CheckStar

In line torque transducers with angle measurement option

Key Features

- **Dynamic torque measurement of all continuous drive and impulse tools**
- **Proven reliable performance for impulse tool measurement**
- **Guaranteed no brush bounce**
- **Compact design and no size increase for angle option**
- **Plug and Play with Crane display systems (Auto ID)**

Product Overview

Crane's CheckStar sets the standard for dynamic torque and angle measurement of all continuous drive and impulse tools, with proven reliable performance in thousands of applications worldwide.

CheckStar transducers fit in-line between the assembly tool and the fastener, measuring the actual torques applied and angular rotation of the fastener, under production conditions.

Whatever the vibration and shock loads experienced, CheckStar'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 CheckStar 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.

CheckStar forms an essential part of the Crane UTA torque system, enabling Plug and Play operation with Crane readout devices. On board intelligence means the UTA CheckStar is automatically recognised by the Crane readout device, eliminating set-up errors and enabling logging of serial number against measurements for complete traceability. An Industry Standard (IS) version is also available where a user needs the advanced features of the CheckStar but already has a readout device from another manufacturer. Both versions can be specified to include an angle encoder with 0.5° resolution.

Specifications

Functional Attributes

Special features	Patented mechanism for reliable measurement of impulse tools
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)
Plug & Play transducer data	UTA system indicators read the following information from the UTA chip incorporated in the transducer device: Torque range, angle encoder data, serial number, calibration due date

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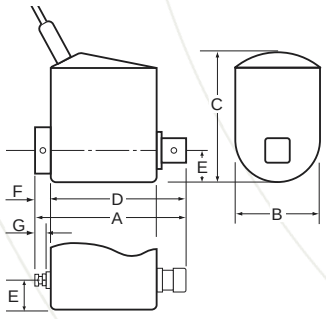
Physical Attributes

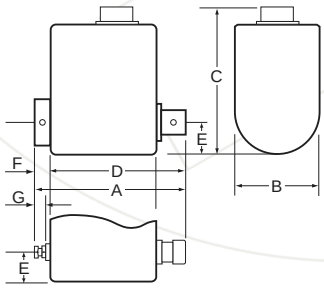
Calibration	Issued with calibration certificate traceable to National and International Standards. **Standard Crane calibration:** 10 points; single direction (clockwise unless otherwise requested); 10% to 100% of nominal torque. **Bi-direction Crane calibration:** (optional) 10 points; each direction; from 10% to 100% of nominal torque. **UKAS calibration:** (optional) calibration to BS 7882 Recalibration is recommended every 12 months
Transducer types	UTA: incorporate data chip enabling plug & play operation with compatible Crane indicators IS: 'Industry Standard' version. Bridge resistance: 350 Ohms. Sensitivity: see table.
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 or wear. Aluminium housing Shaft material: Stainless steel 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 that may be removed if required. Female hex drive fitted with ball and spring retainer.
Connections UTA	UTA version: 1m integral curly cable with strain relief; 25-pin 'D' port (male) for connection to CEL system readouts IS version: output connector to MIL-C 26482 / BS 9522 FOO 17. Torque only: shell size 8-4P. Torque and angle: Shell size 12-10P
Zero stability	< ± 0.1% FSD/°C
Static accuracy	± 0.25% FSD
Operating environment	Temperature: 5 – 40°C (-10 – 60°C with reduced specification) Humidity: 10 – 75% non-condensing Ingress Protection rating: IP40
Warranty	12 months parts and labour against faulty workmanship or materials
Patents applicable	Slip-ring design protected by international patents

Dimensions and Weights – UTA CheckStar



Dimensions in mm								
Drive	A	B	C	D	E	F	Weight (grams)	
¼" Hex	116	30	56	56	13	39	25.5	486
¼" Sq.	71.5	30	56	56	13	6	–	497
⅜" Sq.	77	30	59.5	56	15	8	–	550
½" Sq.	87	42	70	58	21	12	–	725
¾" Sq.	106	52	81	60	26	21	–	1050
1" Sq.	125	63	91.5	64.5	31.5	29	–	1800

Dimensions and Weights – IS CheckStar



Dimensions in mm								
Drive	A	B	C	D	E	F	Weight (grams)	
¼" Hex	116	30	68	56	13	39	25.5	207
¼" Sq.	71.5	30	71.5	56	13	6	–	196
⅜" Sq.	77	30	74	56	15	8	–	235
½" Sq.	87	42	82.5	58	21	12	–	425
¾" Sq.	106	52	93.5	60	26	21	–	755
1" Sq.	125	63	104	64.5	31.5	29	–	1500

Shipping list	CheckStar unit Integral cable (UTA versions only)

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Order Codes

Order Code	Drive encoder	Nominal Torque Nm	Nominal Torque Imperial (ftlbf)	Angle	Max RPM Continuous	Max RPM Intermittent	Max RPM Angle*
UTA CheckStar							
UTA-449-0002-0	1/4" Hex	2	17 inlbf		5000	11,000	–
UTA-449-0002-A	1/4" Hex	2 17 inlbf	✓	5000	11,000	2500	
UTA-449-0005-0	1/4" Hex	5 44 inlbf		5000	11,000	–	
UTA-449-0005-A	1/4" Hex	5	44 inlbf	✓	5000	11,000	2500
UTA-450-0010-0	1/4" Hex	10	7.4		5000	11,000	–
UTA-450-0010-A	1/4" Hex	10	7.4	✓	5000	11,000	2500
UTA-450-0020-0	1/4" Hex	20	15		5000	11,000	–
UTA-450-0020-A	1/4" Hex	20	15	✓	5000	11,000	2500
UT-451-02CR-5-A	1/4" Sq	5	44 inlbf	✓	5000	11,000	2500
UTA-451-0010-0P	1/4" Sq	10	7.4		5000	11,000	–
UTA-451-0010-AP	1/4" Sq	10	7.4	✓	5000	11,000	2500
UTA-451-0020-0P	1/4" Sq	20	15		5000	11,000	–
UTA-451-0020-AP	1/4" Sq	20	15	✓	5000	11,000	2500
UTA-452-0025-0P	3/8" Sq	25	18		2500	10,000	–
UTA-452-0025-AP	3/8" Sq	25	18	✓	2500	10,000	2500
UTA-452-0050-0P	3/8" Sq	50	37		2500	10,000	–
UTA-452-0050-AP	3/8" Sq	50	37	✓	2500	10,000	2500
UTA-452-0075-0P	3/8" Sq	75	55		2500	10,000	–
UTA-452-0075-AP	3/8" Sq	75	55	✓	2500	10,000	2500
UTA-677-0-75-0-0P	1/2" Sq	75	55		2500	7,600	–
UTA-453-0180-0P	1/2" Sq	180	133		2500	7,600	–
UTA-453-0180-AP	1/2" Sq	180	133	✓	2500	7,600	2500
UTA-454-0250-0P	3/4" Sq	250	184		2000	5,000	–
UTA-454-0250-AP	3/4" Sq	250	184	✓	2000	5,000	2000
UTA-454-0500-0P	3/4" Sq	500	370		2000	5,000	–
UTA-454-0500-AP	3/4" Sq	500	370	✓	2000	5,000	2000
UTA-455-0750-0P	1" Sq	750	553		1000	4,400	–
UTA-455-0750-AP	1" Sq	750	553	✓	1000	4,400	1000
UTA-455-1400-0P	1" Sq	1400	1033		1000	4,400	–
UTA-455-1400-AP	1" Sq	1400	1033	✓	1000	4,400	1000
UTA-477-3000-0P	1 1/2" Sq	3000	2213		1000	4,400	–
UTA-477-3000-AP	1 1/2" Sq	3000	2213	✓	1000	4,400	500
UTA-478-5000-0P	2 1/2" Sq	5000	3690		500	1,500	–
IS CheckStar – 1.475 mV/V Sensitivity							
IS-451-0-20-0-14P	1/4" Sq	20	15		5000	11,000	–
IS-452-0-75-0-14P	3/8" Sq	75	55		2500	10,000	–
IS-453-0-180-0-14P	1/2" Sq	180	133		2500	7,600	–
IS-453-A-180-0-14P	1/2" Sq	180	133	✓	2500	7,600	2500
IS CheckStar – 2 mV/V Sensitivity							
IS-448-0002-0	1/4" Hex	2	17 inlbf		5,000	11,000	–
IS-448-0002-A	1/4" Hex	2	17 inlbf	✓	5,000	11,000	2,500
IS-449-0005-0	1/4" Hex	5	44 inlbf		5,000	11,000	–
IS-449-0005-A	1/4" Hex	5	44 inlbf	✓	5,000	11,000	2,500
IS-450-0020-0	1/4" Hex	20	15		5,000	11,000	–
IS-450-0020-A	1/4" Hex	20	15	✓	5,000	11,000	2,500
IS-451-0020-0P	1/4" Sq	20	15		5,000	11,000	–

* *Max RPM for angle measurement*

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Order Code	Drive encoder	Nominal Torque Nm	Nominal Torque Imperial (ftlbf)	Angle	Max RPM Continuous	Max RPM Intermittent	Max RPM Angle*
IS-451-0020-AP	1/4" Sq	20	15	✓	5,000	11,000	2,500
IS-456-0025-0P	3/8" Sq	25	18		2,500	10,000	–
IS-456-01CR-25-AP	3/8" Sq	25	18	✓	2,500	10,000	2,500
IS-452-0075-0P	3/8" Sq	75	55		2,500	10,000	–
IS-452-0075-AP	3/8" Sq	75	55	✓	2,500	10,000	2,500
IS-453-0180-0P	1/2" Sq	180	133		2,500	7,600	–
IS-453-0180-AP	1/2" Sq	180	133	✓	2,500	7,600	2,500
IS-687-0-250-0-0	3/4" Sq	250	184		2,000	5,000	–
IS-454-0500-0P	3/4" Sq	500	370		2,000	5,000	–
IS-454-0500-AP	3/4" Sq	500	370	✓	2,000	5,000	2,000
IS-455-1400-0P	1" Sq	1400	1033		1,000	4,400	–
IS-455-1400-AP	1" Sq	1400	1033	✓	1,000	4,400	1,000

* *Max RPM for angle measurement*

Accessories List

Item	Description	Order code
IS CheckStar to CEL indicator cable	Connect IS transducer to TorqueStar *Opta* or DataMaster	700-1500
IS CheckStar to CEL indicator curly cable	Connect IS transducer to TorqueStar *Opta* or DataMaster	CBL-760-0-0-0-0
IS CheckStar with angle to CEL indicator curly cable	Connect IS transducer with angle to TorqueStar *Opta* or DataMaster	CBL-788-01CR-0-0

UTA CheckStar has integral cable for Plug & Play connection to CEL indicators
Various other cables available for connecting IS transducers to 3rd party indicators – see separate cables datasheet for information.

System Components

CheckStar rotary torque transducers may be used in conjunction with the following items:

Item	Description
TorqueStar Opta	In-line and off-line dynamic torque measurement and joint analysis
DataMaster	In-line and off-line dynamic torque measurement and joint analysis
DataMaster and ForceStar force washers	Torque/clamp load correlation studies and joint analysis
Table top joint kits	Mechanical device to represent production joint rate conditions off-line

Notes

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Calibration service

Crane Electronics Ltd operates a calibration laboratory accredited by UKAS, the UK Accreditation Service. All Crane products are issued with a calibration certificate traceable to National and International Standards. It is recommended that torque instrumentation is recalibrated at least every 12 months.

Crane Electronics Ltd operates a policy of continuous product development and improvement, and so technical specifications may change without notice. Please clarify with Crane or your distributor that you are referring to the latest technical data sheet.

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The force in torque management

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