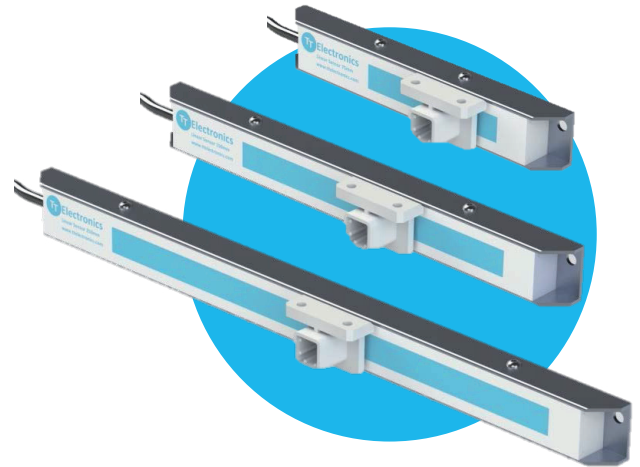


Autopad Linear Position Sensor

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



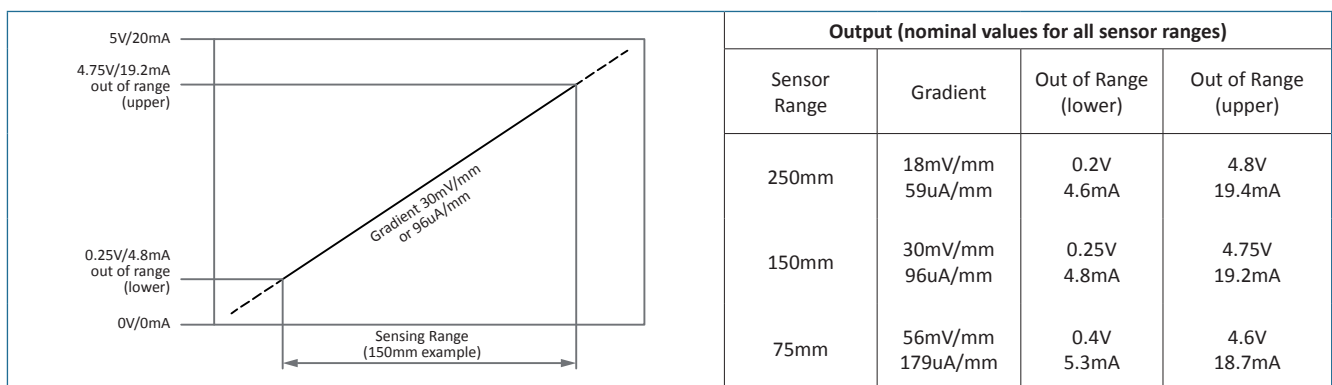
Our advantage:

- 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

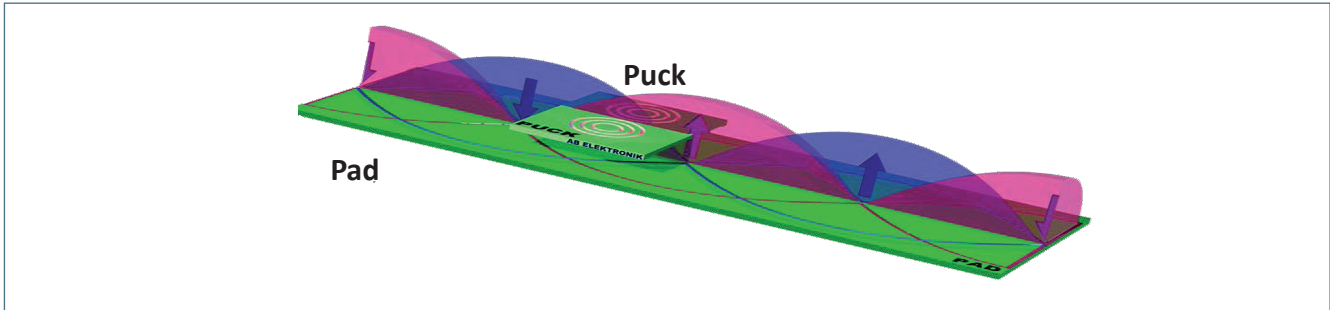


General Note

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

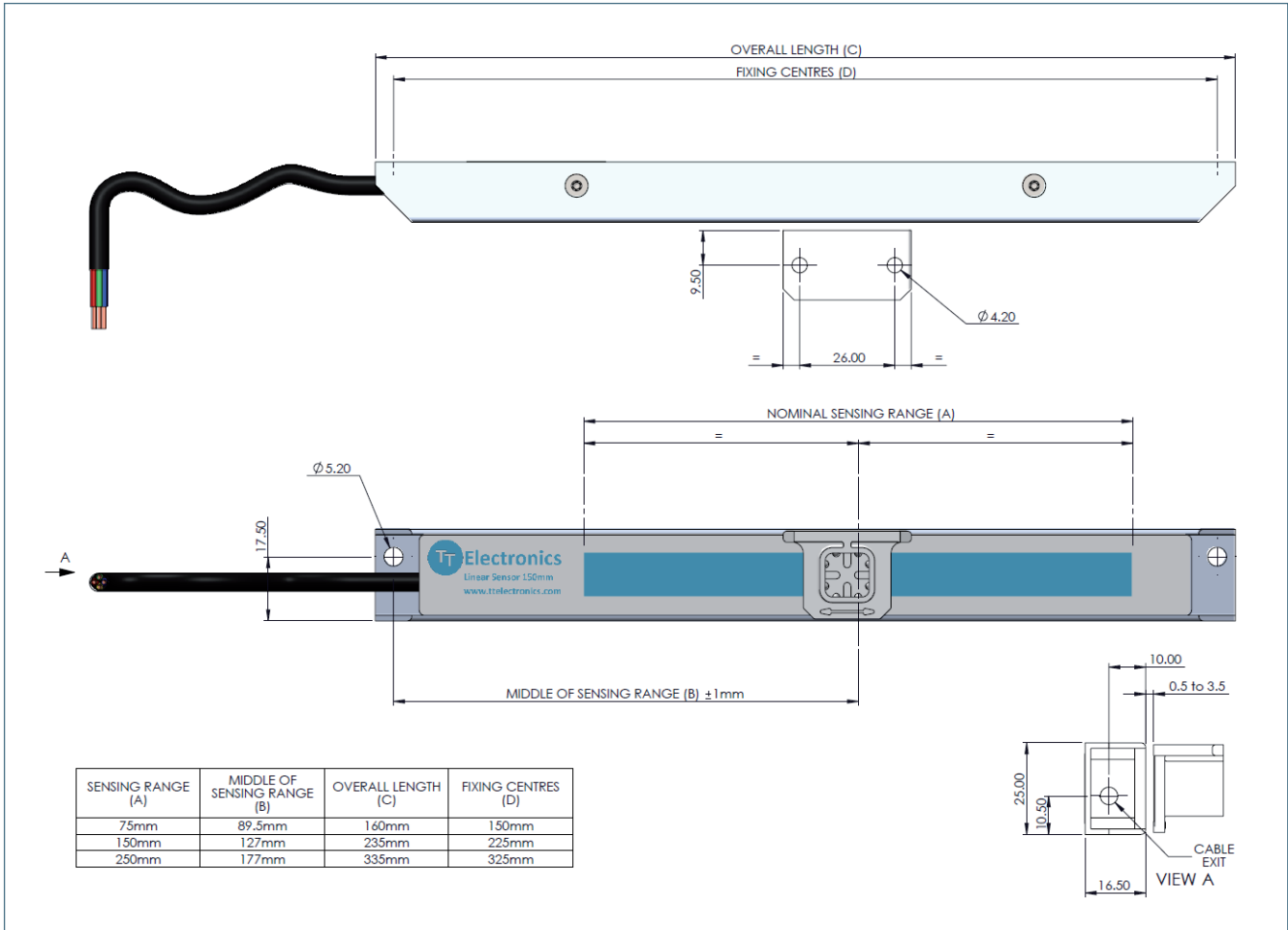
| | | | |
|--|-------------------------------------|----------------|----------|
| Interface | Analogue: 0-5V ratiometric | Analogue: 0-5V | 4-20mA |
| Power supply | 4.5 – 5.5V DC | 8-24V DC | 8-24V DC |
| Current consumption | 20 mA | 15 mA Max. | 40 mA |
| Nominal Sensing Range (L) | 75mm / 150mm / 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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