

The 18 series non-contact absolute position transducer adopts the non-contact magnetostrictive measuring technology for precise, direct and absolute measurement. The absence of electrical contact on the cursor eliminates all wear and guarantees almost unlimited mechanical life expectancy. The non-contact (Floating) cursor provides exceptional ease of installation with a variety of available cursor position target.

The high versatile profile housing (IP67, need to match a suitable connector) offers full protection against outside agents for use in harsh environments with high contamination and presence of dust. Mounting is accomplished using clamps that allow precise mechanical adjustment. The 18 series is the most reliable and durable non-contact absolute position transducer among all.

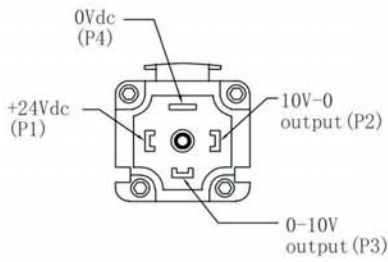


### Specifications

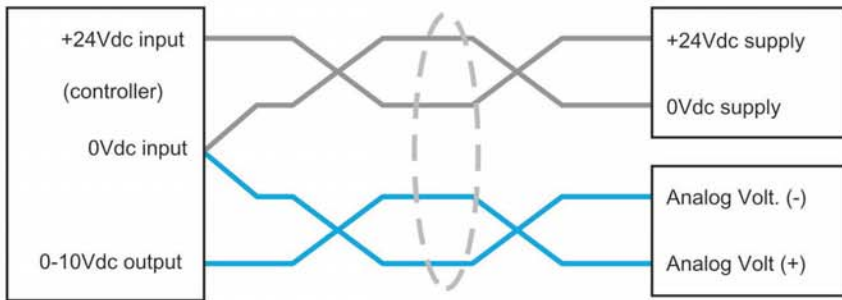
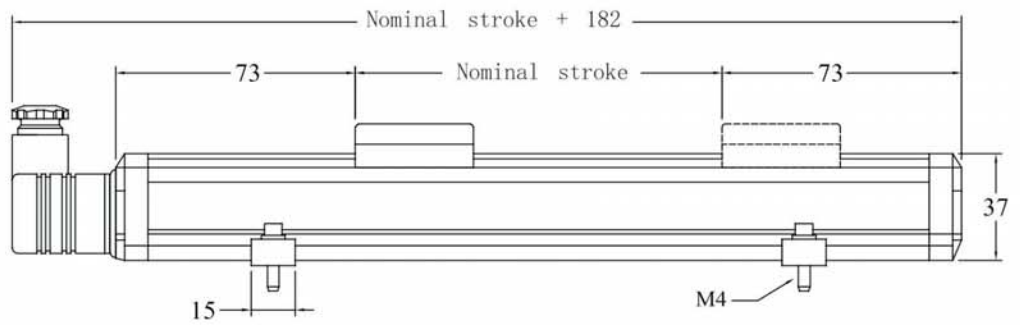
Order Code	180
Output	0-10Vdc, 10-0Vdc dual-output. minimum load 5k $\Omega$
Measurement Type	Linear displacement
Resolution	Infinite, restricted by output ripple
Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Current Consumption	50-140mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Repeatability	< $\pm 0.005\%$ of full scale
Non-Linearity	< $\pm 0.01\%$ of full scale (minimum $\pm 90 \mu\text{m}$ )
Update Time	0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm 2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm
Operation Temp.	-40 to 75°C, Humidity 90% non-condensing
Sealing	IP65 / IP67 (with connector)
Vibration Rating	15g / 10-2000Hz / IEC standard 68-2-6
Shock Rating	100g single hit per IEC standard 68-2-27
EMC	Emission EN 68000-6-3, Immunity EN 61000-6-2 EN 68000-4-2/3/4/6

Infinite resolution ...

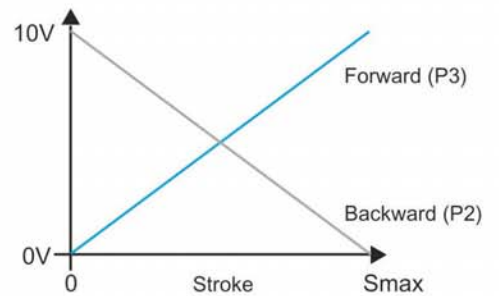




(View toward sensor pins)



(connection example)



Order Code

1 8 0 X X X X X X X X

Output  
0-10Vdc, 10-0Vdc Dual-output

Connector  
0 = 4 pins connector ( IP65)  
3 = 4 pins connector ( IP67)

Mounting (P.13)  
1 = 42.5mm mounting  
2 = 42.5mm isolation mounting  
3 = 50mm mounting

Magnet Type (P.13)  
1 = Captive  
2 = Floating  
3 = Die-cast  
4 = Large floating

Stroke Length  
0 1 0 0 , 0 1 3 0 , 0 1 5 0 , 0 1 7 5 , 0 2 0 0 , 0 2 2 5 , 0 2 7 5  
0 3 0 0 , 0 3 6 0 , 0 4 0 0 , 0 4 2 5 , 0 4 5 0 , 0 5 0 0 , 0 5 2 5  
0 5 5 0 , 0 6 0 0 , 0 6 5 0 , 0 7 0 0 , 0 7 5 0 , 0 8 0 0 , 0 8 7 5  
0 9 0 0 , 0 9 5 0 , 1 0 0 0 , 1 1 0 0 , 1 2 5 0 , 1 3 5 0 , 1 5 0 0  
1 6 0 0 , 1 7 5 0 , 2 0 0 0 , 2 2 5 0 , 2 5 0 0 , 2 7 5 0 , 3 0 0 0  
3 2 5 0 , 3 5 0 0 , 4 0 0 0 (other length upon request)

Caution :

Please do not connect controller analog input (-) to machine 0V or ground. Only connect directly to transducer 0V (P4).

Use 4 wires shielded twisted pair cable, dia. 0.2mm.

Do not connect power supply +24Vdc to transducer 0Vdc, and at the same time connect power supply 0Vdc to transducer output. This will cause transducer permanent failure.

(Warning: warranty does not include such source of failure)

- Included :
- Transducer
- Connector
- Mounting
- Magnet



The 18 series non-contact absolute position transducer adopts the non-contact magnetostrictive measuring technology for precise, direct and absolute measurement. Analog current interfaces are significantly less sensitive for signal traveling a long distance and passing through severe electrical interference.

The 18 series analog current output are available in 0-20mA, 20-0mA, 4-20mA, and 20-4mA. The output signal is directly proportional to the magnet position along the measuring stroke.

The absence of electrical contact on the magnet eliminates all wear and guarantees almost unlimited mechanical life expectancy.

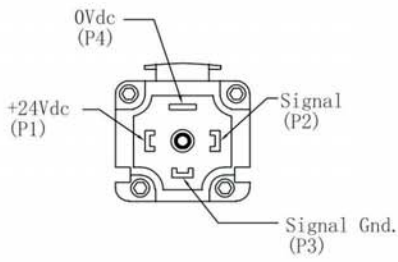


### Specifications

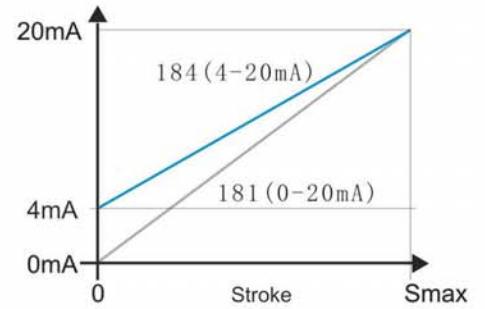
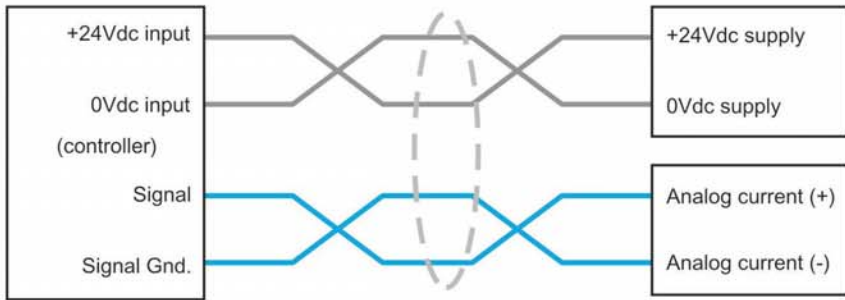
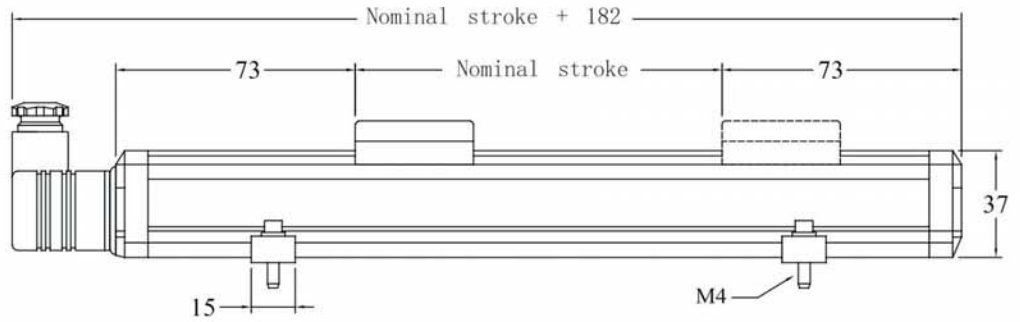
	181	182	184	185
Order Code	0 - 20 mA	20 - 0 mA	4 - 20 mA	20 - 4 mA
Output	Linear displacement			
Measurement Type	Infinite, restricted by output ripple			
Resolution	+24Vdc (20.4 - 28.8Vdc)			
Input Voltage	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc			
Input Protection	50-140mA (stroke range dependent)			
Current Consumption	500Vdc (DC ground to machine ground)			
Dielectric Strength	< ±0.005% of full scale			
Repeatability	< ±0.01% of full scale (minimum ±90 μm)			
Non-Linearity	0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm			
Update Time	2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm			
Operation Temp.	-40 to 75°C, Humidity 90% non-condensing			
Sealing	IP65 / IP67 (with connector)			
Vibration Rating	15g / 10-2000Hz / IEC standard 68-2-6			
Shock Rating	100g single hit per IEC standard 68-2-27			
EMC	Emission EN 68000-6-3, Immunity EN 61000-6-2			
	EN 68000-4-2/3/4/6			



...Non-contact technology



(View toward sensor pins)



Order Code

1 8 X X X X X X X X

Output

- 1 = 0 - 20 mA
- 2 = 20 - 0 mA
- 4 = 4 - 20 mA
- 5 = 20 - 4 mA

Connector

- 0 = 4 pins connector ( IP65)
- 3 = 4 pins connector ( IP67)

Mounting (P.13)

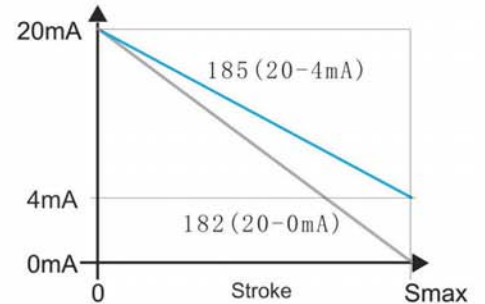
- 1 = 42.5mm mounting
- 2 = 42.5mm isolation mounting
- 3 = 50mm mounting

Magnet Type (P.13)

- 1 = Captive
- 2 = Floating
- 3 = Die-cast
- 4 = Large floating

Stroke Length

0 1 0 0 , 0 1 3 0 , 0 1 5 0 , 0 1 7 5 , 0 2 0 0 , 0 2 2 5 , 0 2 7 5  
 0 3 0 0 , 0 3 6 0 , 0 4 0 0 , 0 4 2 5 , 0 4 5 0 , 0 5 0 0 , 0 5 2 5  
 0 5 5 0 , 0 6 0 0 , 0 6 5 0 , 0 7 0 0 , 0 7 5 0 , 0 8 0 0 , 0 8 7 5  
 0 9 0 0 , 0 9 5 0 , 1 0 0 0 , 1 1 0 0 , 1 2 5 0 , 1 3 5 0 , 1 5 0 0  
 1 6 0 0 , 1 7 5 0 , 2 0 0 0 , 2 2 5 0 , 2 5 0 0 , 2 7 5 0 , 3 0 0 0  
 3 2 5 0 , 3 5 0 0 , 4 0 0 0 (other length upon request)



Included :

- Transducer
- Connector
- Mounting
- Magnet





The 18 series start / stop interface is a simple and economical digital interface. The benefit of these interfaces has strong immunity to noise interference. The time between an assessment and the reply signal is directly proportional to the magnet position along the measuring stroke. The start / stop digital are transmitted using RS485/422 differential line drivers.

The 18 series non-contact absolute position transducer adopts the non-contact magnetostrictive measuring technology for precise, direct and absolute measurement. The absence of electrical contact on the magnet eliminates all wear and guarantees almost unlimited mechanical life expectancy.



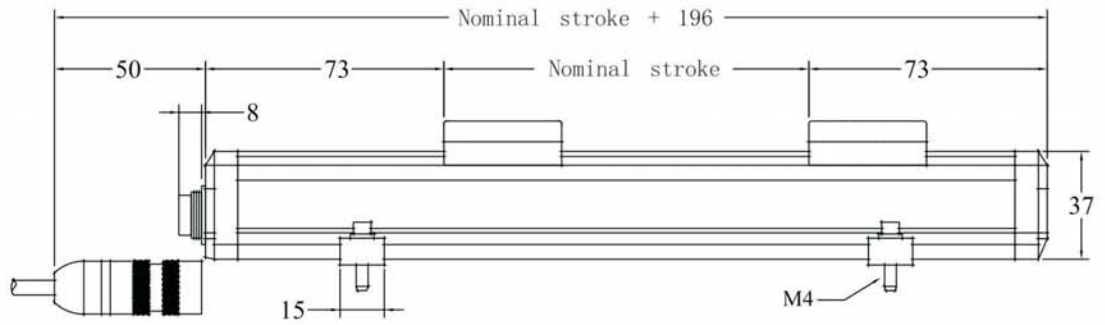
Specifications

Order Code
Output
Measurement Type
Resolution
Input Voltage
Input Protection
Current Consumption
Dielectric Strength
Repeatability
Non-Linearity
Update Time
Operation Temp.
Sealing
Vibration Rating
Shock Rating
EMC

1 8 3
(Start / Stop) Digital Output
Linear displacement
Infinite, restricted by output ripple
+24Vdc (20.4 - 28.8Vdc)
Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
50-140mA (stroke range dependent)
500Vdc (DC ground to machine ground)
< ±0.005% of full scale
< ±0.01% of full scale (minimum ±90 μm)
0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm
2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm
-40 to 75°C, Humidity 90% non-condensing
IP65 / IP67 (with connector)
15g / 10-2000Hz / IEC standard 68-2-6
100g single hit per IEC standard 68-2-27
Emission EN 68000-6-3, Immunity EN 61000-6-2
EN 68000-4-2/3/4/6

Economical digital solution ...

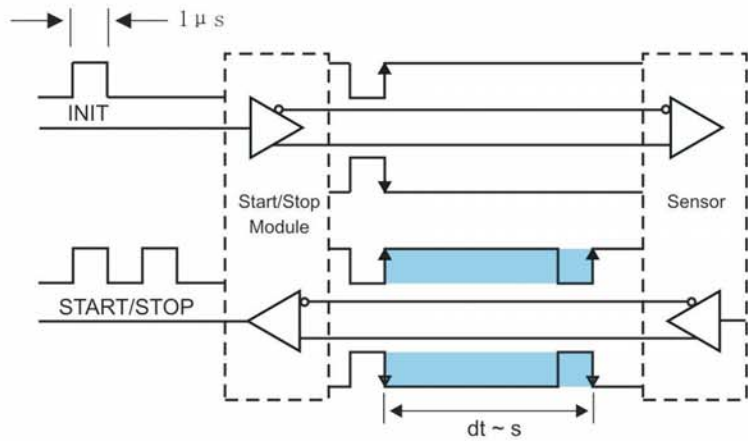




(View toward sensor pins)

Cable Shield connects to connector shell and grounded at controller side.

1	Stop (-)
2	Stop (+)
3	Start (+)
4	Start (-)
5	+24Vdc supply
6	0Vdc



Order Code

1 8 3 2 X X X X X X

Output

(Start / Stop) Digital output

Connector

D60 connector  
(not include 6 pins M16 female connector)

Mounting (P.13)

- 1 = 42.5mm mounting
- 2 = 42.5mm isolation mounting
- 3 = 50mm mounting

Magnet Type (P.13)

- 1 = Captive
- 2 = Floating
- 3 = Die-cast
- 4 = Large floating

Stroke Length

0 1 0 0 , 0 1 3 0 , 0 1 5 0 , 0 1 7 5 , 0 2 0 0 , 0 2 2 5 , 0 2 7 5  
 0 3 0 0 , 0 3 6 0 , 0 4 0 0 , 0 4 2 5 , 0 4 5 0 , 0 5 0 0 , 0 5 2 5  
 0 5 5 0 , 0 6 0 0 , 0 6 5 0 , 0 7 0 0 , 0 7 5 0 , 0 8 0 0 , 0 8 7 5  
 0 9 0 0 , 0 9 5 0 , 1 0 0 0 , 1 1 0 0 , 1 2 5 0 , 1 3 5 0 , 1 5 0 0  
 1 6 0 0 , 1 7 5 0 , 2 0 0 0 , 2 2 5 0 , 2 5 0 0 , 2 7 5 0 , 3 0 0 0  
 3 2 5 0 , 3 5 0 0 , 4 0 0 0 (other length upon request)

- Included :
- Transducer
  - Connector
  - Mounting
  - Magnet

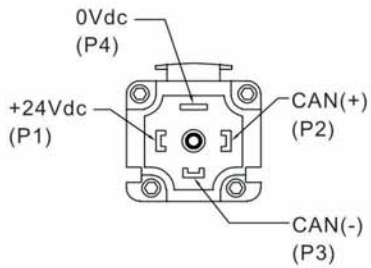
CAN (Controller Area Network) networks have been around for over 20 years. It was developed based on the request from industries requiring predictable, error-free communications, when they faced difficulties in connecting or sharing data among devices. CAN is realized as the most reliable network among all.

The 18 series CANbus interface transmits signal or multiple magnets position to controller up to 25Kbit over 500m. Its internal diagnosis unit is capable to communicate with controller at the real time.

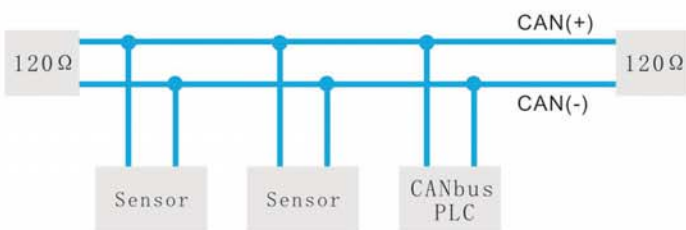
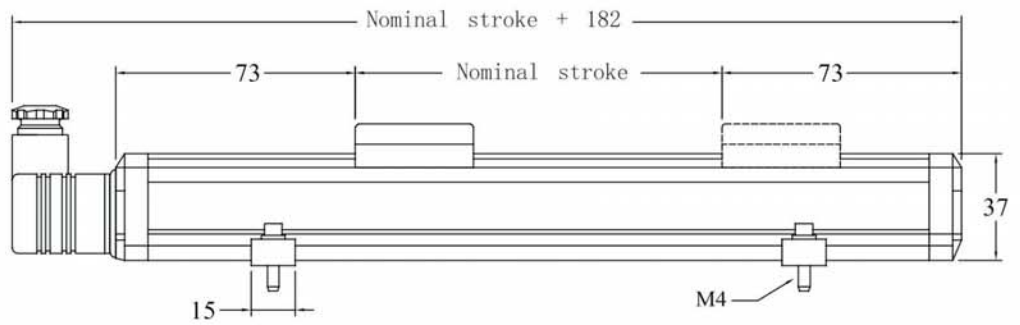


## Specifications

Order Code	186
Output	CANbus Digital Output
Measurement Type	Linear displacement
Version	CANopen: CIA Standard DS-301 V3.0
	CANbasic : CAN 2.0A
Baud rate	Baud rate : 1000 800 500 250 125 50 20 kbit/s
	Cable length : <25 <50 <100 <250 <500 <1000 <2500 (m)
Resolution	CANopen
- Position	5 $\mu$ m 2 $\mu$ m
- Velocity	0.5mm/s 0.2mm/s
Input Voltage	CANbasic
Input Protection	5 $\mu$ m 2 $\mu$ m
Current Consumption	1.0mm/s 0.1mm/s
Dielectric Strength	+24Vdc (20.4 - 28.8Vdc)
Repeatability	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Non-Linearity	50-140mA (stroke range dependent)
Update Time	500Vdc (DC ground to machine ground)
Operation Temp.	< $\pm$ 0.005% of full scale
Sealing	< $\pm$ 0.01% of full scale (minimum $\pm$ 90 $\mu$ m)
Vibration Rating	0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm
Shock Rating	2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm
EMC	-40 to 75°C, Humidity 90% non-condensing
	IP65 / IP67 (with connector)
	15g / 10-2000Hz / IEC standard 68-2-6
	100g single hit per IEC standard 68-2-27
	Emission EN 68000-6-3, Immunity EN 61000-6-2
	EN 68000-4-2/3/4/6



(View toward sensor pins)



Baud rate	Cable Length
1000 kbd	25M
500 Kbd	100M
250 Kbd	250M
125 Kbd	500M

**Order Code**

1 8 6 X X X X X X X X

**Output**  
CANbus digital output

**Connector**  
0 = 4 pins connector ( IP65)  
3 = 4 pins connector ( IP67)

**Mounting (P.13)**  
1 = 42.5mm mounting  
2 = 42.5mm isolation mounting  
3 = 50mm mounting

**Magnet Type (P.13)**  
1 = Captive  
2 = Floating  
3 = Die-cast  
4 = Large floating

**Stroke Length**  
0 1 0 0 , 0 1 3 0 , 0 1 5 0 , 0 1 7 5 , 0 2 0 0 , 0 2 2 5 , 0 2 7 5  
0 3 0 0 , 0 3 6 0 , 0 4 0 0 , 0 4 2 5 , 0 4 5 0 , 0 5 0 0 , 0 5 2 5  
0 5 5 0 , 0 6 0 0 , 0 6 5 0 , 0 7 0 0 , 0 7 5 0 , 0 8 0 0 , 0 8 7 5  
0 9 0 0 , 0 9 5 0 , 1 0 0 0 , 1 1 0 0 , 1 2 5 0 , 1 3 5 0 , 1 5 0 0  
1 6 0 0 , 1 7 5 0 , 2 0 0 0 , 2 2 5 0 , 2 5 0 0 , 2 7 5 0 , 3 0 0 0  
3 2 5 0 , 3 5 0 0 , 4 0 0 0 (other length upon request)

C X X X X X

**Protocol**  
101 = CANbasic  
207 = Multi-magnet CANbasic  
304 = CANopen

**Baud rate**  
1 = 1000 kBit/s  
2 = 500 kBit/s  
3 = 250 kBit/s  
4 = 125 kBit/s

**Resolution**  
1 = 5µm  
2 = 2µm

Notes: CANbus output format is chosen by customer and controller, not by Germanjet.

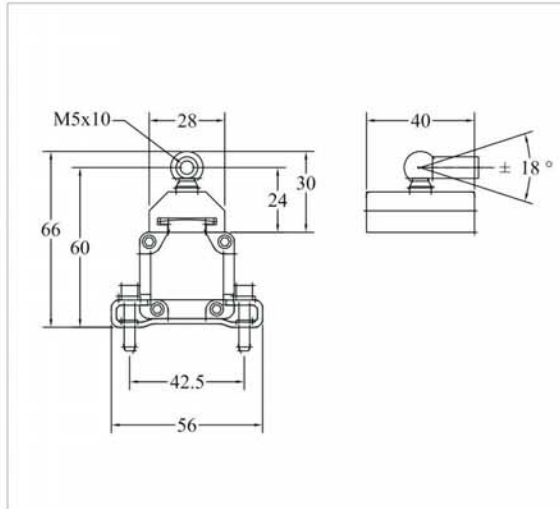
- Included :
- Transducer
  - Connector
  - Mounting
  - Magnet



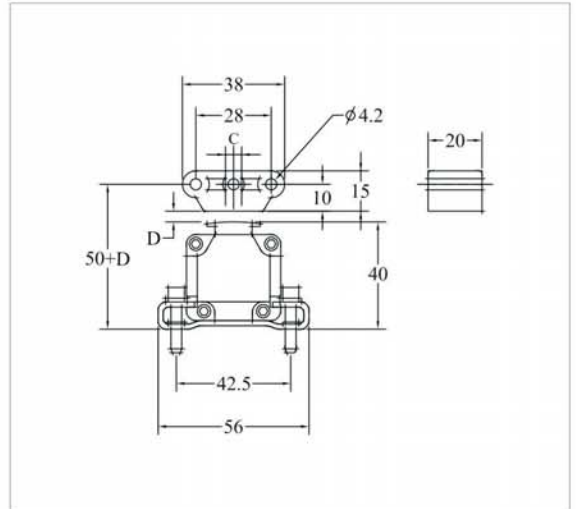


Discription
For series

Captive
18 Series



Floating
18 Series



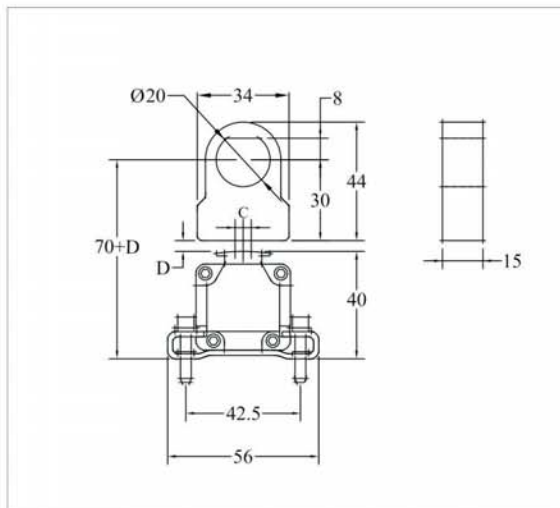
Order Code
Material
Weight
Vertical distance (D)
Lateral offset (C)
Operation Temperature

1800 951 001
Plastic
~30g
Fixed
Fixed
-40 to 75°C

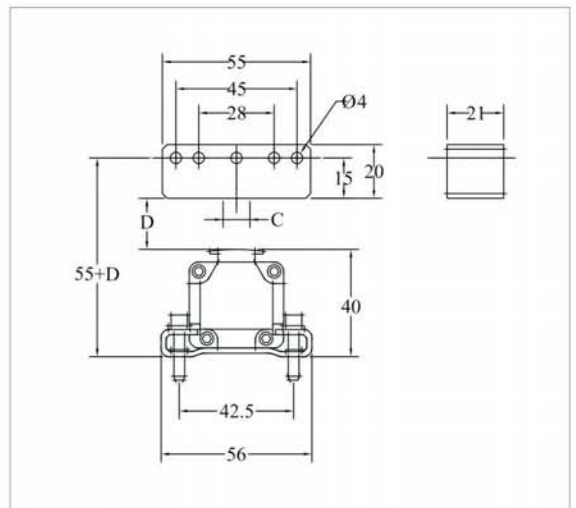
1800 951 002
Plastic
~12g
0.1 - 4mm
±8 m m
-40 to 75°C

Discription
For series

Die-cast
18 Series



Large floating
18 Series



Order Code
Material
Weight
Vertical distance (D)
Lateral offset (C)
Operation Temperature

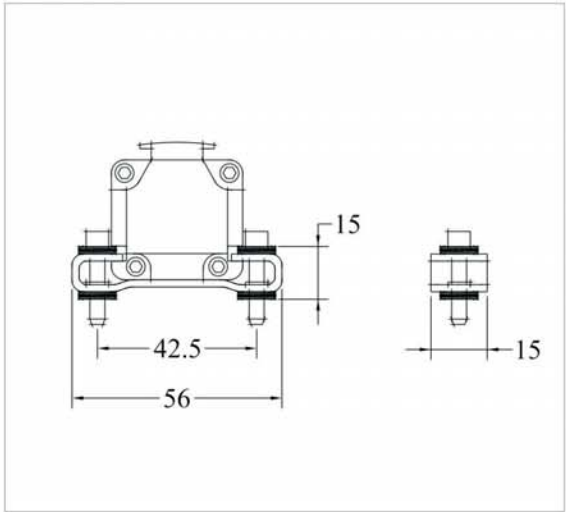
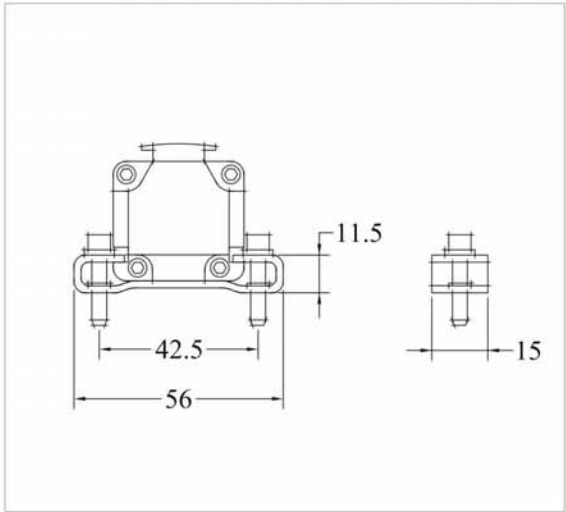
1800 951 003
Plastic
~12g
0.1 - 4mm
±8 m m
-40 to 75°C

1800 951 004
Plastic
~40g
0.1 - 10mm
±20 m m
-40 to 75°C

Discription
For series

42.5mm Mounting
18 Series

42.5mm Isolation Mounting
18 Series



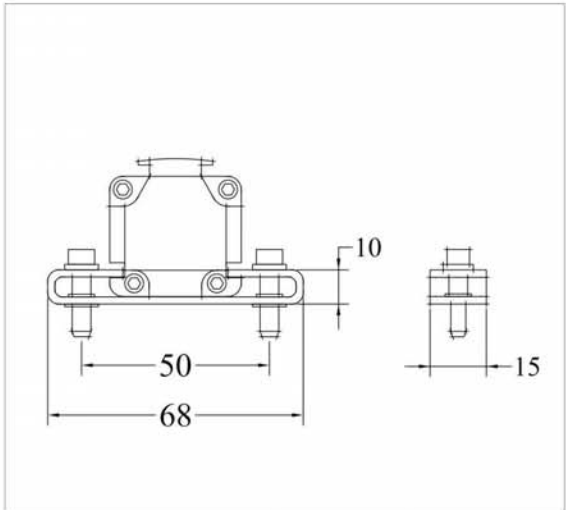
Order Code
Material
Installation
Torque

1800 951 007
Stainless Steel
M4 x 20 (not included)
Max. 4 Nm

1800 951 008
Stainless Steel
M4 x 20 (not included)
Max. 0.5 Nm

Discription
For series

50mm Mounting
18 Series



Order Code
Material
Installation
Torque

1800 951 009
Stainless Steel
M5 x 20 (not included)
Max. 5 Nm

