










## Guide to swapping your TMM55E

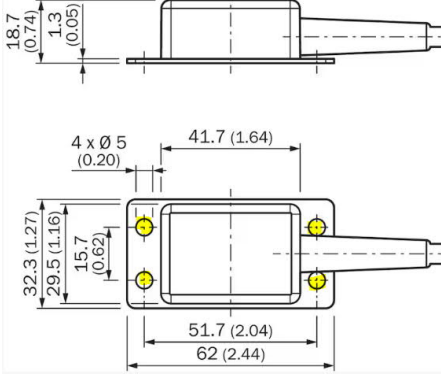
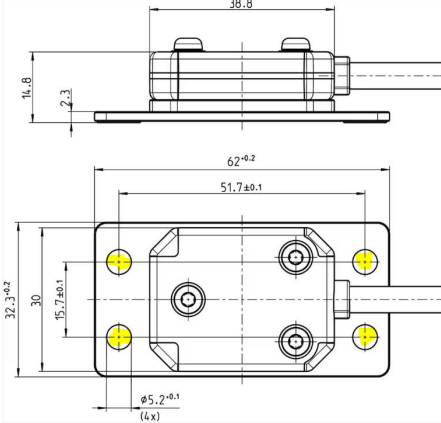
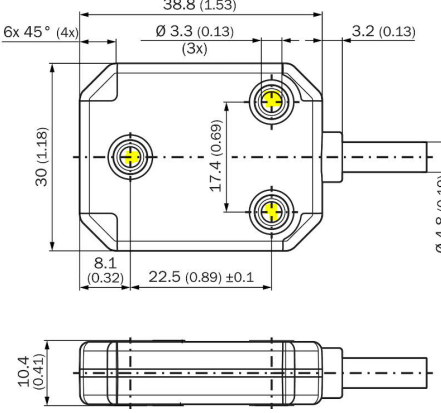
After a long period of continuous availability, SICK is phasing out the TMM55E Inclination sensor and to help you select a replacement sensor we have provided the following information. Please take note of the Mechanical and Electrical sections on P2, P3 and P4.

TMM55E being phased out	Suggested successor for retrofit applications	Suggested successor for new applications
<p>TMM55E-PMH010 (RS: 136-9182) 4-20mA sinusoidal. -10° to +10°</p> 	<p>TMM22E-PKH010S55 (RS: 0151254) 4-20mA linear. -10° to +10°</p> 	<p>TMM22E-PKH010 (RS: 245-9054) 4-20mA linear. -10° to +10°</p> 
<p>TMM55E-PMH045 (RS: 136-9181) 4-20mA sinusoidal. -45° to +45°</p> 	<p>TMM22E-PKH045S55 (RS: 0151253) 4-20mA linear. -45° to +45°</p> 	<p>TMM22E-PKH045 (RS: 245-9055) 4-20mA linear. -45° to +45°</p> 
<p>TMM55E-PMH060 (RS: 136-9180) 4-20mA sinusoidal. -60° to +60°</p> 	<p>TMM22E-PKH060S55 (RS: 0151251) 4-20mA linear. -60° to +60°</p> 	<p>TMM22E-PKH060 (RS: 245-9056) 4-20mA linear. -60° to +60°</p> 

## Mechanical Installation

The TMM22E-PKHxxxS55 (suggested as a successor for retrofit applications) has been designed with the same mechanical fixings as the TMM55E-PMHxxx (being phased out). It is therefore possible to mechanically exchange the TMM55E-PMHxxx sensor with a TMM22E-PKHxxxS55 without making any mechanical changes to the machine.

The TMM22E-PKHxxx (suggested as a successor for new applications) is a much smaller sensor than the TMM55E-PMHxxx enabling it to be used in more confined spaces. As a result it has different fixing centres.

<p><b>TMM55E being phased out</b></p> <p>TMM55E-PMHxxx</p>	
<p><b>Suggested successor for retrofit applications</b></p> <p>TMM22E-PKHxxxS55</p>	
<p><b>Suggested successor for new applications</b></p> <p>TMM22E-PKHxxx</p>	

## Electrical Installation

The TMM55E-PMHxxx in phase out, TMM22E-PKHxxxS55 suggested for retrofit applications and TMM22E-PKHxxx suggested for new applications all have a cable exit with a moulded M12 5 pin male connector on the cable end. The TMM22E-PKHxxx suggested for new applications has a set input on pin 5 which can be used to change the alignment of the zero degree position of the sensor, useful when using the sensor on a static machine for axis positioning where the machine may not be mounted on a perfectly level surface. This set function was not available on the TMM55E-PMHxxx and is also not available on the TMM22E-PKHxxxS55 suggested for retrofit applications.

<p><b>TMM55E being phased out</b></p> <p>TMM55E-PMHxxx</p>		<p>Pin 1 = 11 – 30V dc</p> <p>Pin 2 = 4-20mA* (Y-axis)</p> <p>Pin 3 = GND</p> <p>Pin 4 = 4-20mA* (X-axis)</p> <p>Pin 5 = Signal GND (internally connected to GND)</p>
<p><b>Suggested successor for retrofit applications</b></p> <p>TMM22E-PKHxxxS55</p>		<p>Pin 1 = 12 – 30V dc</p> <p>Pin 2 = 4-20mA (Y-axis)</p> <p>Pin 3 = GND</p> <p>Pin 4 = 4-20mA (X-axis)</p> <p>Pin 5 = n.c.</p>
<p><b>Suggested successor for new applications</b></p> <p>TMM22E-PKHxxx</p>		<p>Pin 1 = 12 – 30V dc</p> <p>Pin 2 = 4-20mA (Y-axis)</p> <p>Pin 3 = GND</p> <p>Pin 4 = 4-20mA (X-axis)</p> <p>Pin 5 = TEACH <sup>1)</sup></p>

<sup>1)</sup> To activate the zero point setting, connect TEACH (pin 5) to GND (pin 3) for at least 1 second

\* 4-20mA on TMM55 has sinusoidal shape see P4.

## Electrical Interface

The TMM55E-PMHxxx (in phase out), TMM22E-PKHxxxS55 (suggested for retrofit applications) and TMM22E-PKHxxx (suggested for new applications) all produce 4-20mA output signals.

The output signal of the TMM55E-PMHxxx (in phase out) produces an un-linearised output which has a sinusoidal shape to it. The output can be linearised in the PLC program using the following formula.

$$\alpha = \arcsin \left[ \frac{I_{out} - 12mA}{8mA} * \sin(\maxvalue) \right]$$

If the PLC interprets the output of the TMM55E-PMHxxx (in phase out) as a linear output, a small error in the interpretation of the value provided by the inclination sensor will result.

All TMM22 sensors including the TMM22E-PKHxxxS55 (suggested for retrofit applications) and TMM22E-PKHxxx (suggested for new applications) produce a direct linear output. If a correction is implemented in the PLC for a signal from a TMM55 sensor, for best results it would be recommended to remove the correction when switching to a TMM22 sensor.

Example: Graphical representation of 4-20mA value from sensors with -60° to +60° range

