Bulletin #700K

DESIGNING AND MAKING THE WORLD'S BEST TORQUE INSTRUMENTS SINCE 1960

- 0.625 to 22,000,000 lbf-in (0.071 Nm to 2,500 kNm)
- 0.01% Accuracy, Accredited* Bi-directional Calibration
- Industries Highest Overload and Overrange Ratings
- Best Noise Immunity and Temperature Compensation

S.HIMMELSTEIN
& COMPANY
2490 Pembroke Avenue, Hoffman Estates, IL 60169 • 847-843-3300

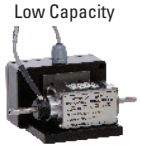
www.himmelstein.com

MADE IN THE U.S.A. WITH PRIDE

Himmelstein Precision Torquemeters

Non-Contact Rotating and Reaction Types

Digital

Digital Rotating Torque Sensors	Compact	Ultra-Precision Digital				
	2X Overload	Low Capacity	2X Overload	4X Overload	10X Overload	Dual Range
						
MCRT ® Series	**48200V**	**48600V**	**48800V**	**49800V**	**59800V**	**79800V**
Range (lbf-in)	25 to 10,000	0.625 to 12.5	25 to 375,000	50 to 190,000	40 to 75,000	40 to 375,000
Range (N-m)	2.83 to 1,130	0.07 to 1.4	2.82 to 42,400	5.65 to 21,500	4.52 to 8,480	4.52 to 42,400
Mechanical Overload [1]	200%	200%, 400%, 500% & 1,000%	200%	400%	1,000%	200%, 1,000%
Overrange	130%	150%	150%	150% to 300%	150%	150%
Speed (rpm) [2, 12]	0 to 15,000	0 to 25,000	0 to 15,000	0 to 15,000	0 to 15,000	0 to 15,000
Error (%) [3]	0.2 & 0.15	0.10 & 0.05	0.04 & 0.02	0.04 & 0.02	0.03	0.03 & 0.05
Noise Hardening [4]	Standard					
Torque Output	±5 or ±10 Vdc & RS232	±5 or ±10 Vdc, & RS232/422/485				
Speed Output	60 ppr					
Power Output	N/A					
Filter Selections	11 from 0.1 to 200 Hz	13 from 0.1 to 1,000 Hz				
Cal Signal	Remotely Operated					
Zero & Span	Automatic by processor					
Input Power	10 to 15 Vdc	10 to 26 Vdc @ 2.7 Watts	10 to 26 Vdc @ 2.7 Watts	10 to 26 Vdc @ 2.7 Watts	10 to 26 Vdc @ 2.7 Watts	10 to 26 Vdc @ 2.7 Watts
Mechanical Style	Shaft					
Compatible Display(s)	703 or 723	703 or 733				
Specification Sheet	7410	7411	7409	7409	7509	7511

The Model 700 Series of Signal Conditioning Instruments

Designed for measurement, display, and readout of mechanical and fluid power.
Each is a fully-featured Data Acquisition system with Test Control capabilities. Each handles up to two hardware channels and one calculated channel.

- The 16 character by 2 line alphanumeric display provides easy to read menu selections.
- All manual adjustments have been eliminated. Calibration is performed automatically.
- Resolution is not compromised because there are no ranges to select. Resolution is 0.001% for any Full Scale value.
- Simplified keypad allows access to all channels, data types, and status without stopping a Test. Data is displayed in engineering units.
- There is no battery to change. System settings are stored in EEPROM memory.
- There is no filter to change or fan to replace.

Digital

Digital Rotating Torque Sensors	Bearingless Digital							
	Low Capacity 	2X Overload 	4X Overload 	Dual Range 	Metric 	Large Capacity Metric 	Ultra-High Capacity 	Ultra-High Capacity Dual Range 
MCRT ® Series	**80001V**	**84000V/86000V**	**85000V/87000V**	**84700V/88700V**	**81008V**	**86100V**	**86011V/86012V**	**88711V/88712V**
Range (lbf-in)	44.3 to 443	500 to 4,000,000	250 to 2,000,000	500 to 4,000,000	88,510 to 221,300	265,000 to 4,000,000	4.4M to 22.1M	0.9M to 22.1M
Range (N-m)	5 to 50	56.5 to 452,000	28.3 to 226,000	56.5 to 452,000	10,000 to 25,000	30,000 to 450,000	500k to 2,500k	100k to 2,500k
Mechanical Overload [1]	200%	200%	400%	200%, 1,000% & 2,000%	200%	200%	200%	200%, 400% & 1,000%
Overrange	150%	150%	150% or 300%	150% or 300%	150%	150%	150% or 300%	150% or 300%
Speed (rpm) [2, 12]	0 to 15,000	0 to 15,000	0 to 15,000	0 to 15,000	0 to 8,500	0 to 5,000	0 to 750	0 to 750
Error (%) [3]	0.04 & 0.02	0.04, 0.02 & 0.01 [14]	0.04, 0.02 & 0.01 [14]	0.04, 0.02 & 0.01 [14]	0.1 & 0.05	0.1 & 0.05	0.1	0.1
Noise Hardening [4]	Standard							
Torque Output	±5 or ±10 Vdc, FM, & RS232/485							
Speed Output	30 ppr	30/45/60 ppr	30/45/60 ppr	30/45/60 ppr	120 ppr	30 ppr	270 ppr	270 ppr
Power Output	N/A							
Filter Selections	13 from 0.1 to 1,000 Hz							
Cal Signal	Remotely Operated							
Zero & Span	Automatic by processor							
Input Power	10 to 26 Vdc @ 6 to 11 Watts						10 to 26 Vdc @ 5 to 7 Watts	
Mechanical Style	Very Short Disk							
Compatible Display(s)	703 or 723							
Specification Sheet	8710	8701 & 8703	8701 & 8703	8707 & 8801	8002	8705	8704 & 8712	8704 & 8712

Notes

1. Percentage of Full Scale Torque Rating. A few models vary; see the listed Specification Sheet for complete specifications, outline drawings, features and options by going to our website.
2. Higher range units have lower maximum speed ratings. See listed Specification Sheet.
3. The maximum error component, per referenced Specification Sheet, expressed as a percentage of full scale. Bidirectional NIST traceable calibrations are performed on all models in our accredited laboratory (NVLAP LAB code 200487-0). For more details visit the accreditation link: www.nist.gov.
4. Hardened against electromagnetic interference (EMI) produced by IGBT based adjustable speed drives (ASDs) and magnetic fields from electric machinery; see Specification Sheet 708.
5. Standard is dual 5V outputs both available simultaneously; one high frequency and one low frequency; see bandwidth column.
6. Option L changes standard 5V outputs to 10V. See Note 11.
7. Standard dual outputs are dc to 1 Hertz and dc to 500 Hertz.
8. Option K converts the dc to 500 Hertz output to dc to 1,100 Hertz.
9. MCRT® 79000V Torquemeters have four simultaneous outputs; a dual output for the Low Range and a dual output for the High Range.
10. Requires a strain gage carrier amplifier with carrier frequency equal to 3 kHz ± 10% and well-regulated voltage between 3 and 6 Vrms. Himmelstein Models 701, 711 or 721 are recommended.
11. Standard units require unipolar power between 10.5 and 24 VDC. When equipped with Option L, sensor requires power between 18 and 24 VDC.
12. Speed Pickups are optional on all models.
13. MCRT® sensors use bonded strain gages, non-ferrite rotary transformers and high strength alloy steel torsion members, except ranges < 12.5 lbf-in use titanium shafts.
14. For ranges greater than 100,000 lbf-in (11,300 Nm), available accuracies are 0.1 & 0.05.

Analog

Rotating Torque Sensors - Analog Output	mV/V Output		4-20 mA Output	DC Operated ±5 or ±10 volt Output			
	2X Overload	4X Overload	4X Overload	2x Overload	4X Overload	10X Overload	Dual Range
							
MCRT ® Series	**28000T**	**29000T**	**39000X**	**48000V**	**49000V**	**59000V**	**79000V**
Range (lbf-in)	25 to 4,000,000	25 to 2,000,000	25 to 2,000,000	25 to 4,000,000	25 to 2,000,000	40 to 735,000	40 to 4,000,000
Range (N-m)	2.83 to 452,000	2.83 to 226,000	2.83 to 226,000	2.83 to 452,000	2.83 to 226,000	4.52 to 83,000	4.52 to 452,000
Mechanical Overload [1]	200%	400%	400%	200%	400%	1,000%	200%
Overrange	Ext amplifier dependent		125%	133%			
Speed (rpm) [2, 12]	0 to 15,000						
Error (%) [3]	0.05 & 0.1					0.07	0.1
Noise Hardening [4]	Standard						
Torque Output	1.5 mV/V	1.5 mV/V	4-20 mA or 12±8 mA	±5 Vdc [5] or ±10 Vdc [6]	±5 Vdc [5] or ±10 Vdc [6]	±5 Vdc [5] or ±10 Vdc [6]	±5 Vdc [5] or ±10 Vdc [6]
Speed Output	60 ppr						
Bandwidth (Hz)	ext amplifier dependent		1Hz & 200Hz	1 Hz & 500 Hz [7] or 1,100 Hz [8]	1 Hz & 500 Hz [7] or 1,100 Hz [8]	1 Hz & 500 Hz [7] or 1,100 Hz [8]	1 Hz & 500 Hz [7, 9] or 1,100 Hz [8, 9]
Cal Signal	ext amplifier dependent		Internal Switch	Remotely Operated			
Zero & Span	ext amplifier dependent		Internal Controls				
Input Power	3 to 6 Vrms @ 3 kHz [10]		10 to 28 Vdc	10.5 to 24 Vdc [11]			
Mechanical Style(s)	Shaft Ends or Flange Ends						
Compatible Display(s)	701 & 721	701 & 721	706 & 726	703 & 723	703 & 723	703 & 723	703 & 723
Specification Sheet	761	709	7300	7401	7400	7590	7700

Notes

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6. Option L changes standard 5V outputs to 10V. See Note 11.
7. Standard dual outputs are dc to 1 Hertz and dc to 500 Hertz.
8. Option K converts the dc to 500 Hertz output to dc to 1,100 Hertz.
9. MCRT® 79000V Torquemeters have four simultaneous outputs; a dual output for the Low Range and a dual output for the High Range.
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11. Standard units require unipolar power between 10.5 and 24 VDC. When equipped with Option L, sensor requires power between 18 and 24 VDC.
12. Speed Pickups are optional on all models.
13. MCRT® sensors use bonded strain gages, non-ferrite rotary transformers and high strength alloy steel torsion members, except ranges < 12.5 lbf-in use titanium shafts.
14. For ranges greater than 100,000 lbf-in (11,300 Nm), available accuracies are 0.1 & 0.05.

A business built on company and product integrity.

Established in 1960, S. Himmelstein and Company makes the world's best torque sensors, transfer standards, and instrumentation. Standard products include rotating and reaction sensors from 10 ozf-in (0.07 N-m) to 22,000,000 lbf-in (2,500 kN-m) in virtually every mechanical configuration. All employ state-of-the-art strain gage technology and are calibrated CW and CCW to full capacity in our ISO/IEC 17025:2017 accredited laboratory .

Special Purpose

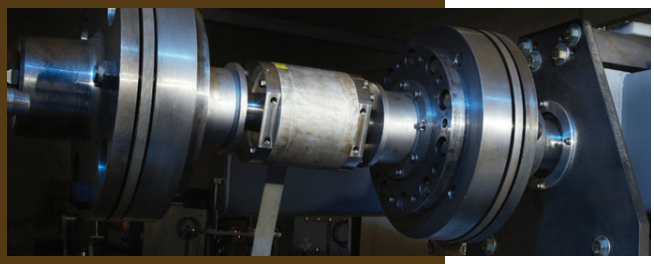
Special Purpose Rotating Torque Sensors	Spline Drive per AND	Pulley	Automotive Torque Wheels	
				
MCRT ® Series	**48850V/48851V**	**31200T**	**27800T**	**27800V**
Range (lbf-in)	50 to 10,000	50 to 1,500	250 to 100,000	250 to 100,000
Range (N-m)	5.65 to 1,130	5.65 to 170	28.3 to 11,300	28.3 to 11,300
Mechanical Overload [1]	300%	250%	200% & 1,000%	200% & 1,000%
Overrange	150%	ext amplifier dependent	ext amplifier dependent	133%
Speed (rpm) [2, 12]	0 to 30,000	0 to 7,500	0 to 2,000	0 to 2,000
Accuracy (%) [3]	0.1 & 0.05	0.1 & 0.25	0.1	0.15
Noise Hardening [4]	Standard			
Torque Output	±5 or ±10 Vdc, & RS232/422/485	4 mV/V	4 mV/V	±5 Vdc 5 or ±10 Vdc [6]
Speed Output	60 ppr	60 ppr	60 or 3,600 ppr	60 or 3,600 ppr
Power Output	N/A			
Filter Selections	13 from 0.1 to 1,000 Hz	ext amplifier dependent	ext amplifier dependent	1Hz & 500Hz [7, 8]
Cal Signal	Remotely Operated	ext amplifier dependent	ext amplifier dependent	Remotely Operated
Zero & Span	automatic by processor	ext amplifier dependent	ext amplifier dependent	Internal Controls
Input Power	10 to 26 Vdc @ 2.7 Watts	3 to 6 Vrms @ 3 kHz [10]	3 to 6 Vrms @ 3 kHz [10]	10.5 to 24 Vdc [11]
Mechanical Style(s)	AND Flange & Spline	Pulley	Automotive Wheel	Automotive Wheel
Compatible Display(s)	703 & 733	701 & 721	701 & 721	703 & 723
Specification Sheet	7413	7820	7800	7801 & 7800

Calibration Services

Accredited torque calibration services verify your unit's performance.

Confirm the accuracy of your existing transducers through Himmelstein's expert Torque Calibration Services. All Himmelstein Torquemeters and Systems are calibrated CW and CCW to their full capacity in our NVLAP ACCREDITED LABORATORY, Lab code 200487-0. (Visit www.himmelstein.com or, www.nist.gov for details)

Himmelstein will also recalibrate virtually any standard Torque Transducer or Torquemeter, US or foreign. Popular brands include Himmelstein, Lebow/Honeywell, PCB/Key, Sensor Data, Sensor Developments, HBM, Staiger-Mohilo, Kistler, Lorenz, Norbar, ETH, Datum, Futek, Magtrol and Manner.



In addition, you should consider registering your sensors on our secure website so that their calibration certificates are continuously available to you as a reference.

To learn more, visit: www.calibratetorque.com

Reaction

Reaction (Static) Torque Transducers	Hollow Flanged		C-Face	Solid Flanged			Transfer Standard	Square Drive
	2X Overload	2X Overload	5X Overload	2X Overload	2X Overload	2X Overload	Digital	2X Overload
								
RTM Series	**2000**	**2080/2090**	**CF2800V**	**2200M**	**2206/2207**	**2270V/ 2280V**	**2300DV**	**2208/2209**
Range (lbf-in)	60 to 100,000	200,000 to 2,400,000	50 to 20,000	0.625 to 100,000	300,000 to 750,000	10 to 750,000	500 to 100,000	300,000 to 4,000,000
Range (N-m)	6.78 to 11,300	22,600 to 271,000	5.65 to 2,260	0.071 to 11,300	33,900 to 84,700	11.3 to 84,700	56.5 to 11,300	33,900 to 452,000
Mechanical Overload [1]	200%	200%	300%, 400% & 500%	200%	200%	200%	200%	200%
Overrange	ext amplifier dependent	ext amplifier dependent	150%	ext amplifier dependent	ext amplifier dependent	150%	150%	ext amplifier dependent
Accuracy (%) [3]	0.1	0.1	0.1 & 0.05	0.1	0.1	0.1 & 0.05	0.04, 0.02 & 0.01	0.25 & 0.5
Torque Output	1.5 mV/V	1.5 mV/V	±10 Vdc & RS232	2 mV/V	2 mV/V	±10 Vdc & RS232	±10 Vdc & RS232	3 mV/V
Bandwidth (Hz)	ext amplifier dependent	ext amplifier dependent	dc to 500 Hz	ext amplifier dependent	ext amplifier dependent	dc to 500 Hz	dc to 500 Hz	ext amplifier dependent
Cal Signal	ext amplifier dependent	ext amplifier dependent	Remotely Operated	ext amplifier dependent	ext amplifier dependent	Remotely Operated	Remotely Operated	ext amplifier dependent
Zero & Span	ext amplifier dependent	ext amplifier dependent	Automatic by processor	ext amplifier dependent	ext amplifier dependent	Automatic by processor	Automation by processor	ext amplifier dependent
Input Power	10 V max, ac or dc	10 V max, ac or dc	10 to 26 Vdc	15 V max, ac or dc	15 V max, ac or dc	10 to 26 Vdc	10 to 26 Vdc	15 V max, ac or dc
Mechanical Style	Hollow Flanged	Hollow Flanged	Hollow NEMA C-Face	Solid Flanged	Solid Flanged	Solid Flanged	Flanged	Square Drive
Compatible Display	701 & 708	701 & 708	703	701 & 708	701 & 708	703	703	701 & 708
Specification Sheet	770	779	7072	772	773	7721	775	778

Notes

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