TSDA

Dual Axis Inclinometer based on MEMS Technology

- Reliable and wear-free MEMS technology
- Inclination range: ±25°, ±45° or ±90° (±180° on request)
- Digital signal processing, filter algorithms
- Analog and CAN ISO11898 3V3 output
- Dual axis combined gyroscope and accelerometer
- Accuracy ‹0.5°
- Fully sealed (IP69K) for use in harsh environments
- Operating temperature from -40°C to +85°C

The TS family sensors are reliable, precise 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 angle monitoring.

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

The sensor can be ordered with an AMP Superseal 1.5-Series, 4-position housing with a built-in locking feature.

POTENTIAL 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)	°	-0,5		+0,5
Mounting torque	Nm			3

Other specification on request

VIBRATION TEST LEVELS

Vibration 1	Sweep Sine Frequency 10 – 24Hz Displacement 1.5 mm
Vibration 2	Acceleration 18.40 m/s2 Frequency 30 Hz Displacement 1.035 mm

* this product is intended for use in applications with vibration levels limited to what is described in the "vibration test levels".

! For applications involving high vibration, please order the TSDAG2 variant.

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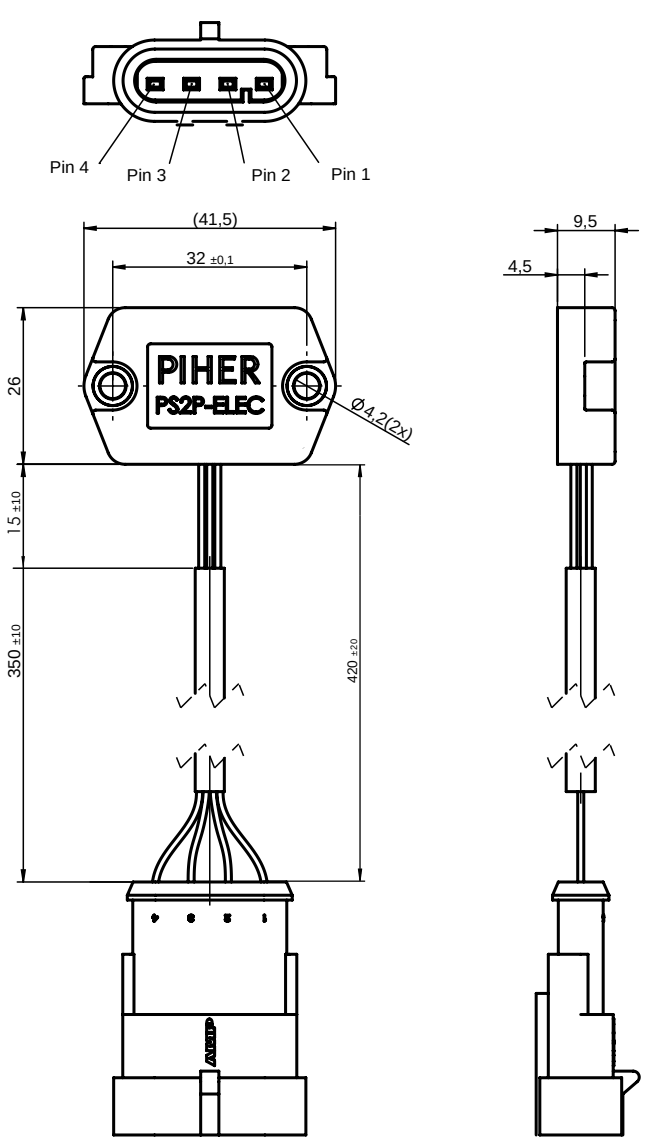
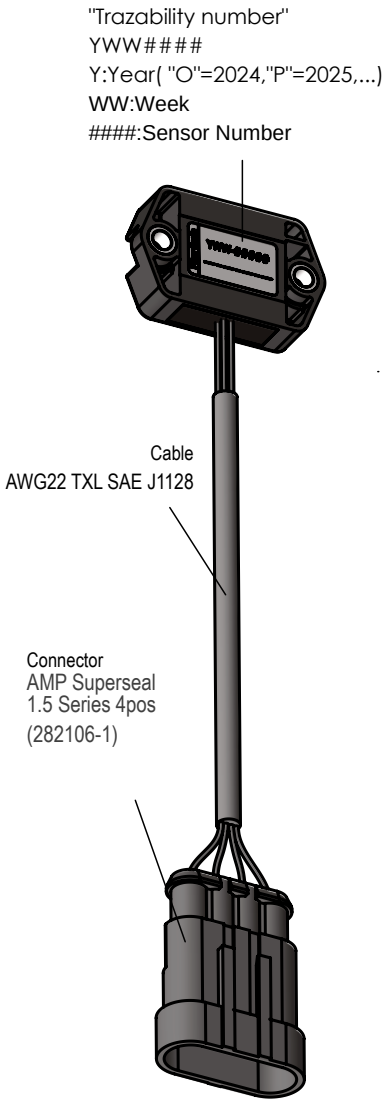
DIMENSIONS - VERSION WITH CONNECTOR (MM)





CONNECTOR SCHEME

PIN	Function	Description
1	Vcc	8 to 36 VDC supply input (+)
2	GND	Ground
3	Output 1	0.5 to 4.5 V, Y axis output / CAN -H
4	Output 2	0.5 to 4.5 V, X axis output / CAN -L

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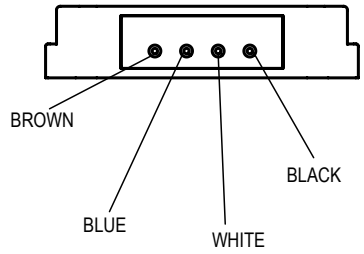
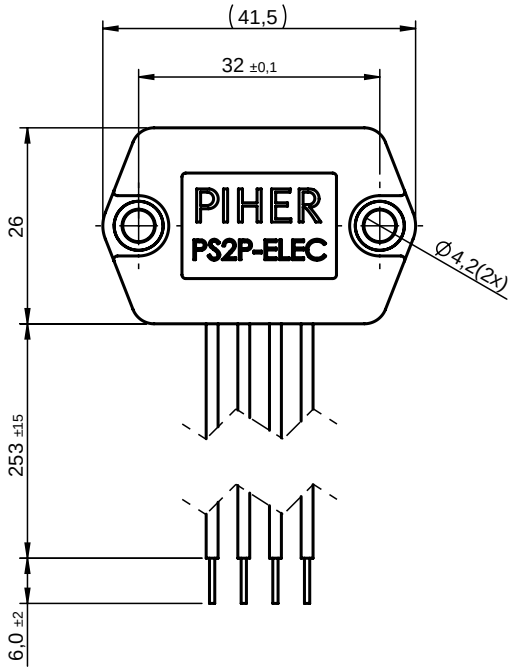
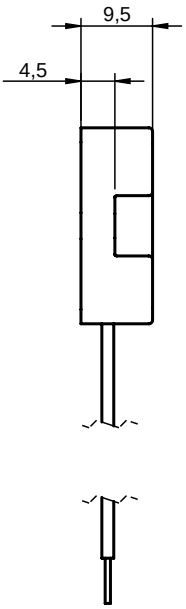
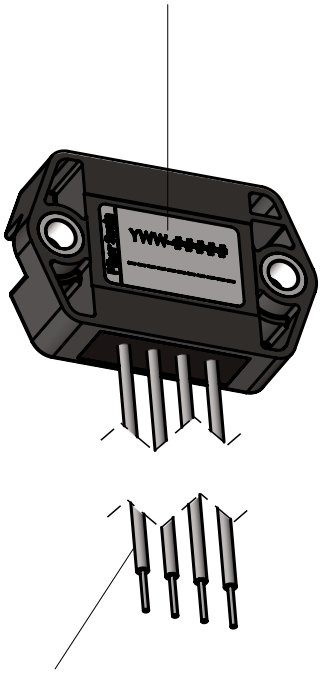
DIMENSIONS (MM)



Trazability number
YWW####
Y: Year("O"=2024,"P"=2025,...)
WW: Week
####: Sensor Number







Cable
AWG22 TXL SAE J1128

WIRING SCHEME

Color	Function	Description
Brown	Vcc	8 to 36 VDC supply input (+)
Blue	GND	Ground
Black	Output 1	0.5 to 4.5 V, Y axis output / CAN -H
White	Output 2	0.5 to 4.5 V, X axis output / CAN -L

3D model download

HOW TO ORDER

Example: TSDAG2-A-IR025-HM-W

_____ - _ - _____ - __ - _

Series	Output[1]	Inclination range	Mounting	Connection
TSDAG2 TSDA	A = analog J = CAN J1939 O = CAN Open	IR025 = ±25° IR045 = ±45° IR090* = ±90°	HM = horizontal mount VM = vertical mount	W = wire C = connector

1) CAN versions: refer to the protocol code in the product specification sheet available on the product's website. Contact us to check availability for other specifications.

* Inclination range limited to ±85º for CAN output versions

check inventory

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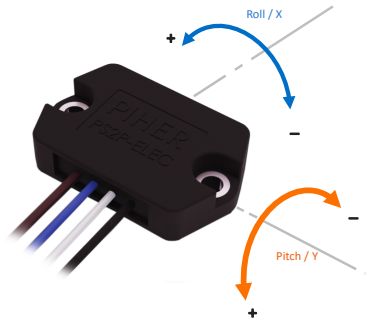
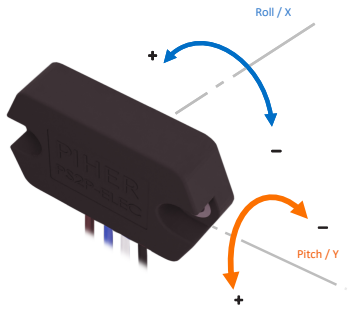
FUNCTION OVERVIEW / ANALOG

Horizontal Mount

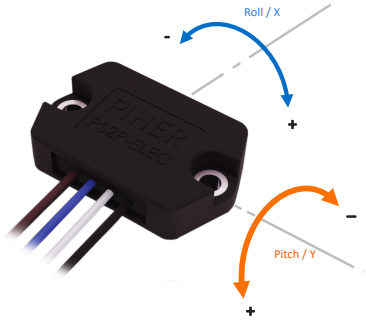


Vertical Mount

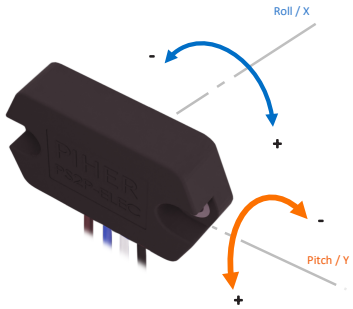


FUNCTION OVERVIEW / CAN

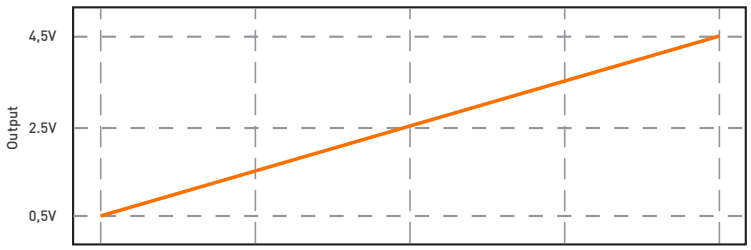
Horizontal Mount



Vertical Mount



ANALOG OUTPUT



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

CAN protocol information is available in the product's website.

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

ANNIVERSARY 1950/2025

CONTACT

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