Enabling the Electronics Revolution

PIHER sensing systems
an Amphenol® company

Tilt Sensors

Dual Axis Inclinometer based on MEMS Technology

KEY FEATURES

- Reliable and wear-free MEMS technology
- Inclination range: ±25°, ±45°, ±90° or ±180°
- Digital signal processing, filter algorithms
- Analog and CAN output
- Dual axis combined gyroscope and accelerometer
- Accuracy ‹0.5° (-40°C to 85°C)
- Fully sealed (IP69K) for use in harsh environments
- Operating temperature from -40°C to +85°C

DESCRIPTION

The tilt sensors of the TS family are reliable and precise sensors and ideal for applications where fast response and high accuracy is needed. Based on mechanics-free MEMS technology these inclinometers accurately measure inclination, tilt and angle in harsh environmental conditions. With its ability to measure angles up to 360° with an accuracy of ‹0.5° over the full temperature range, it is perfect for use in heavy-duty applications such as load monitoring, leveling and boom angle monitoring.

Different outputs options and measurement ranges are configurable. Custom packaging is available on request.

APPLICATIONS

- Mobile and stationary cranes
- Lift platforms
- Autonomous Vehicles
- Conveyor systems
- Tip-over protection
- Bucket / chassis / boom angle
- Weighing systems
- Inclination-based engine management
- Solar trackers angle
- Wind turbines rotor angle
- Construction, mining and agriculture machines

SPECIFICATIONS

Parameter	Unit	Min.	Typ.	Max.
Supply voltage	V	8	12	36
Supply current	mA	15	-	45
Output voltage	V	0,5		4,5
Offset voltage	V		2,5	
Refresh rate	Hz		100	
Operating temperature	°C	-40		+85
Typical error (at 25°C; Vcc = 12V)	°	-0,15		+0,15
Max. error (at -40°C to +85°C; Vcc = 12V)	°	-0,5		+0,5

Other specification on request

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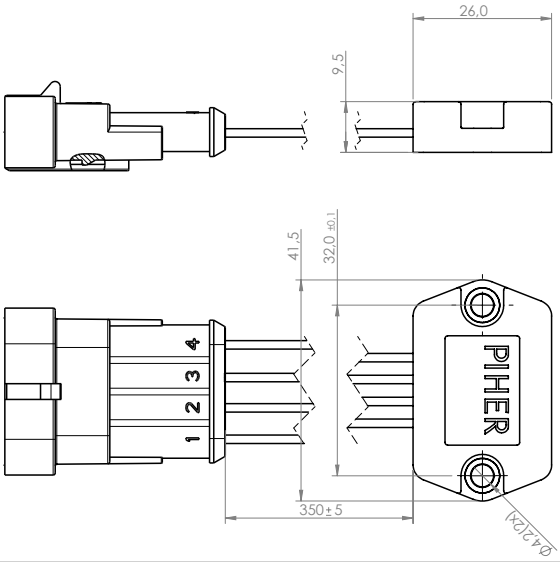
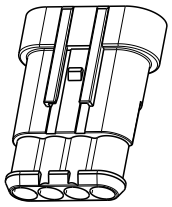
DIMENSIONS (MM)



CONNECTOR (OPTIONAL)



AMP Superseal 1.5 Series 4pos
(282106-1)

PIN	Function	Description
1	Vcc	8 to 30 VDC supply input (+)
2	GND	Ground
3	Output X	0.5 to 4.5 V, X axis output
4	Output Y	0.5 to 4.5 V, Y axis output

HOW TO ORDER

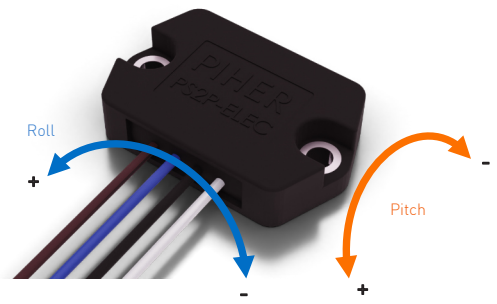
Example: TSDA-A-IR025-HM-W

TSDA - _ - _____ - __ - _

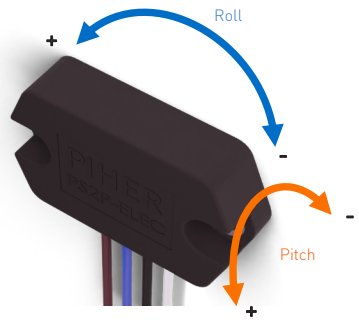
Series	Output	Inclination range	Mounting	Connection
	A = analog J = CAN J1939 O = CAN Open	IR025 = ±25° IR045 = ±45° IR090 = ±90°	HM = horizontal mount VM = vertical mount	W = wire C = connector

FUNCTION OVERVIEW

Horizontal Mount



Vertical Mount



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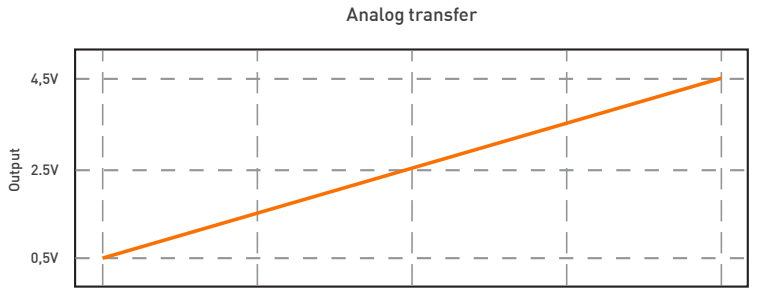
TRANSFER OUTPUT



Deg (min)	Tilt Angle	Deg (max)
-25°	0°	+25°
-45°	0°	+45°
-90°	0°	+90°

Please always use the latest updated datasheets published on our website www.piher.net

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