



T3H, T3P - EtherCAT

T-Series III Data Sheet

Ethernet header	Ethernet Data				FCS
	EtherCAT header				
14Byte	11bit	1bit	4bit	44*-1498Byte	4bit
Ethernet header	Length	Res.	Type	1...n Datagrams	FCS

- + Updated new generation: stronger performance
- + EtherCAT output: position and velocity
- + Resolution highest up to 0.5µm



THE NEW GENERATION



High precision



Double anti-interference



High performance chip



Wide operating voltage



Reverse polarity protection

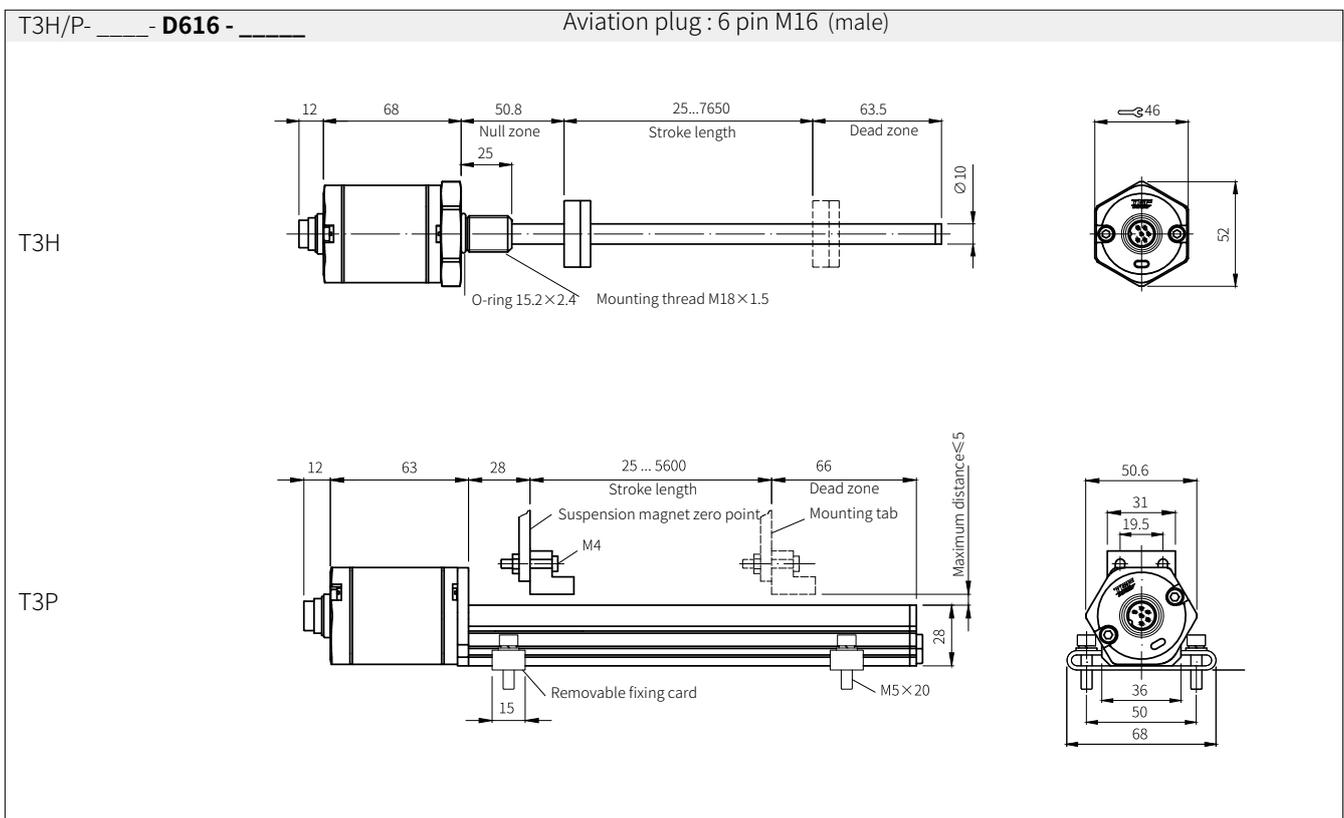
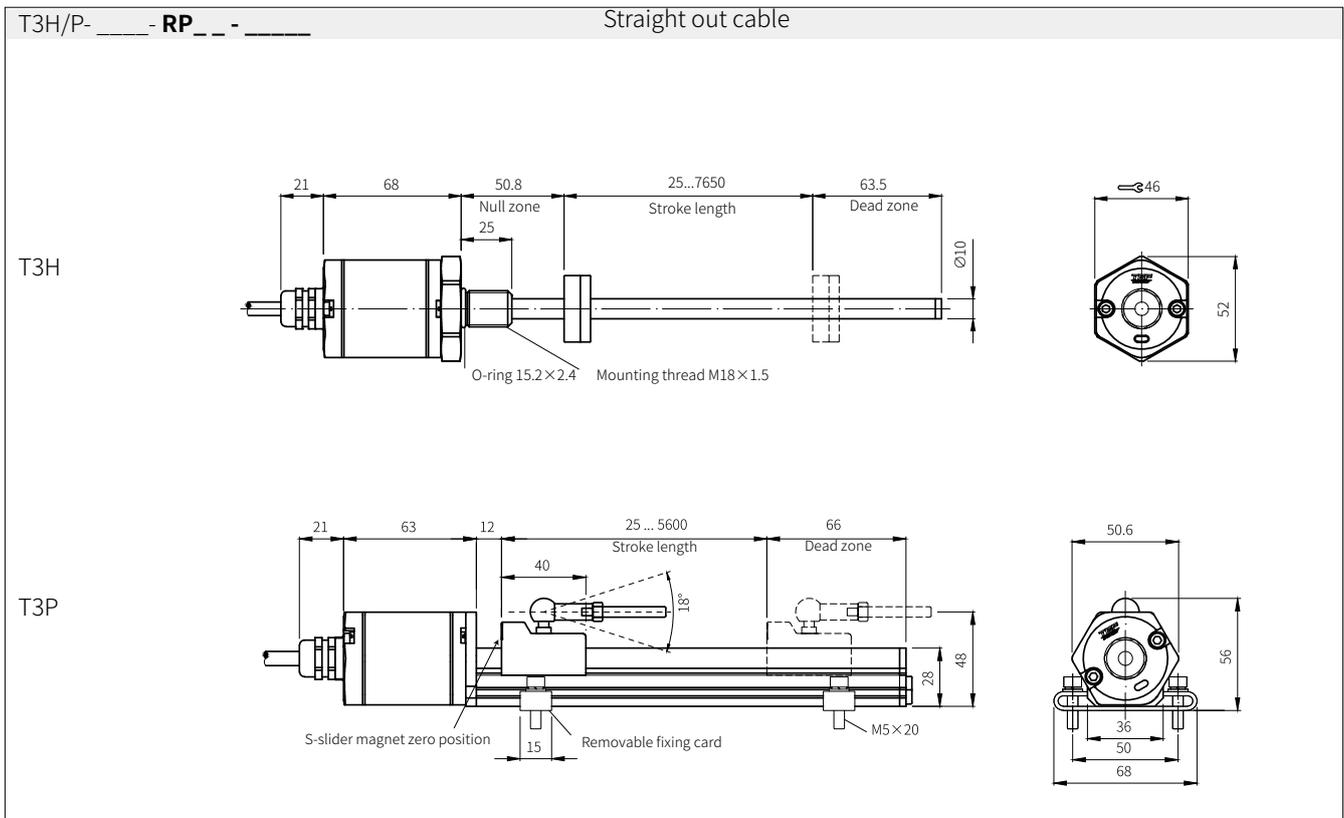


Shock/vibration resistant

TECHNICAL PARAMETER

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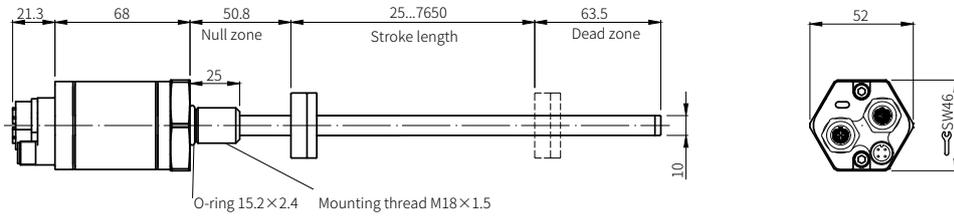
Input	Measured data	Position/Velocity
	Position measurement range	T3H 25mm...7650mm T3P 25mm...5600mm
Output	Interface	EtherCAT
	Data protocol	EtherCAT 100 Base-Tx, high speed Ethernet
	Data transmission rate	Max. 100Mbit/s
Resolution	Position resolution	0.5...1000μm optional
	None-Linearity	< ±0.01%F.S. (min. ±25μm)
	Repeatability	< ±0.001%F.S. (min. ±2.5μm)
	Update time	Depends on stroke length
	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	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	Magnet velocity	Slider magnet ≤ 10m/s; magnetic ring, any; suspension magnet, any.
	Operating temperature	-40...85°C
	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



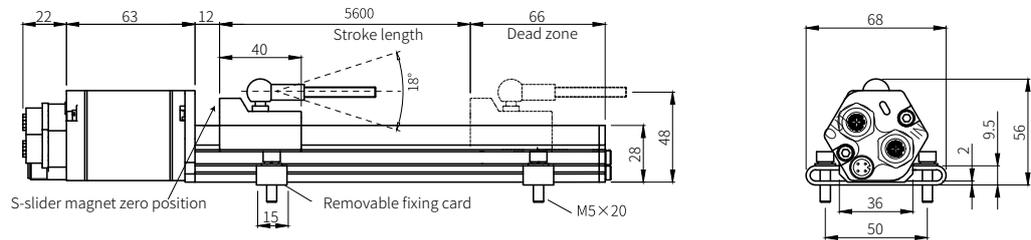
T3H/P- _____ - **D5D42** - _____
 T3H/P- _____ - **D5D48** - _____

Aviation plug : Two 5 pin M12 (female) + One 4 pin M12 (male)
 Aviation plug : Two 5 pin M12 (female) + One 4 pin M8 (male)

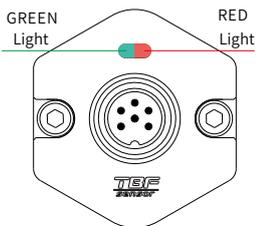
T3H



T3P



Enhanced monitoring and diagnostic functions



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

FUNCTION

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

ORDER CODE

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T3H - - - **M**- - - **1** - **E** - - -

	Thread	Stroke length	Connection type	Output
M	Metric M18x1.5	0025...7650mm (5mm increments)	RP__ Straight out __m high performance cable (Fill in zero if less than 2 places)	(Output Code)
V	Metric M20x1.5		D616 M16 male connector (6 pin)	
S	3/4"-16UNF-3A		D5D42 Two sets of M12 female connectors (D-coded), One set of M12 male connector	
W	Metric M24x1		D5D48 Two sets of M12 female connectors (D-coded), One set of M8 male connector	
R	Metric M18x1.5, with M4x6 thread at tail end			

T3P - - - **M**- - - **1** - **E** - - -

	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			

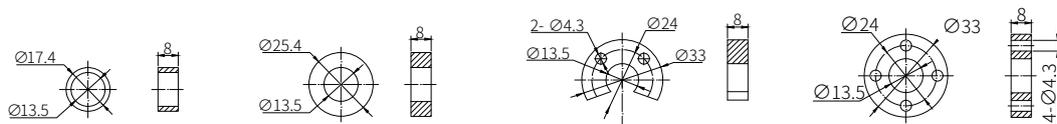
EtherCAT Output Code			[1]-E[2][3][4]-[5][6]
[1]System	[2][3][4] Output	[5][6]Magnet number	
1 Standard	101 Position, update in high speed, 1-5 magnet	01 one magnet	
	102 Position, 1-20 magnet	02 two magnets	
	103 Position and velocity, update in high speed, 1-5 magnet, linear correction optional	
	105 Position and velocity, 1-20 magnet, linear correction optional	20 twenty magnets	

Model selection	Model: T3H-M-0600M-D616-1-E101-01
	Explanation: T series III generation, T3H pressure resistance outer tube type, mounting thread metric M18x1.5, stroke length 600mm, 6pin M16 aviation plug, standard, EtherCAT output, position measurement, update in high speed, single magnet.

■ Please contact us for more customized products.
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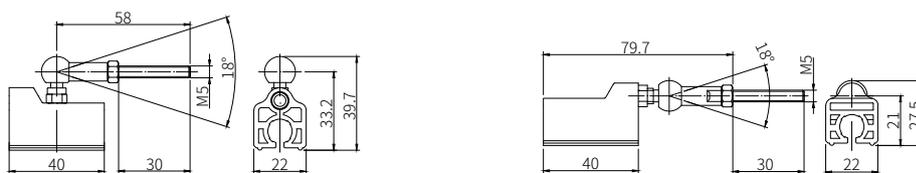
PARTS SELECTION

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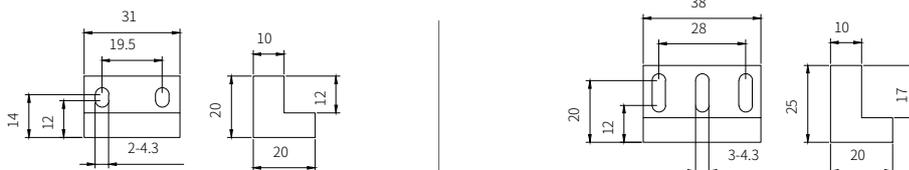


Name	Ring magnet	Ring magnet	U-magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1017	12-1001

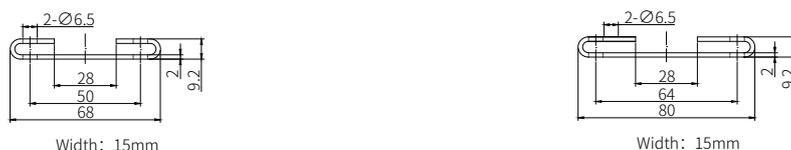
Fitting non-permeable gasket				
Name	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket
Operating temperature	-40...125°C			
Order code	12-1037	12-1021	12-1018	12-1008



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

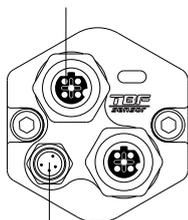


Name	Suspension magnet 31x20	Suspension magnet 38x25
Operating temperature	-40...105°C	
Order code	12-1010	12-1009

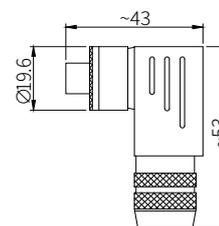
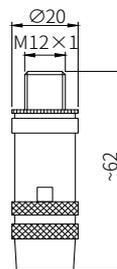
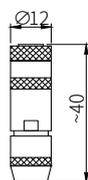


Name	Removable fixing card	Removable fixing card
Order code	11-1003	11-1004

5 pin M12(D-coded) female connector

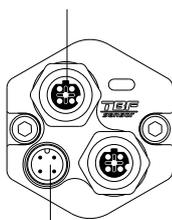


4 pin M8 male connector



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

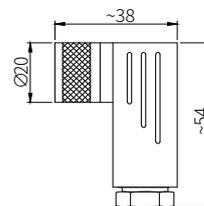
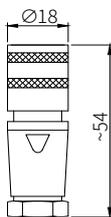
5 pin M12(D-coded) female connector



4 pin M12 male 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

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