

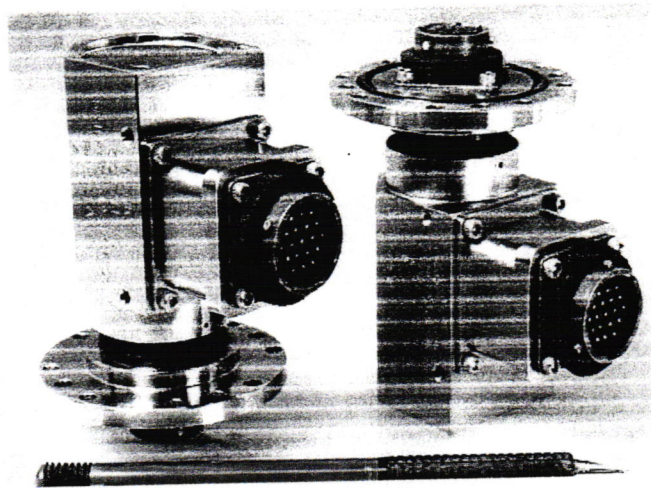


MICHIGAN SCIENTIFIC
corporation

8500 Ance Road
Charlevoix, MI 49720
(231) 547-5511
Fax: (231) 547-7070

<http://www.michsci.com>
mscinfo@michsci.com

INSTALLATION MANUAL FOR SR/ERT SERIES SLIP RING & ROTATION SENSOR



UNIT SERIAL # 3455

See last page for Full Scale and Sensitivity information.

Tachometer Option

Built in **encoder electronics** (or **tachometer electronics**, Option T____) is available in units with an encoder. The tachometer electronics can be powered with anywhere from +8 VDC (Volts DC) to +18 VDC. There are two analog outputs, one bipolar $\pm 10V$ (velocity) output and one unipolar +10V output (position). The velocity output has an RPM/Volt rating which is factory configurable for almost any value below the maximum. The position output does not start generating a signal after power-up until the Index Pulse (Once-Per-Rev) is generated by the encoder. This pulse is used to keep the position output consistent throughout any and all tests that are run, so that an output voltage represents the same angular position of the rotor all of the time. Two option pins on the stator connector can be used to select on power-up two factory configured sensitivity ranges and the direction polarity of the velocity output. The standard ranges are 1000 and 1800 RPM full-scale, but these can be specified as almost any desirable range at the time of ordering. In vehicle applications the direction polarity becomes most important as there may be a tachometer mounted to the wheels on either side of the vehicle, yet it is desired that forward motion generate a positive output from either side. In special cases where it is desirable to have more than two speed sensitivities available, the option pins can be used to select four different ranges. This option, as well as the four sensitivity ranges desired, must be specified before manufacture.

Specifications

PARAMETER	SPECIFICATION
OUTPUT	
Position (Tachometer Option)	+10 V (Unipolar)
Velocity (Tachometer Option)	±10 V (Bipolar)
Output Variation Position:	0.22 % of Full Scale Typical
Output Variation Velocity:	0.3 % of Full Scale
<i>Buffered Encoder Pulses (Encoder Option)</i>	
Output Low (Sink) Current	6.4 mA Max
Output High (Source) Current	4 mA Max
Output Voltage Low Level	0.10V Max
Output Voltage High Level	4.90V Min
<i>Slip Ring Channels</i>	
Current Capacity Per Channel	0.5 A Max
Resistance Variation Per Channel	0.1 Ohm Max
POWER REQUIREMENTS	
(Tachometer Option)	
Voltage @ 25°C	+8 to +18 VDC
Current	400 mA Max
ENVIRONMENT	
Operation (W/out Tachometer Electronics)	-40 to +100 °C (-40 to +212 °F)
Operation (Tachometer Electronics)	-40 to +85 °C (-40 to +185 °F)
Storage	-40 to +100 °C (-40 to +212 °F)
MECHANICAL	
Weight	425 g (15 Oz)
Approximate Overall Diameter	101.6 mm (4.00 in)
Overall Height	114.8 mm (4.52 in)

Stator Pin Configuration - SR20AW/T512/AX

Pinout- Stator Connector (PTO2E-18-32P)	
Pin	Description
A	Slip Ring Channel-connects to Pin A on rotor connector (PTO2E-16-26S)
B	Slip Ring Channel-connects to Pin B on rotor connector (PTO2E-16-26S)
C	Slip Ring Channel-connects to Pin C on rotor connector (PTO2E-16-26S)
D	Slip Ring Channel-connects to Pin D on rotor connector (PTO2E-16-26S)
E	Slip Ring Channel-connects to Pin E on rotor connector (PTO2E-16-26S)
F	Slip Ring Channel-connects to Pin F on rotor connector (PTO2E-16-26S)
G	Slip Ring Channel-connects to Pin G on rotor connector (PTO2E-16-26S)
H	Slip Ring Channel-connects to Pin H on rotor connector (PTO2E-16-26S)
J	Slip Ring Channel-connects to Pin J on rotor connector (PTO2E-16-26S)
K	Slip Ring Channel-connects to Pin K on rotor connector (PTO2E-16-26S)
L	Slip Ring Channel-connects to Pin L on rotor connector (PTO2E-16-26S)
M	Slip Ring Channel-connects to Pin M on rotor connector (PTO2E-16-26S)
N	Slip Ring Channel-connects to Pin N on rotor connector (PTO2E-16-26S)
P	Slip Ring Channel-connects to Pin P on rotor connector (PTO2E-16-26S)
R	Slip Ring Channel-connects to Pin R on rotor connector (PTO2E-16-26S)
S	Slip Ring Channel-connects to Pin S on rotor connector (PTO2E-16-26S)
T	Slip Ring Channel-connects to Pin T on rotor connector (PTO2E-16-26S)
U	Slip Ring Channel-connects to Pin U on rotor connector (PTO2E-16-26S)
V	Slip Ring Channel-connects to Pin V on rotor connector (PTO2E-16-26S)
W	Slip Ring Channel-connects to Pin W on rotor connector (PTO2E-16-26S)
X	Encoder Ground
Y	Option Pin 1 (Velocity)(for grounding use encoder ground)
Z	Option Pin 2 (Direction)(for grounding use encoder ground)
a	Velocity/Position Ground (Must be used for Velocity and Position or offset will occur)
b	Velocity Output
c	Position Output
d	Power Supply (+8 to +18 VDC)
e	Power Supply Ground
f	Encoder Output A
g	Encoder Output B
h	Encoder Output I (Once Per Revolution)
j	A Exclusive Or B (2x Encoder Output)

Michigan Scientific Corporation

Calibration Information

Serial #: 3455
Pulse Count: 512
Calibration Date: 1/3/2020
Today's Date: 1/3/2020

Velocity Speed Range 1: 4000 RPM (Pin R Open)
Velocity Speed Range 2: 2000 RPM (Pin R Grounded)

Range 1 4000 RPM

Velocity Full Scale 10.0002 DC Volts
Velocity, Volts per RPM 0.0025 DC Volts / RPM

Range 2 2000 RPM

Velocity Full Scale 10.0002 DC Volts
Velocity, Volts per RPM 0.0050 DC Volts / RPM

Position Full Scale Volts 9.7266 DC Volts
Position, Volts per Degree 0.0270 DC Volts / Degree

Note: *If the Direction Option Pin S is left open, the output Voltage for Velocity will be positive in the Clockwise direction. Short Pin S to Ground for Velocity to be positive in Counter-Clockwise direction.*

Note: *Encoder must be power cycled for Velocity Range or Direction options to take effect.*

Note: *Position voltage data is updated on the rising AND falling encoder edges when speed is at or below: 5000 RPM
When above this speed, position data is only updated on rising encoder edges.*