

MTRH SERIES

MAGNETOSTRICTIVE DISPLACEMENT SENSOR

FEATURES

- ⦿ Non-contact measurement
- ⦿ Rugged and oil-resistant design
- ⦿ Modular design for easy replacement
- ⦿ Absolute output – no need for re-zeroing
- ⦿ LED indicators for real-time status diagnostics
- ⦿ Low power consumption, reduced temperature drift
- ⦿ Multiple output options: Analog, SSI, Start/Stop pulse



INTRODUCTION

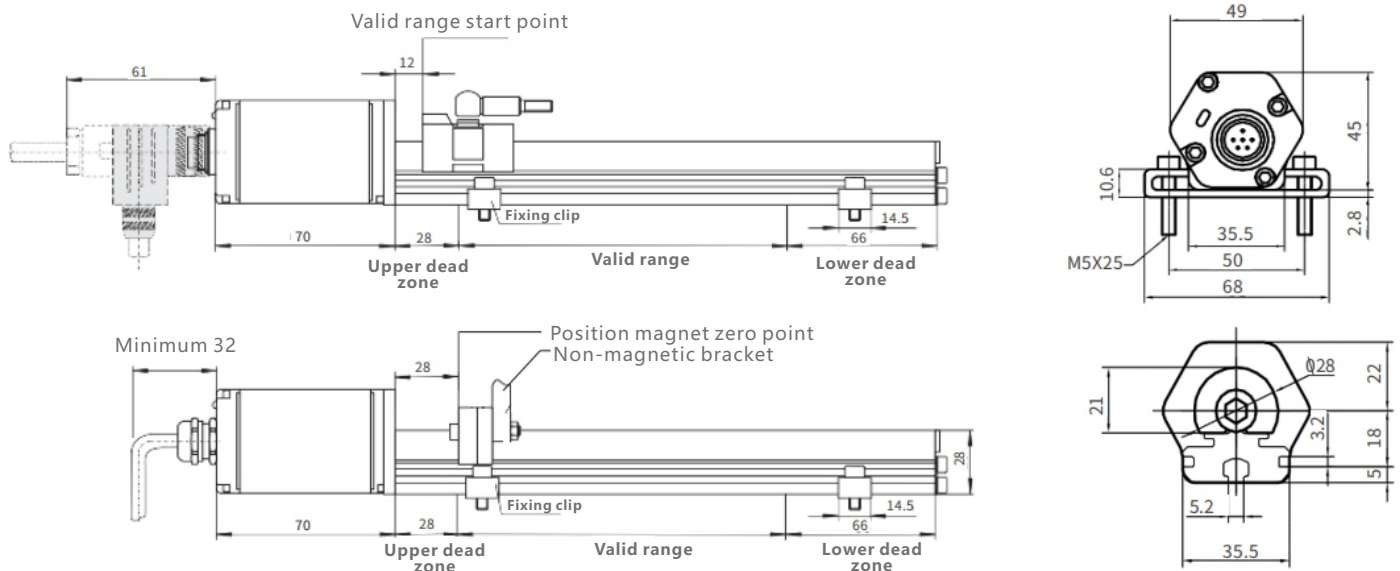
The DWEL MTRH Series Magnetostriuctive Position Sensors provide precise, non-contact linear position measurement with high reliability in harsh industrial environments. Built for durability and oil resistance, they offer absolute output with no wear or recalibration required. Ideal for plastic extrusion and injection molding machines, hydraulic cylinders, and industrial automation, the MTRH Series ensures stable, maintenance-free performance and is fully compatible with Temposonics and Balluff replacements.

SPECIFICATIONS

Measuring Range	50–7000 mm(50-6000mm for analog output)
Output signal	4 ~20mA, 20-4mA, 0-5V, 0 ~ 10V, 0~5V, SSI, Start/Stop pulse
Non-linearity	< ±0.03% F.S. (min. ±50 μm)
Repeatability	< ±0.002% F.S. (min. ±1 μm)
Connection Type	Waterproof connector or aviation plug
Resolution	Analog output: 16-bit D/A SSI output: 1 / 2 / 5 / 10 / 20 / 50 / 100 μm Pulse : Depends on controller, minimum accuracy 5μm
Update Time	0.5 ms (≤1 m range) 1.0 ms (1–2 m range) 2.0 ms (2–4 m range) 4.0 ms (4–7 m range)
Power supply	24 VDC (–15% / +20%)
Thread size	M18×1.5, M20×1.5, 3/4-16 UNF, Others on request(MTRH-S only)
Insulation Resistance	500 V (between signal ground and housing)
Material	Housing: Aluminium, Measuring rod: 304(MTRH-S)/Al(MTRH-P)
Insulation Resistance	500 V (between signal ground and housing)
Operating Current	< 80 mA (varies with measuring range)
Protection	IP65(MTRH-P) , IP67(MTRH-S)

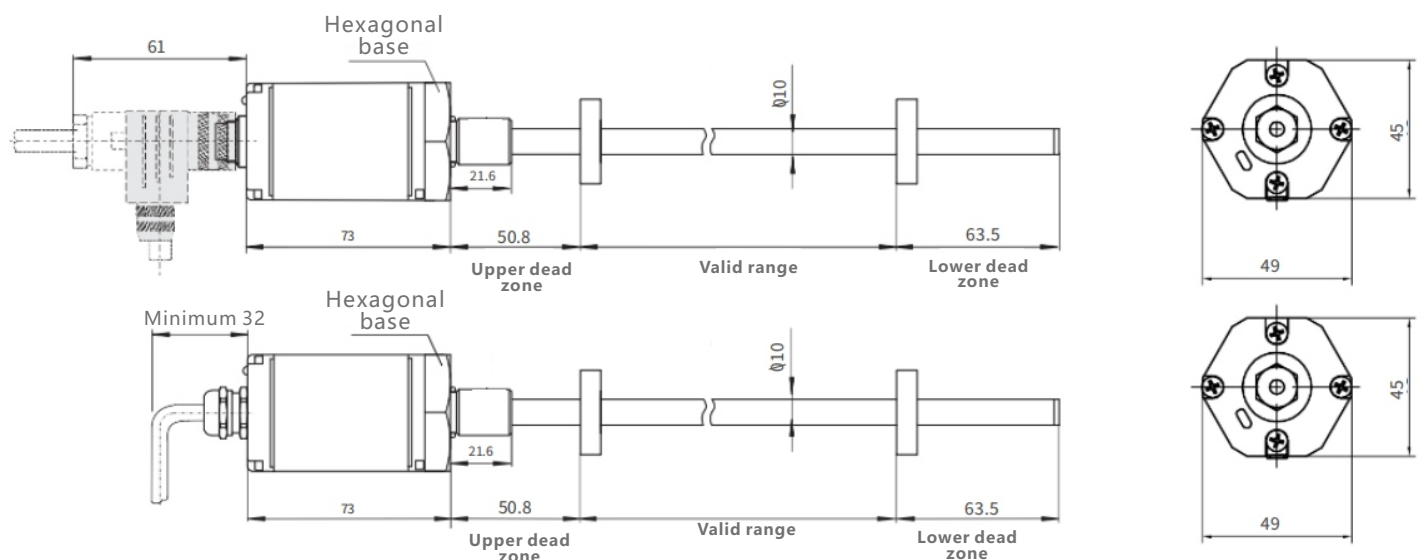
DRAWING

MTRH-P SERIES



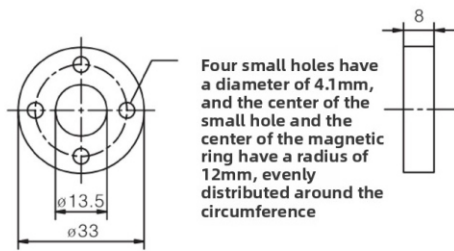
MTRH-P series aluminum-profile external mounting design for flexible and easy installation. Suitable for stroke or position detection in mobile machinery and linear motion systems, and for external position measurement of hydraulic cylinders.

MTRH-S SERIES



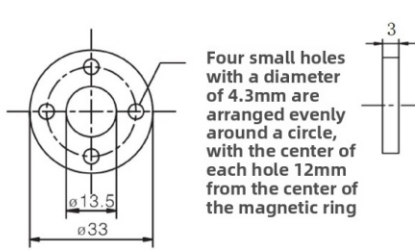
MTRH-S series pressure-resistant rod and electronics can be easily separated (two M4×65 screws), allowing quick replacement without depressurizing the system. The pressure rod can remain as a permanent part of the hydraulic cylinder.

Magnets & Accessories



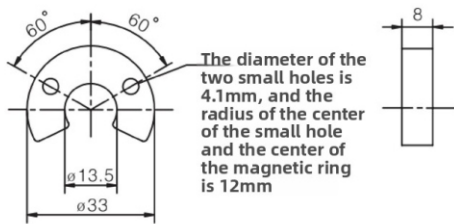
Four small holes have a diameter of 4.1mm, and the center of the small hole and the center of the magnetic ring have a radius of 12mm, evenly distributed around the circumference

Close magnetic ring



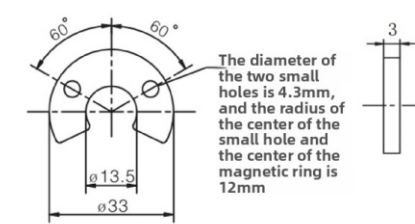
Four small holes with a diameter of 4.3mm are arranged evenly around a circle, with the center of each hole 12mm from the center of the magnetic ring

Magnetic isolation gasket



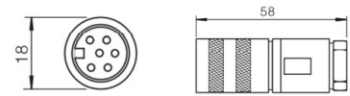
The diameter of the two small holes is 4.1mm, and the radius of the center of the small hole and the center of the magnetic ring is 12mm

Open magnetic ring

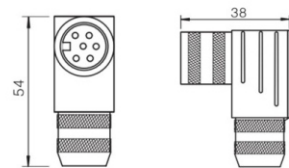


The diameter of the two small holes is 4.3mm, and the radius of the center of the small hole and the center of the magnetic ring is 12mm

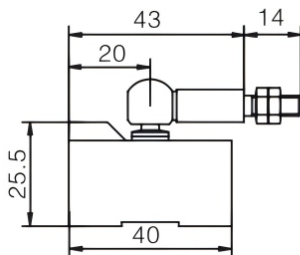
Open magnetic ring gasket



M16 6pin straight connector CON6S



M16 6pin connector 90° CON6R



Magnet slider

ELECTRICAL CONNECTION

Analog Output

Pin	Color	Definition
1	Gray	Signal output
2	Pink	Signal GND
3	Yellow	Null
4	Green	Null
5	Brown	+24VDC
6	White	Power GND

SSI Output

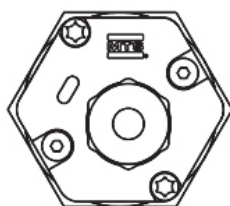
Pin	Color	Definition
1	Gray	Data -
2	Pink	Data +
3	Yellow	Clock-
4	Green	Clock+
5	Brown	+24VDC
6	White	Power GND



Start/Stop pulse Output

Pin	Color	Definition
1	Gray	Stop -
2	Pink	Stop +
3	Yellow	Start+
4	Green	Start-
5	Brown	+24VDC
6	White	Power GND

Indicator light instruction



Light status	Definition
Green light on	Working normal
Green light flash	Programming
Red light flash	Magnet is out of effective range
Red light on	The Magnet can't be detected or the magnetic is damaged

ORDER FORMAT

MTRH-S0500M18C42SF01P

Structure	Code
External mounting	MTRH-P
Rod type	MTRH-S

Range	Code
50mm	0050
100mm	0100
....	
7000mm	7000

Thread size	Code
M18X1.5	M18
M20X1.5	M20
3/4-16UNF	34U
Others on request	
*For MTRH-S only	

Output signal(Analog) Code	
4-20mA	C42
20-4mA	C24
0-20mA	C02
20-0mA	C20
0-10V	V01
10-0V	V10
0-5V	V05
5-0V	V50

Output signal(Start/Stop pulse)	Code
Start/Stop	S1
If more than one magnet is used, SX = S2-S9,"X" indicates the number of magnets for Start/Stop multi-point measurement	

Cable material	Code
PVC cable	P
PUR cable	R
High temperature cable	H
*For cable outlet	

Cable length	Code
1 meter	01
2 meters	02
3 meters	03
...	...
*For cable outlet	

Electrical connection Code	
Cable	F
M16 connector 6pin	C6
M16 connector 7pin	C7
M16 connector 8pin	C8

Magnetic type	Code
Close magnetic ring	C
Open magnetic ring	O
Magnet slider	S

Output signal(SSI)			
Data length	Code	Data format	Code
24-bit	1	Binary	B
25-bit	2	Gray code	G
26-bit	3		
Resolution	Code	Output direction	Code
10um	1	Forward	F
5um	2	Reverse	R
2um	3		
1um	4		
20um	5		
50um	6		
100um	7		

Example

MTRH-P0500C42SF01P, External mounting type, Range 500mm, **analog output** 4-20mA, Magnet slider, wire leads on the top cable 1m, PVC cable

MTRH-S0500M18S1CC6, Rod type, Range 500mm, Thread size M18X1.5, 1 magnet **start/stop pulse output**, Close magnetic ring, M16 6pin connector.

MTRH-P05001B2FSF01P, Range 500mm, **SSI output** 24 bit, Binary, 5um, forward measuring, Magnet slider, wire leads on the top cable 1m, PVC cable