

FF420 Torque Transducer

Needles Building, Trinity Wharf, East Cowes, Isle of Wight, PO32 6RF

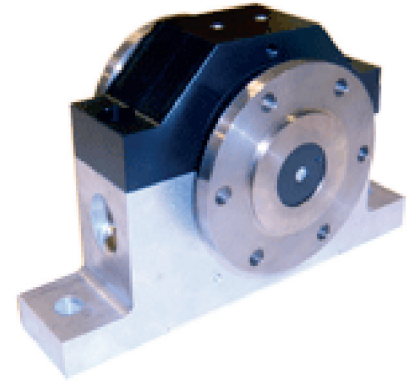
T: +44 (0) 1983 28 28 34 F: +44 (0) 1983 28 28 35 E: web@datum-electronics.co.uk W: datum-electronics.co.uk

FF420 Rotary Torque Transducer

Series FF420 Non-Contact Rotary Torque Transducer

STANDARD RANGE INCLUDES:

- Digital Torque Data (USB)
- Range from 250Nm — 100,000Nm
- DIN Size Flange
- Rotational / Static measurement
- Bi-Directional measurement
- 100 samples per second
- 15-24VDC (power supply) supplied
- Calibration Certificate
- 1 years warranty
- 1 meter transducer cable
- 1 meter USB cable
- User manual



DESCRIPTION

The FF420 Series outputs digital data as opposed to other forms of data transmission which are commercially available. Digital data transmission is clean data which has a low noise and is not affected by interference from external sources. The FF420 Series transmits calibrated digital data direct from the rotor module on shaft reducing possible interference effects interfacing direct into our instrumentation devices giving clean reliable data for the end user.

Flange Torque Transducer matching standard DIN Flanges within test rigs and drive systems.

The FF420 Series transducer is not limited by bearings; therefore it can be used at higher speeds, and places no bearings loads on to the shaft. The stator needs to be mounted in relation to the shaft within an operating envelope of +/- 3 to 5mm. The standard range of housings cater for torque ranges from 250Nm up to 10kNm, the same modular elements have been applied to bespoke transducers for use up to 500kNm.

The FF420 Series is compatible with Datum's full range of torque indicators (Type 300 torque indicator, Type 310TSP portable torque and speed indicator, Type 370 (torque, speed and power indicator) and a range of data-logging software including TorqueLog. TorqueLog software is an easy and convenient way of collecting data. Compatible

with Windows 98 and XP,

TorqueLog software provides a direct readout of Torque, Speed and Power on a PC with additional facilities to read peak torque, log data to Excel and provide data for other applications.

Series FF420 Non-Contact Rotary Torque Transducer

ADDITIONAL OPTIONS AVAILABLE:

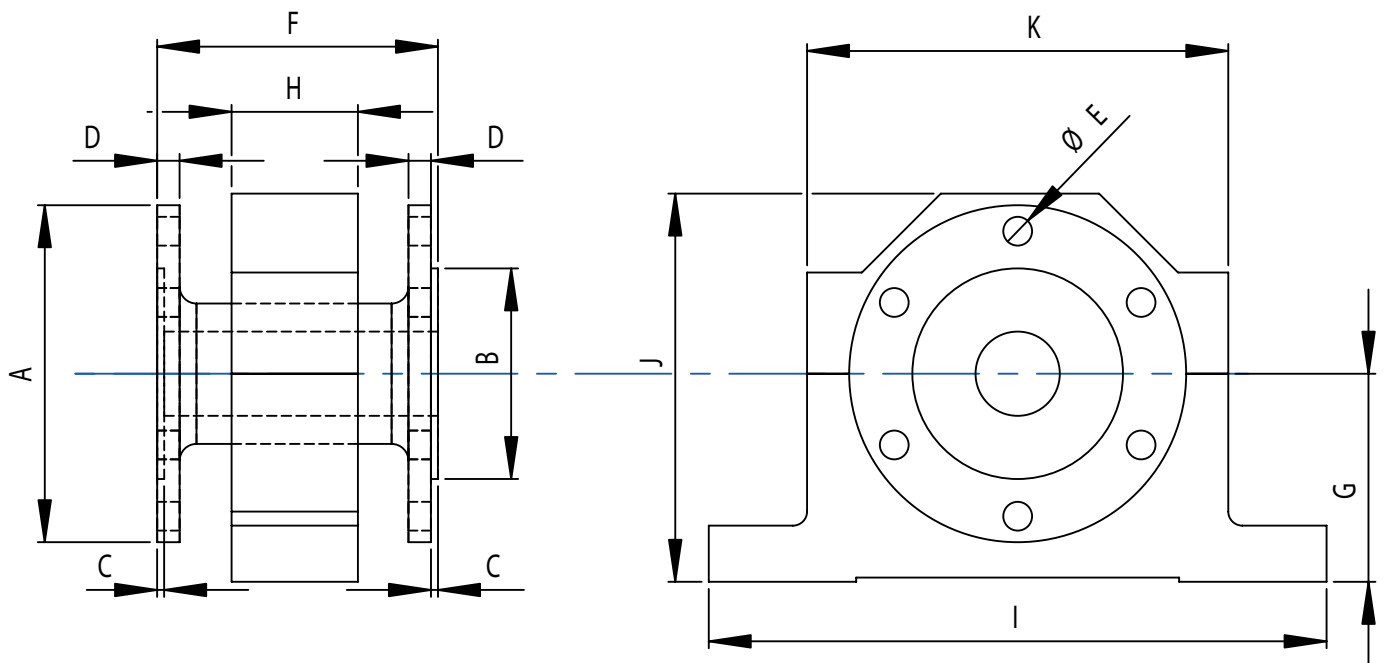
- Additional Options Available
- RS232 Digital Data
- Speed & Power Output
- Analogue Output Options
 - 4-20mA ~ 0-10VDC ~ +/-10VDC
 - 12+/-8mA ~ 0-5VDC ~ +/-5VDC
- RS485 (transmission only)
- Fast sample rates up to 20,000 samples per second
- Additional cable lengths available both USB & Transducer
- Local Display Option

FF420 (BASIC & STANDARD RATINGS)

MODEL	TORQUE RATING	SPEED	COMBINED ERROR	SAMPLING RATE
FF420-S1	250Nm (75 lb/fts)	10,000rpm	0.1%	100sps
FF420-S2	500Nm (370 lb/fts)	10,000rpm	0.1%	100sps
FF420-S3	2,000Nm (1,475 lb/fts)	6,000rpm	0.1%	100sps
FF420-S4	10kNm (7,375 lb/fts)	4,000rpm	0.1%	100sps

FF420 SPECIFICATIONS & DIMENSIONS

TORQUE	A	B	C	D	No. OF HOLES	E (+0.2mm)	E (PCD)	F	G	H
250Nm	100mm	57mm	2.5mm	8.0mm	6	8.25mm	84mm	100mm	80mm	45mm
500Nm	100mm	57mm	2.5mm	8.0mm	6	8.25mm	84mm	100mm	80mm	45mm
700Nm	120mm	75mm	2.5mm	8.0mm	8	10.25mm	101.5mm	100mm	80mm	45mm
1,000Nm	120mm	75mm	2.5mm	8.0mm	8	10.25mm	101.5mm	100mm	80mm	45mm
1,600Nm	120mm	75mm	2.5mm	8.0mm	8	10.25mm	101.5mm	100mm	80mm	45mm
1,900Nm	120mm	75mm	2.5mm	8.0mm	8	10.25mm	101.5mm	110mm	80mm	45mm
2,900Nm	150mm	90mm	3.0mm	10.0mm	8	12.1mm	130mm	120mm	80mm	45mm
4,400Nm	150mm	90mm	3.0mm	10.0mm	8	12.1mm	130mm	130mm	110mm	45mm
5,100Nm	180mm	110mm	3.0mm	12.0mm	8	14.1mm	155.5mm	140mm	110mm	45mm
7,300Nm	180mm	110mm	3.0mm	15.0mm	10	16.1mm	155.5mm	160mm	110mm	45mm
13,000Nm	225mm	140mm	4.4mm	20.0mm	8	16.1mm	196mm	190mm	120mm	45mm
18,000Nm	250mm	140mm	5.5mm	20.0mm	8	18.1mm	218mm	210mm	130mm	45mm
23,000Nm	285mm	175mm	6.0mm	20.0mm	8	20.1mm	245mm	220mm	150mm	45mm
36,000Nm	315mm	175mm	6.0mm	22.0mm	8	22.1mm	280mm	250mm	165mm	45mm
50,000Nm	350mm	220mm	7.0mm	25.0mm	10	22.1mm	310mm	285mm	180mm	45mm
100,000Nm	435mm	280mm	9.0mm	32.0mm	10	22.1mm	385mm	350mm	225mm	45mm



FF420 STATOR BASE DIMENSIONS

TORQUE RATING (MAX)	STATOR TYPE	I (Fixing Base length)	J (Height)	K (Depth)
250Nm - 3,500 (Nm)	A	220mm	134mm	150mm
60,000 (Nm)	B	270mm	205mm*	200mm
100,000 (Nm)	C	320mm	260mm*	250mm

TECHNICAL DATA:

Operating Temperature
0 to + 70C

Storage Temperature
- 40 to + 85C

Temperature Effect on Span
0.001% per C

Temperature Effect on Zero
0.002% per C

Calibration Temperature
22C

Environmental Protection
IP54 (IP65 to order if required)

Cable Length
3 metres (standard) longer if required

Signal Convention
+ ve clockwise / - ve anti-clockwise

Power Supply
15 - 24VDC

Speed Measurement:
Hall-Affect Speed Sensor

THE COMPETITIVE EDGE

The Series FF420 transmits calibrated digital data as this is a cleaner and more defined method of transmitting data. The on-shaft signal from the strain gauge is converted to a digital signal and amplified on shaft. It is this signal that is taken off the shaft and processed by either an indicator or by TorqueLog, providing the end user with clean and definitive data transmission.

ANALOGUE OPTIONS

If an analogue signal is required, our Series 420 torque transducers are able to provide either 4-20mA or 0-10VDC output by converting the digital data signal from the torque transducer to an analogue signal. However, the effect of external or electrical noise can impact upon signal strength and definition in this instance. Other commercial applications may use slip rings or analogue signals to transmit data, but the Datum Electronics series 420 outputs digital as standard.

FF420 SYSTEM CONFIGURATIONS

The FF420 Rotary Torque Transducer has been specifically designed with standard coupling fittings for easy installation with any drivetrain set up. Our basic range of transducer outputs Torque, Speed and Power signals from the transducer as digital data RS232 as standard. However we have a range of system configurations including options for analogue output as either 0-10VDC or 4-20mA. We also have number instrumentation devices which can log, record and display the torque, speed and power signals direct from the FF420 transducer, without the need for any additional processing electronics.

SENSOR APPLICATIONS

Torque measuring devices can and have been used in a number of different environments and applications. Our FF420 series of torque measuring instrumentation is incredibly robust and can be used across a whole genre of industries for very different reasons. If you have the capability to measure and control torque in rotating machinery the opportunity is there to either increase efficiency and therefore save money, or control the equipment so that it increases longevity and can reduce maintenance costs.

Our products have been used in a number of different applications, and every day there are new enquires offering fresh new challenges for our torque measuring devices and other associated products and services. Typical applications include heavy industry, motor sport, marine, power generation, heavy vehicles, agricultural and industrial tools.

SPECIFICATIONS

Accurate On Shaft Torque Measurement
Flexible shaft fittings (Keyway)
Modular System Assembly
Non-contact Signal Transmission
Proven Technology
Low Maintenance
Simple Linear Calibration
Engineered to fit most drive components
Rotary and Static Torque Measurement
Optional Analogue Data Output
Optional Speed / Power Output

Datum Electronics TorqueLog software is an easy and convenient way of collecting data. TorqueLog software provides a direct readout of Torque, Speed and Power on a PC with additional facilities to read peak torque, log data to Excel and provide data for other applications. The enhanced features of this software include:

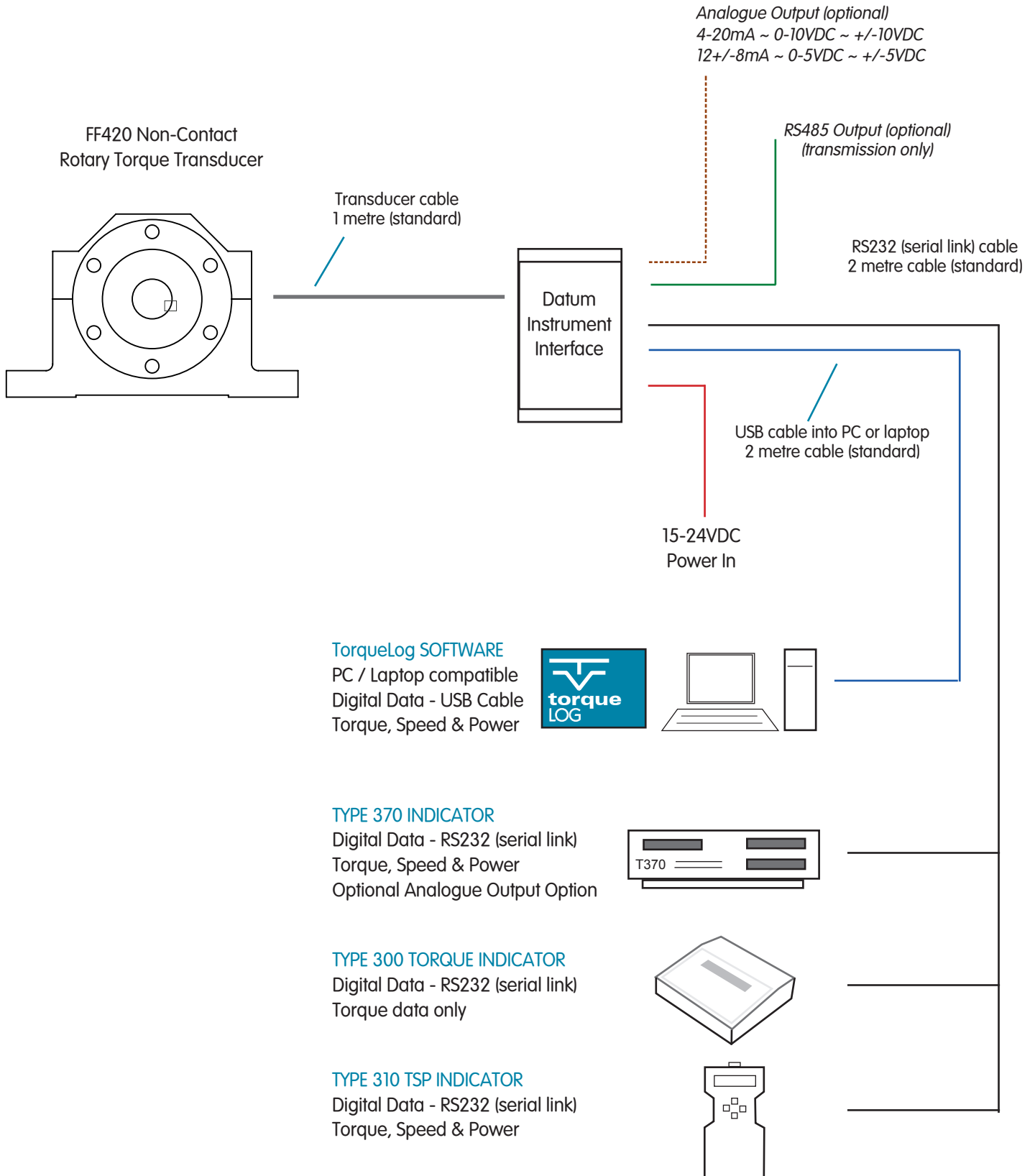
Calibrated Display of Torque in Nm or lb/ft
Display of Speed (rpm)
Display of Power in kW or HP
Peak Torque, Speed and Power Capture Facility
Data logging of Torque (or Torque Speed and Power)

The TorqueLog software is easy to use and easy to install, and provides the user with data access at the touch of a button.



FF420 SYSTEM OUTLINE

The diagram shows connection as a reference only.



The FF420 Non-Contact Rotary Torque Transducer comes complete with transducer cables that interface direct into Datum Transducer Interface Module. The 15-24VDC supply powers the module and provides power on and off the shaft FF420 Torque Transducer. Depending upon the instrumentation options will determine which cable is supplied. If you have requested our Torque logging software TorqueView we will supply a USB cable for interface into a PC or laptop. If the transducer is to be supplied with any other instrumentation options, then a RS232 serial cable will be supplied.

We also have an option from the Transducer Interface Module that can supply an analogue signal, popular options include 4-20mA or 0-10VDC. For analogue applications, data protocols will be provided on the analogue output from the module for interfacing for the end user.