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2000 Nm
1 Channel

FLFM3
Torquemeter

Description

The bearingless system consists of an one-piece measuring body manufactured from a very low hysteresis steel material. The torsion of the measuring segment is registrated by means of strain gages, converted into electrical voltage signals, and then transmitted contactlessly via modulated infrared light to the stator. The master frequency is 60 kHz and the span is ± 20 kHz for ± rated torque.
Temperature related offset shifts are minimized by an active temperature compensation. An optical sensor provides two 90 degree phase shifted speed signals with nominal 600ppr. Maximum frequency is 100 kHz.
An optionally available second transmission track provides an additional second torque measuring range or a multi-channel temperature transmission.

Significant technical data

- Bearingless torque flange with IR-signal transmission
- High overload capability
- Active temperature compensation to reduce temperature effect on zero balance
- Accuracy 0.1 (Option 0.05)
- Optical speed encoder (600 ppr or other)
- Option: 2 torque ranges (span up to 1:10)
- Compact design

Rated torque T_r	Nm	≤2000
Overload capability torsional shaft	Nm	$5T_r$
Accuracy including hysteresis and nonlinearity	% F.S.	<±0,1
Temperature effect on zero	% F.S./10K	<±0,1
Operating temperature range	°C	0...+70
Rated speed	rpm	8000

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Technical Data Torquemeter Type FLFM3

TORQUEMETER		
Rated torque nominal T_r	Nm	≤2000
Torque limit of torque shaft related to T_r	Nm	>5T_r
Rated speed n_r	rpm	8000
Accuracy	-	0.1
Nonlinearity and hysteresis related to T_r	%	<±0.1
Temperature effect on zero per 10K related to T_r	%	<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	>1.5
Shunt calibration	-	approx. x % of T_r

OUTPUT SPECIFICATION SPEED		
Pulses per rev (optical encoder)	-	500/600
Output signal (RS422,TTL)	-	2 tracks 90° ±20°phase shifted
Required speed	rpm	>0

MECHANICAL DATA		
Weight (rotor)	kg	5.5
Inertia (rotor)	gm²	13
Twist angle under rated torque	grad	0.08
Torsional stiffness	kNm/rad	492
Coupling mass (typ.)	kg	10

Order Number

FLFM3-2000-600-KLN

Type

Rated torque

500/600 Pulses per rev

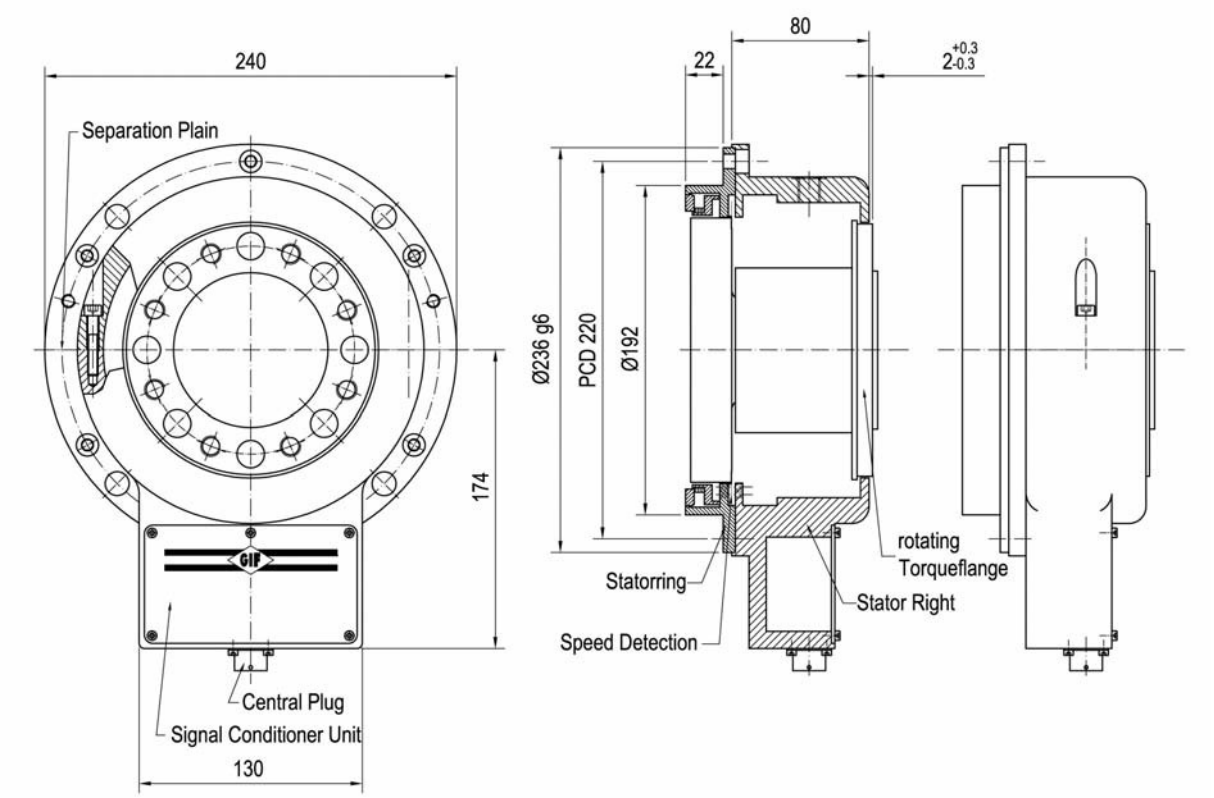
K-Nominal temperature range 0...+70 °C
S-Nominal temperature range -25...+125 °C

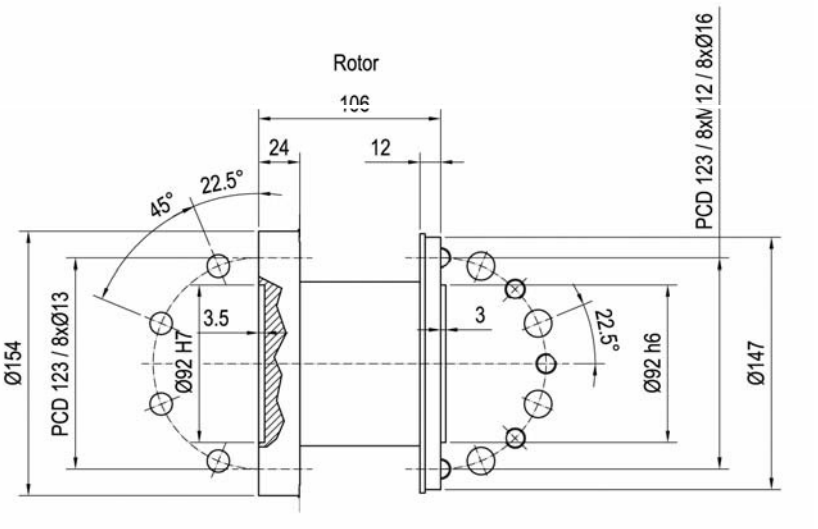
L-Speed limit up to 0-8000 rpm
H-Speed limit up to 0-12,000 rpm (*)

N-Accuracy 0.1
X-Accuracy 0.05

(*)=without speed detection

Dimensions Torquemeter FLFM3





Setup layout and available evaluation units for minimum configuration and operation of torquemeter FLFM3

Evaluation Unit

Central Connector

Type: TCU 1

Significant technical data

- Power supply 9VDC - 30VDC
- One channel
- Analog output torque sample rate 800 sec^{-1}
- Analog output speed sample rate 800 sec^{-1}
- Serial interface with terminal function
- Interface for external Touch Screen Display
- Diagnostic connector
- Central connector Type ZK 12/12 required

Type: GIF AE...

Significant technical data

- Power supply 230VAC, option 115VAC
- One channel
- Frequency output torque and speed
- Analog output torque and speed
- Serial interface with terminal function
- Built-in LC Display (single-line)
- Option: Dynamic plug-in card for torque and speed
- Central connector Typ ZK 12/10 required

Type: TCU 19

Significant technical data

- Power supply 115VAC or 230VAC
- One or two channel
- Frequency output torque and speed
- Analog output torque and speed
- Serial interface with terminal function
- Built-in Touch Screen Display
- Free slots for special plug-in cards
- CAN-BUS function
- Central connector Typ ZK 12/12 required