

MODEL TR1 TRU-TRAC® - LINEAR MEASUREMENT SOLUTION

MODEL TR1 SPECIFICATIONS

Electrical

Input Voltage.....	4.75 to 28 VDC max for temperatures up to 85° C 4.75 to 24 VDC for temperatures between 85° C and 100° C
Input Current.....	100 mA max (65 mA typical) with no output load
Output Format.....	Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the shaft side. See Waveform Diagrams.
Output Types.....	Open Collector – 20 mA max per channel Push-Pull – 20 mA max per channel Pull-Up – Open Collector with 2.2K ohm internal resistor, 20 mA max per channel Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index.....	Once per revolution. 1 to 400 CPR: Ungated 401 to 10,000 CPR: Gated to output A See Waveform Diagrams.
Max. Frequency.....	Standard Frequency Response is 200 kHz for CPR 1 to 2540 500 kHz for CPR 2541 to 5000 1 MHz for CPR 5001 to 10,000 Extended Frequency Response (optional) is 300 kHz for CPR 2000, 2048, 2500, and 2540
Electrical Protection.....	Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
Noise Immunity.....	Tested to BS EN61000-6-2; BS EN50081-2; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-6; BS EN500811
Quadrature.....	67.5° electrical or better is typical,
Edge Separation.....	54° electrical minimum at temperatures > 99° C
Waveform Symmetry.....	180°(±18°) electrical (single channel encoder)
Accuracy.....	Within 0.017° mechanical or 1 arc-minute from true position (for CPR > 189)

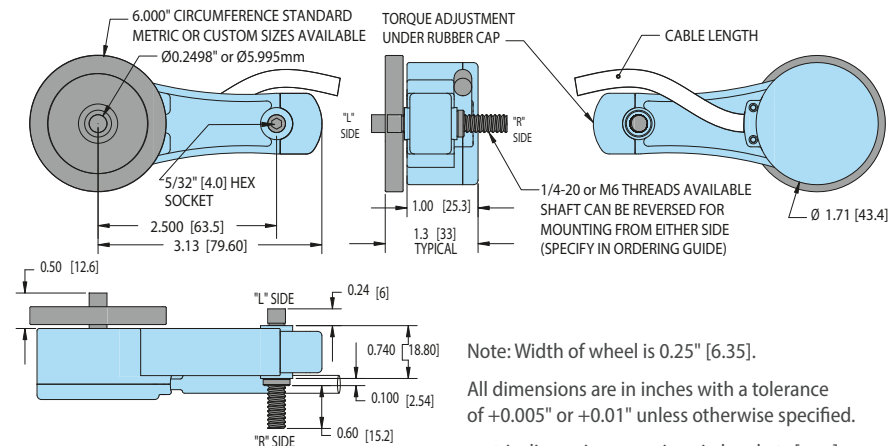
Mechanical

Max Shaft Speed.....	6000 RPM. Higher speeds may be achievable; contact Customer Service.
Shaft Material.....	Stainless Steel
Shaft Tolerance.....	+0.0000/-0.0004" [+0.000/-0.010 mm]
Radial Shaft Load.....	5 lb max. Rated load of 2 to 3 lb for bearing life of 1.2 x 10 ¹⁰ revolutions
Axial Shaft Load.....	5 lb max. Rated load of 2 to 3 lb for bearing life of 1.2 x 10 ¹⁰ revolutions
Starting Torque.....	IP50 0.05 oz-in IP65 0.4 oz-in IP66 0.8 oz-in
Housing.....	Stainless steel fibers in a high temperature nylon composite
Wheel Width.....	0.25"
Weight.....	5 oz typical

Environmental

Storage Temp.....	-25° to 85° C
Humidity.....	98% RH non-condensing
Vibration.....	10 g @ 58 to 500 Hz
Shock.....	80 g @ 11 ms duration
Sealing.....	IP50 standard; IP65 or IP66 available

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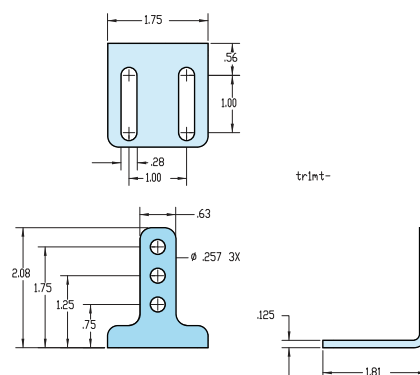
Note: Width of wheel is 0.25" [6.35].

All dimensions are in inches with a tolerance of +0.005" or +0.01" unless otherwise specified.

...etric dimensions are given in brackets [mm].

TRU-TRAC® MOUNTING BRACKET

Allows for a variety of mounting positions and makes installation of the Model TR1 even easier.



Stock #140104

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable.

Trim back all unused wires.

Function	Gland Cable [†] Wire Color	5-pin M12**	8-pin M12**
Com	Black	3	7
+VDC	White	1	2
A	Brown	4	1
A'	Yellow	--	3
B	Red	2	4
B'	Green	--	5
Z	Orange	5	6
Z'	Blue	--	8
Shield	Bare*	--	--

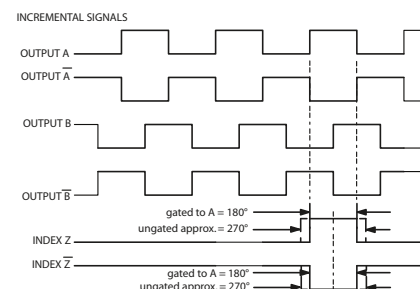
*CE Option: Cable shield (bare wire) is connected to internal case.

†Standard cable is 24 AWG conductors with foil and braid shield.

**CE Option: Use cable cordset with shield connected to M12 connector coupling nut.

WAVEFORM DIAGRAM

Incremental signals



CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. Waveform shown with optional complementary signals A', B', Z' for HV output only.