






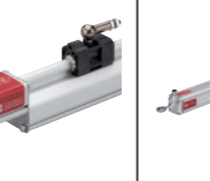
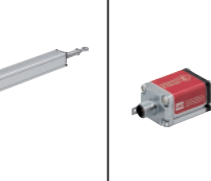
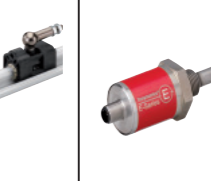




Temposonics® Magnetostrictive Position Sensors for Industrial Applications

Whether your application is industrial or medical, harsh environment or commercial, extra-long or ultra-space sensitive, standard or custom, MTS Sensors have the features, options and flexibility to work in your design.

| | R-Series Smart sensors with ruggedness, highest accuracy and a large variety of designs & interfaces | | | | G-Series Sensors with analog or Start/Stop output for standard applications | | | E-Series Sensors designed for applications requiring simple and low cost position feedback | | | | | | |
|---|--|---|--|---|--|---|---|--|---|--|--|--|---|--|
| |  |  |  |  |  |  |  |  |  |  |  |  | | |
| Sensor Model | RH Pressure-resistant stainless steel rod sensor for fluid technology | RP Robust aluminum profile for industrial manufacturing | RD4 Separate electronics + pressure-resistant rod for limited space | RF Smart sensor with flexible measuring rod | GH/GP Simple and robust sensor | GT High reliability redundant triple/twin sensor | GBS High pressure resistant sensor rod | EP Aluminum profile for industrial automation technology | ER Profile sensors with "Rod & Cylinder" actuation and integral electronics | EL Low profile sensor for applications where tight mounting space is a critical factor | EH High pressure rod with compact waterproof stainless steel housing | EP2 Non-contact linear position sensor to substitute linear potentiometers | | |
| Features | Displacement, Velocity (except DeviceNet) Simultaneous Multi Position Measurement (Multi Magnet Measurement) Analog up to 2 positions; SSI differential measurement up to 2 positions; CAN, Profibus, EtherCAT, EtherNet/IP up to 20 positions; Profinet RT up to 19 positions | | | | Displacement Simultaneous Multi Position Measurement Start/Stop up to 9 positions | | | Displacement, Velocity (Output dependent) Rugged profile Rod-and-cylinder style and competitive with potentiometers For tight mounting space Cost effective & compact rod type Flat Profile | | | | | | |
| Output | Voltage : 0 to 10V, 10 to 0V, -10 to +10V, +10 to -10V Current : 4 to 20mA, 0 to 20mA, 20 to 4mA, 20 to 0mA SSI : Binary or Gray, Data Length 24bit · 25bit · 26bit, 32bit (Binary only) Fieldbus : CANbus, CANopen, Profibus, Profinet RT, EtherCAT, EtherNet/IP, DeviceNet (except RD4) | | | | Voltage : 0 to 10V, 10 to 0V, -10 to +10V, +10 to -10V Current : 4 to 20mA, 0 to 20mA, 20 to 4mA, 20 to 0mA Start/Stop pulse Pulse Width Modulation (PWM) | | | Voltage : 0-10V, 10-0V Current : 4 (0) -20mA, 20-4 (0) mA Start/Stop pulse SSI : 24/25bit Binary or Gray, CANopen (ER : Please contact factory) | | | | | | |
| Measuring Range | Analog : 50-7600mm Digital : 25-7600mm | Analog : 50-5000mm Digital : 25-5000mm | 0.1-20m >15m: Contact Factory | Analog : 50-2500mm Digital : GH : 50-7600mm GP : 50-5000mm | 50-2900mm | 25-3250mm | Analog, SSI, CANopen : 50-2500mm Start/Stop : 50-3000mm | 50-1500mm | Analog, SSI, CANopen : 50-2500mm Start/Stop : 50-3000mm | 50-2500mm | Analog : 50-2500mm Start/Stop : 50-3000mm | | | |
| Non-Linearity | <±0.01%F.S. (Option internal linearization) | | <±0.02%F.S. (Contact factory for internal linearization of RD4) | | <±0.02%F.S. | | | <±0.02%F.S. (Min. ±60µm) | | | | | | |
| Resolution (Please see P.9 for velocity) | Analog : 16bit/0.0015%, SSI : 0.5µm, EtherCAT, Profibus, Profinet RT, EtherNet/IP : 1µm, CAN, DeviceNet : 2µm, RD4 : 5µm | | | | Analog : infinite Digital : 5µm | | | Analog : infinite Start/Stop : 0.1/0.01/0.005mm SSI : 20µm CANopen : 10µm | | | | | | |
| Repeatability | <±0.001%F.S. | | | | <±0.001%F.S. | | | <±0.005%F.S. | | | | | | |
| Update Time / Sampling Rate (1 magnet) (Please see P.9 for details.) | Analog : 0.5ms (2KHz) CANbus/DeviceNet : 0.5ms (2KHz) EtherCAT : Stroke dependent, EtherNet/IP : 2ms (0.5KHz) Profibus : 0.5ms (2KHz), Profinet RT : 1KHz, SSI : 0.27ms (3.7KHz), 10KHz synchronous mode | | | | Analog : <1ms typ (>1KHz) Start/Stop : max 2800m/s (length, controller dependent) e.g. 1200mm : 0.42ms (2.4KHz) +Controller processing time | | | Analog : >0.33ms typ (<3KHz) Start/Stop : max 2800m/s (length, controller dependent) e.g. 1200mm : 0.42ms (2.4KHz)+controller processing time SSI : 0.27ms (3.7KHz) CANopen : 1ms (1KHz) | | | | | | |
| Temperature Coefficient | Analog : <30ppm/°C, SSI, CAN, Profibus, EtherCAT, Profinet RT, EtherNet/IP, DeviceNet : <15ppm/°C | | | | TBD | | | SSI, CANopen : <15ppm/°C | | | | | | |
| Shock Test | 100G single hit (IEC60068-2-27) | | | | 100G single hit (IEC60068-2-27) | | | 100G single hit (IEC60068-2-27) | | | | | | |
| Vibration Test | 15G 10-2KHz (IEC60068-2-6), 30G (option) | 10G 10-2KHz (IEC60068-2-6) | 5G 10-150Hz (IEC60068-2-C) | 15G 10-2KHz (IEC60068-2-6), 30G (option/except GT) | 5G 10-2KHz (IEC60068-2-6) | 15G 10-2KHz (IEC60068-2-6) | Analog, Start/Stop, CANopen : 15G 10-2KHz SSI : 10G 10-2KHz (IEC60068-2-6) | Analog, Start/Stop 10G 10-2KHz SSI : 5G 10-2KHz (IEC60068-2-6) | Analog, Start/Stop, CANopen : 15G 10-2KHz SSI : 10G 10-2KHz (IEC60068-2-6) | 15G 10-2KHz (IEC60068-2-6) | 8G 10-2KHz (IEC60068-2-6) | | | |
| Pressure Rating | 35MPa 70MPa peak 80MPa (option) | - | 35MPa 70MPa peak | - | 35MPa 70MPa peak (GH) | 35MPa 69MPa peak | 35MPa 70MPa peak | - | - | - | Analog, Start/Stop φ7mm : 30MPa 45MPa peak φ10mm : 35MPa 53MPa peak SSI, CANopen φ7mm : 30MPa 35MPa peak φ10mm : 35MPa 45MPa peak | - | | |
| Protection | IP67 IP68 (Cable outlet) IP68/IP69K (in SSH housing) | IP65 | Sensor Electronics IP67 Side Cable Entry IP65 Bottom Cable Entry IP30 | IP30 Waterproof Rod option | GH : IP67 IP68 (Cable outlet) IP68/IP69K (in SSH housing) GP : IP65 | IP67 IP68 (Cable outlet) | IP67 IP68 (Cable outlet) | IP67 | | | IP69K | IP67 | | |
| Input Voltage | 24VDC (-15/+20%) | | | | 24VDC (-15/+20%), 9-28.8V (option) | | | 24VDC (-15/+20%) | | | | | | |
| Operation Temperature | -40°C to +75°C, 0°C to +75°C (EtherNet/IP, Profinet RT) | | | | -40°C to +80°C | | | -40°C to +75°C | | -40°C to +90°C (option -40°C to +100°C) | | | -40°C to +75°C, -25°C to +75°C (ER SSI) | |
| Current Consumption | Analog, SSI : 100mA typ CAN, Profibus, DeviceNet : 90mA typ EtherCAT : 80mA typ, EtherNet/IP, Profinet RT : 110mA typ | | | | 100mA typ | | | 100mA Stroke dependent | | Analog : 50-140mA, Start/Stop : 50-100mA SSI : 90mA, CANopen : 90mA (EP, EL), 40-60mA (EH) | | | | |
| EMC | EMI : EN61000-6-4, EMS : EN61000-6-2, ESD : EN61000-4-2, RFI : EN61000-4-3 Electrical fast transient / burst immunity test : EN61000-4-4 Immunity to conducted disturbances, induced by radio-frequency fields : EN61000-4-6 Criterion A, CE-qualified | | | | EMI : EN61000-6-4, EMS : EN61000-6-2 CE-qualified | | | EMI : EN61000-6-4 EMS : EN61000-6-2 CE-qualified (SSI, CANopen : See datasheet) | | | | | | |
| Option | TIIS Explosion-proof ATEX Pressure-resistant and explosion-proof ATEX Explosion proof | ATEX Explosion proof | Head to Rod Cable up to 5m | Waterproof rod cover | GH : ATEX Pressure-resistant and explosion-proof ATEX Explosion proof GP : ATEX Explosion proof | | Wireless programming | | | | SUS 316 | | | |

Functions and the approved certification depend on the sensor model. Please contact factory for other measuring ranges, materials, operating environments, etc.