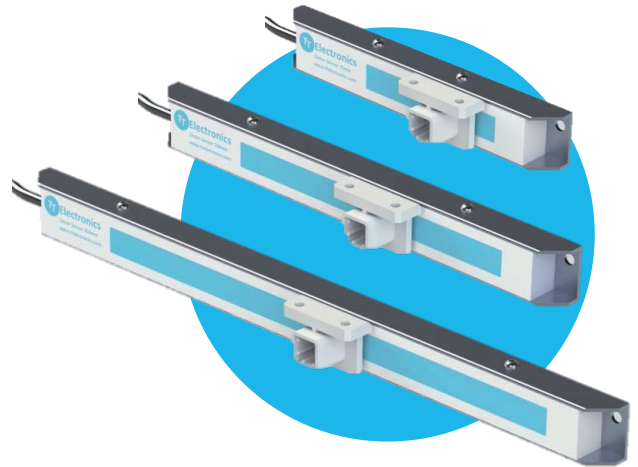


## Autopad Linear Position Sensor

### Features:

- Absolute non-contact inductive position technology
- Passive target
- Senses through non-conductive materials and fluids (e.g. plastic, glass, oil, water)
- Custom ASIC provides 12bit resolution
- Analogue 0-5V or 4-20mA output
- Fast response time
- Linear travel: 75mm, 150mm, 250mm
- OEM versions available customised to the requirements of your application



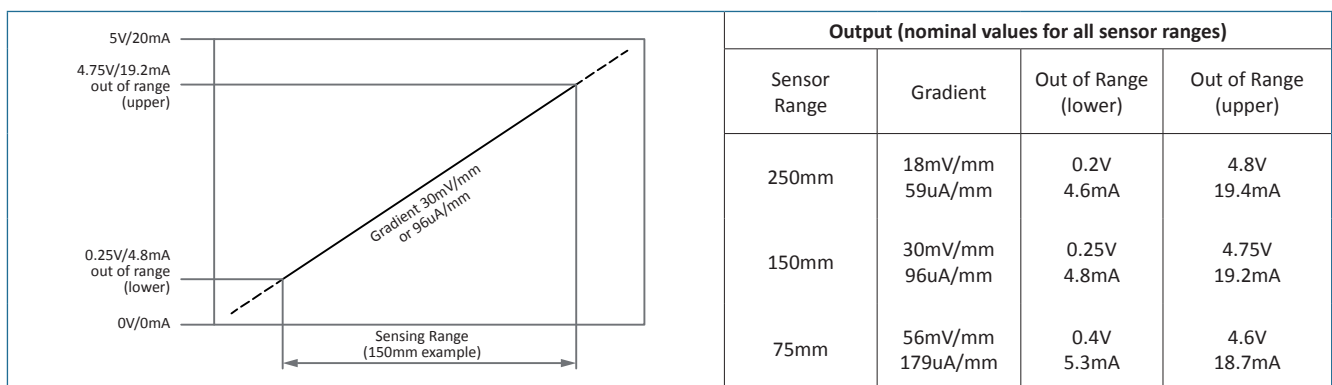
### Our advantage:

- No contact between target and sensor so parts cannot wear out
- Simple and robust construction with proven reliability; >40million Autopad sensors in the field
- Excellent immunity to external electromagnetic fields
- Completely immune to magnetic fields
- Immune to dirt and dust
- Good tolerance to geometric offsets
- Cost competitive performance

### Application

- General sensing applications, especially where:
  - Reliability and ease of use are important
  - Large magnetic fields and/or harsh EMC requirements (e.g. near motors)
  - High vibration environments (e.g. pumps, heavy machinery)
  - Wet and/or dirty environments
- For example, industrial automation, process control, valve positioning, materials handling, injection moulding, cutting & slitting, welding, CNC machines, hydraulic cylinders, robotics

### Output

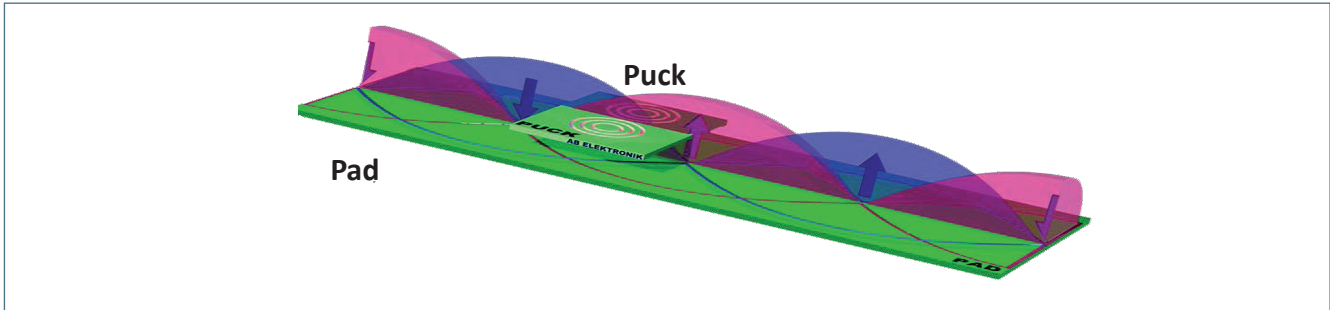


#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.  
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.



## Technology



- Originally developed for demanding automotive applications, Autopad is an inductive technology which is now available for use in industrial applications.
- The key components are a sensor element (or Pad), a target (or Puck) and electronics, based around a proprietary ASIC.
- The Pad includes two PCB track structures which each form transmitter coils. These generate sine and cosine shaped spatial electromagnetic fields.
- The moving target is formed by a simple LC resonant circuit - the Puck.
- The transmitter coils are driven with a high frequency carrier (at the Puck resonant frequency), but modulated at a lower frequency in quadrature. These fields couple to the Puck and the cumulative current generated in the Puck depends on its position.
- The alternating field produced by the Puck induces a voltage in a third coil on the Pad — the receiver coil. The ASIC synchronously detects this voltage signal, leaving only the modulated signal. The phase of this modulated signal is then calculated and gives a direct measurement of the Puck position.
- The technology can be configured for specific applications – for example, to suit a specific geometry, or with a high resolution and accuracy coarse/fine output, or with redundant output for increased reliability.

## Specification

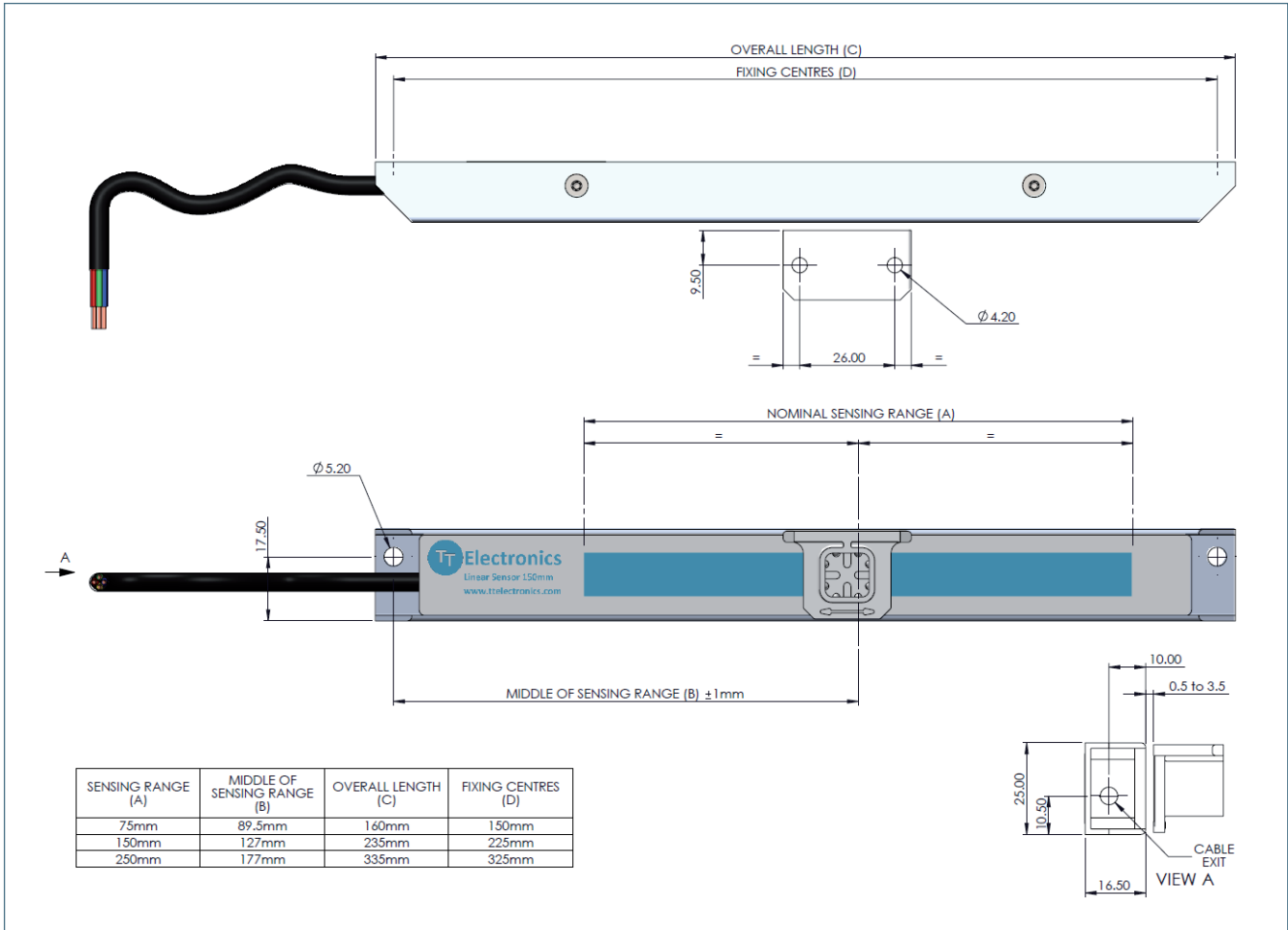
Interface	Analogue: 0-5V ratiometric	Analogue: 0-5V	4-20mA
Power supply	4.5 – 5.5V DC	8-24V DC	8-24V DC
Current consumption	20 mA	15 mA Max.	40 mA
Nominal Sensing Range (L)	75mm / 150mm / 250mm		
Nominal target-sensor separation	2mm +/- 1.5mm		
Sense through nonconductive material (eg: plastic, water, oil)	Yes		
Linearity	1% full scale output		
Hysteresis	None		
Magnetic field resistance	Complete Immunity		
Resolution	12 bit		
Update rate	250µs		
Operating Temperature	-20 to 70°C		
Electrical connections	Brown: V+, Black: Output, Blue: Gnd		
Output load	>1kΩ		
Reverse polarity	Yes		
Overvoltage protection	Yes, to 40 V		
Cable length	0.5m		
Sealing	IP67		
Approvals	CE, ROHS & WEEE		

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## Drawings & Installation



## Part Numbers

A P 0 - 0 7 5 - 0 0 1 - 0 0 0

### Technology

AP0 = Autopad

### Sensing Range

075 = 75mm  
150 = 150mm  
250 = 250mm

### Output

001=0-5V O/P ratiometric  
002=0-5V O/P, 8-24V supply  
003=4-20mA O/P, 8-24V supply

### Undefined

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