

BUS series

Linear Position Sensor



Feature:

- Non-contact measurement, LED light real-time monitoring, fault indication.
- Repetition accuracy less than 0.001%F.S, nonlinearity less than 0.01%F.S
- Digital technology, durable, stable and reliable.
- Linear measurement, absolute position output
- Maximum measuring stroke 5500 mm

Details:

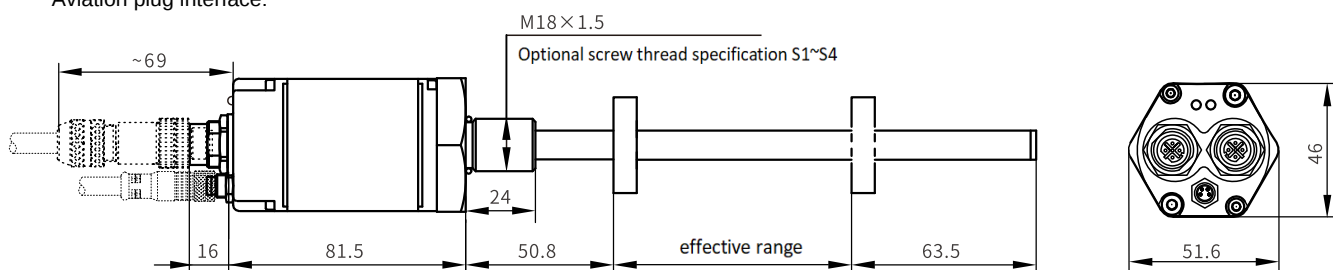
- Measuring rod aluminum alloy, 304 stainless steel
- Threaded interface M18*1.5 (optional)
- Aluminum alloy IP67 for electronic bin
- Outer pipe pressure 35M Pa(continuous), 70MPa(peak)
- Outlet mode Straight out of the cable or aviation plug
- Position magnet Standard magnetic ring and various ring magnets
- Threaded interface M18*1.5, M20*1.5 (customizable)

Technology parameters:

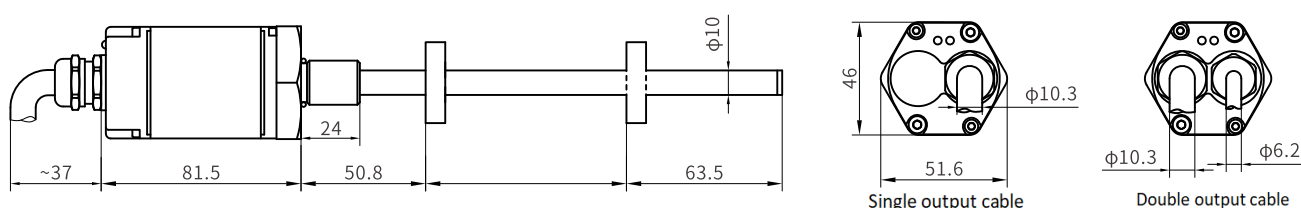
- Data Protocol: Profile and Encoder Profile 4.1
- Interface: Profinet IORT
- Transmission Speed: Up to 100 Mbit/s
- Resolution: 1, 2, 5, 10, 20, 50, 100 μ m
- Nonlinearity: $< \pm 0.01\%$ of full scale, minimum $\pm 50 \mu$ m
- Repeatability: $< \pm 0.001\%$ of full scale, minimum $\pm 1 \mu$ m
- Update Rate: 1 KHZ (range ≤ 1 M)
 100 HZ (1 M $<$ range ≤ 2 M)
 50 HZ (2 M $<$ range ≤ 3 M)
- Hysteresis: $<$
- Temperature Coefficient: Less than 15 ppm/ $^{\circ}$ C
- Operating Temperature: -40° C to $+85^{\circ}$ C
- Protection Grade: IP65 P (aluminum formed housing) / IP67 H (stainless steel pressure-resistant tube)
- Humidity/Dew Point: 90% humidity, no condensation
- Shock Standard: GB/T2423.5. 100g (6 ms)
- Vibration Standard: GB/T2423.10. 20g / 10-2000 HZ
- EMC Test: GB/T17626.2/3/4/6/8, Class 4/3/4/3/3, Class A
- Input voltage 24 V DC ($\pm 20\%$)
- Operating current < 90 mA (varies with range size)
- Maximum polarity protection -30 V DC
- Overvoltage protection up to 36 V DC
- Insulation resistance > 10 M Ω
- Insulation strength 500 V

TIP series 101 structure:

Aviation plug interface:

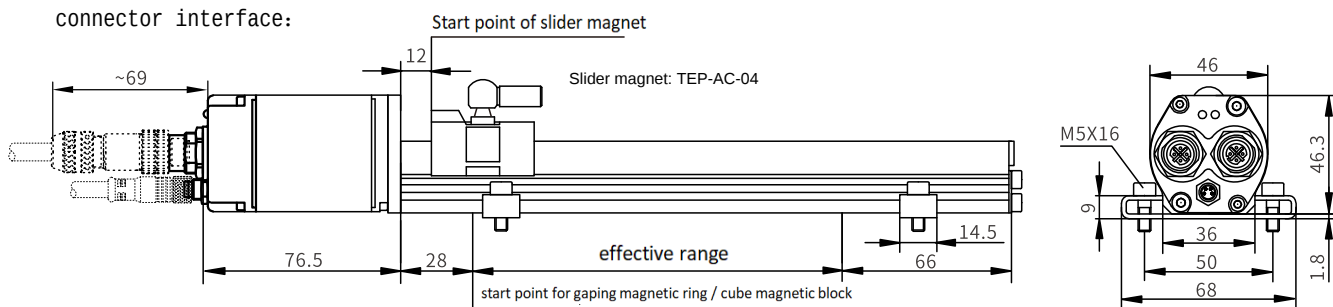


Straight out cable interface:

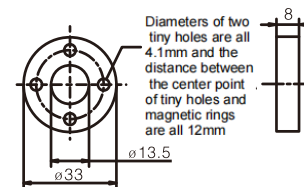
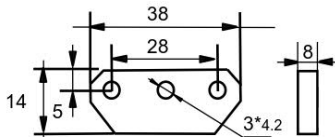
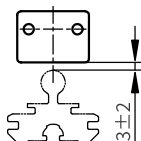
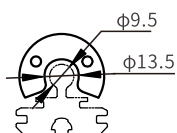
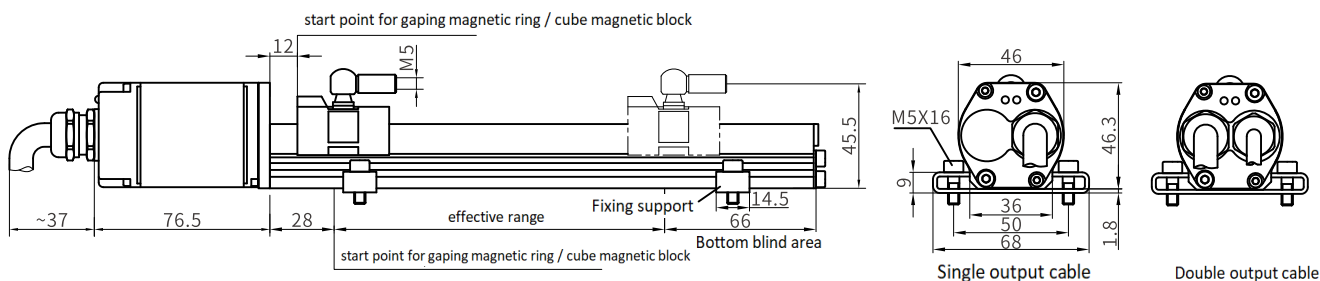


TEP series 103 structure

connector interface:



cable interface:



gaping magnetic ring: TEP-AC-03

suspending magnet: TEP-AC-05

suspending strong magnet: TEP-AC-06

Standard magnetic ring: TIP-AC-P01

EtherCAT output signal:

INPUT

test data	magnet ring
effective range	25~7620 mm
test times	1~9pcs

OUTPUT

output signal	EhterCATEthernet control automation technology EtherCAT 100 Base-TX
transmission speed	max 100Mbit/s
resolution	1...100 μm, optional
Linearity	$<\pm 0.01\% \text{F.S.}$, min $\pm 50\mu\text{m}$
Repeatability	$<\pm 0.001\% \text{F.S.}$, min $\pm 1\mu\text{m}$
update time	$\geq 0.25\text{ms}$, depend on range
hysteresis	$<10\mu\text{m}$
temperature coefficient	$<30\text{ppm}/^\circ\text{C}$

Working parameters

speed of magnet	random
protection class	IP 65 for AL housing/ IP67 for stainless steel housing
working temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$
humidity and dewing	humidity 90%, no dewlessness
impact index	GB/T2423.5 100g(6ms)
vibration index	GB/T2423.10 15g/10~2000Hz
EMC test	GB/T17626.2/3/4/6/8, level 4/3/4/3/3, A class

Structure and Materials

trouble shooting	LED indicate from bottom cover of electrical section	
103 structure	electrical section	Aluminum alloy
	detect stick	Aluminum alloy
	position marker	sliding magnet, cube magnet, gapped ring
101 structure	electrical section	Aluminum alloy
	detect stick	304 stainless steel
	pressure for external pipe: 35MPa(average) / 70MPa(max)	
	position marker	standard and other magnetic rings
screw interface	M18×1.5、M20×1.5、3/4"-16UNF-3A (customized)	
fixing direction	random	
cable direction	cable or connector	

Electrical connection

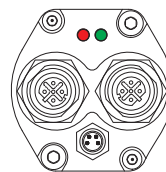
output voltage	24Vdc (-20%~+20%)
work current	$<90\text{mA}$ (change with range)
polarity protection	max-30Vdc
overpressure protection	max 36Vdc
insulation resistance	$>10\text{M}\Omega$
insulation strength	500V

EtherCAT OUTPUT

connection definition for aviation connector

interface 1、 2	PIN	Color	Function
	1	yellow	TX+
	2	white	RX+
	3	orange	TX-
	4	blue	RX-
interface 3	PIN	Color	Function
	1	brown	+24VDC
	2	white	NULL
	3	blue	COM
	4	black	NULL

status indicate and trouble shooting



green	red	function
quick flash	light off	working
none	shine	no magnet detected or incorrect quantity

single straight cable wiring instructions

color1	function
yellow	TX+
white	RX+
orange	TX-
blue	RX-
red	24VDC
black	com

double straight cable wiring instructions

color1	color2	function
yellow	yellow	TX+
white	white	RX+
orange	orange	TX-
blue	blue	RX-
red		24VDC
black		com

remark	wire color 1: light green,PUR cover, 6 poles wire color 2: light green,PUR cover, 4 poles
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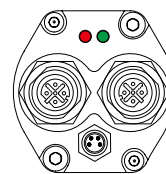
PROFINET OUTPUT

wiring instructions for aviation connector

interface 1,2	pin	color	function
	1	yellow	T x +
	2	white	R x +
	3	orange	T x -
	4	blue	R x -

interface 3	pin	color	function
	1	brown	+ 24 V d c
	2	white	N U L L
	3	blue	C O M
	4	black	N U L L

status indicate and trouble shooting



green	red	function
shine	off	working
shine	shine	network cable no connected
shine	flash	configuration
flash	×	faulty

single straight output wiring instructions

pin	wire color1	function
1	yellow	T x +
2	white	R x +
3	orange	T x -
4	blue	R x -
5	red	24 V d c
6	black	C O M

double straight output wiring instructions

pin	wire color1	wire color2	function
1	yellow	yellow	T x +
2	white	white	R x +
3	orange	orange	T x -
4	blue	blue	R x -
5	red		24 V d c
6	black		C O M

remark	* wire color 1: light green, PUR cover, 6 poles, -40°C~85°C
	* wire color 2: light green, PUR cover, 4 poles, -40°C~85°C

cable mode selection instructions

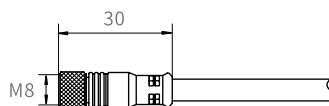
name and type

Materials and Description

4pin aviation female connector



type: EEM33-52-N

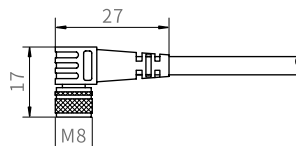


remark: optional cable length(m): 2, 5, 10, 15.

4pin elbow aviation female connector



type: EEM33-53-N



EEM33 - 23 - N + cable length

EEM33 - 53 - N + cable length

Industrial Ethernet cable



type: EEM33-44-N

connector type: two 4-pin bent male connector (M12)

cable cover: PVC light blue

working temperature: -40°C~80°C

Industrial Ethernet cable



type: EEM33-45-N

connector type: RJ45, 4-pin bent male connector (M12)

cable cover: PVC light blue

working temperature: -40°C~80°C

remark: optional cable length(m) 3, 5, 8, 10, 15.

EEM33 - 44 - N + cable length

EEM33 - 45 - N + cable length

EEM33 - 46 - N + cable length

EEM33 - 47 - N (M12 4pole metal connector)

Industrial Ethernet cable



type: EEM33-46-N

connector type: RJ45, 4-pin straight male connector (M12)

cable cover: PVC light blue

working temperature: -40°C~80°C



instructions:

