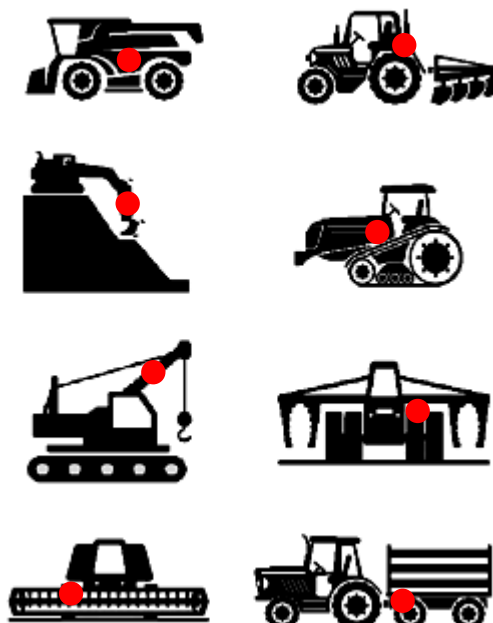
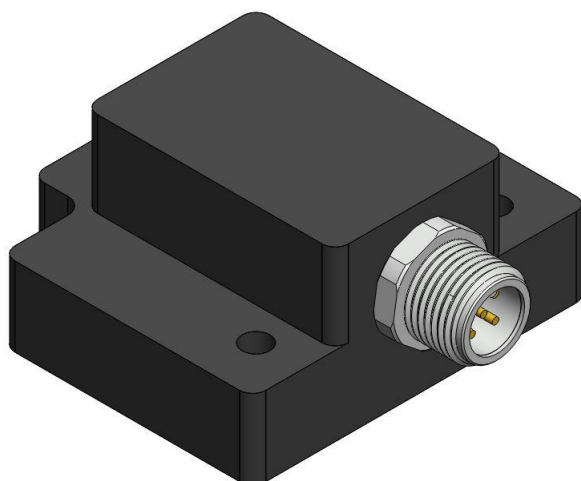


FTI2

DYNAMIC INCLINATION SENSOR

Easy-to-deploy 6-DoF IMU with enhanced digital filtering

FTI2 dynamic gyroscope inclinometer is an inertial product that provides precise roll and pitch angle measurement for moving/vibrating objects. Combining a classic acceleration sensor with an angular rate sensor enables accurate and fast measurement results even if the moving equipment is subject to strong accelerations. The measurement results of conventional tilt sensor is based on accelerometer or electrolyte principle will be affected by the additional axial acceleration and centripetal acceleration when in dynamic use situations such as vehicle motion and ship swaying motion. Thus, the effective angle measurement data cannot be identified, and the accuracy is also not guaranteed. Differently the **FTI2** adopts advanced inertial navigation technology and it can accurately measure the dynamic roll and angle both horizontally or vertically and can be used reliably on mobile equipment such as construction machinery, cranes or agriculture machinery.

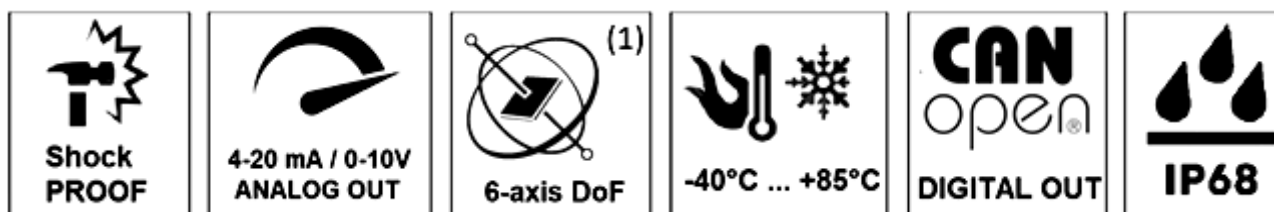


MAIN FEATURES

- State-of-the-art capacitive IMU technology.
- Tilt range: single-axis 360° or dual-axis $\pm 90^\circ$.
- IP68 protection class and wide temperature range.
- Long term stability.
- Internal cycle 2.5 ms.
- Resolution up to 0.01°.
- Compact, flat and robust housing.

APPLICATIONS

- Construction equipment.
- Agricultural machinery.
- Lifting technology.
- Automotive systems.
- Stability monitoring.
- Antenna stabilization.
- Crane/hoisting technology.



(1) The **FTI2** enables 6-axis motion detection based on raw data acquisition for acceleration (3-axis) and rotation rate (3-axis). High-precision data processing carried out @ 400 Hz using a sophisticated sensor fusion algorithm enables high performances in any conditions. Integrated sensor fusion filters help in orientation calculation by suppressing externally acting accelerations.

TECHNICAL DATA

Measurement Range

$\pm 5^\circ$, $\pm 10^\circ$, $\pm 15^\circ$, $\pm 20^\circ$, $\pm 30^\circ$, $\pm 45^\circ$, $\pm 60^\circ$, $\pm 90^\circ$ (XY-axis); $\pm 180^\circ$ or 360° (Z-axis).

Supply voltage

+5Vdc; +9 ... +36Vdc.

Output signal

0.5...4.5Vdc (supply +5Vdc);

0.5...4.5Vdc, 0...10Vdc, 4...20 mA, CANopen, RS232 TTL (supply +9...36 Vdc).

Electrical connections

M12 connector output, cable output.

Resolution

Analog output: 0.005° (from $\pm 5^\circ$ to $\pm 10^\circ$), 0.01° ($\pm 20^\circ$), 0.03° ($\pm 30^\circ$ to 45°), 0.04° ($\pm 60^\circ$), 0.1° ($\pm 180^\circ$); CANopen output: 0.01° , 0.1° , 1° ; RS232 TTL output: 0.005° .

Accuracy @ 20°C

STATIC : $\pm 0.25^\circ$ typ. (from $\pm 5^\circ$ to $\pm 90^\circ$); $\pm 0.5^\circ$ typ. ($\pm 180^\circ$ or 360°);

DYNAMIC (see notes (*)(**)) : $\pm 1.0^\circ$ typ. (from $\pm 5^\circ$ to $\pm 180^\circ$ or 360°);

Working temperature and zero thermal drift

-40°C ... +85°C with thermal drift $< 0.005^\circ/\text{C}$ in range $T = -10^\circ\text{C}$... +60°C otherwise $< 0.008^\circ/\text{C}$.

Vibrations

20g between 10 Hz ... 2000 Hz IEC 60068-2-6.

Shock

Pulse on 3 axes; 50g 11 ms IEC 60068-2-27.

Electromagnetic compatibility

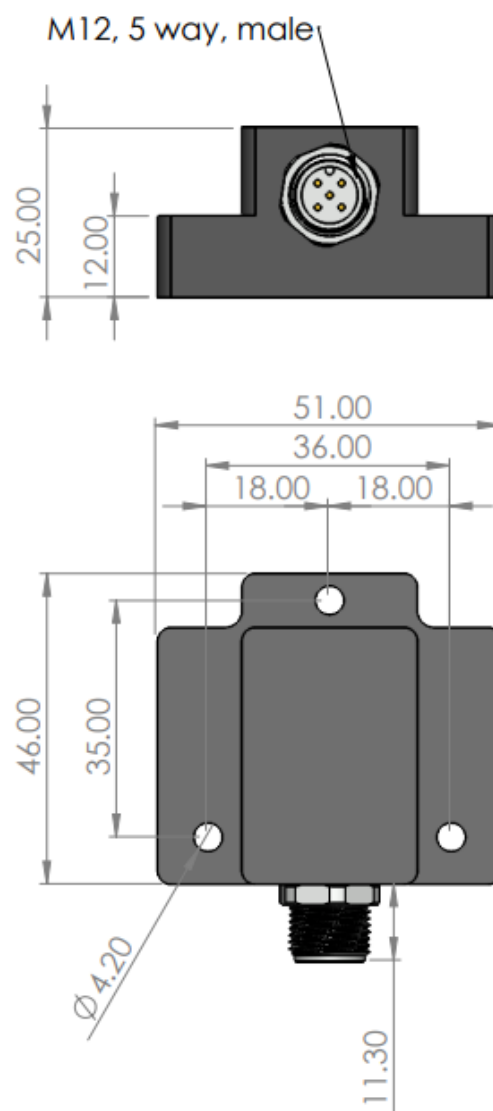
2014/30/EU Electromagnetic Compatibility (EMC).

IP Protection Level

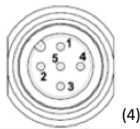

M12 connector output (IP67); cable output (IP68).

Housing body

Anticorodal aluminum anodized black.



ELECTRICAL CONNECTIONS

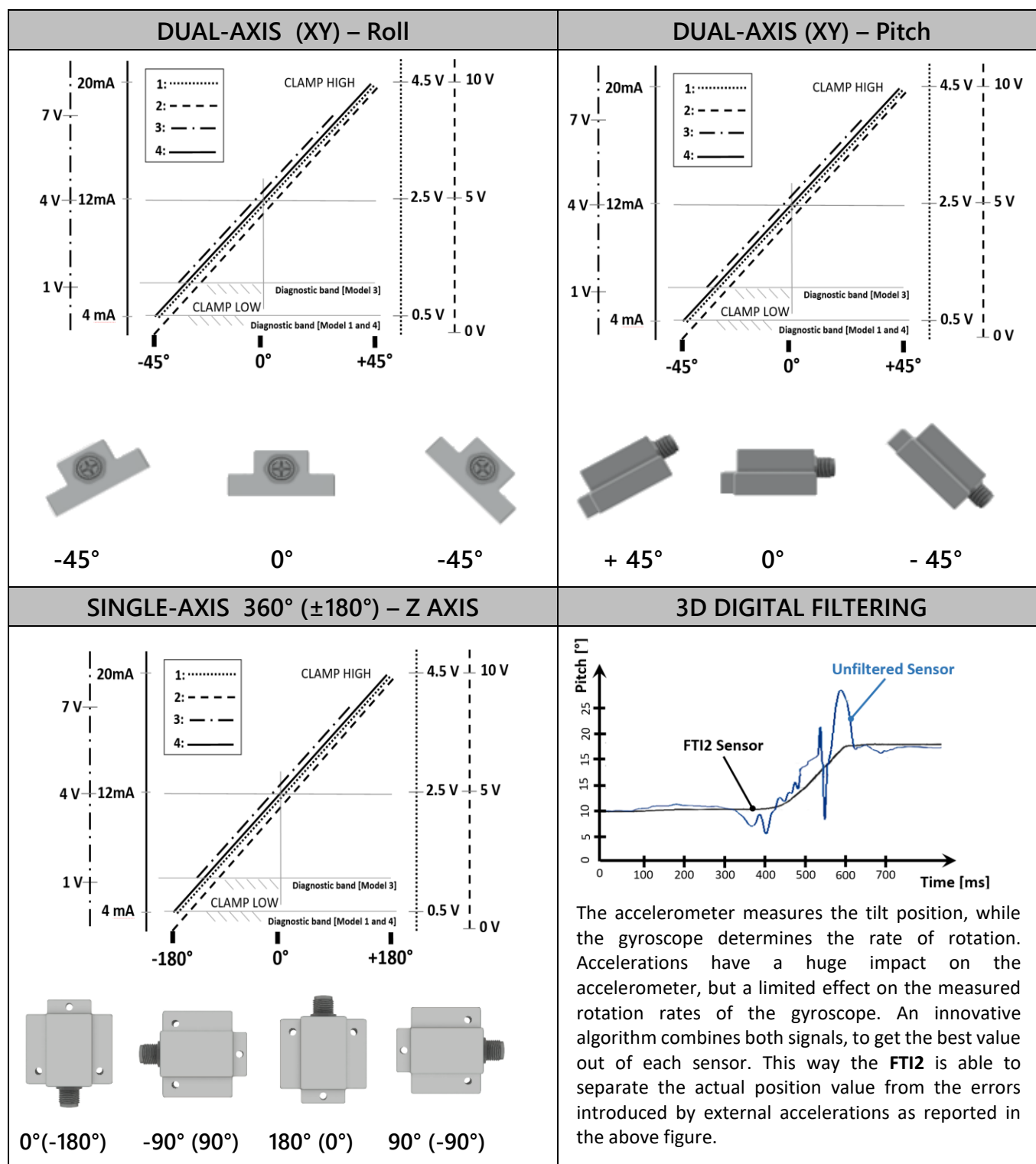
M12-5p					Cable-5p						
											
CANopen OUTPUT			ANALOG OUTPUT		CANopen OUTPUT			ANALOG OUTPUT			
Z-axis	XY-axis		Z-axis	XY-axis	Z-axis	XY-axis		Z-axis	XY-axis		
1	CAN-S ⁽¹⁾	CAN-S ⁽¹⁾	1	+Vin	+Vin	Red	CAN-S ⁽¹⁾	CAN-S ⁽¹⁾	Red	+Vin	+Vin
2	+Vin	+Vin	2	n.c.	Y out	Yellow	+Vin	+Vin	Yellow	n.c. ⁽²⁾	Y out
3	Gnd	Gnd	3	Gnd	Gnd	Green	Gnd	Gnd	Green	Gnd	Gnd
4	CAN-H	CAN-H	4	Z out	X out	Grey	CAN-H	CAN-H	Grey	Z out	X out
5	CAN-L	CAN-L	5	n.c. ⁽²⁾	n.c. ⁽²⁾	White	CAN-L	CAN-L	White	n.c. ⁽²⁾	n.c. ⁽²⁾

(1) CAN-S: CAN shield optional.

(2) n.c.: not connected

Note: RS232 TTL output version on M12 connector – PIN (1) RS23_RX, PIN (2) +Vin, PIN (3) Gnd, PIN (4) RS232_TX

OPERATING SPECIFICATIONS



(*) Accuracy within spec : approx.. 30 seconds after boot-up.

(**) Dynamic accuracy is the RMS (Root Mean Square) deviation between output angle and set angle, tested under three different conditions:

- linear acceleration in one sensor axis with 0.5 g for a period of 1 second or
- random vibration with 0.4 g RMS or
- rotational movement of one sensor axis with a rotational velocity of 40 °/s.

It is important to note that this error depends very much on the desired application and the strength of vibration and additional acceleration. Testing the sensor in the application is recommended.

ORDERING CODE: FTI2.A.B.C.DDD.E.F.G.H

ELECTRICAL CONNECTIONS		
A	M12 connector output	M
	Cable output	W
	M12 T-connector M/F with 100 mm cable	T

AXIS TYPE	
B	Dual (XY axis) H
	Single 360° (Z axis) V

CIRCUIT TYPE	
C	Single S

OUTPUT MEASURING RANGE		
D	Range: $\pm 90^\circ$ (XY axis)	DDD
	Range: $360^\circ (\pm 180^\circ)$ (Z axis)	

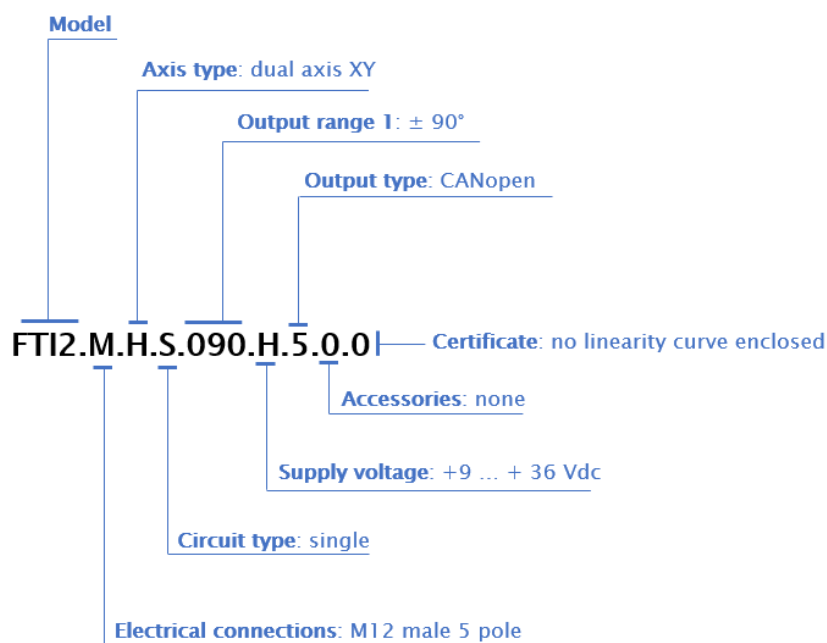
SUPPLY VOLTAGE	
E	+ 5Vdc with reverse protection L
	+9...+36 Vdc with reverse protection H

OUTPUT TYPE		
F	+0.5...+4.5Vdc	1
	0...+10VDC	2
	+1...+7 Vdc	3
	4...20mA output	4
	CANopen output	5

CERTIFICATES	
H	No certificate enclosed 0
	Linearity curve enclosed L

ACCESSORIES	
G	None 0
	M12 dust protection end cap - Male M
	M12 dust protection end cap - Female F
	M12 dust protection end cap both - Male and Female B

EXAMPLE OF DESCRIPTION



ORDER INFORMATION

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	E-mail:	info@ollarsensors.it
	WEB:	www.ollarsensors.it

The company reserves the right to make any kind of design or functional modification at any moment without prior notice.