

MCRT® 28550T & 28551T Non-Contact mV/V TORQUEMETERS

With Spline Drive per AND 10262 & AND 20002

See Bulletin 7403 for DC Operated Torquemeter Version of These Products



- ✓ Hardened to EMI From Adjustable Speed Drives
- ✓ Ferrite-free Rotary Transformer Coupling
- ✓ NIST Traceable Dead Weight Calibration
- ✓ 2X Overload Rating
- ✓ Corrosion Resistant Construction

Use Model 701 or 721 to display either torque only or torque, speed and horsepower, respectively. See Bulletins 370 & 371.

Description

When installed between a driver and load, MCRT® 28550T/28551T sensors *measure static and dynamic shaft torque and speed* (an option). A strain gaged, 15-5 PH stainless shaft senses torque and cancels bending and thrust. *Robust, ferrite-free rotary transformers* connect torque sensing gages to an external, noise immune, carrier amplifier. Rotary transformers don't generate noise or wear, and are immune to vibration, lubricants and other hostile environments. Unlike ferrite transformers, Himmelstein ferrite-free units aren't susceptible to cracking and impact induced damage.

These torquemeters mate with and support test components meeting the specified spline standards; see overleaf. Their overload rating is two times the full scale range. Standard models operate from stall to $\pm 15,000$ rpm; higher speed versions can be supplied on special order – if higher speeds are needed, please consult the factory. Both standard and zero velocity speed pickups are optional. All versions incorporate advanced, noise reduction technology that *hardens these sensors to EMI generated by IGBT-based adjustable speed drives (ASD's)*.

MCRT® Model	Torque Range (lbf-in)	Torque Overload (lbf-in)	Max Speed (rpm)	Stiffness ¹ (lbf-in/radian)	Inertia ¹ (ozf-in sec ²)	Max. Wt. (lbs)
28550T(5-1)	50	100	0 to $\pm 15,000$	5,570	0.15	13
28550T(1-2)	100	200	0 to $\pm 15,000$	15,000	0.15	13
28550T(2-2)	200	400	0 to $\pm 15,000$	54,500	0.15	13
28550T(5-2)	500	1,000	0 to $\pm 15,000$	94,500	0.15	13
28550T(1-3)	1,000	2,000	0 to $\pm 15,000$	145,000	0.15	13
28551T(1-3)	1,000	2,000	0 to $\pm 10,000$	247,000	0.16	14
28551T(2-3)	2,000	4,000	0 to $\pm 10,000$	428,000	0.16	14
28551T(5-3)	5,000	10,000	0 to $\pm 10,000$	486,000	0.16	14
28551T(1-4)	10,000	20,000	0 to $\pm 10,000$	613,000	0.17	14

1. Both stiffness and inertia are conservatively rated from shaft end-to-end.

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General Specifications

Nonlinearity¹ (% of Rating): = $\leq \pm 0.10$
Hysteresis (% of Rating): = $\leq \pm 0.10$
Nonrepeatability (% of Rating): = $\leq \pm 0.05$
Accuracy² (combined nonlinearity, hysteresis and non-repeatability, % of Rating): = $\leq \pm 0.1$
Rotational Effect on Zero (% of Rating): = $\leq \pm 0.05$
Temperature Effects:
 Zero (% of Rating/degree F.): = $\leq \pm 0.002$
 Span (% of Reading/degree F.): = $\leq \pm 0.002$
 Compensated Range: + 75 to + 175 deg F.
 Minimum Usable Range: -25 to + 185 deg F.
 Storage Range: -65 to + 225 deg F.

Calibration Accuracy² (% of Rating @ 75 degrees F.) = $\leq \pm 0.05$
Output (nominal) 1.5 mV/V
Zero Balance (% of Rating): = $\leq \pm 1\%$
Excitation Voltage: 3 – 6 volts rms, 3 kHz $\pm 10\%$, sine wave capable of driving a 90 ohm bridge.
Readout: A strain gage carrier amplifier with the stated excitation. Use Himmelstein Series 700 and 66000 Instruments or, Models 6-201, 6-202, 61201, or AC11, AC21 and AC23 for optimum performance.
Optional Speed Pickups: Two types produce 60 pulses/revolution. Option A is the Standard Type and Option Z is the Zero Velocity Type. If speed is ≤ 100 rpm and/or if high electrical noise is present, use Option Z

Notes

- Based on end point method.
- When ordered with amplifier and cable, the system is dead weight calibrated traceable to NIST. Torquemeters only are dead weight calibrated with a factory cable and amplifier. Calibration transfer is guaranteed only when used with a Himmelstein amplifier and cable with like part numbers.
- Speed ratings are for continuous, bi-directional operation.
- These torquemeters operate in a condensing atmosphere, and if wetted with non-corrosive fluids and mud. When used under contaminated conditions, clean regularly or cover to deflect contaminants. They are not submersible.
- Specifications are subject to change without notice.

Order Number 	MCRT® 28550T	(1-2)	NN	Z
	Model Number	Range	Required Double NN Designator	Speed Pickup: use A for Standard, use Z for Zero Velocity, use N for None.
An MCRT® 28550T(1-2)NNZ is a 100 lbf-in version with a Zero Velocity speed pickup				

Dimensional Data

Model Number	Torque Range	Maximum Overhung Moment (WxD)	Spline Data	Dimension L (inch)
MCRT® 28550T	All	2,000 lb-in	16 teeth, 20/30 D.P.	8 19/32
MCRT® 28551T	All	2,000 lb-in	24 teeth, 20/30 D.P.	9 3/32

