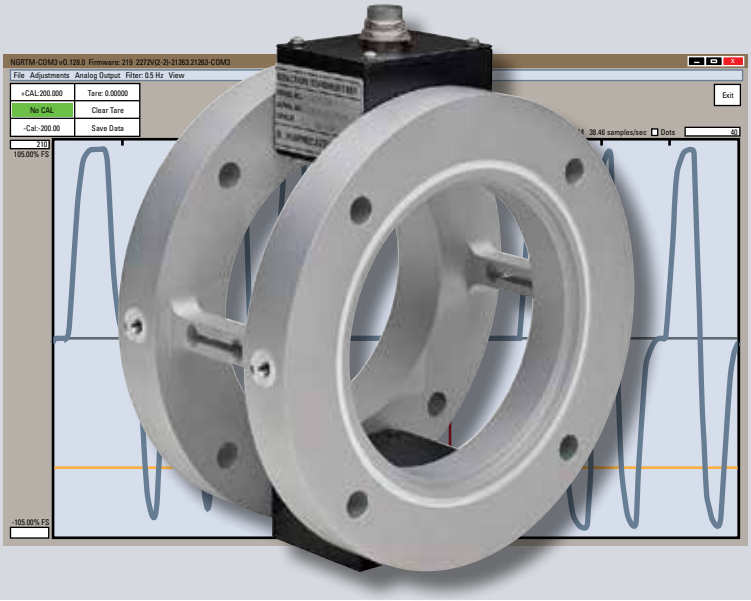
CF2800V HIGH PRECISION, C-FACE REACTION TORQUEMETERS WITH ANALOG AND DIGITAL OUTPUTS

Have The Best Performance of Any Large Bore Reaction Torquemeter, Torque Sensor or Torque Transducer



- **50 lbf-in to 20,000 lbf-in Ranges (5.65 to 2,260 N-m)**
- **500% Overload Rating**
- **150% Overrange Rating**
- **0.05% Combined Nonlinearity & Hysteresis**
- **No Bearings, No Speed Limit**
- **Remote Bi-directional Shunt Calibration**
- **RS232 Communication**
- **PC Interface Software Included**
- **0 to ± 10.000 Volt Analog Output**
- **11 Bessel Response Data Filters**
- **No Manual Adjustments**
- **Large Through Bore**
- **NIST Traceable* Bi-directional Calibration**

Series CF2800V Torquemeters have high accuracy, high stiffness, and low deflection. Overload capacity is 5 times rated torque. All are calibrated CW and CCW to rated load in our NVLAP* accredited laboratory. These devices mate directly with NEMA C-Face motors and generators. There are no pots, switches or other parts subject to mis-adjustment during vibration or by unauthorized users. You can select any of 10 Units of Measure without re-calibrating.

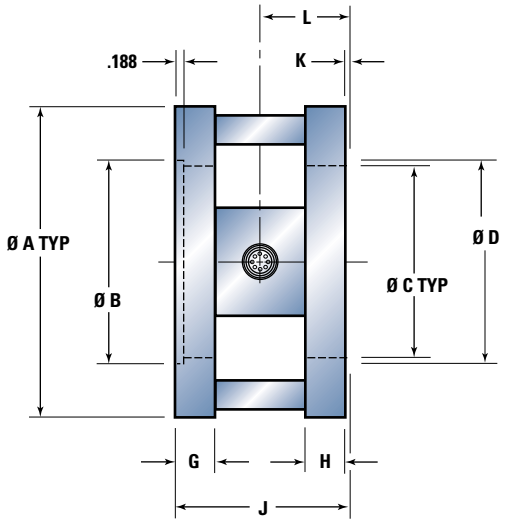
Analog and digital outputs are simultaneously available. Use the RS232 port with the furnished software or write your own. The Torquemeter has low drift, exceptional temperature performance, and 150% Overrange. Without High Overrange, clipped peaks cause large errors**. Tare and Zero may be invoked via I/O lines or computer. Use the 11 selectable Bessel filters for signal processing. Use your PC to *Display Current, Max, Min and Spread Data, to Save and Plot Data, and to Store Test Setups.*

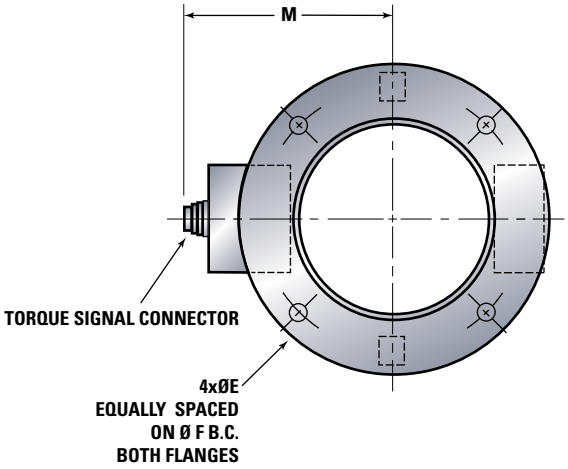
The Model 703 or 733 displays one or two channels of torque respectively. see Bulletin 374.

* To review our NVLAP Certificate of Accreditation and its Scope, see our website or follow the "Laboratory Accreditation" link at www.nist.gov

** See Application Note 20805B

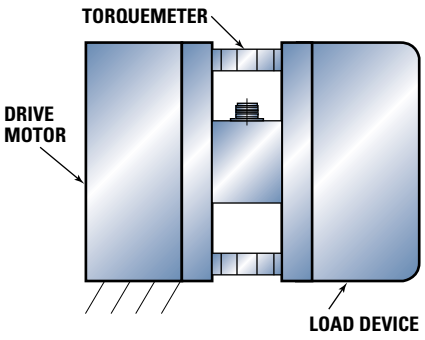
Outline: C Diameter is thru bore. Dimensions are in inches.



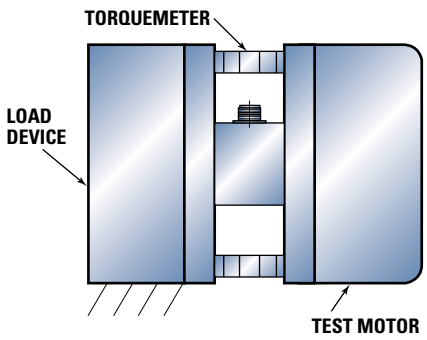


MODEL	A	B	C	D	E	F	G	H	J	K	L	M
CF2856	6.875	4.503/4.501	4.250	4.500/4.498	0.391	5.875	0.875	0.875	3.875	0.125	2	4 15/32
CF2882	9.125	8.505/8.502	5.375	8.500/8.497	0.515	7.250	1.313	0.875	5.813	0.250	2 51/64	5 11/32
CF2884	11.250	10.505/10.502	7.000	10.500/10.497	0.515	9.000	1.594	1.156	6.500	0.250	3 9/32	6 9/32

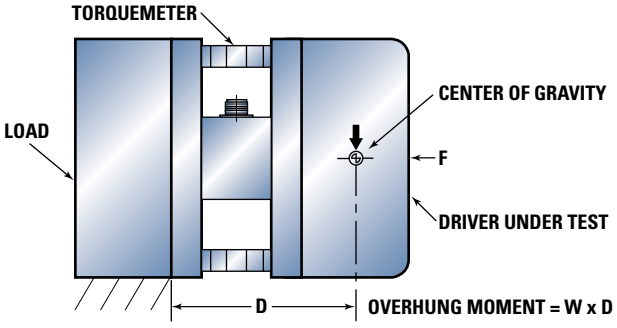
Series CF2800 Torque Sensor installed to Feedback Load Torque



Series CF2800 Torque Sensor installed to Feedback Motor Torque



Extraneous Load Definition



W = Weight of the supported motor/lead = 1/2 the shaft coupling weight.
F = Thrust Force, if any.
D = Distance from the device (motor or load) being monitored center of gravity to the grounded sensor flange.

Any force or moment the torquemeter sees other than the reaction input is an extraneous load. Depending on intallation (see illustrations), these could include bending moments and axial thrust (tension or compression). The tabulation summarizes the maximum safe extraneous loads that can be applied to the torquemeter assuming they are applied singly. Crosstalk errors will typically be low (see overleaf) and, if constant, **can be electrically zeroed.**

Standard Ratings, Series CF2800V C-Face High Precision, Reaction Torquemeters

Model Number	NEMA Motor Frame Size	Torque Range		Torque Overload		Torsional Stiffness (Flange Face-Face)		Weight		Maximum Extraneous Loads*			
										Thrust		Bending	
		(lbf-in)	*(N-m)*	*(lbf-in)*	*(N-m)*	*(lbf-in/rad)*	*(N-m/rad)*	*(lb)*	*(kg)*	*(lbf)*	*(N)*	*(lbf-in)*	*(N-m)*
CF2856V(5-1)		50	6	250	28	48,000	5,420			200	900	400	45
CF2856V(1-2)		100	11	500	57	135,000	15,250	5.5	2.5	250	1,112	600	68
CF2856V(2-2)	56C	200	23	1,000	113	385,000	43,500			300	1,334	800	90
CF2856V(5-2)	143TC	500	57	2,500	282	560,000	63,300			500	2,224	1,500	169
CF2856V(1-3)	145TC	1,000	113	5,000	565	1,600,000	181,000	14	6.4	1,000	4,448	2,000	226
CF2856V(2-3)		2,000	226	10,000	1,130	4,550,000	514,000			2,000	9,000	4,000	452
CF2856V(5-3)		5,000	565	20,000	2,260	18,000,000	2,034,000			5,000	22,241	10,000	1,129
CF2882V(2-2)	182TC	200	23	1,000	113	250,000	28,300			350	1,557	1,500	169
CF2882V(5-2)	184TC	500	57	2,500	282	950,000	107,300	11	5.0	500	2,224	2,000	226
CF2882V(1-3)	213TC	1,000	113	5,000	565	2,800,000	316,300			1,000	4,448	3,000	339
CF2882V(2-3)	215TC	2,000	226	10,000	1,130	3,800,000	429,000			2,000	9,000	4,000	452
CF2882V(5-3)	254TC	5,000	565	25,000	2,820	15,000,000	1,700,000	27	12	5,000	22,241	10,000	1,130
CF2882V(1-4)	256TC	10,000	1,130	50,000	5,650	44,000,000	5,000,000			10,000	44,500	20,000	2,260
CF2884V(2-3)		2,000	226	10,000	1,130	7,200,000	813,500	17	7.7	2,000	9,000	5,000	565
CF2884V(5-3)	284TC	5,000	565	25,000	2,830	14,500,000	1,640,000			5,000	22,241	10,000	1,130
CF2884V(1-4)		10,000	1,130	50,000	5,650	42,000,000	4,750,000	44	20	10,000	44,482	20,000	2,260
CF2884V(2-4)		20,000	2,260	60,000	6,780	119,000,000	13,450,000			20,000	90,000	40,000	4,520

Series CF2800V

Available Cables	Cable lengths (XX) are 20, 50 and 100 feet. If sold without cables, a mating connector is supplied.
P/N 224-8636-XX **2800V to Model 703**	Powers Torquemeter, Displays torque, Implements Model 703 functions including Remote Cal., Zero, etc.
P/N 224-8840-XX **2800V to RS232 + C/F DAQ**	Connects Torquemeter to Host. 6 unterminated lines for C/F Power & DAQ. 50 feet max. length.
P/N 224-8841-XX **2800V to PC RS232 & 703**	Connects Torquemeter to Host Port. Powers 2280V, displays Torque and implements all 703 functions. 50 feet maximum length.

Order Number	**CF2856VN(1-2)**	**A CF2856VN is rated 100 lbf-in and has Standard, Code N, Performance**	**Model Number from table with performance suffix** **N = Standard Performance,** **C = Enhanced Performance**

Specification

Full Scale Analog Output [9] : (volts)	**± 10.000** [1,9]
Allowable Loads :	**10 kΩ, 0.05 uF**
Selectable Bessel Data Filters :	**0.2 to 500 Hz. In 1-2-5 steps**
Com Port :	**RS232, Baud Rate is 38.4 kB**
Sampling Rate : (kHz)	**8**
Measurement Bandwidth : (Hz)	**500**
System Resolution : (% of Range)	≤ **0.005**
Combined Nonlinearity & Hysteresis : (% of Range)	
Standard (Code N)	≤ **0.1**[2]
Enhanced (Code C)	≤ **0.05**[2]
Nonrepeatability : (% of Range)	≤ **± 0.02**
Zero Drift : (% of Range/°F)	≤ **± 0.001**
Span Drift : (% of Reading/°F)	≤ **± 0.002**
48 Hour Drift (% of Range)	≤ **0.04**
Compensated Temperature Range :	**+75 to +175 °F**
Usable Temperature Range :	**-40 to +185 °F**
Overrange : (% of Range)	**150**
Nonlinearity in Overrange : (% of Range)	≤ **0.1**
Supply Voltage :	**10 to 26VDC, reverse polarity protected**
Supply Power : (W):	≤ **0.5**
Overvoltage Protection :	**Power In, Analog Out, Control Lines**
Pinout :	1. **+Cal**[3] 5. **Analog Out**
	2. **RXD** 6. **Tare**[4]
	3. **Analog Ground** 7. **+Power**
	4. **TXD** 8. **Ground**
Selectable Units of Measure :	**lbf-in, lbf-ft, ozf-in, ozf-ft, N-m, kN-m, N-cm, kgf-m, kgf-cm, gf-cm**

Specification Notes

1. *May be re-set, via com port, to any value between 1 and 10 volts.*
2. *Based on best fit line; see Technical Memorandum 230104.*
3. *Invoke bi-directional Cal via the com port.*
4. *Clear Tare via com port; see note 7 on the right.*
5. *Invoke Tare function is also available via com port.*
6. *Invoke Zero via com port or ground both pins 1 & 6.*
7. *Cycling Power Off/On Clears Tare and Resets Max/Mins.*
8. *Analog outputs are short circuit protected.*
9. *Specifications are subject to change without notice.*

S. Himmelstein and Company
Designing and Making the Worlds' Best Torque Instruments since 1960
2490 Pembroke Avenue, Hoffman Estates, IL 60169 USA
• Tel: 847-843-3300 • Fax: 847-843-8488
• www.himmelstein.com