

# F1i S

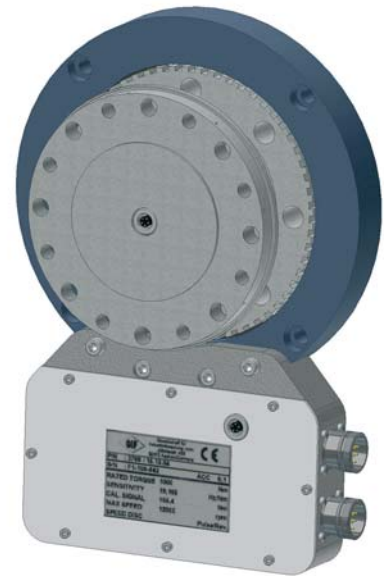
## Torquemeter

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

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



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# 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	$60 \pm 20$
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

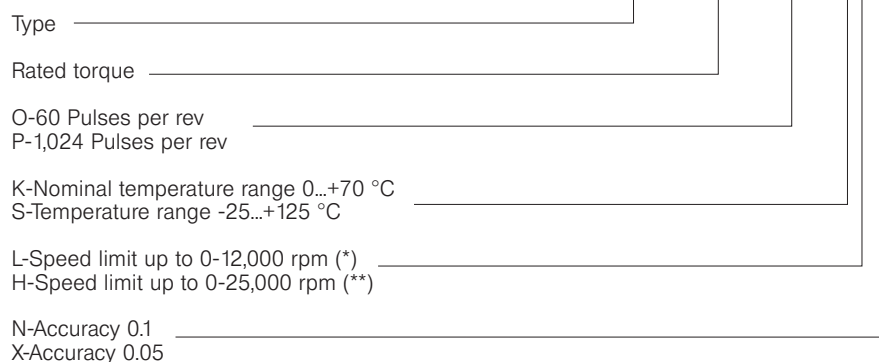
Weight (rotor) at 2,500 Nm	kg	approx. 5.0
Inertia (rotor) at 2,500 Nm	gm <sup>2</sup>	approx. 12.5
Twist angle at 2,500 Nm	grad	0.04
Torsional stiffness	kNm/rad	1,979
Coupling mass (typ.)	kg	17
Fits to cardan shafts	-	Type 228 and 587

## 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		

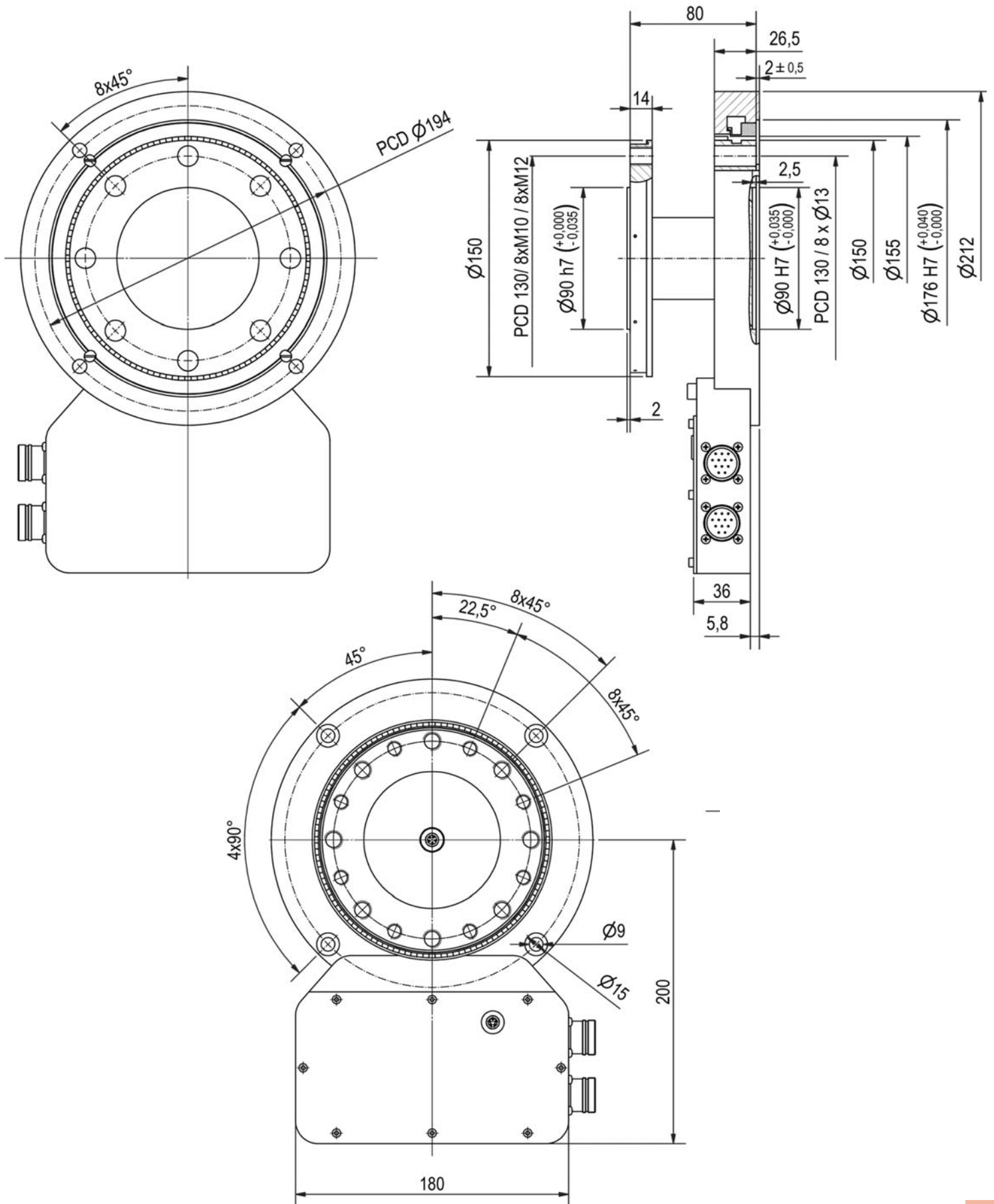
Order Number

F1i S-1000-1024-KLN



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

# Dimensions Torquemeter Type F1i S



## Installation Example

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.

