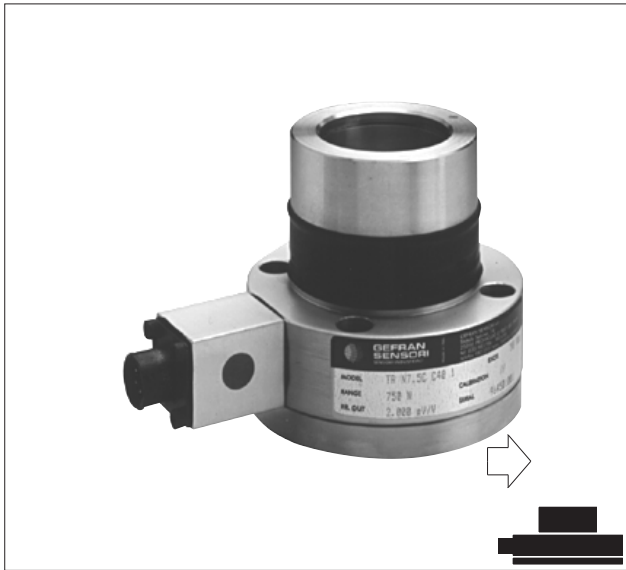


CONTENTS

LOAD CELLS / FORCE TRANSDUCERS

TR	_____
CM	_____
CU	_____
AM	_____
TC	_____
TU	_____
TH	_____
CC	_____
CT	_____
SB	_____
SH	_____
CB	_____
OC	_____
OD	_____
CIR	_____
CIR-D	_____



Main features

- Range of measurement: from 100 N to 1kN
- Accuracy class: 0,5%
- Corrosion resistant
- Internally generated calibration signal
- Orientation of the axis of maximum sensitivity for 35° independently from the position of the fixing holes
- Grade of protection: IP65 (DIN 40050)
- Integrated protection against overloads

TR series force transducers are used to measure the tension that plastic films or tapes exert on the guide rollers of the machinery used to coil them.

Mounted at the ends of a fixed or transmission shaft on the machine chassis, they perform the function of force sensors and bearing for the ends of the shaft.

They are used on both fixed and rotating shafts.

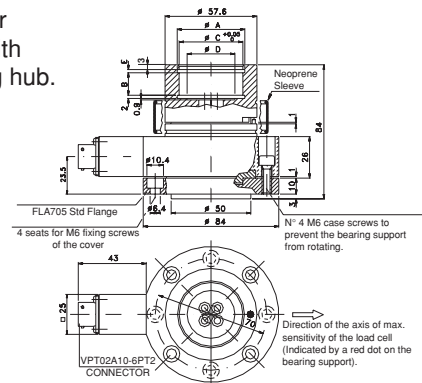
TR transducers are supplied with the adaptor flange for fixing, with 4 M6 screws or with one central M10 or M12 screw.

TECHNICAL DATA

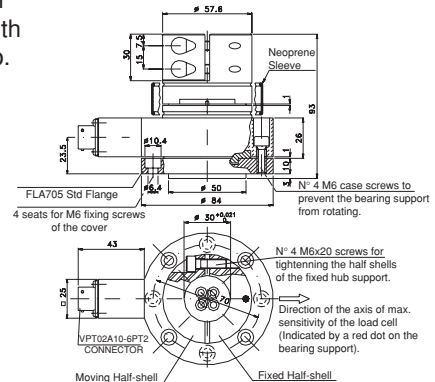
Accuracy	0,5%
Nominal full scale load (Ln)	100N...1kN
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 1% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,5% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,005% FSO/°C < ± 0,01% FSO/°C -
Nominal bridge resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10V
Maximum supply voltage	15 V
Compensated temperature range	-10...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	100% Ln
Maximum applicable load	300% Ln
Rupture load	> 500% Ln
Maximum static lateral load	150% Ln
Maximum elastic deformation at Ln	< 0,5 mm
Grade of protection (DIN40050)	IP65
Electr. connections: Connector	VPT02A10-6PT2
Elastic element material	Anodised aluminium
Case material	Anodised aluminium (Flange and bearing in AISI 303)

MECHANICAL DIMENSIONS

Model for rollers with revolving hub.



Model for rollers with fixed hub.

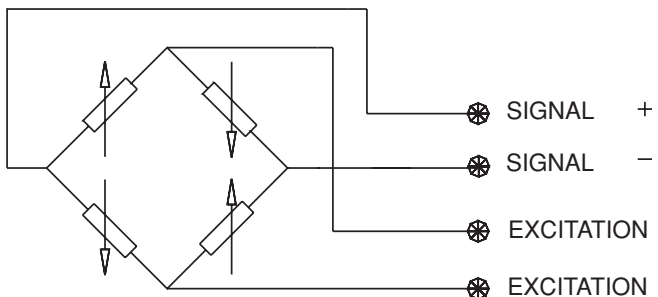


Cuscinetto	øA	B	øC	øD	E
35x15 H11	37	14,5	35	20	1,6
40x17 H12	42,5	14,25	40	30	1,85

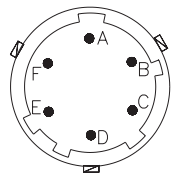
Valori delle misure in millimetri (± 0,1)

Coppia di serraggio consigliata per le viti di fissaggio M6 di 7Nm

ELECTRICAL CONNECTIONS



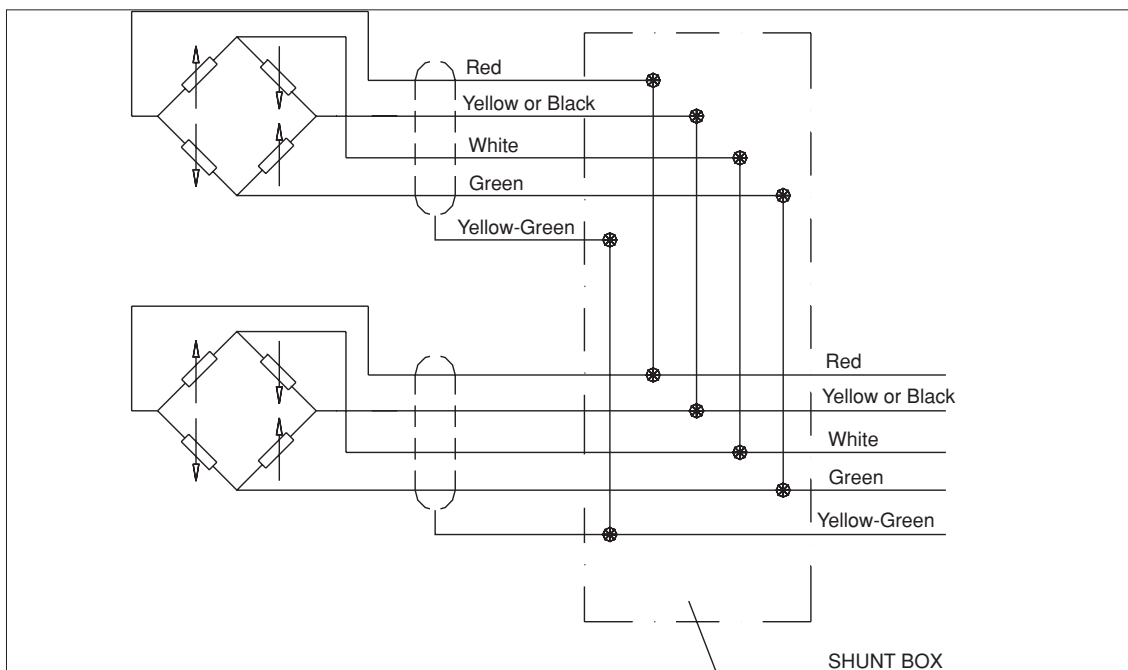
	CABLE OUTPUT	CABLE CONNECTION
SIGNAL +	A	Red
SIGNAL -	B	Yellow or Black
EXCITATION +	C	White
EXCITATION -	D	Green



VPT02A10-6PT2
CONNECTOR

If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells.

It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

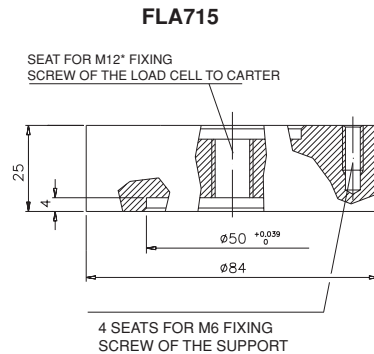
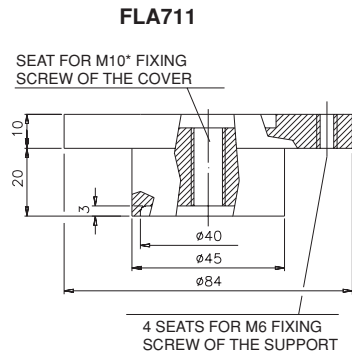
CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

FLANGE

Standard adaptor flange (see mechanical dimensions drawing)
Central fixing
Central fixing

FLA705
FLA711
FLA715



* Recommended torque **75Nm**

OPTIONAL ACCESSORIES

Radial bearing with stop ring (UNI7437-75) and spacer 35 mm
40 mm

Female cable connector Grade of protection IP65

6-pin connector with 8m (25ft) cable

6-pin connector with 15m (50ft) cable

6-pin connector with 25m (75ft) cable

6-pin connector with 30m (100ft) cable

Other lengths

TR application manual

PKIT 602

PKIT 600

CON 300

C08W

C15W

C25W

C30W

consult factory

DOC467

Cable colour code	
Conn.	wires
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

ORDER CODE

Force transducer **TR**

MEASUREMENT RANGE (N)	
0 - 100	N1C
0 - 200	N2C
0 - 350	N3.5C
0 - 500	N5C
0 - 750	N7.5C
0 - 1000	N1M

EXTERNAL DIAMETER	
35 mm bearing	C35
40 mm bearing	C40
30 mm shaft spindle	P30

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

FLANGE	
1	FLA 705 (standard)
2	FLA711
3	FLA715

Ex.: TR-N3.5C-C40-1

TR force transducer, measurement range 350N, external bearing diameter of 40mm with normal mounting and standard flange.

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GEFRAN

cod. TR - 09/04



Main features

- Range of measurement: from 100 to 50.000 Kg
- Accuracy class: 0,1%
- All stainless steel construction
- Corrosion resistant
- Internally generated calibration signal
- Grade of protection: IP67 (DIN 40050)

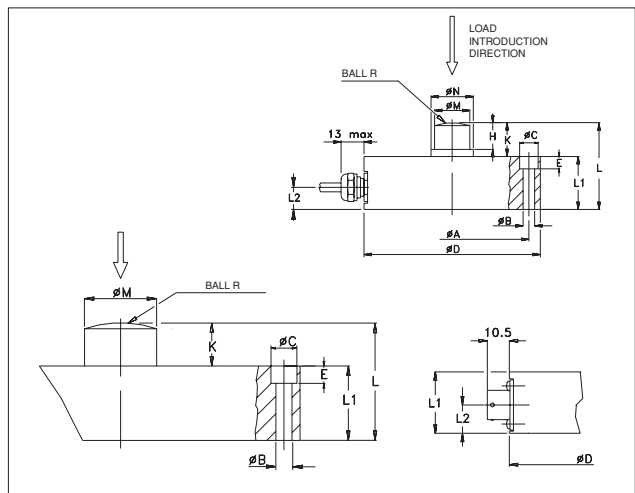
CM series load cells are strain gauge transducers used to measure loads in static and dynamic applications, in compression, with high accuracy. They are machined from a single block of metal, so the primary sensing element, the mountings and the case contain no welds allowing smaller dimensions and an enhanced grade of protection. The configuration of the point of measurement, with 8 strain gauges, reduces errors caused by imperfect applications of the load. Typical applications of load cells connected in parallel are: silos, hoppers, large weighing platforms. The stainless steel construction is suitable for use in aggressive environments in the chemical and petrochemical industries.

TECHNICAL DATA

Accuracy	0,1%
Nominal full scale load (Ln)	100...50.000 Kg
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 0,2% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,1% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,01% FSO°C < ± 0,01% FSO°C < ± 0,01% FSO°C
Nominal input resistance	700 Ohm
Nominal output resistance	700 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Permitted dynamic load	100% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,2 mm
Grade of protection (DIN40050)	Cable: IP67 Connector: IP65
Electr. connections: Connector Screened cable	VPT02A10-6PT2 6x0,25 / 5 m.
Elastic element material	Stainless steel

* The exact value is indicated on the instrument nameplate

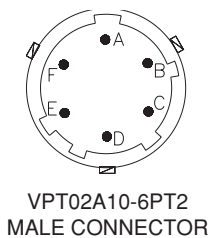
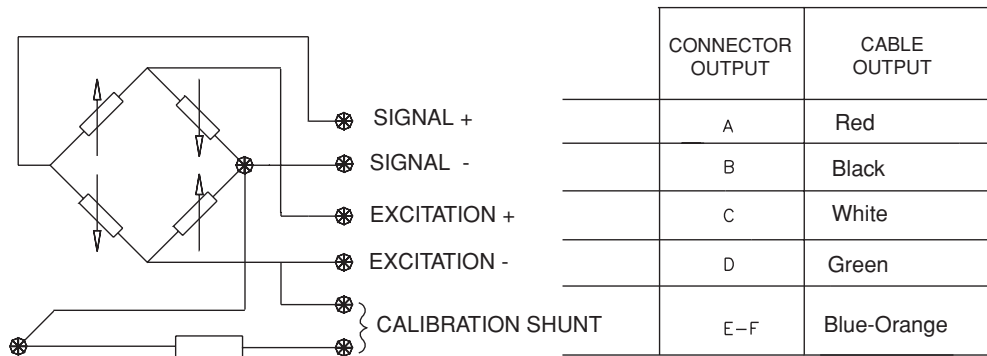
MECHANICAL DIMENSIONS



	Ln (Kg)			
	100 2000	3500 7000	10000 30000	50000
ø A	87	98,5	102,2	125
ø B	6,5	10,5	13	17
ø C	10,5	16,5	19	25
ø D	100	120	126	155
E	6	10	12,5	16,5
H	11,7	17,5	-	-
K	15,7	21,5	14	16
L	45,7	51,5	54	77
L1	30	30	40	61
L2	13,5	13,5	17	27
ø M	20	24	35	45
ø N	24	30	-	-
R	30	30	50	100
VITI	6XM6	6XM6	6XM12	6XM16
Nm*	9	60	100	200

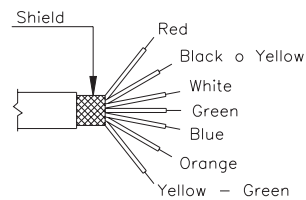
Dimensions mm. (± 0,1) * Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740.

ELECTRICAL CONNECTIONS



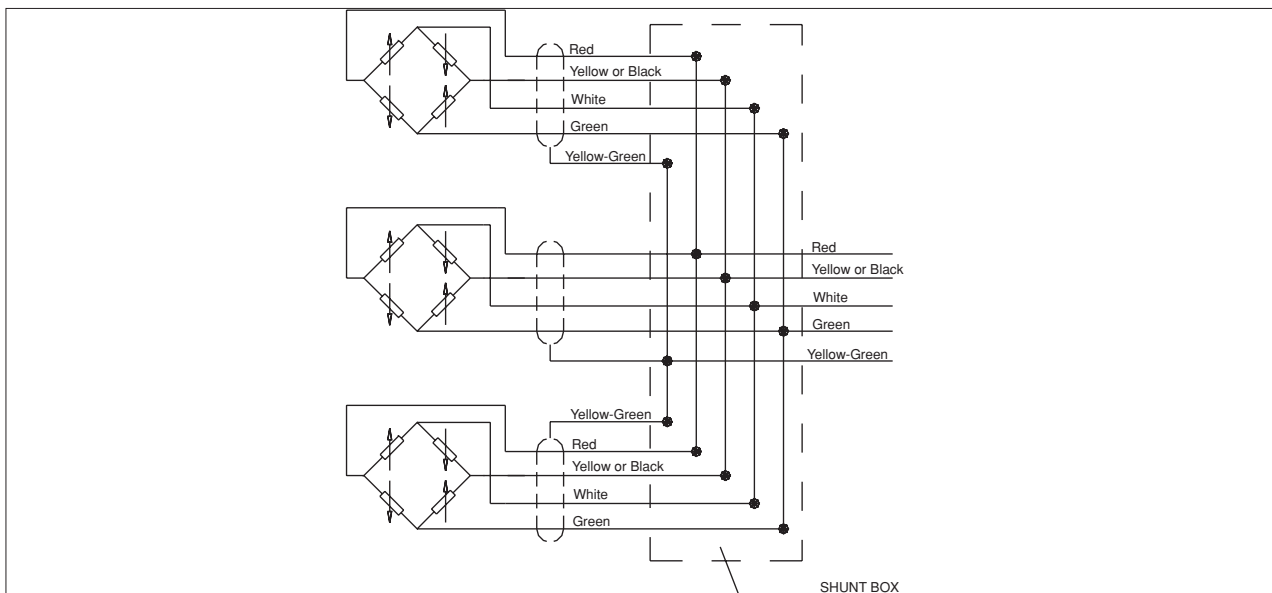
If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

6x0.25 Screened cable



* The screen is isolated from the transducer body.
It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell. Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells.

It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

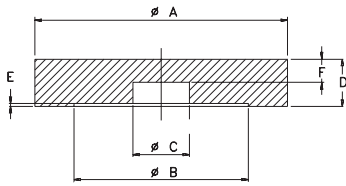
Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

Female cable connector Grade of protection IP65

6-pin connector with 8m (25ft) cable
 6-pin connector with 15m (50ft) cable
 6-pin connector with 25m (75ft) cable
 6-pin connector with 30m (100ft) cable
 Other lengths

Self alignment plate
 (Max. inclination 3°)



CON 300

C08W

C15W

C25W

C30W

consult factory

Cable colour code	
Conn.	wires
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

NOMINAL LOAD Kg				
	≤ 2000	≤ 7000	≤ 30000	≤ 50000
∅ A	100	120	126	155
∅ B	74	100	105	130
∅ C	24	28	37	47
D	20	25	32	50
F	11	12	22	39
E	1,25	1,5	2	3
COD	PIA700	PIA701	PIA702	PIA703

Dimensions mm. (± 0,1)

ORDER CODE

Load cell

CM

MEASUREMENT RANGE (Kg)	
0 - 100	K1C
0 - 200	K2C
0 - 350	K3.5C
0 - 500	K5C
0 - 700	K7C
0 - 1000	K1M
0 - 2000	K2M
0 - 3500	K3.5M
0 - 5000	K5M
0 - 7000	K7M
0 - 10000	K10M
0 - 20000	K20M
0 - 30000	K30M
0 - 50000	K50M

ELECTRICAL CONNECTIONS	
6x0,25 5m screened cable	F
VPT02A10-6PT2 connector	C

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

SENSITIVITY	
S	2mV/V version
R	3mV/V version (range 500...5000Kg) only

Ex.: CM - K10M - F - S

CM load cell, range 0 - 10.000 kg, cable connection and 2mV/V standard sensitivity.

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GEFRAN

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cod. CM - 09/04



Main features

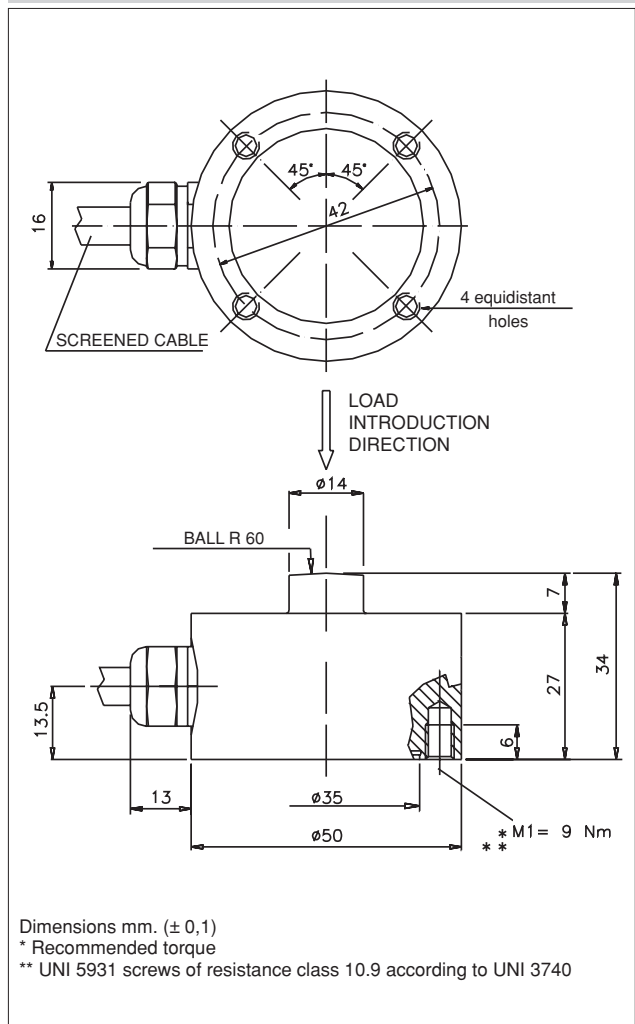
- Range of measurement: from 50 to 1.000 kg
- Accuracy class: 0,2%
- All stainless steel construction
- Corrosion resistant
- Grade of protection: IP67 (DIN 40050)
- Compact size

The CU range of load cells are designed for the measurement of static or dynamic loads in compression. All the transducers are calibrated as load cells in units of mass (Kg). The CU series is supplied for nominal loads from 50Kg to 1t. This model has an IP67 protection degree so it can be used in aggressive atmospheres often found in the chemical industries. The transducer body is machined from a single piece of stainless steel with no welding. This means that it is highly resistant to mechanical shock and vibration. The compact size means that these cells can be placed in positions that are difficult to access and where little space is available.

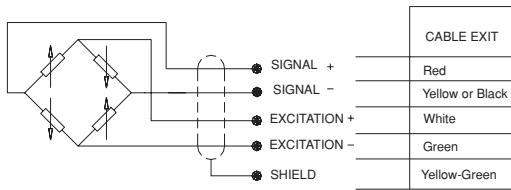
TECHNICAL DATA

Accuracy	0,2%
Nominal full scale load (Ln)	50...1.000 kg
Nominal output at FSO	2mV/V
Output tolerance at Ln	< ± 0,2% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,2% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Thermal drift in compensated range	Sensitivity Zero Calibration < ± 0,01% FSO°C < ± 0,01% FSO°C -
Nominal input resistance	350 Ohm
Nominal output resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Permitted dynamic load	100% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,2 mm
Grade of protection (DIN40050)	IP67
Electr. connections screened cable	4x0,25 / 5 m.
Elastic element material	Stainless steel

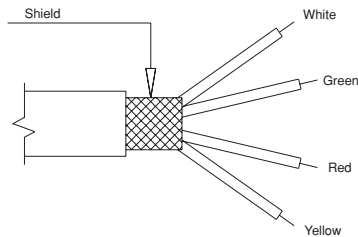
MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS

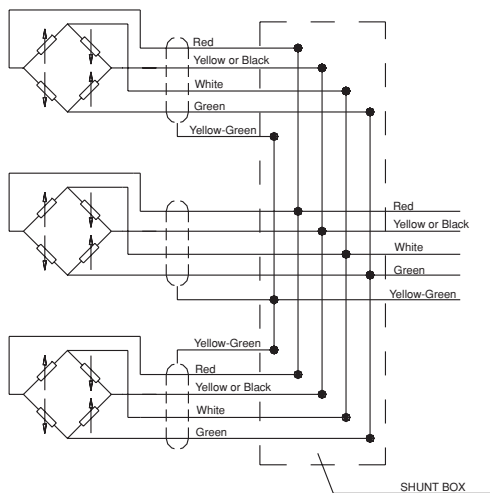


**4x0.25
Screened cable**



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

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ORDER CODE

Load cell

CU

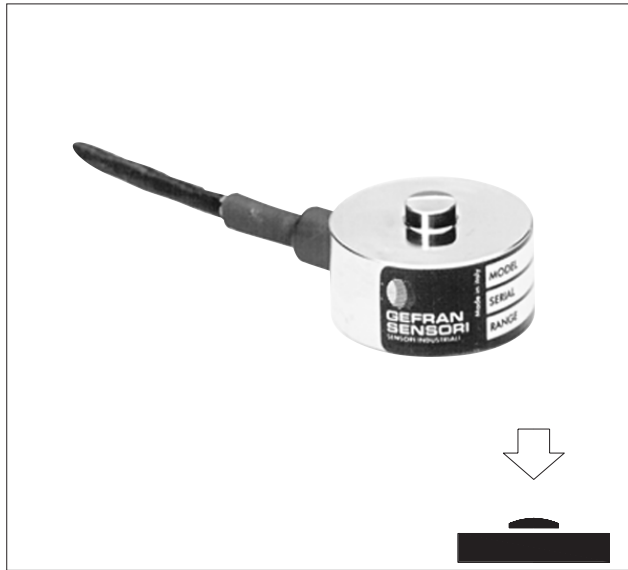
MEASUREMENT RANGE (kg)

0 - 50	K5D
0 - 100	K1C
0 - 200	K2C
0 - 500	K5C
0 - 1000	K1M

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: CU - K5D

CU load cell, measurement range 0 - 5 0kg.



Main features

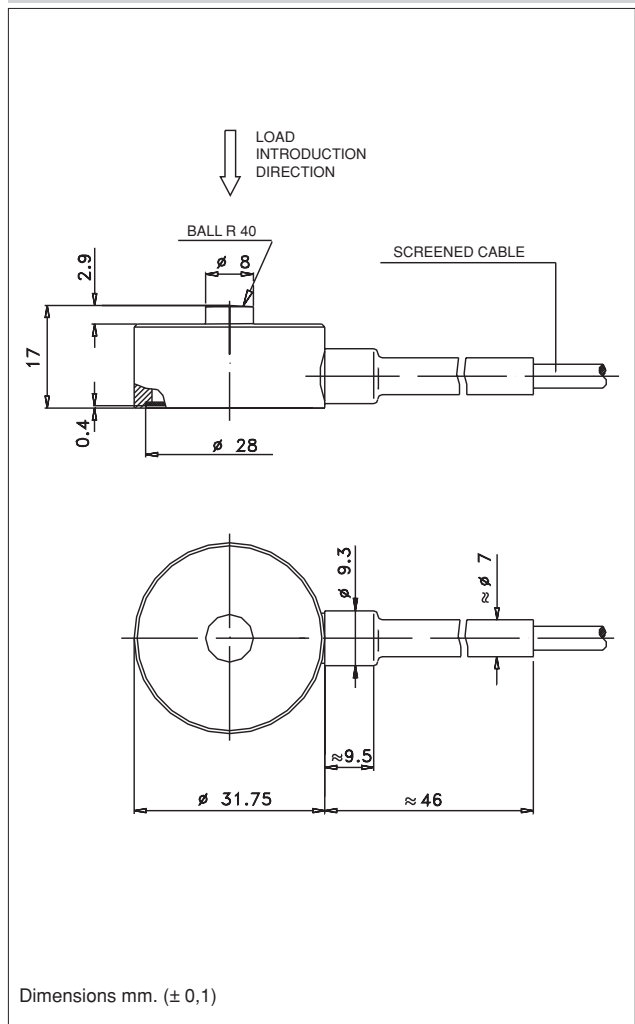
- Range of measurement: from 5 to 20 kN
- Accuracy class: 1%
- All stainless steel construction
- Corrosion resistant
- Grade of protection: IP65 (DIN 40050)
- Small size

The AM force transducers series have been designed to measure static and dynamic compression forces. They are particularly suitable for monitoring pounding operations in compression which require a rugged transducer, insensitive to high resonance frequencies caused by non-homogeneous loads in dynamic sequences. The accuracy and the stability are not affected by continuous cycling under harsh conditions even with dynamic loads. The small size of the AM force transducers makes them ideal for retrofitting in existing equipment.

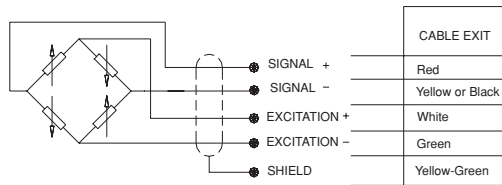
TECHNICAL DATA

Accuracy	1%
Nominal full scale load (Ln)	5...20 kN
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 5% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 1% FSO
Creep (after 30 min. at Ln)	< ± 0,2% FSO
Zero load out of balance signal	< ± 1% FSO
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,02% FSO°C < ± 0,04% FSO°C -
Nominal bridge resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-20...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Permitted dynamic load	100% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum static lateral load	40% Ln
Maximum elastic deformation at Ln	< 0,2 mm
Grade of protection (DIN40050)	IP65
Electr. connections screened cable	4x0,15 / 2 m.
Elastic element material	Stainless steel

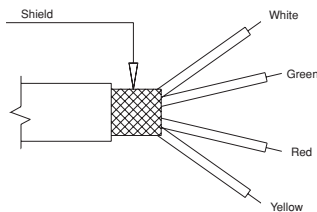
MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS

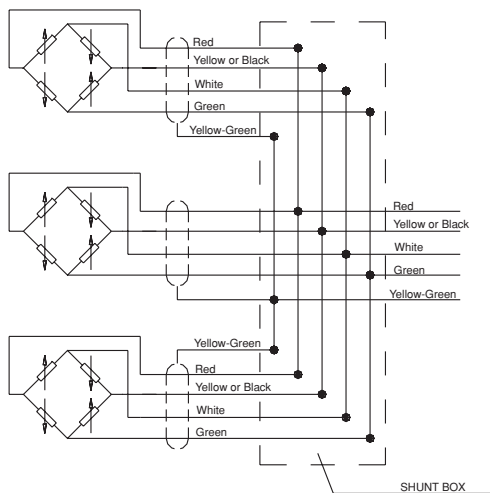


4x0.25 Screened cable



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

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OPTIONAL ACCESSORIES

ORDER CODE

Force transducer **AM**

MEASUREMENT RANGE (kN)	
0 - 5	KN5U
0 - 10	KN1D
0 - 20	KN2D

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: AM - KN5U

AM force transducer with range of measurement 0 - 5 kN.



Main features

- Range of measurement: from 100 to 20.000 Kg
- Accuracy class: 0,2%
- All stainless steel construction
- Corrosion resistant
- Internally generated calibration signal
- Grade of protection: IP67 (DIN 40050)

TC series load cells are strain gauge transducers used to measure loads in static and dynamic applications, in tension (positive signal of output) and compression (negative signal of output), with high accuracy (industrial weighing, laboratory testing, automation, etc).

The TC series is machined from a single block of metal, so the primary sensing element, the mountings and the case contain no welds allowing smaller dimensions and an enhanced grade of protection.

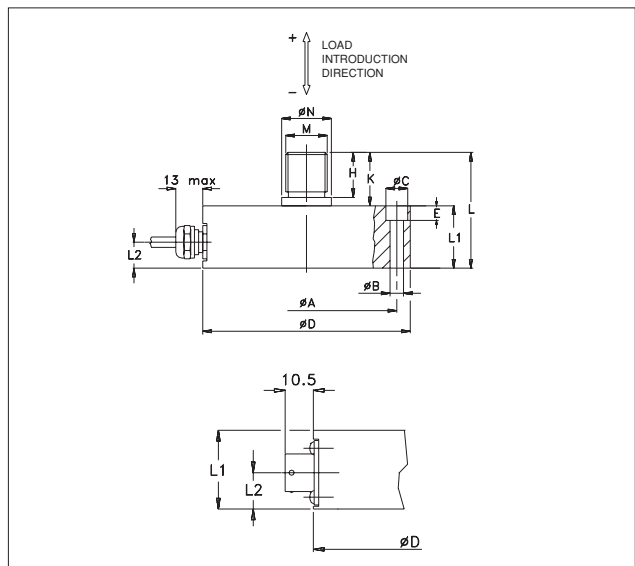
The configuration of the point of measurement, with 8 strain gauges, reduces errors caused by imperfect application of the load. Typical applications of load cells connected in parallel are: silos, hoppers, large weighing platforms, and with suitable accessories, suspended loads. The stainless steel construction is suitable for use in aggressive environments in the chemical and petrochemical industries.

TECHNICAL DATA

Accuracy	0,2%
Nominal full scale load (Ln)	100...20.000 Kg
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 0,2% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,2% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,01% FSO°C < ± 0,01% FSO°C < ± 0,01% FSO°C
Nominal input resistance	700 Ohm
Nominal output resistance	700 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Permitted dynamic load	100% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,2 mm
Grade of protection (DIN40050)	Cable IP67 Connector IP65
Electr. connections: Connector Screened cable	VPT02A10-6PT2 6x0,25 / 5 m.
Elastic element material	Stainless steel

* The exact value is indicated on the instrument nameplate.

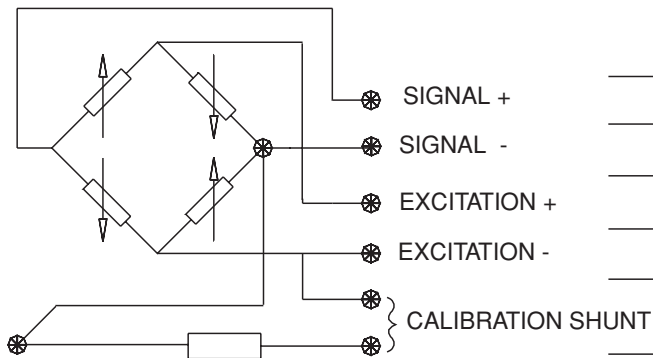
MECHANICAL DIMENSIONS



	Ln (Kg)			
	100 2000	3500 5000	7000 10000	20000
ø A	87	98,5	125	135
ø B	6,5	10,5	13	17
ø C	10,5	16,5	19	25
ø D	100	120	155	170
E	6	10	12,5	21
H	21	33,6	45	65
K	25	37,6	50	70
L	55	67,6	90	131
L1	30	30	40	61
L2	13,5	13,5	20	27
M	M20x1,5	M24x2	M39x3	M52x3
ø N	24	30	45	55
wires	6xM6	6xM10	8xM12	8xM16

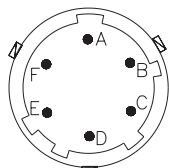
Dimensions mm. (± 0,1)

ELECTRICAL CONNECTIONS

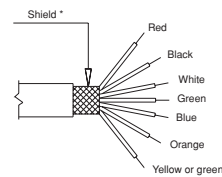


CONNECTOR OUTPUT	CABLE OUTPUT
A	Red
B	Black
C	White
D	Green
E-F	Blue-Orange

NB.: The output signal is positive for traction loads and for calibration, and negative for compression loads.



VPT02A10-6PT2
CONNECTOR

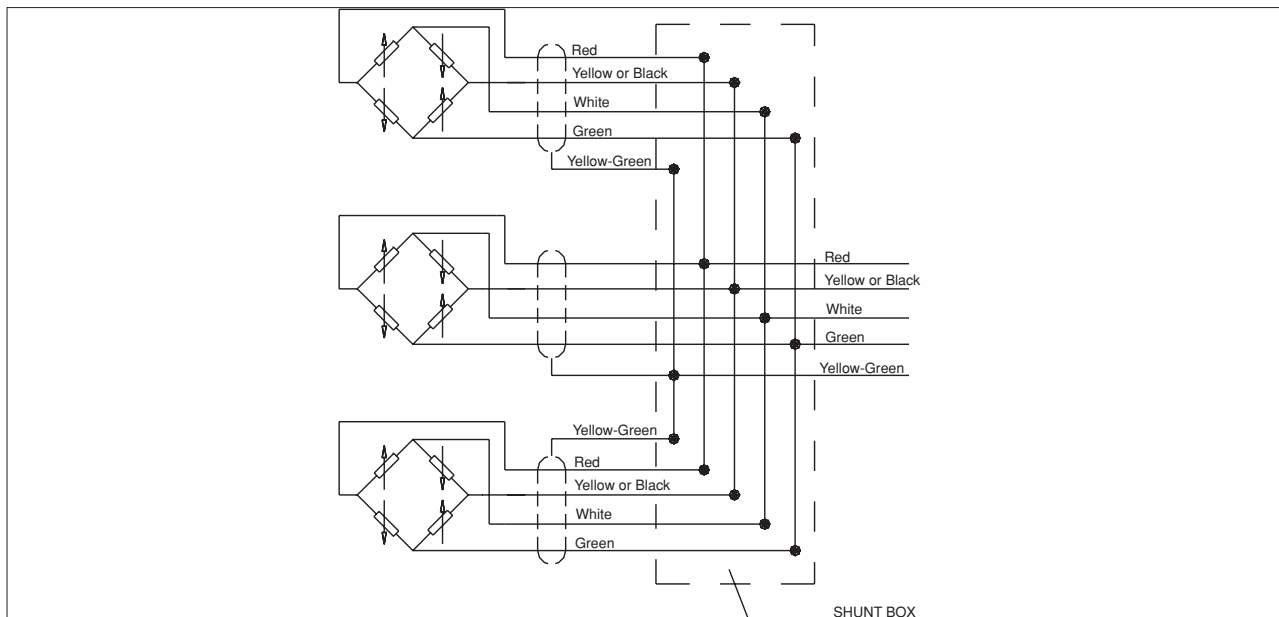


6x0.25 Screened cable

If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

* The screen is isolated from the transducer body. It is recommended that the screen is connected to ground at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell. Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

Female cable connector Grade of protection IP65
 6-pin connector with 8m (25ft) cable
 6-pin connector with 15m (50ft) cable
 6-pin connector with 25m (75ft) cable
 6-pin connector with 30m (100ft) cable
 Other lengths

CON 300
C08W
C15W
C25W
C30W
consult factory

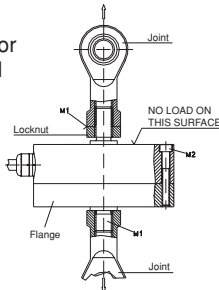
Cable colour code	
Conn.	wires
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

Flange and ball joint

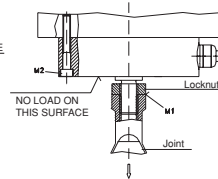
see table

APPLICATION NOTES

Flange mounting for suspended loads



Wall mounting



Nominal load	M1* (Nm)	M2** (Nm)	Flange code	Joint code	Locknut recommended
100 - 700	60	20	FLA700	SND020	-
1000 - 2000	300	20	FLA700	SND020	-
3500 - 5000	500	90	FLA701	SND024	M24x2-h=10
7000 - 10000	2500	125	FLA702	SND040	M39x3-h=16
20000	4500	300	FLA704	SND060	M52x3-h=20

* Recommended tightening torque between ball-joint and locknut or flange

** Recommended tightening torque with UNI5931 screws with 10.9 resistance class according to UNI3740

ORDER CODE

Load cell

TC

MEASUREMENT RANGE (Kg)	
0 - 100	K1C
0 - 200	K2C
0 - 350	K3.5C
0 - 500	K5C
0 - 700	K7C
0 - 1000	K1M
0 - 2000	K2M
0 - 3500	K3.5M
0 - 5000	K5M
0 - 7000	K7M
0 - 10000	K10M
0 - 20000	K20M

ELECTR. CONNECTIONS	
6x0,25 5m screened cable	F
VPT02A10-6PT2 Connect.	C

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

SENSITIVITY	
S	2mV/V Version
R	3mV/V Version (range 500...5000Kg)only

Ex.: TC - K10M - F - S

TC load cell, measurement range 0 - 10.000 kg, cable connection and 2mV/V standard sensitivity.

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.



Main features

- Range of measurement: from 50 to 1000 kg
- Accuracy class: 0,2%
- All stainless steel construction
- Corrosion resistant
- Grade of protection: IP67 (norme DIN 40050)
- Compact size

The TU range of load cells are designed for the measurement of static or dynamic loads in compression (output signal: negative) or traction (output signal: positive). All the transducers are calibrated as load cells in units of mass (Kg). The TU series is supplied for nominal loads from 50Kg to 1t.

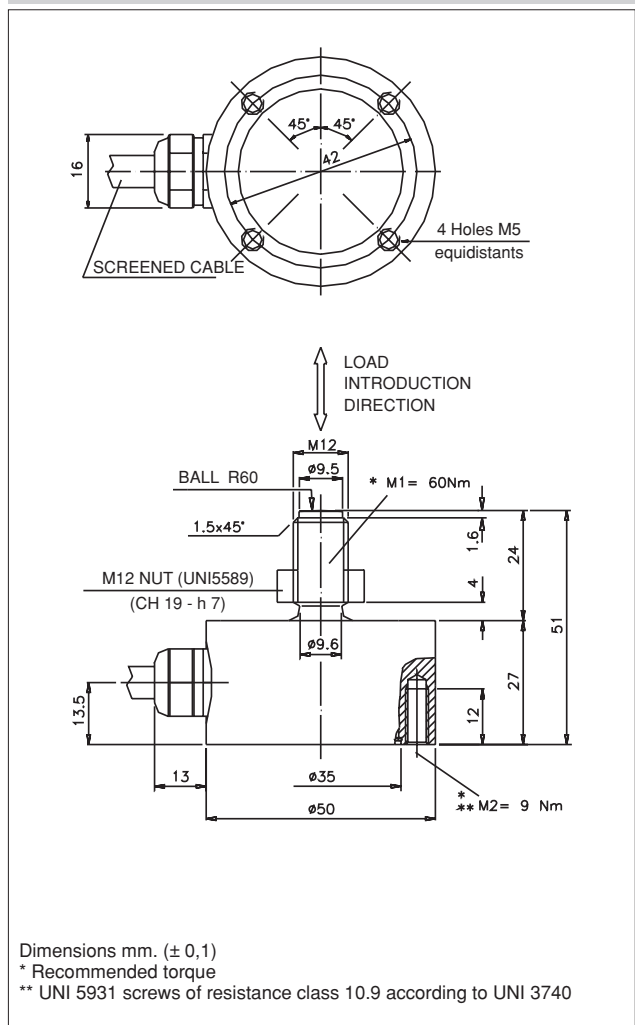
This model has an IP67 protection degree so it can be used in aggressive atmospheres often found in the chemical industries. The transducer body is machined from a single piece of stainless steel with no welding. This means that it is highly resistant to mechanical shock and vibration.

The compact size means that these cells can be placed in positions that are difficult to access and where little space is available.

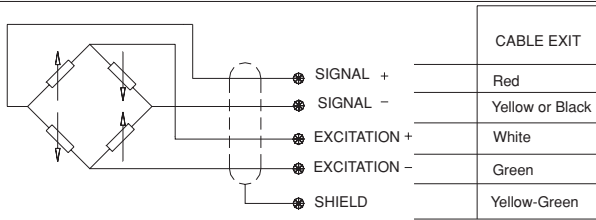
TECHNICAL DATA

Accuracy	0,2%
Nominal full scale load (Ln)	50...1000 kg
Nominal output at FSO	2mV/V
Output tolerance at Ln	< ± 0,2% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,2% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Thermal drift in compensated range	Sensitivity Zero Calibration < ± 0,01% FSO/°C < ± 0,01% FSO/°C -
Nominal input resistance	350 Ohm
Nominal output resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Permitted dynamic load	100% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,2 mm
Grade of protection (DIN40050)	IP67
Electr. connections screened cable	4x0,25 / 5 m.
Elastic element material	Stainless steel

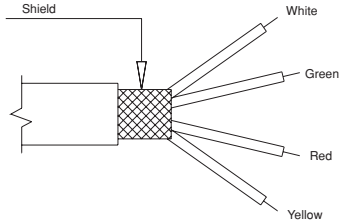
MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS

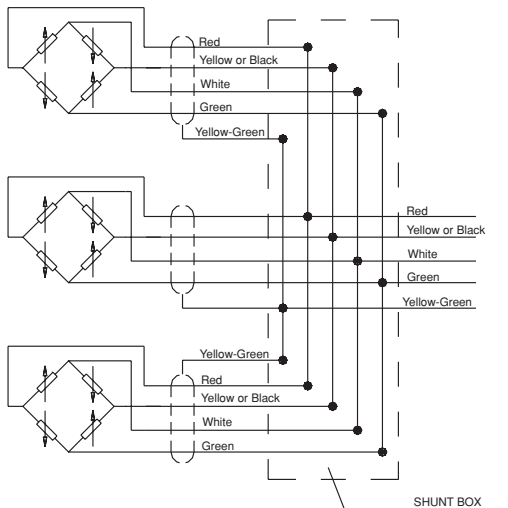


4x0.25 Screened cable



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

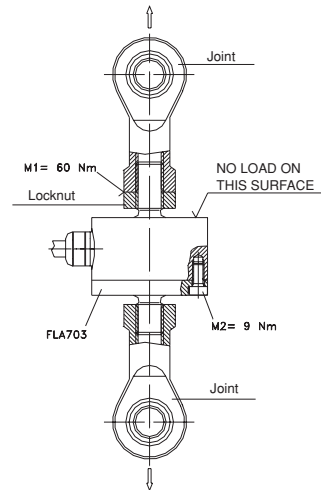
Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

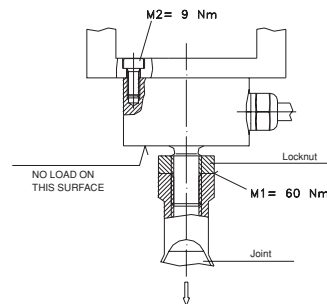
Flange for applying suspended loads	FLA 703
Ball joint	SND022

APPLICATION NOTES

Mounting with double joint and flange for suspended loads



Wall mounting with ball joint.



ORDER CODE

Load cell	TU
MEASUREMENT RANGE (kg)	
0 - 50	K5D
0 - 100	K1C
0 - 200	K2C
0 - 500	K5C
0 - 1000	K1M

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: TU - K5D

TU load cell, measurement range 0 - 50 kg.

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cod. TU - 09/04



Main features

- Range of measurement: from 10 to 100 kN
- Accuracy class: 0,1%
- All stainless steel construction
- Corrosion resistant
- Internally generated calibration signal
- Grade of protection: IP65 (DIN 40050)

The TH series force transducers are ideal for systems that measure tension or compression force in industrial applications, where accuracy and reliability are important, even in harsh environments.

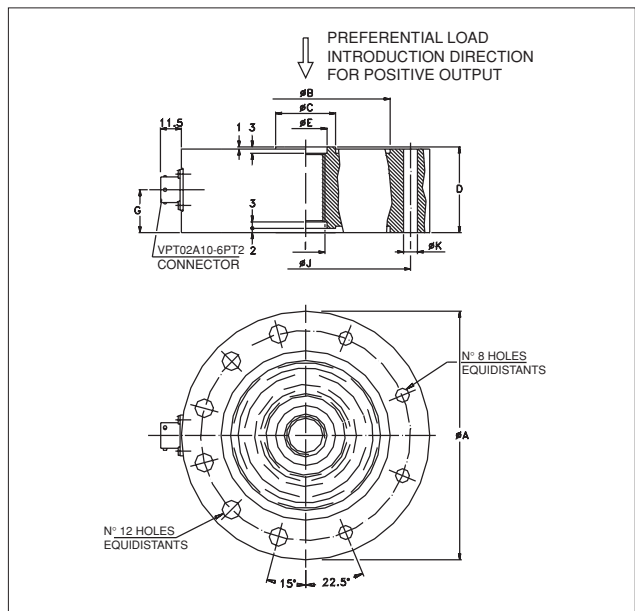
The disposition of the (8) strain gauges of the measurement bridges uses the deformation produced by the shear force of the applied load. It is thus possible to make accurate force transducers that are rugged and insensitive to lateral loads. The transducer is machined from a solid block of stainless steel and contains no welds or joints. The electrical circuit is protected by sealed formed stainless steel plates.

TECHNICAL DATA

Accuracy	0,1%
Nominal full scale load (Ln)	10...100 kN
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 1% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,1% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,02% FSO°C < ± 0,02% FSO°C < ± 0,02% FSO°C
Nominal input resistance	700 Ohm
Nominal output resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	18 V
Compensated temperature range	-20...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Carico statico laterale max.	150% Ln
Maximum elastic deformation at Ln	< 0,1 mm
Grade of protection (DIN40050)	IP65
Electr. connections: Connector	VPT02A10-6PT2
Elastic element material	Stainless steel
Case material	Stainless steel

* The exact value is indicated on the instrument nameplate.

MECHANICAL DIMENSIONS

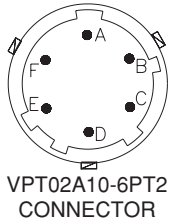
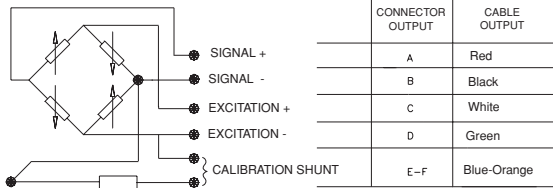


	Ln (kN)				
	10	20	30	50	100
ø A	116			154	
ø B	79			110	
ø C	28			59	
D	40			45	
ø E	20			35	
I	M18x1,5			M30x2	
ø J	98			130	
ø K	6,5			11	
Wires nr.	8xM6			12xM10	
Nm*	20			90	

Dimensions mm. (± 0,1)

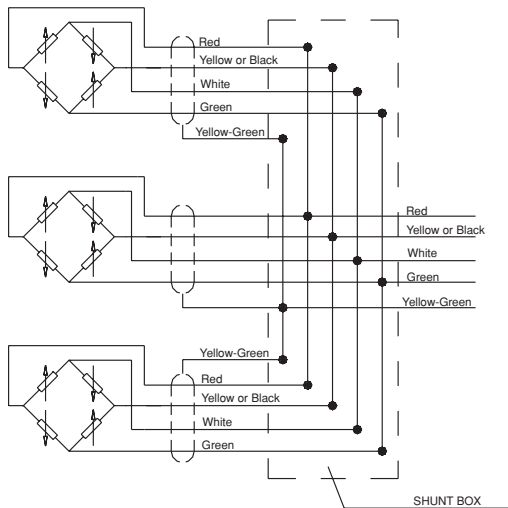
* Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740.

ELECTRICAL CONNECTIONS



If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

OPTIONAL ACCESSORIES

Female cable connector Grade of protection IP65	CON 300
6-pin connector with 8m (25ft) cable	C08W
6-pin connector with 15m (50ft) cable	C15W
6-pin connector with 25m (75ft) cable	C25W
6-pin connector with 30m (100ft) cable	C30W
Other lengths	consult factory

ORDER CODE

Force transducer **TH**

MEASUREMENT RANGE (kN)	
0 - 10	KN1D
0 - 20	KN2D
0 - 30	KN3D
0 - 50	KN5D
0 - 100	KN1C

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Es.: TH - KN5D

TH force transducer, with measurement range 0 - 50 kN.

CC (B - C)

CYLINDRICAL FORCE TRANSDUCER FOR INDUSTRIAL APPLICATIONS



Main features

- Range of measurement: from 750 to 1.500 kN
- Accuracy class: 0,5%
- Internally generated calibration signal
- All stainless steel construction
- Corrosion resistant
- Grade of protection: IP65 (norme DIN 40050)

The CC force transducers have been designed for use in the plastics industry where it is required to measure the reaction force to the extrusion pressure that is present on the casing of the gearbox along the axis of the extruder screw.

These models, fitted in contact with the thrust bearings, measure a force whose value, after suitable correction, is equal to extrusion pressure multiplied by the screw area. The CC cylindrical force transducers are all stainless steel construction and configured in such a way that the body, airtight welded, acts also as the case, making a unit that is smaller than the CT series.

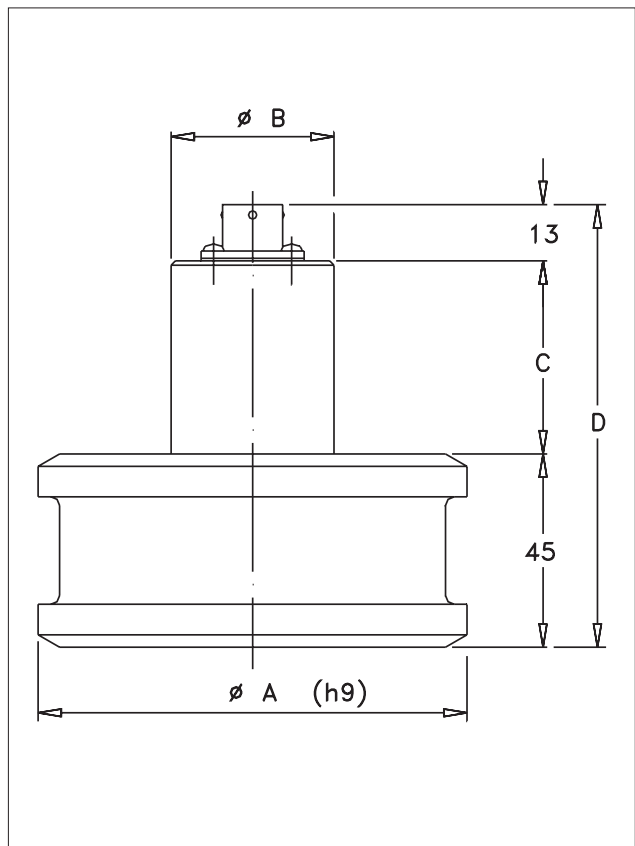
The connector in the shank is on the same axis as the transducer, which in some cases allows easier installation.

TECHNICAL DATA

Accuracy	0,5%
Nominal full scale load (Ln)	750...1500 kN
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 1% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,5% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,02% FSO°C < ± 0,02% FSO°C < ± 0,02% FSO°C
Nominal input resistance	700 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-20...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Carico statico laterale max.	40% Ln
Maximum elastic deformation at Ln	< 0,1 mm
Grade of protection (DIN40050)	IP65
Electr. connections: Connector	VPT02A10-6PT2
Elastic element material	Stainless steel
Case material	Stainless steel

* The exact value is indicated on the instrument nameplate.

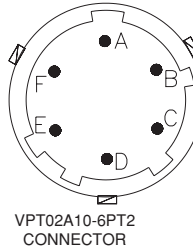
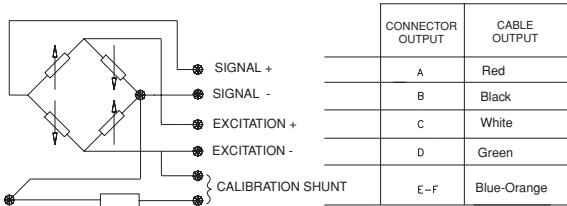
MECHANICAL DIMENSIONS



mod.	Ln (kN)	øA	øB	C	D
CCB	750	100	38	45	103
CCC	1500	120	38	45	103

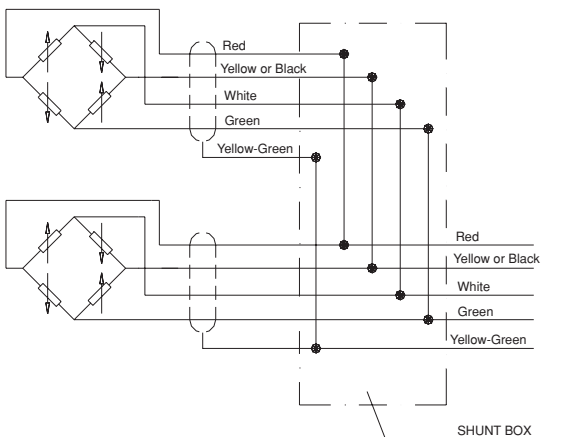
Dimensions mm. (± 0,1)

ELECTRICAL CONNECTIONS



If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

Connectors

Female cable connector
Grade of protection IP65

CON 300

6-pin connector with 8m (25ft) cable

C08W

6-pin connector with 15m (50ft) cable

C15W

6-pin connector with 25m (75ft) cable

C25W

6-pin connector with 30m (100ft) cable

W30W

Other lengths

consult factory

APPLICATION NOTES

For a correct use of the transducer, it is necessary to ensure that the load is evenly distributed over the application surfaces shown in the diagram.

It is essential to centre the transducer using the circular crown of diameter **A** and to apply the load installing the transducer between two grinded surfaces perpendicular to the direction of the applied load.

ORDER CODE

Force transducer **CC**

MODEL

B

C

Mod. MEASUR. RANGE (kN)

CCB	0-750	KN7.5C
CCC	0-1500	KN1.5M

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: CCB - KN7,5C

CC force transducer, model B, measurement range 0 - 750 kN.

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

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cod. CC - 09/04



Main features

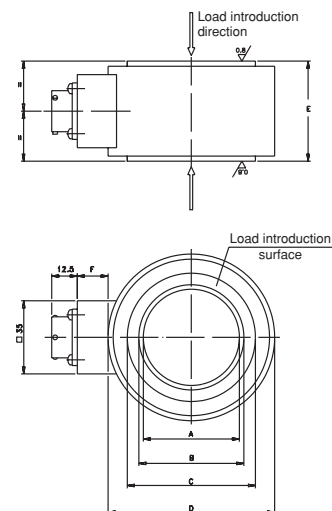
- Range of measurement: from 100 to 3000 kN
- Accuracy class: 0,5%
- Elastic element in stainless steel
- Corrosion resistant
- Internally generated calibration signal
- Grade of protection: IP65 (DIN 40050)

The CT series force transducers, have been specially designed for use in polymer processing in applications where it is required to measure the reaction force produced by the extrusion pressure on the gearbox along the axis of the screw. They measure a force whose value is indicative of the extrusion pressure over the area of the screw. The CT series force transducers can also be used in all other applications where it is required to measure the forces on shafts or columns and in any application where the geometry demands a toroidal form load cell.

TECHNICAL DATA

Accuracy	0,5%
Nominal full scale load (Ln)	100...3000 kN
Nominal output at FSO	2mV/V
Output tolerance at Ln	<± 1% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,5% FSO
Creep (after 30 min. at Ln)	< ± 0,06% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,02% FSO°C < ± 0,02% FSO°C < ± 0,02% FSO°C
Nominal input resistance	700 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-20...+50°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum static lateral load	40% Ln
Maximum elastic deformation at Ln	< 0,1 mm
Grade of protection (DIN40050)	IP65
Electr. connections: Connector	VPT02A10-6PT2
Elastic element material	Stainless steel
Case material	Anodize aluminium
* The exact value is indicated on the instrument nameplate.	

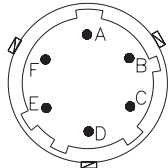
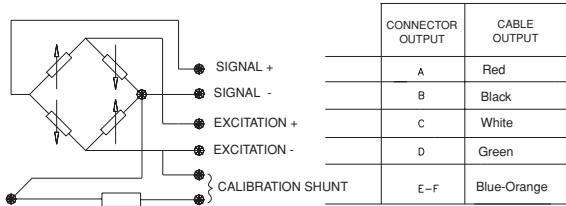
MECHANICAL DIMENSIONS



Dimensions mm. (± 0,1)

mod.	Ln (kN)	A	B	C	D	E	F
CTA	100		54,2	57,8			
	200	46	52,6	59,7	80	45	15
	300		50,7	61,4			
CTB	200		76,2	81,3			
	300		74,9	82,5			
	500	70	72,2	84,9	101	45	45
CTC	750		72	84,7			
	500		102,8	112,1			
	750		100,2	114,2			
CTD	1000	94	97,9	116,5	140	60	45
	1500		95,3	118,6			
	1500		124,1	146,2			
CTD	2000		120,1	149,6			
	2500	110	115,8	152,9	196	60	80
	3000		111,4	156			

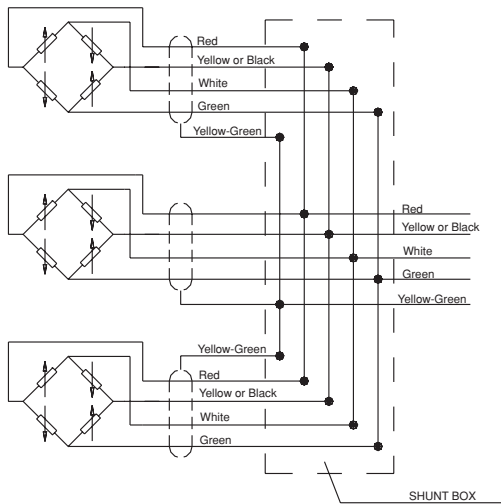
ELECTRICAL CONNECTIONS



CONNECTOR
VPT02A10-6PT2

If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell. Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

Connectors

Female cable connector Grade of protection IP65	CON300
6-pin connector with 8m (25ft) cable	C08W
6-pin connector with 15m (50ft) cable	C15W
6-pin connector with 25m (75ft) cable	C25W
6-pin connector with 30m (100ft) cable	C30W
Other lengths	consult factory

APPLICATION NOTE

For a correct use of the transducer, it is necessary to ensure that the load is evenly distributed over the application surfaces shown in the diagram. It is essential to centre the transducer using the circular crown of diameter **C** and to apply the load installing the transducer between two grinded surfaces perpendicular to the direction of the applied load.

ORDER CODE

Force transducer **CT**

MODEL

A
B
C
D

Mod.	MEASUR. RANGE (kN)	
CTA	0-100	KN1C
	0-200	KN2C
	0-300	KN3C
CTB	0-200	KN2C
	0-300	KN3C
	0-500	KN5C
	0-750	KN7.5C
CTC	0-500	KN5C
	0-750	KN7,5C
	0-1000	KN1M
	0-1500	KN1.5M
CTD	0-1500	KN1.5M
	0-2000	KN2M
	0-2500	KN2.5M
	0-3000	KN3M

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: CTC - KN1M

CT force transducer, model C, measurement range 0 - 1000 kN.

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GEFRAN

cod. CT - 09/04



Main features

- Range of measurement: from 500 to 5.000 Kg
- Accuracy class: D (OIML R60)
- All stainless steel construction
- Corrosion resistant
- Insensitive to lateral loads
- Low profile
- Class of protection: IP66 (DIN 40050)

The principle of measurement of the SB series of load cells is the deformation caused by the shear generated by the applied load. They are compact load cells with an all stainless steel construction that are extremely rigid towards the measured load and lateral or transverse loads.

The SB series load cells are the ideal solution for industrial weighing applications such as storage silos, weighing platforms and dosing systems.

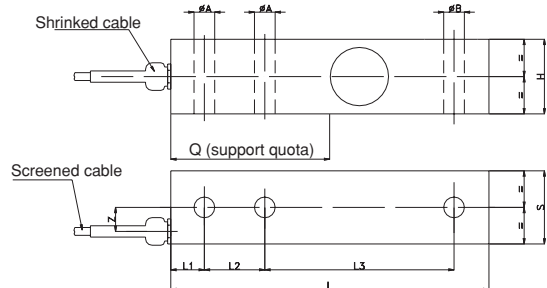
TECHNICAL DATA

Accuracy (OIML IR60)	D1
Divisions	1000
Nominal full scale load (Ln)	500...5.000 Kg
Nominal full scale output FSO	3mV/V
Output tolerance at Ln	< ± 0,2% FSO
Combined errors*: Non linearity Hysteresis, Repeatability	< ± 0,03% FSO
Creep (after 30 min. at Ln)	< ± 0,03% FSO
Zero load out of balance signal	< ± 0,5% FSO
Thermal drift in compensated range *	Sensitivity Zero Calibration < ± 0,005% FSO°C < ± 0,01% FSO°C -
Nominal input resistance	350 Ohm
Nominal output resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+40°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,6 mm
Grade of protection (DIN40050)	IP66
Electr. connections screened cable	4x0,25 / 5 m.
Elastic element material	Stainless steel

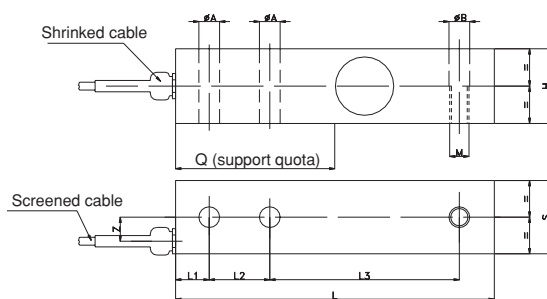
* The combined error and sensitivity thermal drift as a whole are within the limits defined by the OIML IR60

MECHANICAL DIMENSIONS

Hole version



Thread hole version

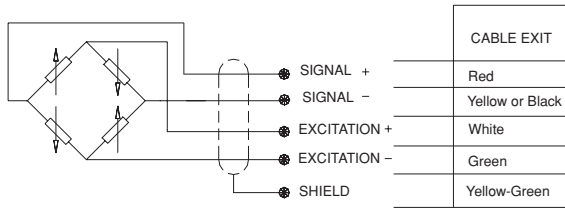


	Ln (Kg)	
	500/1000/2000	5000
ø A	13,4	20,5
ø B	13,4	20,5
M	M12	M18x1,5
H	31,75	47,6
S	31,75	38
L	130	171,5
L1	15,75	19,1
L2	25,4	38,1
L3	76,2	95,3
Z	9	11,5
Nm*	135	660
Q	60	75

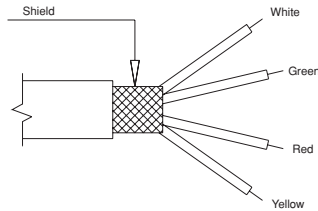
Dimensions mm. (± 0,1)

* Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740

ELECTRICAL CONNECTIONS

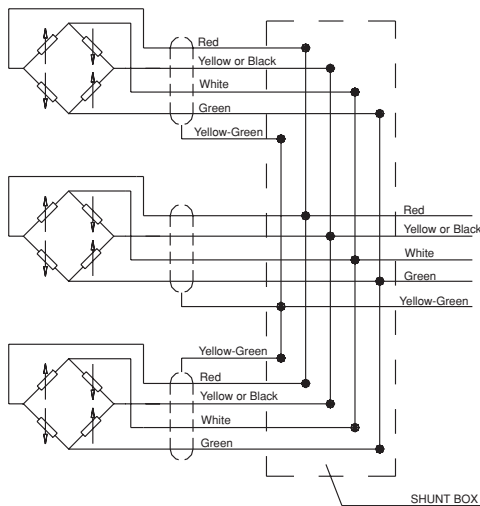


**4x0.25
Screened cable**



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

OPTIONAL ACCESSORIES

ORDER CODE

Load cell **SB**

MEASUREMENT RANGE (Kg)

0 - 500	K5C
0 - 1000	K1M
0 - 2000	K2M
0 - 5000	K5M

LOAD APPLICATION HOLE

Hole version *	FP
Thread hole version	FF

* not available for 0...5.000 Kg version

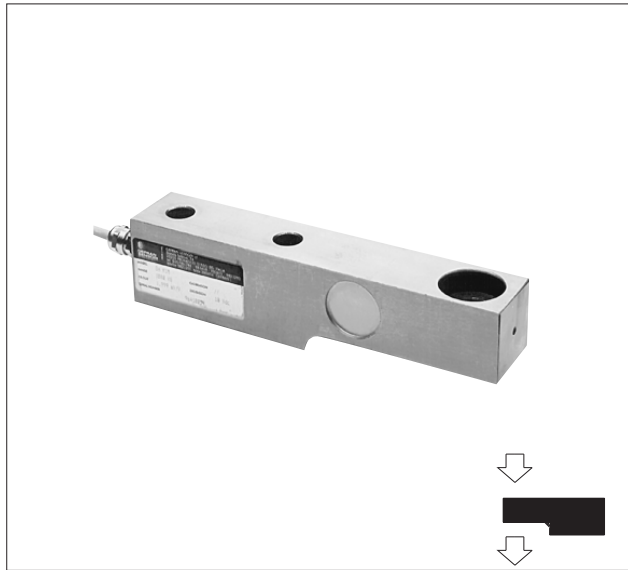
If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex1.: **SB - K1M - FP**

SB load cell, measurement range 0-1.000 kg.
Load application hole without thread.

Ex2.: **SB - K1M - FF**

SB load cell, measurement range 0-1.000 kg.
Load application hole with thread



Main features

- Range of measurement: from 500 to 10.000 Kg
- Accuracy class: D1 (OIML R60)
- All stainless steel construction
- Corrosion resistant
- Insensitive to lateral loads
- Grade of protection: IP66 (DIN 40050)

The principle of measurement of the SH series load cells is the deformation caused by the shear generated by the applied load. The result is a transducer that is extremely rigid both for the measured load and of lateral or transverse loads which have little effect on it.

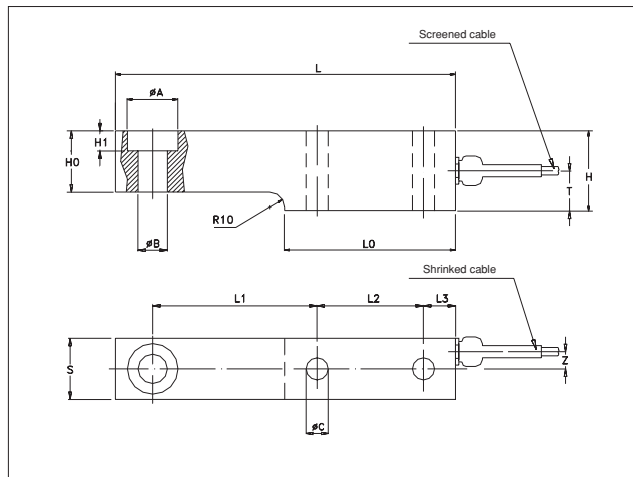
The high degree of accuracy, good level of thermal compensation, the grade of protection make the SH series load cells safe for use in the most severe conditions.

TECHNICAL DATA

Accuracy (OIML IR60)	D1
Divisions	1000
Nominal full scale load (Ln)	500...10.000 Kg
Nominal output at FSO	2mV/V
Output tolerance at Ln	< ± 0,2% FSO
Combined errors: Non linearity Hysteresis, Repeatability	< ± 0,05% FSO
Creep (after 30 min. at Ln)	< ± 0,05% FSO
Zero load out of balance signal	< ± 1% FSO
Calibration signal *	80%FSO ± 1%
Thermal drift in compensated range	Sensitivity Zero Calibration
	< ± 0,005% FSO/°C < ± 0,01% FSO/°C -
Nominal input resistance	350 Ohm
Nominal output resistance	350 Ohm
Isolation resistance	> 10 GOhm
Nominal supply voltage	10 V
Maximum supply voltage	15 V
Compensated temperature range	-10...+40°C
Maximum temperature range	-20...+60°C
Storage temperature range	-30...+80°C
Permitted static load	130% Ln
Maximum applicable load	150% Ln
Rupture load	> 300% Ln
Maximum elastic deformation at Ln	< 0,7 mm
Grade of protection (DIN40050)	IP66
Electr. connections screened cable	4x0,25 / 5 m.
Elastic element material	Stainless steel

* The combined errors and thermal drift of sensitivity are within the framework defined by the OIML IR60

MECHANICAL DIMENSIONS



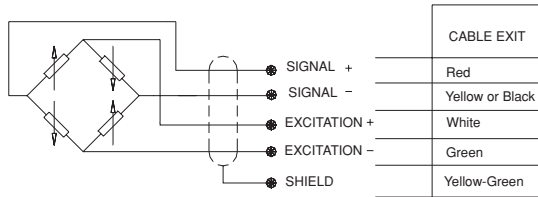
Ln (Kg)

	500/1000/2000	5000/7500	10000
ø A	30,2	41,3	51
ø B	17,5	25,5	32
ø C	13,2	22,5	27
H	47,6	70	82,6
H0	36,5	47,8	63,5
H1	11,9	15,9	20,7
L	203,2	235	279,4
L0	102	118	140
L1	98,3	123,7	139,7
L2	63,5	66,5	82,6
L3	19,1	20,6	25,4
S	36,5	47,6	60,3
T	23,8	46	51
Z	10,25	16	21
Nm*	135	660	1150

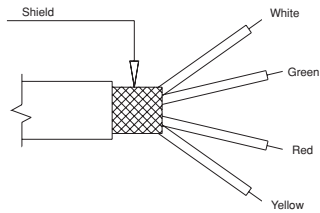
Dimensions mm. (± 0,1)

Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740

ELECTRICAL CONNECTIONS

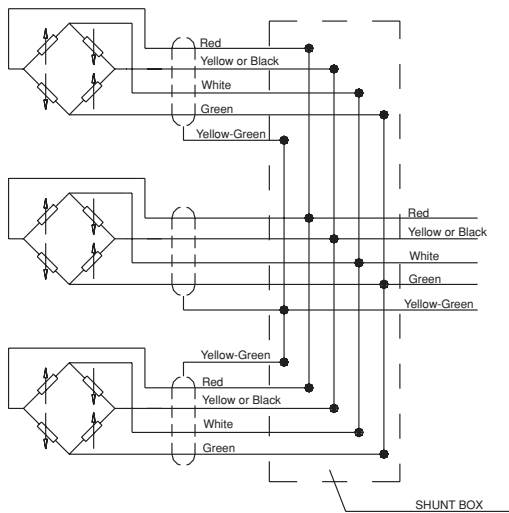


**4x0.25
Screened cable**



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

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OPTIONAL ACCESSORIES

ORDER CODE

Load cell

SH

MEASUREMENT RANGE (Kg)

0 - 500	K5C
0 - 1000	K1M
0 - 2000	K2M
0 - 5000	K5M
0 - 7500	K7.5M
0 - 10000	K10M

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: SH - K10M

SH load cell, measurement range 0 - 10.000 kg.



Main features

- Range of measurement: from 20 to 200 Kg
- Accuracy class: C (OIML R60)
- All stainless steel construction
- Corrosion resistant
- Grade of protection: IP67 (DIN 40050)

CB series load cells are designed for trouble free application in industrial environments. The cell body and the protective bellows of the strain gauge are in corrosion resistant stainless steel and the bellows are welded using microplasma torch. CB load cells are supplied in three grades of accuracy and characteristics.

The 1000 division is the most economical and suitable for most applications. The 2000 division version has a good price/performance ratio. The 3000 division is available if higher accuracy is required.

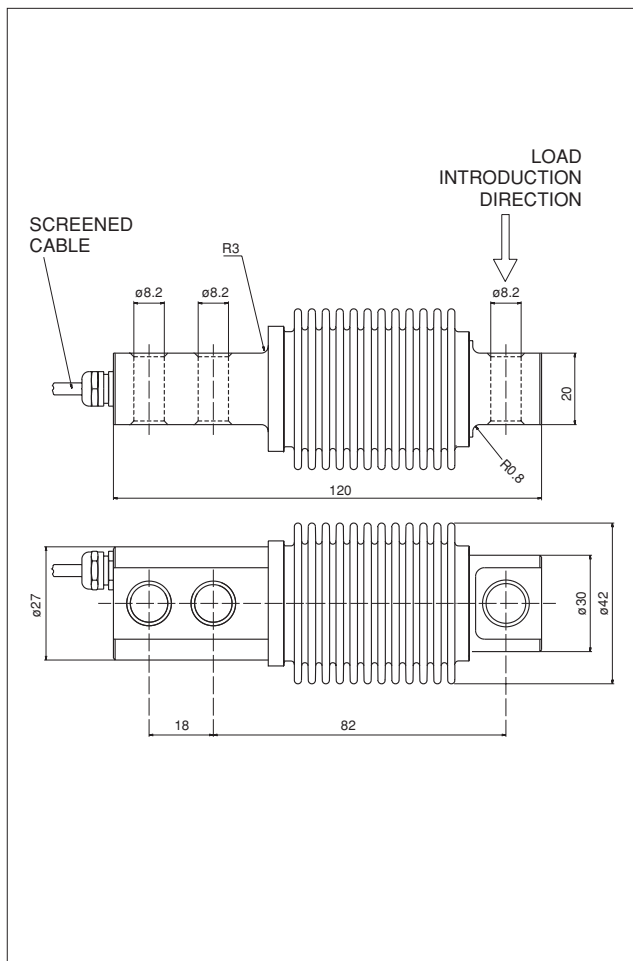
CB load cells are used in particularly hostile environments in the food, petrochemical and pharmaceutical industries and in all applications that demand components in stainless steel and IP67 grade of protection.

TECHNICAL DATA

	C1	C2	C3
Accuracy (OIML IR60)	C1	C2	C3
Divisions	1000	2000	3000
Nominal full scale load (Ln)	20...200 kg		
Nominal output at FSO	2 mV/V		
Output tolerance at Ln (%FSO)	< ± 0,5	< ± 0,5	< ± 0,2
Combined errors: Non linearity Hysteresis, Repeatability	C1 C2/C3	< ± 0,05 % FSO < ± 0,03 % FSO	
Creep (after 30 min. at Ln)%FSO	< ± 0,05	< ± 0,025	< ± 0,017
Zero load out of balance signal	< ± 1% FSO		
Thermal drift in compensated range * %FSO°C	Sensitivity Zero Calibration	< ± 0,003 < ± 0,009	< ± 0,0015 < ± 0,006 < ± 0,0015 < ± 0,004
Nominal input resistance	350 Ohm		
Nominal output resistance	350 Ohm		
Isolation resistance	> 10 GOhm		
Nominal supply voltage	10 V		
Maximum supply voltage	15 V		
Compensated temperature range	-10...+40°C		
Maximum temperature range	-20...+50°C		
Storage temperature range	-25...+70°C		
Permitted static load	130% Ln		
Maximum applicable load	150% Ln		
Rupture load	>300% Ln		
Maximum elastic deformation at Ln	< 0,5 mm		
Grade of protection (DIN40050)	IP67		
Electr. connections screened cable	4x0,25 5m.		
Elastic element material	Stainless steel		

* The combined errors and thermal drift of sensitivity are within the framework defined by the OIML IR60

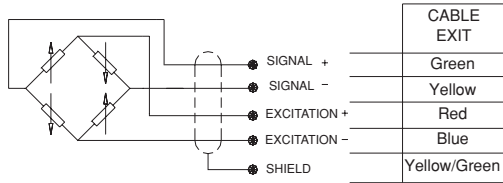
MECHANICAL DIMENSIONS



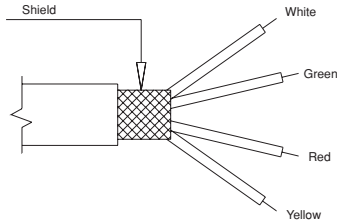
Dimensions mm. (± 0,1)

Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740 - **20Nm**.

ELECTRICAL CONNECTIONS

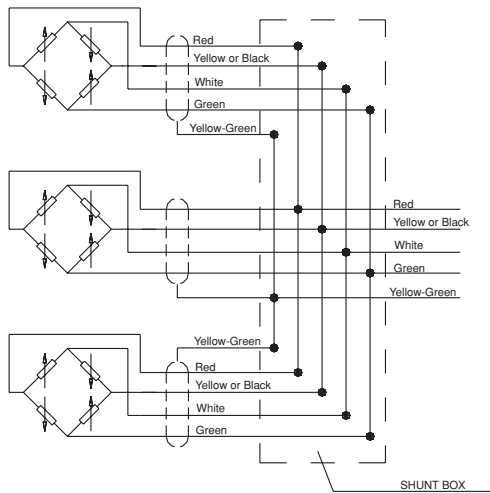


**4x0.25
Screened cable**



* The screen is isolated from the transducer body. It is recommended that the ground is connected at the instrument end.

Cells connected in parallel



In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.

Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells. It is important that the user ensures that no cell is stressed beyond its maximum rating under any load condition.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

OPTIONAL ACCESSORIES

ORDER CODE

Load cell

CB

MEASUREMENT RANGE (Kg)	
0 - 20	K2D
0 - 50	K5D
0 - 100	K1C
0 - 200	K2C

ACCURACY CLASS OIML	
C1 1000 divisions	C1
C2 2000 divisions	C2
C3 3000 divisions	C3

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: **CB - K1C - C2**

CB load cell, measurement range 0-100 kg., accuracy class C2/2000 divisions.



Main features

- Range of measurement: from 5 to 100 kg
- Accuracy class: C (OIML R60)
- May be mounted directly on the weighing platform
- Humidity resistant: conform to OIML R60
- Low cost
- Applicable Platform: 400 x 400 mm
- Certified by NMI Institute according to:
OIML R60 Certificate nr. TC2330

The OC series load cells have been designed for all applications requiring accurate weighing of loads on a platform, as well as for general applications in conformity with the OIML standards.

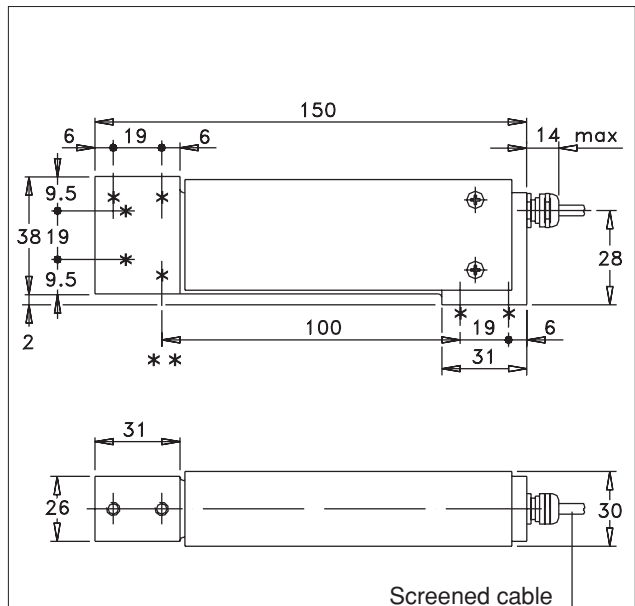
In all these cases, the OC load cell is the heart of the mechanical design. Infact they provide automatic compensation for eccentric loads on platforms up to 400x400mm without the need of mechanical calibrations. The OC series low profile load cells are used in weighing machines for piece counting, bottling, dosing, weighing parcels, fiscal weighing, pharmaceutical weighing, etc.

TECHNICAL DATA

	C1	C2	C3
Accuracy (OIML IR60)	C1	C2	C3
Divisions	1000	2000	3000
Nominal full scale load (Ln)	5...100 kg		
Nominal full scale output FSO	2 mV/V		
Output tolerance at Ln	< ± 10% FSO		
Combined error * (Linearity, Hysteresis, Repetibility)	C1	< ± 0,05 % FSO	
	C2/C3	< ± 0,03 % FSO	
Creep (after 30 min. at Ln) %FSO	< ± 0,05	< ± 0,025	< ± 0,017
Zero load out of balance signal	< ± 10% FSO		
Thermal drift in compensated * range %FSO°C	Sensitivity	< ± 0,003	< ± 0,0015
	Zero Calibration	< ± 0,009	< ± 0,006
Error for eccentric load (with 1/3 Ln) on 400 x 400 platform (%FSO)		< ± 0,05	< ± 0,03
			< ± 0,03
Nominal input resistance	430 Ohm		
Nominal output resistance	350 Ohm		
Isolation resistance	> 10 GOhm		
Nominal supply voltage	10 V		
Maximum supply voltage	15 V		
Compensated temperature range	-10...+40°C		
Maximum temperature range	-20...+50°C		
Storage temperature range	-25...+70°C		
Permitted static load	100% Ln		
Maximum applicable load	150% Ln		
Maximum elastic deformation at Ln	< 0,5 mm		
Protection / Case	Silicon / Nylon 66 G20 W0		
Electr. connections: screened cable	4x0,25 1m.		
Elastic element material	Aluminium		

* The combined errors and thermal drift of sensitivity are within the framework defined by the OIML IR60

MECHANICAL DIMENSIONS



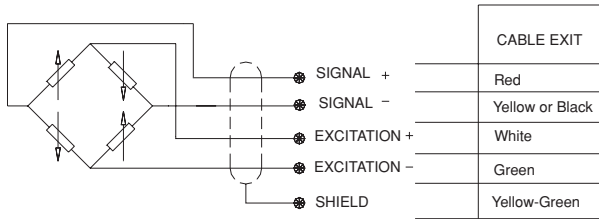
* 7 M6 HOLES WITH THREAD DEPTH OF 10 mm

** SEAT FOR SHEAR PIN

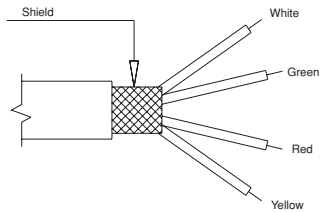
Dimensions mm. (± 0,1)

Recommended torque for M6 fixing screws: **7Nm**

ELECTRICAL CONNECTIONS



4x0.25 Screened cable



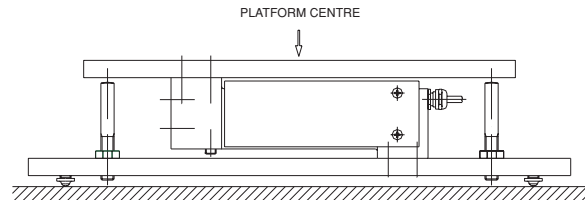
* The screen is isolated from the transducer body.
It is recommended that the ground is connected at the instrument end.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

APPLICATION NOTES



Example of a load cell for a platform with overload end stops fitted under the corners and on the load cell itself.

ORDER CODE

Load cell

OC

MEASUREMENT RANGE (kg)	
0 - 5	K5U
0 - 7.5	K7.5U
0 - 10	K1D
0 - 20	K2D
0 - 35	K3.5D
0 - 50	K5D
0 - 75	K7.5D
0 - 100	K1C

CLASS OF ACCURACY OIML	
C1 1000 divisions	C1
C2 2000 divisions	C2
C3 3000 divisions	C3

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: OC - K1D - C2

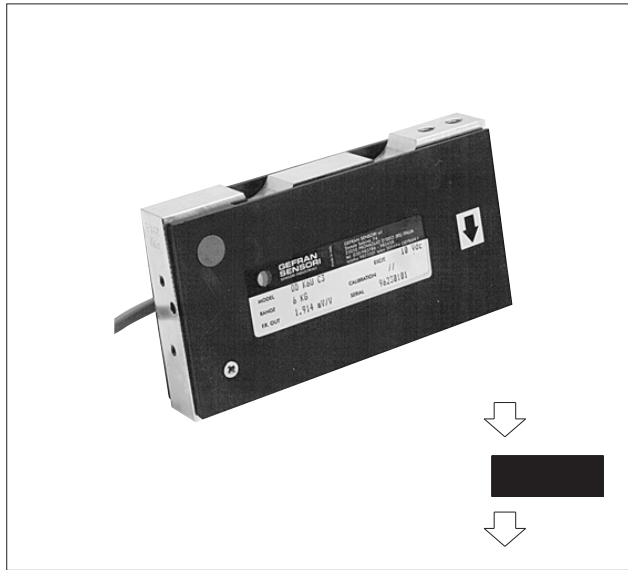
OC load cell, measurement range 0 - 10 kg, accuracy class C2/2000 divisions.

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GEFRAN

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cod. OC - 09/04



Main features

- Range of measurement: 6 - 10 - 15 kg
- Accuracy class: C (OIML R60)
- May be mounted directly on the weighing platform
- Applicable Platform : 400x400 mm.
- Grade of protection: conform to humidity test OIML R60
- Certified by NMI Institute according to:
OIML R60 Certificate nr. TC2772

The OD series load cells have been designed for all applications requiring accurate weighing of loads on a platform, as well as for general applications in conformity with the OIML standards. In all these cases, the OD load cell is the heart of the mechanical design. Infact they provide automatic compensation for eccentric loads on platforms up to 400x400mm without the need of mechanical calibrations and have mechanical stops which allow the installation without particular adjustments.

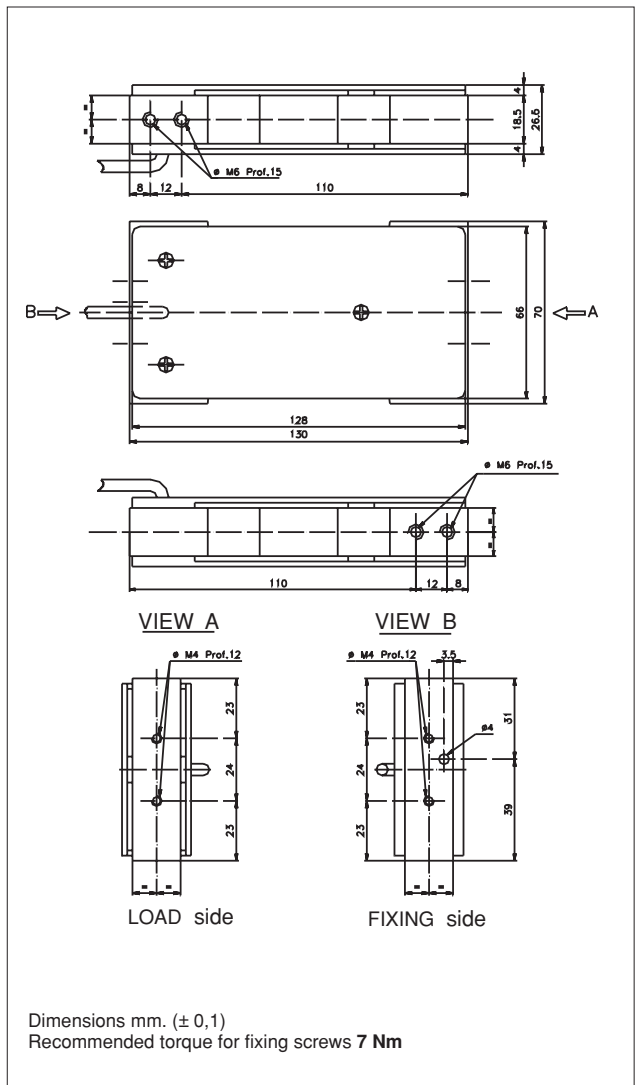
The OD series low profile load cells are used in weighing machines for piece counting, bottling, dosing, weighing parcels, fiscal weighing, pharmaceutical weighing, etc.

TECHNICAL DATA

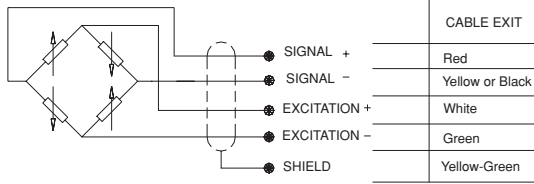
Accuracy (OIML IR60)	C1	C2	C3
Divisions	1000	2000	3000
Nominal full scale load (Ln)	6...15 kg		
Nominal full scale output FSO	2 mV/V		
Output tolerance at Ln	< ± 10% FSO		
Combined errors * (Linearity, Hysteresis, Repeatability)	C1	< ± 0,05 % FSO	
	C2/C3	< ± 0,03 % FSO	
Creep (after 30 min. at Ln)%FSO	< ± 0,05	< ± 0,025	< ± 0,017
Zero load out of balance signal	< ± 10% FSO		
Thermal drift in compensated * range %FSO°C	Sensitivity Zero Calibration	< ± 0,003 < ± 0,009	< ± 0,0015 < ± 0,006 -
Error for eccentric load (with 1/3 Ln) on 400 x 400 platform (%FSO)	< ± 0,05	< ± 0,03	< ± 0,03
Nominal input resistance	430 Ohm		
Nominal output resistance	350 Ohm		
Isolation resistance	> 10 GOhm		
Nominal supply voltage	10 V		
Maximum supply voltage	15 V		
Compensated temperature range	-10...+40°C		
Maximum temperature range	-20...+50°C		
Storage temperature range	-25...+70°C		
Permitted static load	100% Ln		
Maximum applicable load	150% Ln		
Rupture load	>300% Ln		
Maximum elastic deformation at Ln	< 0,3 mm		
Protection	Silicon, case nylon 66G20W0		
Electr. connections: screened cable	4x0,25 / 1 m.		
Elastic element material	Aluminium		

* The combined errors and thermal drift of sensitivity are within the framework defined by the OIML IR60

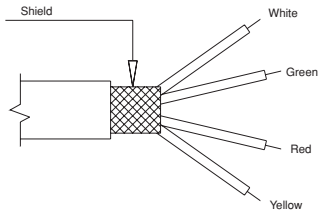
MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS



**4x0.25
Screened cable**



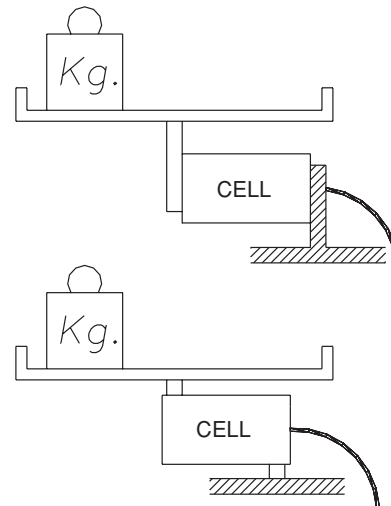
* The screen is isolated from the transducer body.
It is recommended that the ground is connected at the instrument end.

CONVERSION TABLE

Kg	N	Lb
1	9.807	2.205
0.102	1	0.225
0.454	4.448	1

OPTIONAL ACCESSORIES

APPLICATION NOTES



ORDER CODE

Load cell **OD**

MEASUREMENT RANGE (Kg)	
0 - 6	K6U
0 - 10	K1D
0 - 15	K1,5D

CLASS OF ACCURACY OIML	
C1 1000 divisions	C1
C2 2000 divisions	C2
C3 3000 divisions	C3

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

Ex.: **OD - K1D - C2**

OD load cell, measurement range 0-10 kg.
Clas of accuracy C2/2000 divisions.

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GEFRAN

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cod. OD - 09/04



Main features

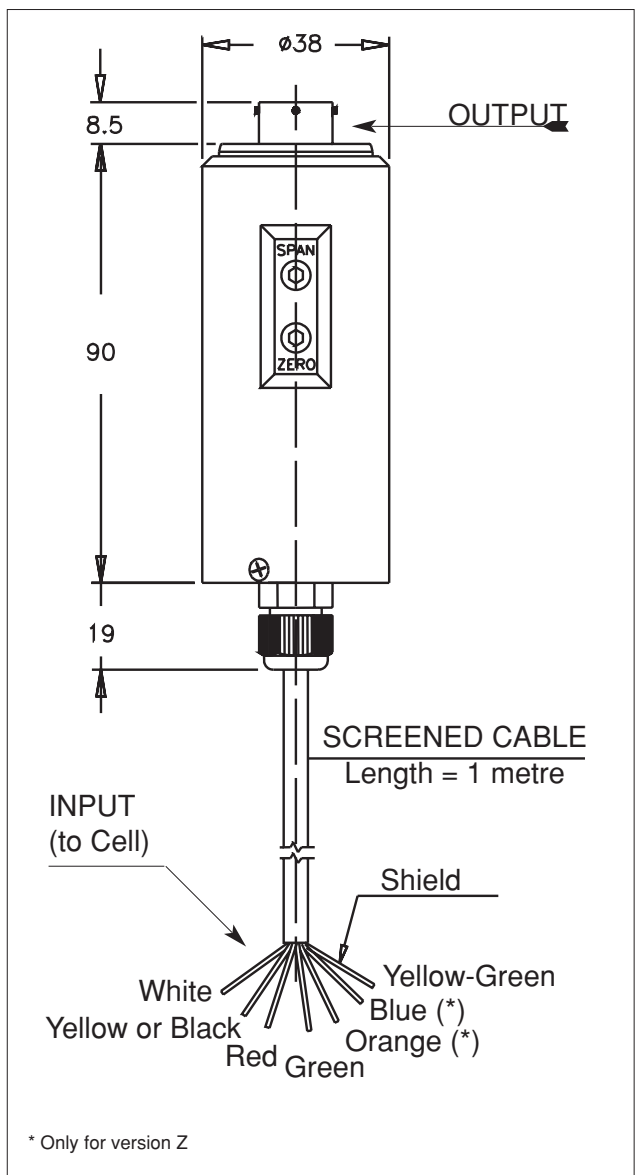
- Linearity error <math><0,02\%FSO</math>
- Voltage or current output
- Low thermal drift <math><0,01\%FSO/^{\circ}C</math>
- Compact size

The CIR voltage or current amplifiers have been designed to enable the user to adapt non-amplified strain gauge transducers (load cells, pressure transducers) to acquisition systems, PLC, instrumentation with high level inputs. The availability of the output in voltage or current enables the signal to be carried over long distances or used in intelligent automation systems.

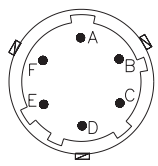
TECHNICAL DATA

Model	Voltage B/C/M/N	Current E	meas. unit
Linearity error (FSO)	<math><0.02</math>	<math><0.02</math>	%
Primary sensor resistance ($\pm 10\%$)	350 or 700	350 or 700	Ω
Primary sensor sensitivity	2 or 3	2 or 3	mV/V
Output load resistance	> 10	see diag.	K Ω
Supply voltage	15...30	12...30	Vdc
Current drain with sensor connected	< 33	≤ 20	mA
Supply voltage to transducer	10	0,9	Vdc
Output signal at zero	B/C = 0,1Vdc M/N = 0Vdc	E = 4mA	
Zero signal accuracy (FSO)	<math>< \pm 0,1</math>	<math>< \pm 0,1</math>	%
Zero adjustment (FSO)	> ± 10	> ± 10	%
Full scale output	B = 5,1Vdc C = 10,1Vdc M = 5Vdc N = 10Vdc	E = 20mA	
F.S. output accuracy	<math>< \pm 0,1</math>	<math>< \pm 0,1</math>	%
Span adjustment	> ± 10	> ± 10	%
Inverse polarity protection	YES	YES	
Accidental shortcircuit protection	YES	YES	
Response time (10...90%FSO)	≈ 6	≈ 6	ms
Output noise (RMS10...400Hz)	-60	-60	db
Temp. range: Compensated (%FSO)	0...70 -10...+80 -50...+100	0...70 -10...+80 -50...+100	$^{\circ}C$ $^{\circ}C$ $^{\circ}C$
Working Storage			
Typical thermal drift of zero (%FSO/ $^{\circ}C$)	$\pm 0,01$	$\pm 0,01$	
Typical thermal drift of span (%FSO/ $^{\circ}C$)	$\pm 0,01$	$\pm 0,01$	
Length of output cable	1	1	mt
Case material	Stainless steel / Anodized alum.		
Grade of protection	IP65	IP65	EN 60529
The electrical characteristics are those measured with Vsupply.=24VRL = 1M Ω (Voltage) RL = 500 Ω (Current) Amb.temp = 25 $^{\circ}C$			

MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS



VPT02A10-6PT2
male connector

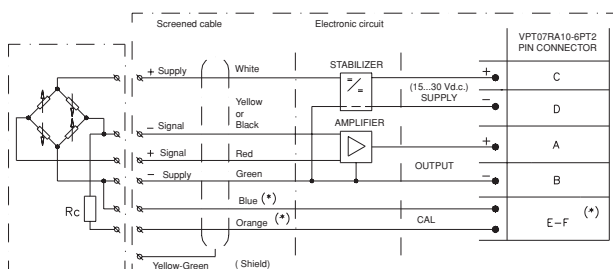
FEMALE CONNECT. PINS CON300	COLOR CODE OUTPUT CABLE
A	Red
B	Yellow / Black
C	White
D	Green
E	Blue
F	Orange

Connector and colour code of cable with prewired female connector.

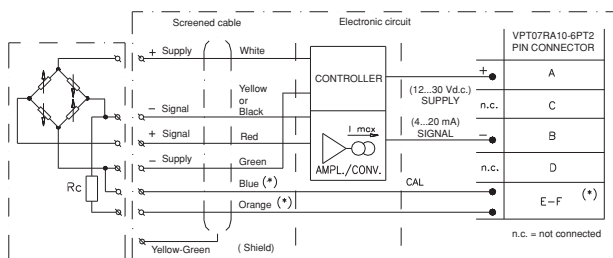
The amplifiers are fitted with the VPT07RA10-6PT2 male connector. The function of the individual pins varies according to the type of output, as seen in the drawing for models B,C,E,M,N.

ELECTRICAL CONNECTIONS

Mod. B/C/M/N



Mod. E



* Only in the version Z (maximum length of the calibration signal wires: 2 metres) the cable screen should be connected to the _V supply of the transducer.

OPTIONAL ACCESSORIES

Connectors

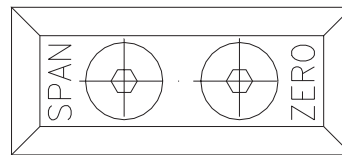
Female cable connector
Grade of protection IP65 **CON 300**

6-pin connector with 8m (25ft) cable **C08W**
6-pin connector with 15m (50ft) cable **C15W**
6-pin connector with 25m (75ft) cable **C25W**
6-pin connector with 30m (100ft) cable **C30W**

Other lengths **consult factory**

Cables and assembled cables **on request**

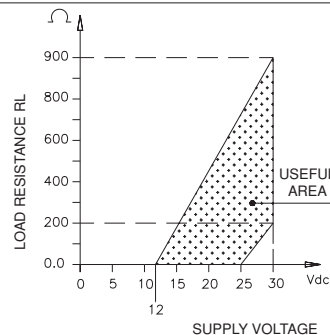
ADJUSTMENT



ZERO AND SPAN TRIMMERS

The user can adjust the amplifier zero and gain using two potentiometers (ZERO and SPAN respectively) which are easily accessible from the outside by removing two screws present on the case.

LOAD DIAGRAM



In the diagram shown here, the optimal ratio between the load and the transducer supply is shown for a 4...20mA output.

For a correct use, choose a combination of supply voltage and load resistance that falls within the shaded area.

ORDER CODE

CIR

OUTPUT SIGNAL	
0,1...5,1Vdc	B
0,1...10,1Vdc	C
4...20mA 2 fili	E
0...5 Vdc	M
0...10Vdc	N

PRIMARY ELEMENT SENSITIVITY	
2 mV/V	2
3 mV/V	3

MEASUREMENT BRIDGE RESISTANCE	
350 Ohm	M
700 Ohm	N

CALIBRATION WIRES	
Without calibration (4wires strain gauge)	0
Passing calibration (6wires strain gauge)	Z

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

GEFRAN spa
via Sebina, 74
25050 PROVAGLIO D'ISEO (BS) - ITALIA
ph. 0309888.1 - fax. 0309839063
Internet: <http://www.gefran.com>
www.gefranonline.com

GEFRAN

cod. CIR - 09/04



Main features

- Galvanic isolation between the Supply Voltage and the Amplifier >500Vdc
- Linearity error > 0,02% full scale output
- Current output 3-wires
- Low thermal drift < 0,01% full scale/°C
- 10Vdc transducer supply

The CIR-D voltage or current amplifiers have been designed to enable the user to adapt non-amplified strain gauge transducers (load cells, pressure transducers) to acquisition systems, PLC, instrumentation with high level inputs. These amplifiers have galvanic isolation between the supply voltage and the transducer to increase the rejection of noise generated by the power supply itself. The availability of the output in current enables the signal to be carried over long distances or used in intelligent automation systems.

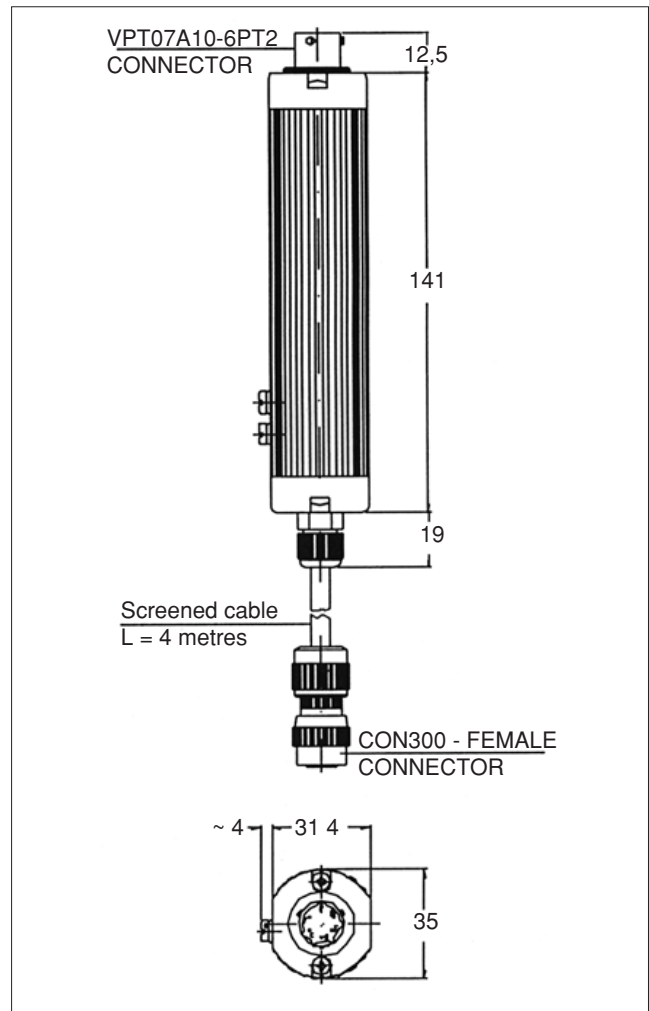
TECHNICAL SPECIFICATIONS

Linearity error	< 0.02%FSO
Galvanic isolation between Vsupply and Amplifier	> 500 Vdc
Primary sensor sensitivity	1 or 2mV/V
Primary sensor resistance	350Ω
Output load resistance	≤ 400Ω
Supply voltage	20...30Vdc
Current drain with sensor connected	< 70mA
Supply voltage to transducer	10Vdc
Output signal at zero	0mA
Zero signal accuracy	± 0,1%FSO
Zero adjustment	± 10%FSO
Full scale output	20mA
Full scale output accuracy	± 0,1%FSO
Span adjustment	± 10%FSO
Inverse polarity protection	Yes
Response time (10...90%FSO)	8ms
Output noise (RMS 10...400Hz)	0.05%FSO
Temperature range: Compensated Working Storage	0...70°C -10...+80°C -50...+100°C
Typical thermal drift of zero	± 0.01%FSO/°C
Typical thermal drift of span	± 0.01%FSO/°C
Case material	Anodised aluminium Nylon 66 CF40
Protection degree	IP65 - EN60529

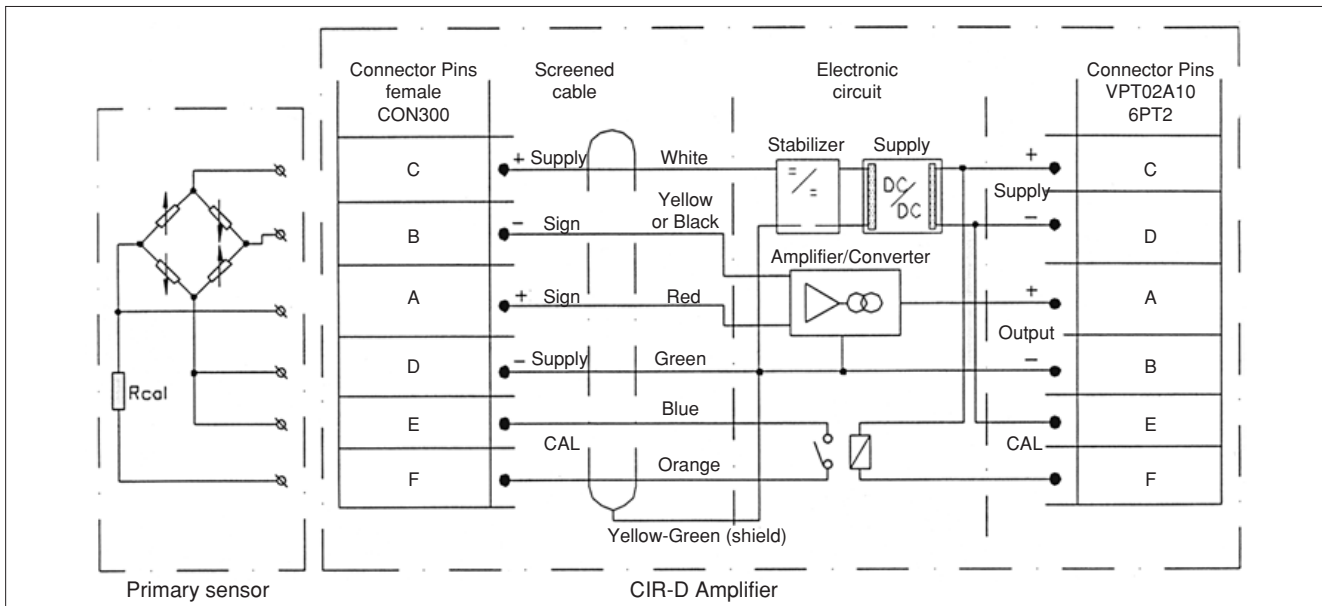
FSO: Full Scale Output (signal at full span).

The electrical characteristics are those measured with Vsupply = 24V - RL = 400 Ohm - Ambient temperature. = 25°C

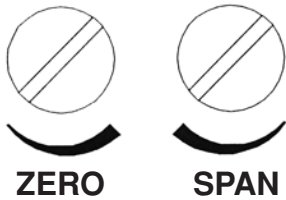
MECHANICAL DIMENSIONS



ELECTRICAL CONNECTIONS



ADJUSTMENTS



ZERO and SPAN POTENTIOMETERS

The user can adjust the amplifier zero and gain using two potentiometers (ZERO and SPAN respectively) which are easily accessible from the outside by removing two screws present on the case.

OPTIONAL ACCESSORIES

Connectors

Female cable connector
Grade of protection IP65 **CON 300**

6-pin connector with 8m (25ft) cable **C08W**
6-pin connector with 15m (50ft) cable **C15W**
6-pin connector with 25m (75ft) cable **C25W**
6-pin connector with 30m (100ft) cable **C30W**

Other lengths **consult factory**

Cables and assembled cables **on request**

ORDER CODE

CIR-D **XC001**

INPUT SIGNAL	
1mV/V	1
2mV/V	2

Example: **CIR-D-1**
Strain gauge amplifier with 1 mV/V input signal.

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