

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 won't crack from centrifugal stresses or impact loading.

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 (lbf-in)	Torque Overload (lbf-in)	Max Speed (rpm)	Stiffness ¹ (lbf-in/radian)	Inertia ¹ (ozf-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

Combined Nonlinearity & Hysteresis¹ (% of Rating): = < ±0.1
Nonrepeatability (% of Rating): = < ±0.02
Accuracy (combined nonlinearity, hysteresis and non-repeatability, % of Rating): = < ±0.1
Rotational Effect on Zero (% of Rating): = < ±0.05
Overrange (% of Rating, nominal): 130
Temperature Effects:
 Zero (% of Rating/degree F.): = < ±0.002
 Span (% of Reading/degree F.): = < ±0.002
 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.): = < ±0.05
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
 Bandwidth: High Frequency Output \approx dc to 500 Hz.
 Low Frequency Output \approx dc to 1 Hz.
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

1. Best Fit Line Basis - see Technical Memo 230104.
2. 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.
3. If speed is ≤100 rpm and/or if high electrical noise is present, use Option Z. Speed ratings are for continuous, bi-directional operation.
4. 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.
5. Specifications are subject to change without notice.

Order Number 	MCRT [®] 48550V	(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 [®] 48550V(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 [®] 48550V	All	2,000 lbf-in	16 teeth, 20/30 D.P.	8 19/32
MCRT [®] 48551V	All	2,000 lbf-in	24 teeth, 20/30 D.P.	9 3/32

