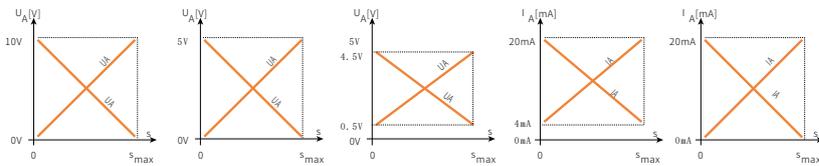




T3H, T3P - Analog

T-Series III Data Sheet



- + Updated new generation: stronger performance
- + Direct analog output, position and velocity
- + Resolution highest up to $0.1\mu\text{m}$



THE NEW III GENERATION



High precision



Double anti-interference



High performance chip



Wide operating voltage



Reverse polarity protection

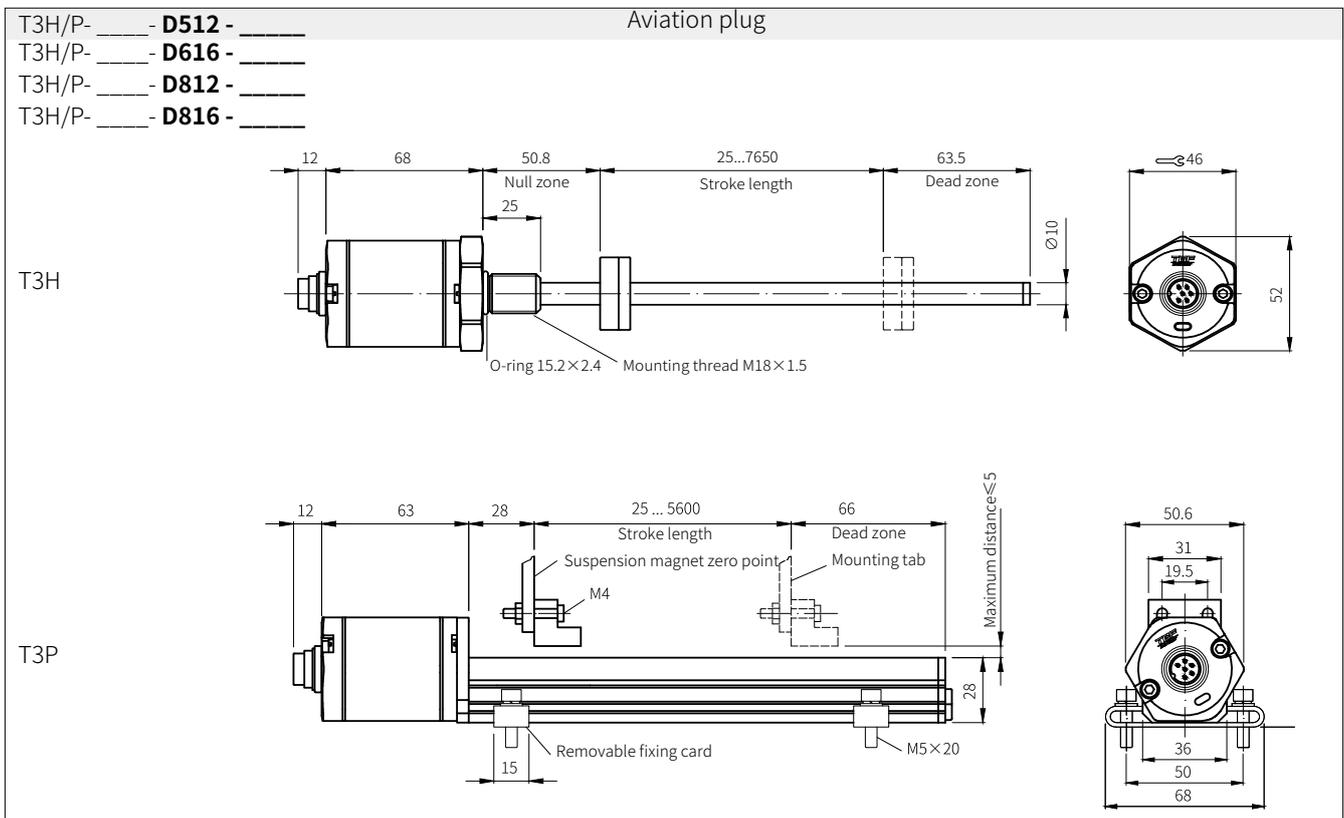
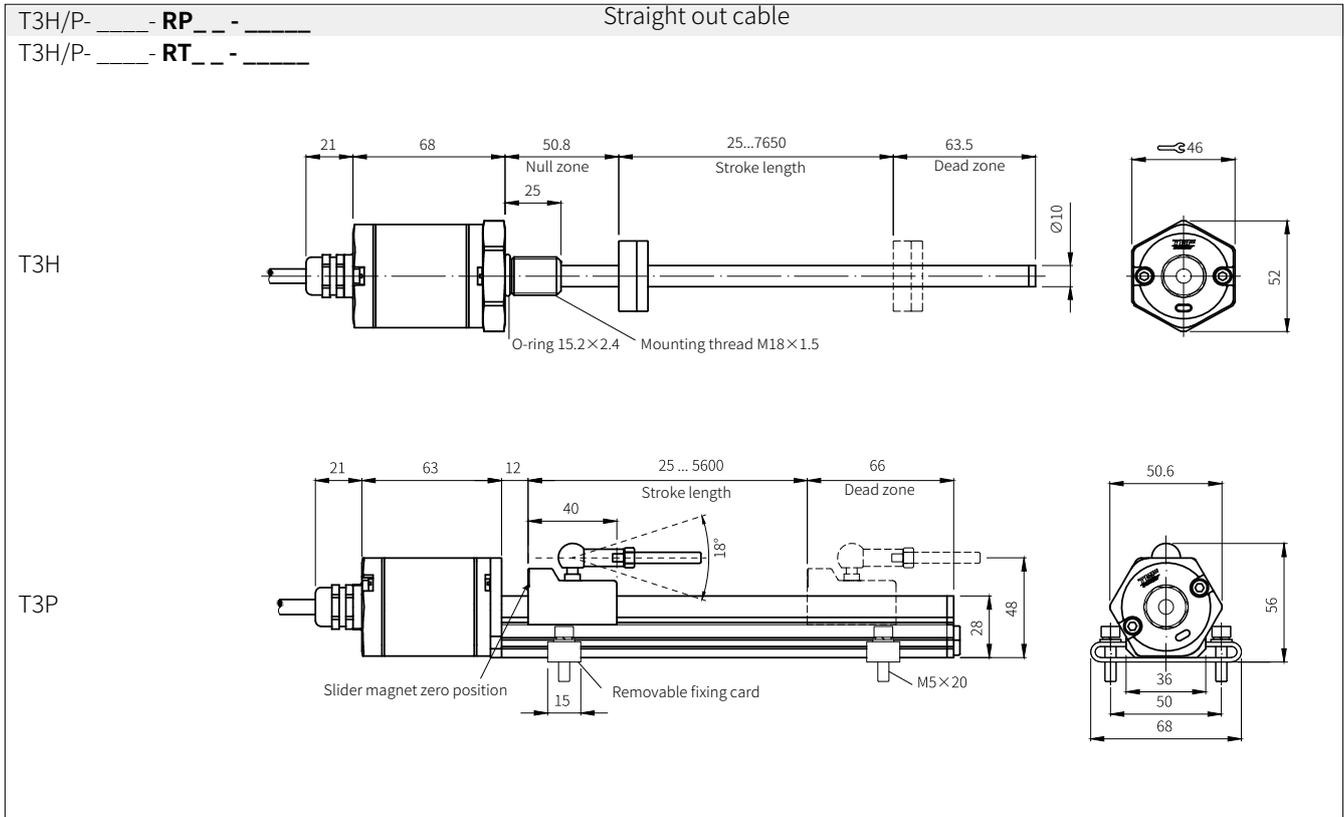


Shock/vibration resistant

TECHNICAL PARAMETER

TECHNOLOGY PERCEIVES THE FUTURE

Input	Measured data	Position/Velocity				
	Position measurement range	T3H 25mm...7650mm	T3P 25mm...5600mm			
	Velocity measurement range	0.01...10m/s				
Output	Voltage	0...10VDC, 10...0VDC, 0...5VDC, 5...0VDC, 0.5...4.5VDC, 4.5...0.5VDC (Controller min. load impedance >5KΩ)				
	Current	4...20mA, 20...4mA, 0...20mA, 20...0mA (min./max. load 0/750Ω)				
Resolution	Position resolution	16 bit D/A (internal resolution 0.1 μm)				
	Velocity resolution	16 bit D/A (min. 0.01mm/s)				
	None-Linearity	< ±0.01%F.S. (min. ±50μm)				
	Repeatability	< ±0.001%F.S. (min. ±1μm)				
	Update time	Stroke length	≤ 1200mm	≤ 2400mm	≤ 4800mm	≤ 7650mm
		Update time	0.5ms	1ms	2ms	5ms
Temperature coefficient	<30ppm/°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/U-magnet				
	Operating pressure	35MPa (continuous) ,70MPa (peak)				
Electrical connection	Wiring connection	Straight out cable, M12 connector (5 pin) , M16 connector (6 pin) , M12 connector (8 pin) , M16 connector (8 pin)				
	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)				
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				



FUNCTION

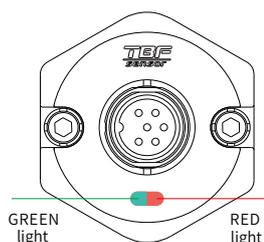
TECHNOLOGY PERCEIVES THE FUTURE

5 pin M12 connector	D512	PIN	Function	
	<p>View on sensor</p>	1	9 VDC...36 VDC	
		2	Signal output 1	
		3	0 VDC (GND)	
		4	Signal output 2*	
		5	Signal ground	
6 pin M16 connector	D616	PIN	Function	
	<p>View on sensor</p>	1	Signal output 1	
		2	Signal ground 1	
		3	Signal output 2 *	
		4	Signal ground 2 *	
		5	9 VDC...36 VDC	
		6	0 VDC (GND)	
8 pin M12 connector	D812	PIN	Function	
	<p>View on sensor</p>	1	Signal ground 2 *	
		2	Signal ground 1	
		3	Signal output 2 *	
		4	NC	
		5	Signal output 1	
		6	0 VDC (GND)	
		7	9 VDC...36 VDC	
		8	NC	
8 pin M16 connector	D816	PIN	Current	Voltage
	<p>View on sensor</p>	1	Current signal (output 1)	NC
		2	Signal ground	Signal ground
		3	Current signal (output 2) *	Voltage signal (output 2) *
		4	NC	NC
		5	NC	Voltage signal (output 1)
		6	0 VDC (GND)	0 VDC (GND)
		7	9 VDC...36 VDC	9 VDC...36 VDC
		8	NC	NC
Straight out cable		Color	Function	
	Brown	9 VDC...36 VDC		
	White	0 VDC (GND)		
	Yellow	Signal ground1		
	Green	Signal output 1		
	Gray	Signal ground2 *		
	Pink	Signal output 2 *		

"*"adaptable for dual output signal connection

Enhanced monitoring and diagnostic functions

TECHNOLOGY PERCEIVES THE FUTURE



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

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

Thread	Stroke length	Connection type	Output
M Metric M18x1.5	0025...7650mm (5mm increments)	RP__ Straight out __m high performance cable	(Output Code)
V Metric M20x1.5		RT__ Straight out __m high temperature cable (Fill in zero if less than 2 places)	
S 3/4"-16UNF-3A		D512 5 pin M12 connector	
W Metric M24x1		D616 6 pin M16 connector	
R Metric M18x1.5, with M4x6 thread at tail end		D812 8 pin M12 connector	
		D816 8 pin M16 connector	

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

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

Analog Output Code	[1][2]-[3][4] [5]		
[1] System	[2] Output	[3][4] Current/Voltage	[5] Magnet
1 Standard	1 Position	A0 4...20mA (forward)	1 one magnet
K Anti-vibration program	2 Position and velocity	A1 20...4mA (reverse)	2 two magnets
	3 Position and reverse position	A2 0...20mA (forward)	
	4 Differential (2 magnets and 1 output)	A3 20...0mA (reverse)	
	5 Position and temperature inside the sensor electronics housing	A4 4...20mA (dual output forward)	
	6 Position and rate	V0 0...10V (forward)	
		V1 10...0V (reverse)	
V2 0...5V (forward)			
V3 5...0V (reverse)			
	V5 0.5...4.5V (forward)		
	V8 4.5...0.5V (reverse)		

Note: forward, data grows larger when the magnet is distant from the electronics housing;
reverse, data grows larger when the magnet approaches the electronics housing.

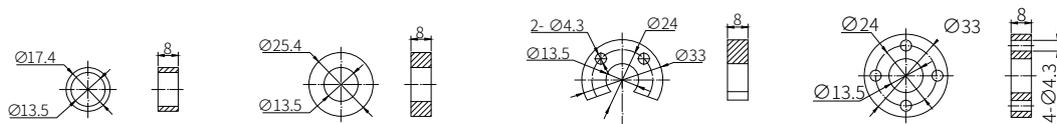
Model selection | Model: T3H-M-0600M-D512-11-A01

Explanation: T series III generation, T3H pressure resistance outer tube type, mounting thread metric M18x1.5, stroke length 600mm, 5pin M12 aviation plug, standard, position measurement, 4...20mA (forward), single magnet.

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

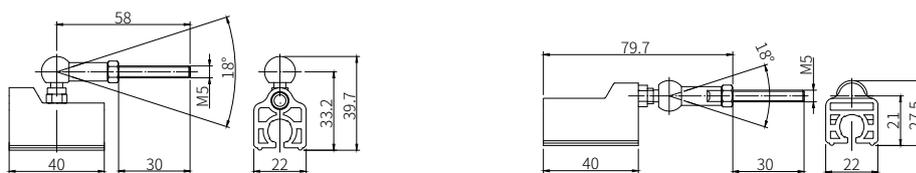
PARTS SELECTION

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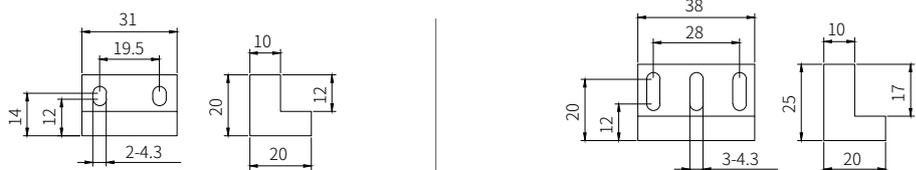


Name	Ring magnet	Ring magnet	U-magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1017	12-1001

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	12-1018	12-1008



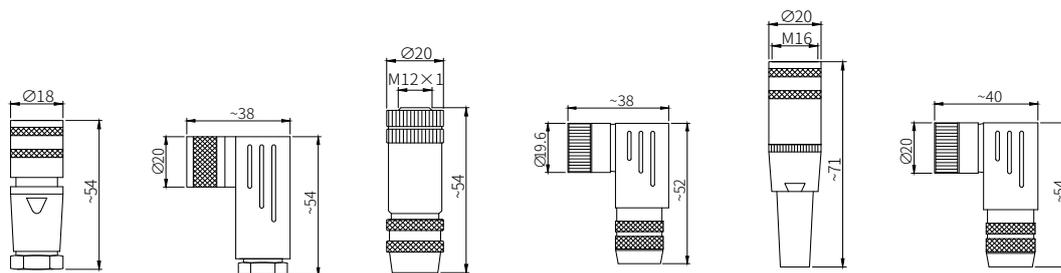
Name	Magnet slider S, joint at top	Magnet slider V, joint at front
Operating temperature	-40...105°C	
Order code	12-1114	12-1115



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	6 pin M16 female connector	6 pin M16 female connector (90 degree angle)	8 pin M12 female connector	8 pin M12 female connector (90 degree angle)	8 pin M16 female connector	8 pin M16 female connector (90 degree angle)
End view drawing						
Material	Galvanized nickel					
Fitting diameter	6...8mm	6...8mm	8...10mm	6...8mm	6...9mm	6...8mm
Connection	Welding		Threaded		Welding	
Order code	18-3001	18-3003	18-5004	18-5005	18-5002	18-5003



Connector	5 pin M12 female connector	5 pin female connector (90 degree angle)
Name	Integral cable	Integral cable
Cable	5 wire 0.25mm ² shielded cable	5 wire 0.25mm ² shielded cable
Color/Diameter	Orange/ Ø 6	Orange/ Ø 6
Plug surface	<ul style="list-style-type: none"> 1-Brown 2-Green 3-White 4-Gray 5-Yellow 	<ul style="list-style-type: none"> 1-Brown 2-Green 3-White 4-Gray 5-Yellow
Length	5...30M	5/10/15/20/30M
Order code	16-1035	16-1040

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