



T3F - Profinet

T-Series III

Data Sheet

PROFINET IO Real-time Message										
Pre- ambel	Svnc	Source MAC	Dest. MAC	TPID	VLAN	Ether type	Frame ID	Data	Status Information	FC
7	1	6	6	2	2	2	2	44*~1498Byte	4	4

- + Updated new generation: stronger performance
- + Stroke length up to 20 m
- + Profinet output, position and velocity



THE NEW

III

GENERATION



High
precision



Double
anti-interference



High
performance chip



Wide operating
voltage



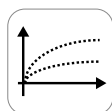
Reverse polarity
protection



Shock/vibration
resistant

TECHNICAL PARAMETER

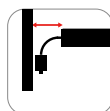
TECHNOLOGY PERCEIVES THE FUTURE



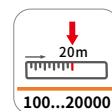
Linear/Curve measurement



Compact for transport and storage



Confined space installation



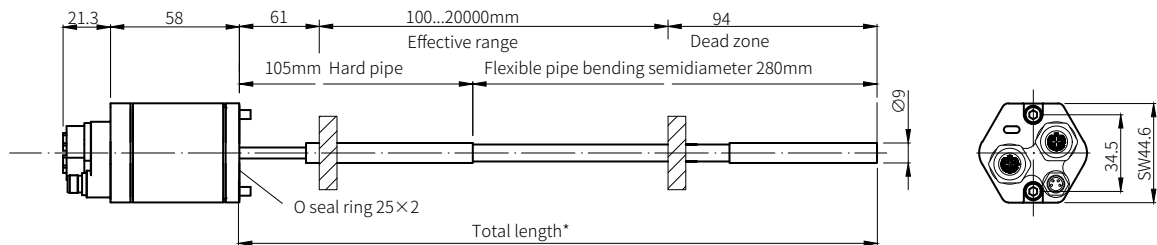
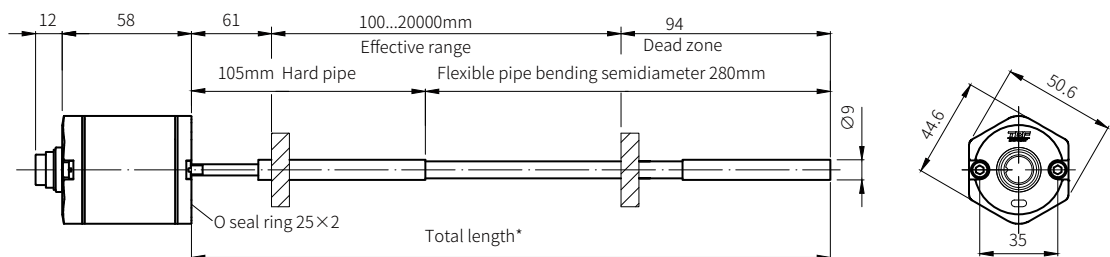
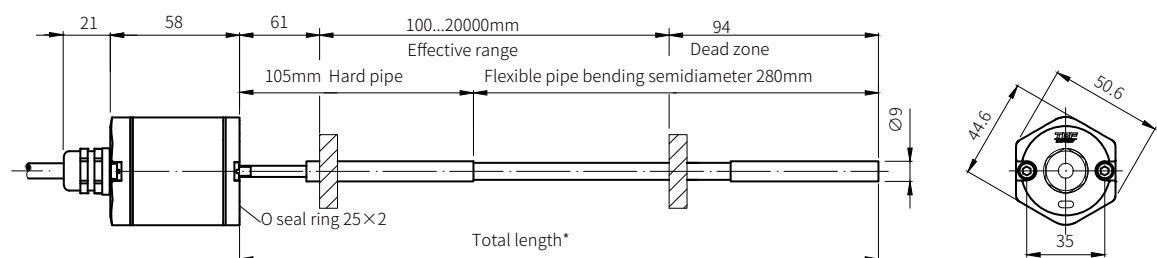
Wider stroke length range

Input	Measured data	Position/Velocity
	Position measurement range	100mm...20000mm
Output	Interface	Profinet RT
	Data protocol	Encoder Profile 4.2, compatible with MTS protocols
	Transmission	Max. 100Mbit/s
Resolution	Position resolution	0.5...1000µm optional
	None-Linearity	< ±0.02%F.S. (min. ±100µm)
	Repeatability	< ±0.001%F.S. (min. ±2.5µm)
	Update time	Depends on stroke length
	Temperature coefficient	< 15ppm/°C
Mounting	Mounting position	Any
	Pressure resistance outer tube	Thread metric M18×1.5, 3/4"-16UNF-3A etc.
Design/ Material	Electronics housing	Aluminum alloy/Zinc alloy
	Magnet	Stainless soft pipe (Teflon skin), min. bending semidiameter 280mm, shipping semidiameter 500mm
Electrical connection	Wiring connection	6 pin M16 connector, two 5 pin M12 connectors and one 4 pin M12 connector, two 5 pin M12 connectors and one 4 pin M8 connector, straight out cable
	Operating voltage	9VDC...36VDC
	Polarity protection	Up to -36VDC
	Overvoltage protection	Up to +36VDC
	Power consumption	< 120mA (varies with range size)
	Dielectric strength	500 VDC (DC ground to machine ground)
Operating conditions	Loop velocity	Any
	Operating temperature	-40...85°C
	Humidity	90 % relative humidity, no condensation
	Ingress protection	IP67 installed into pressure pipe (top IP68)
	Shock	100 g/11 ms, IEC standard 60068-2-27
	Vibration	5 g/10...2000 Hz, IEC standard 60068-2-6 (resonant frequencies exclusive)
	EMC	Flexible sensor installed into pressure pipe Electromagnetic emission according to EN 61000-6-3 Electromagnetic immunity according to EN 61000-6-2

ITEM

CATEGORY

PARAMETER

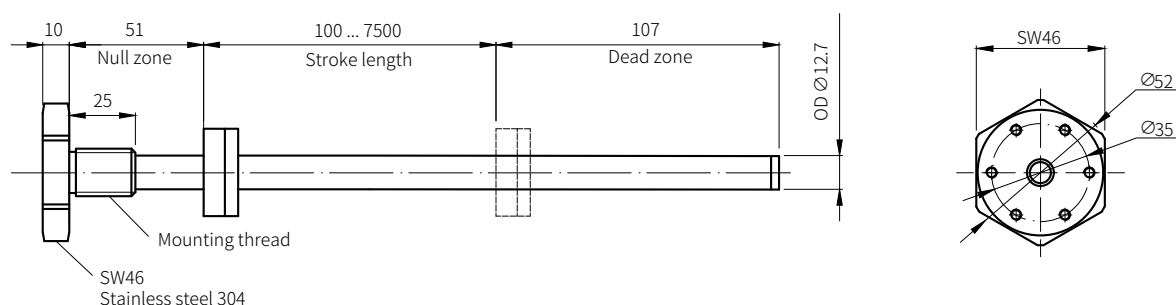
Aviation plug : Two 5 pin M12 (female) + One 4 pin M12 (male)
Aviation plug : Two 5 pin M12 (female) + One 4 pin M8 (male)
T3F- ____ - **D5D42** - ____T3F- ____ - **D5D48** - ____
Aviation plug : 6 pin M16 (male)
T3F- ____ - **D616** - ____
Straight out cable
T3F- ____ - **RP** - ____

*Total length < 7600mm, error +8mm; > 7600mm, error +15mm /-5mm;

Total length error has no impact on effective range.

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T3F flexible sensor is installed into pressure pipe, straight out cable IP68, aviation plug IP67.



HD - **M** -

Stroke length

0100...7500mm
(5mm increments)

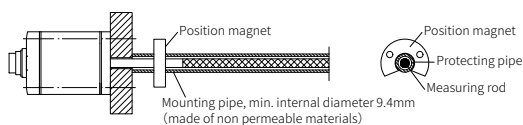
Thread

M Metric M18x1.5
V Metric M20x1.5
S 3/4"-16UNF-3A
W Metric M24x1

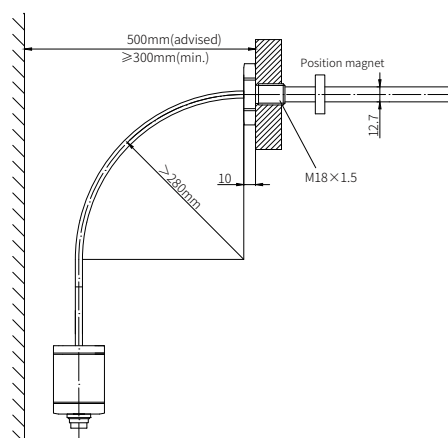
If not selected, thread M18x1.5 by default.

Electronics housing for T3F flexible sensor employs two M4x60 non permeable screws for installation. When arc measurement is adopted, the flexible pipe can be bended into required shape with min. bending semidiameter 280mm. With long range sensor, pipes made of non permeable materials can be used as support. In addition, pressure pipe with flange can also be order to support and protect the sensor.

Pressure pipe

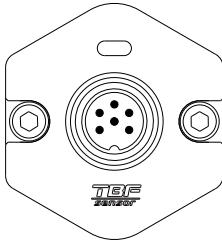
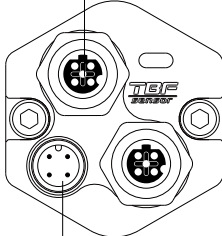
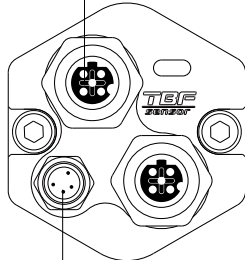
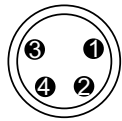
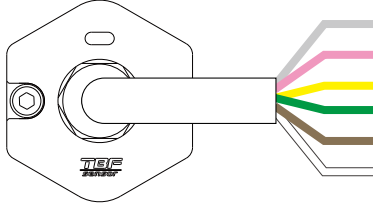


Arc measurement (external mounting)



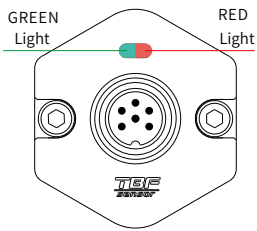
FUNCTION

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6 pin M16 male connector		D616	PIN	Function
		 View on sensor	1 2 3 4 5 6	TX+ RX+ TX- RX- 9VDC...36VDC 0 VDC(GND)
Two 5 pin M12 female connectors (D-coded), One 4 pin M12 male connector		D5D42	PIN	Function
5 pin M12 female connector(D-coded) 		 D512 (female) View on sensor	1 2 3 4 5	TX+ RX+ TX- RX- NC
4 pin M12 male connector		D412(male)	PIN	Function
		 View on sensor	1 2 3 4	9VDC...36VDC NC 0 VDC(GND) NC
Two 5 pin M12 female connectors (D-coded), One 4 pin M8 male connector		D5D48	PIN	Function
5 pin M12 female connector(D-coded) 		 D512 (female) View on sensor	1 2 3 4 5	TX+ RX+ TX- RX- NC
4 pin M8 male connector		D408(male)	PIN	Function
		 View on sensor	1 2 3 4	9VDC...36VDC NC 0 VDC(GND) NC
Straight out cable		Color	Function	
		Gray	TX-	
		Pink	TX+	
		Yellow	RX+	
		Green	RX-	
		Brown	9VDC...36VDC	
		White	0 VDC(GND)	

Enhanced monitoring and diagnostic functions

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Green light	Red light	Function
ON	OFF	View on sensor
ON	ON	Magnet cannot be measured, nor magnet number is correct.
OFF		Communication exception

ORDER CODE

T3F - - - M - - - 1 - U - - -

Pipe mounting	Stroke length	Connection type	Output (Output Code)
C Basic structure	00100...20000mm (< 1000: 50mm increments)	RP_ _ Straight out _ _m high performance cable (Fill in zero if less than 2 places)	
M Thread M18×1.5 with pressure pipe	> 1000: 250mm increments)	D616 M16 male connector (6 pin)	
S 3/4"-16UNF-3A with pressure pipe	Max. range 7500mm (pressure pipe installed)	D5D42 Two sets of M12 female connectors (D-coded), One set of M12 male connector	
		D5D48 Two sets of M12 female connectors (D-coded), One set of M8 male connector	

Profinet Output Code [1]-U[2][3][4]-[5][6]

[1] System	[2][3][4] Output	[5][6] Magnet number
1 Standard	401 Profinet RT, position measurement 402 Profinet RT, position and velocity measurement, multi-magnets supportive	01 one magnet 02 two magnets

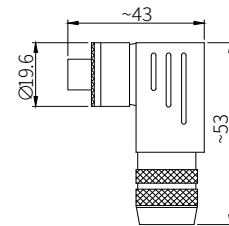
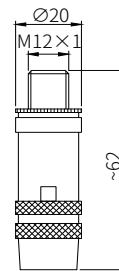
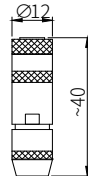
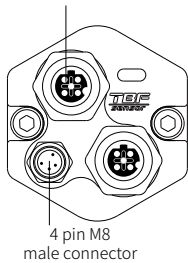
Model selection | Model: T3F-M-00600M-D616-1-U401-01

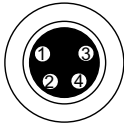
Explanation: T series III generation, T3F flexible sensor, installed inside pressure pipe, mounting thread metric M18x1.5, stroke length 600mm, 6pin M16 aviation plug, standard, Profinet output, position measurement, single magnet.

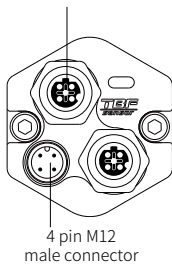
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PARTS SELECTION

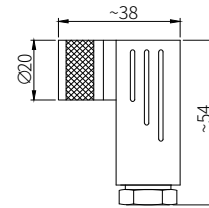
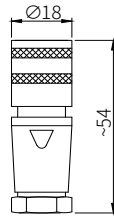
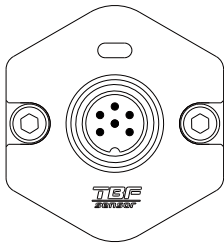
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5 pin M12(D-coded)
female connector

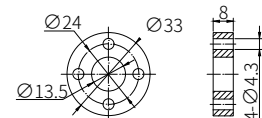
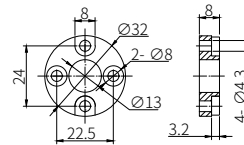
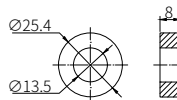
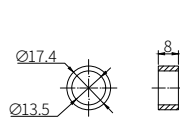
Name	4 pin M8 female connector	4 pin M12(D-coded) male connector	4 pin M12(D-coded) male connector (90 degree angle)
End view drawing			
Material	Galvanized nickel		
Fitting diameter	3.5...5mm	6...8mm	
Connection	Welding	Threaded	
Adaptive	4 pin M12 (Power connector)	5 pin M12(D-coded)	
Order code	18-1001	18-1011	18-1012

5 pin M12(D-coded)
female connector

Connector	5 pin M12 female connector	5 pin female connector (90 degree angle)	4pin M12(D-coded) male connector
Name	Integral cable	Integral cable	Integral cable
Cable	5 wire 0.25mm ² shielded cable	5 wire 0.25mm ² shielded cable	4 wire 0.25mm ² shielded cable
Color/Diameter	Orange/ Ø 6	Orange/ Ø 6	Green/ Ø 6
Plug surface	 1-Brown 2-Green 3-White 4-Gray 5-Yellow	 1-Brown 2-Green 3-White 4-Gray 5-Yellow	 1-Yellow 2-White 3-Orange 4-Blue
Length	5...30M	5/10/15/20/30M	5...30MM
Adaptive	4 pin M12 (Power connector)	4 pin M12 (Power connector)	5 pin M12(D-coded)
Order code	16-1035	16-1040	16-1045



Name	6 pin M16 female connector	6 pin M16 female connector (90 degree angle)
End view drawing		
Material	Galvanized nickel	Galvanized nickel
Fitting diameter	6...8mm	6...8mm
Connection	Welding	Welding
Order code	18-3001	18-3003



Name	Ring magnet	Ring magnet	Ring magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1024	12-1001
Fitting non-permeable gasket				
Name	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket
Operating temperature	-40...125°C			
Order code	12-1037	12-1021	12-1025	12-1008

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