

Velocimeter

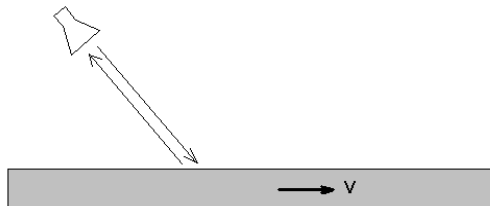
5-March-2007

Millimeter microwave radar sensor designed for non-contact velocity measurement.
Backscatter Doppler radar.



Applications

Velocity measurement of metal strips in rolling mills, conveyor belts, plastic sheets, granulates in pipes and chutes and similar.



Specifications

Velocity range: 0.10 – 150 m/s (four sub-ranges)

Accuracy: calculated estimate ~ 0.02% of the full range; experimental test shows, for example +/-5 mm/s error at v=4 m/s
Lab-tested using rotating steel disk.

Response time: 76-240ms depending on velocity range.

Mounting distance: 20 –120 cm, (optimum=30cm) antenna lens to strip edge, along the antenna axis.

Mounting position: antenna pointing towards the edge of the strip, at an incidence angle of 30-60 degrees. The unit should be mounted co-planarly with the strip.

Sensor beam: 77GHz CW, 50mW out. power, polarization (E-field) perpendicular to the strip plane. Beam width=5cm

Housing: cast aluminum enclosure by Adalet, with a screwed-on lid with glass window; explosion-proof approval ratings. 3.5kg

Environmental protection: similar to Nema-4

Housing approvals: class I group B,C,D, class II group E,F,G, class III type 4X, class I zone1A ExdIIC, ExdIIC, IEC60529 IP66

Cable entry: single 3/4" NPT conduit port

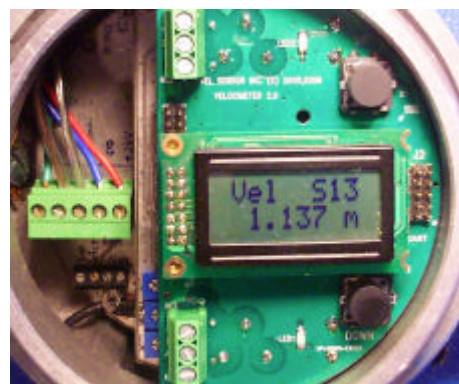
Power supply: 24V DC (19-29V)/0.5A, 2A fuse

Transmitter Output: 50mW at 77GHz

Output: 4-20mA source or isolated sink.
Voltage burden 8V, <640ohm.
Quadrature differential pulse output

Data port: 9.6-115kbaud, no handshaking. It is recommended to attach cable USB, RS485 or Bluetooth interfaces (not incl.), for interfacing to a PLC or a PC.

Configuration: manual parameter entry using character LCD, 2 lines by 8 characters and two buttons (requires opening of the enclosure lid). Alternatively – remote config. through data port.



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