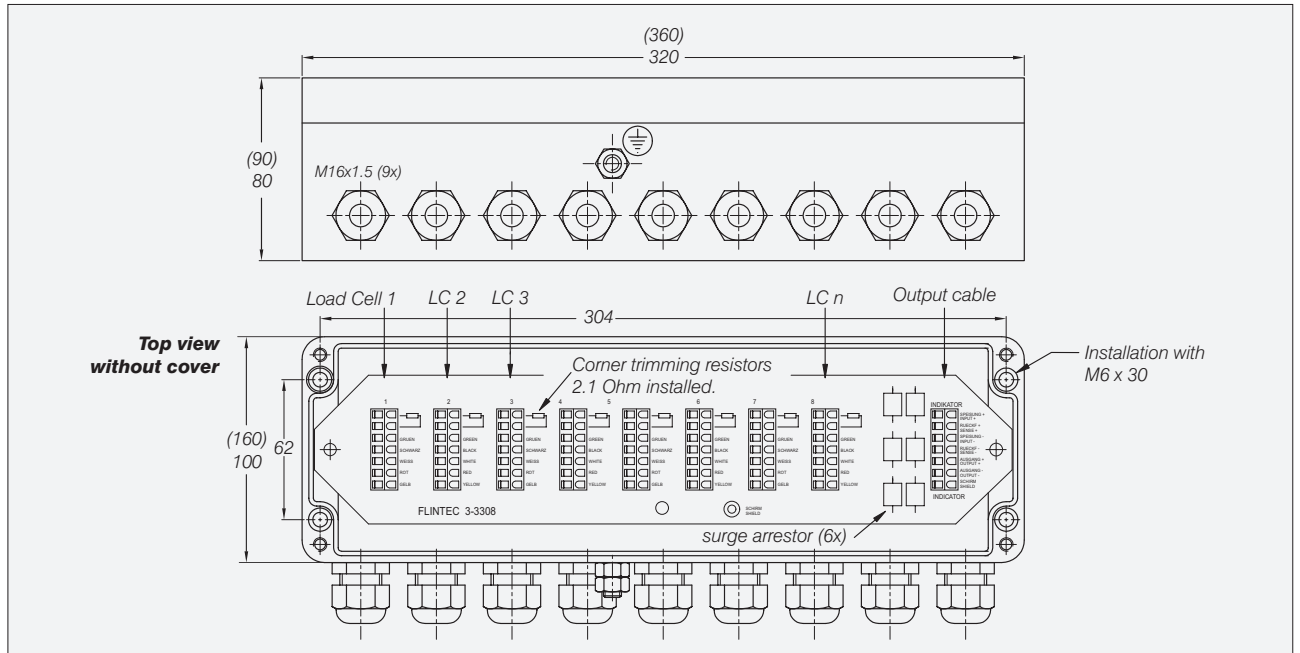
***Attention:**

KPF-10 in larger box.



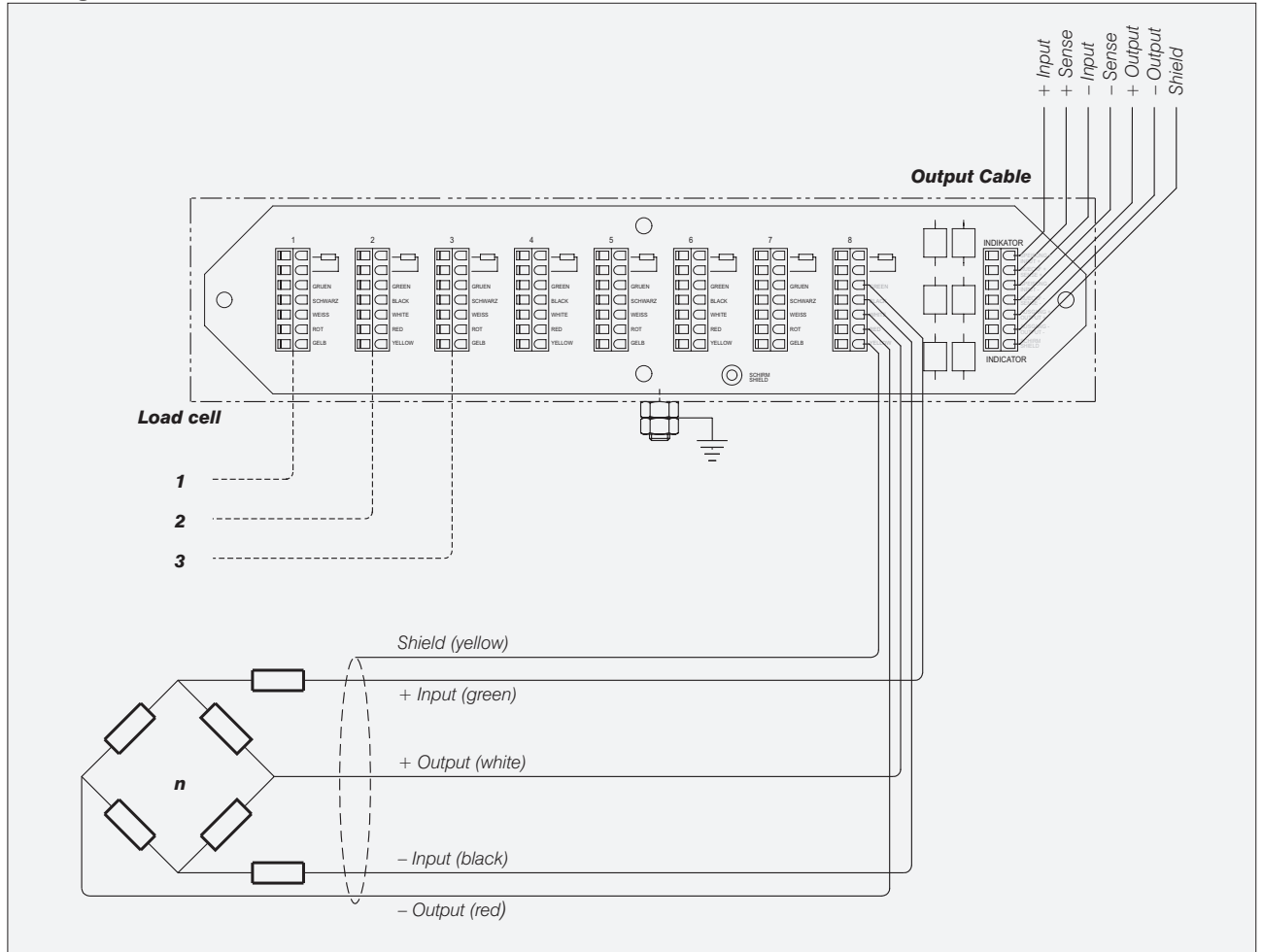
Mounting plate and shield 5200-013 (not for KPF-10)

Dimensions



The version KPF-8 is shown. The versions for 4 and 6 load cells have identical dimensions. Wiring is similar. The version KPF-10 dimensions between brackets. Wiring is similar. All dimensions in mm. Dimensions and specifications are subject to change without notice.

Wiring



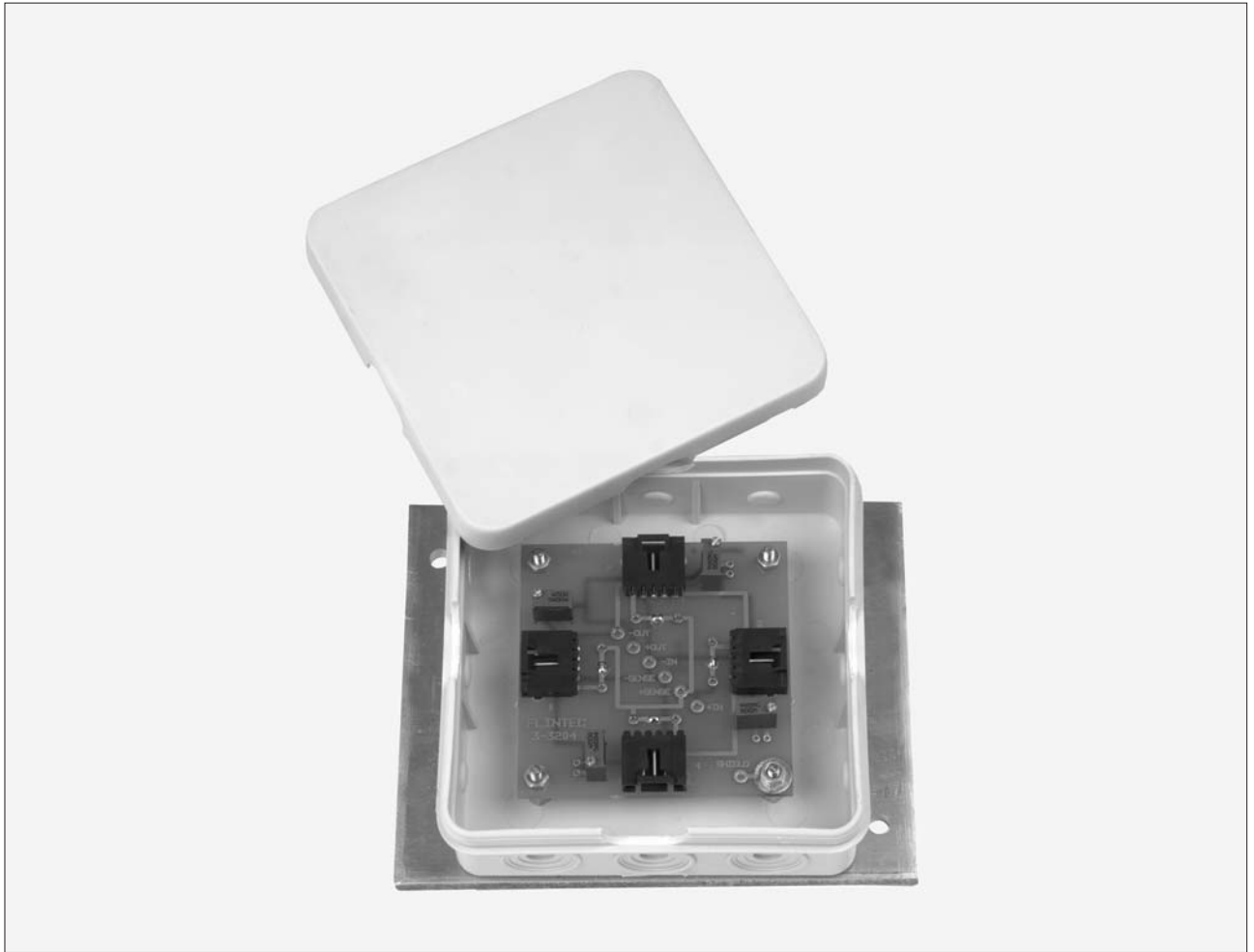
The version for 6 load cells is shown. Connections are similar for 4, 8 and 10 load cells.

Note:

- Cable gland M12x1.5 for cable diameter 3...6.5 mm.
- Cable gland M16x1.5 for cable diameter 5...10 mm,.

Junction Boxes

Type KPB-4 Junction Box, Plastic



The plastic junction box is designed to connect 4 Type PB load cells in parallel. The box is mounted on an aluminium plate for proper mounting and shielding.

The printed circuit board is designed to connect 4 PB load cells with AMP #103957-4 connector.

The junction box can be soldered with a shielded 6-wire cable to the instrumentation.

Corner trimming by potentiometers.

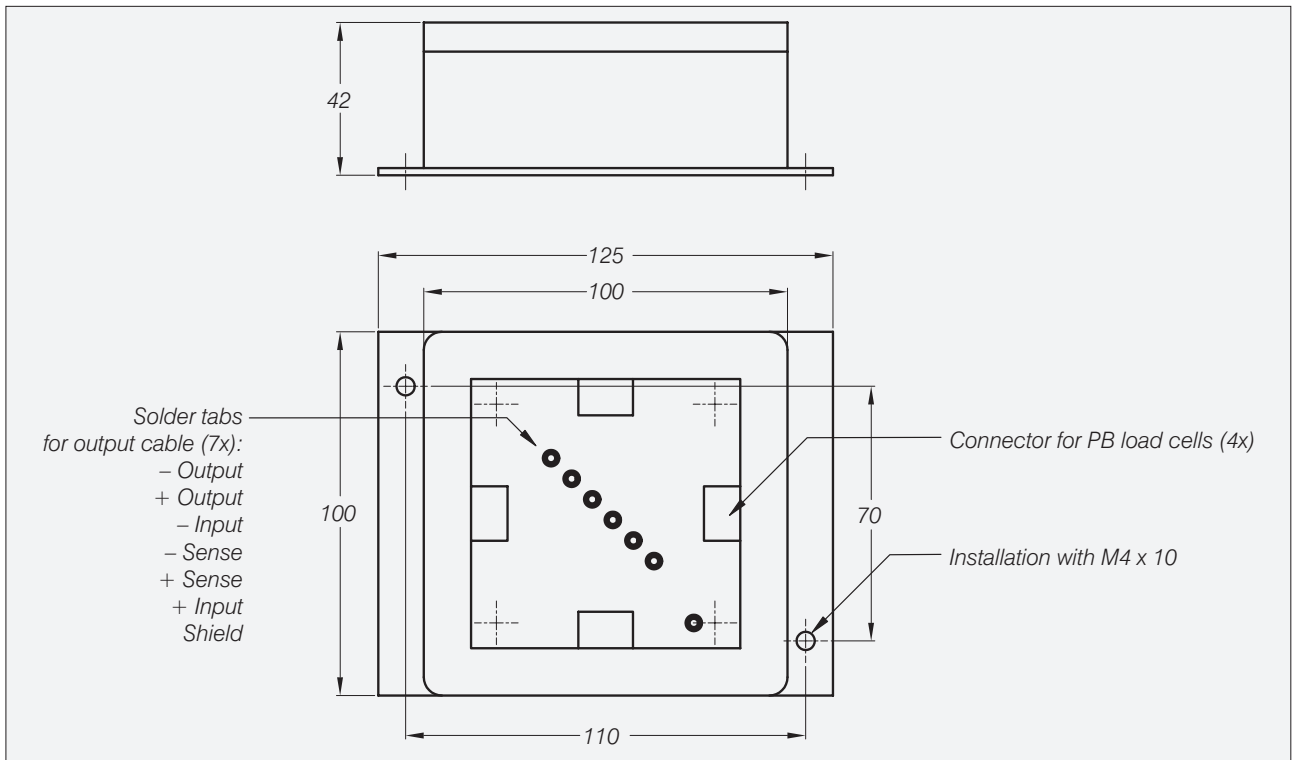
The junction box is available in 2 versions:

- with 10 Ω potentiometer for PB-C3 quality,
- with 50 Ω potentiometer for PB-GP quality.

Important Features

- Connection for 4 load cells with AMP #103957-4 connectors.
- Plastic box with mounting plate.
- Corner trimming by potentiometers.
- Protection IP 54.

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Weighing Electronics

The Flintec Weighing Electronics program offers a wide choice of components for load cells or other strain gauge sensors:

- Digital junction boxes
- Weighing indicators
- Remote display terminals
- A/D converters
- Analogue amplifiers

Digital Junction Boxes

Type	Resolution d	Conv. rate Hz	Acc. class III (OIML R76)	Sensitivity $\mu V/e | \mu V/d$		Display	Housing	Remarks
FAD-1	550 000	14...1034	10 000	0.4	0.1	n.a.	stainless steel	2 Setpoints, FIR filter, checkweigher modus
FAD-4	550 000	8...80	10 000	0.4	0.1	n.a.	stainless steel	2 Setpoints, digital corner correction
FDT-A/B	Display Terminal for FAD-1 and FAD-4					LED, 14 mm	panel mount	Controls up to 63 FAD's Version B: Alibi memory + RS 232C

data sheet

FAD-1



price list

data sheet

FAD-4



price list

data sheet

FDT-A/B



price list

Weighing indicators

Type	Resolution d	Conv. rate Hz	Acc. class III (OIML R76)	Sensitivity $\mu V/e | \mu V/d$		Display	Housing	Remarks
FT-01	550 000	3...70	10 000	0.4	0.1	LED, 20 mm	stainless steel	2 Setpoints, alibi memory Options: Second scale connection, RT clock, RS 232C
FT-02	550 000	3...70	10 000	0.4	0.1	LCD, 15 mm	stainless steel, wall/table top	2 Setpoints, alibi memory Options: Second scale connection, RT clock, RS 232C, mains and battery operated
FT-03	550 000	3...70	10 000	0.4	0.1	LCD alpha-numeric, 13 mm	stainless steel, wall/table top	2 Setpoints, alibi memory, alpha-numeric keyboard, RT clock, RS 232C, Options: Second scale connection, mains and battery operated
FT-04	550 000	3...70	10 000	0.4	0.1	LED, 14 mm	panel mount	2 Setpoints, alibi memory, RT clock
DAS 72.1	$\pm 260\,000$	...2400	n.a.	n.a.	0.05	LED, 10 mm	rail mounting	3 Logic inputs and outputs, analogue output 0...20 mA, RS 422/485

FT-01 FT-02


FT-01/02



price list

data sheet


FT-03



price list

data sheet

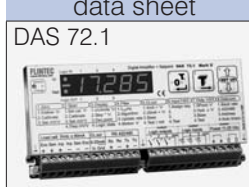
FT-04



price list

data sheet

DAS 72.1

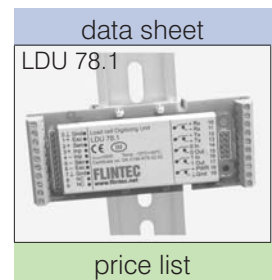
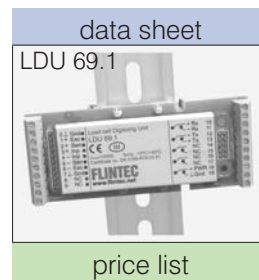
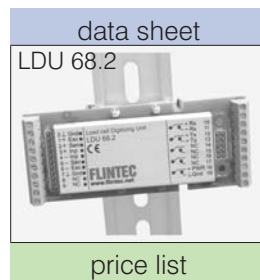
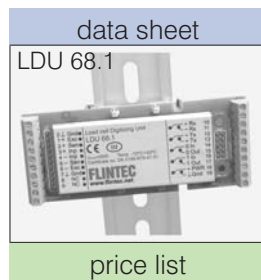


price list

Weighing Electronics

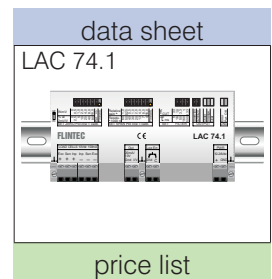
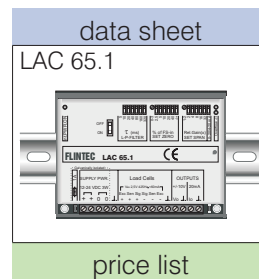
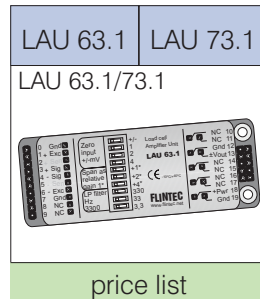
A to D converters

Type	Resolution d	Conv. rate Hz	Acc. class III (OIML R76)	Sensitivity $\mu\text{V/e} | \mu\text{V/d}$		Display	Housing	Remarks
LDU 68.1	$\pm 130\,000$	...30	5 000	0.7	0.1	n.a.	OEM plug in module	Digital filter, 2 digital inputs and outputs Option: Adapter board
LDU 68.2	$\pm 130\,000$	...30	n.a.	n.a.	0.1	n.a.	OEM plug in module	Digital filter Option: Adapter board
LDU 69.1	$\pm 1050\,000$	...172	10 000	0.1	0.02	n.a.	OEM plug in module	Digital filter Option: Adapter board
LDU 78.1	$\pm 260\,000$	...2400	5 000	0.7	0.05	n.a.	OEM plug in module	Digital filter, 2 digital inputs and outputs, check weigher function Option: Adapter board



Analogue Amplifiers

Type	Output Current | Voltage		zero adjustment course | fine		span adjustment course | fine		Housing	Remarks
FAA-24	0/4...20 mA	0...+10 V	jumper	potentiom.	jumper	potentiom.	stainless steel	Connection for 4 load cells, screw terminals
LAU 63.1	n.a.	-10V...+10 V	DIP	n.a.	DIP	n.a.	OEM plug in module	Option: Adapter board
LAU 73.1	0/4...20 mA	n.a.	DIP	n.a.	DIP	n.a.	OEM plug in module	Option: Adapter board
LAC 65.1	0/4...20 mA	-10V...+10 V	DIP	potentiom.	DIP	potentiom.	rail mounting	Load cell cable check circuit
LAC 74.1	0/4...20 mA	0...+10 V	DIP	potentiom.	DIP	potentiom.	rail mounting	Safety circuit with logic output including LED display



Remote Display

Type	Display	Interface	Baudrate	Housing	Remarks
FRD-57	LED red, 57 mm	RS 232 / RS485 / 20 mA current loop	1200...19200	stainless steel	Plus/minus sign and 5 digits



Type FAD-1 A/D Converter



The FAD-01 A/D Converter is a very accurate, versatile, general purpose instrument. It incorporates high performance , high speed A/D conversion.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments (e) according to OIML R 76.

All communication via a bi-directional serial interface. This allows very easy connection to any PC, PLC or other device with network capability.

Standard weighing function are available: Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test.

The unique calibration allows the use of dead weights to be placed on the scale. But in cases where calibration with dead weight is difficult (high capacity silos or hoppers) the calibration data from the load cell(s) can be used.

The stainless steel housing offers the ideal solution for industrial applications.

A display unit with 6 digits LED red, 14 mm including tactile 6 key keypad is available for remote operation.

See data sheet FDT-A/B.

Important Features

- Approved for 10000 increments.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Conversion up to 1000 times per second.
- Calibration by test weights or load cell calibration data in mV/V.
- Checkweigher function.
- Analogue and digital filtering.
- Serial interface RS485A .
- Multidrop communication capability.
- Set points (2x) available.

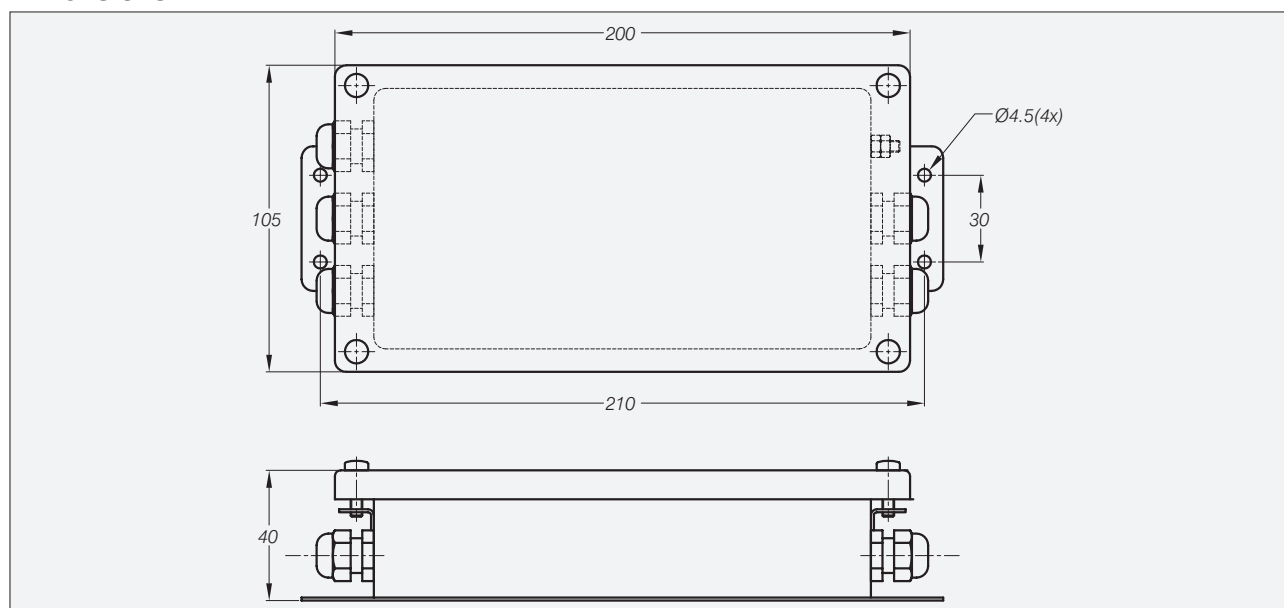
Options

- Mains adapter 230 V AC / 9 V DC, 500 mA.
- RS485A to RS232C converter.

FAD-1 Specifications

ACCURACY	
Accuracy Class	III
EU Type approved	10000 increments
A/D CONVERTER	
Type	Sigma-Delta ratiometric
Conversion rate	14 to 1034 Hertz (selectable)
Digital filter	FIR automatically adjusted to conversion rate plus Rolling Average (1, 2, 4, 8, 16 samples) post filtering
Minimum input per vs1	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25 mV/V to 4 mV/V (-1.25 mV to 20 mV)
Resolution	Internal 550000 counts, display 100000 per mV/V input
WEIGHT OUPUT	
Weight digits	5
Weight steps	1, 2, 5, 10, 20, 50
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V value of the load cell(s)
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test Checkweighing function with up to 20 samples per second
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 100 mA
Digital inputs	One input opto isolated, 24 V DC
LINEARITY AND STABILITY	
Linearity	Within 0.002 %
Long term stability	\leq 0.005% of full scale per year
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS	
Excitation	+5 V DC or +5 V switched polarity
Number of load cells	Up to 10 load cells 1100 Ω in parallel
Connection	6 wire technique
COMMUNICATION	
Serial interface	RS485A half duplex, multidrop with networking address, 2400 to 115000 baud (programmable)
POWER	
Power requirements	7 - 10 V AC or 7.5 - 12 V DC, 200 mA
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel, protection IP 65
OPTION	
Mains adapter	230 V AC / 9 V DC, 500 mA
Converter	RS485A to RS232C converter including power adapter 230 V AC / 9 V DC, 500 mA.
Display terminal	See data sheet RDT-A / -B

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FAD-4 A/D Converter



The FAD-04 A/D Converter is a very accurate, versatile, general purpose instrument. It is designed to connect 1 to 4 load cells. It incorporates high performance A/D conversion including digital calibration with individual digital corner adjustment.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments (e) according to OIML R 76.

All communication via a bi-directional serial interface. This allows very easy connection to any PC, PLC or other device with network capability.

Standard weighing function are available: Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test.

The unique calibration and corner adjustment allows the use of dead weights to be placed on the scale. But in cases where calibration with dead weight is difficult (high capacity silos or hoppers) the calibration data from the individual load cells can be used.

The stainless steel housing offers the ideal solution for industrial applications.

A display unit with 6 digits LED red, 14 mm including tactile 6 key keypad is available for remote operation. See data sheet FDT-A / -B.

Important Features

- Independent connection for up to 4 load cells.
- Approved for 10000 increments.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Full digital corner calibration by test weights or load cell calibration data in mV/V.
- Analogue and digital filtering.
- EEPROM calibration data storage.
- Serial communication RS485A for direct connection to computer or other devices.
- Multidrop communication capability.
- Conversion up to 80 times per second.
- Set points (2x) available

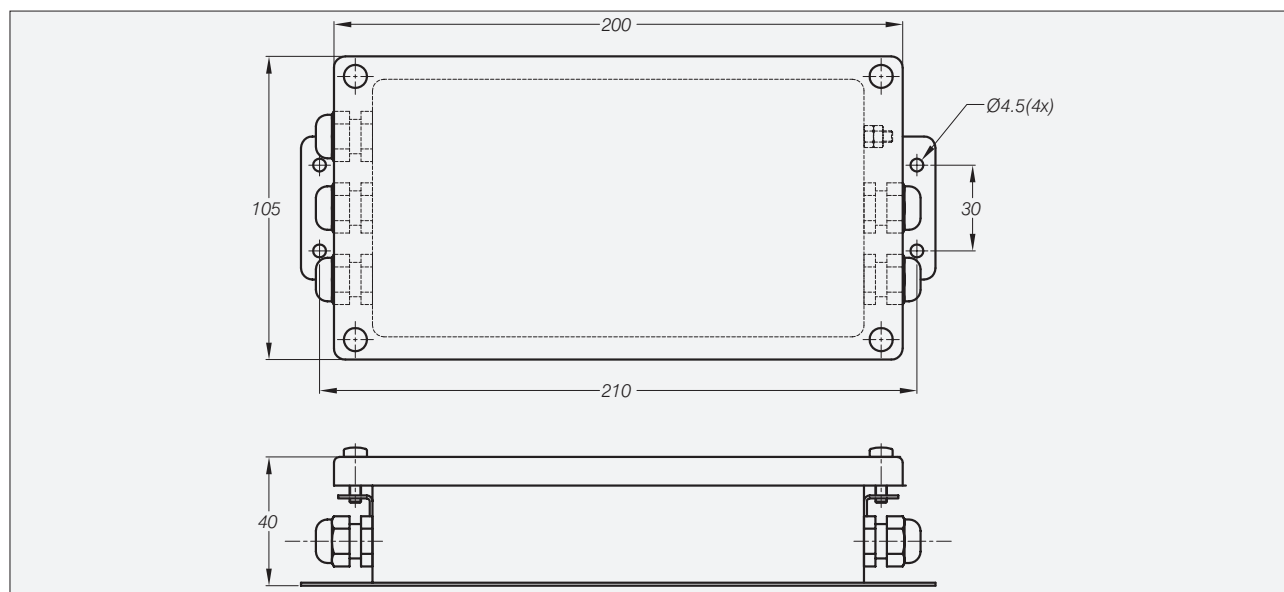
Options

- Analogue output; current.
- Mains adapter 230 V AC / 9 V DC, 500 mA.
- RS485A to RS232C converter.

FAD-4 Specifications

ACCURACY	
Accuracy Class	III
EU Type approved	10000 increments
A/D CONVERTER	
Type	Sigma-Delta ratiometric with integral analogue and digital filters
Conversion rate	8, 20, 40, 80 measurements per second (setup selectable) divided by the number of load cells connected
Minimum input per vs _i	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25mV/V to 4 mV/V (-1.25mV to 20 mV)
Resolution	Internal 550000 counts
WEIGHT OUPUT	
Weight digits	5
Weight steps	1, 2, 5, 10, 20, 50
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V values of each load cell
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test
Memories	Serial EEPROM calibration memory
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 10 mA
Digital Input	One input opto isolated, 24 V DC
Tilt sense input	Inhibits weighing when scale is tilted
LINEARITY AND STABILITY	
Linearity	Within 0.002 %
Long term stability	\leq 0.002% of full scale per year.
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS	
Excitation	+5 V DC
Number of load cells	Up to 4x350 Ω load cells
Connection	4 wire technique
COMMUNICATION	
Serial interface	RS485A half duplex, multidrop with networking address, 2400 to 115000 baud Baudrate, data bits, parity and data output are programmable
POWER	
Power supply	7 - 10 V AC or 7.5 - 12 V DC, 200 mA
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel, protection IP 65
OPTIONS	
Analogue output	Current 0 - 20 mA or 4 - 20 mA, resolution 16 bit Full Scale
Mains adapter	230 V AC / 9 V DC, 500 mA
Converter	RS485A to RS232C converter including power adapter 230 V AC / 9 V DC, 500 mA.
Display terminal	See data sheet RDT-A / -B

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FDT-A / -B Display Terminal



The FDT-A/-B is a panel mount display terminal to be used in combination with the FAD-1 and FAD-4 A/D Converters.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications according to OIML R 76.

The display terminal with 6 digits LED red, 14 mm including tactile 6 key keypad is available for remote operation (all weighing functions).

All communication via a bi-directional serial interface.

The unit may be used in Master Mode where it may poll up to 63 FAD A/D Converters in a network or in Slave Mode where it will only display information from a selected FAD.

Two models are available:

- FDT-A with basic functions,
- FDT-B with additional features:
additional serial interface RS232C, real time clock,
Alibi memory for 10000 records.

Important Features

- For remote operation of FAD-1 / FAD-4 A/D Converters.
- Serial interface RS485A.
- Connection of up to 63 FAD's.

Additional Features FDT-B

- Second communication port RS232C.
- Alibi memory for 10000 records.
- Real time clock.

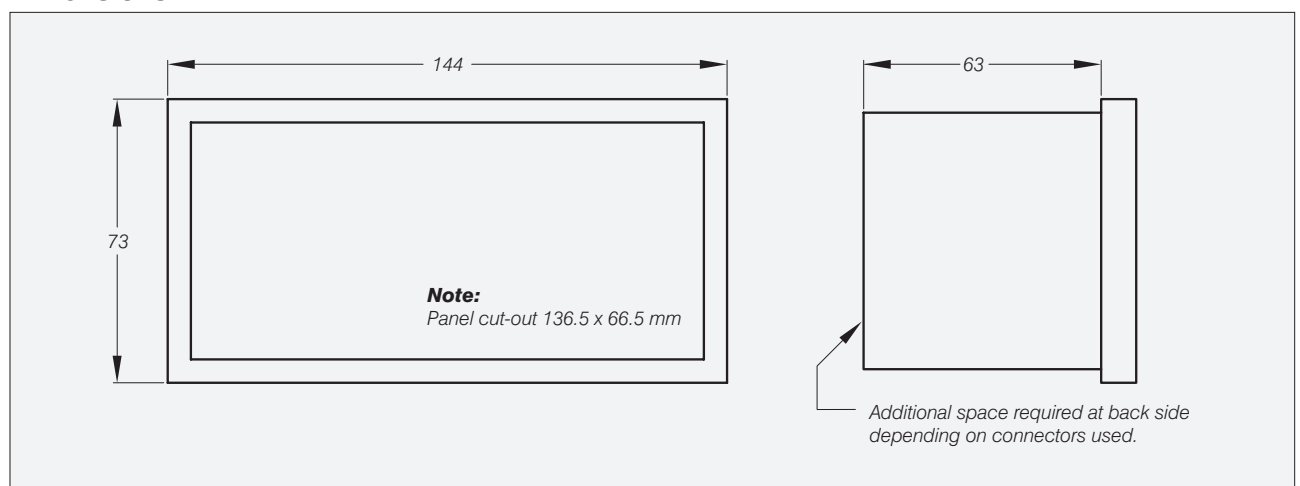
Options

- Mains adapter 230 V AC / 9 V DC, 500 mA.
- RS485A to RS232C converter.
- Display terminal bracket.
- Front cover IP65.

FDT-A / -B Specifications

DISPLAY AND KEYBOARD	
Display	6 digits, 7 segments, LED red, 14 mm high
Status annunciators	Motion, tare, net, minus sign, zero
Keyboard	6-key membrane, with tactile feedback
Decimal point	Between any digit of the display
Weight display digits	5
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Via serial command: Digital corner calibration/Deadload/Span/Scale parameters Calibration may be performed by application of weights or by the mV/V values of each load cell
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test
Memories	Serial EEPROM calibration memory
COMMUNICATION	
Serial interface	RS485A half duplex, multidrop with networking address, 2400 to 115000 baud Baudrate, data bits, parity and data output are programmable
ADDITIONAL FEATURES FDT-B	
Serial interface	RS232C full duplex, 1200 baud; for printer or host computer
Alibi memory and RTC	Alibi memory for 10000 records and real time clock
POWER	
Power supply	7.5 - 10 V AC or 8 - 12 V DC
Consumption	1.8 W maximum
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 °C to +40 °C legal for trade / -20 °C to +50 °C non approved
Storage temperature	-10 °C to +70 °C
Humidity	90% RH max, non condensing
Enclosure	Panel mount, protection IP 54
OPTIONS	
Mains adapter	230 V AC / 9 V DC, 500 mA
Converter	RS485A to RS232C converter including power adapter 230 V AC / 9 V DC, 500 mA
Display terminal bracket	FDT can be inserted for table top
Front cover	Transparent front cover with protection IP65

Dimensions



E60 Rev1 UK 2(2)

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FT-01 Weight Indicator



The FT-01 Weight Indicator is a very accurate, versatile, general purpose instrument.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments according to OIML R 76.

Large 6 digit LED weight display (red, 20 mm) with weight status information minus, net, zero, motion, out of range and error.

Tactile 8 keys keyboard for various functions (on/off, sum, piece counting, zero, tare, print and other function activation keys).

Two set points are available.

Tilt sense input (inhibits weighing when scale is tilted).

The stainless steel housing offers the ideal solution for industrial applications.

Important Features

- Approved for 10000 increments.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Serial interface RS232C.
- Set points (2x) available
- Alibi memory for 10000 records.
- Piece counting function.
- Set points (2x) available.
- Tilt sense input.

Options

- Analogue output, current or voltage.
- Second scale connection with function Scale 1, Scale 2 or Scale 1+2.
- Second communication port
- Real time clock.

Accessory

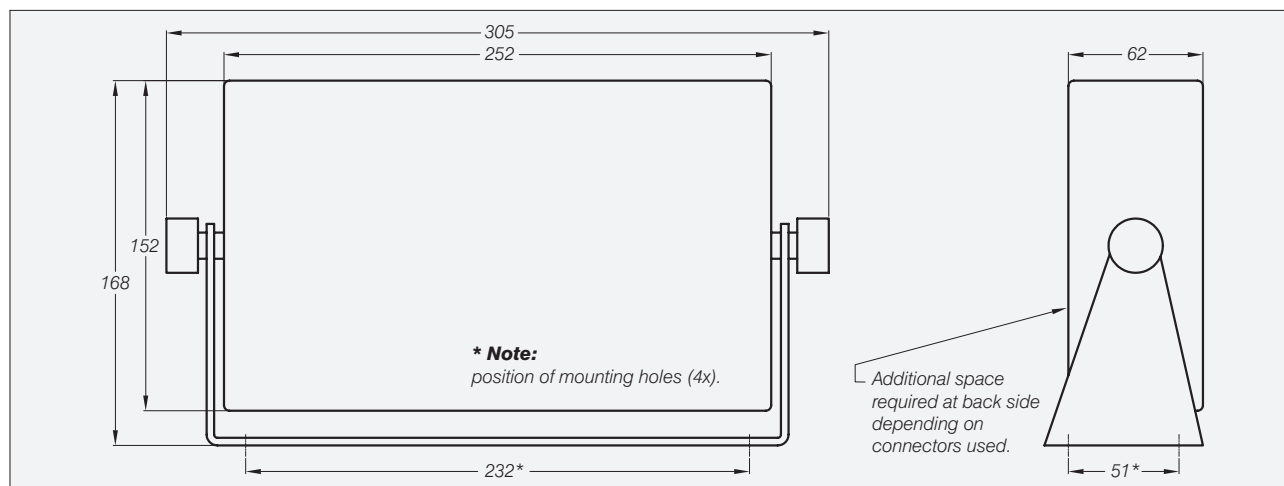
- RS485A to RS232C converter

FT-01 Specifications

ACCURACY	
Accuracy Class	III
EU Type approved	10000 increments
DISPLAY AND KEYBOARD	
Display	6 digits, 7 segments, LED red, 20 mm high
Status annunciators	Motion, tare, net, minus sign, zero, piece counting mode
Keyboard	8-key membrane, with tactile feedback
Decimal point	Between any digit of the display
Weight display digits	6
A/D CONVERTER	
Type	Sigma-Delta ratiometric with integral analogue and digital filters
Conversion rate	3 to 70 measurements per second
Minimum input per vs _i	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25 mV/V to 4 mV/V (-1.25 mV to 20 mV)
Resolution	Internal 550000 counts, display 100000 per mV/V input
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V value of the load cell
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test.
Alibi memory	Alibi memory for 10000 records
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 100 mA
Tilt sense input	Inhibits weighing when scale is tilted
LINEARITY AND STABILITY	
Linearity	Within 0.002 %
Long term stability	\leq 0.005% of full scale per year
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS	
Excitation	+5 V DC or +5 V DC switched polarity
Number of load cells	Up to 30 load cells 1100 Ω
Connection	6 wire technique
COMMUNICATION	
Port #1	RS232C, 2400 baud
POWER	
Power requirements	85...260 V AC, 50/60 Hz, 10 VA
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel, protection IP 65
OPTIONS	
* Analogue output	Current or voltage, resolution 16 bit Full Scale (65000 increments)
* Second scale connection	With function Scale 1, Scale 2 or Scale 1 + 2
Real time clock	
Second Communication (Port #2)	RS485A or RS232C half duplex, baudrate 2400 to 57600 Baudrate, data bits, parity and data output are programmable (Continuous output, remote printer, EDP and master-slave protocols)
ACCESSORY	
RS485A to RS232C converter	

* **Note:** These options cannot be combined, select either one or the other

Dimensions



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FT-02 Weight Indicator



Type FT-02 Weight Indicator, Mains and Battery Operated, in table top housing

The FT-02 Weight Indicator is a very accurate, versatile, general purpose instrument.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments (e) according to OIML R 76.

Large 6 digit LCD weight display (black, 15 mm) with weight status information minus, net, zero, motion, out of range and error.

Tactile 8 keys keyboard for various functions (on/off, sum, piece counting, zero, tare, print and other function activation keys).

Two set points are available.

Tilt sense input (inhibits weighing when scale is tilted).

The stainless steel housing offers the ideal solution for industrial applications.

The FT-02 is also available as a Mains and Battery Operated instrument, in table top housing.

Important Features

- Approved for 10000 increments.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Serial interface RS232C.
- Set points (2x) available
- Alibi memory for 10000 records.
- Piece counting function.
- Set points (2x) available.
- Tilt sense input.

Options

- Analogue output, current or voltage.
- Second scale connection with function Scale 1, Scale 2 or Scale 1+2.
- Second communication port RS485A.
- Real time clock..

Accessory

- RS485A to RS232C converter

FT-02 Specifications

ACCURACY	
Accuracy Class	III
EU Type approved	10000 increments
DISPLAY AND KEYBOARD	
Display	6 digits, 7 segments, LCD black, 15 mm high
Status annunciators	Motion, tare, net, minus sign, zero, piece counting mode
Keyboard	8-key membrane, with tactile feedback
Decimal point	Between any digit of the display
Weight display digits	6
A/D CONVERTER	
Type	Sigma-Delta ratiometric with integral analogue and digital filters
Conversion rate	3 to 70 measurements per second
Minimum input per vs _i	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25 mV/V to 4 mV/V (-1.25 mV to 20 mV)
Resolution	Internal 550000 counts, display 100000 per mV/V input
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V value of the load cell
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test
Alibi memory	Alibi memory for 10000 records
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 100 mA
Tilt sense input	Inhibits weighing when scale is tilted
LINEARITY AND STABILITY	
Linearity	Within 0.002 %
Long term stability	\leq 0.005% of full scale per year
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS	
Excitation	+5 V DC or +5 V DC switched polarity
Number of load cells	Up to 30 load cells 1100 Ω
Connection	6 wire technique
COMMUNICATION	
Port #1	RS232C, 2400 baud
POWER	
Power requirements	85...260 V AC, 50/60 Hz, 10 VA
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel, protection IP 65
OPTIONS	
* Analogue output	Current or voltage, resolution 16 bit Full Scale (65000 increments)
* Second scale connection	With function Scale 1, Scale 2 or Scale 1+2
Real time clock	
Port #2	RS485A or RS232C half duplex, baudrate 2400 to 57600 Baudrate, data bits, parity and data output are programmable (Continuous output, remote printer, EDP and master-slave protocols)
ACCESSORY	
RS485A to RS232C converter	
TYPE FT-02 WEIGHT INDICATOR, MAINS AND BATTERY OPERATED, IN TABLE TOP HOUSING	
Battery	Approx. 35 hours with 4 load cells 1100 Ω

* **Note:** These options cannot be combined, select either one or the other

Dimensions

Stainless Steel Housing

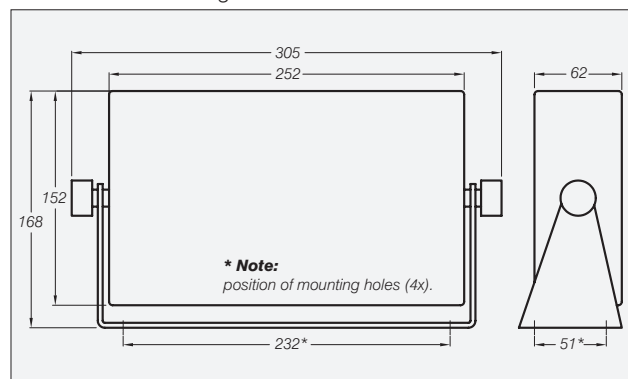
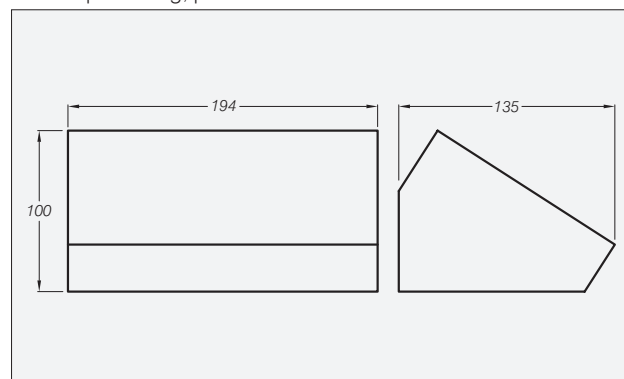


Table Top Housing, powder coated



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FT-03 Weight Indicator



Type FT-03 Weight Indicator, Mains and Battery Operated, in table top housing

The FT-03 Weight Indicator is a very accurate, versatile, general purpose instrument.

It is designed to connect standard strain gauge load cells or Flintec *digital* RC3D load cells (parameter selectable). If digital load cells are connected the A/D conversion is done in the load cells; all scale functions and load cell power supply supported by the instrument.

The instrument is approved by W&M Authorities for use in Accuracy Class III applications according to OIML R 76.

Alphanumeric LCD backlight display (13 mm).

Tactile 27 keys including Numeric/Alphanumeric Keyboard for various functions (on/off, sum, piece counting, zero, tare, print and other function activation keys).

Two set points are available.

Additional software for: - First weight memory,
- Four codes input.

Tilt sense input (inhibits weighing when scale is tilted).

The stainless steel housing offers the ideal solution for industrial applications.

The FT-03 is also available as a Mains and Battery Operated instrument, in table top housing.

Important Features

- For standard strain gauge load cells or Flintec *digital* load cells.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Alphanumeric keyboard and display.
- Serial interface RS232C.
- Second communication port RS485A.
- Set points (2x) available.
- Alibi memory for 10000 records.
- Real time clock.
- Piece counting function.
- Tilt sense input.

Options

- Analogue output, current or voltage.
- Second scale connection with function Scale 1, Scale 2 or Scale 1+2.

FT-03 Specifications

LOAD CELL CONNECTION	
Load cell type	2 Load cells types can be connected: Standard strain gauge load cells or Flintec <i>digital</i> load cells; selection by parameter setting.
ACCURACY (for standard load cells)	
Accuracy Class	III
EU Type approved	10000 increments
DISPLAY AND KEYBOARD	
Display	Alphanumeric LCD backlight display (13 mm)
Status annunciators	Motion, tare, net, minus sign, zero, piece counting mode
Keyboard	Tactile keyboard with 27 keys
Decimal point	Between any digit of the display
Weight display digits	6
A/D CONVERTER (for standard load cells)	
Type	Sigma-Delta ratiometric with integral analogue and digital filters
Conversion rate	3 to 70 measurements per second
Minimum input per vs _i	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25 mV/V to 4 mV/V (-1.25 mV to 20 mV)
Resolution	Internal 550000 counts, display 100000 per mV/V input
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V value of the load cell (for standard load cells)
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test
Alibi memory	Alibi memory for 10000 records and real time clock
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 100 mA
Tilt sense input	Inhibits weighing when scale is tilted
LINEARITY AND STABILITY (for standard load cells)	
Linearity	Within 0.002%
Long term stability	\leq 0.005% of full scale per year
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS (for standard load cells)	
Excitation	+5 V DC or +5 V DC switched polarity
Number of load cells	Up to 30 load cells 1100 Ω
Connection	6 wire technique
COMMUNICATION	
Port #1	RS232C, 2400 baud
Port #2**	RS485A half duplex, baudrate 2400 to 57600 Baudrate, data bits, parity and data output are programmable (Flintec <i>digital</i> load cells / continuous output / remote printer / EDP / master-slave protocols)
POWER	
Power requirements	85...260 V AC, 50/60 Hz, 10 VA
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel, protection IP 65
OPTIONS	
* Analogue output	Current or voltage, resolution 16 bit Full Scale (65000 increments)
* Second scale connection	With function Scale 1, Scale 2 or Scale 1+2
** Option for Port #2	RS232C instead of RS485A
TYPE FT-03 WEIGHT INDICATOR, MAINS AND BATTERY OPERATED, IN TABLE TOP HOUSING	
Battery	Approx. 35 hours with 4 load cells 1100 Ω

* **Note:** These options cannot be combined, select either one or the other

Dimensions:

Stainless Steel Housing

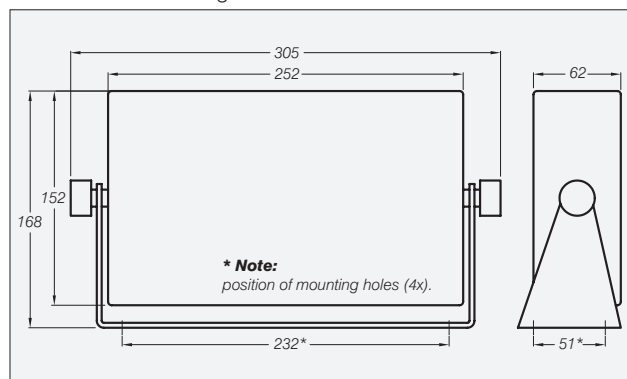
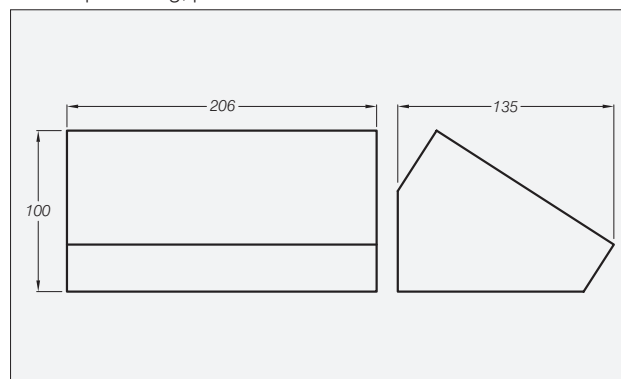


Table Top Housing, powder coated



All dimensions in mm. Dimensions and specifications are subject to change without notice.

Type FT-04 Process Indicator



The FT-04 Process Indicator is a very accurate, versatile, panel mount instrument.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments (e) according to OIML R 76.

Large 6 digit LED weight display (red, 14 mm) with weight status information minus, net, zero, motion, out of range and error.

Tactile 6 keys keyboard for various functions (sum, zero, tare, print and other function activation keys).

Two set points are available.

Important Features

- Approved for 10000 increments.
- Single or dual scale interval.
- Internal resolution 550000 counts.
- Serial interface RS232C.
- Set points (2x) available.
- Alibi memory for 10000 records.

Option

- Second communication port RS485A and Analogue output, current or voltage.

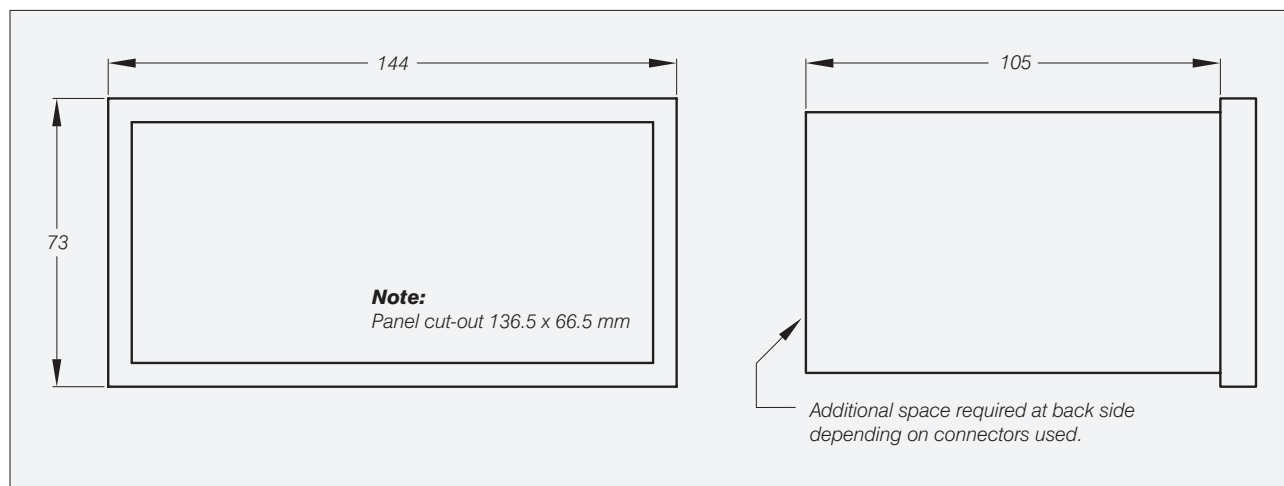
Accessory

- Front cover IP 65.

FT-04 Specifications

ACCURACY	
Accuracy Class	III
EU Type approved	10000 increments
DISPLAY AND KEYBOARD	
Display	6 digits, 7 segments, LED red, 14 mm high
Status annunciators	Motion, tare, net, minus sign, zero
Keyboard	6-key membrane, with tactile feedback
Decimal point	Between any digit of the display
Weight display digits	6
A/D CONVERTER	
Type	Sigma-Delta ratiometric with integral analogue and digital filters
Conversion rate	3 to 70 measurements per second
Minimum input per vs _i	0.4 μ V per interval legal for trade, 0.1 μ V per interval non approved
Analogue input range	-0.25 mV/V to 4 mV/V (-1.25 mV to 20 mV)
Resolution	Internal 550000 counts, display 100000 per mV/V input
SCALE CALIBRATION AND FUNCTIONS	
Calibration	Calibration may be performed by application of weights or by the mV/V value of the load cell
Weighing functions	Auto zero maintenance, motion detection, auto-zero at power-up, zero, tare, gross, test
Set Points	2 Set points, transistor output, optoisolated, 24 V DC, 100 mA
Input	24 V, optoisolated.
Alibi memory and RTC	Alibi memory for 10000 records and real time clock.
LINEARITY AND STABILITY	
Linearity	Within 0.002 %
Long term stability	\leq 0.005% of full scale per year
Temperature coefficient	Zero \leq 2 ppm/ $^{\circ}$ C (switched polarity), Span \leq 2 ppm/ $^{\circ}$ C
LOAD CELLS	
Excitation	+5 V DC or +5 V DC switched polarity
Number of load cells	Up to 30 load cells 1100 Ω
Connection	6 wire technique
COMMUNICATION	
Port #1	RS232C, 2400 baud
POWER	
Power requirements	24 V DC
ENVIRONMENT AND ENCLOSURE	
EMC	According to OIML R 76 and EN 45501 requirements
Operating temperature	-10 $^{\circ}$ C to +40 $^{\circ}$ C legal for trade / -20 $^{\circ}$ C to +50 $^{\circ}$ C non approved
Storage temperature	-10 $^{\circ}$ C to +70 $^{\circ}$ C
Humidity	90% RH max, non condensing
Enclosure	Panel mount, protection IP 54
OPTION	
Port #2 and	RS485A half duplex, baudrate 2400 to 57600 Baudrate, data bits, parity and data output are programmable (Continuous output, remote printer, EDP and master-slave protocols)
Analogue output	Current or voltage, resolution 16 bit Full Scale (65000 increments)
ACCESSORY	
Front cover IP 65	

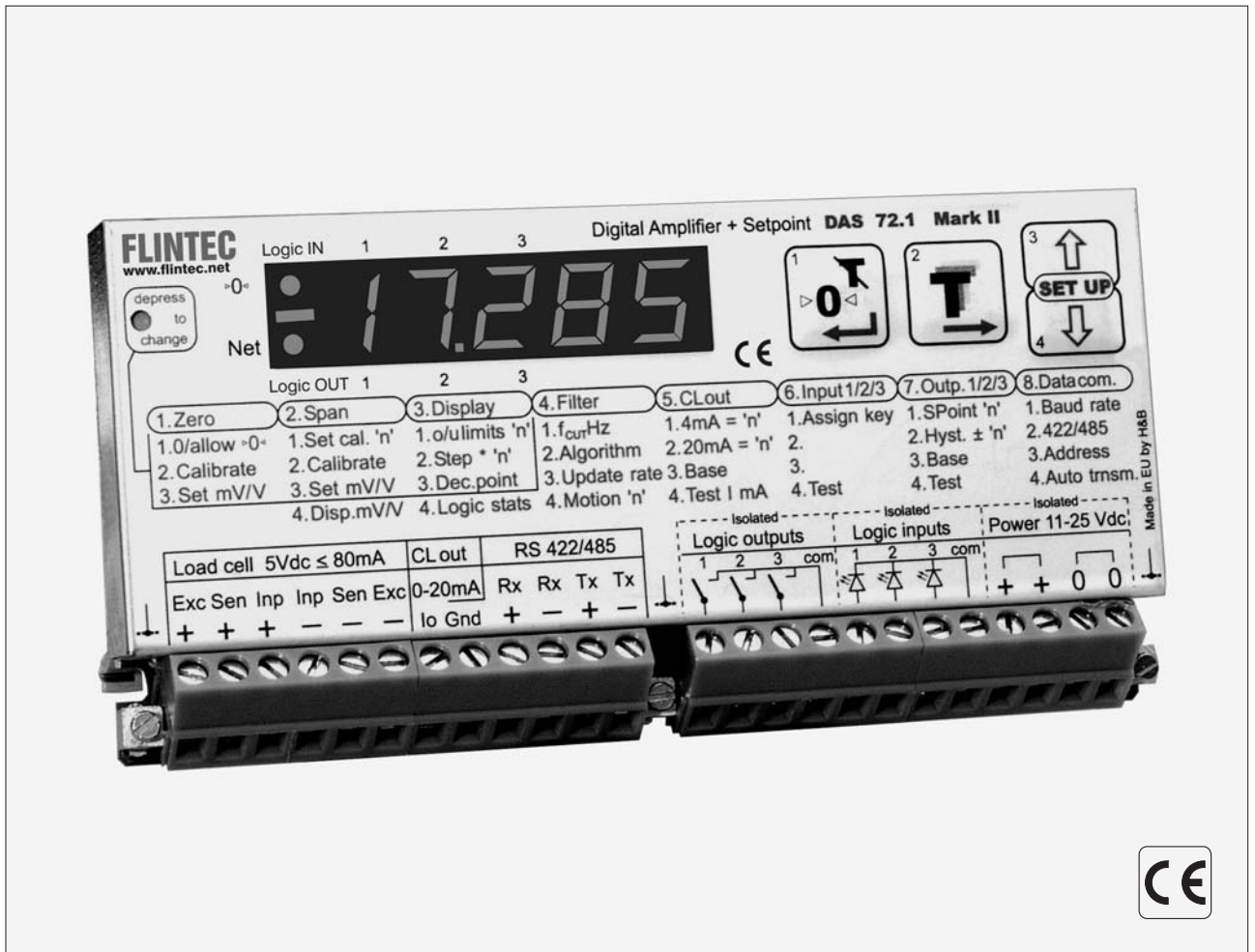
Dimensions



E64 Rev1 UK 2(2)

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Process Indicator Type DAS 72.1



Process Indicator Type DAS 72.1 Mark II is a fast, accurate, rail mounting instrument for static and dynamic weighing applications.

DAS 72.1 with 5 digit LED weight display and service display, serial interface, analogue output and 3 digital inputs and outputs. The digital inputs and outputs are programmable.

Communication via serial interface RS422/485, making it easy to connect to PC, PLC and other devices.

Standard weighing functions are available.

Software calibration and set up.

Important Features

- Internal resolution ± 260000 counts.
- Max. conversion rate 2400 per second.
- Digital filter, programmable.
- Calibration with weight or in mV/V.
- Linearity better than 0.002 %.
- 6 Wire load cell connection.
- 3 Logic inputs (optoisolated).
- 3 Logic outputs (OC, optoisolated).
- Network function by RS422/485.
- Analogue output 0/4...20 mA.
- Power supply 11...25 V DC.

Options

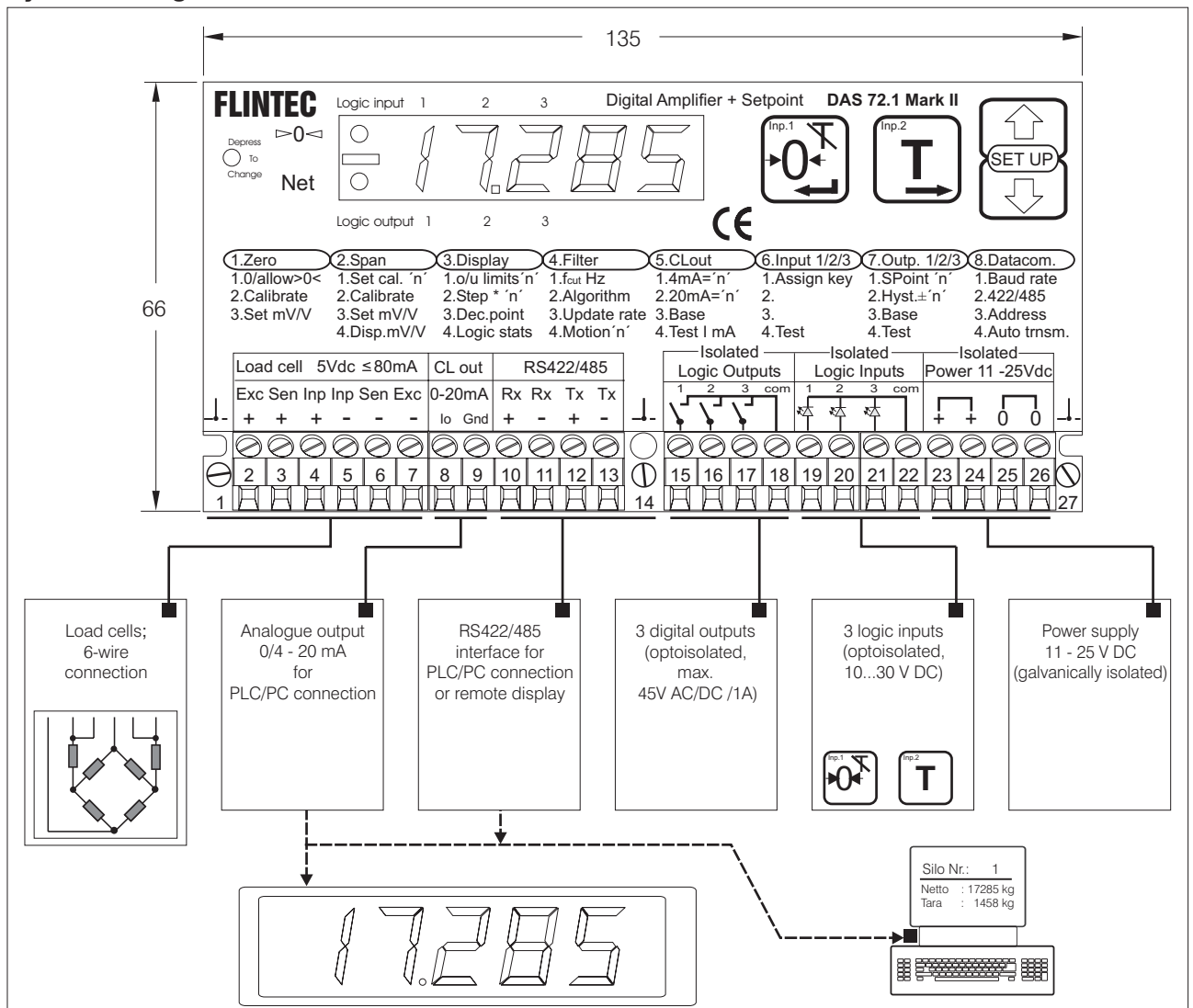
- Profibus-Gateway.
- CAN-Bus-Gateway.
- Ethernet-Gateway.

DAS 72.1 Mark II Specifications

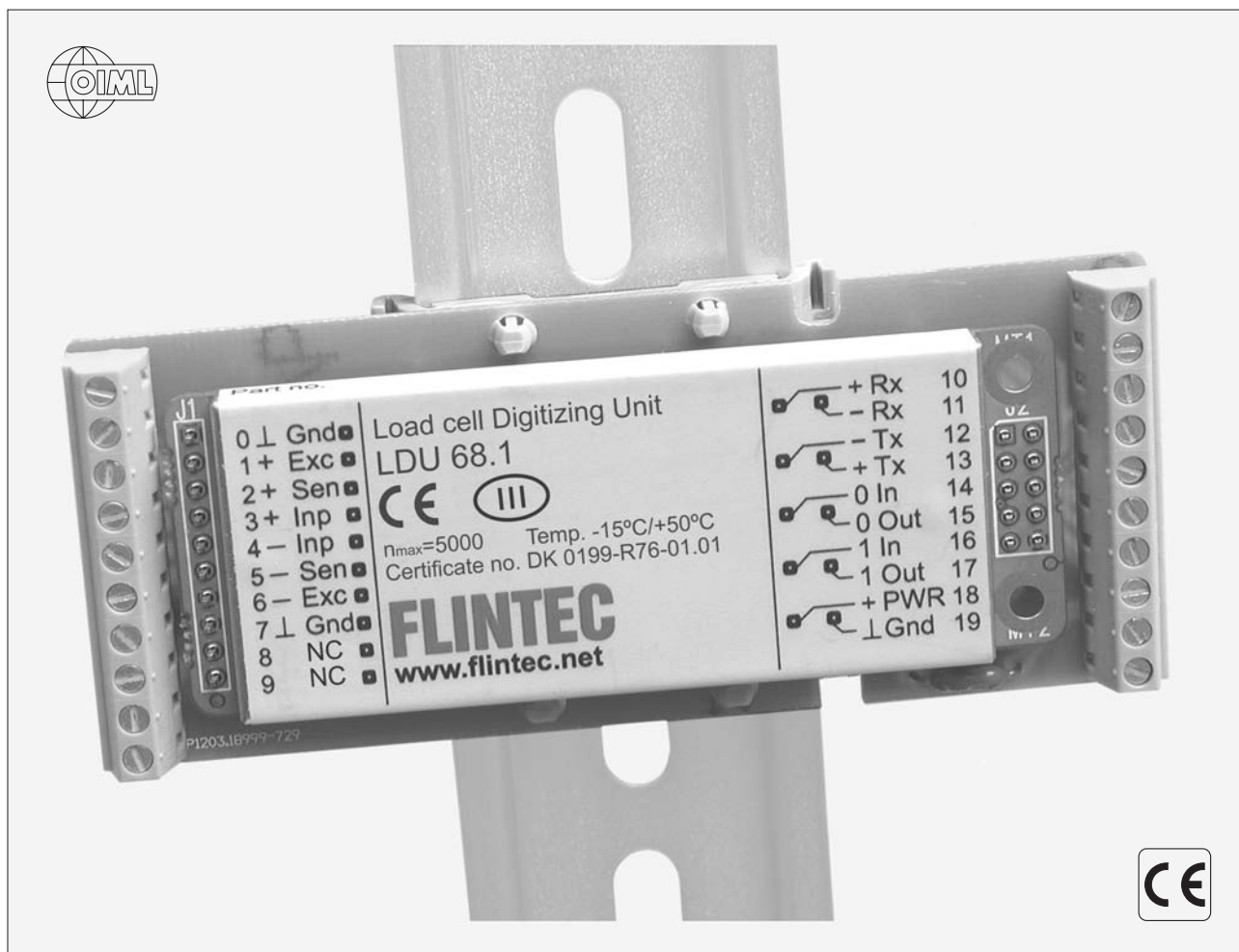
Linearity	< 0,002 %
Excitation	5 V DC, load cells 80-2000 Ohm, 6 wire technique
Analogue input range	±3,2 mV/V (bipolar, for weighing applications and force measurements)
Minimum input per vs1	0.05 µV / d
Resolution	Internal ±260000 counts, ±18-Bit-A/D convertor; display max. ±99999 counts
Conversion rate	Internal 2400 measurements per second; external up to 600 measurements per second
Digital filter	FIR Filter 2.5...19.7 Hz or IIR Filter 0.25...18 Hz; programmable in 8 steps each
Calibration	Software calibration and set up
Computer interface	RS485 or RS422, full duplex, 9600...115200 Baud; bus capability up to 32 devices (RS485)
Weighing functions	zero, gross, tare, net, filter etc.
Analogue output	0/4...20 mA, 14-Bit resolution
Display	10.2 mm LED, green, 5 digits, 3 status LED for nett/motion/sign, 6 status LED for logic inputs and outputs
Logic inputs	3 optoisolated inputs, 10...30 V DC, max. 3.5 mA
Logic outputs	3 optoisolated outputs, < 45 V DC/AC, 1 A
Temperature effects	on zero 5 ppm/°K typ.; max. <10 ppm/°K on span 4 ppm/°K typ.; max. <8 ppm/°K
Temperature range	-10 °C to +50 °C (compensated); -20 °C to +60 °C (storage)
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	135 x 66 x 19 mm, weight ca. 180 g
Power supply	11...25 V DC ±10 %, < 3 W, galvanically isolated
Options	Gateway for Profibus, CAN-Bus or Ethernet
EMC	CE 73/23/EEC; 93/98/EEC and 89/336/EEC

All dimensions in mm. Dimensions and specifications are subject to change without notice.

System Configuration



Load Cell Digitizing Unit Type LDU 68.1



LDU 68.1 plugged on adaptor board UA 77.1 (optionally)

The Load Cell Digitizing Unit LDU 68.1 is an accurate, veritable, A/D convertor for static and quasi-static weighing applications.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 5000 increments (e) according to OIML R 76.

Communication via serial interface RS422/485, making it easy to connect to PC, PLC and other devices.

Standard weighing functions are available.

Software calibration and set up.

Important Features

- Easy converting analogue load cells to digital.
- Internal resolution ± 130000 counts.
- Max. conversion rate 90 per second.
- Digital filter, programmable.
- Linearity better than 0.002 %.
- 6 wire load cell connection.
- 2 inputs (opto-isolated).
- 2 outputs (OC).
- Network function by RS422/485.
- Power supply 12...24 V DC.

Options

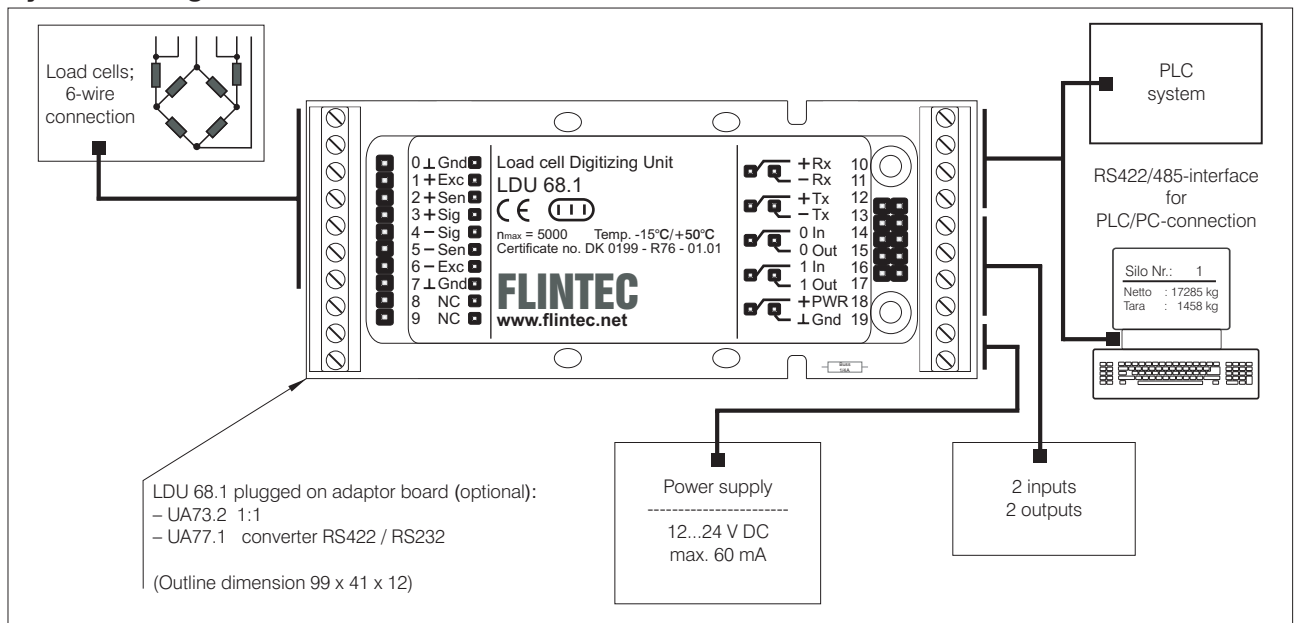
- Adaptor board(s) with screw terminals for mounting on rail.
- Profibus-Gateway.
- CAN-Bus-Gateway.
- Ethernet-Gateway.

LDU 68.1 Specifications

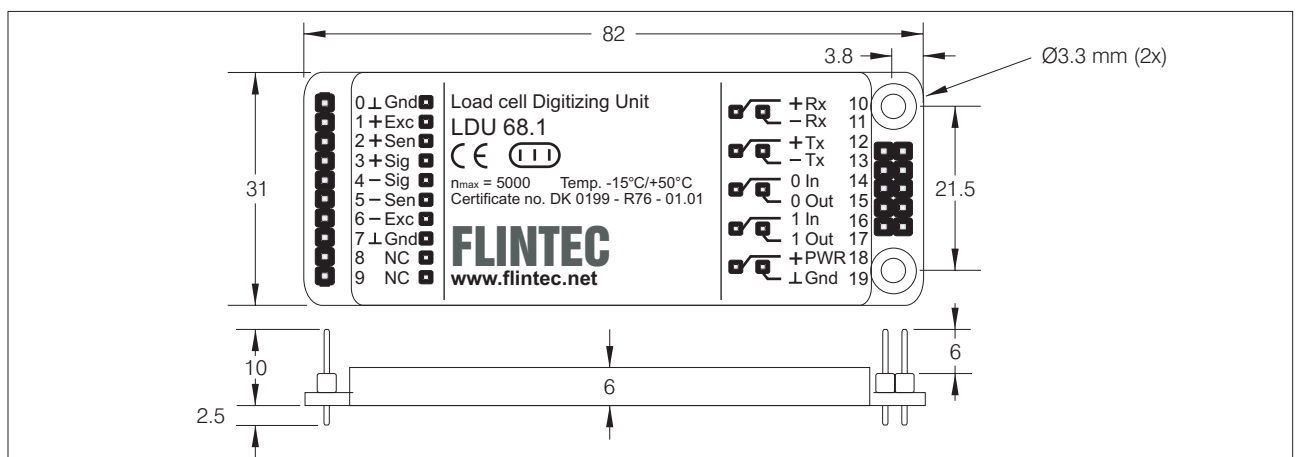
Accuracy Class	III
EU Type approved	5000 increments according OIML R 76
Linearity	< 0,002 % F.S.
Excitation	5 V DC, load cells 250-2000 Ohm, 6 wire technique
Analogue input range	±2,2 mV/V (bipolar, for weighing applications and force measurements)
Minimum input per vs1	0.1 µV per interval non approved; 0.7 µV per interval legal for trade
Resolution	Internal ±130000 counts, ±17-Bit-A/D convertor; external max. ±99999 counts
Conversion rate	internal 90 measurements per second; external up to 90 measurements per second
Digital filter	0.02...5 Hz programmable in 8 steps / Bessel Characteristics
Calibration	software calibration and set up
Computer interface	RS485 or RS422, full duplex, 9600....115200 Baud; bus capability up to 32 devices (RS485)
Weighing functions	zero, gross, tare, net, filter etc.
Inputs	2 opto-isolated inputs, 10...30 V DC max. 3 mA
Outputs	2 OC outputs, < 30 V DC, 200 mA
Temperature effects	on zero 5 ppm/°K typ.; max. <10 ppm/°K on span 3 ppm/°K typ.; max. < 5 ppm/°K
Temperature range	-10 °C to +50 °C (compensated); -20 °C to +60 °C (storage)
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 30 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC ±10 %, < 60 mA, not galvanically isolated
Options	adaptor board UA73.2 (passive) or UA77.1 (RS422 to RS232) or 3 Gateway versions
EMC / Approvals	CE 73/23/EEC; 93/98/EEC and 89/336/EEC / OIML R 76 for 5000 d

All dimensions in mm. Dimensions and specifications are subject to change without notice.

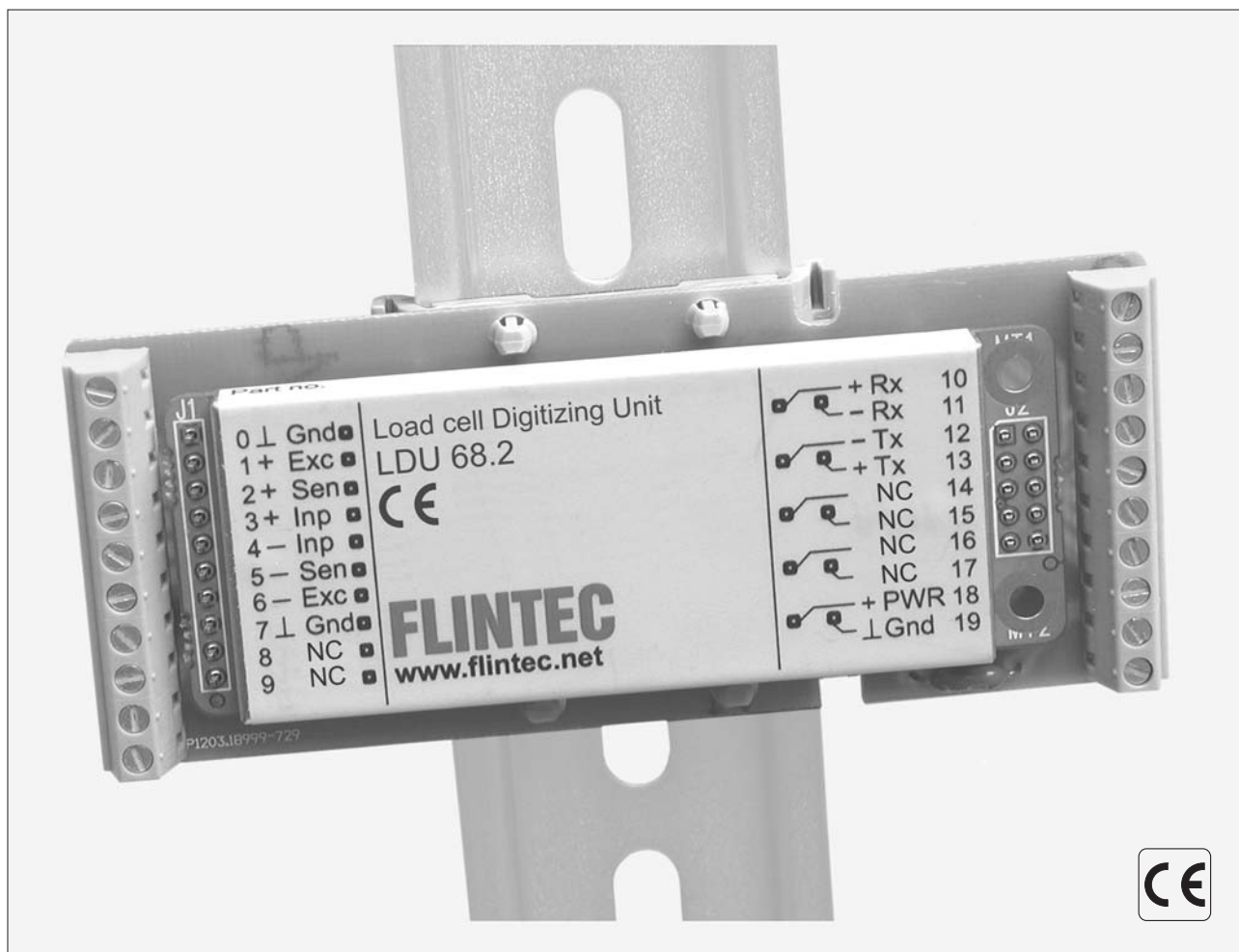
System Configuration



Dimensions



Load Cell Digitizing Unit Type LDU 68.2



LDU 68.2 plugged on adaptor board UA 77.1 (optionally)

The Load Cell Digitizing Unit LDU 68.2 is an accurate, veritable, A/D convertor for static and quasi-static weighing applications.

Communication via serial interface RS422/485, making it easy to connect to PC, PLC and other devices.

Standard weighing functions are available.

Software calibration and set up.

Important Features

- Easy converting analogue load cells to digital.
- Internal resolution ± 130000 counts.
- Max. conversion rate 90 per second.
- Digital filter, programmable.
- Linearity better than 0.002 %.
- 6 wire load cell connection.
- Network function by RS422/485.
- Power supply 12...24 V DC.

Options

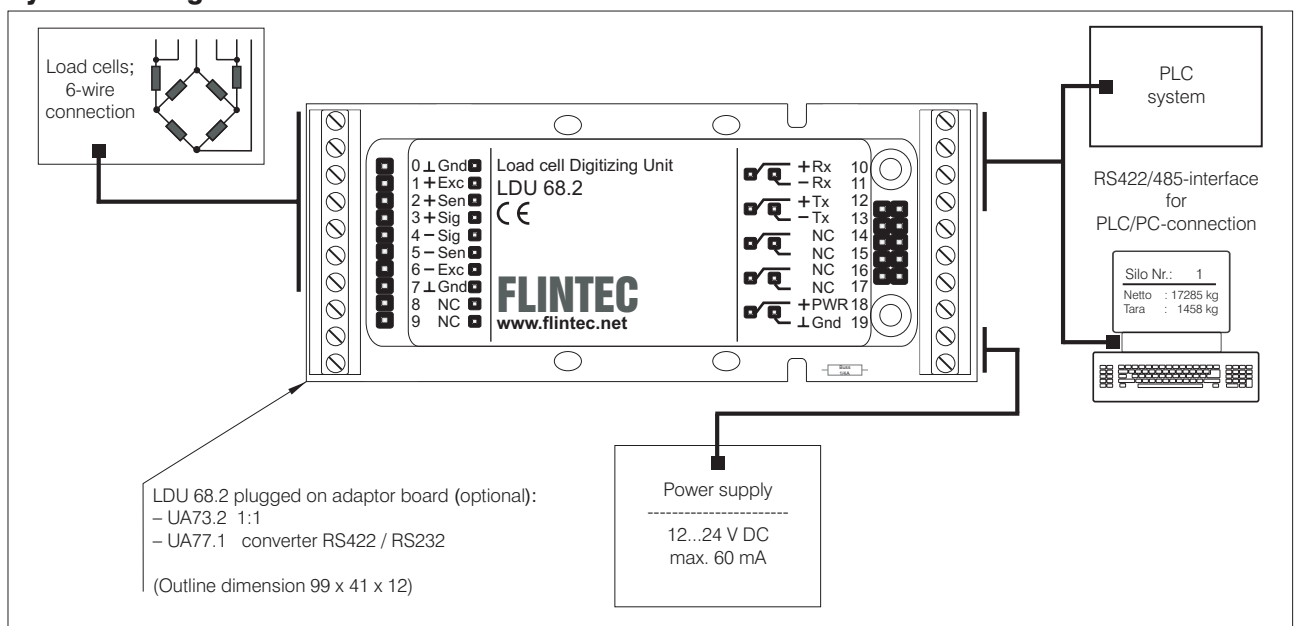
- Adaptor board(s) with screw terminals for mounting on rail.
- Profibus-Gateway.
- CAN-Bus-Gateway.
- Ethernet-Gateway.

LDU 68.2 Specifications

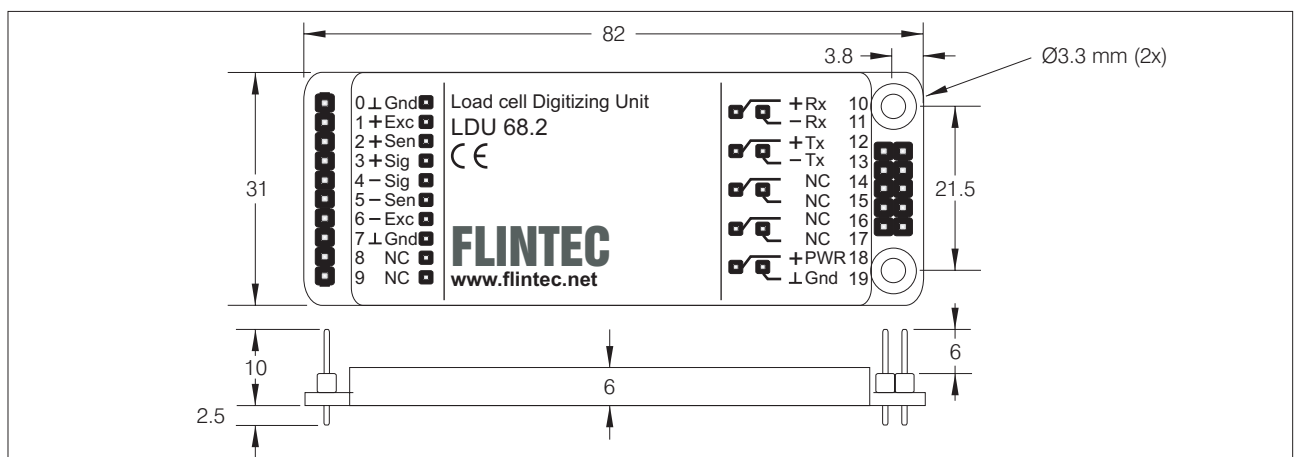
Linearity	< 0,002 % F.S.
Excitation	5 V DC, load cells 250-2000 Ohm, 6 wire technique
Analogue input range	±2,2 mV/V (bipolar, for weighing applications and force measurements)
Minimum input per vs1	0.1 µV per interval
Resolution	Internal ±130000 counts, ±17-Bit-A/D convertor; external max. ±99999 counts
Conversion rate	internal 90 measurements per second; external up to 90 measurements per second
Digital filter	0.02...5 Hz ; programmable in 8 steps / Bessel characteristics
Analogue input filter	2.8 Hz (20 dB / dec.)
Calibration	software calibration and set up
Computer interface	RS485 or RS422, full duplex, 9600...115200 Baud; bus capability up to 32 devices (RS485)
Weighing functions	zero, gross, tare, net, filter etc.
Temperature effects	on zero 25 ppm/°K typ.; max. <50 ppm/°K on span 15 ppm/°K typ.; max. <30 ppm/°K
Temperature range	-10 °C to +50 °C (compensated); -20 °C to +60 °C (storage)
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 30 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC ±10 %, < 60 mA, not galvanically isolated
Options	adaptor board UA73.2 (passive) or UA77.1 (RS422 to RS232) or 3 Gateway versions
EMC	CE 73/23/EEC; 93/98/EEC and 89/336/EEC

All dimensions in mm. Dimensions and specifications are subject to change without notice.

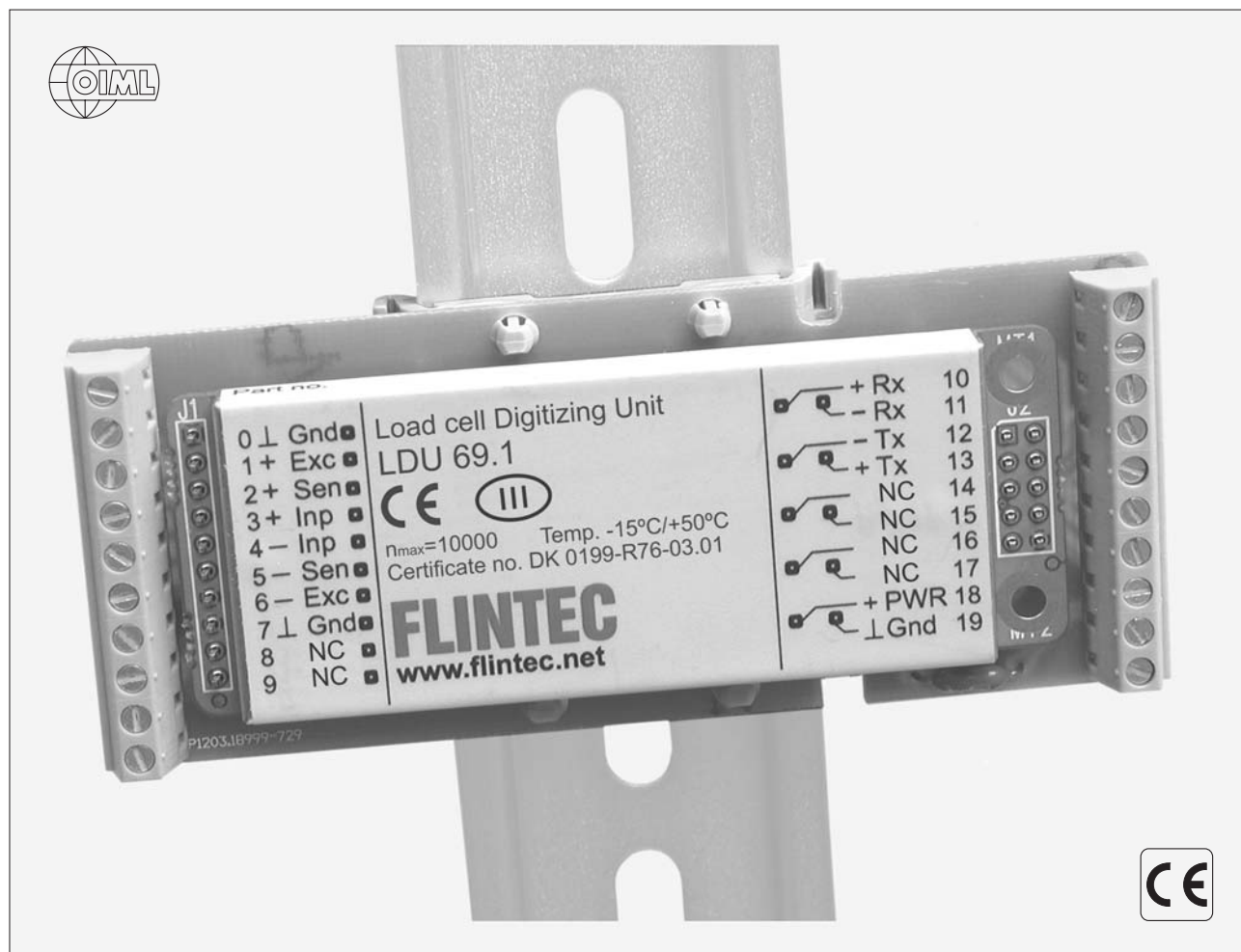
System Configuration



Dimensions



Load Cell Digitizing Unit Type LDU 69.1



LDU 69.1 plugged on adaptor board UA 77.1 (optionally)

The Load Cell Digitizing Unit LDU 69.1 is an accurate, veritable, A/D converter for static and dynamic weighing applications.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 10000 increments (e) according to OIML R 76.

Communication via serial interface RS422/485, making it easy to connect to PC, PLC and other devices.

Standard weighing functions are available.

Software calibration and set up.

Important Features

- Easy converting analogue load cells to digital.
- Internal resolution $\pm 1\ 050\ 000$ counts.
- Max. conversion rate 172 per second.
- Digital filter, programmable.
- Linearity better than 0.001 %.
- Calibration in mV/V possible.
- 6 wire load cell connection.
- Network function by RS422/485.
- Power supply 12...24 V DC.

Options

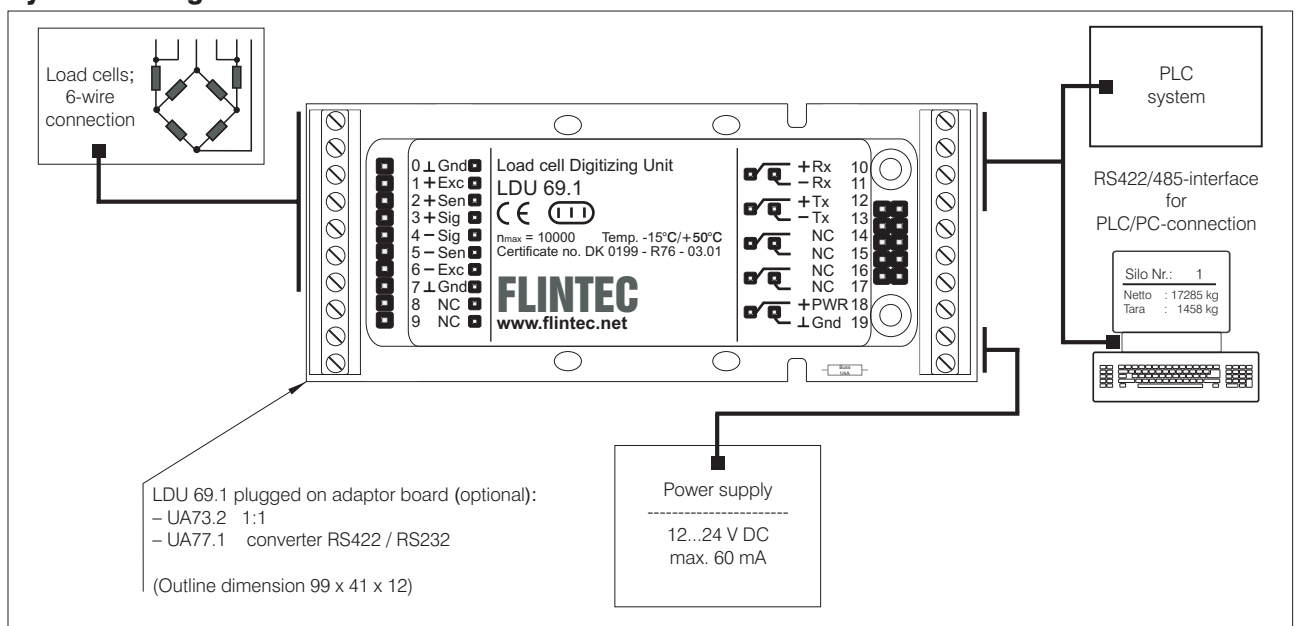
- Adaptor board(s) with screw terminals for mounting on rail.
- Profibus-Gateway.
- CAN-Bus-Gateway.
- Ethernet-Gateway.

LDU 69.1 Specifications

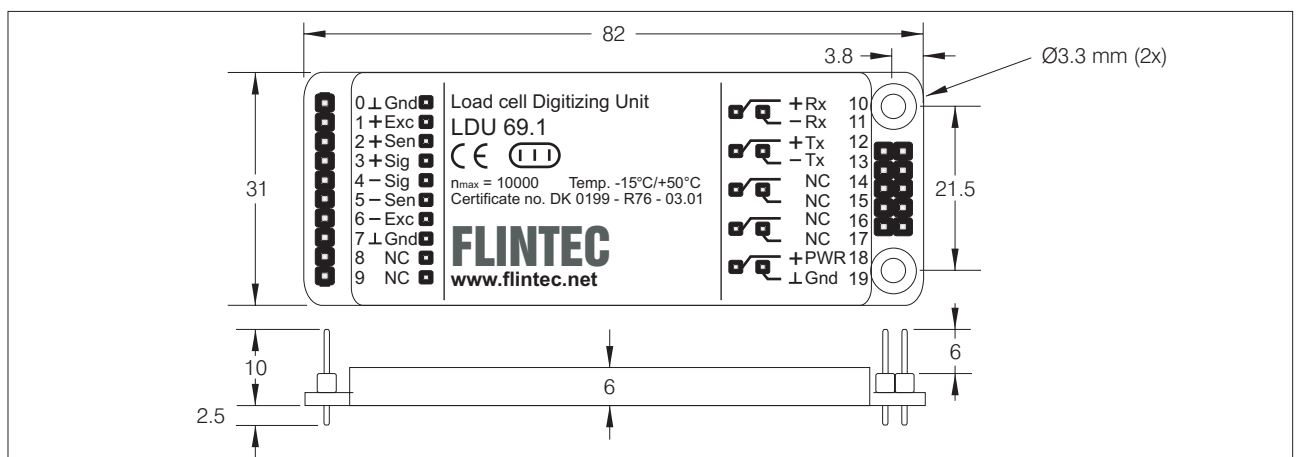
Accuracy Class	III
EU Type approved	10 000 increments according OIML R 76
Linearity	< 0,001 % F.S.
Excitation	5 V AC, load cells 250-2000 Ohm, 6 wire technique
Analogue input range	±2,2 mV/V (bipolar, for weighing applications and force measurements)
Minimum input per vs1	0.02 µV per interval non approved; 0.1 µV per interval legal for trade
Resolution	±1 050 000 counts, ±20-Bit-A/D convertor; external max. ±99999 counts
Conversion rate	172 measurements per second; external up to 172 measurements per second
Digital filter	0.2...3 Hz programmable in 6 steps / Bessel-, Gauss- or Butterworth-characteristics
Calibration	software calibration and set up
Computer interface	RS485 or RS422, full duplex, 9600....115200 Baud; bus capability up to 32 devices (RS485)
Weighing functions	zero, gross, tare, net, filter etc.
Temperature effects	on zero 1 ppm/°K typ.; max. <2 ppm/°K on span 1 ppm/°K typ.; max. <2 ppm/°K
Temperature range	-10 °C to +40 °C (compensated); -20 °C to +60 °C (storage)
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 30 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC ± 10 %, < 60 mA, not galvanically isolated
Options	adaptor board UA73.2 (passive) or UA77.1 (RS422 to RS232) or 3 Gateway versions
EMC / Approvals	CE 73/23/EEC; 93/98/EEC and 89/336/EEC / OIML R 76 for 10000 d

All dimensions in mm. Dimensions and specifications are subject to change without notice.

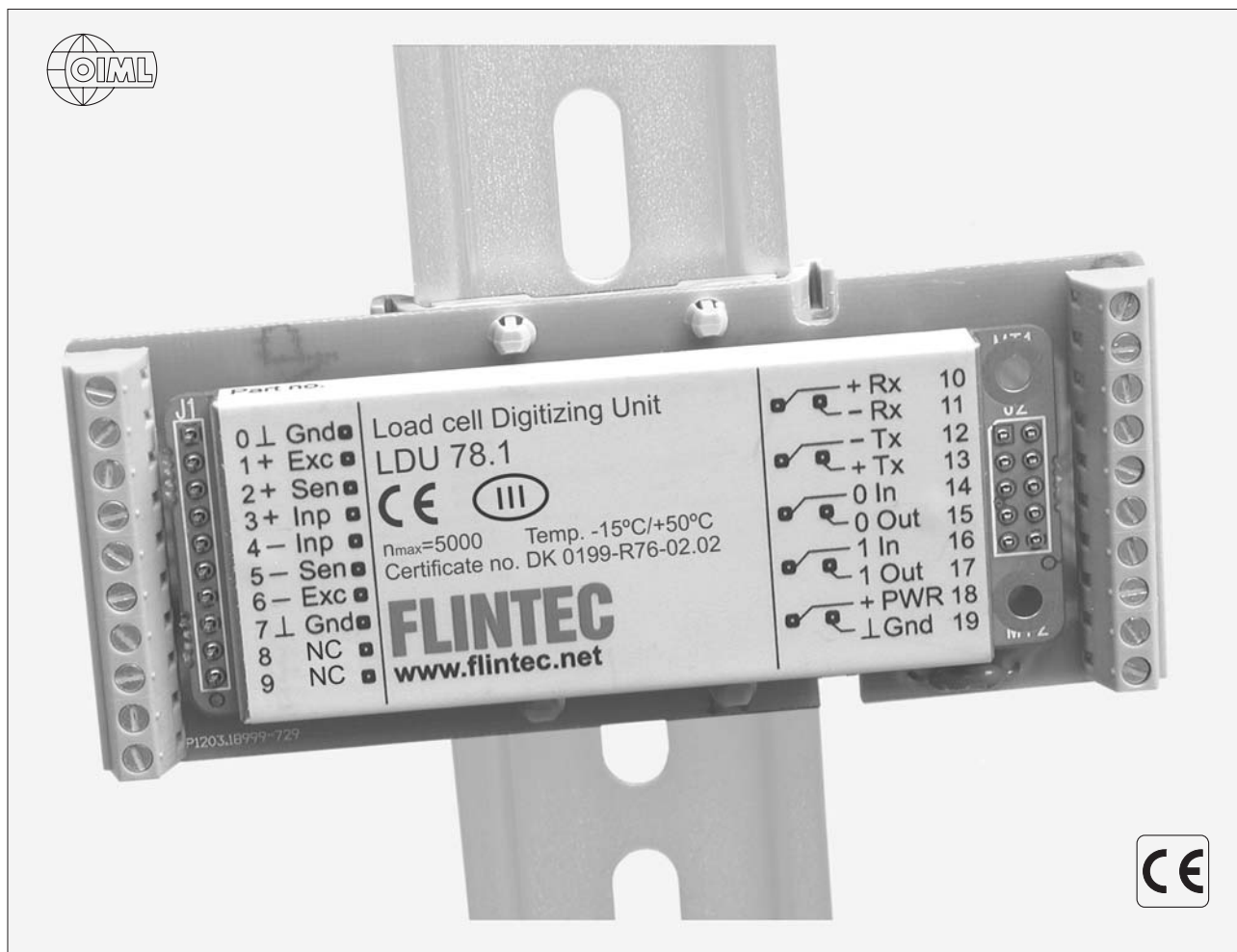
System Configuration



Dimensions



Load Cell Digitizing Unit Type LDU 78.1



LDU 78.1 plugged on adaptor board UA 77.1 (optionally)

The Load Cell Digitizing Unit LDU 78.1 is an accurate, veritable, high speed A/D convertor for static and dynamic weighing applications.

The instrument is approved by Weights & Measures Authorities for use in Accuracy Class III applications with up to 5000 increments (e) according to OIML R 76.

Communication via serial interface RS422/485, making it easy to connect to PC, PLC and other devices.

Standard weighing functions are available.

Software calibration and set up.

Important Features

- Easy converting analogue load cells to digital.
- Internal resolution ± 260000 counts.
- Max. conversion rate 2400 per second.
- Digital filter, programmable.
- Check weigher functions.
- Linearity better than 0.002 %.
- 6 wire load cell connection.
- 2 inputs (opto-isolated).
- 2 outputs (OC).
- Network function by RS422/485.
- Power supply 12...24 V DC.

Options

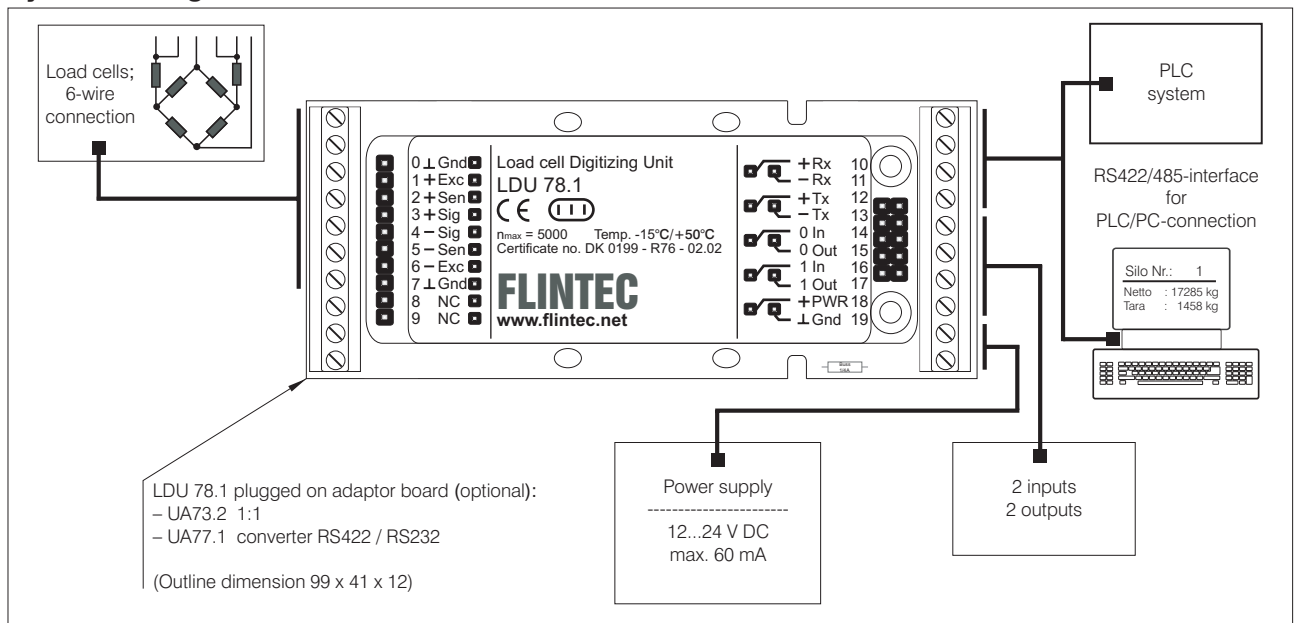
- Adaptor board(s) with screw terminals for mounting on rail.
- Profibus-Gateway.
- CAN-Bus-Gateway.
- Ethernet-Gateway.

LDU 78.1 Specifications

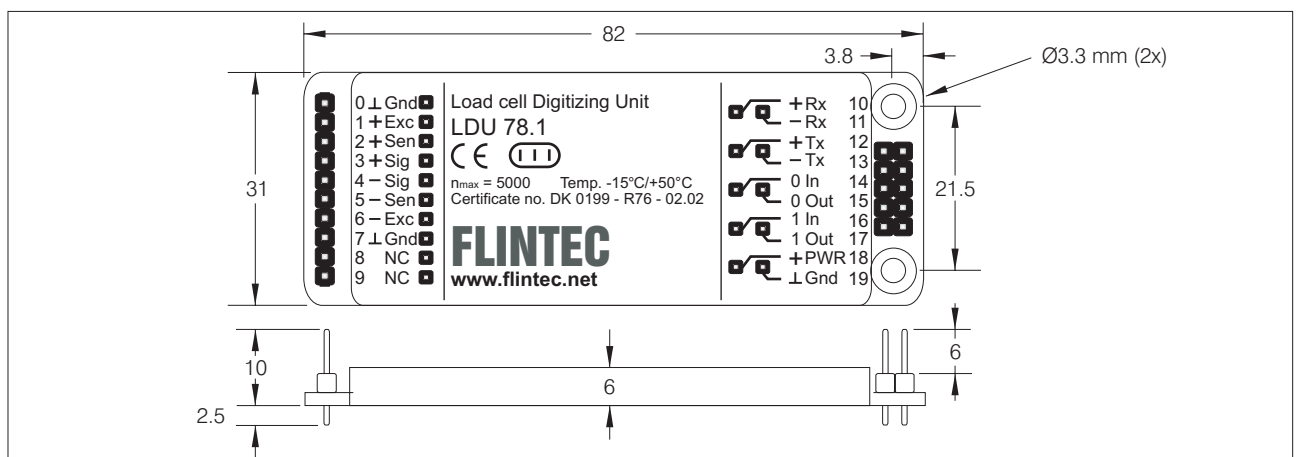
Accuracy Class	III
EU Type approved	5000 increments according OIML R 76
Linearity	< 0,002 % F.S.
Excitation	5 V DC, load cells 250-2000 Ohm, 6 wire technique
Analogue input range	±2,2 mV/V (bipolar, for weighing applications and force measurements)
Minimum input per vs1	0.05 µV per interval non approved; 0.7 µV per interval legal for trade
Resolution	Internal ±260000 counts, ±18-Bit-A/D convertor; external max. ±99999 counts
Conversion rate	internal 2400 measurements per second; external up to 600 measurements per second
Digital filter	FIR Filter 2.5...19.7 Hz or IIR Filter 0.25...18 Hz; programmable in 8 steps each
Calibration	software calibration and set up
Computer interface	RS485 or RS422, full duplex, 9600....115200 Baud; bus capability up to 32 devices (RS485)
Weighing functions	zero, gross, tare, net, filter etc.
Inputs	2 opto-isolated inputs, 10...30 V DC max. 3 mA
Outputs	2 OC outputs, < 30 V DC, 200 mA
Temperature effects	on zero 5 ppm/°K typ.; max. <10 ppm/°K on span 4 ppm/°K typ.; max. <8 ppm/°K
Temperature range	-10 °C to +50 °C (compensated); -20 °C to +60 °C (storage)
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 30 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC ±10 %, < 60 mA, not galvanically isolated
Options	adaptor board UA73.2 (passive) or UA77.1 (RS422 to RS232) or 3 Gateway versions
EMC / Approvals	CE 73/23/EEC; 93/98/EEC and 89/336/EEC / OIML R 76 for 5000 d

All dimensions in mm. Dimensions and specifications are subject to change without notice.

System Configuration



Dimensions



Type FAA-24 Analogue Amplifier



The FAA-24 Analogue Amplifier is an accurate, versatile, process instrument.

It offers Independent connection for up to 4 load cells.

With analogue output (jumper selectable):

- Current 0...20 mA / 4...20 mA
- Voltage 0...10 V

The stainless steel housing offers the ideal solution for industrial applications, protection IP 65.

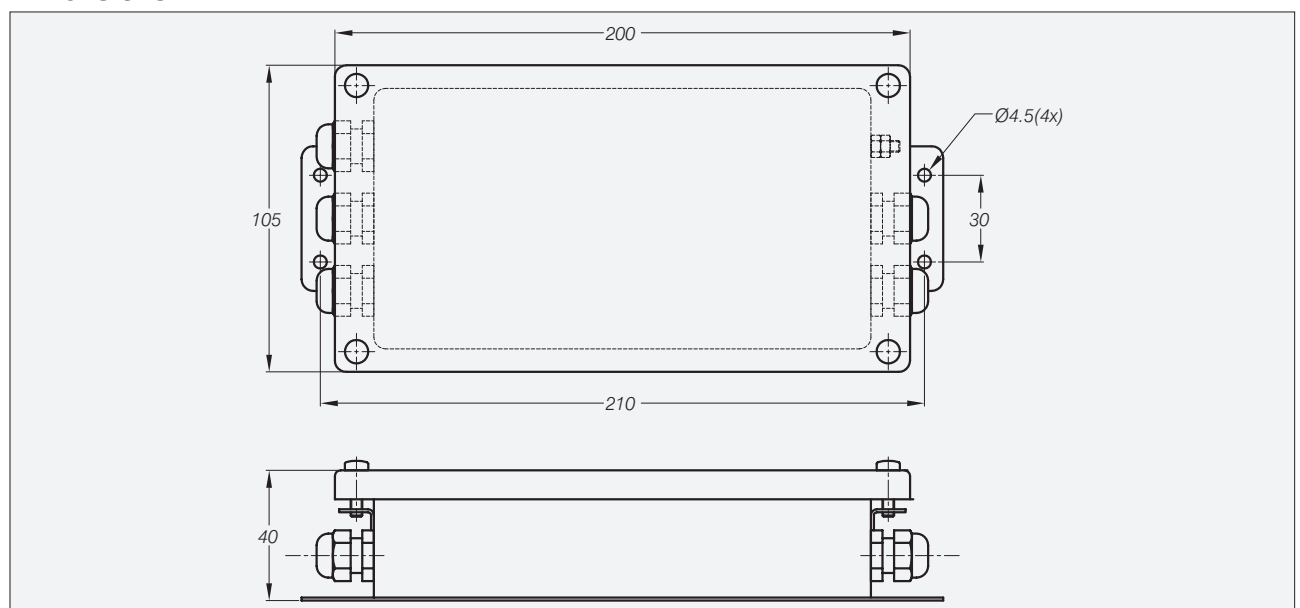
Important Features

- Accuracy 0.0125%.
- Connection for up to 4 load cells.
- Analogue output, current or voltage.
- Power supply 18...30 V DC.
- Stainless steel housing.

FAA-24 Specifications

ACCURACY AND STABILITY	
Accuracy	≤ 0.0125% of full scale
Repeatability	≤ 0.005% of full scale
Thermal stability in range -10 °C to +50 °C	≤ 0.025% of full scale
Warm-up time	10 minutes
SCALE CALIBRATION & ANALOGUE OUTPUT	
Calibration	Current output 0/4 - 20 mA or Voltage output 0 - 10 V Calibration by potentiometer and jumpers (course)
LOAD CELLS	
Excitation	10 V DC
Number of load cells	4 load cells 350...1100 Ω
Connection	4 wire technique
POWER	
Power requirements	18...30 V DC
ENVIRONMENT	
Operating temperature	-10 °C to +50 °C
Storage temperature	-25 °C to +80 °C
Humidity	90% RH max, non condensing
ENCLOSURE	
Box with connection for 4 load cell cables	Stainless steel, protection IP 65.

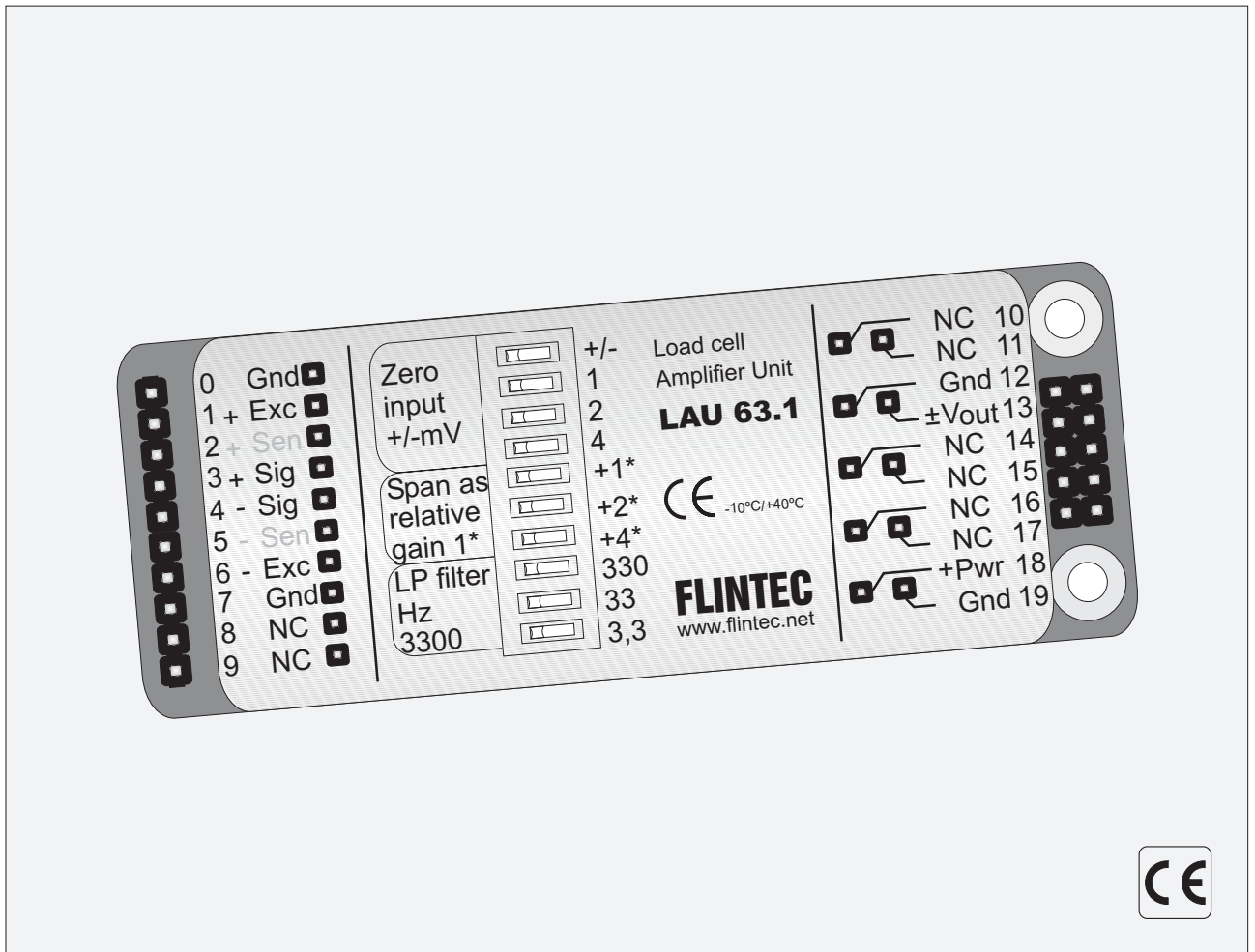
Dimensions



E92 Rev1 UK 2(2)

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Analogue Amplifier Type LAU 63.1



The Analogue Amplifier Type LAU 63.1 is designed for OEM applications to connect one strain gauge load cell or sensor. DIP switch setting for zero, gain and filtering.

The LAU 63.1 ist a universal amplifier for static and dynamic applications.

Analogue output $-10...+10$ V to connect with PLC and/or PC systems. Fine trimming for zero and gain is not available. Calibration to be done in PLC and/or PC.

Important Features

- Load cell excitation 10 V DC for sensors ≥ 250 Ohm.
- Output $-10...+10$ V.
- For static and dynamic applications.
- Filterung 3.3...3300 Hz.
- Zero/gain/filter adjustment by DIP switches.
- Power supply 12...24 VDC.

Option

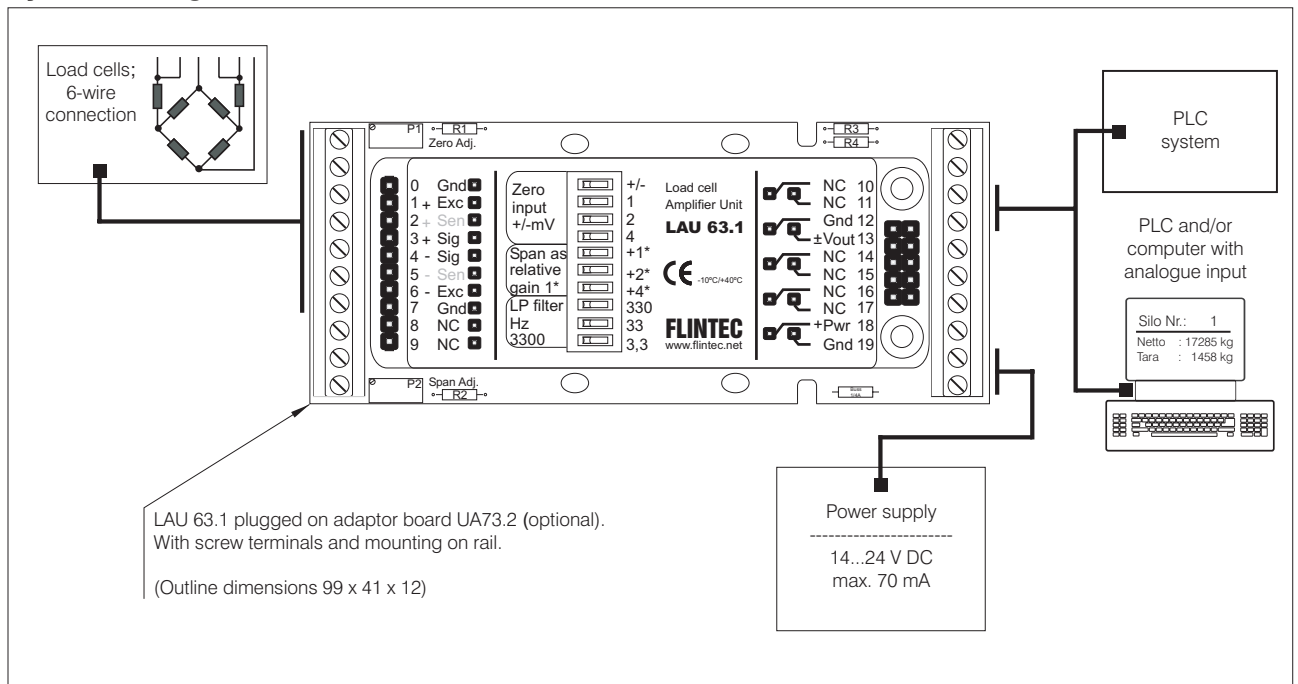
- Adaptor board with screw terminals for mounting on rail.

LAU 63.1 Specifications

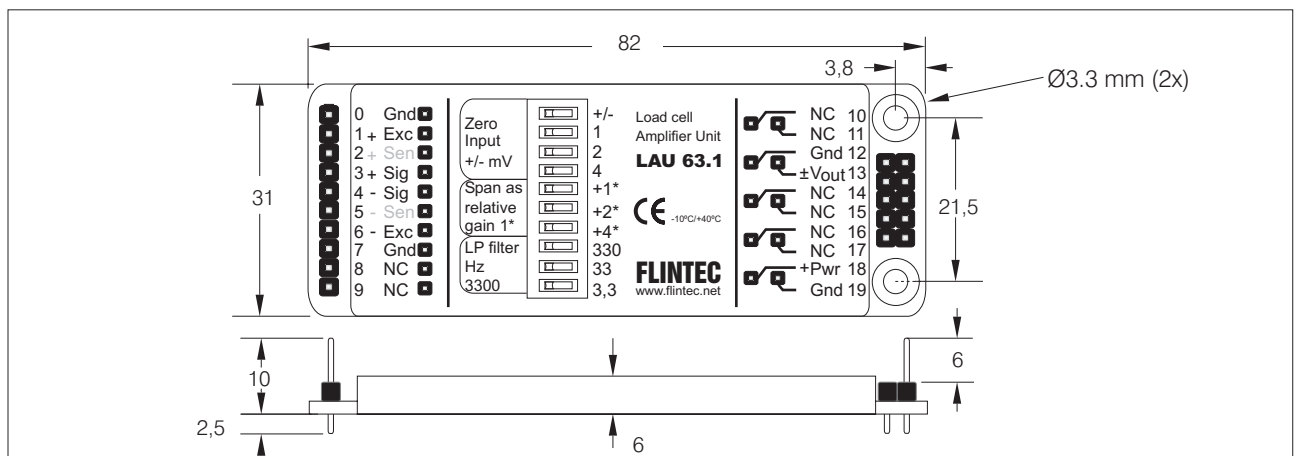
Linearity	< 0,01 %
Excitation	10 V DC, for 1 load cell 250...2000 Ohm
Analogue input range	-32 mV to +32 mV, (-3.2 mV/V to +3.2 mV/V)
Voltage output	0 to ±10 Volt / 500 Ohm max.
Zero adjustment (Offset)	-7 mV to +7 mV in 1 mV steps
Span adjustment	in 8 steps
Input filter	3.3; 33; 330 or 3300 Hz setting by DIP-switches
Temperature effects	on zero 50 ppm/°K on span 50 ppm/°K
Temperature range	-10 °C to +40 °C; storage -20 °C to +50 °C
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 26 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC, max. 70 mA, not galvanically isolated
Option	Adaptor board with screw terminals for mounting on rail
EMC	CE 73/23/EEC; 93/98/EEC and 89/336/EEC

All dimensions in mm. Dimensions and specifications are subject to change without notice.

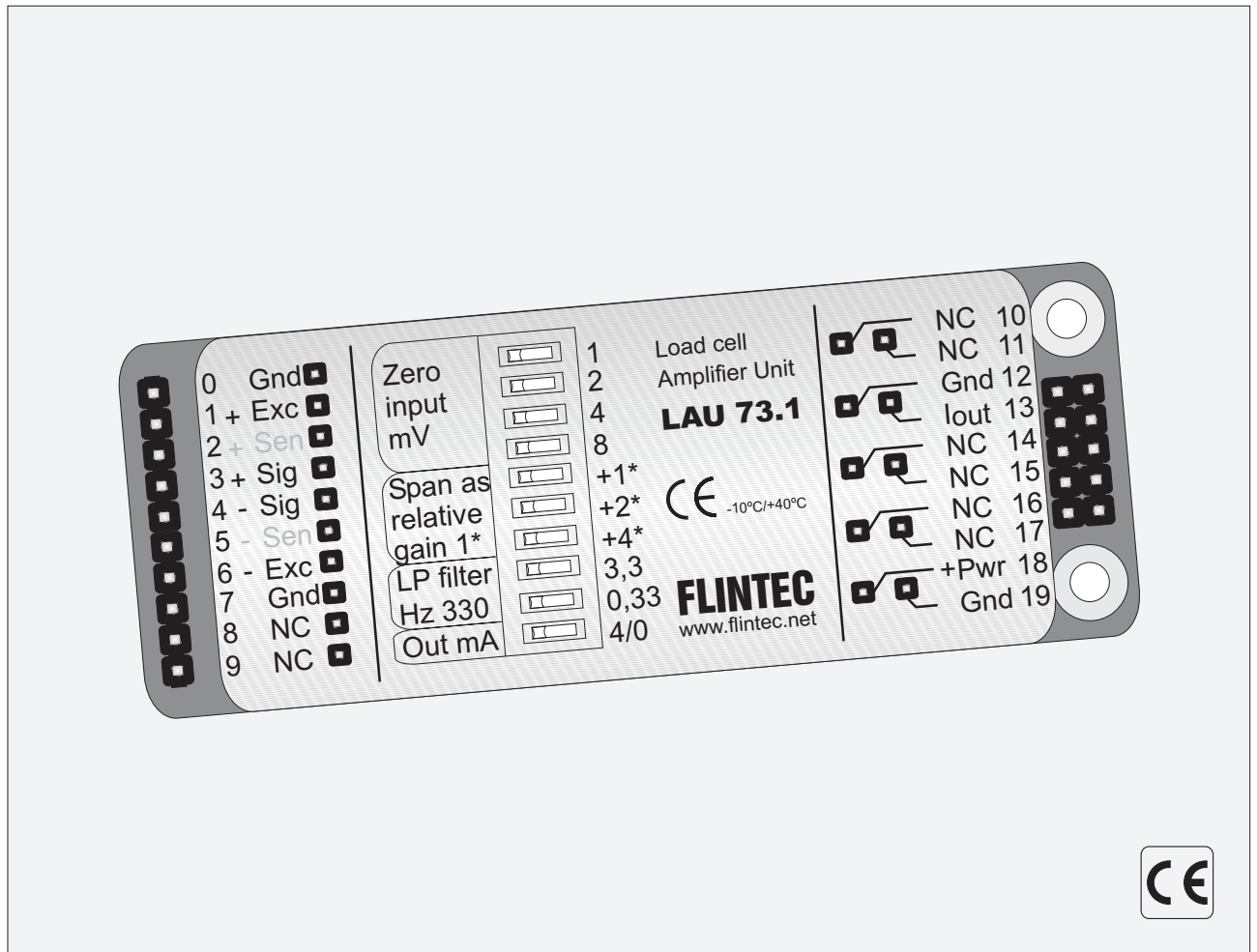
System Configuration



Dimensions



Analogue Amplifier Type LAU 73.1



The Analogue Amplifier Type LAU 73.1 is designed for OEM applications to connect one strain gauge load cell or sensor. DIP switch setting for zero, gain and filtering.

The LAU 73.1 is a universal amplifier for static / semi-static applications.

Analogue output 0/4... 20 mA to connect with PLC and/or PC systems. Fine trimming for zero and gain is not available. Calibration to be done in PLC and/or PC.

Important Features

- Load cell excitation 10 V DC for sensors ≥ 250 Ohm.
- Output 0/4 ... 20 mA.
- Filterung 0,33 ... 33 Hz.
- Zero/gain/filter adjustment by DIP switches.
- Power supply 12...24 VDC.

Option

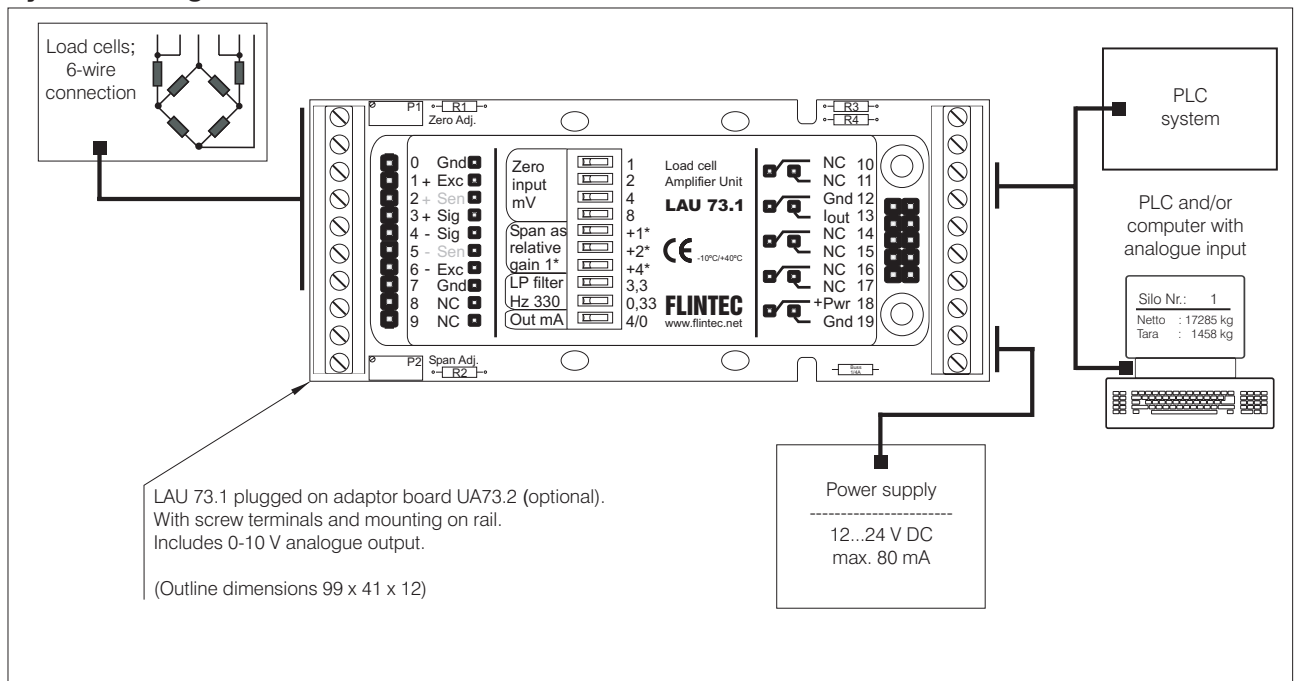
- Adaptor board with screw terminals for mounting on rail and 0-10 V analogue output with fine trimming potentiometers.

LAU 73.1 Specifications

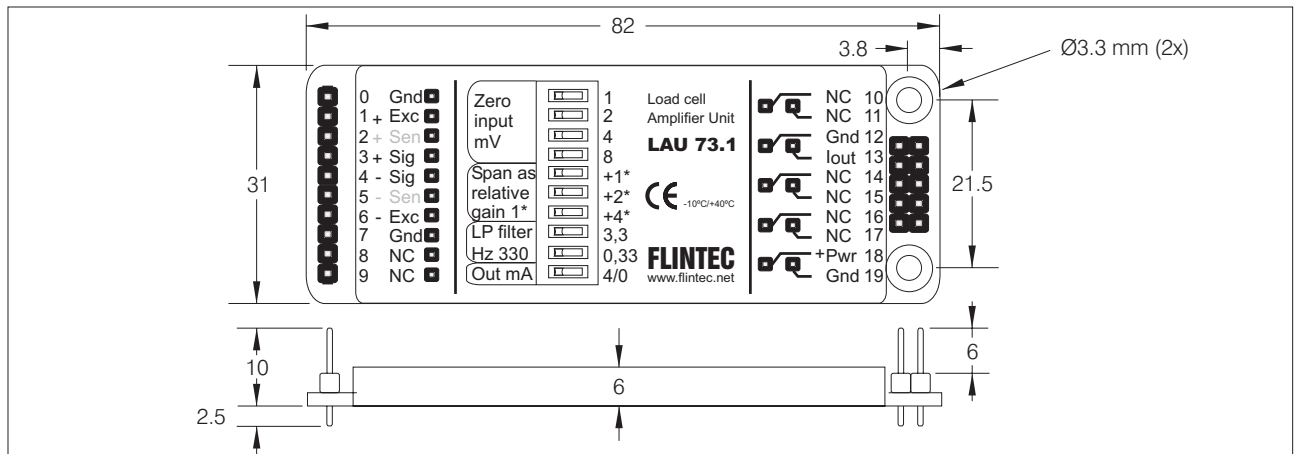
Linearity	< 0,01 %
Excitation	10 V DC, for 1 load cell 250...2000 Ohm, 4 wire technique
Analogue input range	-2 mV to +23 mV, (-0.2 mV/V to +2,3 mV/V)
Current output	0 - 20 mA or 4 - 20 mA / 500 Ohm max.
Zero adjustment (Offset)	0 mV/V to +1,5 mV/V in 0,1 mV/V steps
Span adjustment	in 8 steps
Input filter	0,33; 3,3; 33 Hz setting by DIP-switches
Temperature effects	on zero 50 ppm/°K on span 50 ppm/°K
Temperature range	-10 °C to +40 °C; storage -20 °C to +50 °C
Enclosure	tinned steel enclosure, protection IP 40, special housing IP 65 on request
Dimensions	82 x 31 x 6 mm, weight approx. 30 g; with adaptor board 99 x 41 x 12 mm, approx. 50 g
Power supply	12...24 V DC, max. 80 mA, not galvanically isolated
Option	Adaptor board with screw terminals for mounting on rail and 0-10 V analogue output with fine trimming potentiometers
EMC	CE 73/23/EEC; 93/98/EEC and 89/336/EEC

All dimensions in mm. Dimensions and specifications are subject to change without notice.

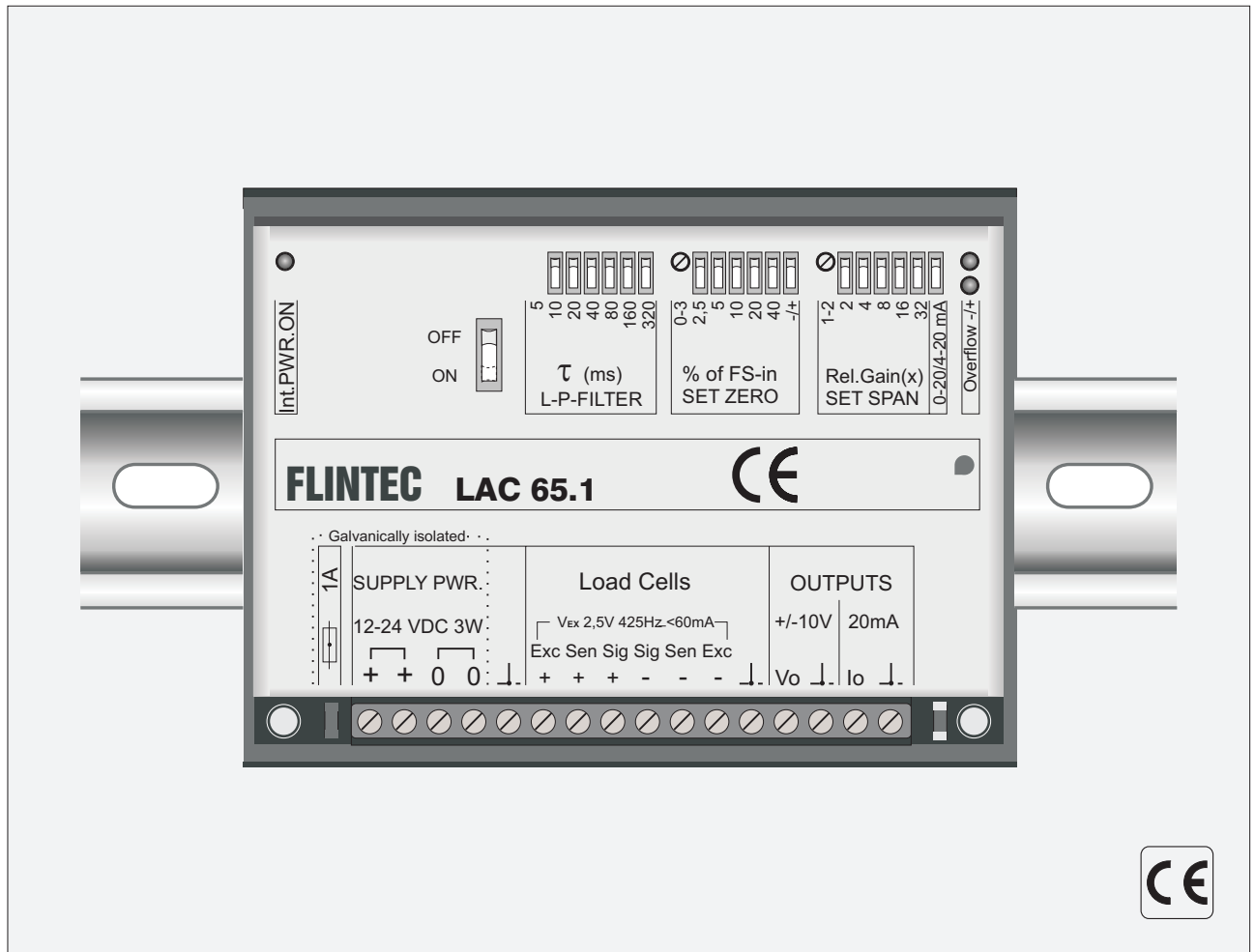
System Configuration



Dimensions



Analogue Amplifier Type LAC 65.1



The Analogue Amplifier LAC 65.1 is a universal amplifier for static / semistatic strain gauge applications. Settings for zero, gain and filtering is done by DIP-switches. In addition fine trimming for zero and gain by potentiometers.

The analogue output is available as voltage output (-10...+10 V) and current output (0/4...20 mA).

Overflow control, status signal by 2 LED's.
Cable failure detection.

Important Features

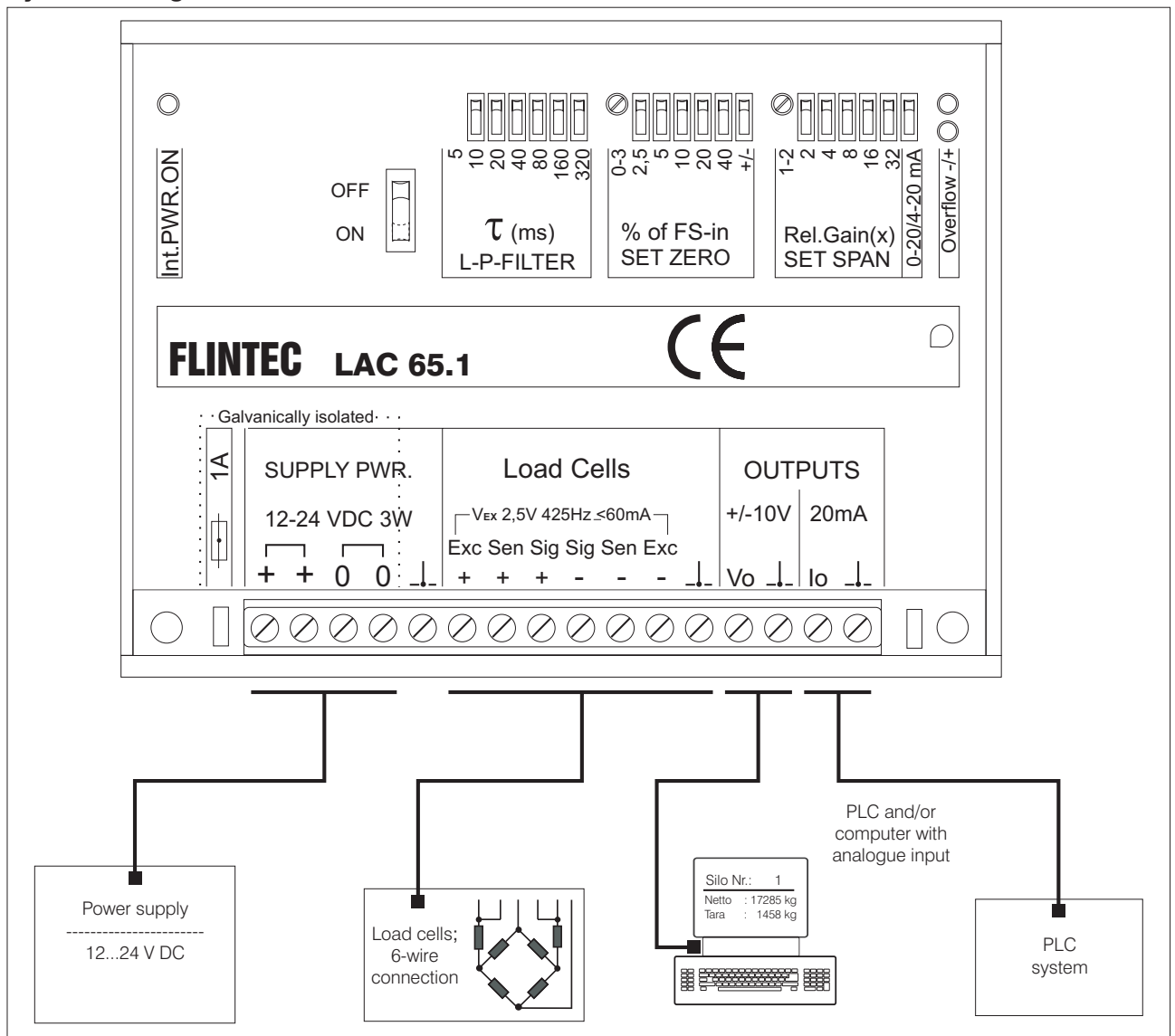
- Load cell excitation 2.5 V AC, 425 HZ, for 1 to 4 load cells.
- 6 Wire load cell connection.
- Analogue output 0/4...20 mA and -10...10 V.
- Input filtering 0.5...32 Hz.
- Zero/gain adjustment by DIP switches and fine trimming potentiometer.
- Overflow control, LED display.
- Cable failure detection.
- Power supply 12...24 V DC.
- Standard 35 mm DIN-rail mounting.

LAC 65.1 Specifications

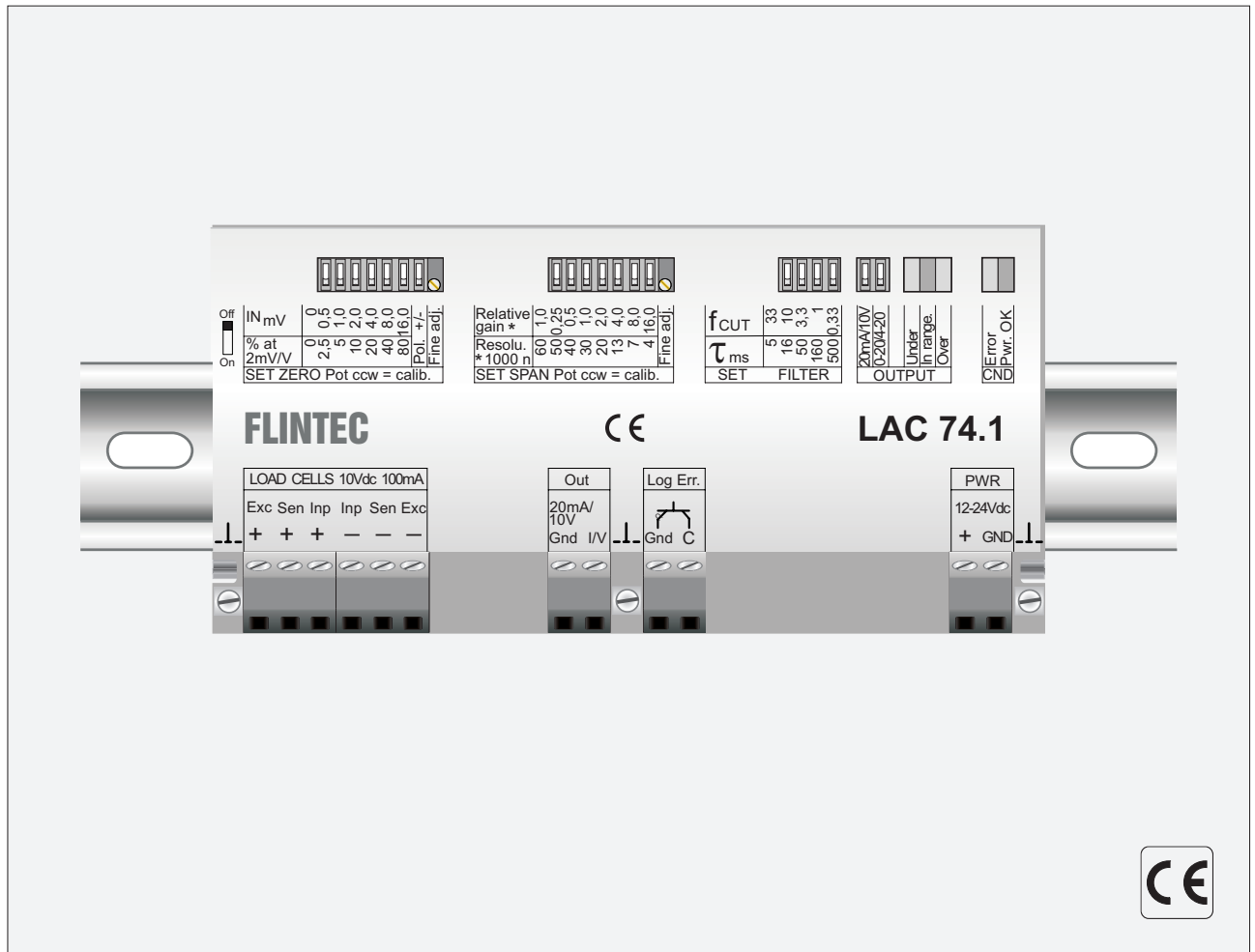
Linearity	< 0,01 %
Analogue input range	± 0,17 mV/V to 3,3 mV/V, gain adjustment by DIP switches and fine trimming potentiometer
Excitation	2.5 V AC 425 Hz, for 1-4 load cells 350 Ohm active sensing for cable length up to 100 m
Zero adjustment (Offset)	±80 %, zero adjustment by DIP switches and fine trimming potentiometer
Current output	0 - 20 mA or 4 - 20 mA, $R_{load} \geq 500 \text{ Ohm}$
Voltage output	±10 V, $R_{load} \geq 500 \text{ Ohm}$
Active filtering 40 dB / decade	0.25; 0.5; 1; 2; 4; 8; 16; 32 Hz selectable
Temperature range	-20 °C to +50 °C, storage -20 °C to +60 °C
Temperature effects	on zero 30 ppm/°K on span 15 ppm/°K
Housing	135 x 66 x 18 mm, protection IP40, for standard 35 mm DIN-rail mounting
Power supply	12 ... 24 V DC +10 / -15%, C, 3 W max., galvanically separated

All dimensions in mm. Dimensions and specifications are subject to change without notice.

System Configuration



Analogue Amplifier Type LAC 74.1



The Analogue Amplifier Type LAC 74.1 is a universal amplifier for static / semi-static weighing applications.

DIP switch setting for zero, gain and filtering.

Fine adjustment for zero and gain by 20 turn potentiometer.

Analogue output available (short-circuit proof):

- Voltage 0...10 V or
- Current 0...20 mA or 4...20 mA

Safety circuit with logic output, normally closed OC, opens in case of error (including LED display):

- Load cell cable failure
- The current or voltage output is out of range
- Power fail

Important Features

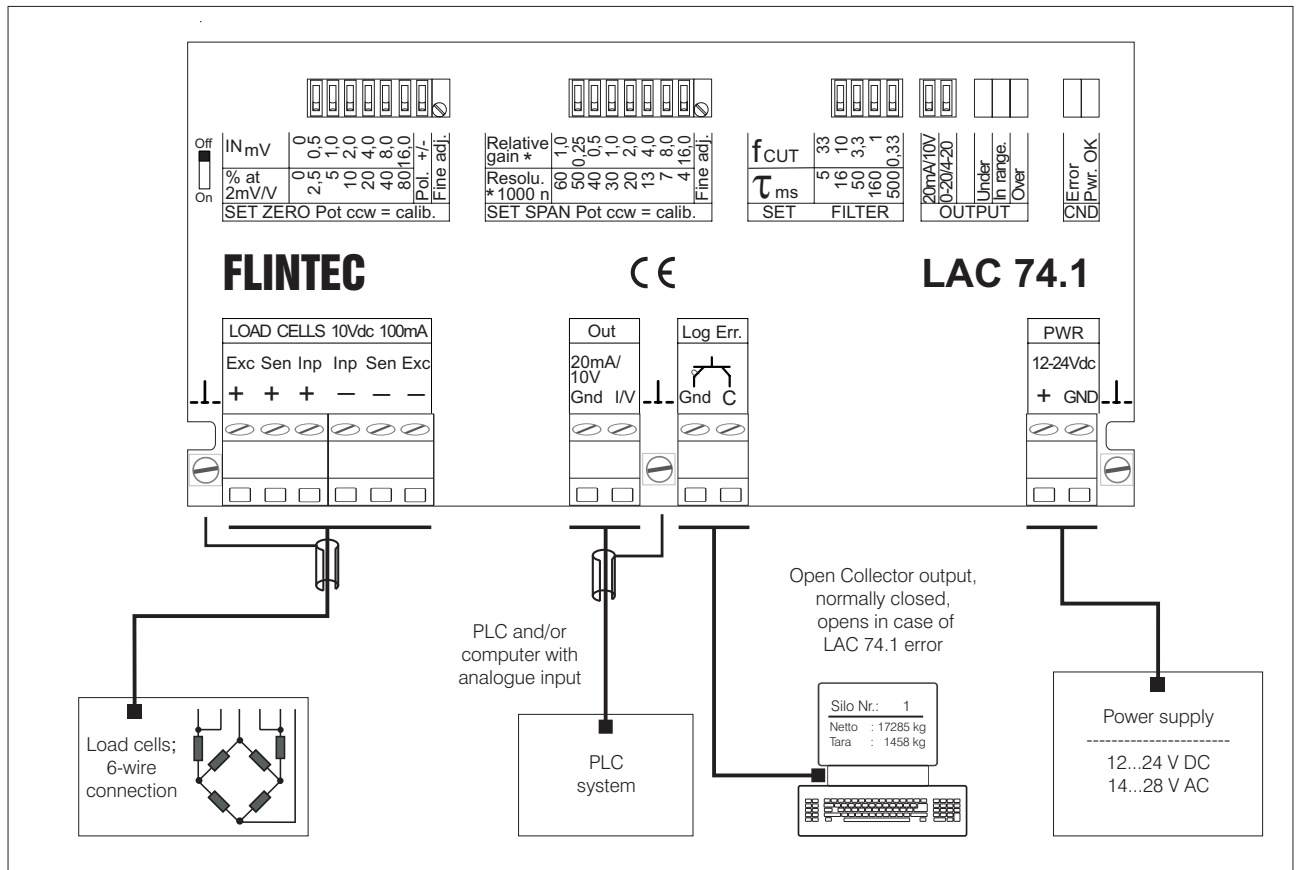
- Load cell excitation 10 V DC for 1 to 4 load cells.
- 6 Wire load cell connection.
- Analogue output 0/4...20 mA or 0...10 V selectable.
- Input filtering 0,33...33 Hz.
- Zero/gain adjustment by DIP switches and fine trimming potentiometer.
- Safety circuit with logic output including LED display.
- Power supply 12...30 V DC or 12...18 V AC.
- Standard 35 mm DIN-rail mounting.

LAC 74.1 Specifications

Linearity	< 0,01 %
Analogue input range	±0,1 mV/V to 3,5 mV/V, gain adjustment by DIP switches and fine trimming potentiometer
Excitation	10 V DC, for 1 to 4 load cells 350 Ohm, 6 wire technique
Safety circuit	Logic output, Open Collector, normally closed, opens in case of error (max. 30 V DC, 300 mA): - Load cell input- or sense wires is out of range - The current or voltage output is out of range - Power fail
Zero adjustment (Offset)	±3 mV/V, zero adjustment by DIP switches and fine trimming potentiometer
Current output	0 - 20 mA or 4 - 20 mA; R _{Load} ≥ 500 Ohm
Voltage output	0 - 10 V; R _{Load} ≥ 500 Ohm
Input filters	0,33...33 Hz, DIP switch selectable (5 steps)
Temperature range	-20 °C to +50 °C; -20 °C to +60 °C (storage)
Temperature effects	on zero 25 ppm/°K on span 50 ppm/°K
Enclosure	135 x 66 x 18 mm, protection IP40, for standard 35 mm DIN-rail mounting, (special housing on request)
Power supply	12...30 V DC ±10% or 12...18 V AC, 3 W max., reversed polarity and excess voltage protected

All dimensions in mm. Dimensions and specifications are subject to change without notice.

System Configuration



Type FRD-57 Remote Display



The FRD-57 is a wall mount display terminal to be used in combination with various weighing systems.

The display terminal has high visible 57 mm large red LED's. Communication via a bi-directional serial interface.

Serial interface RS232 or RS485 or 20 mA current loop (only one interface may be active at the same time)

The FRD-57 is available in a stainless steel housing.

Important Features

- 6 bright, LED, high visibility digits.
- Serial interface RS485, RS232 or 20mA current loop (selectable).
- Low power consumption.


FRD-57 Specifications

DISPLAY	
Display	6 digits, 7 segments, LED red, 57 mm high
Decimal point	Between any digit of the display
Weight display digits	Plus/minus sign and 5 digits
Memories	Serial EEPROM calibration memory
COMMUNICATION	
Serial interface	Serial interface RS232 or RS485 or 20 mA current loop Baudrate DIP switch selectable: 1200, 2400, 9600 and 19600 baud Data bits DIP switch selectable
POWER	
Power supply	230 V AC \pm 20%, 50...60 Hz
Consumption	7 W maximum
ENVIRONMENT AND ENCLOSURE	
Operating temperature	-20 °C to +50 °C
Storage temperature	-10 °C to +70 °C
Humidity	90% RH max, non condensing
Enclosure	Stainless steel housing. Protection IP 65 Dimensions: 365 x 130 x 82 mm

All dimensions in mm. Dimensions and specifications are subject to change without notice.

Miscellaneous

data sheet
Cable Resistors Dummy Load Cells
price list

data sheet
Load Cell Tester 
price list

Cables

- Load cell cable for all Flintec load cells up to 22.5 t (4 conductor, shielded).
- Load cell cable for all Flintec load cells 30 t and up (4 conductor, shielded).
- Measuring cable 6 x 0.5 mm², shielded, diameter 7.1 mm, grey.
- Measuring cable 6 x 0.75 mm², shielded, diameter 8.5 mm, grey.
- Measuring cable 7 x 1 mm², shielded, diameter 9.2 mm, blue, for EEx-Installations.

Cable Replacement Kits for 4 load cells

Including confectioned cable, rubber grommet, shrinking tube and potting material.

- 3 m cable length for SB4, SB5, UB1, UB6, PC6, PCB.
- 4.5 m cable length for SB4, SB5, UB1, UB6, PC6, PCB.
- 12 m cable length for SB4, SB5, UB1, UB6, PC6, PCB, RC3-7.5 t...22.5 t.
- 12 m cable length for RC1-250 kN.
- 18 m cable length for RC1, RC3-30 t and up.

Ground Cables

- Length 150 mm, 5 mm² (SB6).
- Length 150 mm, 10 mm² (SLB/SB14 and SB4/SB5 up to 20 kN).
- Length 180 mm, 10 mm² (SB4/SB5 50 kN and RC3-7.5 t...22.5 t).
- Length 200 mm, 10 mm² (SB4/SB5-100 kN).
- Length 220 mm, 16 mm² (RC3-30 t...50 t).
- Length 270 mm, 16 mm² (RC1-250 kN).
- Length 320 mm, 16 mm² (RC1-400 kN...900 kN).

Resistors for corner trimming

- 50 ppm, set with 14 values 0.22 Ohm...4.7 Ohm, 10 pieces each.

Dummy Load Cells

- For SB6 load cells; 200 N to 2 kN.
- For SLB/SB14 load cells; 200 lb to 5 klb.
- For SB4/SB5 load cells; 5 kN to 20 kN.
- For SB4/SB5 load cells; 50 kN.
- For SB4/SB5 load cells; 100 kN.
- For RC3 load cells; 7.5 t to 50 t.

Type LCT-01 Load Cell Tester



The Load Cell Tester Type LCT-01 is a hand-held, easy-to-use device for load cell testing and error detection in load cell weighing systems.

The load cell can be tested without being removed from the weighing system.

The operation is menu driven. The test is completely automatic, the test results are available on the display.

The following characteristics are measured:

Input Resistance, Output Resistance and Insulation Resistance (≥ 10 M Ohm) as well as the Zero Balance of the load cell with indication of the actual load in % of Maximum Capacity.

For all technicians in the weighing- and/or process industry the LCT-01 is a very important device.

Delivery Conditions Load Cells and Accessories

Prices:	Currency € All prices ex works Meckesheim, Germany inclusive packing
Discounts:	Resales discount and quantity discount on request.
Payment:	30 days net.
Warranty:	24 months on delivered parts from delivery date, according to paragraph 8 of our General Terms and Conditions of Business; text available as part of this electronic document.

Our General Terms and Conditions of Business apply for all shipments;
text available as part of this electronic document.

Alterations reserved without notice.

Allgemeine Geschäftsbedingungen

der Flintec GmbH, Bemannsbruch 9, D-74909 Meckesheim

1. Geltung dieser Bedingungen

- (a) Die nachstehenden Bedingungen gelten unter Ausschluss aller abweichenden Geschäftsbedingungen des Bestellers für die Geschäftsbeziehungen zwischen uns und dem Besteller, insbesondere für alle gegenwärtigen und zukünftigen Lieferungen an den Besteller. Aufgrund von formularmäßigen Einkaufsbedingungen erteilte Aufträge gelten auch dann, wenn wir diese nicht ausdrücklich ablehnen, stets als zu unseren Verkaufsbedingungen zustande gekommen.
- (b) Sind unsere Geschäftsbedingungen dem Besteller bereits bekannt, gelten sie auch ohne neue Bekanntgabe für künftige Geschäfte. Die Entgegennahme unserer Lieferungen oder Leistungen gilt als Anerkennung unserer Bedingungen.
- (c) Durch Erteilung eines Auftrages erkennt der Besteller die alleinige Gültigkeit unserer Geschäftsbedingungen ausdrücklich an. Abreden, die diese Bedingungen ändern oder ergänzen, Nebenabreden sowie Bedingungen des Bestellers sind nur wirksam, wenn sie von uns schriftlich bestätigt werden. Zur Abgabe verbindlicher Erklärungen sind unsere Handelsvertreter und Handlungsreisenden nicht befugt.

2. Angebot und Vertragsabschluss

- (a) Angebote sind freibleibend, insbesondere hinsichtlich der Preise und Liefermöglichkeiten.
- (b) Zu dem Angebot gehörende Unterlagen dienen nur der Orientierung des Bestellers, sie sind nicht als Beschaffensvereinbarung oder Übernahme einer Beschaffensgarantie bezüglich der beschriebenen Ware bzw. Leistung anzusehen und dürfen nicht an Dritte weitergegeben werden. An Kostenvoranschlägen, Bezeichnungen und anderen Unterlagen (im Folgenden: Unterlagen) behalten wir uns die eigentums- und urheberrechtlichen Verwertungsrechte uneingeschränkt vor. Die Unterlagen dürfen nur nach unserer vorherigen Zustimmung Dritten zugänglich gemacht werden und sind, wenn uns der Auftrag nicht erteilt wird, auf unser Verlangen hin unverzüglich zurückzugeben.
- (c) Abbildungen, Aufzeichnung, Gewichts- und Leistungsangaben in Angeboten und Angebotsunterlagen sind nicht verbindlich, sondern nur als Näherungswerte zur Orientierung des Bestellers zu verstehen, soweit sie nicht ausdrücklich als verbindlich bezeichnet werden.
- (d) Kostenvoranschläge für Instandsetzungen und Einbauten werden gewissenhaft und möglichst genau aufgestellt, sie sind jedoch unverbindlich.
- (e) Bestellungen werden von uns durch schriftliche Auftragsbestätigung angenommen. Ausschließlich der schriftliche Inhalt dieser Auftragsbestätigung ist für das Vertragsverhältnis und den Lieferumfang maßgebend und rechtsverbindlich, Nebenabsprachen und mündliche Erklärungen von Angestellten oder Vertretern bedürfen zu ihrer Wirksamkeit der schriftlichen Aufnahme in die o. g. Auftragsbestätigung. Im übrigen gelten Bestellungen als angenommen, wenn wir die Bestellung ausgeführt haben.

3. Preise und Zahlung

- (a) Alle Preise verstehen sich in EURO ohne Mehrwertsteuer (netto), es sei denn, abweichende Angaben finden sich explizit im Angebot. Die Preise gelten ab Lager Meckesheim inklusive Verpackung.
- (b) Bei Fakturierung werden wir die gesetzliche Mehrwertsteuer nach ihrem jeweils gültigen Satz zusätzlich in Rechnung stellen und ausweisen, es sei denn, die Lieferung ist nach deutschem Steuerrecht nicht mehrwertsteuerpflichtig.
- (c) Soweit sich zwischen Auftragserteilung und Lieferung Preisfaktoren (z. B. Zoll, gesetzliche Mehrwertsteuer, etc..) durch behördliche Anordnung erhöhen, sind wir berechtigt, eine Preisanpassung vorzunehmen. Ansonsten werden wir innerhalb der ersten sechs Wochen seit Vertragsschluss keine Preiserhöhungen vornehmen. Nach diesem Zeitraum behalten wir uns vor, die Preise gemäß § 315 BGB anzupassen.
- (d) Alle Rechnungen sind dreißig Tage nach Rechnungsdatum ohne Abzüge zu zahlen, sofern keine abweichenden Vereinbarungen bestehen.
- (e) Der Besteller ist zur Zurückbehaltung von Zahlungen wegen Gegenansprüchen, bzw. zur Vornahme einer Aufrechnung nicht berechtigt, wenn nicht seine Gegenansprüche auf dem konkreten Vertragsverhältnis beruhen, es sei denn die dem Zurückbehaltungsrecht zugrundeliegenden oder zur Aufrechnung gestellten Gegenansprüche sind unbestritten, bzw. rechtskräftig festgestellt.
- (f) Wenn nach vorheriger Vereinbarung Wechsel übernommen werden, so werden diese nur erfüllungshalber angenommen. Diskont- und Wechselspesen zzgl. Umsatzsteuer nach Maßgabe der Privatbanksätze gehen zu Lasten des Bestellers.
- (g) Bei Überschreitung von Zahlungszielen sind wir berechtigt, den gesetzlichen Verzugszinsschaden, bezogen auf den Rechnungsbetrag, geltend zu machen, es sei denn, wir weisen einen höheren oder der Besteller einen niedrigeren Verzugschaden nach.
- (h) Der Eintritt einer wesentlichen Verschlechterung der Vermögensverhältnisse des Bestellers oder sonstiger Umstände, welche seine Kreditwürdigkeit erheblich beeinträchtigen, haben die sofortige Fälligkeit aller unserer Forderungen zur Folge, auch wenn uns der Besteller Wechsel zur Verfügung gestellt hat. In diesen Fällen sind wir außerdem berechtigt, nur noch nach Bezahlung der fälligen Forderungen, gegen Vorauszahlung oder gegen Sicherheitsleistung zu leisten und nach erfolgloser Aufforderung hierzu vom Vertrag zurückzutreten. Verstößt der Besteller fortgesetzt oder in erheblicher Weise gegen die Zahlungsbedingungen, sind wir berechtigt, nach erfolglosem Ablauf einer angemessenen Zahlungsfrist Schadensersatz statt der Leistung zu verlangen. Die Haftung des Bestellers für Verzugschäden bleibt hiervon unberührt.
- (i) Erfüllungsort für die Zahlungen ist Meckesheim. Die Regelung des § 270 Abs. 1 BGB bleibt hiervon unberührt.

- (j) Handelsvertreter und Handlungsreisende haben keine Befugnis zu Inkasso- und Stundungsabreden.
- (k) Für die Preisberechnung sind die von uns ermittelten Leistungen, Stückzahlen und Mengen maßgebend, wenn der Besteller nicht unverzüglich widerspricht.

4. Lieferung und Lieferzeit, Versand, Gefahrübergang

- (a) Wenn nicht ausdrücklich etwas Abweichendes vereinbart wird, erfolgt die Lieferung ab unserem Auslieferungslager Meckesheim.
- (b) Im Falle der vereinbarten Abholung geht die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung von Lieferungsgegenständen mit der Mitteilung der Bereitstellung auf den Besteller über. Im übrigen geht die Gefahr in dem Zeitpunkt auf den Besteller über, in welchem die Ware von uns dem Frachtführer übergeben wird.
- (c) Holt der Besteller die Ware nicht an unserem Lager ab, sondern wünscht eine Versendung, so erfolgen sämtliche Lieferungen ausschließlich auf Rechnung und Gefahr des Bestellers. Verpackung wird grundsätzlich nicht zurückgenommen, soweit wir zur Entsorgung von Verpackungen aufgrund gesetzlicher Vorgaben verpflichtet sind, erfolgt dies durch von uns auf Verlangen des Bestellers benannte Dritte. Versandart und Versandweg werden von uns gewählt. Mehrkosten durch abweichende Wünsche des Bestellers gehen zu seinen Lasten. Ist keine bestimmte Versandart vereinbart, so werden die Produkte auf dem günstigst erscheinenden Weg verschickt, jedoch ohne Gewähr für sicherste, billigste und schnellste Beförderung.
- (d) Erfolgt auf Wunsch des Bestellers eine Versendung, so sind wir berechtigt, die Sendungen für Rechnung des Kunden zu versichern. Wurde eine Versicherung vorgenommen, so werden wir im Schadensfalle die Ansprüche aus der Versicherung an den Besteller abtreten, sobald dieser die entsprechende Versicherungsprämie an uns entrichtet hat.
- (e) Verzögert sich der Versand durch Umstände, die der Besteller zu vertreten hat, geht jede Gefahr vom Tag der Anzeige der Versandbereitschaft an auf den Besteller über.
- (f) Sollte der Besteller bei Versandbereitschaft die Liefergegenstände nicht sofort abnehmen, lagern wir sie nach Möglichkeit für ihn auf seine Gefahr. Diese Lagerung entbindet den Besteller nicht von seiner Zahlungsverpflichtung, die mit dem Zeitpunkt der Bereitstellung eintritt. Zudem sind wir berechtigt, nach Anzeige der Versandbereitschaft ab dem dritten Monat Lagergeld in Höhe von 1 % des Rechnungsbetrages pro angefangenen Monat zu berechnen, wenn die Ware durch den Besteller nicht abgeholt wird oder sich der Versand der Produkte auf Wunsch des Bestellers um mehr als zwei Monate verzögert. Das Lagergeld wird insgesamt auf 10 % des Rechnungsbetrages begrenzt, es sei denn, dass wir höhere Kosten im Einzelfall nachweisen.
- (g) Die angegebene Lieferzeit gilt grundsätzlich nur als annähernd. Werden wir an der rechtzeitigen Lieferung durch unvorhersehbare oder unverschuldete Ereignisse gehindert, die bei zumutbarer Sorgfalt unabwendbar sind, verlängert sich die Lieferzeit angemessen.
- (h) Die Lieferzeit beginnt mit der Absendung der Auftragsbestätigung, jedoch nicht vor Eingang einer vereinbarten Vorauszahlung, nicht vor Klärung aller technischen Einzelheiten und nicht, bevor der Besteller alle ihm obliegenden Voraussetzungen für die Durchführung des Geschäftes erfüllt hat. Insbesondere beginnt die Lieferfrist nicht, bevor etwaige vom Besteller bereitzustellende Unterlagen vollständig zu unserer Verfügung stehen. Erfüllt der Besteller seine Obliegenheiten erst verspätet, so verlängert sich die Lieferzeit entsprechend. Der Zeitraum, welcher zwischen Absendung der Auftragsbestätigung und der Erfüllung der Obliegenheiten des Bestellers liegt, wird als Verlängerung der ursprünglich veranschlagten Lieferfrist hinzugerechnet. Liefertermine werden entsprechend verschoben.
- (i) Die Lieferzeit gilt als eingehalten, wenn bis zu ihrem Ablauf der Liefergegenstand das Werk verlassen hat oder die Versandbereitschaft mitgeteilt ist.
- (j) Dem Besteller zumutbare Teillieferungen sind zulässig.
- (k) Der Besteller ist verpflichtet, den Liefergegenstand auf unseren Wunsch hin unverzüglich nach dessen Lieferung förmlich abzunehmen und diese Abnahme schriftlich zu bestätigen, es sei denn, der Abnahme stehen konkret darstellbare Mängel am Liefergegenstand entgegen.
- (l) Nimmt der Besteller die Ware nicht ab, so sind wir berechtigt, nach erfolglosem Ablauf einer gesetzten Frist zur Abnahme von sieben Tagen vom Vertrag zurückzutreten und daneben Ersatz vergeblicher Aufwendungen zu verlangen.
- (m) Werden wir an der Erfüllung unserer Verpflichtungen durch den Eintritt von unvorhersehbaren Umständen gehindert, welche trotz der nach den Umständen des Falles zumutbaren Sorgfalt nicht abgewendet werden konnten, unabhängig davon, ob diese Umstände bei uns selbst oder unseren Zulieferanten eintreten, so sind wir berechtigt, vom Vertrag zurückzutreten. Wird durch die genannten Umstände die Lieferung oder Leistung bei uns unmöglich, so werden wir von unserer Lieferverpflichtung und allen damit zusammenhängenden sonstigen Verpflichtungen frei. Wir werden den Besteller unverzüglich über den Eintritt solcher Ereignisse unterrichten. Nach einem o. g. Vertragsrücktritt ist ein Schadenersatzanspruch des Bestellers aufgrund der nicht erfolgten Lieferung oder nicht vorgenommenen Leistung grundsätzlich ausgeschlossen, es sei denn der Anspruch beruht auf einem groben Verschulden unsererseits, bzw. durch unsere Erfüllungsgehilfen, oder auf der Verletzung von Leben, Körper und Gesundheit.
- (n) Befinden wir uns im Verzug, so kann der Besteller erst dann vom Vertrag zurücktreten, wenn eine von ihm gesetzte angemessene Nachfrist fruchtlos verstrichen ist. Schadenersatzansprüche wegen Nichterfüllung bzw. aus dem Gesichtspunkt der Verletzung von Nebenpflichten sowie die Geltendmachung sonstiger Rechte im Zusammenhang mit Lieferverzögerungen stehen dem Besteller nicht zu, es sei denn, die Verzögerung wurde durch ein grobes Verschulden unsererseits verursacht.
- (o) Die vorgenannten Bestimmungen gelten für den Fall entsprechend, dass ein vereinbarter Installationstermin von uns nicht eingehalten werden kann.

5. Eigentumsvorbehalt

- (a) Wir behalten uns das Eigentum am Liefergegenstand bis zur Erfüllung aller gegenwärtigen und künftigen Ansprüche aus der laufenden Geschäftsverbindung mit dem Besteller vor. Der Eigentumsvorbehalt bleibt auch dann bestehen, wenn einzelne Forderungen in laufende Rechnungen aufgenommen sind und der Saldo gezogen und anerkannt ist.

- Kaufpreisforderungen geltend trotz Zahlung solange als nicht erloschen, als eine von uns in diesem Zusammenhang übernommene wechselfähige Haftung – wie z. B. im Rahmen eines Scheck-Wechsel-Verfahrens – fortbesteht.
- (b) Der Besteller ist berechtigt, über die Liefergegenstände im ordentlichen Geschäftsgang zu verfügen, solange er seinen Verpflichtungen aus der Geschäftsbeziehung mit uns rechtzeitig nachkommt.
 - (c) Forderungen aus dem Verkauf von Waren, an denen uns Eigentumsrechte zustehen, oder aus einem sonstigen Rechtsgrund (Versicherung, Schadensersatz....) tritt der Besteller schon jetzt im Umfang unseres Eigentumsanteils an den verkauften Waren zur Sicherung an uns ab. Wir erklären bereits jetzt die Annahme dieser Abtretung.
 - (d) Eine Verarbeitung oder Vermischung nimmt der Besteller für uns vor, ohne dass hieraus für uns eine Verbindlichkeit entsteht. Für den Fall der Verarbeitung oder Vermischung mit anderen, uns nicht gehörenden Sachen, überträgt der Besteller schon jetzt zur Sicherung unserer Forderungen auf uns das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen verarbeiteten Sachen mit der Maßgabe, dass der Besteller die neue Sache für uns unentgeltlich verwahrt.
 - (e) Verbindet oder vermischt der Besteller die gelieferten Waren entgeltlich mit einer Hauptsache Dritter, so tritt er bereits jetzt seine Vergütungsansprüche gegen den Dritten bis zur Höhe des Rechnungswertes der gelieferten Ware zur Sicherung an uns ab. Wir erklären bereits jetzt die Annahme dieser Abtretung.
 - (f) Der Besteller ist zur Einziehung von Forderungen gegenüber Dritten auch nach erfolgter Abtretung an uns ermächtigt. Unsere Befugnis, die betreffende Forderung selbst einzuziehen, bleibt hiervon unberührt, jedoch verpflichten wir uns, dies nicht zu tun, solange der Besteller seinen Zahlungsverpflichtungen ordnungsgemäß nachkommt. Macht der Besteller von der Einziehungsbefugnis Gebrauch, so steht uns der eingezogene Erlös in Höhe des zwischen dem Besteller und uns vereinbarten Lieferpreises für die Vorbehaltsware zu. Aufgrund der abgetretenen Forderung bei dem Besteller eingehende Wechsel werden hiermit an uns abgetreten und indossiert. Der Besteller verwahrt die indossierten Wechsel für uns.
 - (g) Auf unser Verlangen hat uns der Besteller alle erforderlichen Auskünfte über den Bestand der in unserem Eigentum stehenden Waren und über die an uns abgetretenen Forderungen zu geben sowie seine Abnehmer von der Abtretung in Kenntnis zu setzen.
 - (h) Der Besteller ist verpflichtet, die Vorbehaltsware sorgfältig zu verwahren und auf eigene Kosten gegen Abhandenkommen und Beschädigung zu versichern. Er tritt seine Ansprüche aus den Versicherungsverträgen hiermit im Voraus an uns ab. Wir nehmen diese Abtretung bereits jetzt an. Ebenso tritt der Besteller seine Ansprüche gegen etwaige Dritte, welche einen Schaden an der Vorbehaltsware oder deren Abhandenkommen verursacht haben, an uns ab, wir nehmen diese Abtretung an.
 - (i) Kommt der Besteller mit seinen Zahlungsverpflichtungen uns gegenüber in Verzug oder verletzt er eine der sich aus dem vereinbarten Eigentumsvorbehalt ergebenden Verpflichtungen, so wird die gesamte Restschuld – ungeachtet evtl. bestehender vorhergehender Zahlungsvereinbarungen – sofort fällig. In diesem Fall sind wir berechtigt, die Herausgabe des Liefergegenstandes zu verlangen und diesen beim Besteller abzuholen, ohne dass wir deswegen zuvor vom Vertrag zurücktreten müssten. Das Recht des Bestellers zum Besitz an den Liefergegenständen endet mit Eintritt der Fälligkeit der Restschuld entsprechend der obigen Regelungen. In der Zurücknahme des Liefergegenstandes liegt ein Rücktritt vom Vertrag nur dann vor, wenn wir dies ausdrücklich schriftlich bestätigen. Bei Zahlungsverzug oder einer o.g. Pflichtverletzung des Bestellers sind wir auch berechtigt, den Abnehmern des Bestellers die Abtretung der Forderungen des Bestellers an uns mitzuteilen und die Forderungen einzuziehen. Zudem sind wir bei Zahlungsverzug, bzw. einer o.g. Pflichtverletzung des Bestellers, berechtigt, vom Vertrag zurückzutreten und Schadensersatz wegen Nichterfüllung zu verlangen.
 - (j) Der Besteller ist verpflichtet, sämtliche unserer Rechte aus den vorstehenden Sicherungsbedingungen auch jeden Dritten gegenüber geltend zu machen und zu wahren, insbesondere bei Pfändungsdrohungen auf unser Eigentum hinzuweisen und uns jede trotzdem erfolgte Pfändung oder sonstige Beeinträchtigung unserer Eigentumsrechte unverzüglich anzuzeigen.
 - (k) Übersteigt der Wert der Sicherheiten unsere Forderungen um mehr als 10 v. H., so werden wir auf Verlangen des Bestellers insoweit Sicherheiten nach unserer Wahl freigeben.

6. Anwendungstechnische Beratung

- (a) Anwendungstechnische Beratung geben wir nach bestem Wissen. Alle Angaben und Auskünfte über Eignung und Anwendung unserer Waren befreien den Besteller nicht von eigenen Prüfungen und Versuchen bezüglich der Eignung der Produkte für die beabsichtigten Verfahren und Zwecke.
- (b) Die Verjährungsfrist für Ansprüche aus fehlerhafter Beratung beträgt drei Jahre, beginnend ab dem Schluss des Jahres, in dem der Anspruch entstanden ist. Beruhen die Ansprüche auf vorsätzlichem Handeln, finden die gesetzlichen Vorschriften zum Verjährungsbeginn Anwendung.

7. Untersuchungs- und Rügepflicht

- (a) Der Besteller hat die Ware unverzüglich zu untersuchen und Mängel unverzüglich, spätestens vierzehn Tage nach Eingang am Bestimmungsort, uns gegenüber (nicht gegenüber unseren Handelsvertretern und Handlungsreisenden) schriftlich zu rügen.
- (b) Verborgene Mängel sind spätestens drei Werktage nach der Entdeckung schriftlich zu rügen.
- (c) Zur Wahrung der Rügefrist genügt die rechtzeitige Absendung einer schriftlichen Mängelrüge unter genauer Bezeichnung der beanstandeten Mängel.
- (d) Bei nicht rechtzeitiger Mitteilung von Beanstandungen oder Mängelrügen, gilt die Lieferung als genehmigt.
- (e) Der Besteller hat – erforderlichenfalls durch eine Probeverarbeitung – zu prüfen, ob die gelieferte Ware für den vorgesehenen Einsatz geeignet ist.
- (f) Erfüllt der Besteller die ihm entsprechend des Absatzes (e) obliegende Prüfungspflicht nicht, nicht rechtzeitig oder nicht ordnungsgemäß, sind Mängelgewährleistungsansprüche oder sonstige Schadensersatzansprüche des Bestellers uns gegenüber insoweit ausgeschlossen, als die Durchführung der Prüfung eingetretene Schäden vermindert hätte. Im übrigen haften wir nur im Rahmen der Regelungen der Ziff. 8 und 9.

8. Gewährleistung

- (a) Ist der Liefergegenstand bei Gefahrübergang mit Sachmängeln behaftet, so hat der Besteller Anspruch auf Nachbesserung oder Ersatzlieferung. Wir besitzen ein Wahlrecht, ob im konkreten Fall eine Ersatzlieferung oder Nachbesserung erfolgt. Wir sind berechtigt, die Nachbesserung oder Ersatzlieferung zu verweigern, wenn sie mit einem unverhältnismäßigen Aufwand verbunden wäre. Dem Besteller stehen dann nur die in Abs. (b) bestimmten Rechte zu. Ein unverhältnismäßiger Aufwand für die gewählte Art der Nacherfüllung ist anzunehmen, wenn die Kosten der Nacherfüllung den Wert der Sache bei Gefahrübergang um mindestens 10 % übersteigen.
- (b) Gelingt es uns binnen einer angemessenen Nacherfüllungsfrist nicht, den Sachmangel zu beheben, so kann der Besteller nach seiner Wahl den Preis mindern, vom Vertrag zurücktreten oder nach Maßgabe der Ziff. 9 Schadensersatz verlangen. Ist die gewählte Nacherfüllung für den Käufer unzumutbar, stehen ihm die in Satz 1) bestimmten Rechte sofort zu. Der Anspruch auf Rücktritt vom Vertrag und auf Schadensersatz ist im Fall unerheblicher Sachmängel ausgeschlossen.
- (c) Die Gewährleistungsfrist beträgt 24 Monate. Sie beginnt mit dem Zeitpunkt der Ablieferung der bestellten Ware, spätestens mit der Rechnungsstellung; im Fall der durch den Besteller gewünschten Versendung oder der nicht rechtzeitigen Abholung der Ware beginnt die Gewährleistungsfrist mit dem Zeitpunkt der Mitteilung der Versandbereitschaft.
- (d) Ein Fall der Mängelgewährleistung liegt insbesondere dann nicht vor, wenn und soweit Schäden am Liefergegenstand oder an anderen Rechtsgütern des Bestellers auf nachfolgende Gründe zurückzuführen sind:
- fehlerhafte Angaben zu Einsatzzweck, -ort bzw. -bedingungen des Liefergegenstandes,
 - fehlerhafte Weiterverarbeitung, Montage, Behandlung,
 - fehlerhafte Installation des Liefergegenstandes durch den Besteller oder Dritte, es sei denn, die fehlerhafte Installation beruht auf unseren Anweisungen,
 - Nichtbeachtung der in der Bedienungsanleitung genannten oder von uns erteilten Anweisungen zu Inbetriebnahme und Betrieb des Liefergegenstandes,
 - Eingriffe nicht von uns autorisierter Personen oder Verwendung von nicht originalen Ersatzteilen oder Betriebsmitteln,
 - normal üblicher oder übermäßiger Verschleiß, welcher nicht auf Produktions- oder Materialmängel zurückgeführt werden kann,
 - Überspannungsschäden, beispielsweise in Folge von Blitzschlägen,
 - weiterhin ausgenommen sind Defekte, welche durch Überlastung, Schweißarbeiten oder sonstige äußere Einflüsse verursacht wurden, die einem normal üblichen Einsatz nicht entsprechen,
 - übermäßige Beanspruchung.
- (e) Die vorstehend aufgeführte Gewährleistung wird nur in dem Umfang und in der Höhe erbracht, wie sie bei Einsatz des Liefergegenstandes am vereinbarten Lieferobjekt besteht. Soweit sich die Aufwendungen dadurch erhöhen, dass die gekaufte Sache an einen anderen Ort verbracht wird, hat der Besteller diese Mehrkosten zu tragen.
- (f) Wird die von uns gelieferte Ware vom Besteller oder von einem seiner Käufer an einen Endverbraucher weiterverkauft, gelten für die Mängelgewährleistungsrechte des Bestellers die gesetzlichen Vorschriften gemäß §§ 478, 479 BGB. Schadensersatz leisten wir allerdings nur im Rahmen der Ziff. 8 (b) und 9. Kommt der Besteller allerdings seiner unter Ziff. 9) geregelten Untersuchungs-, Rüge- und Prüfungspflichten nicht, nicht rechtzeitig oder nicht ordnungsgemäß nach, erlöschen die dem Besteller uns gegenüber bestehenden Mängelgewährleistungsrechte.
- (g) Von den durch die Nachbesserung bzw. Ersatzlieferung entstehenden unmittelbaren Kosten tragen wir – soweit sich die Beanstandung als berechtigt herausstellt – die zum Zwecke der Nacherfüllung unmittelbar erforderlichen Aufwendungen, insbesondere die Kosten des Ersatzstückes einschl. des Versandes sowie die angemessenen Kosten des Aus- und Einbaus. Im übrigen trägt der Besteller die Kosten.
- (h) Jegliche Beseitigung von Sachmängeln gemäß Abs. (a) oder die Leistung gemäß Abs. (b), (f), (g) und Ziff. 9 erfolgen in jedem Fall ohne Anerkennung einer Rechtspflicht.

9. Sonstige Schadensersatzansprüche

Im Falle einer lediglich fahrlässigen Pflichtverletzung durch uns oder unsere Erfüllungsgehilfen ist unsere Haftung auf den vertragstypischen, vorhersehbaren Schaden begrenzt, soweit keine grob fahrlässige Pflichtverletzung vorliegt. Dies gilt nicht bei Verletzung einer wesentlichen Vertragspflicht und bei Verletzung des Lebens, des Körpers oder der Gesundheit. Der Haftungsausschluss gilt ebenfalls nicht in den Fällen, in welchen nach dem Produkthaftungsgesetz bei Fehlern des Liefergegenstandes für Personen- oder Sachschäden an privat genutzten Gegenständen gehaftet wird. Erbringen wir Schadensersatzleistungen, so erfolgt dies ohne Anerkennung einer Rechtspflicht.

10. Datenschutz

Wir sind berechtigt, die bezüglich der Geschäftsbeziehung oder im Zusammenhang mit dieser erhaltenen Daten über den Besteller, gleich ob diese vom Besteller selbst oder von Dritten stammen, im Sinne des Bundesdatenschutzgesetzes zu verarbeiten.

11. Gültigkeitsklausel

Sind einzelne Bestimmungen dieser Bedingungen ungültig, so bleiben die übrigen Vereinbarungen wirksam. Anstelle der ungültigen Bedingung tritt diejenige, welche bei Ermittlung im Wege einer Auslegung dem wirtschaftlichen Zweck der ungültigen Bestimmung am nächsten kommt.

12. Gerichtsstand und Erfüllungsort

- (a) Erfüllungsort und Gerichtsstand – auch für Streitigkeiten im Urkunden-, Wechsel- oder Scheckprozess – ist im kaufmännischen Verkehr unser Sitz, bzw. das für unseren Sitz gemäß §§ 12, 17 ZPO zuständige Gericht.
- (b) Auf die Vertragsbeziehungen mit dem Besteller ist ausschließlich das Recht der Bundesrepublik Deutschland unter Ausschluss des Übereinkommens der Vereinten Nationen über Verträge über den internationalen Warenkauf (CISG) und des internationalen Privatrechts anwendbar.