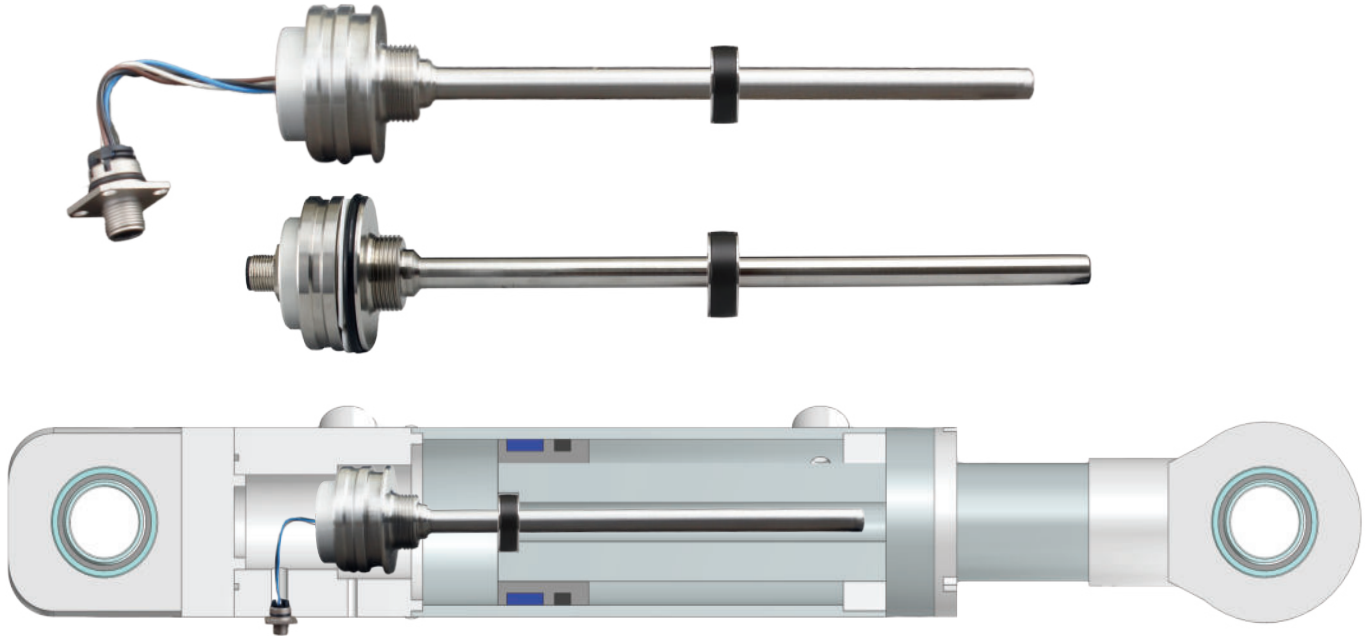


# MSP

## In-Hydraulic

### Non-Contact Magnetostrictive Position Sensor

ANALOG V/mA

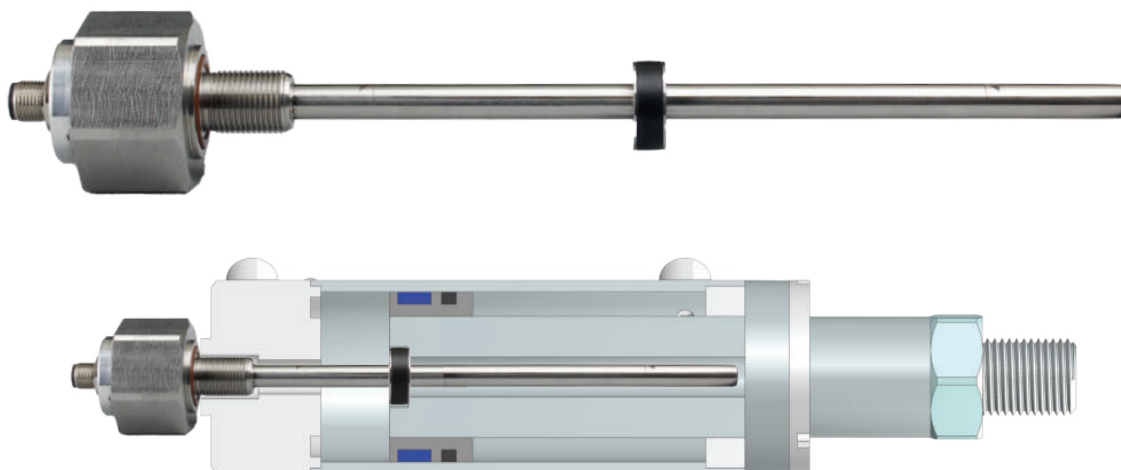


#### Technical Specifications

Measurement stroke	50 to 3000 mm
Resolution	15 bit DAC output
Repeatability	±0,005% [full scale]
Output	0-20mA, 4-20mA
Power supply	24 VDC ±10%
Displacement speed	max. <5 m/s
Linearity	Up to ±0,05% full scale (min. 100 µm)
Sampling rate	Up to 2 kHz (depending on stroke length)
Vibration	EN 60068-2-6 , 5-200 Hz 200 m/s <sup>2</sup> (20g) , 2h 30min each axis (x,y,z)
Shock	EN 60068-2-2:2007 500 m/s <sup>2</sup> (50g) , 11ms. (x,y,z axis)
Update time	0-600mm, 0,5ms 600-1500mm, 1ms 1500-3000mm, 2ms
Max. consumption	< 50 mA - 90 mA (depending on stroke length)
Max. output noise	< 5 mVpp
Load resistance	max. 500 Ohm
Reverse polarity protection	Up to -30 VDC
Overvoltage protection	Up to 30 VDC
Pressure rating	< 500 bar
Sealing	O-ring: NBR Backup Ring: PTFE
Mounting	M24x2mm O-ring or Flat
Case material	Case :Stainless steel Tube: Stainless steel Caps: Anodized aluminium
Protection level	IP 67
Operating temperature	-10°C ... +70°C
Storage temperature	-30°C ... +90°C

# Internal / External Mounting Hydraulic Cylinders Magnetostrictive Position Sensor

ANALOG V/mA



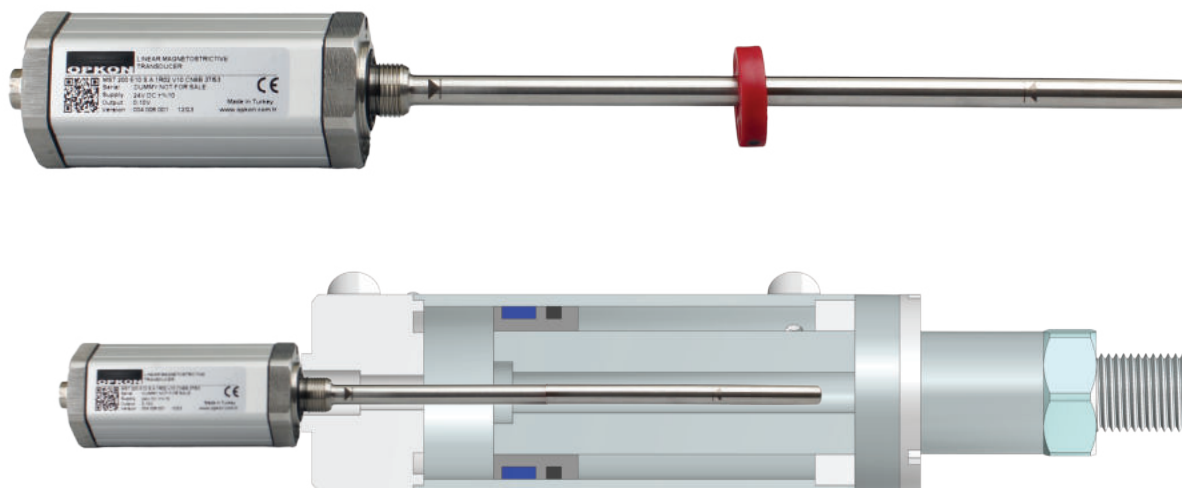
Technical Specifications	
Measurement stroke	50 - 3000 mm
Resolution	15 bit DAC
Repeatability	±0,005% (full scale)
Output	0-20mA, 4-20mA
Power supply	24 VDC ±10%
Displacement speed	max. <5 m/s
Linearity	Up to ±0,05% full scale (min. 100 µm)
Sampling rate	Up to 2 kHz (depending on stroke length)
Vibration	EN 60068-2-6 , 5-200 Hz 200 m/s <sup>2</sup> (20g) , 2h 30min each axis (x,y,z)
Shock	EN 60068-2-2:2007 500 m/s <sup>2</sup> (50g) , 11ms. (x,y,z axis)
Update time	0-600mm, 0,5ms 600-1500mm, 1ms 1500-3000mm, 2ms
Max. consumption	< 50 mA - 90 mA (depending on stroke length)
Load resistance	max. 500 Ohm
Reverse polarity protection	Up to -30 VDC
Overvoltage protection	Up to 30 VDC
Pressure rating	< 500 bar
Sealing	O-ring: NBR
Mounting	M18 x 1,5 or 3/4"-16 UNF O-ring
Case material	Profile : Stainless steel Tube: Stainless steel Caps: Anodized aluminium
Protection level	IP 67
Operating temperature	-10°C ... +70°C
Storage temperature	-30°C ... +90°C

# MST

## In-Hydraulic Cylinders

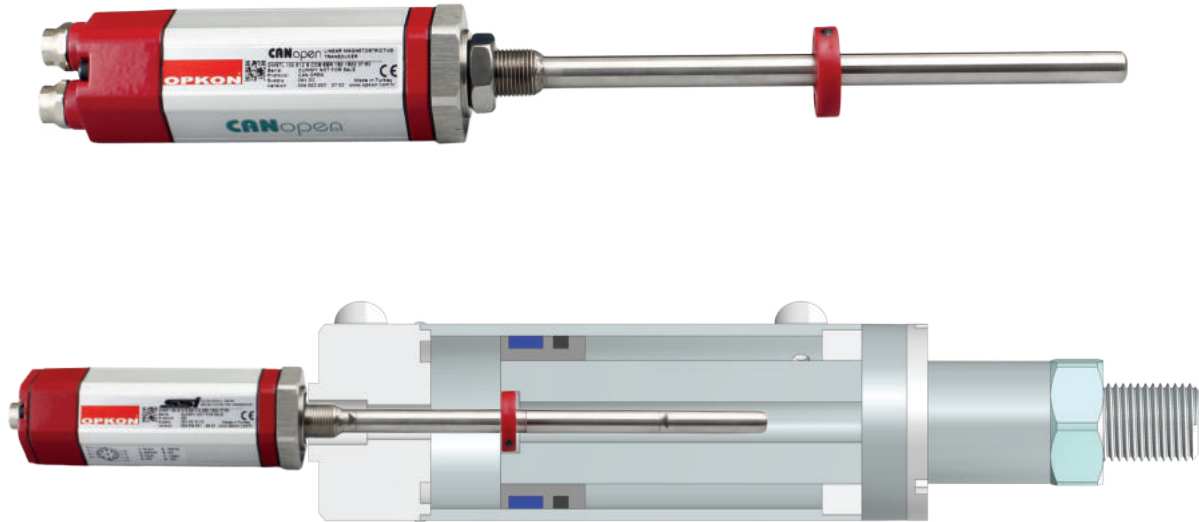
### Non-Contact Magnetostrictive Position Sensor

ANALOG V/mA



#### Technical Specifications

Measurement stroke	50 to 5000 mm
Resolution	12 - 16 bit DAC output
Repeatability	±0,005% (full scale)
Output	0-10V, 10-0V, 0-20 mA, 20-0 mA, 4-20 mA, 20-4 mA
Power supply	24 VDC (22 - 26 V)
Displacement speed	max. < 5 m/s
Linearity	Up to ±0,05% full scale (min. 100 µm)
Sampling rate	Up to 2 kHz (depending on stroke length)
Vibration	EN 60068-2-6 , 5-200 Hz 200 m/s <sup>2</sup> (20g) , 2h 30 min each axis (x,y,z)
Shock	EN 60068-2-2:2007 500 m/s <sup>2</sup> (50g) , 11ms. (x,y,z axis)
Update time	0-600mm, 0,5ms 601-1500mm, 1ms 1501-3000mm, 2ms 3001-5000mm, 3ms
Max. consumption	50 mA - 90 mA (depending on stroke length)
Max. output noise	< 5 mVpp
Max. output value	10.5 Volt
Reverse polarity protection	Up to -30 VDC
Overvoltage protection	Up to +30 VDC
Pressure rating	< 500 bar
Mounting	M18 x 1.5 or 3/4"-16 UNF O-ring or Flat
Case material	Profile :Anodized aluminium, Tube: Stainless steel, Caps: Stainless steel
Protection level	IP 65 - EN 60529
Operating temperature	-10°C ... +70°C
Storage temperature	-30°C ... +90°C



Technical Specifications - CANopen / CANbus	
Interface	CAN
Protocol	CANopen, CANbus
Communication profile	CiA301, CiA406 V3.2
Node ID	1-127(Default Node ID:20)
Green LED	Power on,CAN communication active
Red LED	Error, stop mode

Technical Specifications - ProfiBUS	
Interface	ProfiBUS-DP
Protocol	ProfiBUS-DP V0/V1/V2
Line driver	Galvanic isolation
Node ID	1-127(Default Node ID:20)
Green LED	Power on,ProfiBUS communication active
Red LED	Error, stop mode

Technical Specifications - ModBUS	
Interface	RS422 / RS485
Protocol	ModBUS
Node ID	1-247
Baud rate	9600 - 115200 Bit/sec.

Technical Specifications - EtherCAT	
Interface	EtherCAT
Protocol	EtherCAT 100 Base-Tx, Fast ethernet
Baud rate	Max. 100 Mbit/s
Green LED	Power on, EtherCAT communication active
Red LED	Error, stop mode

Technical Specifications - BISS	
Interface	RS422 / RS485
Protocol	BISS binary
Status LED	Optional
Green LED	Power on, BISS communication active
Red LED	Error, stop mode

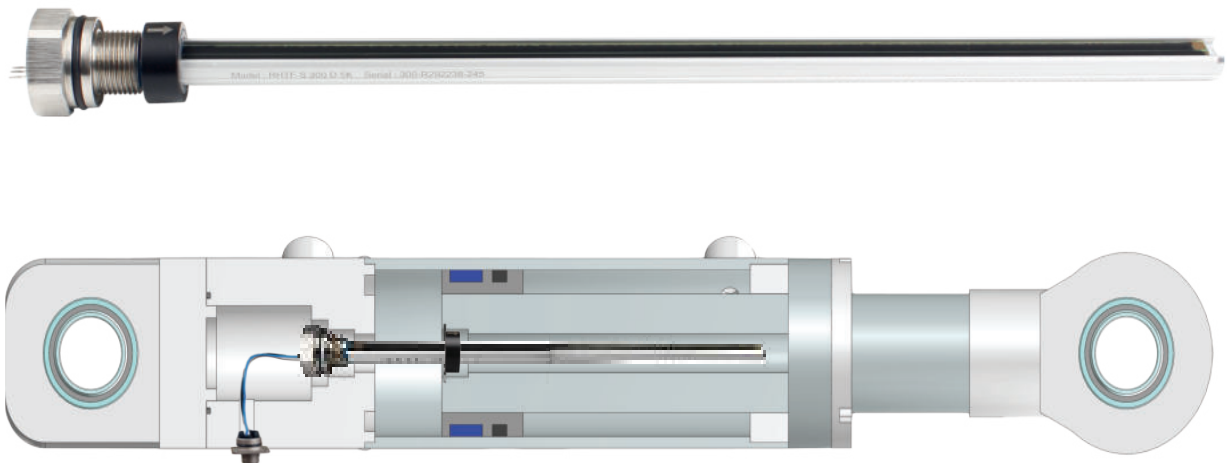
Technical Specifications - SSI	
Interface	RS422 / RS485
Protocol	SSI binary, SSI gray
Status LED	Optional
Green LED	Power on, SSI communication active
Red LED	Error, stop mode

# RHTF

## In-Hydraulic Cylinders

### Linear Potentiometer

RESISTIVE  
POTENTIOMETRIC

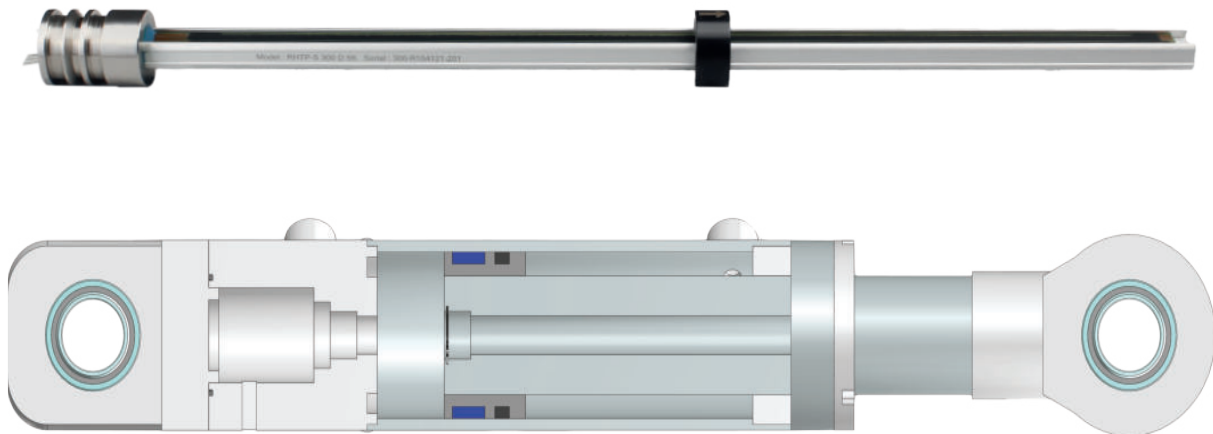


#### Technical Specifications

Measurement range	100 - 1000 mm
Linearity	±%0,05
Repeatability	< 0.2 mm
Resolution	Infinite
Resistance	2 kOhm : 100 - 600 mm 5 kOhm : 650 - 1000 mm
Resistance tolerance	± %20
Load resistance	100 kOhm min.
Recommended wiper current	<1 µA
Power supply	28 VDC max.
Displacement speed	< 5 m/s
Mechanical life	>20 million movements
Case diameter	Ø15 mm
Case material	Anodized aluminium
Flange material	Stainless steel [AISI303]
Operating temperature	-20°C ... +80°C
Storage temperature	-30°C ... +90°C

# RHTP In-Hydraulic Cylinders Linear Potentiometer

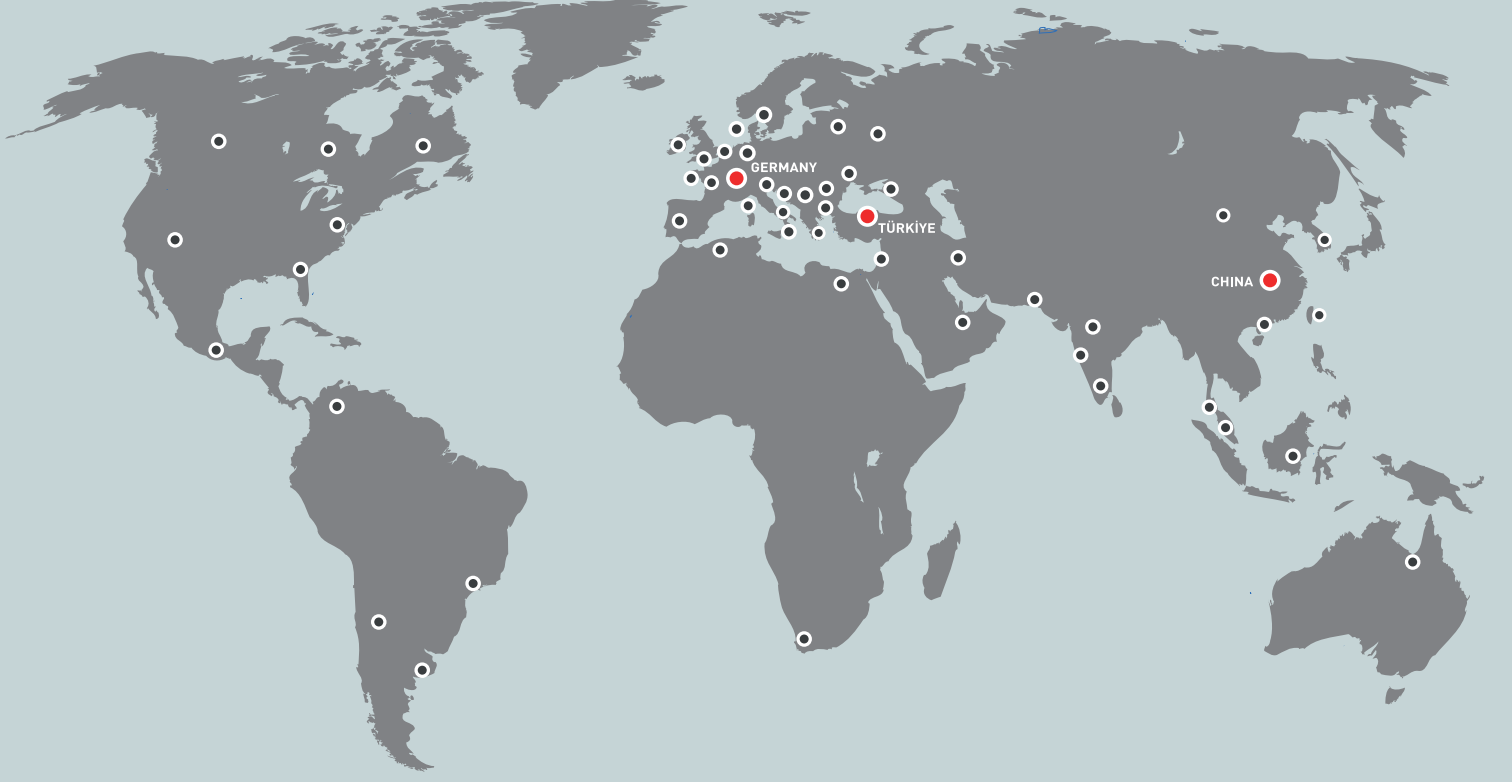
RESISTIVE  
POTENTIOMETRIC



## Technical Specifications

Measurement range	100 - 1000 mm
Linearity	±%0,05
Repeatability	< 0.2 mm
Resolution	Infinite
Resistance	2 kOhm : 100 - 600 mm 5 kOhm : 650 - 1000 mm
Resistance tolerance	± %20
Load resistance	100 kOhm min.
Recommended wiper current	<1 µA
Power supply	28 VDC max.
Displacement speed	< 5 m/s
Mechanical life	>20 million movements
Case diameter	Ø15 mm
Case material	Anodized aluminium
Flange material	Stainless steel (AISI303)
Operating temperature	-20°C ... +80°C
Storage temperature	-30°C ... +90°C

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