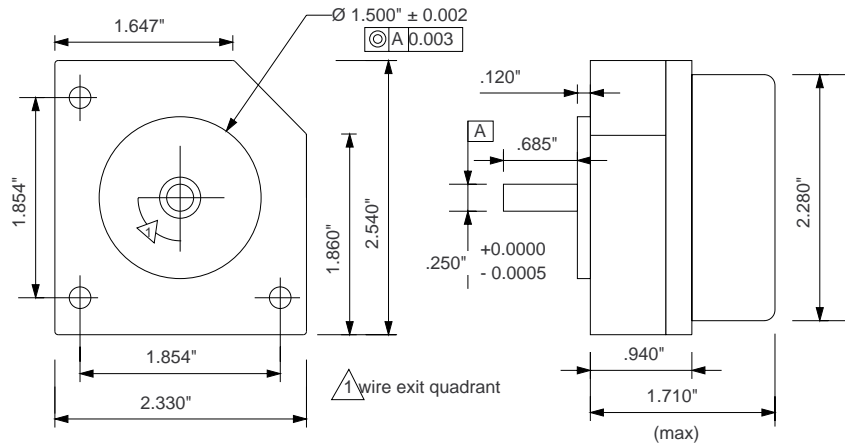




### Mechanical Data:



### Description:

The CM-450-HHC series is a two pole brushless DC LRT with an integral optical encoder, designed for high resolution scanning. The torquer is characterized by a flat torque curve over a 115° angle, the encoder by a large choice of digital outputs, from 25,000 full A and B quadrature cycles (100,000 measuring points) to 1,250,000 full A and B cycles (5,000,000 measuring points).

### Standard linecounts:

25k, 25.6k, 31,25k, 32k, 50k, 51.2k, 62.5k, 64k, 90k, 100k, 102.4k, 112.5k, 125k, 128k, 156.25k, 180k, 200k, 204.8k, 225k, 250k, 256k, 312.5k, 360k, 400k, 409.6k, 450k, 500k, 512k, 625k, 720k, 819.2k, 900k, 1,000k, 1,024k, 1,250k full A and B cycles per revolution (c/r)

### Ordering information:

### CM-450-HHC-(linecount)

### Motor characteristics @ 20°C ambient:

parameter	symbol	unit	value
design voltage	Vp	Volt	8.75
peak torque ±10%	Tp	oz.in Nm	13 0.095
peak current ±10%	Ip	Ampere	2.36
torque constant ±10% (*)	Kt	oz.in/A Nm/A	5.5
DC resistance ±12%	Rm	Ohm	3.7
BEMF ±10%	Kb	V/rad/sec	0.0388
rotor inertia ±10%	J	oz.in.sec <sup>2</sup> g.cm <sup>2</sup>	.0015 106
viscous damping	Fi	oz.in/rad/sec Nm/rad/sec	14 0.1
thermal resistance	TPR	° C/Watt	10
torque linearity (*)		%	10
continuous torque	Tr	oz.in Nm	8.6 .06

(\*) over active range

### encoder pinout :

10-shield	shield/case key
9-key	key
8-orange	A channel inv.
7-yellow	A channel
6-violet	B channel inv.
5-blue	B channel
4-white	index inv.
3-green	index
2-red	+ 5 Vdc
1-black	ground

shielded cable, connector "Molex" # 22-10-3187, terminals # 08-56-0110

### motor pinout

2-red	motor +
1-black	motor -

connector "Molex" # 22-10-3027, terminals # 08-56-0110

cable length motor + encoder 15" ± 0.5" from encoder cover to connector end

The LRT assumes two zero-torque positions dependent on the polarity on the terminals. The reference position of the shaft is obtained when a positive voltage is applied to the black lead, return to the red lead. The index position is referred off this reference, either indicating the mid point (default) or the end/start of the linear range. The direction of rotation is CCW if a positive voltage is applied to the red wire, as seen from the load side of the motor.

### Mechanical

radial play < 0.0001" @ 1 lb sideload, axial play : 0.0003" max @ 2 lbs in the direction of encoder, less than 0.0001" @ 2 lbs in the direction of the load.

### Environmental

operating temperature: 0° - 75°C  
 storage temperature: -40° - 85°C  
 operating RH: 95% (non-condensing)  
 storage RH: 95% (non-condensing)  
 shock (half sine): 50 g's for 11 ms  
 vibration (sine): 0-2000 Hz @ 16 g's  
 altitude: 40,000 ft max.

