# mtc

MR-2003

Multispeed (X1 and X6) Resolver

The **MR-2003** is a multi-speed resolver. A special design for stator/rotor slot combination optimization, common space harmonics reduction and angular accuracy improvement. The increased number of pole-pairs effectively increases system resolution, proportionately, reducing the number of rotational degrees represented by one complete electrical cycle. Multi-pole design has averaging effect on any local mechanical/winding perturbation. Number of pole-pairs (referred to as resolver "speed") diminishes any effect of combined system errors with, as a result, enhanced system performance, repeatability and reliability.
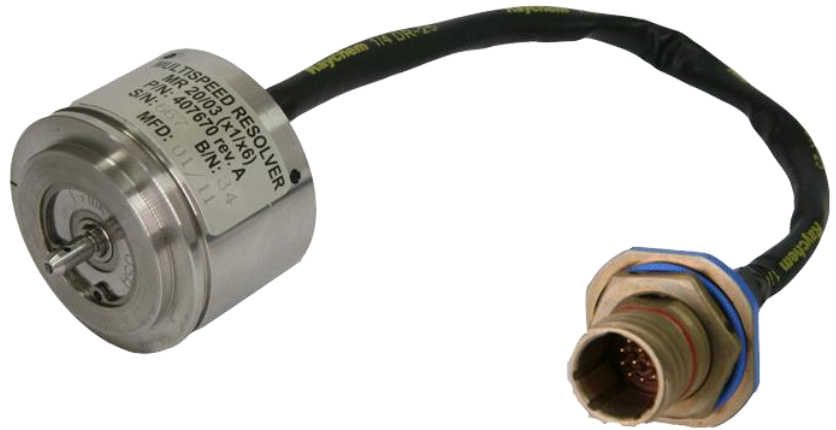

Drawing
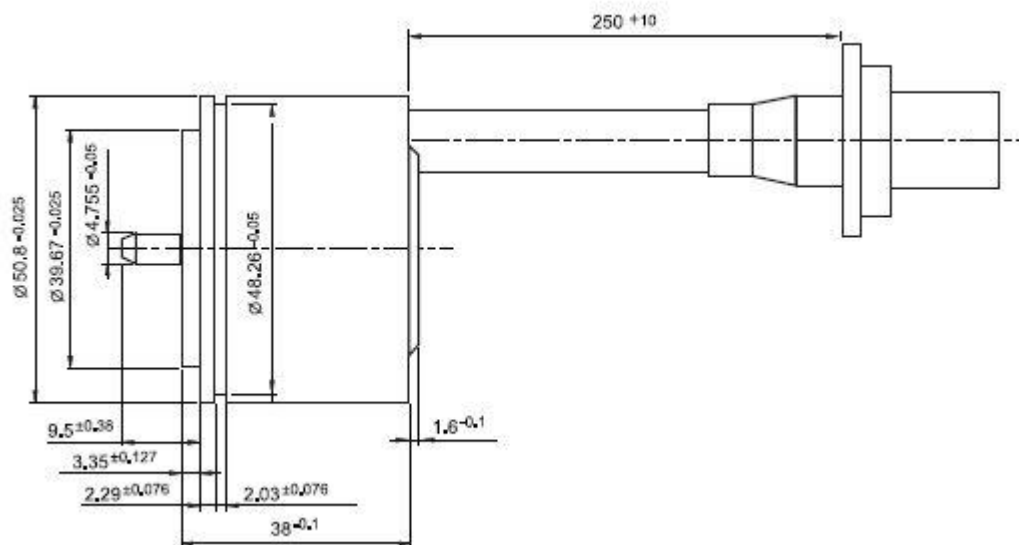
Specifications

Parameter	Unit	Value	Tolerance
Function CX (transmitter) Rotation: Full Speeds: 1X and 6X			
Input Voltage	V (rms)	8 – 26	± 5%
Input Frequency	Hz	380 – 2100	-
DC resistance: Rotor 1X Stator 1X Rotor 6X Stator 6X	Ohm Ohm Ohm Ohm	215 140 95 155	± 10% ± 10% ± 10% ± 10%
Impedance: 1X 6X	Ohm Ohm Ohm Ohm Ohm Ohm	$Z_{ro}=300 + j\,2100$ $Z_{so} = 220 + j\,70$ $Z_{rs} = 800 + j\,330$ $Z_{ro}= 110 + j\,70$ $Z_{so} = 150 + j\,150$ $Z_{rs} = 120 + j\,60$	± 30% ± 30% ± 30% ± 30% ± 30% ± 30%
Transformation ratio	%	0.454	± 5%
Phase shift: 1X 6X	 deg deg	 13.5º 58.0º	 ± 15% ± 15%
Phase shift vs. temperature: 1X 6X	 deg deg	 4% per ºC 4% per ºC	 - -
Null Voltage: Rotor 1X Rotor 6X	mV(rms) mV(rms)	30 20	max max
Accuracy: 1X 6X	arc min arc min	≤10.0 ≤1.5	- -
Zero marking withstanding: Per MIL-S-81963	deg	±2	-
Dielectric withstanding: Per MIL-S-81963			
Insulation between windings	MΩ at 250V AC	100	min
Insulation between windings and frame	MΩ at 500V AC	100	min
Weight	gr	450	± 5%

Wiring Diagram
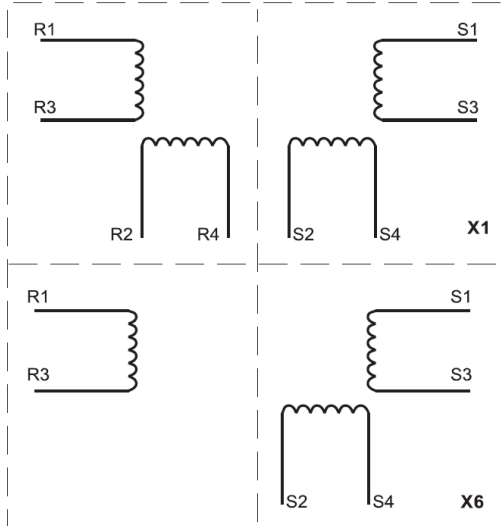
Phase Equation

$$E\,(S1\text{-}S3) = KE(R1\text{-}R3)\cos n\theta$$

$$E\,(S2\text{-}S4) = KE(R1\text{-}R3)\sin n\theta$$

where: K - transformation ratio

n - resolver speed

For Additional Information

To learn more about the MR-2003

Resolver or other MTC products, contact MTC

on +972 4 998 7772 or email marketing@mtcind.com