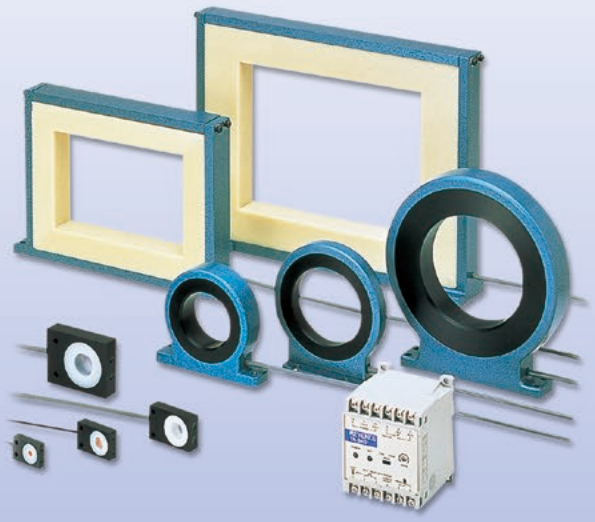
Metal Passage Confirmation Sensors

TA Series

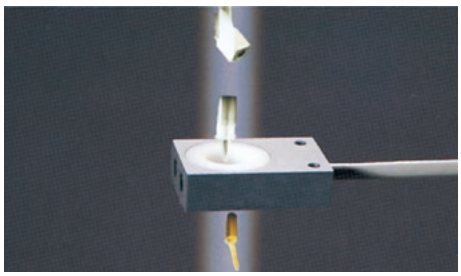


Detects objects of varying sizes

A variety of nine sensor head sizes enables a detecting area ranging from 5 mm 0.20" in diameter to 150 mm x 200 mm 5.91" x 7.87".

Detects objects of varying shape

When an object travels through the window of the TA Series sensor head, it causes a change in the energy of the sensor head's high-frequency magnetic field, allowing rapid response regardless of shape, size, or speed of the target.



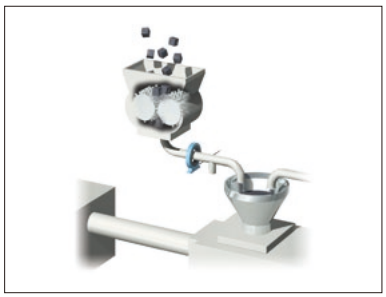
Environment-resistant

All sensor heads meet IEC standard IP67.

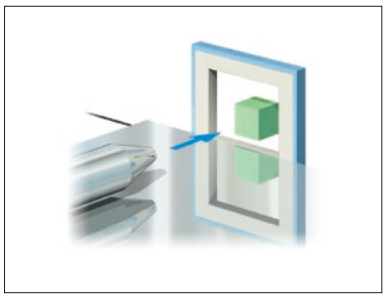
Multi-output

Equipped with open-collector transistor and contact output, the amplifier can be connected to any external device.

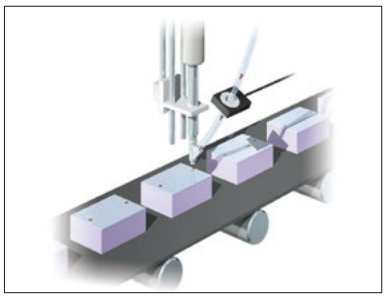
Applications



Detection of metal in molding material
Checking for chipped grinder teeth and bolts in plastic regrind.

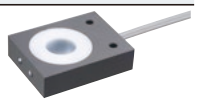


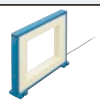
Confirmation of product removal from a pressing machine



Confirmation of screws being fed to a fastening machine

Specifications

Type	Detecting minute metallic objects			
Model	**TH-305**	**TH-310**	**TH-315**	**TH-320**
Appearance				
Smallest detectable object[1]	0.3 mm dia. x 0.5 mm 0.01" dia. x 0.02" steel wire		0.3 mm dia. x 0.75 mm 0.01" dia. x 0.03" steel wire	0.3 mm dia. x 1.0 mm 0.01" dia. x 0.04" steel wire
Detecting area	5 mm 0.20" dia.	10 mm 0.39" dia.	15 mm 0.59" dia.	20 mm 0.79" dia.
Enclosure rating	IP67			
Ambient temperature	-10 to +60°C (14 to 140°F), No freezing			
Relative humidity	35 to 85%, No condensation			
Weight (including cable)	Approx. 55 g	Approx. 60 g	Approx. 170 g	Approx. 210 g

Type	Detecting small metallic objects			Detecting large metallic objects	
Model	**TH-105**	**TH-107**	**TH-110**	**TH-515**	**TH-520**
Appearance					
Smallest detectable object[1]	2.0 mm 0.08" dia. steel ball	2.5 mm 0.1" dia. steel ball	3.0 mm 0.12" dia. steel ball	5.0 mm 0.20" dia. steel ball	7.0 mm 0.28" dia. steel ball
Detecting area	50 mm 1.97" dia.	70 mm 2.76" dia.	100 mm 3.94" dia.	100 x 150 mm 3.94" x 5.91"	150 x 200 mm 5.91" x 7.87"
Enclosure rating	IP67				
Ambient temperature	-10 to +60°C (14 to 140°F), No freezing				
Relative humidity	35 to 85%, No condensation				
Weight (including cable)	Approx. 450 g	Approx. 420 g	Approx. 1.2 kg	Approx. 1.3 kg	Approx. 2.1 kg

1. Data obtained with the amplifier set at maximum sensitivity when target was travelling at 500 mm 19.69".

Model		**TA-340**
Sensitivity adjustment		Sensitivity selector switch and fine-adjustment trimmer
Control output (One shot)[1]	Solid-state[2] (NPN)	100 mA (40 V max.)
	Relay contact	SPDT 250 VAC 2 A
Output response time	Solid-state	1 ms
	Relay	10 ms
OFF-delay time		65 ms (contact output only)
Power supply		110/120/220/240 VAC ±10%, 50/60 Hz
Power consumption		5 VA max.
Ambient temperature		0 to 50°C (32 to 122°F), No freezing
Relative humidity		35 to 85%, No condensation
Weight		Approx. 330 g

1. Both the solid-state and contact outputs of the amplifier are one-shot signals; the signals turn on as the object enters the sensor head.
2. NPN output can easily be converted to PNP output by connecting the optional **OP-5148** PNP Output Converter.

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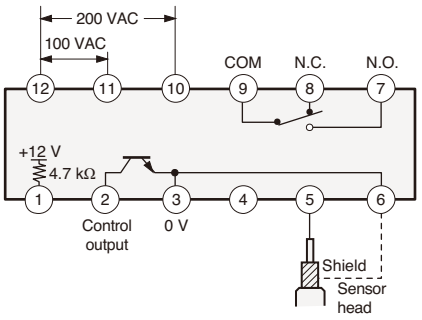
Connections



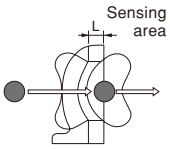
Hints on Correct Use

Sensor head compatibility

With the TA Series, the amplifier and sensor head are calibrated as pairs. Use the amplifier in combination with the sensor head having the same serial number as on the sticker attached to the bottom of the amplifier.

Sensor head sensing area

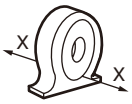
If two or more targets pass through the sensing area simultaneously, they cannot be detected. In this case, select a sensor head that can perform detection with the lowest possible sensitivity, and provide an interval of the sensor head thickness (L) or more between a passing target and the next one.



Surrounding metal

If a metallic object is present close to the sensor head, sensitivity may decrease. Refer to the table to the right and mount the sensor head at the specified distance or more away from any metallic object. In addition, set the sensitivity selector switch to HIGH and turn the sensitivity adjustment trimmer to Max. (The metallic object is stationary.)

*When a moving metallic object passes close to the sensor head, conditions vary. Contact your nearest KEYENCE office.



Model	Detecting distance X (mm inch)
TH-305	5 0.20"
TH-310	10 0.39"
TH-315	15 0.59"
TH-320	20 0.79"
TH-105	25 0.98"
TH-107	35 1.38"
TH-110	50 1.97"
TH-515	90 3.97"
TH-520	125 4.92"

Interference

When two or more sensor heads are used in close proximity, they may malfunction due to mutual interference. To prevent interference, the optional interference suppression adapter must be connected and the sensor heads must not be mounted too close to each other. The distance between the sensor heads varies depending on the sensor model, the target material, size, and passing speed. For details, contact KEYENCE.

Sensor cable

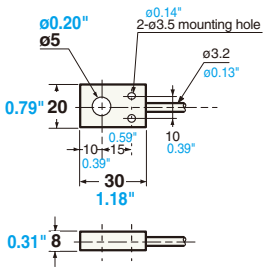
- Do not cut the cable less than the standard length (3 m 9.8').
- To extend the cable, use a coaxial cable and limit the cable length between the amplifier and sensor head to 10 m 32.8' or less. Note that extending the cable will decrease sensitivity.

Dimensions

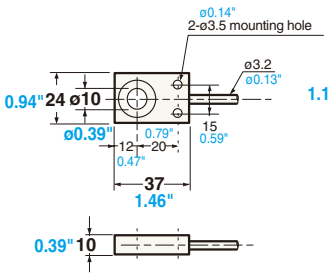
Unit: mm inch

Sensor heads (with 3-m 9.8' coaxial cable)

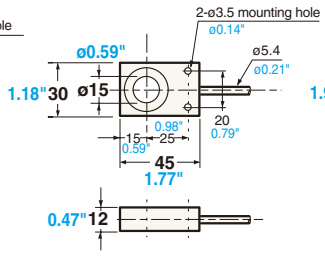
TH-305



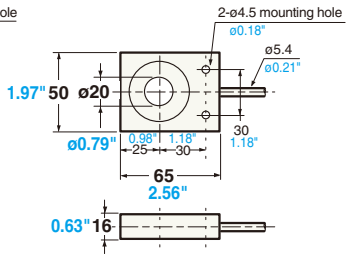
TH-310



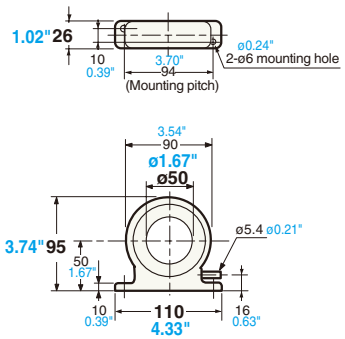
TH-315



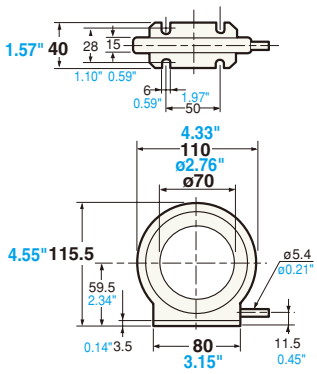
TH-320



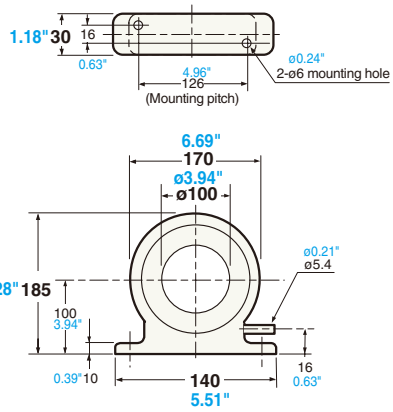
TH-105



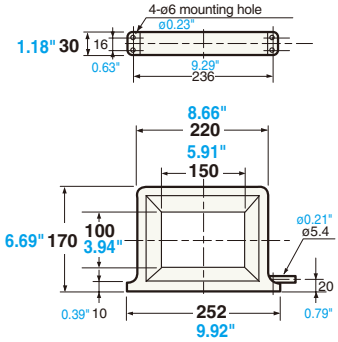
TH-107



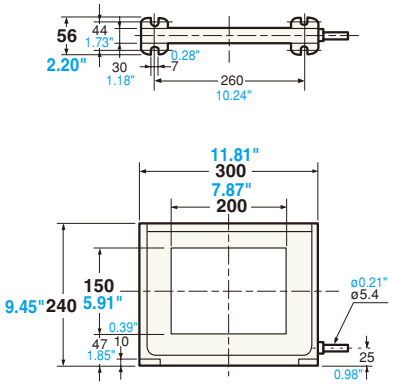
TH-110



TH-515



TH-520



Amplifier

TA-340