

MCRT[®] 48550V & 48551V Non-Contact DC OPERATED TORQUEMETERS

With Spline Drive per AND 10262 & AND 20002

CE



- ✓ Hardened to EMI From Adjustable Speed Drives
- ✓ Dual ± 5 Volt Outputs
- ✓ Single Supply Operation
- ✓ Corrosion Resistant
- ✓ Ferrite-free Rotary Transformer
- ✓ Remote, NIST Traceable Cal*

Interface Directly To PC and PLC Controllers and Data Acquisition Systems

*NIST traceable calibration performed in our accredited laboratory (NVLAP Lab Code 200487-0). For details visit www.himmelstein.com or follow the accreditation link at www.nist.gov

Description

When installed between a driver and load, MCRT[®] 48550V/48551V 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 *integral, 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 torque meters mate with and support test components meeting the specified spline standards; see overleaf. Their overload torque rating is twice 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 (lb-in)	Torque Overload (lb-in)	Max Speed (rpm)	Stiffness ¹ (lb-in/radian)	Inertia ¹ (oz-in sec ²)	Max. Wt. (lbs.)
48550V(5-1)	50	100	0 to $\pm 15,000$	5,570	0.15	13
48550V(1-2)	100	200	0 to $\pm 15,000$	15,000	0.15	13
48550V(2-2)	200	400	0 to $\pm 15,000$	54,500	0.15	13
48550V(5-2)	500	1,000	0 to $\pm 15,000$	94,500	0.15	13
48550V(1-3)	1,000	2,000	0 to $\pm 15,000$	145,000	0.15	13
48551V(1-3)	1,000	2,000	0 to $\pm 10,000$	247,000	0.16	14
48551V(2-3)	2,000	4,000	0 to $\pm 10,000$	428,000	0.16	14
48551V(5-3)	5,000	10,000	0 to $\pm 10,000$	486,000	0.16	14
48551V(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): = < ±0.15
Hysteresis (% of Rating): = < ±0.15
Nonrepeatability (% of Rating): = < ±0.07
Accuracy (combined nonlinearity, hysteresis and non-repeatability, % of Rating): = < ±0.2
Rotational Effect on Zero (% of Rating): = < ±0.10
Temperature Effects:
 Zero (% of Rating/degree F.): = < ±0.003
 Span (% of Reading/degree F.): = < ±0.003
 Compensated Range: +75 to +175 deg. F.
 Minimum Usable Range: -25 to +185 deg. F.
 Storage Range: -65 to +225 deg. F.

Remote Calibration Accuracy (% of Rating @ 75 deg. F.): ... = < ±0.10

Outputs: Fully bidirectional, dual outputs, as follows

Clockwise (CW) Torque: +5 Volts
 Counterclockwise (CCW) Torque: -5 Volts
 Minimum Resistive Load: 10kΩ
 Maximum Capacitive Load: 0.05uF
 Nominal Overrange: ±33% of Rating
 Bandwidth: High Frequency Output \approx dc to 500 Hz.
 Low Frequency Output \approx dc to 1 Hz.

Zero Balance (% of Rating): = < ±1%

Input Power: 10.5 to 24 Volts dc @ 90 mA, nominal.

Power Supply Effect: < 0.01% of Full Scale per Volt.

Optional Speed Pickups³: Two types produce 60 pulses/revolution.
 Option A is the Standard Type and Option Z is the Zero Velocity Type.

Notes

- Based on end point method.
- Electrical outputs remain linear to the overrange level. A torquemeter won't yield below its rated overload torque. Reserve the region between rated and overload torques for unexpected loads; see Bulletin 705.
- If speed is ≤ 100 rpm and/or if high electrical noise is present, use Option Z. 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 \approx	MCRT[®] 48550V	(1-2)	NN	Z
	<i>Model Number</i>	<i>Range</i>	<i>Required Double NN Designator</i>	<i>Speed Pickup: use A for Standard, use Z for Zero Velocity, use N for None.</i>
An MCRT [®] 48550V(1-2)NNZ is a 100 lb-in version with a Zero Velocity speed pickup.				

Dimensional Data

Model Number	Torque Range	Maximum Overhung Moment (WxD)	Spline Data	Dimension L (inch)
MCRT [®] 48550V	All	2,000 lb-in	16 teeth, 20/30 D.P.	8 17/32
MCRT [®] 48551V	All	2,000 lb-in	24 teeth, 20/30 D.P.	9 3/32

