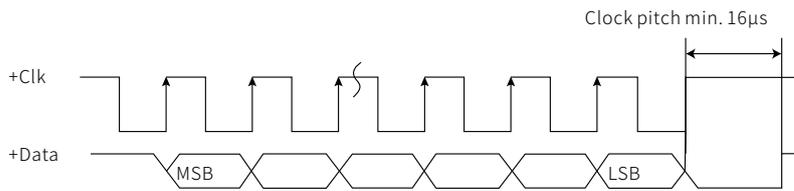




T3H, T3P - SSI

T-Series III Data Sheet



- + Updated new generation: stronger performance
- + Standard SSI signal can directly replace the encoder.
- + Resolution highest up to 0.1µm



THE NEW GENERATION



High precision



Double anti-interference



High performance chip



Reverse polarity protection



Shock/vibration resistant

TECHNICAL PARAMETER

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Input	Measured data	Position or Velocity												
	Position measurement range	T3H 25mm...7650mm T3P 25mm...5600mm												
	Velocity measurement range	0.01...10m/s												
Output	Interface	SSI synchronous serial interface												
	Data format	Binary or gray code, parity check and alarm bit optional												
	Data length	8...32 bit												
	Data speed	70kBd...1MBd depending on cable length:												
		<table border="1"> <tr> <td>Cable length(m)</td> <td>< 3</td> <td>< 50</td> <td>< 100</td> <td>< 200</td> <td>≤ 400</td> </tr> <tr> <td>Baud rate(kBd)</td> <td>1000</td> <td>< 400</td> <td>< 300</td> <td>< 200</td> <td>< 100</td> </tr> </table>	Cable length(m)	< 3	< 50	< 100	< 200	≤ 400	Baud rate(kBd)	1000	< 400	< 300	< 200	< 100
	Cable length(m)	< 3	< 50	< 100	< 200	≤ 400								
Baud rate(kBd)	1000	< 400	< 300	< 200	< 100									
	<table border="1"> <tr> <td>Stroke length(mm)</td> <td>< 300</td> <td>< 750</td> <td>< 1000</td> <td>< 2000</td> <td>≤ 5600</td> </tr> <tr> <td>Update frequency (kHz)</td> <td>3.7</td> <td>3.0</td> <td>2.3</td> <td>1.2</td> <td>0.5</td> </tr> </table>	Stroke length(mm)	< 300	< 750	< 1000	< 2000	≤ 5600	Update frequency (kHz)	3.7	3.0	2.3	1.2	0.5	
Stroke length(mm)	< 300	< 750	< 1000	< 2000	≤ 5600									
Update frequency (kHz)	3.7	3.0	2.3	1.2	0.5									
Resolution	Position resolution	0.1/0.5/1/2/5/10/20/50/100μm												
	Velocity resolution	0.001mm/s												
	None-Linearity	< ±0.01%F.S. (min. ±25μm)												
	Repeatability	< ±0.001%F.S. (min. ±2.5μm)												
	Temperature coefficient	< 15ppm/°C												
Mounting	Mounting position	Any												
	T3P aluminum profile	Removable fixing card												
	T3H pressure resistant outer tube	Threaded: metric M18x1.5, metric M20x1.5, metric M24x1, 3/4"-16UNF-3A												
Design/ Material	T3H	Electronics housing: aluminum alloy/zinc alloy Measuring rod: stainless steel 304/316L Magnet: standard magnet/open magnet												
	T3P	Electronics housing: aluminum alloy/zinc alloy Profile: aluminum alloy Magnet: slider magnet/suspension magnet/U-magnet												
	Operating pressure	35MPa (continuous) ,70MPa (peak)												
Electrical connection	Wiring connection	Straight out cable, M16 connector (7 pin)												
	Operating voltage	24VDC(-15/+20%)												
	Polarity protection	Up to -36VDC												
	Overvoltage protection	Up to +36VDC												
	Power consumption	< 90mA (varies with range size)												
	Dielectric strength	500 VDC (DC ground to machine ground)												
Operating conditions	Magnet velocity	Slider magnet ≤ 10m/s; magnetic ring, any; suspension magnet, any.												
	Operating temperature	-40...85°C (105°C customizable)												
	Humidity	90% relative humidity, no condensation												
	Ingress protection	IP68 T3H (Pressure resistant outer tube type) IP67 T3P (Aluminum outer tube)												
	Shock	150 g/11 ms, IEC standard 60068-2-27												
	Vibration	30 g/10...2000 Hz, IEC standard 60068-2-6 (resonant frequencies excluded)												
	EMC	Electromagnetic emission according to EN 61000-6-3 Electromagnetic immunity according to EN 61000-6-2												

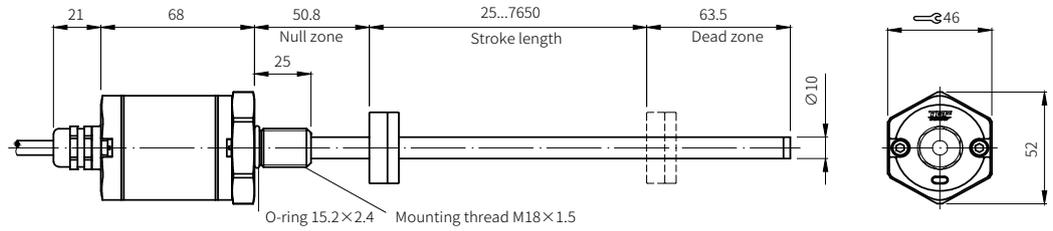
ITEM CATEGORY PARAMETER

T3H/P- _____ - **RP** - _____

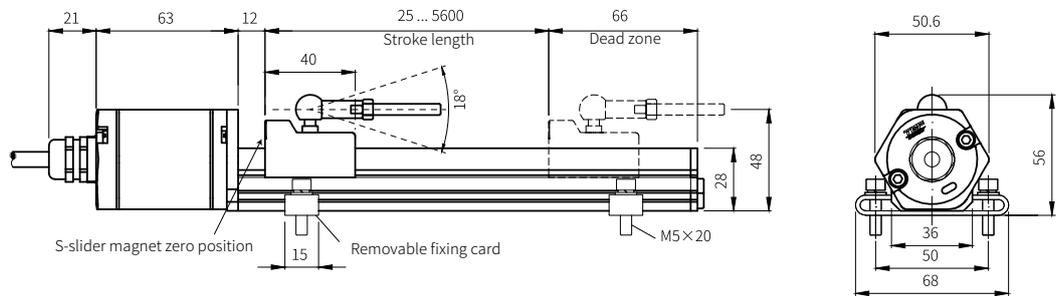
Straight out cable

T3H/P- _____ - **RT** - _____

T3H



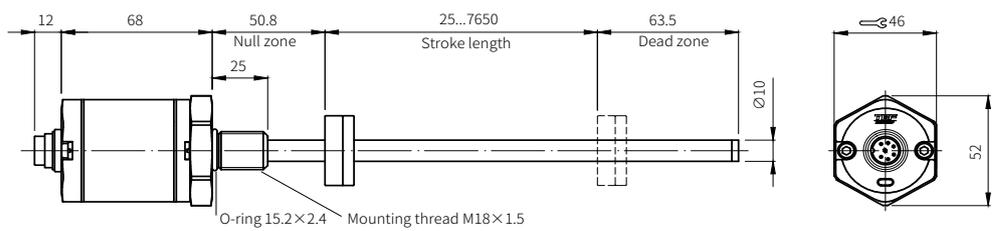
T3P



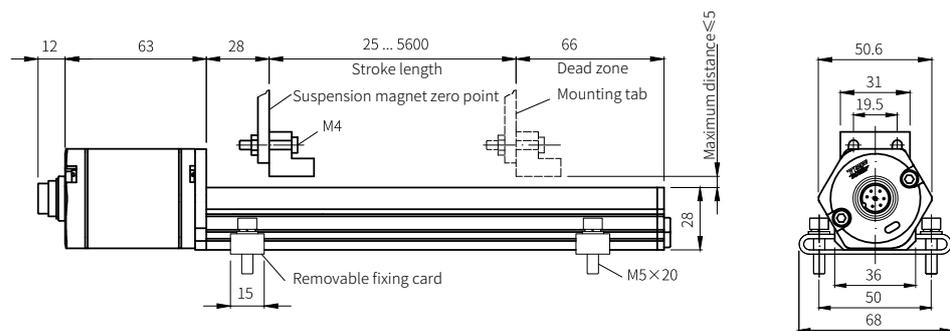
T3H/P- _____ - **D716** - _____

Aviation plug

T3H



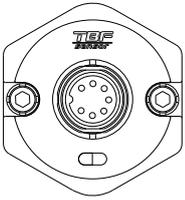
T3P



FUNCTION

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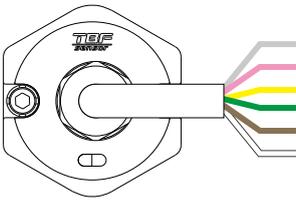
7 pin M16 connector D716 PIN Function



View on sensor

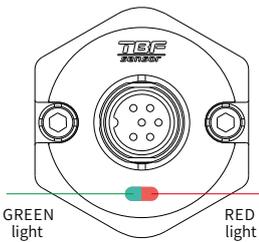
1	Data-
2	Data+
3	Clock+
4	Clock-
5	+24 VDC(-15%/+20%)
6	0 VDC(GND)
7	NC

Straight out cable Color Function



Gray	Data-
Pink	Data+
Yellow	Clock+
Green	Clock-
Brown	+24 VDC(-15%/+20%)
White	0 VDC(GND)

Enhanced monitoring and diagnostic functions



Green light	Red light	Function
ON	OFF	Normal work
ON	ON	Magnet is out of effective range, or magnet cannot be measured, nor magnet number is correct.
FLASH	ON	Enter programming status

ORDER CODE

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T3H - - - - **M** - - - - **S** - - - - -

	Threaded	Stroke length	Connection type	Output	Magnet
M	Metric M18x1.5	0025...7650mm	RP/T__ Straight out __m high performance	(Output Code)	1 one magnet
V	Metric M20x1.5	(5mm increments)	/high temperature cable		2 two magnets
S	3/4"-16UNF-3A		(Fill in zero if less than 2 places)		
W	Metric M24x1		D716 7 pin M16 connector		
R	Metric M18x1.5, with M4x6 thread at tail end				

T3P - - - - **M** - - - - **S** - - - - -

	Magnet	Stroke length	Connection type	Output	Magnet
S	Magnet slider joint at top	0025...5600mm	(Same as above)	(Output Code)	1 one magnet
V	Magnet slider joint at front	(5mm increments)			2 two magnets
F	Suspension magnet				
U	U- magnet				

SSI Output Code		S [1][2][3][4][5][6]					
[1] Function	[2] Options	[3] Mode	[4] Data length	[5] Format	[6] Resolution		
1 Position	0 Standard	1 Forward, asynchronous mode	1 25 bit	B Binary	1 5µm		
2 Relative position (2 magnets and 1 output)	1 Internal linearization	2 Reverse, asynchronous mode	2 24 bit	G Gray	2 10µm		
3 Velocity		3 Forward, synchronous mode	3 26 bit		3 50µm		
4 Position and temperature inside the sensor electronics housing		4 Reverse, synchronous mode	A 24 bit + alarm bit + parity check bit		4 100µm		
					5 20µm		
					6 2µm		
					7 0.1µm		
					8 1µm		
					9 0.5µm		

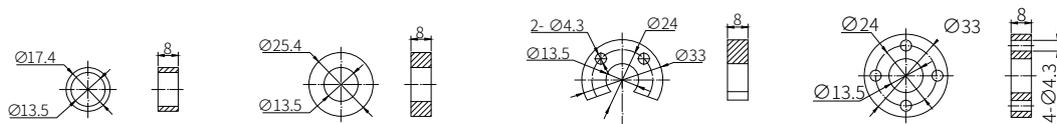
K=Anti-vibration program(Note: for special request, fill in last digit)

Model selection	Model: T3H-M-0600M-D716-S1011B1-1
	Explanation: T series III generation, T3H pressure resistance outer tube type, mounting thread metric M18x1.5, stroke length 600mm, 7pin M16 aviation plug, position measurement, standard, forward, asynchronous mode, 25 bit, Binary, resolution 5µm, single magnet.

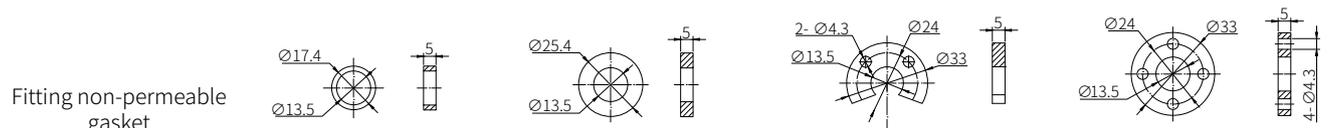
■ Please contact us for more customized products.
www.tbfsensor.com

PARTS SELECTION

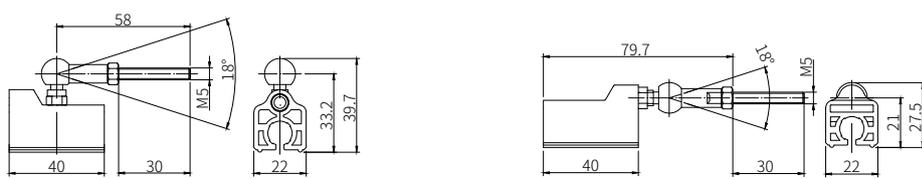
TECHNOLOGY PERCEIVES THE FUTURE



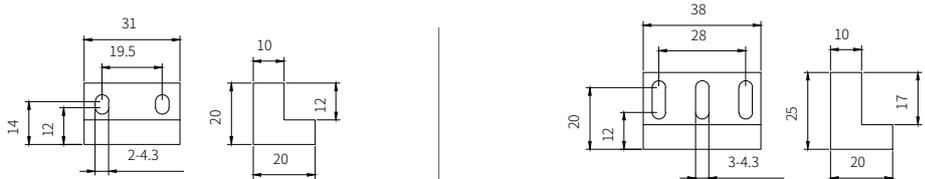
Name	Ring magnet	Ring magnet	U-magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1017	12-1001



Name	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket
Operating temperature	-40...125°C			
Order code	12-1037	12-1021	12-1018	12-1008



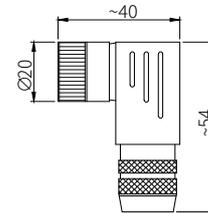
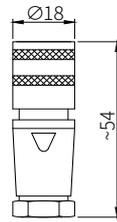
Name	Magnet slider S, joint at top	Magnet slider V, joint at front
Operating temperature	-40...105°C	
Order code	12-1114	12-1115



Name	Suspension magnet 31x20	Suspension magnet 38x25
Operating temperature	-40...105°C	
Order code	12-1010	12-1009



Name	Removable fixing card	Removable fixing card
Order code	11-1003	11-1004



Name	7 pin M16 female connector	7 pin M16 female connector (90 degree angle)
End view drawing		
Material	Galvanized nickel	
Fitting diameter	6...8mm	
Connection	Welding	
Order code	18-4001	18-4002

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