SC METROMAT SRL

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Traductor de torsiune, CheckStar Multi



The CheckStar Multi is the latest generation of Crane Electronics' market leading CheckStar in-line Rotary Torque Transducer. It raises the standard for dynamic Torque and Angle measurement of all Continuous Drive and Impulse Tools, with proven reliable performance in thousands of applications worldwide.

If Angle is specified, the CheckStar Multi Rotary Torque Transducer will include an Angle encoder giving 0.125°resolution (720 PPR). It also incorporates a light ring, giving the user visual feedback of the status of a tightening when used with a Crane Readout or Data Collector.

The CheckStar Multi fits in-line between the assembly Tool and the fastener, measuring the actual Torque applied and angular rotation of the fastener, under production conditions.

Whatever the vibration and shock loads experienced, CheckStar Multi's patented contact system ensures a connection is always maintained between the Readout and the strain gauges. Inferior systems suffer from "brush bounce" that leads to unreliable Torque readings.

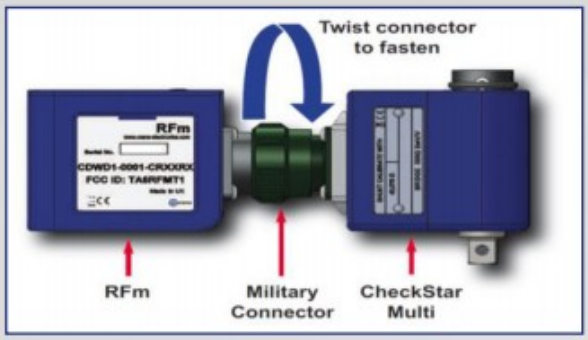
The low inertia design of the CheckStar Multi ensures accurate and repeatable measurement of high speed transients, such as the point of shut-off on Continuous Drive Tools and the pulsing of Impulse Tools.

Using on board intelligence the CheckStar Multi is automatically recognised by a Crane Data Collector or Readout device, eliminating set-up errors and enabling logging of serial number against measurements for complete traceability. The CheckStar Multi can also be used where a user needs the advanced features of the Transducer but already has a Data Collector or Readout device from another manufacturer.

Key Features

- ✓ Rotary Torque Transducer with optional Angle measurement
- ✓ Low inertia benefits accurate dynamic measurement
- ✓ Angle measurement option with no size increase (0.125° resolution)
- ✓ Patented design ensures no brush bounce even when used with Impulse Tools
- ✓ Low friction eliminates wear and supports accuracy
- ✓ Suitable for use with all Continuous Drive Tools, Impulse Tools and Torque Wrenches
- ✓ Compatible with most industry standard Data Collectors & Readouts
- ✓ Automatic Transducer recognition with Crane Data Collectors and Readout devices
- ✓ Easily viewed light ring showing status, when used with Crane Data Collectors and Readout devices
- ✓ Square and Hex drives available



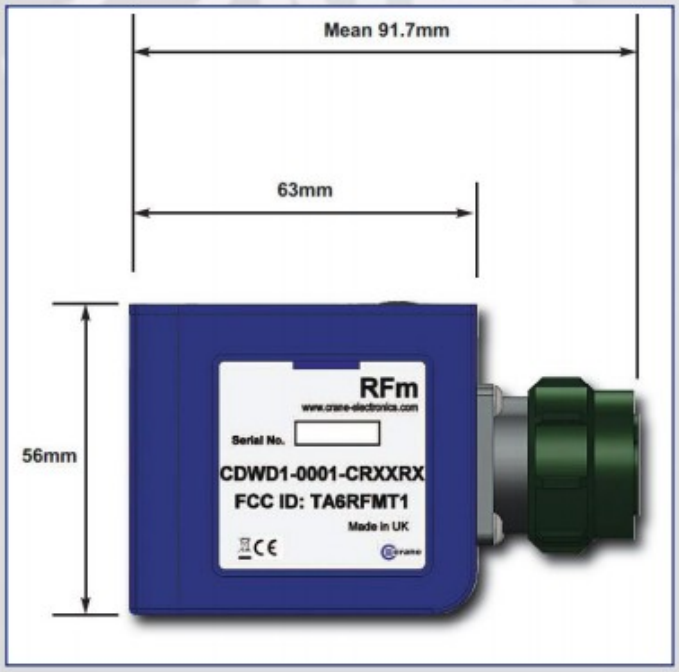


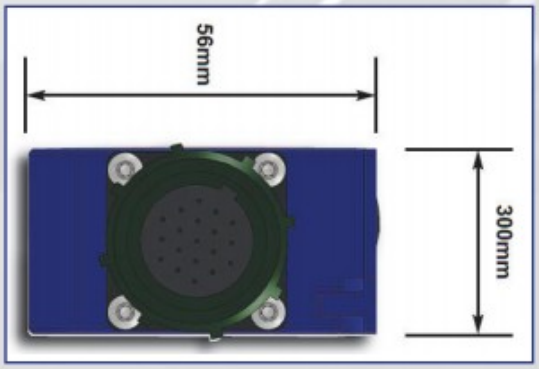
Connecting to the CheckStar Multi

The RFm connects to the CheckStar Multi via a military connector. The outer shell of the RFm military connector is rotated clockwise to fasten and rotated anti-clockwise to unfasten (when viewed from the RFm towards the CheckStar Multi). The outer shell of the military connector has ribs to help grip during rotation. The action is a bayonet type so during use the connection will not come undone.

Main Features and Dimensions of the RFm

Weight 142g







RFm

The RFm allows the CheckStar Multi to become wireless when used in conjunction with an IQVu. Previously a CheckStar Multi would connect via a cable to an IQVu or a TorqueStar Opta. This addition to the IQVu family allows the CheckStar Multi to be situated in areas where long lengths of cable would be a hazard, or impractical. The RFm reads the Torque and Angle values in real time and converts them to digital values. The RFm analyses the digital samples using measurement algorithms to calculate properties of the fastening such as Peak or Click.

The RFm communicates the final fastening readings to an IQVu using RF giving a range of approximately 10m. If the RFm loses its link to the IQVu, then it continues to work offline, storing up to 200 readings. It is very easy to pair (associate the connection) of an RFm with a particular IQVu. The RFm contains its own power source which is a small rechargeable Lithium Ion battery.

Physical Measurement:	Bi-directional Torque and Angle*, and Pulse count. *Angle measurement is available when using a CheckStar Multi with Angle encoder.
Measurement modes:	Peak Capture of highest Torque value during the cycle. Click Capture of click point Torque during click mechanism operation. Pulse Special measurement algorithm for use with Impulse Tool, incorporating Pulse count.
Plug & Play:	The following information is read from the memory incorporated in the CheckStar Multi: Torque Range (span), Angle Encoder PPR, Transducer Serial Number, Calibration due date and Torque @2mV/V.
Types of Transducer:	The RFm only connects with CheckStar Multi.
Reading Storage:	The RFm can store up to 200 readings in off-line mode.
LEDs:	Charge LED used when charging battery internally. Status LED. Note: the RFm also controls the CheckStar Multi light ring during operations.
Torque Measurement:	Resolution to 0.006% of transducer span. Sampled every 20 micro-seconds (50,000) per second.
Zero Stability:	< 0.1% FSD / °C.
Static Accuracy:	+/-0.2% FSD of connected transducer.
Angle Measurement:	Sample every 1000 micro-seconds (1,000) per second. Automatically adapts to PPR of Angle Transducer using quadrature phase measurement.
Frequency Response:	A low pass Bessel Filter is employed for conditioning the transducer signal to 'eliminate noise' from the tool measurement. User selectable from 75Hz to 4608Hz.
Batteries:	Re-chargeable Lithium Ion battery. Capacity 600mAh. 3.7V. Useable battery life of 6 hours with normal usage.
Ports:	19 pin military connector for CheckStar Multi. USB for diagnostics and battery charging.
Communication:	Communicates with an IQVu using 2.400GHz RF.



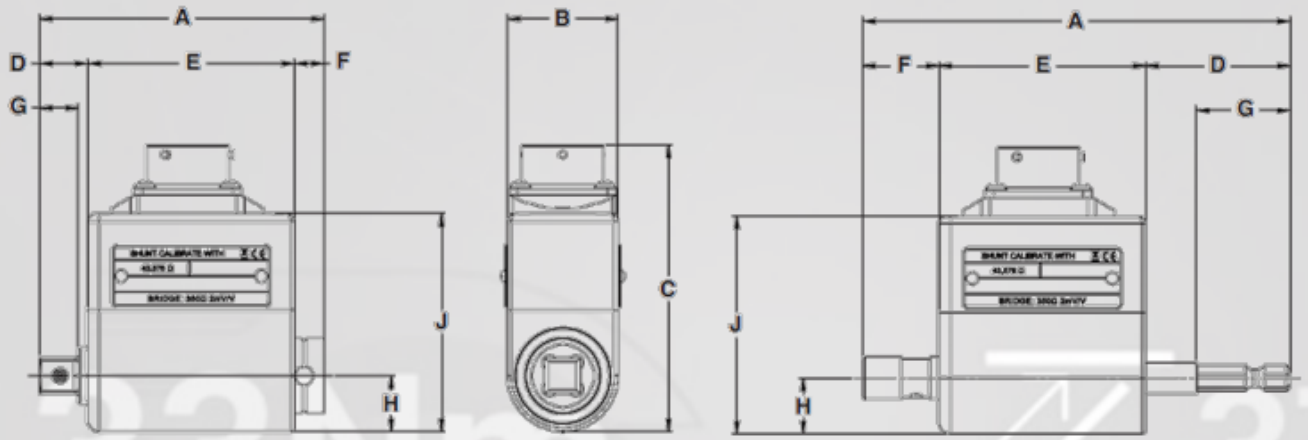
CheckStar Multi - Technical Specification

Special features:	Patented mechanism for reliable measurement of Impulse Tools. Integrated light ring giving visual indication of fastening status.
Tool compatibility:	All Torque Tools, including Impulse Tools (not Impact Tools). Joint kit recommended for off-line measurement of Continuous Drive and Impulse Tools to represent Joint conditions.
Physical measurements:	Bi-directional Torque (clockwise Calibration unless otherwise specified) Optional bi-directional Angle encoder (also enables RPM measurement on suitable indicator).
Automatic transducer:	A Crane Readout or Data Collector can automatically read the following recognition information from the CheckStar Multi Rotary Torque Transducer; Torque range, Angle encoder data, Serial Number, Calibration due date.
Calibration:	Issued with Calibration certificate traceable to National and International Standards.
Standard Crane Calibration:	10 points; single direction (clockwise unless otherwise requested); 10% to 100% of nominal Torque. Recalibration is recommended every 12 months.

If required, the following calibrations are available;

5% Crane Calibration:	11 points; single direction (clockwise unless otherwise requested). 5% to 100% of nominal Torque.
Bi-direction Crane:	10 points; each direction; from 10% to 100% of nominal Torque.
Class 1 Crane Calibration:	± 0.5% of reading for the primary classification range.
UKAS Calibration:	Calibration to BS 7882.
Construction:	Patented slip ring mechanism eliminating signal losses due to brush bounce and enabling low running friction in either direction (<0.1% rated Torque or 0.1Nm, whichever is greater); design is durability tested to >100 million revolutions with no measurable degradation of electrical performance. Aluminium housing. Stainless steel shaft. Overload capacity: 125% rated Torque. Square drives to ANSI B107-4 – 1982; BS4006 – 1992; DIN 3121 – 1987. Male Square drive fitted with detent pin that may be removed if required. Female Square drive supplied with retaining pin (may be removed if required). Female Hex drive fitted with ball and spring retainer.
Connections:	Compatible with BS 9522 - F0017. Cable mounting type 14-19S, Complies with MIL-C-26482.
Zero Stability:	< ± 0.1% FSD/°C.
Static accuracy:	± 0.25% FSD.
Operating environment:	5 to 40°C (-10 to 60°C with reduced specification).
Temperature:	Humidity: 10 to 75% non-condensing. Ingress protection rating: IP40.
Warranty:	2 years' parts and labour against faulty workmanship or materials. The second year of warranty is only valid if the unit has been recalibrated at an authorised Crane Electronics Service Centre after the first year.

Dimensions and Weights



Dimensions in mm										
Drive	A	B	C	D	E	F	G	H	J	Weight (Grams)
1/4" Hex	115.8	30.0	73.0	39.2	56.0	20.6	25.5	13.2	54.5	210
1/4" Sq.	71.5	30.0	73.0	10.3	56.0	5.2	7.3	13.2	54.5	200
3/8" Sq.	77.0	30.0	77.1	12.9	56.0	8.1	10.5	15.0	58.6	240
1/2" Sq.	87.0	42.0	88.0	17.0	58.0	12.0	14.7	21.0	69.5	430
3/4" Sq.	106.0	52.0	98.6	25.3	60.0	20.7	21.4	26.0	80.1	760
1" Sq.	125.0	63.0	110.1	31.8	64.5	28.7	26.0	32.0	91.6	1500
1 1/2" Sq.	181.0	102.0	153.7	43.8	86.5	50.7	39.3	51.0	136.0	5700



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