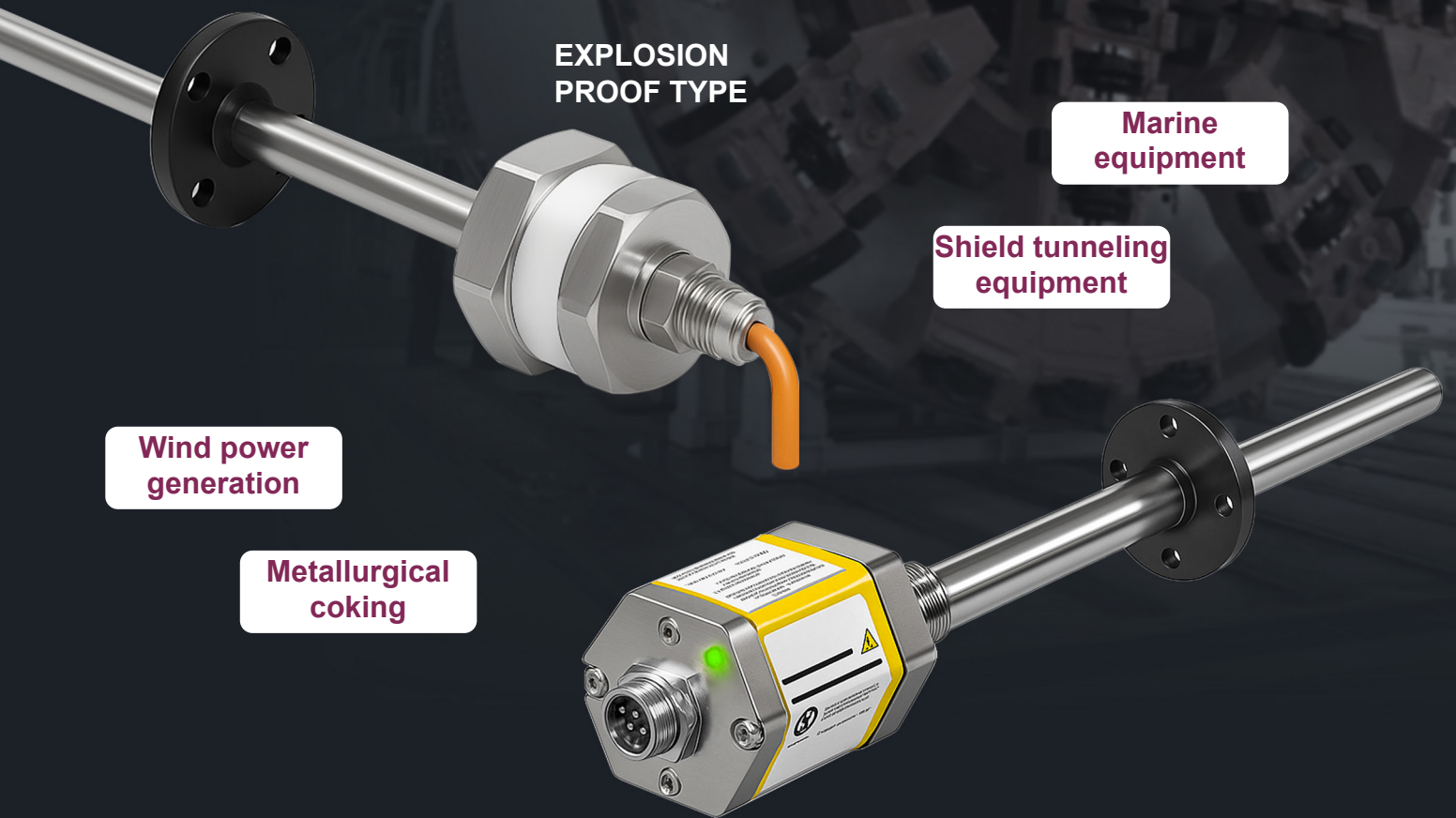


# HNL80-A

## MAGNETOSTRICTIVE LIQUID LEVEL METER



EXPLOSION  
PROOF TYPE

Marine  
equipment

Shield tunneling  
equipment

Wind power  
generation

Metallurgical  
coking

## PRODUCT INTRODUCTION

- 1 Built in installation of oil cylinder, sturdy and reliable
- 2 Absolute position output, no need to reset to zero
- 3 Non contact measurement, never worn out
- 4 Easy to disassemble design, no need to release pressure during replacement
- 5 Flexible replacement core, convenient for narrow installation space
- 6 Easy to diagnose, dual color LED real-time status indicator
- 7 Support multi magnetic ring position detection
- 8 Support position+speed, dual signal output
- 9 Temperature resistant design, up to 105°C

# TECHNICAL PARAMETER

| NAME                  | SPECIFICATION                                       |
|-----------------------|-----------------------------------------------------|
| Nonlinearity          | $<\pm 0.01\% \text{F.S.}$                           |
| Repeatability         | $<\pm 0.001\% \text{F.S.}$                          |
| Resolution ratio      | 16Bit D/A/up to 0.5 $\mu\text{m}$                   |
| Measurement Frequency | Maximum 3.7KHZ                                      |
| Analog quantity       | 4~20mA, 0~10V, etc                                  |
| SSI                   | 24/25/26 binary or Gray code                        |
| Digital Pulse         | Start/Stop Profibus-DP CANbus (Open/Basic) Profinet |

## EXPLOSION PROOF TYPE

| NAME                    | SPECIFICATION                                                             |
|-------------------------|---------------------------------------------------------------------------|
| Measurements            | Displacement                                                              |
| Displacement range      | 50~2500mm                                                                 |
| Output signal           | 4~20mA (minimum V, maximum load: 0/5002)                                  |
| Resolution ratio        | 16 bit A/D, infinite resolution                                           |
| Nonlinearity            | $<\pm 0.02\% \text{F.S.}$ (minimum+60 $\mu\text{m}$ ) standard blind zone |
| Repeatability           | $<\pm 0.005\% \text{F.S.}$                                                |
| Hysteresis              | $\pm 0.1\text{mm}$                                                        |
| Update time             | $>1\text{ms}$                                                             |
| Wiring Method           | Explosion proof joint                                                     |
| INPUT VOLTAGE           | 24VDC(-15/+20%)                                                           |
| Working current         | $<50\text{mA}$ (varying with range)                                       |
| Polarity Protection     | Maximum -30VDC                                                            |
| Overpressure protection | Maximum 36VDC                                                             |
| Insulating capacity     | 500V (between signal ground and casing)                                   |
| Sensor head             | 304L stainless steel                                                      |

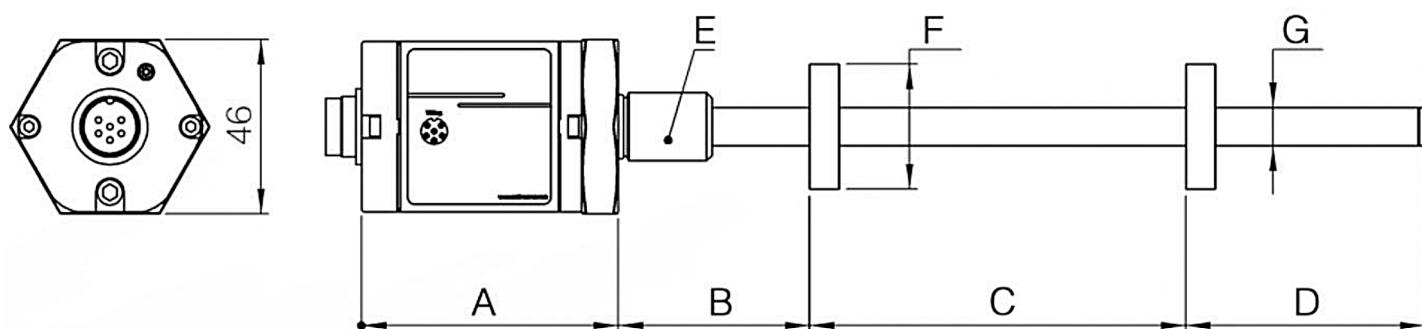
|                                      |                                                                                                               |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Pressure resistant outer tube</b> | 304L stainless steel                                                                                          |
| <b>Sealing ring</b>                  | Viton75 fluororubber ring                                                                                     |
| <b>Installation direction</b>        | Arbitrarily                                                                                                   |
| <b>Installation method</b>           | Threaded installation, M18x1.5                                                                                |
| <b>Position magnet</b>               | OD33, OD25.4, OD17.4                                                                                          |
| <b>Measuring rod diameter</b>        | Φ10, Φ7                                                                                                       |
| <b>Operation temperature</b>         | Normal type: -40°C~+85°C<br>Temperature resistant type: -40°C~+105°C                                          |
| <b>Temperature/Dew Point</b>         | Humidity 90%, no condensation                                                                                 |
| <b>Temperature coefficient</b>       | <30ppm/°C                                                                                                     |
| <b>Protection grade</b>              | Regular model: IP67, customized model: IP68                                                                   |
| <b>Operation temperature</b>         | Normal type: -40°C~+85°C<br>Temperature resistant type: -40°C~+105°C                                          |
| <b>Vibration testing</b>             | 15g/100-2000Hz/IEC standard 68-2-6                                                                            |
| <b>Impact test</b>                   | 100g (single impact)/EC standard 68-2-27                                                                      |
| <b>EMC testing</b>                   | Radiation EH50081-1, anti-interference EN 50082-2<br>EN61000-4-2/2/3/4/6, Grade 3/4, Class A CE certification |
| <b>Hot and humid</b>                 | Compliant with GB/T 2423.34-2012, Z/AD Temperature/Humidity<br>Combination cycle test                         |

## NORMAL INSTALLATION STATUS

The sensor installation flange is integrated with the oil cylinder. When the sensor fails, only two fixing screws need to be removed to replace the electronic compartment, and the oil cylinder does not need to be depressurized.



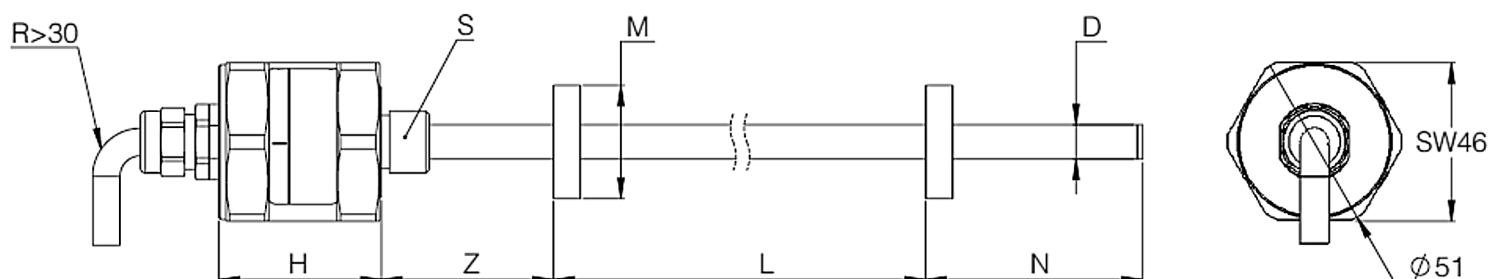
# EXTERNAL DIMENSIONS



| Define                             | Analog quantity                 | SSI | Start/Stop | Profibus-DP | CANbus |
|------------------------------------|---------------------------------|-----|------------|-------------|--------|
| A: Electronic warehouse length     | 68mm                            |     |            | 78mm        |        |
| B: Head end blind spot             | 50.8mm                          |     |            |             |        |
| C: Optional range                  | 25~7620mm                       |     |            |             |        |
| D:End blind spot                   | 63.5mm                          |     |            |             |        |
| E: Install thread                  | M18x1.5; M20x1.5; 3/4"-16UNF-3A |     |            |             |        |
| F: Outer diameter of magnetic ring | OD17.4; OD25.4; OD33; OD63.5    |     |            |             |        |
| G: Measuring rod diameter          | 7mm; 8mm; 10mm; 12mm;           |     |            |             |        |

## EXPLOSION PROOF TYPE

### Straight out cable



| Code | Define                      | Common values |
|------|-----------------------------|---------------|
| H    | Electronic warehouse length | 48mm          |
| L    | Optional range              | 50~2500mm     |
| Z    | Head end blind spot         | 50.8mm        |
| N    | End blind spot              | 63.5mm        |

| Code | Define                 | Common values      |
|------|------------------------|--------------------|
| S    | Thread specifications  | M18x1.5            |
| M    | Magnet specifications  | OD33,OD25.4,OD17.4 |
| D    | Measuring rod diameter | Φ10, Φ7            |

# ELECTRICAL CONNECTION (EXPLOSION-PROOF TYPE)

## ANALOG SIGNAL INTERFACE

| This product does not provide aviation plug output | Serial Number | Line color | Define                        |
|----------------------------------------------------|---------------|------------|-------------------------------|
|                                                    | 1             | Ash        | Analog signal output          |
|                                                    | 2             | Powder     | Not answering                 |
|                                                    | 3             | Yellow     | Com                           |
|                                                    | 4             | Green      | Not answering                 |
|                                                    | 5             | Brown      | +24VDC(-15/+20%)              |
|                                                    | 6             | White      | DC power supply ground (0VDC) |

## HNL80-A MAGNETOSTRICTIVE LEVEL GAUGE SELECTION TABLE

| NAME                            | CODE | CODE DESCRIPTION           |
|---------------------------------|------|----------------------------|
| Electronic warehouse length     | A    | 68mm                       |
|                                 | B    | 78mm                       |
|                                 | C    | 48mm (explosion-proof)     |
| Head end blind spot             | 1    | 50.8mm                     |
| Optional range                  | A    | 25~7620mm                  |
|                                 | B    | 50~2500mm(explosion-proof) |
| End blind spot                  | 1    | 63.5mm                     |
| Install thread                  | 1    | M18x1.5                    |
|                                 | 2    | M20x1.5                    |
|                                 | 3    | 3/4"-16UNF-3A              |
| Outer diameter of magnetic ring | 1    | OD17.4                     |
|                                 | 2    | OD25.4                     |
|                                 | 3    | OD33                       |
|                                 | 4    | OD63.5                     |
| Measuring rod diameter          | A    | 7mm                        |
|                                 | B    | 8mm                        |
|                                 | C    | 10mm                       |
|                                 | D    | 12mm                       |