

13 series is designed in strict accordance with the requirements of the mobile machinery industry. Its compact shape can be fully integrated with the hydraulic cylinder with limited head space. The high versatile IP68 profile housing offers full protection for use in harsh environments with high contamination and presence of dust. If the hydraulic cylinder is used with a special connector, the protection level is up to IP69K. Vibration and shock rating are also high-level 25g / 10-2000Hz and 100g (single shock).

It adopts the non-contact magnet-rostrictive measuring technology for precise, accurate, and absolute measurement. The non-contact feature provides exceptional ease of installation and guarantees almost unlimited mechanical life expectancy.



Specifications

| | |
|---------------------|---|
| Order Code | 13 |
| Output | Voltage / Current |
| Measurement Type | Linear displacement |
| Resolution | <500mm ±0.10mm, 700mm ±0.18mm, 1000mm ±0.24mm 1250mm ±0.30mm, 1750mm ±0.42mm, |
| Repeatability | < ±0.005% of full scale |
| Non-Linearity | < ±0.04% of full scale (minimum ±100µm for 60mm damping zone) < ±0.08% of full scale (for 36.5mm damping zone) |
| Input Voltage | +12V / +24Vdc |
| Input Protection | Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc |
| Power Consumption | 1W |
| Dielectric Strength | 500Vdc (DC ground to machine ground) |
| Operation Temp. | -40 to 85°C, Humidity 90% non-condensing |
| Sealing | IP 68 (IP 69K when installed inside a cylinder with M12x1 connection type) |
| Vibration Rating | 25g / 10-2000Hz / IEC standard 68-2-6 |
| Shock Rating | 100g single hit per IEC standard 68-2-27 |
| EMC | Emission EN 61000-6-3, Immunity EN 61000-6-2, EN 61000-4-2/3/4/6 |
| Pressure Rating | 350 bar / 600 bar peak |
| Material | Stainless Steel |

Order Code

1 3 T X X X X X X X X X X X X X X

Output

011 = 0.25 - 4.75V 101 = 4 - 20mA
 012 = 0.5 - 4.5V 104 = 20 - 4mA
 013 = 4.75 - 0.25V
 014 = 4.5 - 0.5V

Connection Type

N__A = 4 single wires (20AWG)
 N__E = 4 single wires , M12x1 IP69K,4pin (pin assignment 2-3-4)
 N__G = 4 single wires , M12x1 IP69K,4pin (pin assignment 1-3-4)
 N__H = 4 single wires , M12x1 IP69K,4pin (pin assignment 1-2-3)
 Ex. : 06 = 60mm wire length
 25 = 250mm wire length
 T__A = integral PUR shielded cable, pigtail for wire termination
 Ex. : 10 = 1.0 meter cable length (0.5 meter mini.)
 35 = 3.5 meter cable length

Sensor Styles

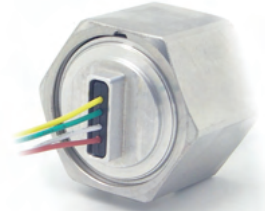
1 = M18x1.5, Rod Ø10mm, dead zone 60mm
 2 = M18x1.5, Rod Ø10mm, dead zone 36.5mm

Magnet Type

1 = Outer dia. 33mm, inner dia. 13.5 ring magnet
 2 = Outer dia. 25.4mm, inner dia. 13.5 ring magnet
 3 = Outer dia. 17.4mm, inner dia. 13.5 ring magnet

Stroke Length (mm)

0075, 0100, 0125, 0150, 0175, 0200, 0225
 0250, 0275, 0300, 0325, 0350, 0375, 0400
 0425, 0450 (25mm increment after)



4 single wires

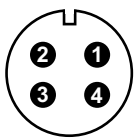


Integral PUR shielded cable



IP69K M12x1

Pin Assignments



4 pin M12 A model
 (View toward sensor pins)

| | Color | N__E |
|---|--------|-----------|
| 1 | Yellow | N.C. |
| 2 | Brown | 12/24 Vdc |
| 3 | White | 0 Vdc |
| 4 | Green | Output |

| | Color | N__G |
|---|--------|-----------|
| 1 | Brown | 12/24 Vdc |
| 2 | Yellow | N.C. |
| 3 | White | 0 Vdc |
| 4 | Green | Output |

| | Color | N__H |
|---|--------|-----------|
| 1 | Brown | 12/24 Vdc |
| 2 | Green | Output |
| 3 | White | 0 Vdc |
| 4 | Yellow | N.C. |

Cable Assignments

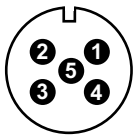
| | Color | N__A |
|--|--------|-----------|
| | Brown | 12/24 Vdc |
| | Green | Output |
| | Yellow | N.C. |
| | White | 0 Vdc |

| | Color | T__A |
|--|--------|-----------|
| | Red | 12/24 Vdc |
| | Green | Output |
| | Yellow | N.C. |
| | Black | 0 Vdc |

Specifications

| | |
|---------------------|---|
| Order Code | 13 T |
| Output | Direct CANopen or CAN J1939 |
| Measurement Type | Linear displacement |
| Resolution | <500mm ±0.10mm, 700mm ±0.18mm, 1000mm ±0.24mm 1250mm ±0.30mm, 1750mm ±0.42mm, |
| Repeatability | < ±0.005% of full scale |
| Non-Linearity | < ±0.04% of full scale (minimum ±100µm for 60mm damping zone) < ±0.08% of full scale (for 36.5mm damping zone) |
| Input Voltage | +12V / +24Vdc |
| Input Protection | Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc |
| Power Consumption | 1W |
| Dielectric Strength | 500Vdc (DC ground to machine ground) |
| Operation Temp. | -40 to 85°C, Humidity 90% non-condensing |
| Sealing | IP 68 (IP 69K when installed inside a cylinder with M12x1 connection type) |
| Vibration Rating | 25g / 10-2000Hz / IEC standard 68-2-6 |
| Shock Rating | 100g single hit per IEC standard 68-2-27 |
| EMC | Emission EN 61000-6-3, Immunity EN 61000-6-2, EN 61000-4-2/3/4/6 |
| Pressure Rating | 350 bar / 530 bar peak |
| Material | Stainless Steel |

Pin Assignments



5 pin M12 A model
(View toward sensor pins)

| | Color | N__F |
|---|--------|-----------|
| 1 | N.C. | N.C. |
| 2 | Brown | 12/24 Vdc |
| 3 | White | 0 Vdc |
| 4 | Yellow | CAN High |
| 5 | Green | CAN Low |

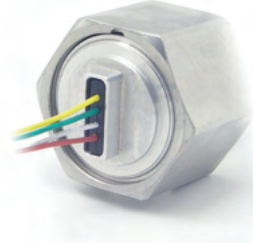
Cable Assignments

| Color | N__A |
|--------|-----------|
| Brown | 12/24 Vdc |
| Green | CAN Low |
| Yellow | CAN High |
| White | 0 Vdc |

| Color | T__A |
|--------|-----------|
| Red | 12/24 Vdc |
| Green | CAN Low |
| Yellow | CAN High |
| Black | 0 Vdc |

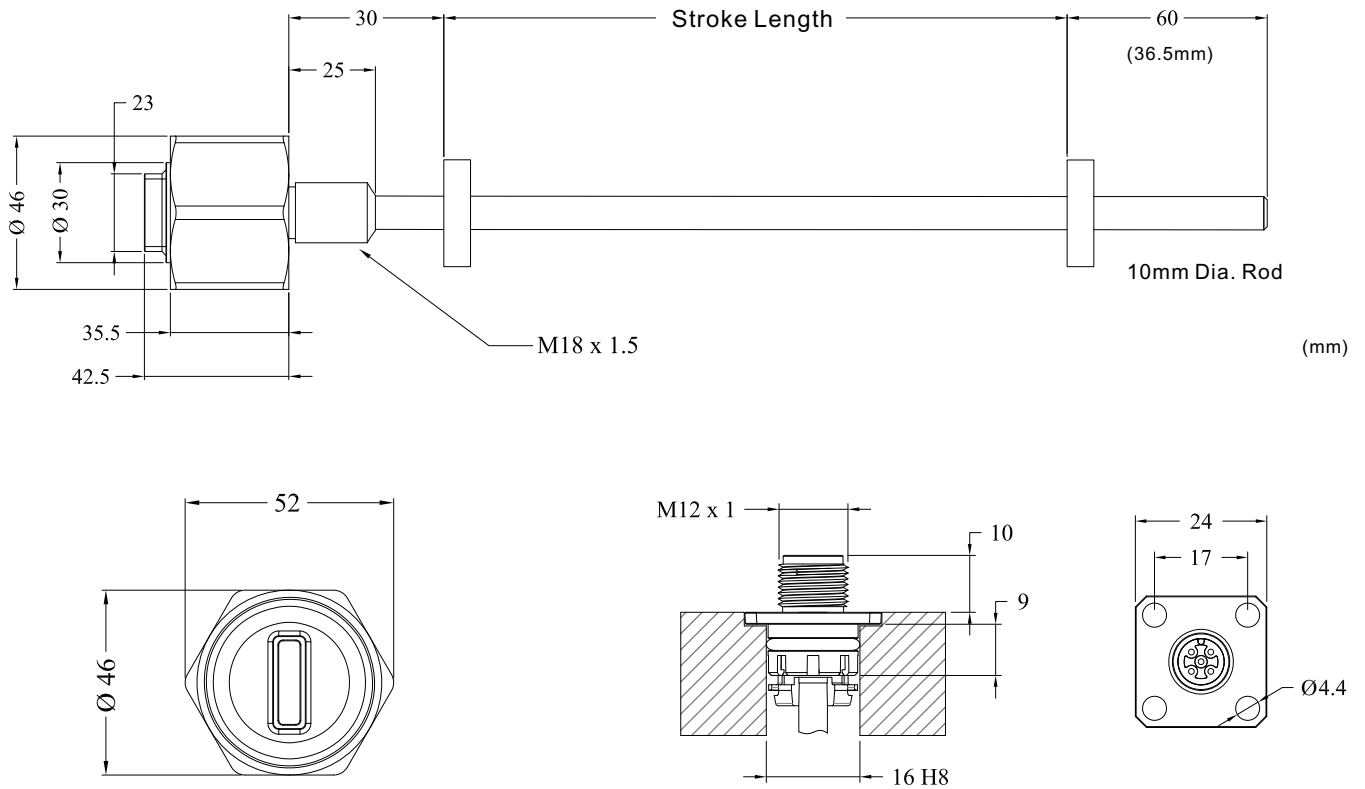


IP69K M12x1

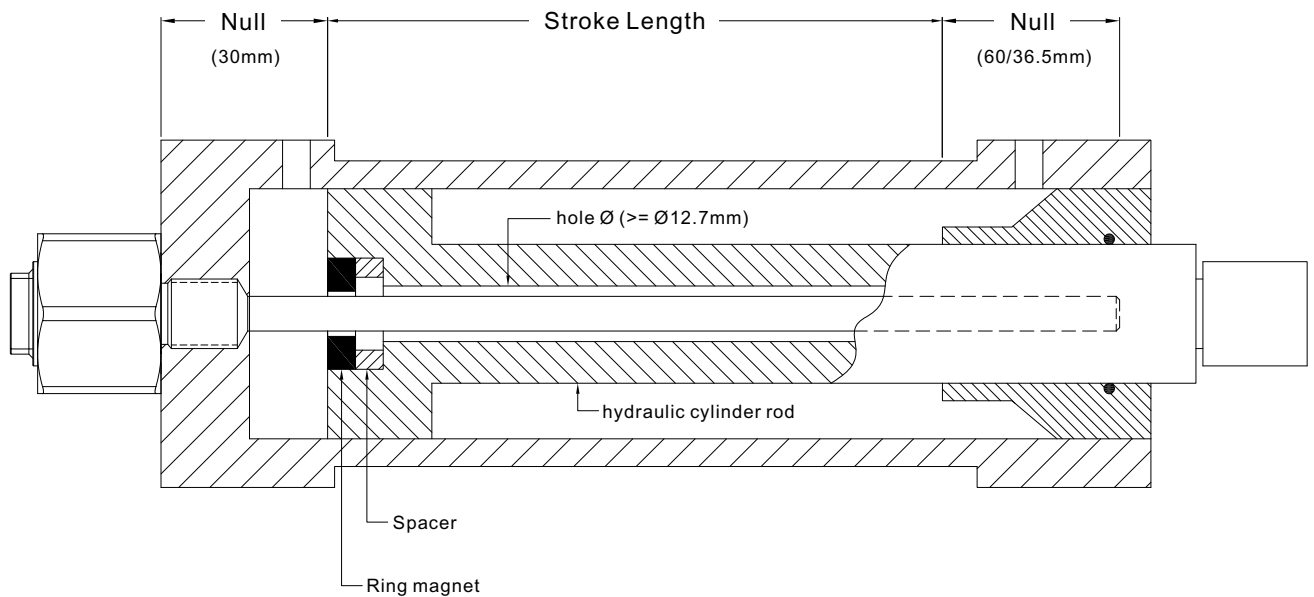


mobile hydraulic technology ...

Installation Dimensions



Installation

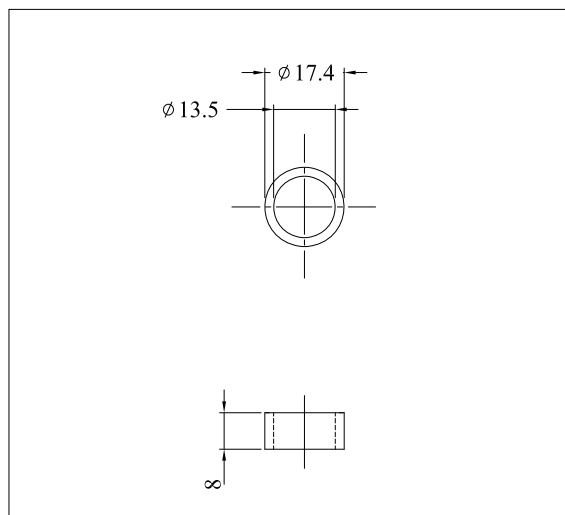


Remark

- 1) Use a non-ferrous circlip to fasten the magnet.
- 2) Minimum drilling for a 10mm rod should be 13.5mm.
- 3) No less than 3mm clearance between the end of the sensor rod and the bottom of the rod bore at full retraction.

Discription
Order Code

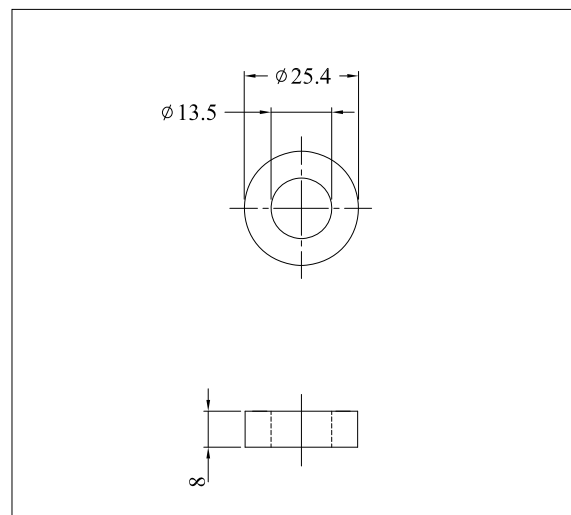
Outer Dia. 17.4 mm ring
1700 951 025



Material
Weight

Plastic
~4g

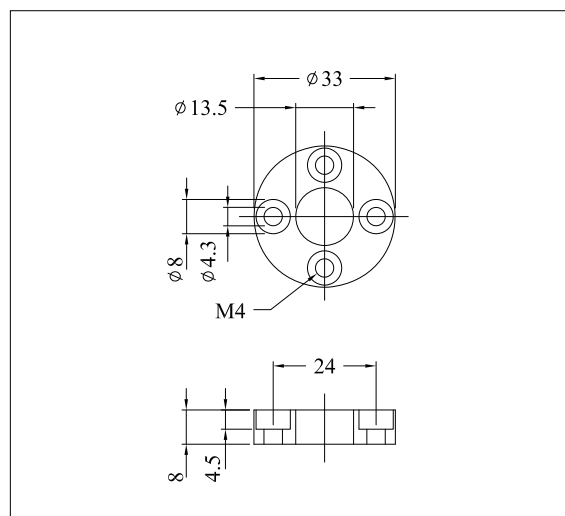
Outer Dia. 25.4mm ring
1700 951 023



Plastic
~8g

Discription
Order Code

Outer Dia. 33mm ring
1700 951 001



Material
Weight

Plastic
~8g

Discription
Order Code
Material

Dia. 33mm Spacer
1700 951 002
Plastic

