

MTRS SERIES

MAGNETOSTRICTIVE DISPLACEMENT/LEVEL SENSOR

FEATURES

- ⊙ Non-contact measurement
- ⊙ Robust, fully enclosed design for durability
- ⊙ Absolute output – no need for re-zeroing
- ⊙ Modular design for easy replacement
- ⊙ High sealing protection up to IP68
- ⊙ Multiple output options: Analog, SSI, Modbus



INTRODUCTION

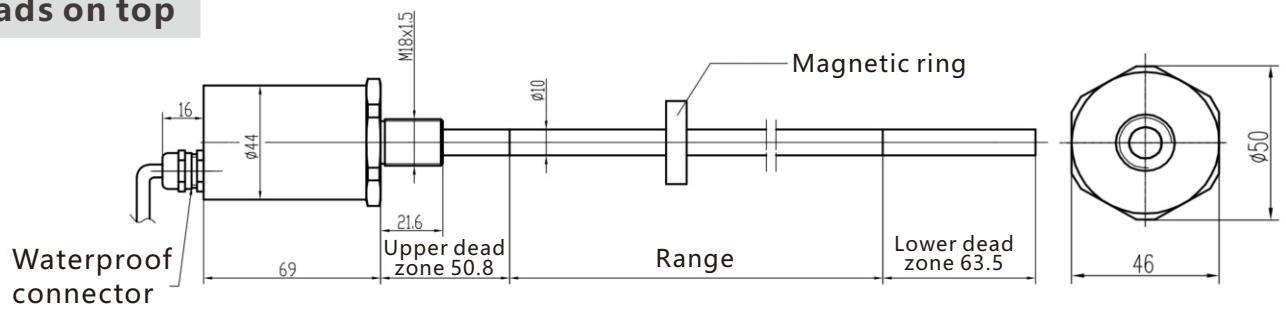
The DWEL MTRS series magnetostriuctive displacement and level sensors are designed for high-precision, long-term reliability in demanding industrial applications. With a fully sealed construction and non-contact measurement technology, they deliver accurate and wear-free operation. Featuring absolute output, high sealing protection, and multiple communication interfaces, the MTRS series is ideal for continuous monitoring of displacement and liquid levels in harsh environments.

SPECIFICATIONS

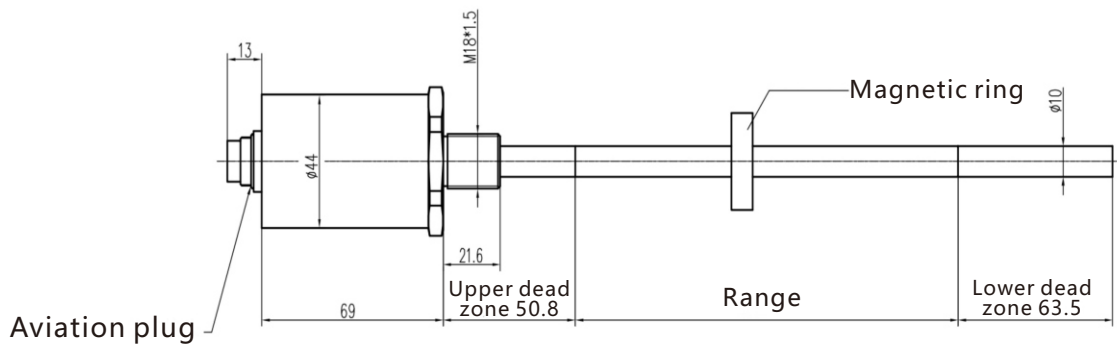
Measuring Range	50–7000 mm
Output signal	4 ~ 20mA, 20-4mA, 0-5V, 0 ~ 10V, 0~5V, SSI, Modbus RTU
Non-linearity	< ±0.03% F.S. (min. ±50 µm)
Repeatability	< ±0.002% F.S. (min. ±1 µm)
Connection Type	Waterproof connector or aviation plug
Resolution	Analog output: 16-bit D/A SSI output: 1 / 2 / 5 / 10 / 20 / 50 / 100 µm Modbus : < 4µm
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
Overvoltage Protection	Max. 36 VDC
Insulation Resistance	500 V (between signal ground and housing)
Material	Housing: 304SS, Measuring rod: 304/316LSS
Insulation Resistance	500 V (between signal ground and housing)
Operating Current	< 80 mA (varies with measuring range)

DRAWING

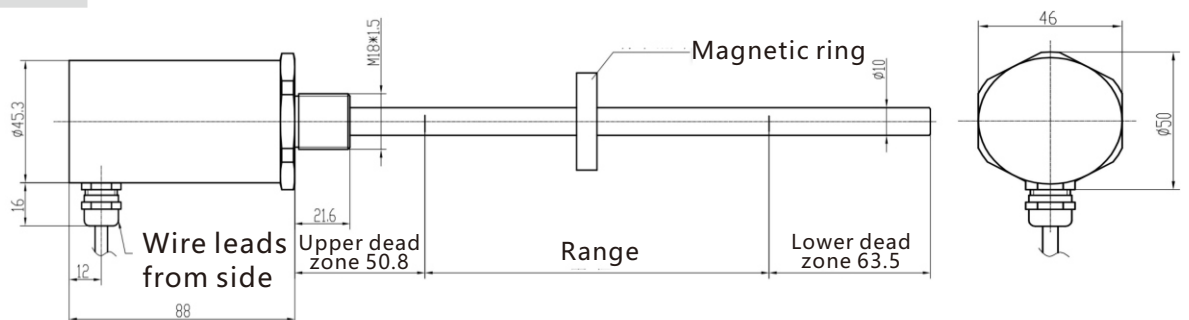
Wire leads on top



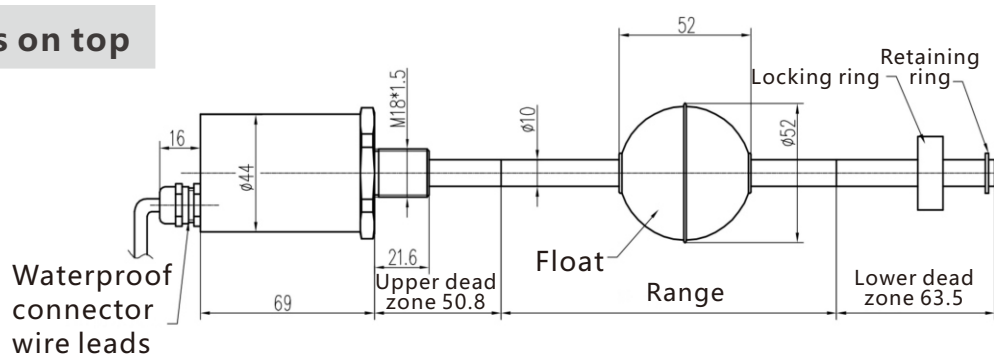
Aviation plug M16



Wire leads on side

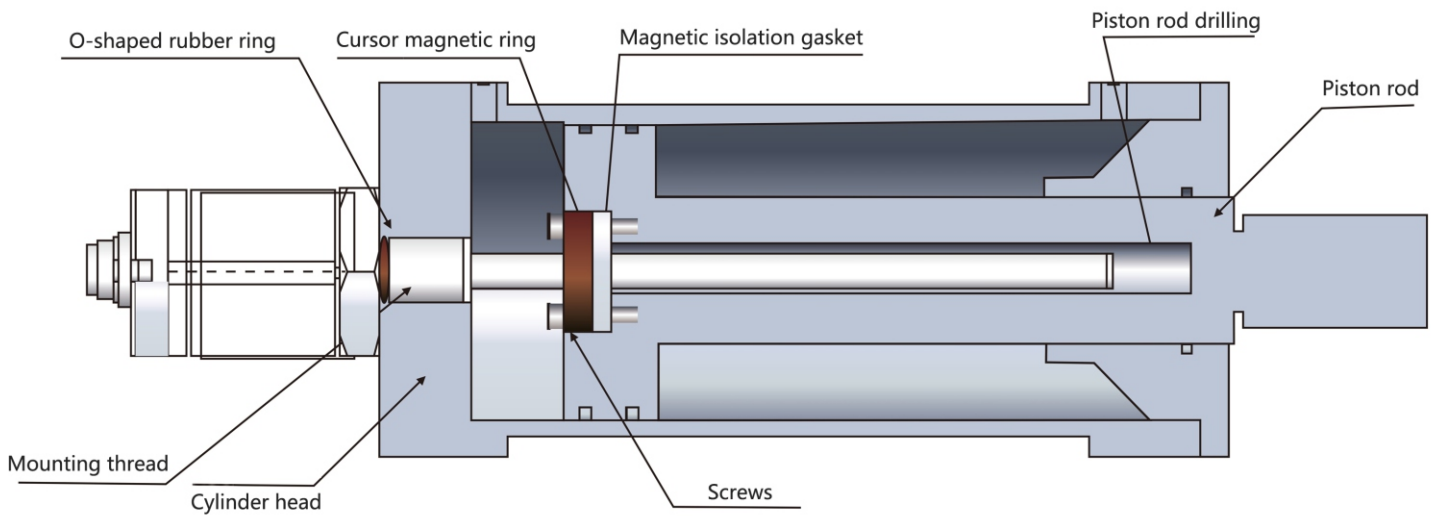


Wire leads on top

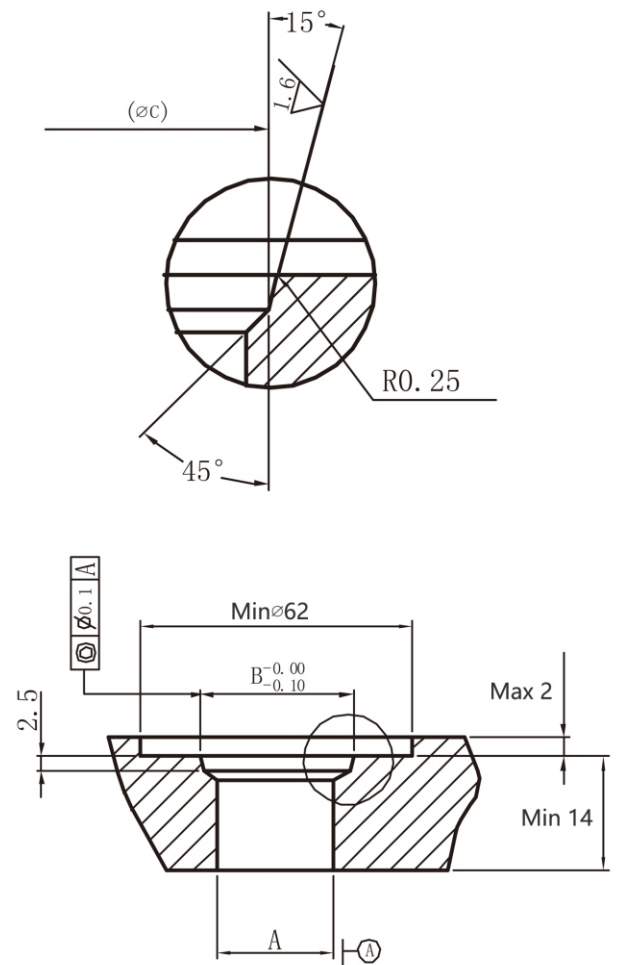
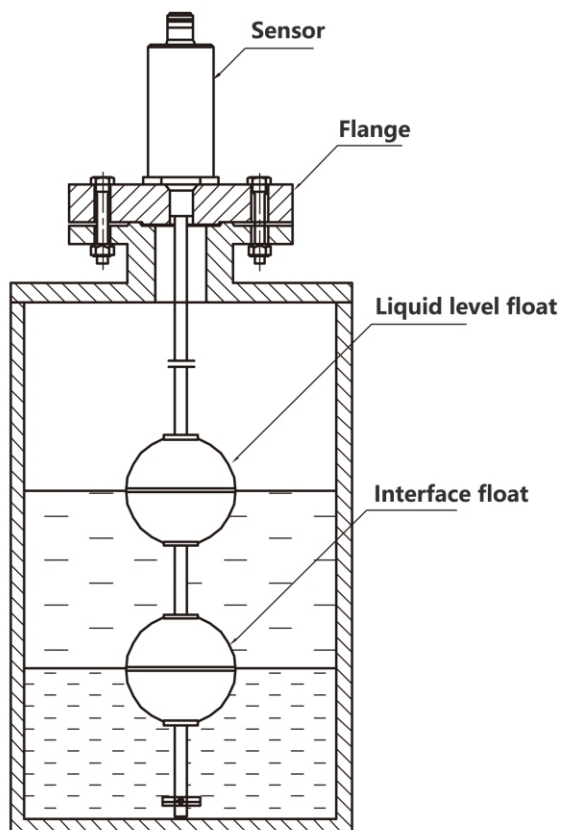


INSTALLATION

Hydraulic cylinder built-in installation



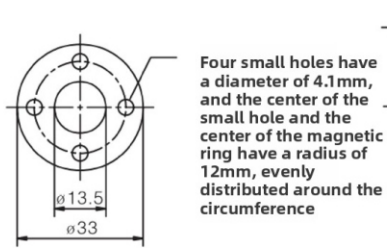
Level transmitter installation



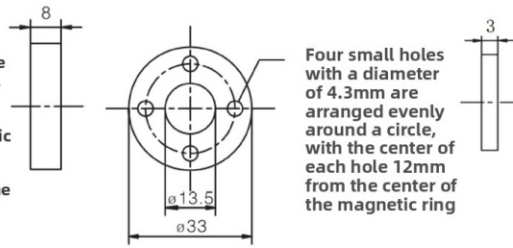
A	B	C
M18×1.5-6H	$\Phi 20_{-0.1}^0$	$\Phi 18.7$
M20×1.5-6H	$\Phi 21.6_{-0.1}^0$	$\Phi 20.3$
3/4-16UNF	$\Phi 20.3_{-0.1}^0$	$\Phi 19.3$

Magnetic ring, Float & Accessories

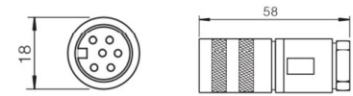
Connector



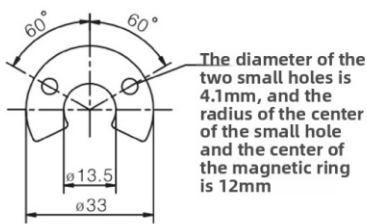
Close magnetic ring



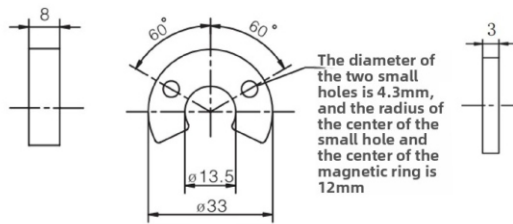
Magnetic isolation gasket



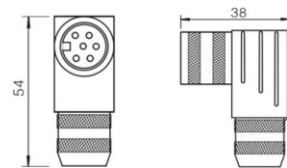
M16 6pin straight connector CON6S



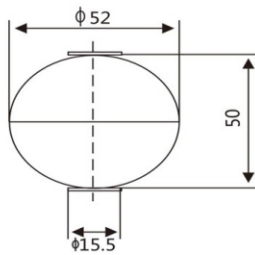
Open magnetic ring



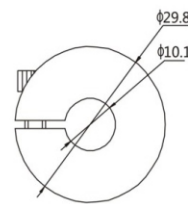
Open magnetic ring gasket



M16 6pin connector 90° CON6R



Float



Retaining ring

ELECTRICAL CONNECTION

Analog Output

SSI 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

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

Modbus Output

Color	Definition
Red	+24VDC
Black	OVDC
Purple	Signal A
Blue	Signal B

ORDER FORMAT

MTRS - 0500M18C42CF01P

Range	Code
50mm	0050
100mm	0100
....	
6000mm	6000

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

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

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 on top	F
Cable on side	S
M16 connector 6pin	C
Others on request	

Magnetic type	Code
Close magnetic ring	C
Open magnetic ring	O
Float	F

Output signal(SSl)			
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		

Output signal(Modbus)			
Baud rate	Code	Floats qty	Code
9600bps	9	1 float	1
4800bps	4	2 floats	2
19200bps	1		
Temp point	Code	Display	Code
No installed	Null	No display	Null
1 point	1	With display	D
2 points	2		
3 points	3		
4 points	4		
5 points	5		

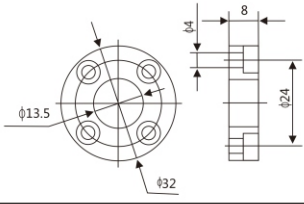
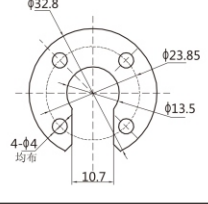
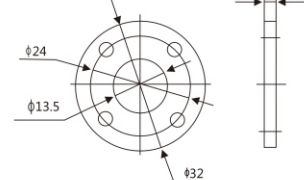
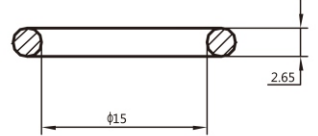
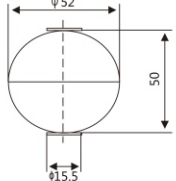
Example

MTRS-0500M18C42CF01P, Range 500mm, Thread size M18X1.5, **analog output** 4-20mA, Close magnetic ring, wire leads on the top cable 1m, PVC cable

MTRS-0500M181B2FCF01P, Range 500mm, Thread size M18X1.5, **SSI output** 24 bit, Binary, 5um, forward measuring, Close magnetic ring, wire leads on the top cable 1m, PVC cable

MTRS-0500M1892CF01P, Range 500mm, Thread size M18X1.5, **Modbus output** 9600bps, 2 floats, Close magnetic ring, wire leads on the top cable 1m, PVC cable

ACCESSORIES

Close magnetic ring 		Open magnetic ring 	
Gasket 		O-ring 	
Float 		Retaining ring 	