



# Rotary Position Sensor Series 525



## Features

- Field proven (over 13 million units delivered)
- Leak-proof rotor and cover seals
- Suitable for Harsh environment such as Engine compartment
- Mates with Metri-Pack® 150 Series PS2 connector
- Spring loaded “Tang Drive”
- No electromagnetic interference issues

## Applications

- Industrial
- Off Road
- Harsh Environments
- Agriculture

## Description

This Rotary Position Sensor (RPS) works on the potentiometer principle. The Rotary shaft position determines the contact location of the metal arm on the patented polymer film. Based on the contact position, the effective resistance and output voltage are calculated. Our 525 RPS design is optimized for accuracy, durability and low noise while reducing the negative effects of Axial rotor movement and electromagnetic interference. 525 RPS sensors feature a low-cost, robust design that benefits from patented technology and its small hermetically sealed package which eliminates the potential for moisture and debris penetration. With a temperature range of -40° to 150°C and IP6K9K rating, our 525 RPS is versatile to be used in in-cabin application or engine under-hood applications. Please contact CTS if you are interested in using our RPS to determine linear movement position using Kinematic mechanism principle.

## Electrical Specifications

Parameter	Unit
Total Resistance	> 3k $\Omega$
Linearity	$\pm$ 2.0% standard
Rotation Maximum	119° mechanical 97° typical electrical
Hysteresis	< 1.0% applied voltage
Electrical Limit Maximum	16 VDC
Typical Voltage	5.0 — 10.0 VDC
Maximum Power Rating	0.08 watts



## Mechanical Specifications

Parameter	Value
Torque	15 Nmm at any position between 0° and 100° rotation
Mounting Bolt Torque	2 N (18 in. lbs., typical drive)
Rotor	9.47 mm diameter
Shaft Recommended	See recommended mounting

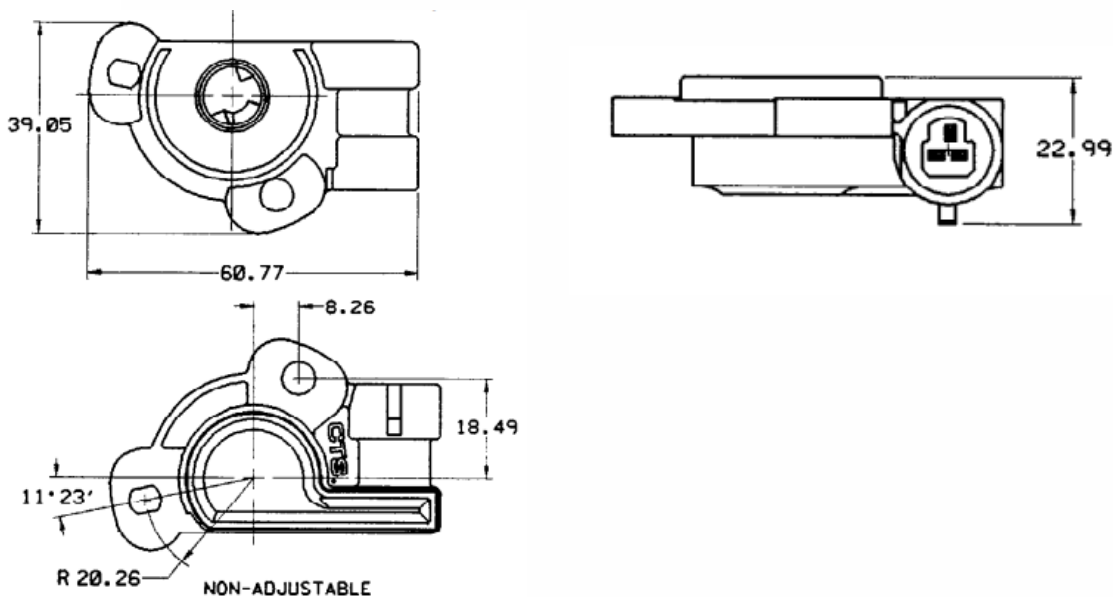
IMPORTANT: exceeding the absolute maximum ratings may cause permanent damage to the sensor module. Exposure to absolute maximum-rated conditions for extended periods of time may affect sensor module reliability.

## Durability and Environmental Specifications

Parameter	Unit
Electrical Life	Full Strokes: >1 Million Cycles -25°C to 135°C Dither Strokes: 10 Million Cycles -25°C to 135°C
Vibration	16 – 22 G rms Random for 20hrs each plane -40°C to 150°C temperature cycling
Thermal Shock	500 cycles: -40°C to 135°C
Temperature Range	-40°C to 150°C
Salt Spray	96 hrs., 5% solution
Leak Test	150°C immersion into 25°C water for 5 min
Fuel Vapor	48 hrs. each in 15% methanol, 15% ethanol and indolene HO.
Ozone	72 hrs. at 38°C, 100 ppm ozone
Dust	48 km/hr. blowing course dust 9 hrs. at 80°C

Operating conditions VDD = 5V±10%, unless otherwise specified.

## 0° incline connector version – Dimension Details



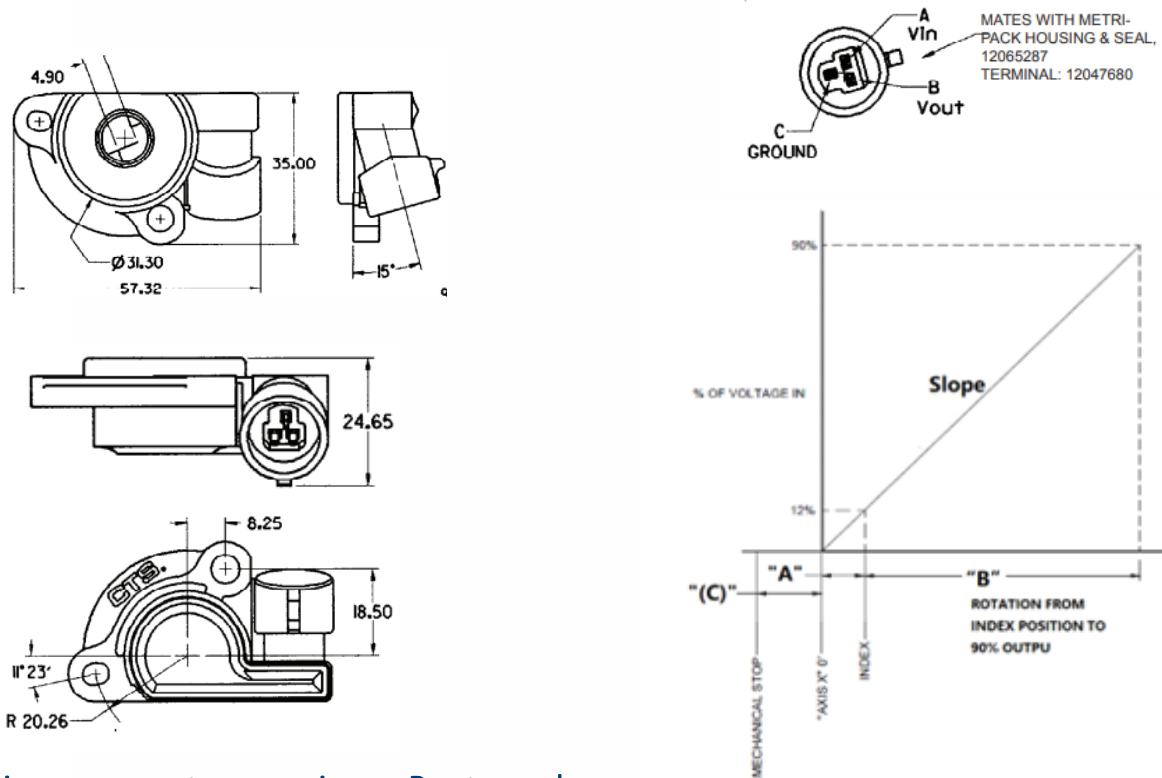


## 0° incline connector version - Partnumbers

CTS Part No	Index Volt at "A"	"B"	Angle from Axis 0 to Mech stop "C"	Nom. Slope/Deg.	Rotation	Rotor	Cover	Config.
525-99-011	12% at 6° ±2°	85° ±2°	10.53°, 6.5% at 0°	0.91765% of input	CW	Black	Black	Non Adj.
525-99-018	0.37% at -8° ±2°	97° ±2°	10.53°, 7.2% at 0°	0.8536% of input	CW	Black	Black	Non Adj.
525-99-019*	12% at 6° ±2°	85° ±2°	10.53°, 6.5% at 0°	0.91765% of input	CCW	Gray	Gray	Non Adj.

Note: \* Part 525-99-019 has a 3 month lead time for component procurement

## 15° incline connector version – Dimension Details



## 15° incline connector version - Partnumbers

CTS Part No	Index Volt at "A"	"B"	Angle from Axis 0 to Mech stop "C"	Nom. Slope/Deg.	Rotation	Rotor	Cover	Config.
525-99-009	12% at 8° ±2°	84° ±2°	10.32°, 4.6% at 0°	0.92857% of input	CCW	Gray	Gray	Non Adj.
525-99-015	12% at 8° ±2°	84° ±2°	10.53°, 4.6% at 0°	0.92857% of input	CW	Black	Black	Non Adj.
525-99-020*	12% at 8° ±2°	94° ±3°	10.53°, 5.4% at 0°	0.82979% of input	CW	Black	Black	Non Adj.

Note: \* Part 525-99-020 has a 3 month lead time for component procurement