Frictional Torque Sensor System FGDH-3A CE

Torque Sensor System measures torque on the drive shaft of a car. Frictional strain gauges are used as sensing elements, and installation is completed by clamping the torque sensor system onto an existing shaft and securing it with a screw. There is no need of detaching the shaft, bonding nor wiring strain gauges for installation. Applicable shaft diameters are ø20 to 30 mm, ø30 to 40 mm, and ø40 to 50 mm. A digital telemetry transmitter is built in the sensor, and measured data are transmitted to an exclusive receiver DT-182R by wireless and output as analog signals. For wireless transmission, 2.4GHz band advanced low power data communication system is used. Power supply uses a USB power cable with recharging capability, so the sensor can be recharged without needing to be removed.
[Patent registered]

Features

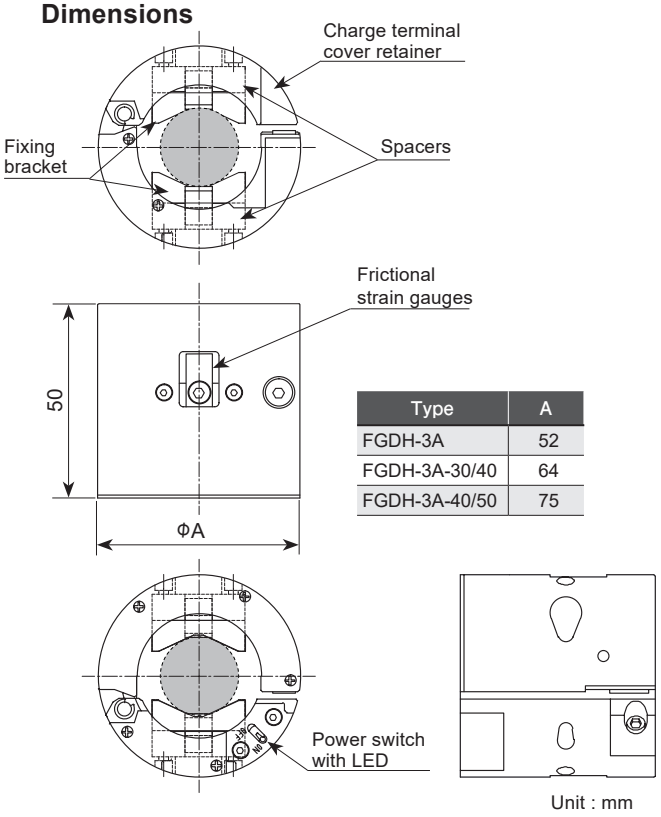
- Easily installed by just clamping-on without detaching the drive shaft
- Three types available for applicable shaft diameter of 20~30, 30~40 and 40~50 mm
- No bonding is required because frictional strain gauges are used
- Globally standardized 2.4GHz band data communication system is used for noise resistant digital transmission
- Battery is rechargeable with the FGDH installed on the shaft
- Power saving function provided

Specifications (Toque transducer)

Type	FGDH-3A	FGDH-3A-30/40	FGDH-3A-40/50
Applicable shaft diameter	Φ20.0 ~ 30.0mm	Φ30.0 ~ 40.0mm	Φ40.0 ~ 50.0mm
Capacity	Depends on the diameter (outer/inner) and material of the shaft		
Output	Depends on the diameter (outer/inner) and mateiral of the shaft However, within ±16000x10^{-6} strain including initial unbalance of ±2000x10^{-6} strain		
Non-linearity	1%RO		
Allowable temperature	−20 ~ +60°C (no dew condensation)		
Sampling frequency	5kHz		
Frequency response	1kHz		
Wireless specifications	Conforms to 2.4GHz band advanced low power data communication system		
Number of wireless channels	16		
Dimensions	Φ52 x 50mm	Φ64 x 50mm	Φ75 x 50mm
Weight (excluding spacer)	Approx. 85g	Approx. 130g	Approx. 160g
Protection rating	Equivalent to IP51		
Continuous operating time	Approx. 6 hours (23±5°C)		
Power source	Lithium-ion secondary battery		
Accessory	USB charger		

NB:
- This system is approved for use in Japan, the EU member countries, the People's Republic of China. Please contact us for other countries.
- This system may not be applicable depending on the material, surface roughness or surface treatment of the shaft. Please contact us beforehand.
- Frictional strain gauges are consumable parts. Applicable type of frictional strain gauge is CBFTC-2-005CT. (option).
- A torque driver is required for the installation of FGDH-3A

Dimensions



Type	A
FGDH-3A	52
FGDH-3A-30/40	64
FGDH-3A-40/50	75

Unit : mm

Specifications (Receiver)

Type	DT-182R
[Wireless part]	
Number of receptions	1
Wireless specifications	Conforms to 2.4GHz band advanced low power data communication system
Number of wireless channels	16 channels (Set by wave channel switch)
Antenna connecting terminal	SMA connector
[Volage output part]	
Number of voltage outputs	1 of either received strain value or transmitter battery voltage (BNC)
Strain measurement	±5V FS (at ±16000x10^{-6} strain input, 5kΩ load)
Transmitter battery voltage measurement	+1.3 ~ +3.9V (5kΩ load)
Voltage output accuracy	±0.5%FS (Entire system)
Stability on zero	±0.55mV/°C (Entire system)
Stability on sensitivity	±0.05% FS/°C (Entire system)
SN ratio	47dB
Calibration output level	±5V
Low-pass filter	100Hz, 500Hz, PASS(1kHz)(−3dB±1dB)
Balancing range	±6000x10^{-6} strain
Balancing accuracy	±5mV
Display/Operation	LED for output level, Low-pass filter selection switch, Calibration output selection switch, Balancing switch
[General Specifications]	
Power source voltage	DC9~16V
Current consumption	80mA Max. (when DC12V is supplied at +23°C ±5°C)
Connector	HOSHIDEN HEC3800 (Compatible plug : Φ5.5x3.3 PIN Φ1mm)
Operating environment	0 ~ +50°C, 85%RH or less (no dew condensation)
External dimensions	48(W) x 23.5(H) x 100(D) mm (except projecting parts)
Weight	Approx. 140g
Standard accessory	BNC coaxial cable (CR-31) DC power cable (CR-062) Receiving antenna (AA2402RSPU) USB charger (FGDHF-52) USB cable (mini-B - A)(CR-6187)

NB:
- Coaxial cable for the extension of receiving antenna is required. C3RSPJ-EXT-1M (1m long), C3RSPJ-EXT-3M (3m long), C3RSPJ-EXT- 5M(5m long)