



# MCRT<sup>®</sup> 48300V ENHANCED, NON-CONTACT, TORQUE SENSOR OUTPUTS ANALOG AND DIGITAL TORQUE DATA

**Torque Ranges: 25 to 10,000 lbf-in (2.83 to 1,130 N-m)**  
**Speed Range: 0 to ±10,000 rpm**

±10 Volt or ±5 Volt Analog Output with 0.02% Resolution and Low Noise & Ripple

Digital Engineering Unit Torque Output

No Pots, Switches or Manual Adjustments

11 Selectable Signal Filters

Strain Gage Sensing in a Robust, Compact Assembly

High Strength Alloy Steel Shaft with 200% Torque Overload

Accredited, NIST Traceable\* Bidirectional Calibration

Noise Tolerant - Compatible with IGBT-based Adjustable Speed Drives

Optional Speed Pickup with Pulse Train Speed Output



To power and display Torque only, use a Model 703+. To power and display Torque, Speed and HP, use a Model 723+. See Bulletins 372 & 374.

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

Performance Specifications		Code N Performance	Code C Performance
<b>Accuracy</b> (combined nonlinearity, hysteresis and non-return to zero (% of Range))		≤ ±0.2	≤ ±0.1
<b>Remote Calibration Accuracy*</b> (% of Range @ 75 °F/23.9 °C, traceable to NIST)		≤ ±0.1	≤ ±0.1
<b>Temperature Effects</b>	Zero Drift (% of Range/°F)/(%) of Range/°C)	≤ ±0.004/≤ ±0.007	≤ ±0.0017/≤ ±0.003
	Span Drift (% of Reading/°F)/(%) of Reading/°C)	≤ ±0.004/≤ ±0.007	≤ ±0.0017/≤ ±0.003
	Compensated Range (°F)/(°C)	+75 to +150/+23.9 to +66	
	Usable Range (°F)/(°C)	+32 to +175/0 to +79.4	
<b>Analog Output</b> (Resolution: 0.02% on ±10V & 0.04% on ±5V output) (Source Impedance: < 1Ω)	CW/CCW Output at Full Scale	+10V/-10V or +5V/-5V, user selectable. Default is +10V/-10V.	
	Bandwidth (has Bessel Response Signal Filters)	DC to 0.1Hz thru 200Hz in eleven 1-2-5 steps, user selectable.	
	Noise and Ripple (rms, % of Range)	0.1	
	Overrange (% of Full Range, nominal)	30	
	Maximum Allowable Resistive and Capacitive Loads	10kΩ Minimum and 0.05uF Maximum	
<b>RS232C Port</b> (115.2 kBaud)	Outputs Torque in Engineering Units. Inputs units of measure selection, scaling, signal filter selection, zero, span, cal data and commands.		
<b>Repeatability</b> (% of Range)		≤ ±0.04	≤ ±0.02
<b>Supply Voltage</b>	10 to 15 VDC @ 200 mA, nominal. Has reverse polarity and 25 Volt overvoltage protection.		
<b>Available Options</b>	Enhanced Performance - Code C, Code N is standard performance. 60 PPR Speed Pickup Options: Code Z is Zero Velocity type, Code N denotes no pickup. <b>The Code Z pickup is optimized for low speeds and/or operation in electrically noisy environments.</b>		

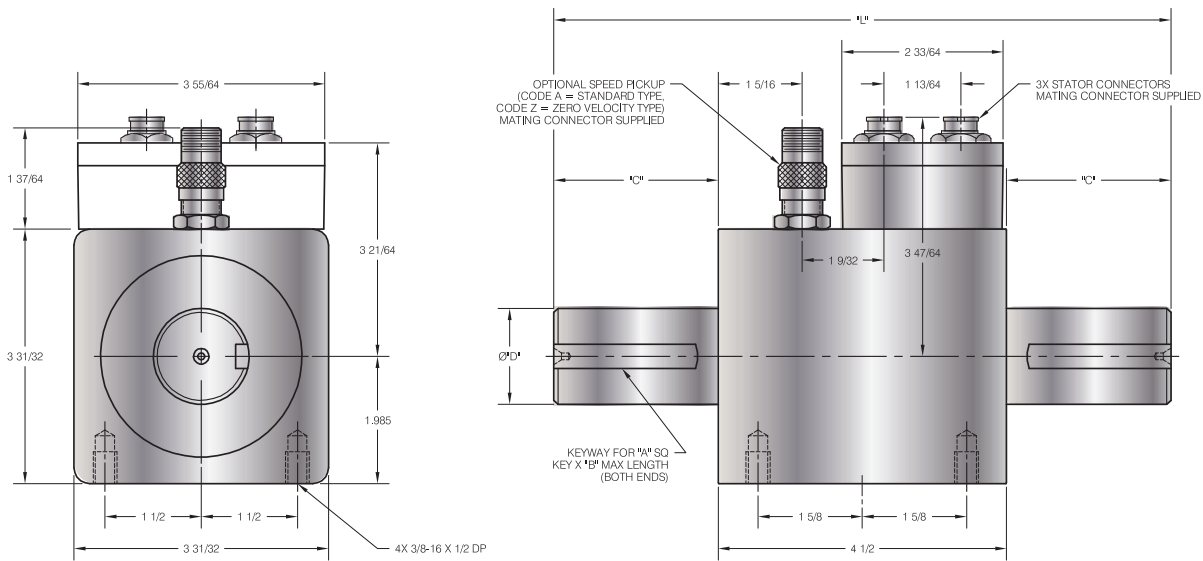
MCRT® 48300V Torquemeters have high accuracy, low noise, high overload capacity, high overrange, inherent noise tolerance and a wide temperature range. State-of-the-art strain gage sensing and non-contact signal transfer suit them for control, laboratory and production use. Two grades are made; Code N *standard performance* and Code C *enhanced performance*. They can be floated or foot mounted with the integral mounting base. Do Cal Checks and Auto-Zero using control lines or from your computer.

*Included software* interfaces with Windows-based PCs. Use it to: display torque, re-scale, run a Cal Check, Auto-Zero, select from 10 units of measure without recalibration, select from 11 signal filters, invoke password protection. Your PC and included software will display engineering unit current, peak, valley and spread data, will classify limits, and do real time plotting. It also saves data to disk and stores your test setup parameters. If you re-calibrate, the original calibration is archived. A sensor to PC cable is provided.

MCRT® MODEL	TORQUE RANGE		TORQUE OVERLOAD		SPEED RATING* (RPM)		SHAFT STIFFNESS**	ROTATING INERTIA	MAX WT.
	[lbf-in]	[Nm]	[lbf-in]	[Nm]	Code N	Code C	[lbf-in/rad]	[ozf-in s <sup>2</sup> ]	[lbs]
48301V(25-0)	25	2.82	50	5.65	0 to ±8,000	0 to ±15,000	1,800	0.031	10
48301V(5-1)	50	5.65	100	11.3	0 to ±8,000	0 to ±15,000	5,000	0.031	10
48301V(1-2)	100	11.3	200	22.6	0 to ±8,000	0 to ±15,000	12,000	0.031	10
48301V(2-2)	200	22.6	400	45.2	0 to ±8,000	0 to ±15,000	26,000	0.031	10
48302V(5-2)	500	56.5	1,000	113	0 to ±7,000	0 to ±12,000	66,000	0.032	10
48302V(1-3)	1,000	113	2,000	226	0 to ±7,000	0 to ±12,000	85,000	0.032	10
48303V(2-3)	2,000	226	4,000	452	0 to ±6,500	0 to ±8,500	288,000	0.080	10
48304V(5-3)	5,000	565	10,000	1,130	0 to ±6,000	0 to ±8,500	545,000	0.100	11
48304V(1-4)	10,000	1,130	20,000	2,260	0 to ±6,000	0 to ±8,500	684,000	0.100	12

\* Ratings are for continuous operation without external lubrication.

\*\*Stiffness is conservatively rated and includes the torsion section and shaft ends.



MCRT® MODEL	DIMENSIONS [inches]					4 PIN TORQUE CONNECTOR		SPEED PICKUP CONNECTOR				
	A	B	C	D	L	1	2	CODE A PICKUP		CODE Z PICKUP		
48301V	0.187	1.000	1.500	0.625 +0.0000/-0.0005	7.500	1	Analog Output	A	Signal	A	+ Power In (5 to 15Vdc)	
48302V	0.187	1.000	1.500	0.750 +0.0000/-0.0005	7.500	2	Analog Ground	B	Signal	B	Output Signal	
48303V	0.250	1.063	1.563	1.000 +0.0000/-0.0005	7.625	3	CW Cal Check (short 3 to 2)	C		C	Common	
48304V	0.375	1.625	2.563	1.500 +0.0000/-0.0005	9.625	4	CCW Cal Check (short 4 to 2)	2 PIN POWER CONNECTOR				
							Auto-Zero (short 3 & 4 to 2 for 5 seconds)					1
SUPPORTED UNITS OF MEASURE (default = lbf-in)						3 PIN RS232C CONNECTOR		Order #	MCRT 48302V (5-2)	Range	Performance	Speed Pickup
						1	TXD					
						2	Ground	Model No.				
lbf-in, lbf-ft, ozf-in, ozf-ft, Nm, kNm, Ncm, kgf-m, kgf-cm, gf-cm						3	RXD					

**S. Himmelstein and Company**

Designing and Making the World's Best Torque Instruments since 1960

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