...19 Series
Non-Contact Sensor

19 series is the state-of-the-art digital position transducer. It adopts the non-contact magnetrostrictive measuring technology for precise, accurate, and absolute measurement. The non-contact feature provides exceptional ease of installation and guarantees almost unlimited mechanical life expectancy.

This special sensor was designed for use in harsh environments, such as petrochemical, oil refinery, and power plant, with high contamination and presence of dust. 19 series has a wide variety of signal output selection included analog, serial digital and fieldbus interfaces.

H model - hydraulic rod

H model is designed for hydraulic cylinder. Hydraulic body is made by stainless steel; it can be inserted directly into hydraulic cylinder. Electronic component and hydraulic body are modular design which can be detached easily; Hydraulic fluid doesn't need to be withdrawn when doing sensor calibration or replacement. This design greatly reduces machine down time and improves efficiency.

P model - aluminium profile

P model is designed for machine equipment. The high versatile IP67 profile housing 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.

D model - sensing rod detached

D model is designed for hydraulic cylinder with limited head space or clevis rod ends hydraulic cylinder. Sensing rod is made by stainless steel which installed inside the hydraulic cylinder. It is connected to the electronic module installed at the outside of the cylinder by a robust cable.

F model - flex sensor housing

F model is designed for very long stroke lengths and linear measurements on an arc. Standard stroke length begins from 2500mm up to 20 meters. The F model has variety of outputs including analog, serial digital and fieldbus interfaces.
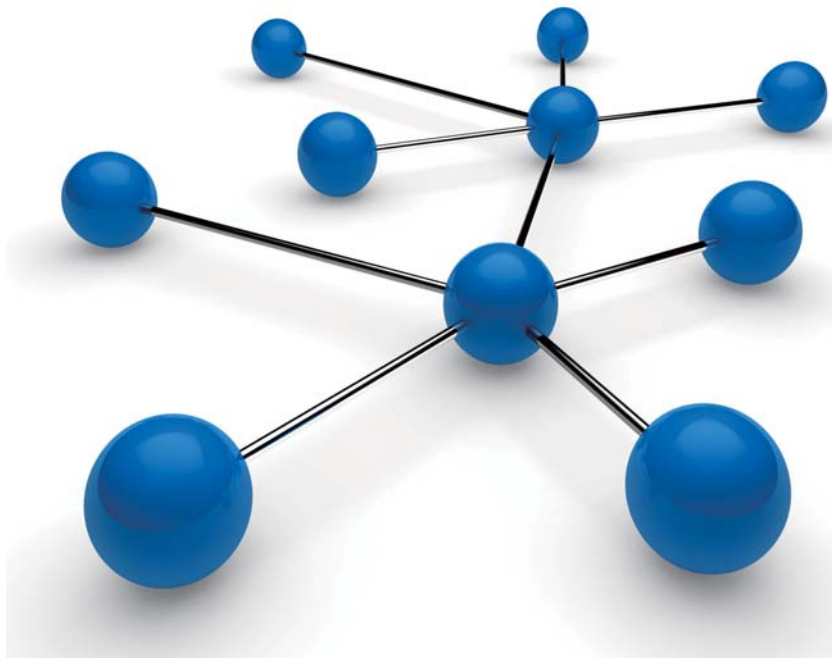
high precision with extreme reliability...

Digital Fieldbus Connection...

This professional series adopts the non-contact magnetostrictive technology for precise, direct and absolute position feedback. Output signals include:

- Programmable analog output
- Start/Stop pulse interface
- Synchronous serial SSI interface
- CANbus
- Profibus
- DeviceNet
- EtherCAT

Order Code

The 19 series order code cosists of two parts: output code and installation code

For example, select the preferred output signal such as SSI and then choice the suitable installation profile such as hydraulic rod (H)

1	9	X	X	X	X	X	X	X	X	X
		(Output code) P3.3 - P3.13				**(Installation code)** P3.15 - P3.19				

For example: SSI output with hydraulic rod (H)

1	9	2	1	G	1	1	0	0	D	7	0	H	0	2	2	5	2	1
		SSI output code										Hydraulic rod installation code						
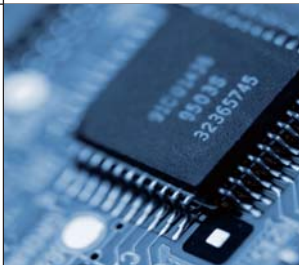
high precision & reliability...

Specifications

| Order Code	1 9 0	1 9 1	1 9 3
Output	Voltage	Current	Start / Stop Digital
Measurement Type	Linear displacement		

Measured Variables	For dual magnets, mini distance of 76mm in between	Single magnet
Resolution	16 Bit D/A, 0.0015% (minimum 1µm)	0.1 / 0.01 / 0.005mm
Repeatability	< ±0.001% of full scale (minimum ±2.5µm)	
Non-Linearity	< ±0.01% of full scale (minimum ±40µm)	
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	

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D60 Male

Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (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 61000-4-2/3/4/6

Magnet Assigment
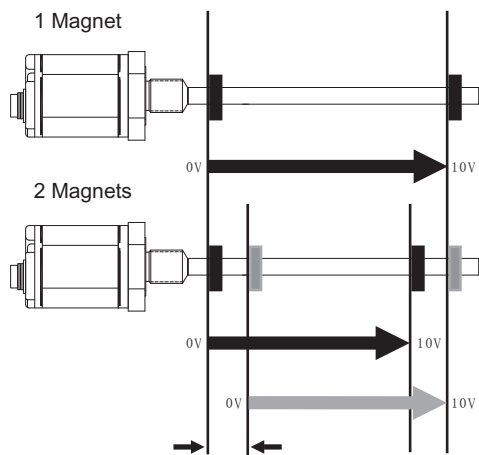
1 Magnet

2 Magnets

When using dual magnets, there is a minimum distance of 76mm need to be kept in between.

Diagnostic Display
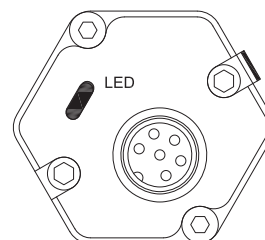
Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.

Programming Tools

Order Code	1700 951 018
Discription	19 Series Analog Programming Tool

The 19 series analog programming tool can be used to set the "zero" and "end" values anywhere within the nominal factory stroke range.

1 9 X X X X X X X X X

3 or 7 digits

Output

1 Output / 1 Magnet Position

001 = 0 - 10V
011 = 10 - 0V
021 = 0 - 5V
031 = 5 - 0V
041 = -10 - +10V
051 = -5 - +5V
101 = 4 - 20mA
111 = 20 - 4mA
121 = 0 - 20mA
131 = 20 - 0mA
141 = 0 - 24mA
151 = 24 - 0mA

2 Outputs / 2 Magnets Position

002 = 0 - 10V,0 - 10V
012 = 10 - 0V,10 - 0V
022 = 0 - 5V
032 = 5 - 0V
042 = -10 - +10V
052 = -5 - +5V
102 = 4 - 20mA
112 = 20 - 4mA
122 = 0 - 20mA
132 = 20 - 0mA
142 = 0 - 24mA
152 = 24 - 0mA

2 Outputs / 1 Magnet (Position + Velocity)

003 xxx.x = 0 - 10V (Position), 0(Mini. Velocity) - 10V (Max. Velocity)

013 xxx.x = 10 - 0V (Position), 0(Mini. Velocity) - 10V (Max. Velocity)

103 xxx.x = 4 - 20mA (Position), 4(Mini. Velocity) - 20mA (Max. Velocity)

113 xxx.x = 20 - 4mA (Position), 4(Mini. Velocity) - 20mA (Max. Velocity)

Velocity range: 0.001 - 10m/s
Sample: 0 - 5.5m/s = 0 - 10V, code = 0030055

19 series sensor is preconfigured at the factory by model code designation. If needed, we offer programming tools for modifying sensor stroke and output types.

Connection Type

D60 = 6 pin male receptacle M16 (Connector not included)

R02 = 2m PVC Direct Cable, Option: R01-R10 (1-10m)

H02 = 2m PUR Direct Cable, Option: H01-H10 (1-10m)
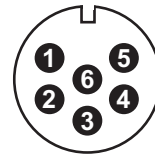
Pin Assignments for 190 / 191
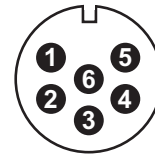
	D60 Pin	Cable
1	Output 1	Black
2	DC Gnd	White
3	Output 2	Yellow
4	DC Gnd	Green
5	+24 Vdc	Red
6	0 Vdc	Blue

(View toward sensor pins)

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

Pin Assignments for 193

	D60 Pin	Cable
1	Stop (-)	Black
2	Stop (+)	White
3	Start (+)	Yellow
4	Start (-)	Green
5	+24 Vdc	Red
6	0 Vdc	Blue

(View toward sensor pins)

Cable shield connects to connector shell and grounded at controller side.
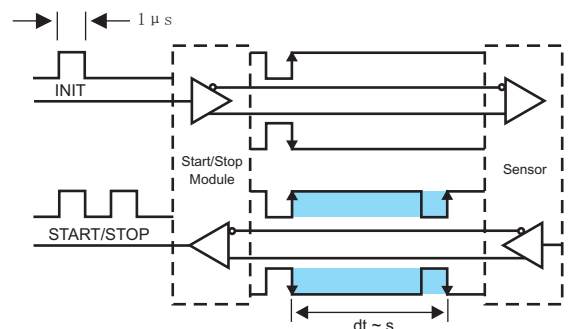
1 9 3 X 0 X X X

Output

1 = +24Vdc (20.4 - 28.8Vdc)

2 = +9Vdc to +28Vdc

Connection Type

D60 = 6 pin male receptacle M16 (Connector not included)

R02 = 2m PVC Direct Cable, Option: R01-R10 (1-10m)

H02 = 2m PUR Direct Cable, Option: H01-H10 (1-10m)

Logic Diagram for 193 Start / Stop

1 μs

INIT

Start/Stop Module

Sensor

START/STOP

dt ~ s

Specifications

Order Code	1 9 2
Output	SSI
Measurement Type	Linear displacement
Data Format	Binary or Grey
Data Length	8 - 32 bits
Data Speed	Cable Length : <3 <50 <100 <200 <400 m
	Baud rate : 1000 <400 <300 <200 <100 kBd
Update Time	Measuring Length : 300 750 1000 2000 5000 mm
	Measurement/sec : 3.7 3.0 2.3 1.2 0.5 kHz

Resolution	Displacement : 1 / 2 / 5 / 10 / 20 / 50 / 100 μ㎜
Repeatability	< ±0.001% of full scale (minimum ±2.5μm)
Non-Linearity	< ±0.01% of full scale (minimum ±40μm)
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

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D70 Male

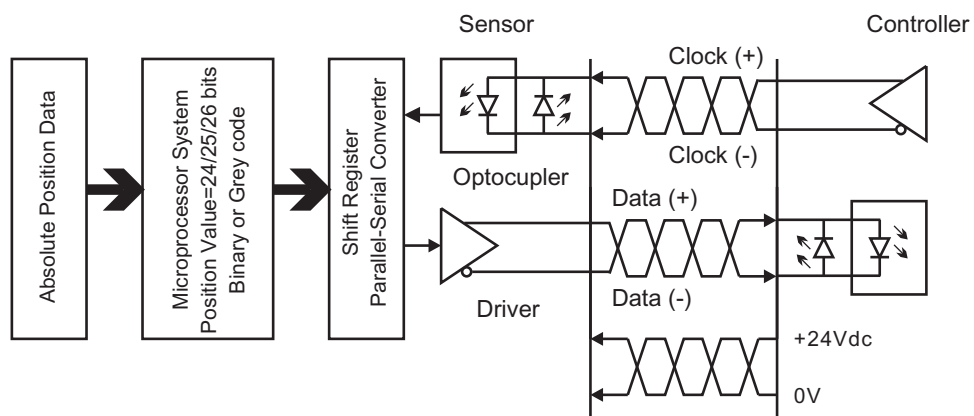|	
Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (with connector)
Vibration Rating	15g / 10-2000Hz / IEC standard 68-2-6
Shock Rating	100g single hit per IEC standard 68-2-27
EMC	Emission EN 68000-6-3, Immunity EN 61000-6-2, EN 61000-4-2/3/4/6

Timing Diagram
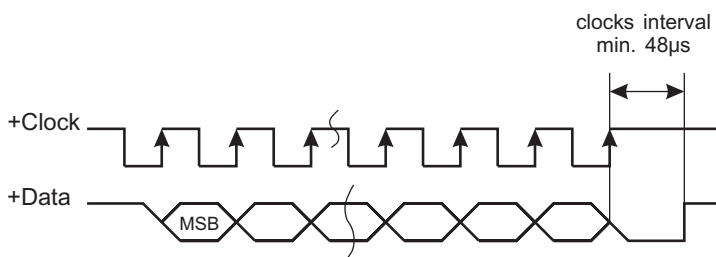
Sensor Input
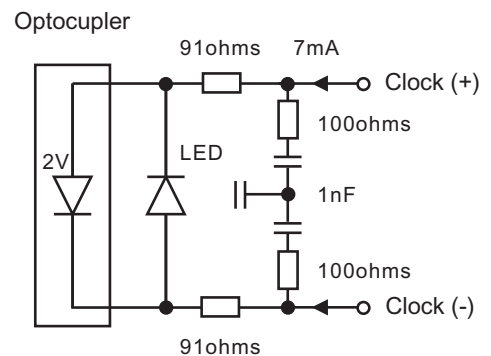
Logic Diagram

1 9 2 X X X X X X X X X X

Data Length

1 = 25 bits
2 = 24 bits

Output Format

B = Binary
G = Grey Code

Resolution

|	
1 = 5µm	2 = 10µm
3 = 50µm	4 = 100µm
5 = 20µm	6 = 2µm
8 = 1µm	

Function

1 = Standard

Options

00 = Measuring direction forward
01 = Measuring direction reverse

Remark: Direction forward means position reading become larger while magnet move away from electronic carriage. Direction backward means position reading become smaller while magnet move away from electronic carriage.

Connection Type

D70 = 7 pin male receptacle M16 (Connector not included)

R02 = 2m PVC Direct Cable, Option: R01-R10 (1-10m)

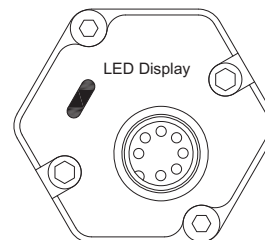H02 = 2m PUR Direct Cable, Option: H01-H10 (1-10m)

Pin Assignments
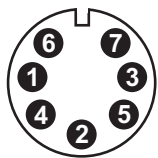
	D70 Pin	Cable
1	Data (-)	Black
2	Data (+)	White
3	Clock (+)	Yellow
4	Clock (-)	Green
5	+24 Vdc	Red
6	0 Vdc	Blue
7	N.C.	

(View toward sensor pins)

Cable shield connects to connector shell and grounded at controller side.
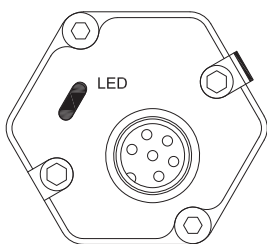
Diagnostic Display

LED Display

Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

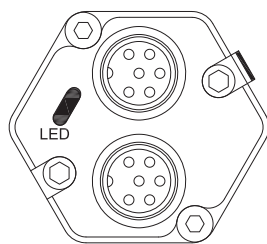Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.

Specifications

Order Code	1 9 4
Output	CANBus
Measurement Type	Linear displacement
Data Protocol	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		CANbasic	
- Displacement	5µm	2µm	5µm	2µm
- Speed	0.5mm/s	0.2mm/s	1.0mm/s	0.1mm/s

Repeatability	< ±0.001% of full scale (minimum ±2.5µm)
Non-Linearity	< ±0.01% of full scale (minimum ±40µm)
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

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D60 Male

|	
Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (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

Diagnostic Display

D60 / D61 Connection   D62 Connection

Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.
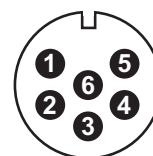
Pin Assignments

	D60/D61 Pin	Cable
1	CAN (-)	Black
2	CAN (+)	White
3	N.C.	Yellow
4	N.C.	Green
5	+24 Vdc	Red
6	0 Vdc	Blue

(View toward sensor pins)

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

Order Code (Output Code)

1 9 4 X X X X X X X X X X X X

Protocol
101 = CANbasic
207 = Multi-Position CANbasic
304 = CANopen

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

Resolution
1 = 5μm   4 = 10μm
2 = 2μm   5 = 20μm

Connection Type
D60 = 6 pin male receptacle M16 with termination resistor
D61 = 6 pin male receptacle M16
D62 = 2 x 6 pin male receptacle M16
R02 = 2m PVC Direct Cable, Option: R01-R10 (1-10m)
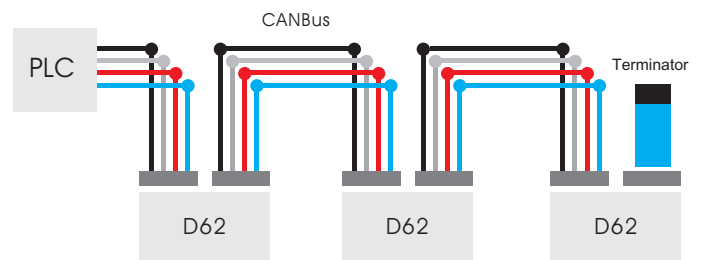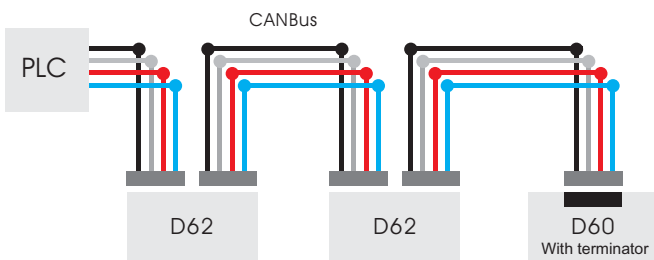H02 = 2m PUR Direct Cable, Option: H01-H10 (1-10m)

Magnet Number
Z__ = 02 - 03 pcs of Magnet (If output 207 is selected)

Baud Rate	Cable Length
1000 Kbd	25M
500 Kbd	100M
250 Kbd	250M
125 Kbd	500M

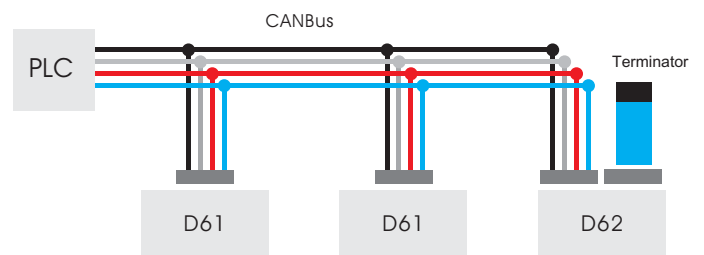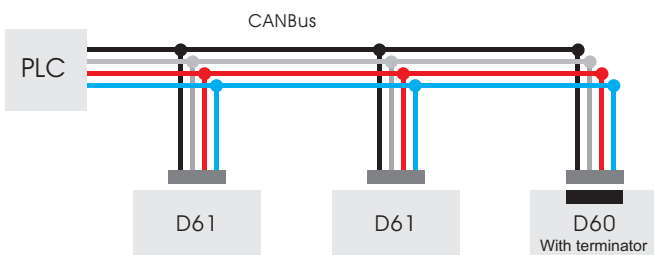Remark: CANbus protocol parameters are chosen by customer and controller, not decided by Germanjet.

Network Topology

Bus Network Topology

CANBus

PLC — D62 — D62 — D60 With terminator

PLC — D62 — D62 — D62 — Terminator

Star Network Topology

CANBus

PLC — D61 — D61 — D60 With terminator

PLC — D61 — D61 — D62 — Terminator

Terminator Order Code
1800 951 044

Specifications

Order Code	1 9 5
Output	Profibus-DP digital output
Measurement Type	Linear displacement
Data Protocol	Profibus-DP (EN-50 170)
Output Signal	Profibus-DP System according ISO 74498
Baud Rate	Max 12Mbit/s

Resolution	Position： 5µm/ other values selectable via GSD file
Repeatability	< ±0.001% of full scale (minimum ±2.5µm)
Non-Linearity	< ±0.01% of full scale (minimum ±40µm)
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

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D62 / D53

Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (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

Order Code (Output Code)

1 9 5 X X X X X X X X X X X X X

Connection Type

D62 = 2 x 6 pin male receptacle M16

D53 = 1 x 5 pin male receptacle M12
 1 x 5 pin female receptacle M12
 1 x 4 pin male receptacle M8
 (Connector not included)

Input Voltage

1 = +24Vdc

Output

P102 = Profibus-DP with 1 Magnet
 Measurement (Standard)

P101 = Profibus-DP with Multi-Magnet
 Measurement

Magnet Number

Z__ = 02 - 03 pcs of Magnet
 (If output P101 is selected)

Profibus Interface

The 19 series Profibus-DP interface fulfill the requirement of EN50170. The position transducer adopts the non-contact magnetostrictive measuring technology with direct transmission of RS-485 standard in a baud rate of 12 Mbits/s. Profibus wiring uses shielded twisted pair cable and can be used to connect up to 32 devices in a single segment (piece of cable).

D62 multi-drop connector outlet and D60 connector outlet with bus termination are available. Profibus provides useful functions for diagnostics and configuration by loading the GSD (Electronic Device Data Sheet) into the bus. The file is available to be downloaded at
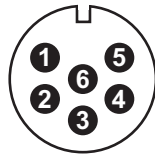
Profibus Addressing

Normally addressing is done by Profibus SetSlaveAddress. If some master systems do not support this standard, or customers controller can not handle, direct addressing is recommended.
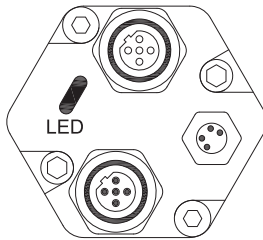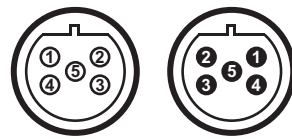
D62 Pin Assignments
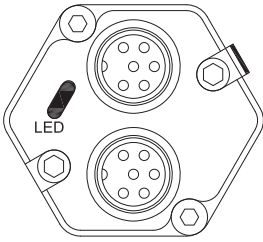
D62 Connection

1	RxD/TxD-N(Bus)
2	RxD/TxD-P(Bus)
3	N.C.
4	N.C.
5	+24 Vdc
6	0 Vdc

(View toward sensor pins)

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

D53 Pin Assignments

D53 Connection

M12 female   M12 male

(View toward sensor pins)

1	N.C.
2	RxD/TxD-N(Bus)
3	N.C.
4	RxD/TxD-P(Bus)
5	Cable Shield

*only apply to female receptacle

1	+ 24 Vdc
2	N.C.
3	0 Vdc
4	N.C.

Power Male Receptacle

Network Topology
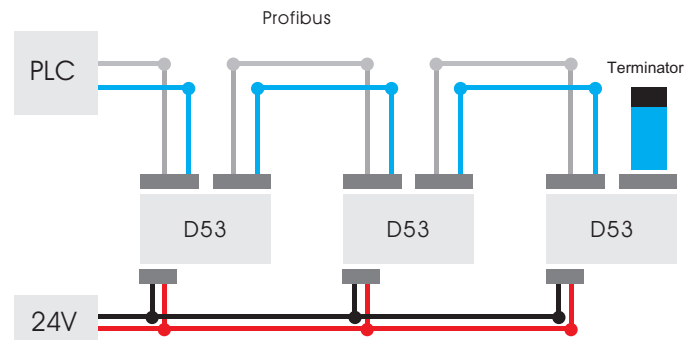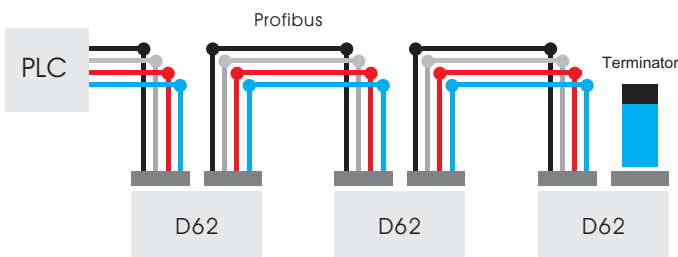
Terminator

Receptacle	Order Code
D53	1800 951 043
D62	1800 951 028

Diagnostic Display

Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.

LED Display

Profibus-DP Input

D53 Connection

+24Vdc Power

Profibus-DP Output
or Install D53 Terminator
(Order Code: 1800951043)
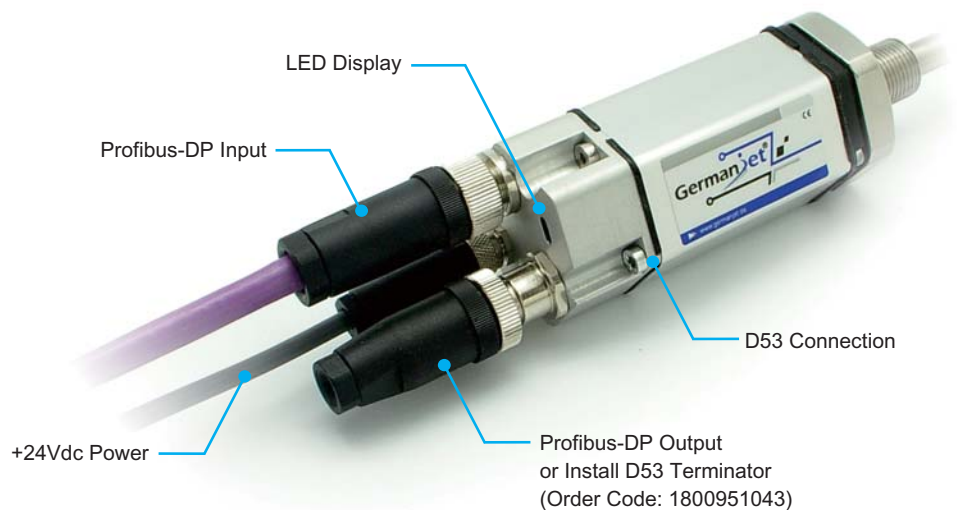
Specifications

Order Code	1 9 6
Output	DeviceNet digital output
Measurement Type	Linear displacement
Data Protocol	DeviceNet 2.0 Version
Output Signal	CAN FieldBus System ISO 11898
Baud Rate	Baud rate : 500 250 125 Kbit/s
	Cable length : <100 <250 <500 m

Resolution	2µm or 5µm
Repeatability	< ±0.001% of full scale (minimum ±2.5µm)
Non-Linearity	< ±0.01% of full scale (minimum ±40µm)
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

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D60 Male

Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (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

Order Code (Output Code)

1 9 6 X X X X X X X X X X

Hardware
2 = Standard

Output Protocol
02 = DeviceNet

Baud Rate
2 = 500 kBit/s
3 = 250 kBit/s
4 = 125 kBit/s

Resolution
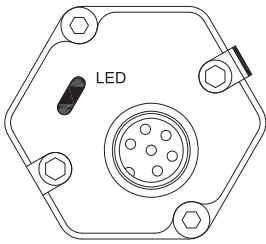1 = 5µm
2 = 2µm

Type
1 = Standard

Connection Type
D60 = 6 pin male receptacle M16 with termination resistor
D61 = 6 pin male receptacle M16

Remark: DeviceNet protocol parameters are chosen by customer and controller, not decided by Germanjet.
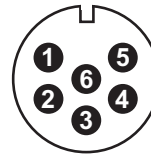
Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.

Pin Assignments

	D60/D61 Pin
1	CAN (-)
2	CAN (+)
3	N.C.
4	N.C.
5	+24 Vdc
6	0 Vdc

(View toward sensor pins)

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

DeviceNet Protocol

DeviceNet is layered on top of the CAN (Controller Area Network) technology and takes advantage of CAN, making it low-cost and robust. DeviceNet supports maxinium 500 Kbit/s data rates. Position resolution can be up to 2µ m. Nodes are distributed along a DeviceNet network by the means of a trunkline-dropline topology. Nodes can be easily removed and added to reduce production downtime, increase network flexibility, and decrease troubleshooting time.

The DeviceNet installation is quick and easy. Each sensor is provided with an Electronical Data Sheet (EDS). All sensor parameters are installed into the network using the EDS file. The file is available to be downloaded at www.germanjet.de.

A PC programming tool, such as DeviceNet Manager offered by Rockwell Automation, is used to set the node identifier and baud rate. (Factory node setting is 63 and the baud rate is 500 Kbit/s)

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Specifications

Order Code	1 9 7
Output	EtherCAT
Measurement Type	Linear displacement
Data Protocol	100 Base-Tx, Fast Ethernet
Output Signal	Simultaneous multi-position and velocity measurements up to 3 magnets
Baud Rate	Max. 100Mbit/s

Resolution	Position: 1 to 1000µm selectable / Velocity: 1µm/s depend on velocity and stroke
Repeatability	< ±0.001% of full scale (minimum ±2.5µm)
Non-Linearity	< ±0.01% of full scale (minimum ±50µm)
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

Input Voltage	+24Vdc (20.4 - 28.8Vdc)
Input Protection	Polarity protection up to -30Vdc, Over voltage protection up to 36Vdc
Power Consumption	100mA (stroke range dependent)
Dielectric Strength	500Vdc (DC ground to machine ground)
Connector Type	D56

Operation Temp.	-40 to 75℃, Humility 90% non-condensing
Sealing	IP 67 (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

Order Code (Output Code)

1 9 7 X X X X X X X X X X X X

Connection Type

D56 = 2 x 4 pin female receptacle M12
      1 x 4 pin male receptacle M8
      (Connector not included)

Input Voltage

1 = +24Vdc

Output

E101 = EtherCAT, position and velocity, 1 magnet
E102 = EtherCAT, position and velocity, maximum 3 magnets

Magnet Number

Z__ = 02 - 03 pcs of Magnet (If output E102 is selected)
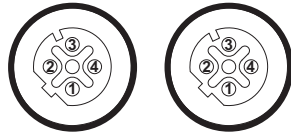
EtherCAT Interface

The 19 series EtherCAT interface fulfill the requirement of EtherCAT 100 Base-Tx standard. EtherCAT (Ethernet for Control Automation Technology) is the state-of-the-art interface developed by Beckhoff Automation. This interface is supported by EtherCAT Technology Group.

LED
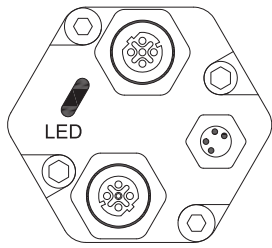
D56 Connection

M12 female   M12 female

(View toward sensor pins)

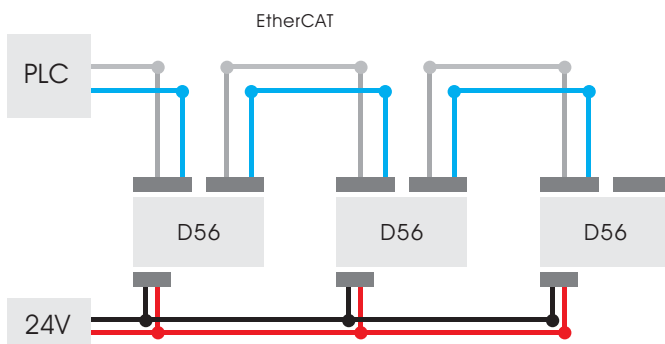| 1	Tx +
2	Rx +
3	Tx -
4	Rx -

1	+ 24 Vdc
2	N.C.
3	0 Vdc
4	N.C.

Power Male
Receptacle

Network Topology

EtherCAT

PLC

D56   D56   D56

24V

Diagnostic Display

Green	Red	Description
ON	OFF	Normal function
ON	ON	Magnet not detected

Integrated LEDs provide basic visual feedback for normal sensor operation and troubleshooting.

Order Code (Installation Code)

H X X X X 2 X

Stroke Length (mm)

0075, 0100, 0125, 0150, 0175,
0200, 0225, 0250, 0275, 0300,
0325, 0350, 0375, 0400, 0425,
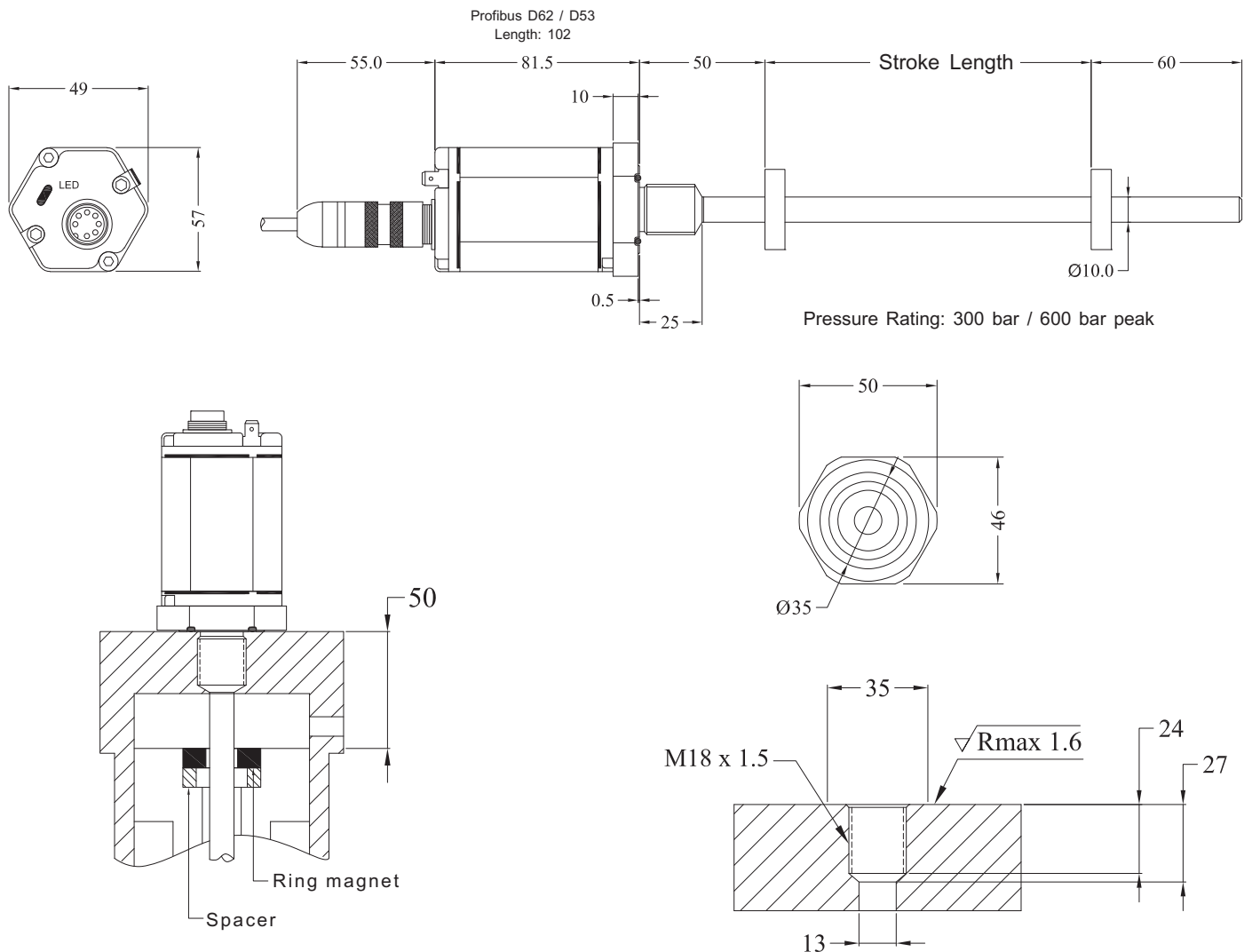0450, 0475 (25mm increment after)

Mounting thread

2 = M18 x 1.5

Magnet type

1 = Dia. 33mm ring
2 = Dia. 25mm ring
3 = Floating ball
4 = Large floating
5 = Dia. 32mm ring
6 = Dia. 60mm ring

Installation

49

LED

57

Profibus D62 / D53
Length: 102

55.0   81.5   50   Stroke Length   60

10

0.5
25

Ø10.0

Pressure Rating: 300 bar / 600 bar peak

50

Ring magnet

Spacer

50

46

Ø35

35

M18 x 1.5   ▽Rmax 1.6   24
27

13

P X X X X X X

Stroke Length (mm)

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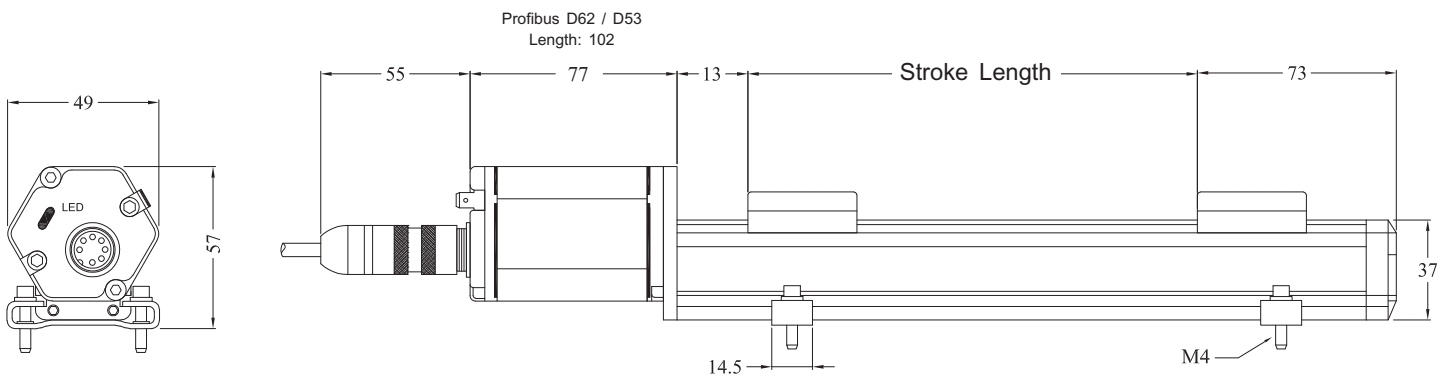
Mounting

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

Magnet Type

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

Installation

Profibus D62 / D53
Length: 102

49

LED

57

55   77   13   Stroke Length   73

37

14.5   M4

easy of installation ...

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3.16

Order Code (Installation Code)

D X X X X 1 1 X X

Stroke Length (mm)

0075, 0100, 0125, 0150, 0175,
0200, 0225, 0250, 0275, 0300,
0325, 0350, 0375, 0400, 0425,
0450, 0475 (25mm increment after)

Sensor Electronic

1 = Bottom cable entry
2 = Side cable entry

Sensor Rod Style

1 = Fitting flange
2 = M18 x 1.5 rod style

Magnet type

1 = Dia. 33mm ring
2 = Dia. 25mm ring
4 = Dia. 60mm ring
5 = Dia. 32mm ring

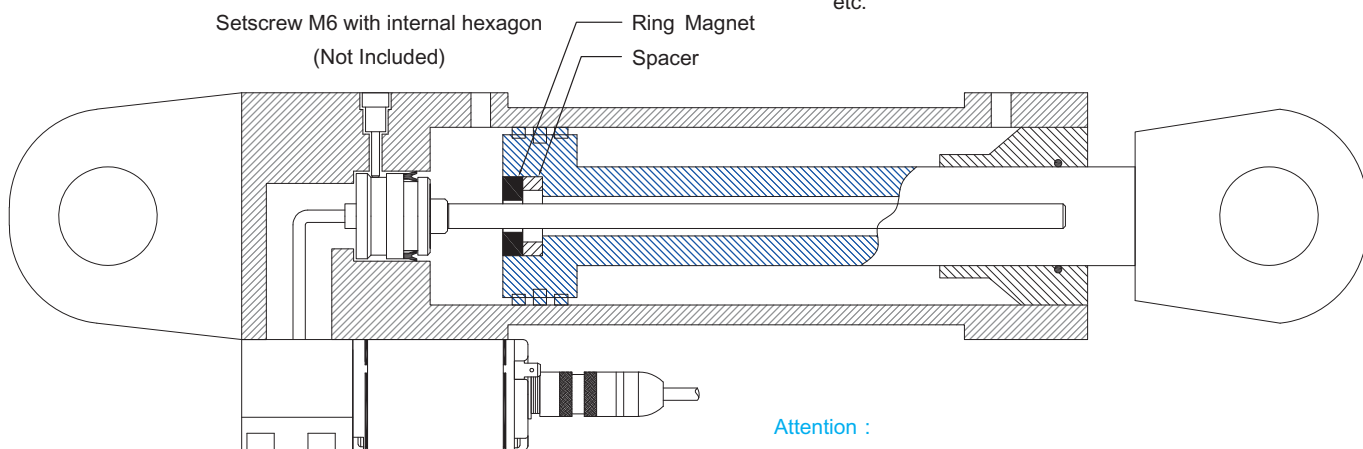**Integral Cable of Sensor Rod**

Bottom cable entry
1 = 170mm cable with connector
2 = 230mm cable with connector
3 = 350mm cable with connector

Side cable entry
4 = 250mm cable with connector
5 = 400mm cable with connector
6 = 600mm cable with connector

Installation Example

Mounting Ring Magnet

Mount the magnet with the non-magnetic material for entrainment, screws, spacers, etc.

Setscrew M6 with internal hexagon
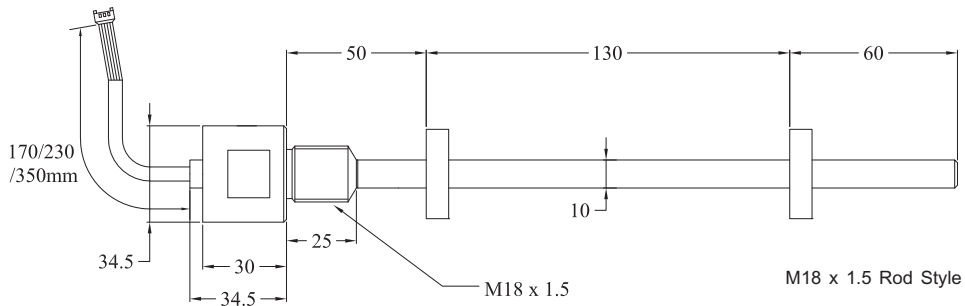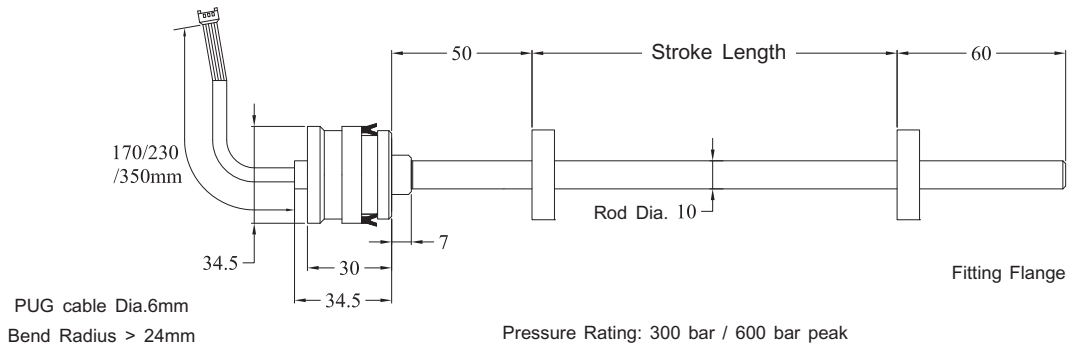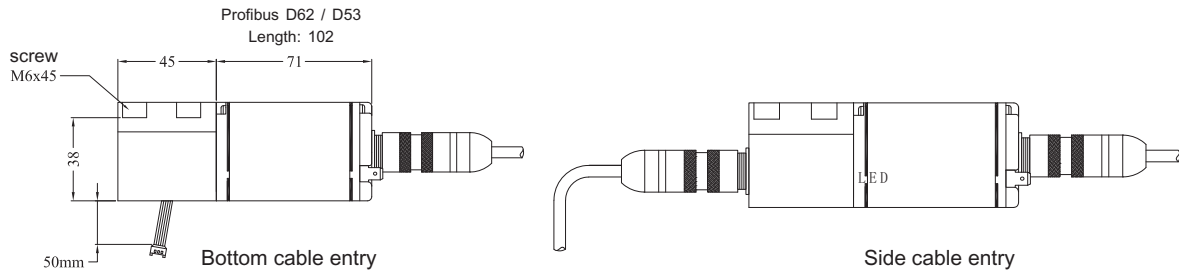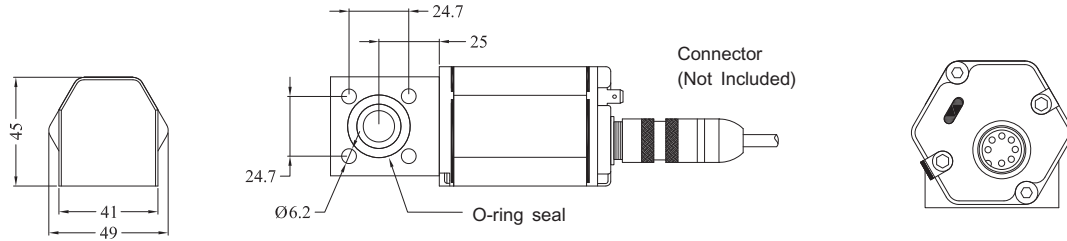(Not Included)
Ring Magnet
Spacer

Attention :

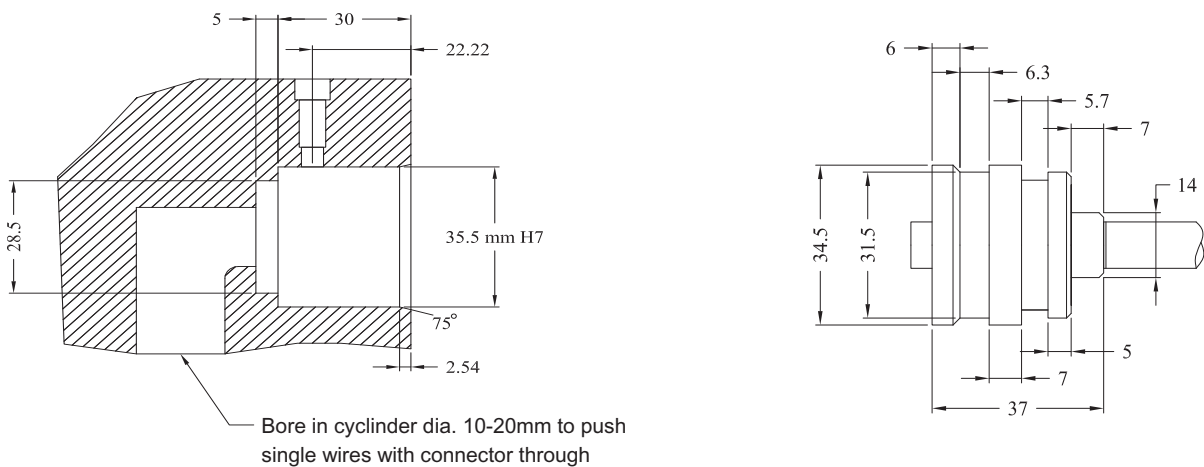The ring magnet should not intouch with the sensor rod.

The bore in the piston rod is dependent on the hydraulic pressure and the pistons velocity. The minimum drilling should be 13mm. Do not exceed the peak pressure.

The sensor rod should be protected against wear.

Installation Instrustion

24.7
25
24.7
Ø6.2
O-ring seal

45
41
49

Connector
(Not Included)

Profibus D62 / D53
Length: 102

screw
M6x45

45
71
38
50mm

Bottom cable entry

LED

Side cable entry

50
Stroke Length
60

170/230
/350mm

34.5
30
7
34.5

Rod Dia. 10

Fitting Flange

PUG cable Dia.6mm
Bend Radius > 24mm

Pressure Rating: 300 bar / 600 bar peak

50
130
60

170/230
/350mm

34.5
30
25
34.5
10

M18 x 1.5

M18 x 1.5 Rod Style

Mounting Detail

5
30
22.22
28.5
35.5 mm H7
75°
2.54

Bore in cyclinder dia. 10-20mm to push
single wires with connector through

6
6.3
5.7
7
14
34.5
31.5
5
7
37

Order Code (Installation Code)

F X X X X X X X

Stroke Length (mm)

0 2 5 0 0 , 0 2 5 2 5 , 0 2 5 5 0 , 0 2 5 7 5 ,
0 2 6 0 0 , 0 2 6 2 5 , 0 2 6 5 0 , 0 2 6 7 5 ,
0 2 7 0 0 , 0 2 7 2 5 , 0 2 7 5 0 , 0 2 7 7 5 ,
(25mm increment after)

Flange Internal Diameter

1 = 10.0 mm Dia.
2 = 12.7 mm Dia.

Magnet type

1 = Dia. 33mm ring
2 = Dia. 60mm ring
3 = Large floating

Dimensions

Profibus D62 / D53
Length: 102

49

LED

57

55.0   81.5   50   Stroke Length   85

10   100
Rigid pipe

0.5
25   M18 x 1.5

Ø6.5
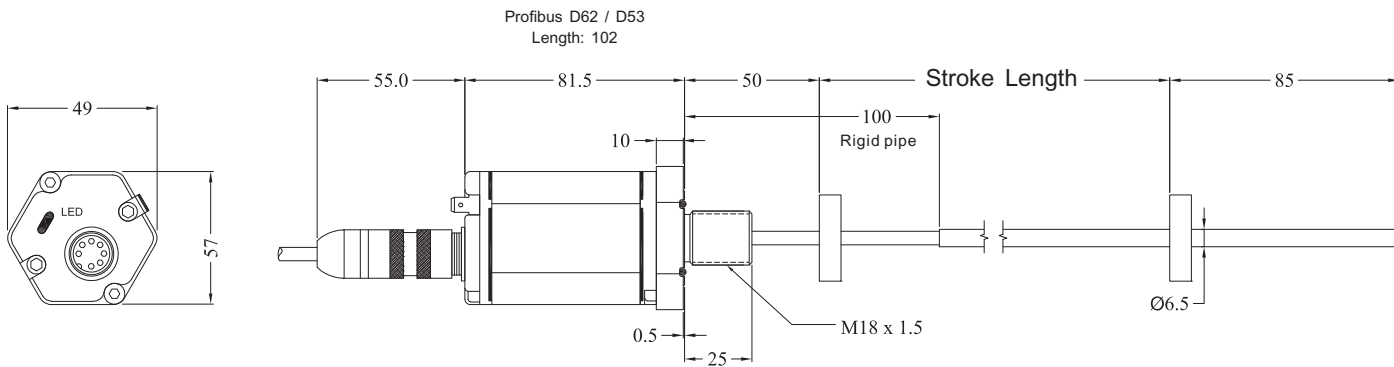
**Total sensor length tolerances are :**

<8000mm stroke lengths, +8mm tolerance

>8000mm stroke lengths, +15mm/-5mm tolerance

* Tolerances of total length have no influence for the measuring stroke length

The flexible style is housed in a Teflon coated stainless steel for full protection against outside agents for use in harsh environments with high contamination.

250mm Minimum
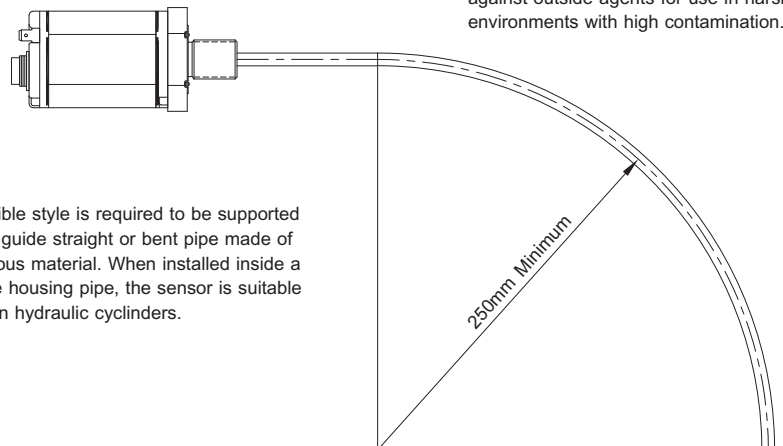
The flexible style is required to be supported inside a guide straight or bent pipe made of non-ferrous material. When installed inside a pressure housing pipe, the sensor is suitable for use in hydraulic cyclinders.

Installation Dimensions

Stroke length <8000mm, front dead zone is 50mm
Stroke length >8000mm, front dead zone is 130mm

50 ── Stroke Length ── 100

ID Ø10mm

OD Ø10.0 / ID Ø8.0
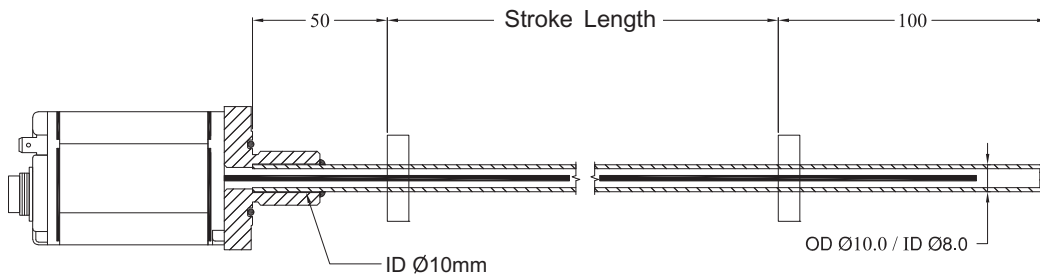
Pressure housing pipe for ID 10mm flange :
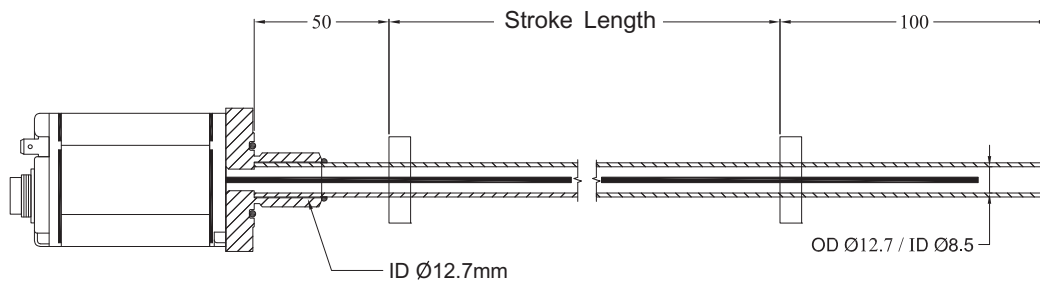Pipe OD <10mm
Pipe ID > 8mm

Stroke Length < 8000mm
- Pipe Length = Stroke Length + 150mm

Stroke Length > 8000mm
- Pipe Length = Stroke Length + 230mm

Stroke length <8000mm, front dead zone is 50mm
Stroke length >8000mm, front dead zone is 130mm

50 ── Stroke Length ── 100

ID Ø12.7mm

OD Ø12.7 / ID Ø8.5

Pressure housing pipe for ID 12.7mm flange :
Pipe OD <12.7mm
Pipe ID > 8.5mm

Stroke Length < 8000mm
- Pipe Length = Stroke Length + 150mm

Stroke Length > 8000mm
- Pipe Length = Stroke Length + 230mm

* Select Dia. 60mm ring magnet
  or High floating magnet

Installation Instrustion

In urgent situation, 19F can be delivered immediately and economically on site to shorten unexpected machine downtime.

Welding can be applied to accommodate the connection.

M18x1.5 flange external mounting
Order code: 1900951003

19F is placed inside a guide pipe made of non-ferrous material.

10mm dia. housing pipe mounting
Order code: 1900951002
(Install for every 500mm)

Connection example with thread

An installation of 7600mm long of 19F for 6600 ton two plated plastic injection machine.