



up to 2500 Nm
1 Channel

F1i S

Torquemeter

with integrated evaluation unit

Description

The new F1i S torque measurement system represents a further development of the new generation with integrated evaluation unit. With the exception of a 24VDC power supply no external components are required for operation.

A high end temperature compensation guarantees a very good stability and repeatability of the output signals. The standard model is equipped with a one track speed measurement system. The maximum allowable speed is 25,000 rpm.



Significant technical data

- Bearingless torque flange with IR-signal transmission
- Evaluation unit integrated in stator
- High overload capability
- Active temperature compensation to reduce temperature effect on zero balance
- Accuracy 0.1 (Option 0.05)
- Gear tooth speed encoder 60 ppr
- Magnetic speed encoder 1,024 ppr (Option)
- Compact design
- Fits to cardan shaft types 228 and 587
- Transmission of characteristic values
- Maximum speed 25,000 rpm
- Any torque range up to 2,500 Nm available



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Rated torque T_r	Nm	$\leq 2,500$
Overload capability torsional shaft	Nm	$5T_r$
Accuracy including hysteresis and nonlinearity	% F.S.	$< \pm 0.1$
Temperature effect on zero	% F.S./10K	$< \pm 0.1$
Operating temperature range	°C	0...+70
Maximum speed	rpm	25,000

Technical Data Torquemeter Type F1i S

TORQUEMETER

Rated torque nominal T_r	Nm	$\leq 2,500$
Torque limit of torque shaft related to T_r	Nm	$> 5T_r$
Maximum speed	rpm	25,000
Nonlinearity and hysteresis related to T_r	%	$< \pm 0.1$
Temperature effect on zero per 10K related to T_r	%	$< \pm 0.1$
Nominal temperature range	°C	0...+70
Operating temperature range	°C	-10...+80

OUTPUT SPECIFICATION TORQUE

Frequency output	kHz	60 ± 20
Dynamic response up to	kHz	2
Analog output voltage	V DC	0...10
Analog output current	mA	0...20 / 4...20
Conversion rate / resolution	MV/s	1,000 with 16bit
Shunt calibration	-	approx. 30% of T_r

OUTPUT SPECIFICATION SPEED

Pulses per rev (gear tooth, 1 track)	ppr	60
Output signal (RS422) frequency	-	1 track
Analog output voltage	V DC	0...10
Conversion rate / resolution	MV/s	1,000 with 16bit
Required speed	rpm	> 0

ADDITIONAL INTERFACES / FEATURES

Serial interface RS232	Baud	19,200
CAN Bus		CAN2B up to 1 MBit
Status output	additional control line, assignable with status signal	
Remote via additional control line		

MECHANICAL DATA

Weight (rotor) at 2,500 Nm	kg	approx. 5.0
Inertia (rotor) at 2,500 Nm	gm ²	approx. 12.5
Twist angle at 2,500 Nm	grad	0.04
Torsional stiffness	kNm/rad	1,979
Coupling mass (typ.)	kg	17
Fits to cardan shafts	-	Type 228 and 587

OPTIONS

Nonlinearity and hysteresis related to T_r	%	$< \pm 0.05$
Temperature effect on zero per 10K related to T_r	%	$< \pm 0.05$
High resolution speed encoder with 1,024 ppr (2 tracks) up to 12,000 rpm		

Order Number

F1i S-1000-1024-KLN

Type _____

Rated torque _____

O-60 Pulses per rev _____
P-1,024 Pulses per rev _____

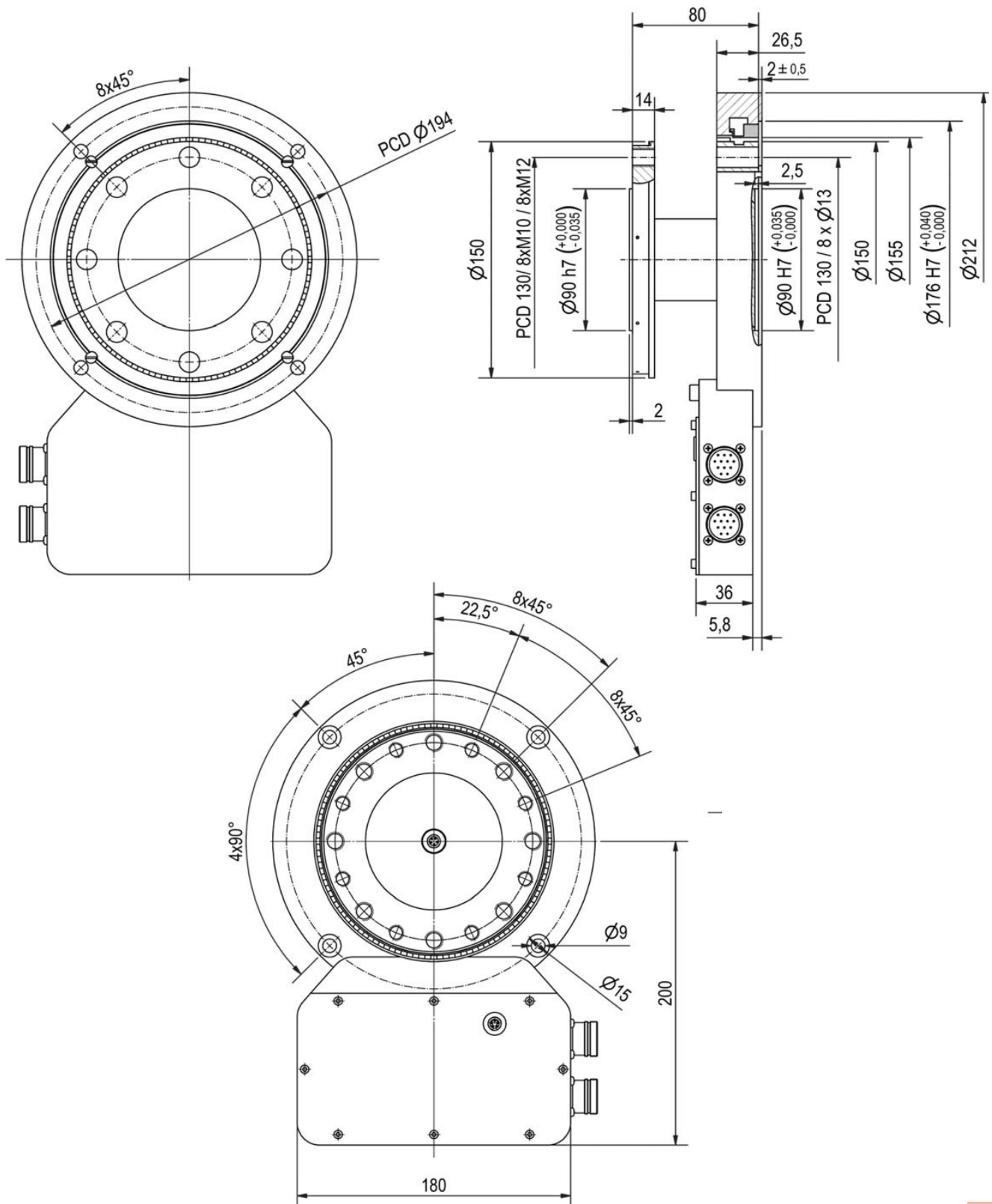
K-Nominal temperature range 0...+70 °C _____
S-Temperature range -25...+125 °C _____

L-Speed limit up to 0-12,000 rpm (*) _____
H-Speed limit up to 0-25,000 rpm (**) _____

N-Accuracy 0.1 _____
X-Accuracy 0.05 _____

(*)=with 1,024 ppr speed encoder
(**)=with 60 ppr gear tooth

Dimensions Torquemeter Type F1i S



This application example shows the compact torque measuring system directly mounted to the dynamometer. Up to the torque limit (T_r) all ranges are covered by identical flange dimensions.

