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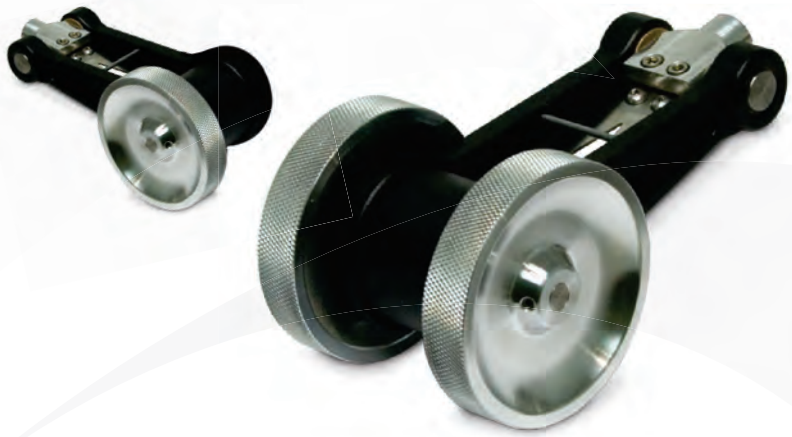
TR3 Heavy Duty Tru-Trac™

Encoder and Spring Loaded Measuring Wheel



Mount Options

Mounting Bracket

Double Wheel Pivot

An integrated heavy duty encoder and spring loaded measuring wheel assembly all in one, easy-to-use, compact unit. Available in a single, or optional dual-wheel format, the TR3 Heavy Duty Tru-Trac™ is a versatile solution for tracking velocity, position or distance over a wide variety of surfaces in almost any industrial application.

Its spring loaded torsion arm provides a simple-to-adjust torsion load, allowing the TR3 Heavy Duty Tru-Trac™ to be mounted in any orientation, even upside-down. The TR3 Heavy Duty Tru-Trac™ housing is an all metal work horse, specifically designed to take on your toughest application environments at operating speeds up to 3000 feet per minute. Just one look and it's easy to see the TR3 Heavy Duty Tru-Trac™ is the ideal solution for countless applications.

Key Features

- Heavy Duty Encoder And Measuring Wheel Solution Integrated Into One Industrial Strength Unit
- Spring Loaded Torsion Arm Makes Wheel Pressure Adjustments A Snap
- Easily Installed In A Vertical, Horizontal, or Upside-Down Orientation
- Operates Over A Variety Of Surfaces At Speeds Up To 3000 Feet Per Minute
- Integrated Module Simplifies Your System Design, Reducing Cost

Applications

- Lumber
- Corrugated
- Converting
- Metal Roll Forming
- Paper Monitoring
- Glue Dispensing
- Linear Material Monitoring
- Conveyor Systems
- Printing
- Labelling
- Mining
- Construction

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Ordering Information

Blue type indicates price adder options. Not all configuration combinations may be available.

Mechanical | **Electrical** | **Optional Features** (Leave Blank For Standard Options: -20º to +85ºC Std | IP50 Std | None Std)

TR3	–	U3	A	–	0500	V1	A	OC	–	F00	–				

MODEL
TR3 Tru-Trac™

WHEEL CONFIGURAITON
A Single
B Double

CYCLES PER REVOLUTION
See *CPR Options* below
Price adder >9999

INPUT VOLTAGE
V1 5 to 28 VDC

WHEEL TYPE & CIRCUMFERENCE
U3 Urethane 12" cir
U5 Urethane 1/3 M cir
K3 Knurled 12" cir
K5 Knurled 1/3 M cir
25 No Wheel 3/8" (0.375") Shaft
A3 Hard Anodized Knurled 12" cir
A5 Hard Anodized Knurled 1/3 M cir

NUMBER OF CHANNELS[1]
A Channel A

Channel A Leads B
Q Quadrature A & B
R Quadrature A & B with Index

Channel B Leads A[2]
K Reverse Quadrature A & B
D Reverse Quadrature A & B with Index

OUTPUT TYPE
OC Open Collector
PP Push-Pull
HV Line Driver[3]
PU Pull-Up Resistor[2,4]
OD Open Collector with Differential Outputs[9]

CONNECTOR TYPE
F00 18" Cable[6] (Std)
F01 12" Cable
F02 24" Cable
F03 36" Cable
M00 2M Cable[7]
SMW 6-pin MS[8]
SMY 7-pin MS[8]
SMX 10-pin MS[8]
SMJ 5-pin M12[3,8]
SMK 8-pin M12[8]

CONNECTOR ORIENTATION
(See Drawing)
Standard Rear Exit
L1 60° From Standard
L2 120° From Standard
L3 180° From Standard
L4 240° From Standard
L5 300° From Standard

OPERATING TEMPERATURE
-20º to +85ºC (Std)
T1 -40° to +85°C[9]
T2 -20° to +100° C

SEALING
IP50 (Std)
S3 IP66

CERTIFICATION
None (Std)
CE CE Marked[10]

Model TR3 - Tru-Trac™ CPR Options:

0001 thru 0189*	0198	0200	0250	
0256	0300	0315	0360	0400
0500	0512	0580	0600	0750
0800	1000	1024	1125	1200
1250	1500	1800	2000	2048
2500	2540	3000	3600	4000
4096	5000	6000	7200	8192
10,000				

*Contact Us For Availability

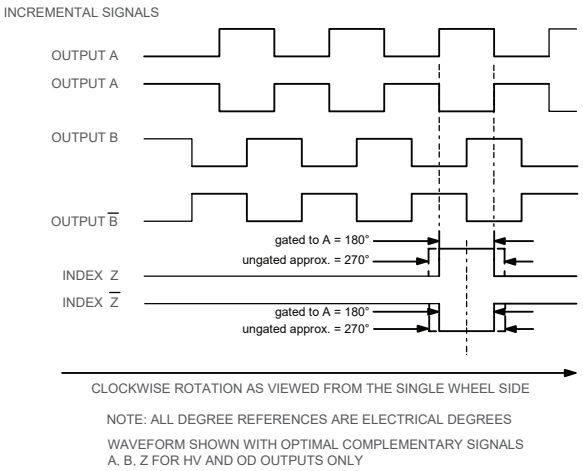
New CPR values are periodically added to those listed. Contact us to determine all currently available values. Special disk resolutions are available upon request and may be subject to a one-time NRE fee.

Optional accessory Mounting Bracket (Stock #176389-01) for TR3 Heavy Duty Tru-Trac™ can be ordered separately.

NOTES:

[1] Contact Customer Service for non-standard index gating or phase relationship options.
[2] Reverse Quadrature not available with Pull-Up Resistor Output Type.
[3] Line Driver not available with 5-pin M12 connector.
[4] With Input Voltage above 16 VDC, operating temperature is limited to 85° C.
[5] For mating connectors, cables, and cordsets visit *www.encoder.com*. For Connector Pin Configuration Diagrams visit *www.encoder.com*.
[6] For non-standard English cable lengths enter 'F' plus cable length expressed in feet. *Example: F06 = 6 feet of cable. Frequency above 300 kHz standard cable lengths only.*
[7] For non-standard metric cable lengths enter 'M' plus cable length expressed in meters. *Example: M06 = 6 meters of cable.*
[8] Body Mount connector options only available with connector orientation L1 thru L5.
[9] Rated to -40° C during encoder operation. Storage and startup below -25° C not recommended.
[10] Please refer to **Technical Bulletin TB100: When to Choose the CE Mark** at *www.encoder.com*

Waveform Diagrams



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES

WAVEFORM SHOWN WITH OPTIMAL COMPLEMENTARY SIGNALS A, B, Z FOR HV AND OD OUTPUTS ONLY

Wiring Table

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

Function	Gland Cable† Wire Color	5-pin M12**	8-pin M12**	10-pin MS	7-pin MS HV, OD	7-pin MS PU, PP, OC	6-pin MS PU, PP, OC
Com	Black	3	7	F	F	F	A, F
+VDC	White	1	2	D	D	D	B
A	Brown	4	1	A	A	A	D
A'	Yellow	--	3	H	C	--	--
B	Red	2	4	B	B	B	E
B'	Green	--	5	I	E	--	--
Z	Orange	5	6	C	--	C	C
Z'	Blue	--	8	J	--	--	--
Case	--	--	--	G	G	G	--
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.

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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 to 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 wheel side. See Waveform Diagrams below.
Output Types	Open Collector- 20 mA max per channel Push-Pull- 20 mA max per channel Pull-Up- Open collector with 2.2K ohm Pull-Up 20mA max per channel Line Driver- 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index	Once per revolution. 0190 to 10,000 CPR: Gated to output A 0001 to 0189 CPR: Ungated See Waveform Diagrams below.
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
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
Symmetry	180° (±18°) electrical
Quad. Phasing	90° (±22.5°) electrical
Min. Edge Sep	67.5° electrical
Accuracy	Within 0.017° mechanical or 1 arc-minute from true position. (for CPR>189)

Mechanical

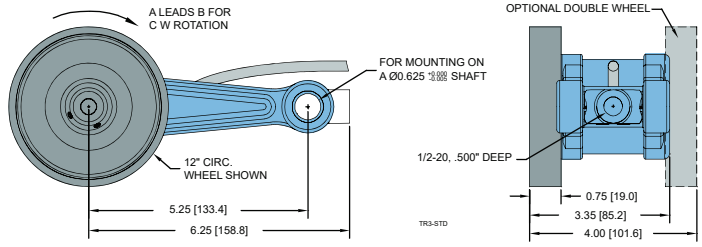
Max Linear Speed	3000 FPM not to exceed a maximum shaft speed of 6000 RPM.
Shaft Material	Stainless Steel
Shaft Size	00.375"
Radial Shaft Load	Up to10 lb max. Controlled by spring torsion feature
Starting Torque	1.0 oz-in typical with IP50 seal 2.5 oz-in typical with IP66 seal and single wheel 4.0 oz-in typical with IP66 seal and dual wheel
Electrical Connection	18" cable (foil and braid shield, 24 AWG conductors)
Mounting	5/8" diameter thru hole with clamp
Housing	Powder coated aluminum
Wheel Width	3/4" standard
Weight	2.5 lb typical with single wheel 3.0 lb typical with dual wheel

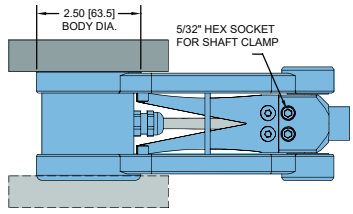
Environmental

Operating Temp	-20° to +85° C for standard models -40° to +85° C for low temperature option -20° to +100° C for high temperature option
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; IP66 available

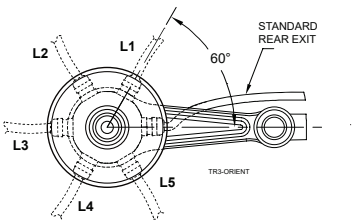
Dimensions

Model TR3 - Heavy Duty Tru Trac™

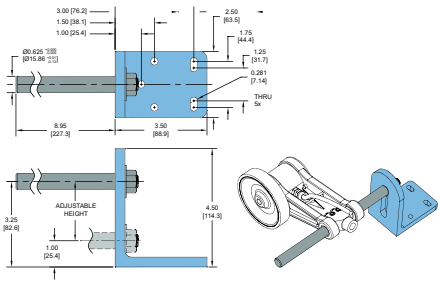




CONNECTOR ORIENTATION



Model TR3 Mounting Bracket (Order #176389-01)



Model TR3 Double Wheel Pivot (Order #176391-01)