

Wire rope force transducer

With integrated amplifier up to 30 t

Models F9304, F93C4

WIKA data sheet FO 54.14



Applications

- Overload protection
- Measurement of rope tension

Special features

- Measuring ranges 0 ... 1 t to 0 ... 30 t
- Relative linearity error up to $\leq \pm 1.0 \% F_{nom}$
- Wire rope diameter 8 ... 44 mm, suitable for retrofitting
- Material: Stainless steel, IP67
- Optional: Redundant output signal, ATEX version



Wire rope force transducer, models F9304, F93C4

Description

The wire rope force transducer with integrated amplifier is designed for measuring ranges up to 30 t and wire rope diameters of 8 ... 44 mm. An Ex version is also available.

For the retrofitting of overload protection in existing hoist or crane systems, this force transducer is the first choice. Design changes to the machinery and also static calculations are therefore not needed.

The task of this wire rope force transducer is to monitor rope forces - robustly and precisely. The prerequisite for this is a rope anchor point, as the measurement takes place on the stationary rope. For this purpose, the transducer is clamped with a few simple steps onto the rope, once it is fully installed.

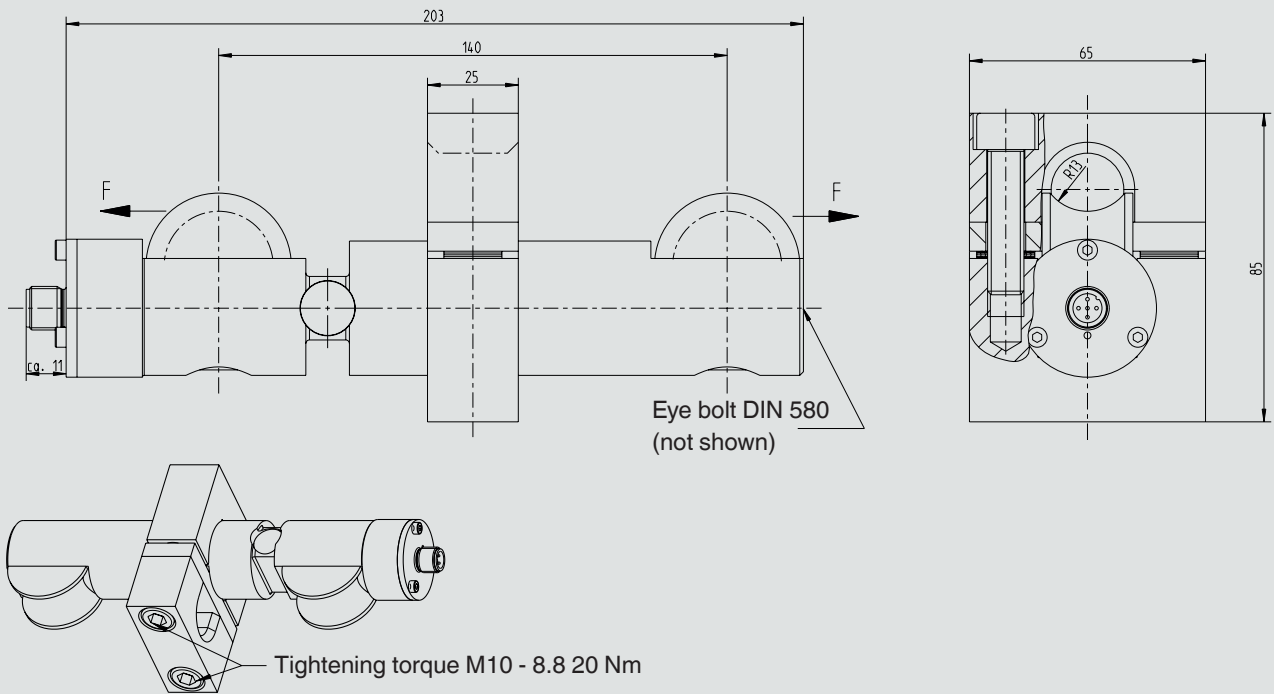
Overload electronics as a system solution are also possible.

Specifications per VDI/VDE/DKD 2638

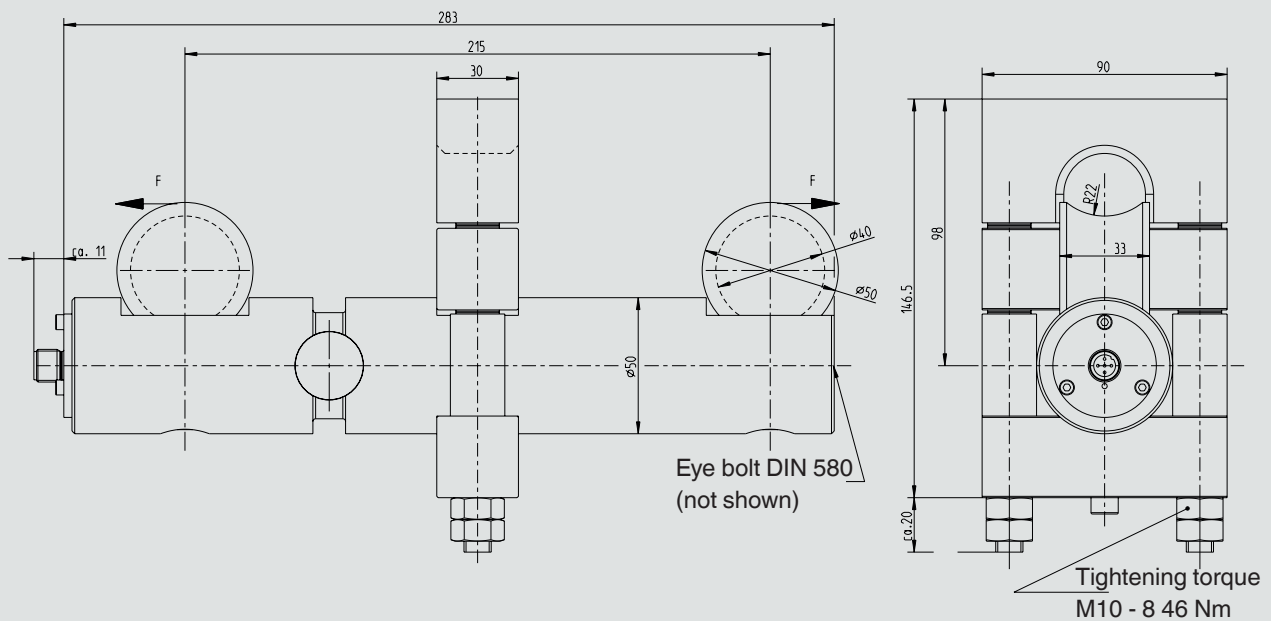
Models	F9304	F93C4
Rated force F_{nom}	1 ... 30	
Relative linearity error d_{lin}	$\leq \pm 1.0 \% F_{nom}$	
Temperature effect on <ul style="list-style-type: none"> ■ the zero signal TK_0 ■ the characteristic value TK_C 	0.2 % $F_{nom}/10$ K 0.2 % $F_{nom}/10$ K	
Wire rope diameter	8 ... 44 mm	
Limit force F_L	150 % F_{nom}	
Breaking force F_B	> 300 % F_{nom}	
Material of the measuring body	corrosion-resistant stainless steel, 1.4542, ultrasound-tested 3.1 material	
Rated temperature range $B_{T, nom}$	-20 ... +80 °C	
Service temperature range $B_{T, G}$	-40 ... +80 °C	Ex II 2G Ex ib IIC T4 Gb -25 °C < Tamb < +85 °C Ex II 2G Ex ib IIC T3 Gb -25 °C < Tamb < +100 °C Ex I M2 Ex ib I Mb -25 °C < Tamb < +85 °C Ex II 2G Ex ib IIC T4 Gb -40 °C < Tamb < +85 °C Ex I M2 Ex ib I Mb (only available with cable connection)
Insulation resistance R_{is}	> 50 GΩ/50 V	-
Output signal (rated characteristic value) C_{nom} <ul style="list-style-type: none"> ■ Standard ■ Optional 	4 ... 20 mA 2 x 4 ... 20 mA	4 ... 20 mA, 2-wire -
Current/power consumption	Current output 4 ... 20 mA	Current output 4 ... 20 mA: Signal current
Supply voltage	DC 10 ... 30 V	DC 10 ... 30 V for current output
Load	-	$\leq (U_B - 10 V)/0.024$ A for current output
Electrical connection	Circular connector M12 x 1	Circular connector M12 x 1
Ingress protection (per IEC/EN 60529)	IP67	
Vibration resistance	20 g, 100 h, 50 ... 150 Hz per DIN EN 60068-2-6	
Interference emission	DIN EN 55011	
Immunity	in accordance with DIN EN 61326-1/DIN EN 61326-2-3 (optional EMC-strengthened versions)	
Wiring protection	Reverse polarity and overvoltage protection and short-circuit resistance	
Accessories	Safety chain 1 m	
Certificates	ATEX: per EN 60079-0:2012 and EN 60079-11:2012 (Ex ib) IECEX: per IEC 60079-0:2011 (Ed. 6) and IEC 60079-11:2011 (Ed. 6) (Ex ib) UL: per UL 61010-1 and CSA C22.2 No. 61010-1	
Option	Certificates, strength verifications, 3D CAD files (STEP, IGES) on request	

Dimensions in mm

Design 1 (up to 25 mm of wire rope diameter)



Design 2 (as of 25 mm of wire rope diameter)

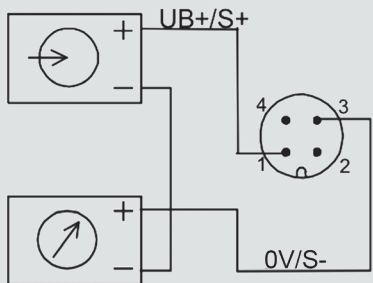


Special versions on request

Pin assignment, analogue output

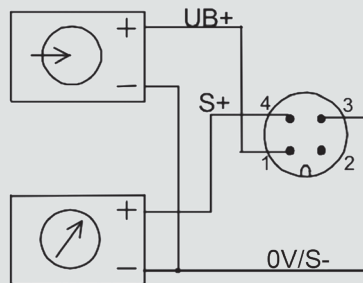
Output 4 ... 20 mA, 2-wire

Circular connector M12 x 1, 4-pin



Output DC 0 ... 10 V, 3-wire

Circular connector M12 x 1, 4-pin



Circular connector M12 x 1, 4-pin

	4 ... 20 mA 2-wire	DC 0 ... 10 V 3-wire
Supply UB+	1	1
Supply 0V/UB-	3	3
Signal S+	1	4
Signal S-	3	3
Shield ⚡	M12 x 1 thread	M12 x 1 thread

Cable assignment

Cable colour	2-wire	3-wire
Brown	UB+/S+	UB+
White	-	-
Blue	0V/S-	0V/S-
Black	-	S+

Only when using standard cable, e.g. EZE53X011016

Pin assignment ATEX/IECEX

Circular connector M12 x 1, 4-pin

	ATEX Ex ib 4 ... 20 mA 2-wire
Supply UB+	1
Supply 0V/UB-	3
Signal S+	1
Signal S-	3
Shield ⚡	Case

Cable assignment

Cable colour	2-wire
Brown	UB+/S+
White	-
Blue	0V/S-
Black	-

Only when using standard cable, e.g. EZE53X011016

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