

# Compression force transducer with spherical load input areas on both sides

with electrical output



## Description

This force transducer is suitable for measurement of static compression forces.

With its compact and robust design, it is particularly suitable for industrial service.

This force transducer is designed for measuring ranges from 0  $\dots$  1 t to 0  $\dots$  60 t.

The force transducer is splash waterproof and works with very great reliability even under difficult operating conditions.

#### Note

In order to avoid overloading, it is advantageous to connect the load cell electrically during installation and to monitor the measured value.

The force to be measured must be applied concentrically and free of transverse force.

The load cells are to be mounted on a level surface.

#### **Features**

- for compression force measurements
- simple force introduction
- robust design
- compact small dimensions
- simple installation
- low installation height
- Protection class IP 67
- Accuracy 0.2% of full scale value

## **Measuring ranges**

• 1 t ... 60 t

## Application

- Production lines
- Measuring and monitoring facilities
- Special equipment and machinery construction
- Test benches and production lines

## **Specific information**

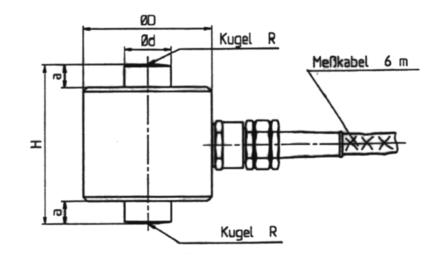
 Installation kit optional available

Sales international Fax: +49 69 5806-177 AE 925 e

ModelF1214Nominal load $F_{nom}$ 1, 2, 6, 13, 28, 60 tAccuracy class0.2% of F.S.Limit load150% $F_{nom}$ Breaking load> 300% $F_{nom}$ Combined error\$\pm t.01% of F.S.Max. dynamic load $\pm$ 70% $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ \$\pm t.06% of F.S.Nominal deflection< 0.11 mmNominal deflection< 0.11 mmNominal temperature range-10 up to +60°CService temperature range-20 up to +70°CStorage temperature range-30 up to +80°CReference temperature range-30 up to +80°CReference temperature range-30 up to +80°CProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 GQAnalogue output1.5 mV/V-Output signal-Sto Q-Tolerance of span-Excitation voltage-IN V V-Sto Q-Tolerance of span-Excitation voltage-IN V (max. 12 V)-228 V DC for cable integrated amplifier-Qption-Electrical connectionNon repeatability0.04%Mounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steel	Technical data				
Accuracy class $0.2\%$ of F.S.Limit load $150\%$ $F_{nom}$ Breaking load> $300\%$ $F_{nom}$ Combined error $\pm 1.1\%$ of F.S.Max. dynamic load $\pm 70\%$ $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ $\pm 0.06\%$ of F.S.Nominal deflection< 0.11 mmNominal temperature range-10 up to +60°CService temperature range-20 up to +70°CStorage temperature range-30 up to +80°CReference temperature $23^{\circ}$ CTemperature effect-span-zero $\pm 0.05\%$ of F.S./ 10KProtection type (acc. to EN 60529/IEC 529)Insulation resistance> 2 GQAnalogue output1.5 mV/V-Option-Tolerance of span-Excitation voltage-Excitation voltage-Excitation voltage-Diffion-Cable integrated amplifier 0 (4) 20 mA,0 10 V (max. 12 V)-22% of F.SCable integrated amplifier-Cable 6 m / 6-wireNon repeatability0.04%Mounting equipmentsee sep. data sheet	Model	F1214			
Limit load150% $F_{nom}$ Breaking load> 300% $F_{nom}$ Combined error $\leq \pm 0.1\%$ of F.S.Max. dynamic load $\pm 70\%$ $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ $\leq \pm 0.06\%$ of F.S.Nominal deflection< 0.11 mm	Nominal load Fnom	1, 2, 6, 13, 28, 60 t			
Limit load150% $F_{nom}$ Breaking load> 300% $F_{nom}$ Combined error $\leq \pm 0.1\%$ of F.S.Max. dynamic load $\pm 70\%$ $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ $\leq \pm 0.06\%$ of F.S.Nominal deflection< 0.11 mm	Accuracy class				
Combined error $\leq \pm 0.1\%$ of F.S.Max. dynamic load $\pm 70\%$ $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ $\leq \pm 0.06\%$ of F.S.Nominal deflection< 0.11 mm		150% Fnom			
Max. dynamic load $\pm$ 70% $F_{nom}$ acc. to DIN 50 100Creep, 30 min. at $F_{nom}$ $\leq \pm$ 0.06% of F.S.Nominal deflection< 0.11 mm	Breaking load	> 300% F <sub>nom</sub>			
$\begin{array}{l lllllllllllllllllllllllllllllllllll$	Combined error				
Nominal deflection< 0.11 mmNominal temperature range-10 up to +60°CService temperature range-20 up to +70°CStorage temperature range-30 up to +80°CReference temperature23°CTemperature effect-span-zero $\leq \pm 0.05\%$ of F.S./ 10KProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G\OmegaAnalogue output1.5 mV/V-Output signal-0utput signal-0ption-Cable integrated amplifier 0 (4) 20 mA,0 10 V DC-Tolerance of span-Excitation voltage-0ption-Excitation voltage-0ption-12 28 V DC for cable integrated amplifierNon repeatability0.04%Mounting equipmentsee sep. data sheet					
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Service temperature range-20 up to $+70^{\circ}$ CStorage temperature range-30 up to $+80^{\circ}$ CReference temperature23°CTemperature effect-span-zero $\leq \pm 0.05\%$ of F.S./ 10K-zero $\leq \pm 0.05\%$ of F.S./ 10KProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G\OmegaAnalogue output1.5 mV/V-Output signal-0utput signal-0ption-Cable integrated amplifier 0 (4) 20 mA,-0 10 V DC-Tolerance of span- $\leq \pm 0.2\%$ of F.SExcitation voltage-0ption-12 28 V DC for cable integrated amplifier-Cable 6 m / 6-wireNon repeatability0.04%Mounting equipmentsee sep. data sheet	Nominal deflection				
Storage temperature range-30 up to +80°CReference temperature $23^{\circ}$ CTemperature effect-span -zero-zero $\pm 0.05\%$ of F.S./ 10KProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G\OmegaAnalogue output1.5 mV/V-Bridge resistance-0utput signal-0utput signal-0ptionCable integrated amplifier 0 (4) 20 mA,0 10 V DC-Tolerance of span- $\pm 0.2\%$ of F.SDoption-12 28 V DC for cable integrated amplifier-Cable 6 m / 6-wireNon repeatability0.04%Mounting equipmentsee sep. data sheet	Nominal temperature range				
Reference temperature23°CTemperature effect-span-zero $\leq \pm 0.05\%$ of F.S./ 10KProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G\OmegaAnalogue output1.5 mV/V-Output signal-0utput signal-0utput signal-0ption-Cable integrated amplifier 0 (4) 20 mA,0 10 V DC-Tolerance of span- $\leq \pm 0.2\%$ of F.SExcitation voltage-0ption-12 28 V DC for cable integrated amplifier-Cable 6 m / 6-wireNon repeatability0.04%Mounting equipmentsee sep. data sheet	Service temperature range	-20 up to +70°C			
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Insulation resistance> 2 G $\Omega$ Analogue outputOutput signal-Bridge resistance-Option-Option-Tolerance of span-Excitation voltage-Option-Electrical connectionNon repeatability0.04%Mounting equipmentsee sep. data sheet		≤± 0.05% of F.S./ 10K			
Analogue output1.5 mV/V-Bridge resistance $350 \Omega$ -OptionCable integrated amplifier 0 (4) 20 mA, 0 10 V DC-Tolerance of span $\leq \pm 0,2\%$ of F.SExcitation voltage6 10 V (max. 12 V)-Option $12 28 V DC$ for cable integrated amplifier-Electrical connectionCable 6 m / 6-wireNon repeatability $0.04\%$		IP 67			
Output signal $1.5 \text{ mV/V}$ Bridge resistance $350 \Omega$ OptionCable integrated amplifier 0 (4) 20 mA,Option $0 \dots 10 \vee DC$ Tolerance of span $\leq \pm 0,2\%$ of F.S.Excitation voltage $6 \dots 10 \vee (\text{max. } 12 \vee)$ Option $12 \dots 28 \vee DC$ for cable integrated amplifierElectrical connectionCable 6 m / 6-wireNon repeatability $0.04\%$ Mounting equipmentsee sep. data sheet	Insulation resistance	$> 2 G\Omega$			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Analogue output				
-OptionCable integrated amplifier 0 (4) 20 mA, $0 \dots 10 \vee DC$ -Tolerance of span $\leq \pm 0,2\%$ of F.SExcitation voltage $6 \dots 10 \vee (max. 12 \vee)$ -Option $12 \dots 28 \vee DC$ for cable integrated amplifier-Electrical connectionCable 6 m / 6-wireNon repeatability $0.04\%$ Mounting equipmentsee sep. data sheet					
-       Tolerance of span         -       Tolerance of span         -       Excitation voltage         -       Option         -       Option         -       Electrical connection         Non repeatability       0.04%         Mounting equipment       see sep. data sheet					
-       Tolerance of span       ≤± 0,2% of F.S.         -       Excitation voltage       6 10 V (max. 12 V)         -       Option       12 28 V DC for cable integrated amplifier         -       Electrical connection       Cable 6 m / 6-wire         Non repeatability       0.04%         Mounting equipment       see sep. data sheet	- Option				
-       Excitation voltage       6 10 V (max. 12 V)         -       Option       12 28 V DC for cable integrated amplifier         -       Electrical connection       Cable 6 m / 6-wire         Non repeatability       0.04%         Mounting equipment       see sep. data sheet					
- Option     12 28 V DC for cable integrated amplifier       - Electrical connection     Cable 6 m / 6-wire       Non repeatability     0.04%       Mounting equipment     see sep. data sheet					
-     Electrical connection     Cable 6 m / 6-wire       Non repeatability     0.04%       Mounting equipment     see sep. data sheet	<ul> <li>Excitation voltage</li> </ul>	6 10 V (max. 12 V)			
-     Electrical connection     Cable 6 m / 6-wire       Non repeatability     0.04%       Mounting equipment     see sep. data sheet	- Option	12 28 V DC for cable integrated amplifier			
Mounting equipment see sep. data sheet	<ul> <li>Electrical connection</li> </ul>				
Mounting equipment         see sep. data sheet           Material of measuring device         Stainless steel		0.04%			
Material of measuring device Stainless steel	Mounting equipment				
	Material of measuring device	Stainless steel			

of F.S. = full scale value

#### **Dimensions:**

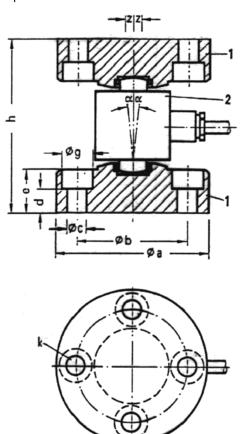


Nominal load	Dimensions in [mm]						
[t]	Ød	ØD	а	Н	R		
1, 2, 6	16.7	45	8	56	50		
13	24.5	55	12	68	70		
28	36	64	14	74	135		
60	52.5	90	20	90	288		

-							
Electrical connections							
Supply (+)	brown						
Supply (-)	green						
Signal (+)	red						
Signal (-)	white						
Sensor (+)	grey						
Sensor (-)	blue						

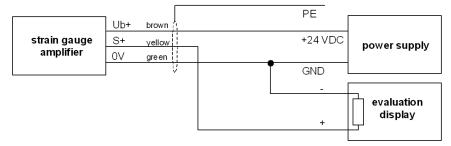
#### Installation set

Item 1 Pressure plate for BR F1210 Item 2 load cell BR F1214 1 installation set consists of two pressure plates



Horizontal deflections (z) of the load bearer cause an inclination ( $\alpha$ ) of the force transducer. As a result the build-in height simultaneously increases. During installation,  $\alpha$  can be utilised up to 6°. In operation, it is recommended not to exceeded 2°.

Nominal load t	Ø a [mm]	Øb [mm]	c [mm]	d [mm]	e [mm]	g [mm]	h [mm]	k	weight [kg]
1; 2; 6;	87	63	11	14	25	18	100 <sup>+0.5</sup> -1	two	1
13	97	73	11	21	32	18	120 <sup>+0.5</sup> -1	bores 180°	2
28	108	84	11	-	28	-	136 <sup>+0.5</sup> -1		2
60	137	112	11	-	42	-	174 <sup>+0.5</sup> -1	four bores 90°	5



Pin assignment for cable integrated amplifier

Subject of technical changes

AE **9**25 e