

5400 Nm
1 Channel

FLFM4 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 registered 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 \pm 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 | ≤ 5400 |
| Overload capability torsional shaft | Nm | $5T_r$ |
| Accuracy including hysteresis and nonlinearity | % FS. | $< \pm 0,1$ |
| Temperature effect on zero | % FS./10K | $< \pm 0,1$ |
| Operating temperature range | $^{\circ}\text{C}$ | 0...+70 |
| Rated speed | rpm | 8000 |



**GESELLSCHAFT FÜR
INDUSTRIEFORSCHUNG MBH**

Konrad-Zuse-Str. 3
D - 52477 Alsdorf / Germany
Tel.: +49 - (0)2404-9870-570
Fax: +49 - (0)2404-9870-59
www.gif-ac.com
info.de@gif-ac.com

Technical Data Torquemeter Type FLFM4

TORQUEMETER

| | | |
|-----------------------------------------------------|--------------------|-------------|
| Rated torque nominal T_r | Nm | ≤ 2500 |
| Torque limit of torque shaft related to T_r | Nm | $> 5T_r$ |
| Rated speed n_r | rpm | 6000 |
| Accuracy | - | 0.1 |
| Nonlinearity and hysteresis related to T_r | % | $< \pm 0.1$ |
| Temperature effect on zero per 10K related to T_r | % | < 0.1 |
| Nominal temperature range | $^{\circ}\text{C}$ | 0...+70 |
| Operating temperature range | $^{\circ}\text{C}$ | -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) | - | 600/1000 |
| Output signal (RS422) | - | 2 tracks 90° $\pm 20^{\circ}$ shifted |
| Required speed | rpm | > 0 |

MECHANICAL DATA

| | | |
|--------------------------------|------------------|------|
| Weight (rotor) | kg | 10.5 |
| Inertia (rotor) | gm^2 | 44 |
| Twist angle under rated torque | grad | 0.05 |
| Torsional stiffness | kNm/rad | 3000 |
| Coupling mass (typ.) | kg | 25 |

Order Number

FLFM4-1000-1024-KLN

Type _____

Rated torque _____

600/1000 Pulses per rev _____

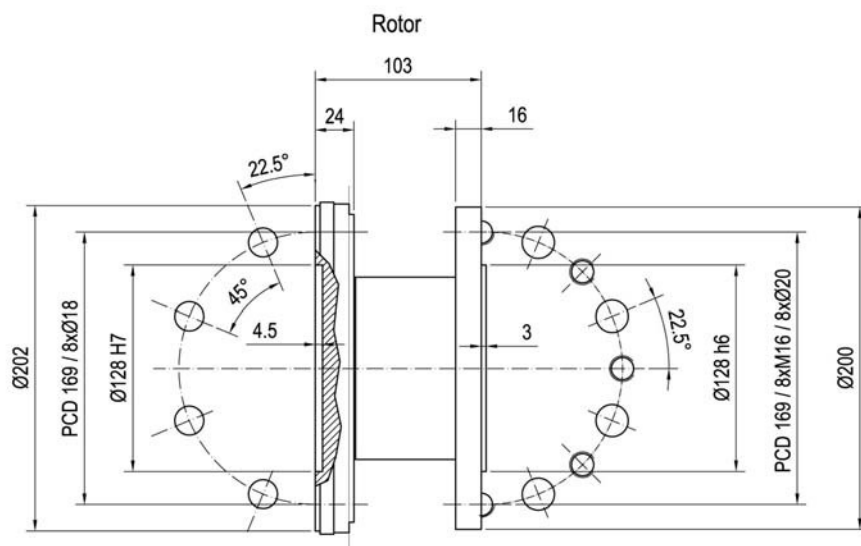
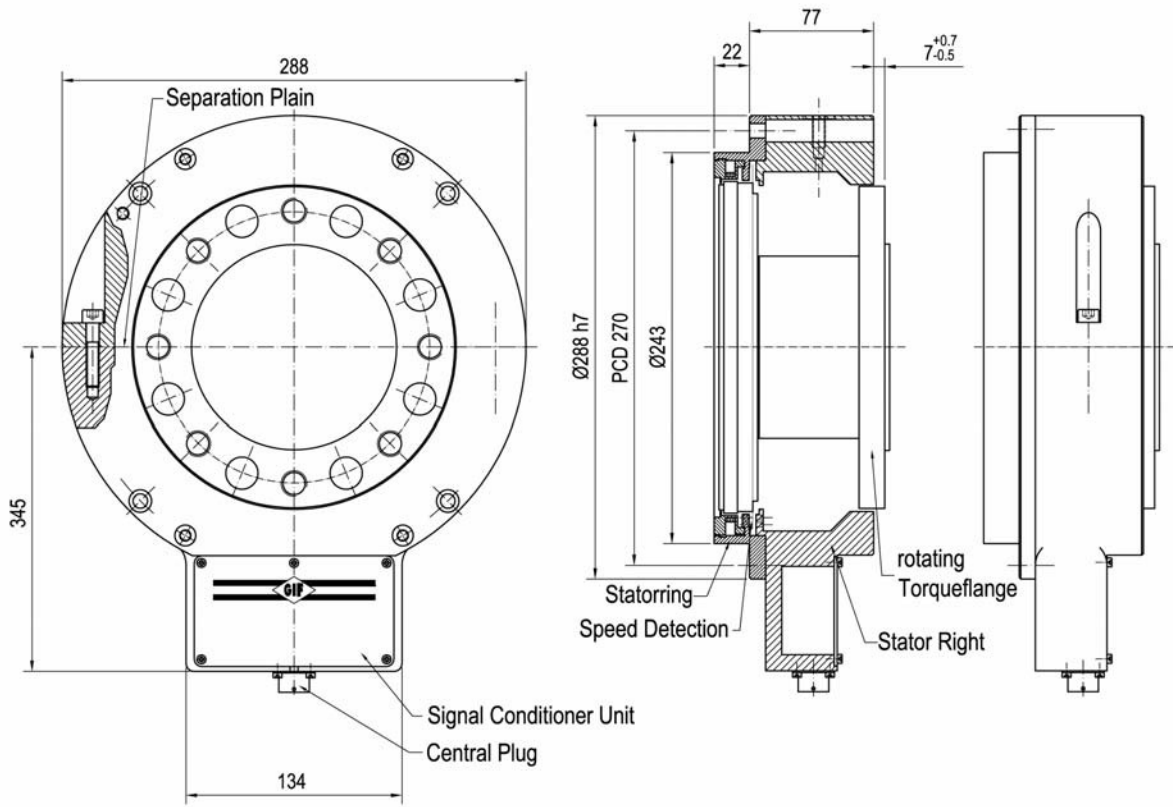
K-Nominal temperature range 0...+70 $^{\circ}\text{C}$ _____
 S-Nominal temperature range -25...+125 $^{\circ}\text{C}$ _____

L-Speed limit up to 0-8000 rpm _____
 H-Speed limit up to 0-12.000 rpm (*) _____

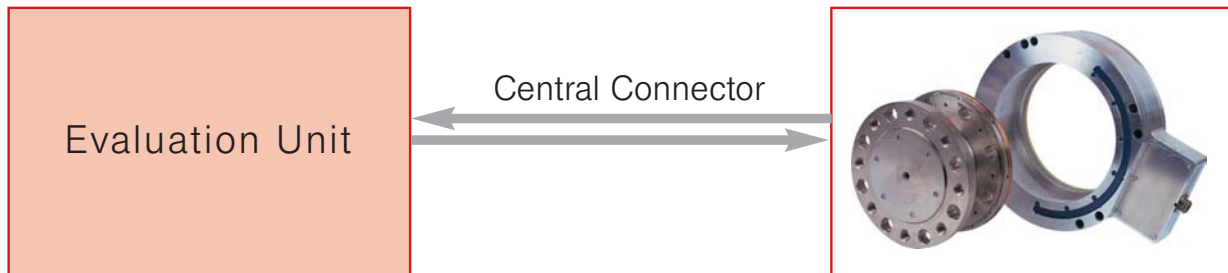
N-Accuracy 0.1 _____
 X-Accuracy 0.05 _____

(*)=without speed detection

Dimensions Torquemeter FLFM4



Setup layout and available evaluation units for minimum configuration and operation of torquemeter FLFM4



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 |

