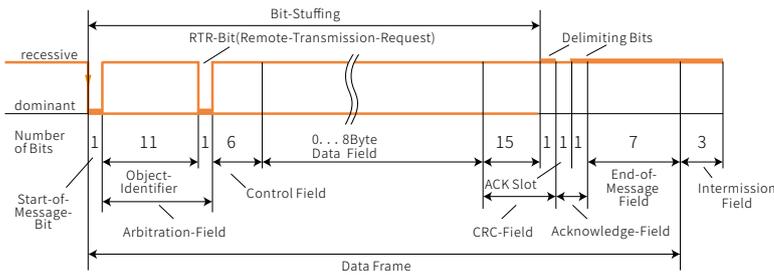




T3F - CANopen

T-Series III Data Sheet



- + Updated new generation: stronger performance
- + Stroke length up to 20 m
- + Multi-magnets position measurement: max. three measured positions



THE NEW III GENERATION



High precision



Double anti-interference



High performance chip



Wide operating voltage



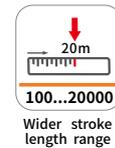
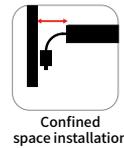
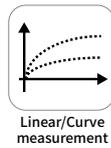
Reverse polarity protection



Shock/vibration resistant

TECHNICAL PARAMETER

TECHNOLOGY PERCEIVES THE FUTURE

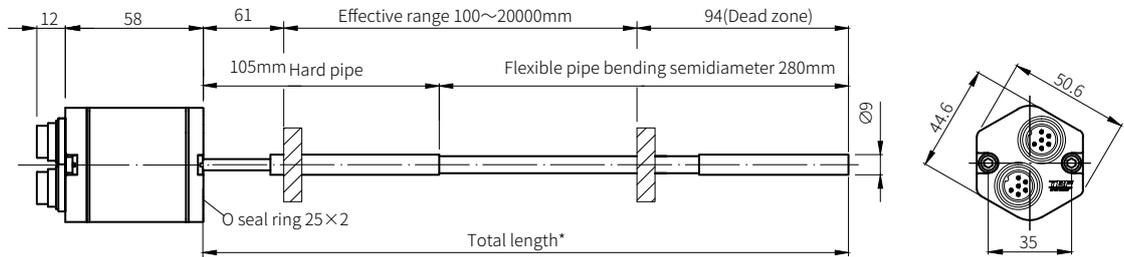


Input	Measured data	Position/Velocity																
	Position measurement range	100mm...20000mm																
	Velocity measurement range	0.01...10m/s																
Output	Communication protocols	CAN bus system protocol, ISO11898 CAN open CIA standard DS-301 V3.0 encoder profile DS-406 V3.1																
	Transmission rate	<table border="1"> <tr> <td>Rate(kbit/s)</td> <td>1000</td> <td>800</td> <td>500</td> <td>250</td> <td>125</td> <td>50</td> <td>20</td> </tr> <tr> <td>Cable length (meter)</td> <td>< 25</td> <td>< 50</td> <td>< 100</td> <td>< 250</td> <td>< 500</td> <td>< 1000</td> <td>< 2500</td> </tr> </table>	Rate(kbit/s)	1000	800	500	250	125	50	20	Cable length (meter)	< 25	< 50	< 100	< 250	< 500	< 1000	< 2500
	Rate(kbit/s)	1000	800	500	250	125	50	20										
Cable length (meter)	< 25	< 50	< 100	< 250	< 500	< 1000	< 2500											
Position resolution	1/2/5/10/20/50/100µm																	
Resolution	Velocity resolution	0.2mm/s																
	None-Linearity	< ±0.02%F.S. (min. ±100µm)																
	Repeatability	< ±0.001%F.S. (min. ±2.5µm)																
	Update time	<table border="1"> <tr> <td>Stroke length</td> <td>≤ 1200mm</td> <td>≤ 2400mm</td> <td>≤ 4800mm</td> <td>≤ 7650mm</td> </tr> <tr> <td>Update time</td> <td>0.5ms</td> <td>1ms</td> <td>2ms</td> <td>4ms</td> </tr> </table>	Stroke length	≤ 1200mm	≤ 2400mm	≤ 4800mm	≤ 7650mm	Update time	0.5ms	1ms	2ms	4ms						
	Stroke length	≤ 1200mm	≤ 2400mm	≤ 4800mm	≤ 7650mm													
Update time	0.5ms	1ms	2ms	4ms														
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, double 6 pin M16 connector, single/dual straight out cable																
	Operating voltage	9VDC...36VDC																
	Polarity protection	Up to -36VDC																
	Overvoltage protection	Up to +36VDC																
	Power consumption	< 70mA (varies with range size)																
	Dielectric strength	500 VDC (DC ground to machine ground)																
	Terminal resistance	120Ω(software-adjustable on and off)																
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

Double 6 pin M16 connector plug

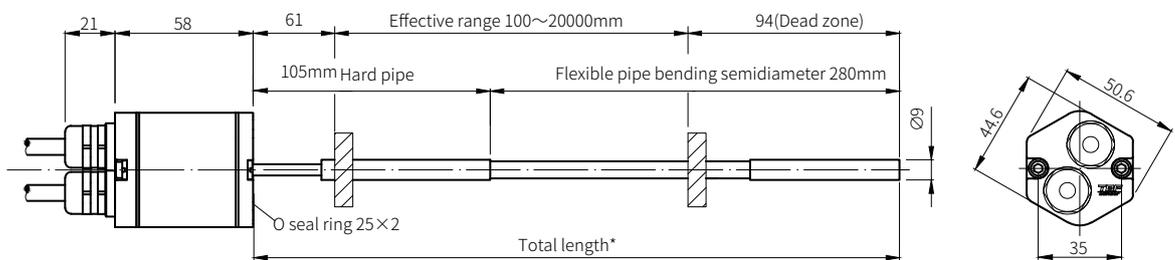
T3F- _____ - D6D6 - _____



Dual straight out cable

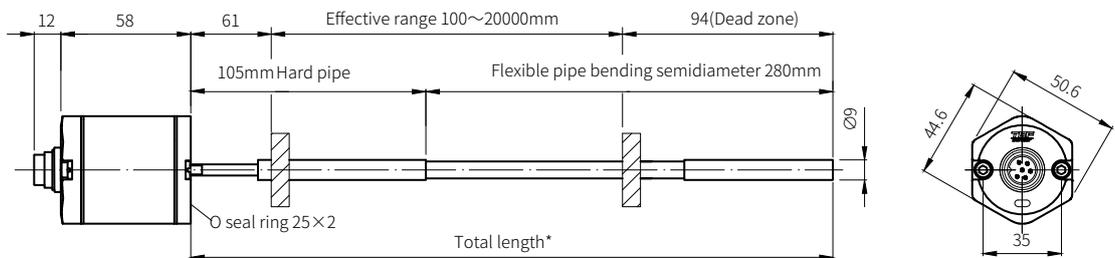
T3F- _____ - R2P _ - _____

T3F- _____ - R2T _ - _____



M16 connector (6 pin)

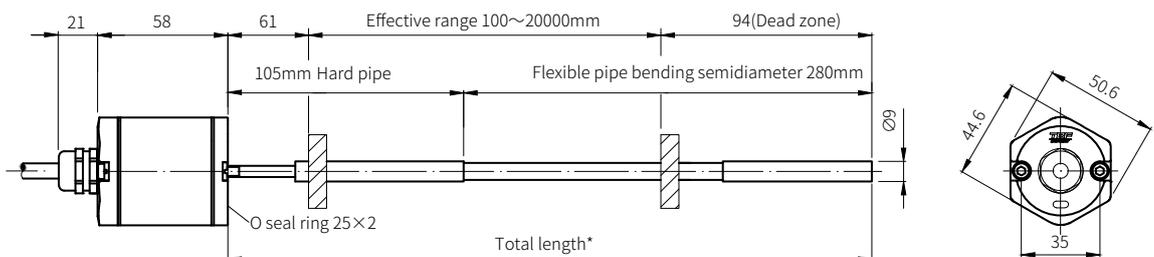
T3F- _____ - D616 - _____



Straight out cable

T3F- _____ - RP _ - _____

T3F- _____ - RT _ - _____



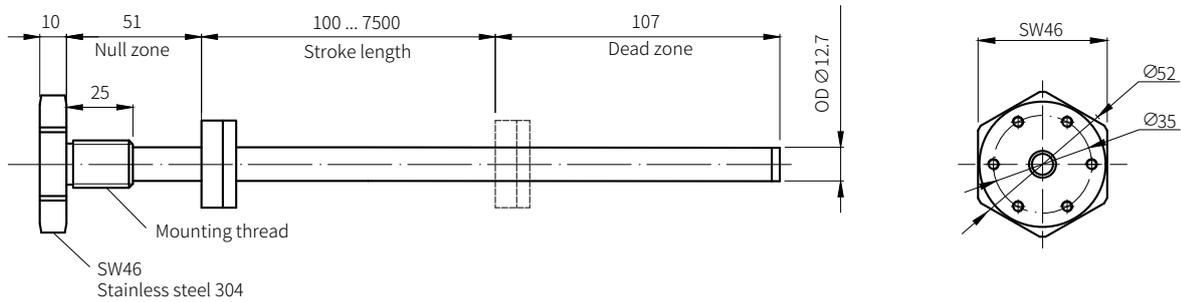
*Total length < 7600mm, error +8mm; > 7600mm, error +15mm /-5mm;
Total length error has no impact on effective range.

DRAWING OF PRESSURE PIPE

TECHNOLOGY PERCEIVES THE FUTURE

Continuous pressure tolerance of the pressure pipe is 35MPa (70MPa peak).

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



ORDER CODE

HD -	---	M -	---
	Stroke length		Thread
	0100...7500mm (5mm increments)	M	Metric M18x1.5
		V	Metric M20x1.5
		S	3/4"-16UNF-3A
		W	Metric M24x1
			If not selected, thread M18x1.5 by default.

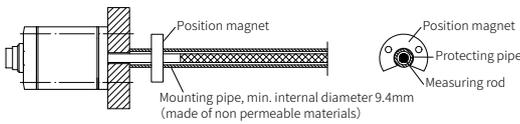
MOUNTING DRAWING

Electronics housing for T3F flexible sensor employs two M4x60 non permeable screws for installation.

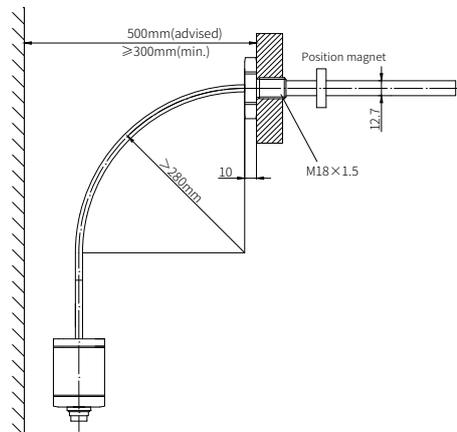
When arc measurement is adopted, the flexible pipe can be bended into required shape with min. bending semidiameter 280mm.

With long range sensor, pipes made of non permeable materials can be used as support. In addition, pressure pipe with flange can also be ordered to support and protect the sensor.

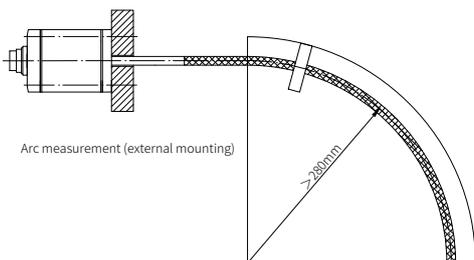
Linear measurement



Pressure pipe

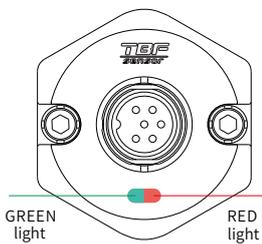


Arc measurement



6 pin M16 connector	Double 6 pin M16 connector	D616/D6D6	PIN	Function
		 View on sensor	1	CAN L
			2	CAN H
			3	NC
			4	NC
			5	9VDC...36VDC
			6	0 VDC(GND)
Straight out cable	Dual straight out cable	Color	Function	
		Brown	9VDC...36VDC	
		White	0 VDC(GND)	
		Yellow	CAN H	
		Green	CAN L	

Enhanced monitoring and diagnostic functions



Green light	Function	Red light	Function
Slow flash	Pre-operating mode	ON	No magnet or slider measured
Fast flash	LSS mode(parameter- setting mode)	OFF	Normal work
ON	Normal communication		

ORDER CODE

TECHNOLOGY PERCEIVES THE FUTURE

T3F - - - - M- - - - -

Pipe mounting	Stroke length	Connection type	Output
C Basic structure	00100...20000mm (< 1000: 50mm increments) > 1000: 250mm increments)	RP/T__ Straight out __m high performance/high temperature cable	(Output Code)
M Thread M18×1.5 with pressure pipe	Max. range 7500mm (pressure pipe installed)	R2P/T__ Dual straight out __m high performance/high temperature cable (Fill in zero if less than 2 places)	
S 3/4"-16UNF-3A with pressure pipe		D6D6 Two sets of pin M16 connector D616 6 pin M16 connector	

CANopen Output Code | [1]-C[2][3][4][5][6]-[7][8] Note: "*" as default

[1]System	[2]Resolution ratio	[3]Baud rate	[4]PDO cycle	[5][6]Node-ID	[7][8]
3 Standard*	1 5µm*	0 1000kBit/s	1 1ms	Hexadecimal	01 one magnet
4 CANopen (Internal terminal resistance)	2 2µm	1 800kBit/s	2 10ms*	01...7F*	02 two magnets
	3 10µm	2 500kBit/s	3 100ms		03 three magnets
	4 50µm	3 250kBit/s*	4 Customizable(1-65535ms)		
	5 100µm	4 125kBit/s			
	7 20µm	5 100kBit/s			
	8 1µm	6 50kBit/s			
		7 20kBit/s			
		8 10kBit/s			

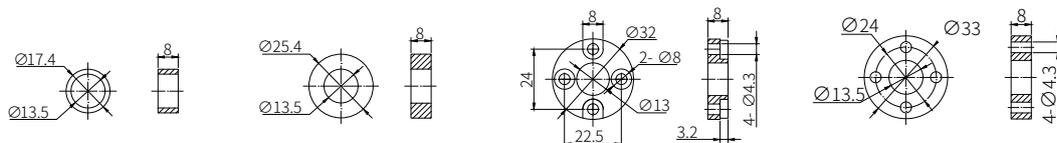
K=Anti-vibration program(Note: for special request, fill in last digit)

Model selection | Model: T3F-M-00600M-D616-3-C2327F-01

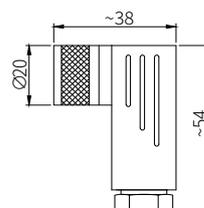
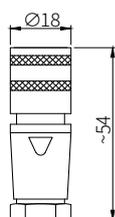
Explanation: T series III generation, T3F flexible sensor, installed inside pressure pipe, mounting thread metric M18x1.5, stroke length 600mm, 6pin M16 aviation plug, standard, CANopen output, resolution 2µm, baud rate 250kBit/s, PDO cycle 10ms, node -ID 7F, single magnet.

■ Please contact us for more customized products.

www.tbfsensor.com



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



Name	6 pin M16 female connector	6 pin M16 female connector (90 degree angle)
End view drawing		
Material	Galvanized nickel	Galvanized nickel
Fitting diameter	4...10mm	6...8mm
Connection	Welding	Welding
Order code	18-3007	18-3003

Building 6, Dazu Enterprise Bay,
8th yard of Liangshuihe 2nd street, BDA P.R.China

Tel: +86 10-67948976 67948916
Fax: +86 10-67948979
Technical support: +86 (0)13370126657

Beijing Tebeifu Electronic Technology Co., Ltd.

www.tbfsensor.com

