SemaSense Catalogue 2026

Product Guide

A Technological Revolution in Navigation Reliability

ABOUT US

"SemaSense" specializes in the design, manufacturing, and calibration of measurement devices based on MEMS (Micro-Electro-Mechanical Systems) technology.
Through the continuous development of calibration methods and equipment, our team has achieved significant progress in developing locally engineered advanced measurement solutions.
In addition to product development in precision instrumentation and navigation, the "SemaSense" technical team provides expert consulting and project implementation services for industrial instrumentation and control systems.

Horizon Pro Inclinometer

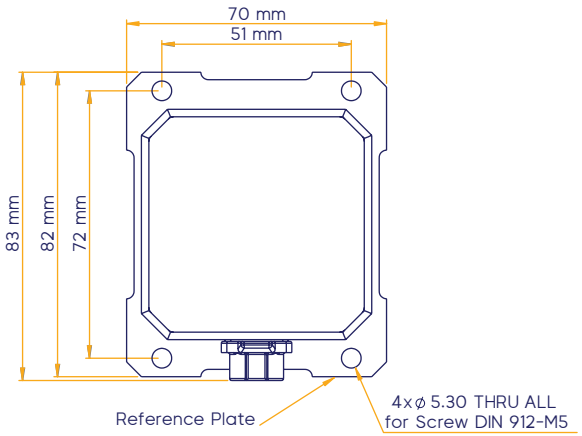
DESCRIPTION

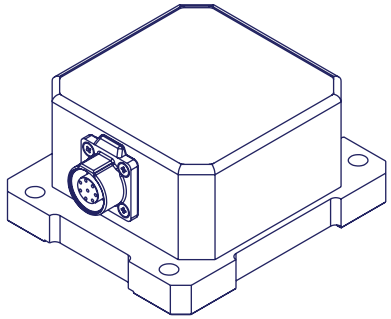
The HORIZON PRO is a high precision, dual axis inclinometer based on advanced MEMS (Micro-Electro-Mechanical Systems) technology.
It measures tilt relative to the local horizon over ±5°, ± 30°, and ±90° ranges with an absolute accuracy better than ±0.015°.
Equipped with an internal temperature sensor and advanced thermal calibration, the HORIZON PRO offers excellent temperature stability, limiting temperature induced error to within ±0.030° across its wide operating temperature range (–30°C to +70°C).
Designed for harsh and demanding environments, it provides robust immunity to electromagnetic interference, shock, and vibration, making it ideal for industrial applications and non-accelerating (static) platforms.
The HORIZON PRO integrates easily into monitoring and control systems, providing continuous, real time angle and tilt measurements.
Its three-dimensional acceleration processing ensures consistent accuracy across the entire measurement range. This sensor is widely used in construction, mining, power generation, oil and gas facilities, telecommunications infrastructure, power transmission systems, and geological and structural monitoring where precise inclination and orientation measurements are required.

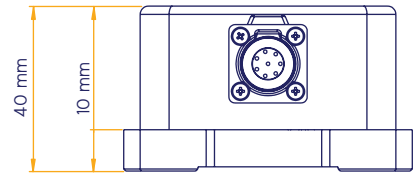
FEATURES

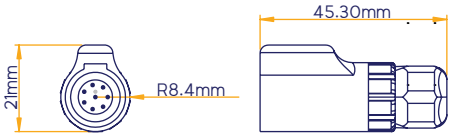
- Dual-axis (X, Y) measurement with ranges of ±5°± 30° and ±90°(LS, MS, FS)
- Absolute accuracy better than ±0.015°
- Resolution of 0.001°
- Maintains accuracy across the full measurement range using 3D acceleration data processing
- Wide operating temperature range with temperature compensation
- Maximum temperature induced error within ±0.030° over the compensated range
- IP67 rated environmental protection
- MEMS based sensor design
- Supports RS 485, RS 232, and CAN communication interfaces

Dimension Specifications:









Technical SPEC

Parameter	Value
Axis	Dual-Axis (X,Y)
Range	LS : ±5° , MS : ±30° , FS : ±90°
Resolution	0.001°
Repeatability	0.001°
Absolute Accuracy @20℃	0.015°
Temperature Drift (Delta From 20℃) *Mv:Measured Value	FS , MS : ±0.0006 °/°c LS : ±(0.01 %Mv +0.0001)°/°c
Compensated Temperature	-30°c ~ +70°c
Response Time	0.35 s
Long Term Stability (After 1 Year) *Mv:Measured Value	FS : ±(0.037°-0.05% I Mv-45°I) MS : ±(0.015 °+ 0.03 % Mv) LS : ± 0.015°

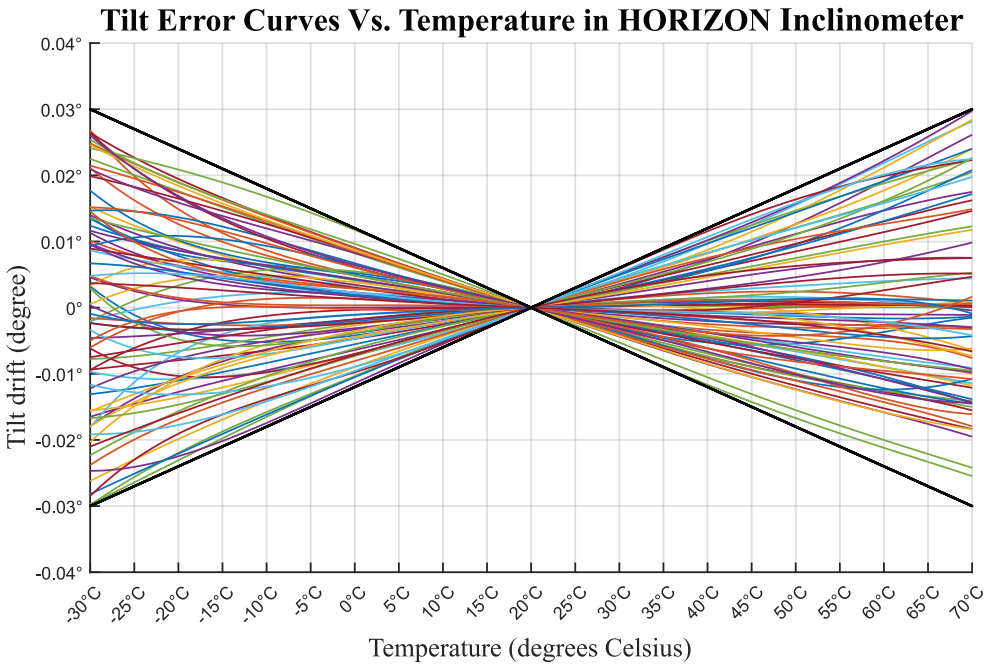
Electronic SPEC

Parameter	Value	Unit
External Power Supply	7 ~ 36	V
Current Consumption	15 ~ 25 @24V	mA
Startup Time	1	s
Digital Output	RS485 , RS485- RS232 , RS485 - CAN	
Sampling Rate	CAN/RS485/RS485 50Hz (Default) in continuous mode	
Output Data Rate	115200 bit/sec (Default)	
Frame Data Structure	Hex / ASCII Modbus / RTU Modbus / String	
Connector	CNLINKO female 8 pin	
Cable Specifications	Shielded AWG 1x8x24 (17 cm)	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimensions	82x70x40	mm
Material	Hard Anodized Aluminum	-
Weight	430	gr
Installation Method	Nut and Bolt (M5)	-
Operating Temperature	-30 ~ +70	°c
Storage Temperature	-50 ~ +90	°c
Ingress Protection	IP67	-

TEMPERATURE SPECIFICATIONS



APPLICATIONS

- Measuring the inclination of surfaces relative to the local horizon or other reference surfaces.
- Monitoring axes in industrial robots.
- Adjusting installation angles relative to the local horizon for radio transmitters and receivers.
- Calibration, monitoring, and leveling of multi-degree-of-freedom tables.
- Calibration of sensitive medical equipment.
- Measuring deviation in large pipelines.
- Installation and monitoring of railway structures.
- Checking the flatness of machined surfaces using the meshing method.

Horizon Lan Inclinometer

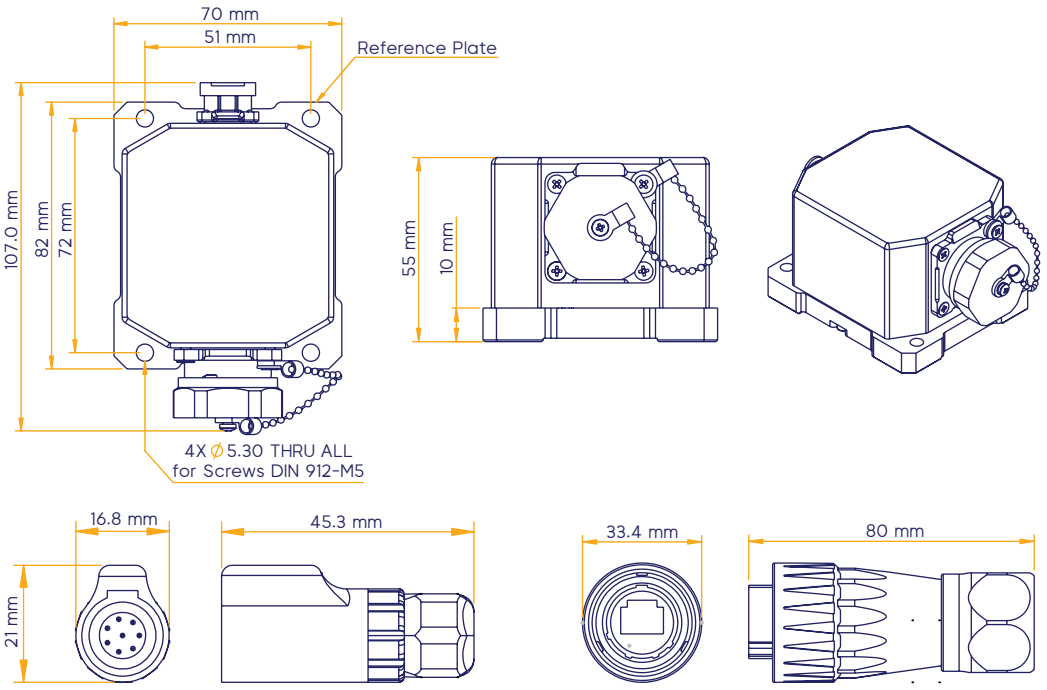
DESCRIPTION

The HORIZON LAN is a high precision, dual-axis inclinometer based on advanced MEMS (Micro-Electro-Mechanical Systems) technology.
It measures tilt relative to the local horizon over ±5°,± 30°, and ±90° ranges with an absolute accuracy better than ±0.015°.
Equipped with an internal temperature sensor and advanced thermal calibration, the HORIZON LAN offers excellent temperature stability, limiting temperature induced error to within ±0.030° across its wide operating temperature range (–30°C to +70°C).
Designed for harsh and demanding environments, it provides robust immunity to electromagnetic interference, shock, and vibration, making it ideal for industrial applications and non-accelerating (static) platforms.
The HORIZON LAN integrates easily into monitoring and control systems, providing continuous, real-time angle and tilt measurements.
Its three-dimensional acceleration processing ensures consistent accuracy across the entire measurement range.
This sensor is widely used in construction, mining, power generation, oil and gas facilities, telecommunications infrastructure, power transmission systems, and geological and structural monitoring where precise inclination and orientation measurements are required.

FEATURES

- Dual-axis (X, Y) measurement with ranges of ±5 , ±30 , and ±90 (LS, MS, FS)
- Absolute accuracy better than ±0.015
- Resolution of 0.001
- Maintains accuracy across the full measurement range using 3D acceleration data processing.
- Wide operating temperature range with temperature compensation
- Maximum temperature induced error within ±0.030 over the copensated range.
- IP67-rated environmental protection.
- MEMS-based sensor design.
- Supports RS485 and Ethernet communication interfaces.

Dimension Specifications:



Technical SPEC

Parameter	Value
Axis	Dual-Axis (X,Y)
Range	LS : ±5° , MS : ±30° , FS : ±90°
Resolution	0.001°
Repeatability	0.001°
Absolute Accuracy @20℃	0.015°
Temperature Drift (Delta From 20℃) *Mv:Measured Value	FS , MS : ±0.0006 °/°c LS : ±(0.01 % Mv +0.0001)°/°c
Compensated Temperature	-30°c ~ +70°c
Response Time	0.35 s
Long Term Stability (After 1 Year) *Mv:Measured Value	FS : ±(0.037°-0.05% I Mv-45°I) MS : ±(0.015 °+ 0.03 % Mv) LS : ± 0.015°

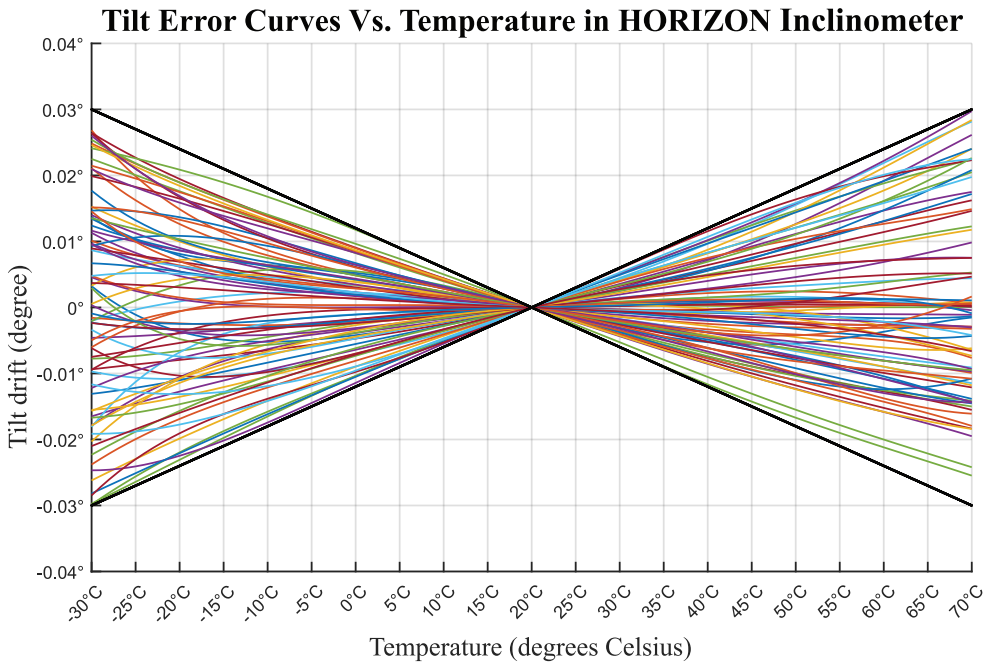
Electronic SPEC

Parameter	Value	Unit
External Power Supply	7 ~ 36	V
Current Consumption	45 ~ 65 @24V	mA
Startup Time	1	s
Digital Output	RS485 , LAN	
Sampling Rate	RS485 /LAN 50 Hz (Default) in continuous mode	
Output Data Rate	115200 bit/sec (Default)	
Frame Data Structure	Hex / ASCII Modbus / RTU Modbus / String	
Connector	CNLINKO female 8 pin , CNLINKO LAN CAT6	
Cable Specifications	Shielded AWG 1x8x24 (17 cm) , LAN CAT6 (17 cm)	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimensions	82x70x55	mm
Material	Hard Anodized Aluminum	-
Weight	430	gr
Installation Method	Bolt and Nut (M5)	-
Operating Temperature	-30 ~ +70	°c
Storage Temperature	-50 ~ +90	°c
Ingress Protection	IP67	-

TEMPERATURE SPECIFICATIONS



APPLICATIONS

- Measuring the inclination of surfaces relative to the local horizon or other reference surfaces.
- Monitoring axes in industrial robots.
- Adjusting installation angles relative to the local horizon for radio transmitters and receivers.
- Calibration, monitoring, and leveling of multi-degree-of-freedom tables.
- Calibration of sensitive medical equipment.
- Measuring deviation in large pipelines.
- Installation and monitoring of railway structures.
- Checking the flatness of machined surfaces using the meshing method.

Horizon Pico Inclinometer

DESCRIPTION

The HORIZON PICO is a compact dual-axis inclinometer built on advanced MEMS linear accelerometer technology. It measures angles relative to the local horizontal with an accuracy better than 0.02° across the LS and FS ranges. With an internal temperature sensor and advanced thermal calibration, it provides excellent thermal stability, maintaining a maximum temperature error of just 0.030° over the –30°C to +70°C operating range.

Engineered for demanding industrial environments, the HORIZON PICO offers strong resistance to electromagnetic interference, shock, and vibration, ensuring long-term reliability.

Designed for non-accelerating platforms, its compact form factor makes it particularly suitable for robotics and industrial systems. Using 3D acceleration processing, it maintains consistent accuracy throughout the full measurement range.

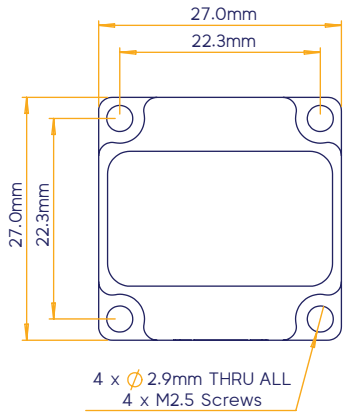
It integrates easily into monitoring systems and provides continuous angle and inclination data, making it a practical solution for a wide range of technical applications.

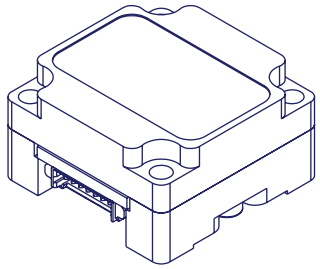
The HORIZON PICO is widely used in drilling and cutting equipment, construction, mining, power generation, oil and gas, telecommunications, power transmission, geology, and other fields requiring precise inclination and structural orientation monitoring.

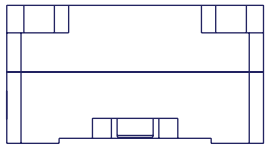
Features

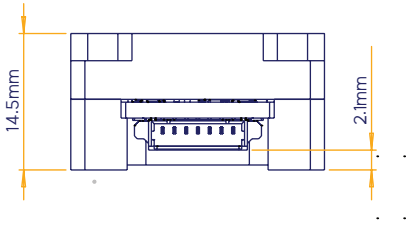
- Dual-axis measurement over the full range: LS: ±10°, FS: ±90°
- Absolute accuracy: 0.02°
- Resolution: 0.001°
- Maintains accuracy across the full range using 3D acceleration data processing
- Temperature compensation from -30℃ to +70℃
- Maximum temperature error: 0.030°over the -30℃ to +70℃ range
- MEMS-based sensing technology
- Supports RS485 communication interface

Dimension Specifications:









Technical SPEC

Parameter	Value (FS)	Value (LS)
Axis	Dual-Axis (X,Y)	Dual-Axis(X,Y)
Range	±90°	±10°
Resolution	0.001°	0.001°
Repeatability	0.001°	0.001°
Accuracy	0.02°	0.02°
Temperature Drift (Delta From 20°C) *Mv:Measured Value	±0.0006 °/°c	±(0.01% Mv+0.0001)°/°c
Compensated Temperature	-30°c ~ +70°c	-30°c ~ +70°c
Response Time	0.35 s	0.35 s
Long Term Stability (After 1 Year) *Mv:Measured Value	± (0.05 % Mv + 0.025 °)	± 0.015°

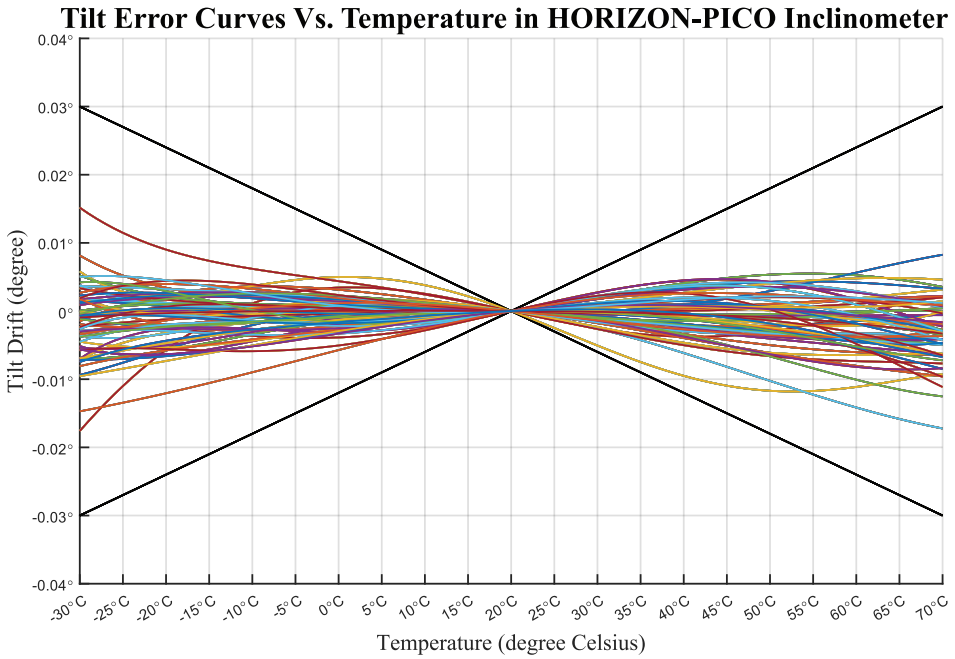
Electronic SPEC

Parameter	Value	Unit
External Power Supply	3.3	V
Current Consumption	40 @ 3.3V	mA
Startup Time	1	s
Digital Output	RS485	
Sampling Rate	RS485 12.5 Hz (Default) in continuous mode (LS) RS485 4 Hz (Default) in continuous mode (FS)	
Output Data Rate	115200 bit/sec (Default)	
Frame Data Structure	ASCII Modbus / RTU Modbus / String	
Connector	Molex PicoBlade 1.25mm - 7 Pin	
Cable Specifications	Female cable compatible with Molex PicoBlade 1.25mm-7Pin	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimensions	27x27x14.5	mm
Material	Hard Anodized Aluminum	-
Weight	21	gr
Installation Method	Bolt and Nut (M2.5)	-
Operating Temperature	-30 ~ +70	°c
Storage Temperature	-40 ~ +80	°c

TEMPERATURE SPECIFICATIONS



APPLICATIONS

- Monitoring and measuring the inclination of surfaces with difficult access relative to the local horizon or other reference surfaces.
- Monitoring the angle of axes in industrial robots, drilling tools and cutting tools
- Adjusting the installation angle of radio transmitters and receivers relative to the local horizon.
- Monitoring and leveling multi-degree-of-freedom tables.
- Installation and monitoring of rail structures.

Pristine Nano Inclinometer

DESCRIPTION

The Pristine Nano is a high-precision dual-axis digital inclinometer based on MEMS sensor technology. It measures inclination with an accuracy of 0.03° over ±90° range. By utilizing advanced 3D acceleration processing, it maintains consistent accuracy throughout the entire measurement range.

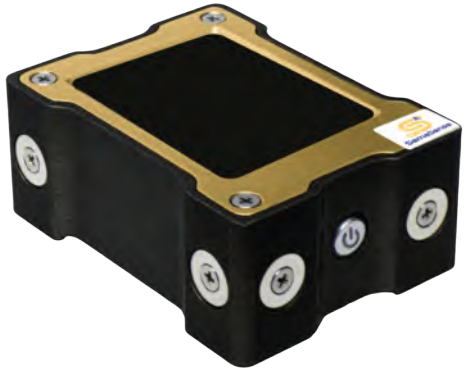
Integrated temperature compensation reduces temperature-induced error to less than 0.030° within the 0°C to +40°C operating range.

User calibration functionality further enhances measurement reliability under varying conditions.

With optimized power consumption, intelligent energy management, and a 2200 mAh lithium battery, the device provides up to 15 hours of continuous operation per charge. A 2.4-inch touchscreen with an intuitive graphical interface supports multiple measurement units and relative measurement modes for simple and efficient operation.

To perform a measurement, place the device on the target surface; the inclination relative to the local horizontal is displayed instantly.

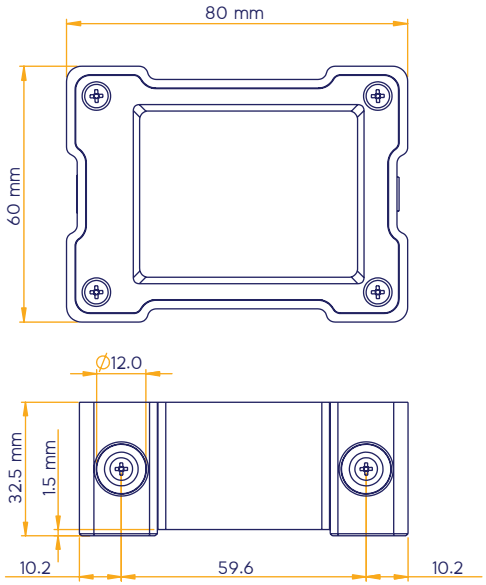
Thanks to its advanced technical features and competitive pricing, the Pristine Nano is widely used in construction for surface slope measurement and in mechanical engineering for machine alignment and angle control.

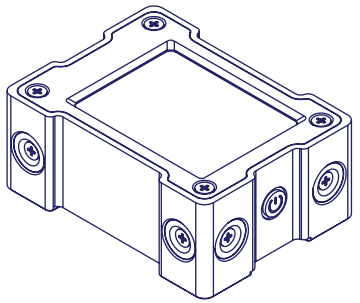


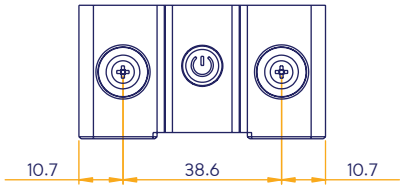
FEATURES

- Dual-axis measurement within the ±90° range
- Measurement accuracy: 0.03°
- Output resolution: 0.001°
- Maintaining accuracy across the entire range using with 3D acceleration processing.
- Temperature compensation from 0°C to +40°C
- Maximum temperature-induced error: 0.030° (within compensated range)
- User calibration capability
- Battery life: up to 15 hours
- 2.4-inch touchscreen display
- MEMS sensor technology

Dimension Specifications:







Technical SPEC

Parameter	Value (FS)
Axis	Dual-Axis (X,Y)
Range	±90°
Planar Mode (2D)	3plane (XY, XZ, YZ)
Planar Range (2D)	±180°
Resolution	0.001°
Repeatability	0.002°
Absolute Accuracy @ 20◦ c	0.03°
Temperature Drift (Delta From 20◦c)	±0.0015 °/°c
Compensated Temperature	0°c ~ +40°c
Response Time	0.4 s
Units	deg - deg arcmin arcsec
Long Term Stability (After 6 Months) *Mv:Measured Value	± (0.025°- 0.03% I Mv -45°I)

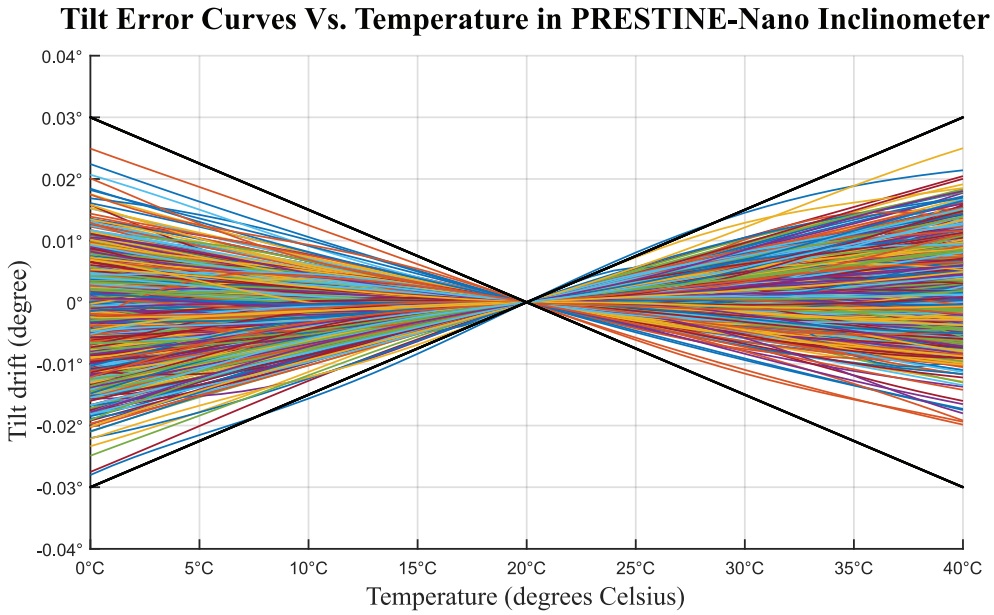
Electronic SPEC

Parameter	Value	Unit
Battery Run Time	15	h
Battery Charging Time	2.5	h
Charger Adapter	Output voltage: 5	V
	Output current: 1	A
Startup Time	3	s
Output Data Rate	4 Hz (Default)	
Display	2.4" Touch & Resistive TFT LCD 320*240 Pixels I Full - color	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimensions	80x60x32.5	mm
Material	Hard Anodized Aluminum	-
Weight	280	gr
Installation Method	magnet	-
Magnet Specification	N35 D12xD3.5/D6.5x4 N35 D12xD3.5/D6.5x3	-
Operating Temperature	0 ~ +40	°c
Storage Temperature	-10 ~ +50	°c

TEMPERATURE SPECIFICATIONS



APPLICATIONS

- Surface inclination measurement relative to horizontal
- Alignment of CNC machines and industrial robots
- Installation angle adjustment of antennas and transmitters
- Calibration of multi-axis motion tables
- Calibration of sensitive medical equipment
- Large pipeline alignment
- Rail structure installation
- Steel industry precision quality control

Pristine Pro Inclinometer

DESCRIPTION

The Pristine Pro is a high-precision dual-axis digital inclinometer designed for demanding industrial applications. Within the ±5° range, it achieves an accuracy of 0.003°, and 0.017° across the full ±90° range. Integrated temperature compensation limits temperature-induced error to below 0.030° within 0°C to +50°C. Advanced signal processing ensures stable and reliable readings.

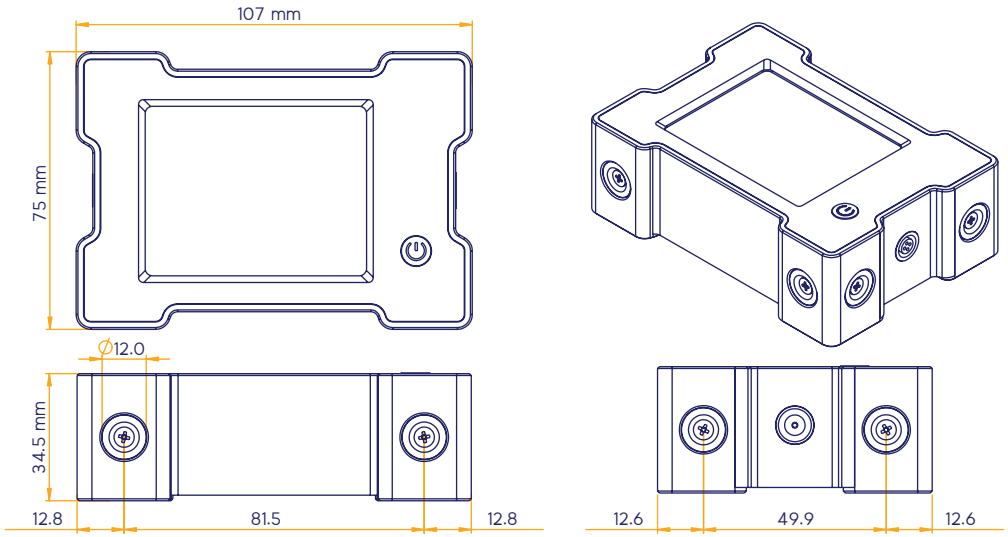
With 3400 mAh lithium battery and intelligent power management, the device operates for more than 24 hours on a single charge.

A 2.8-inch touchscreen and user-friendly interface allow easy configuration and unit selection.

FEATURES

- Dual-axis measurement within the ±90° range
- Accuracy:
  0.003° within ±5°
  0.017° outside ±5° (up to ±90°)
- Resolution: 0.001°
- Advanced 3D acceleration processing
- Temperature compensation from 0°C to +50°C
- Maximum temperature error: 0.030°
- User calibration capability.
- Battery life of up to 24 hours.
- 2.8-inch touchscreen display
- Connectivity with HORIZON sensors
- MEMS sensor technology

Dimension Specifications:



Technical SPEC

Parameter	Value
Axis	Dual-Axis (X,Y)
Range	±90°
Planar Mode (2D)	3plane (XY, XZ, YZ)
Planar Range (2D)	±180°
Resolution	0.001°
Repeatability	0.001°
Absolute Accuracy @ 20°c	|Measured valuel ≤ 5° Max: 0.003° |Measured valuel > 5° Max: 0.017°
Temperature Drift (Delta From 20°c)	±0.0011 °/°c
Compensated Temperature	0°c ~ +50°c
Response Time	0.4 s
Units	Degree,Arcmin,Arcsec,mm/m,Slope, Artil,Gon,Mrad,Inch/10Inch,Inch/12Inch
Long Term Stability(After 6 Months)*Mv:Measured Value	± (0.025°- 0.03% I Mv -45°I)

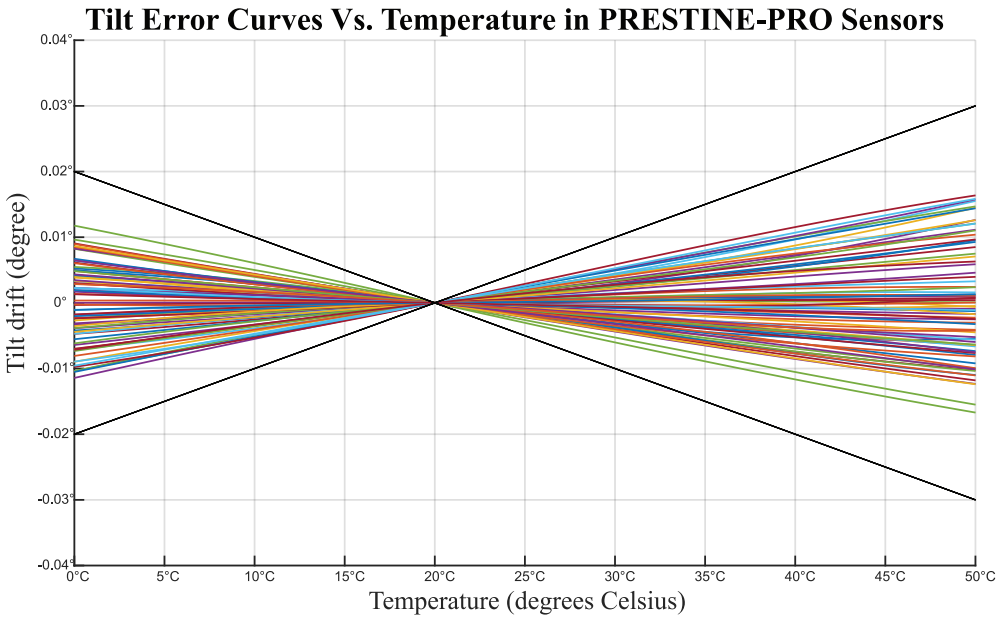
Electronic SPEC

Parameter	Value	Unit
Battery Run Time	24	h
Startup Time	3	s
Battery Charging Time	4.5	h
Charger Adapter	5 V (2A)	
Output Data Rate	4 Hz (Default)	
Frame Data Structure	String	
Connector	LEMO- B 4 Pin	
Cable Specifications	AWG 1x4x24 (23 cm)	
Display	2.8"Touch & Resistive TFT LCD 240*320 Pixels I Full - color	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimensions	107x75x34.5	mm
Material	Hard Anodized Aluminum	-
Weight	452	gr
Installation Method	magnet	-
Magnet Specification	N35 D12xD3.5/D6.5x4 N35 D12xD3.5/D6.5x3	-
Operating Temperature	0 ~ +40	°c
Storage Temperature	-10 ~ +50	°c

TEMPERATURE SPECIFICATIONS



APPLICATIONS

- Precision alignment and leveling of CNC machines
- Alignment and calibration of industrial robots
- Flatness measurement of precision-machined surfaces (meshing method)
- Alignment and calibration of multi-axis positioning tables
- Installation and alignment of antennas, transmitters, and communication equipment
- Monitoring and alignment of large mechanical structures
- Pipeline alignment and deformation measurement
- Rail and track installation alignment
- Calibration of high-precision medical and laboratory equipment

GPS RTK North Finder

DESCRIPTION

The GPS RTK North Finder is a high-precision navigation system that determines true north using GPS-based real-time kinematic (RTK) technology. Unlike traditional compasses, which are affected by magnetic interference, it calculates heading using satellite signals and advanced positioning methods. This makes the GPS RTK North Finder ideal for environments where magnetic navigation is unreliable, such as areas with strong magnetic interference.

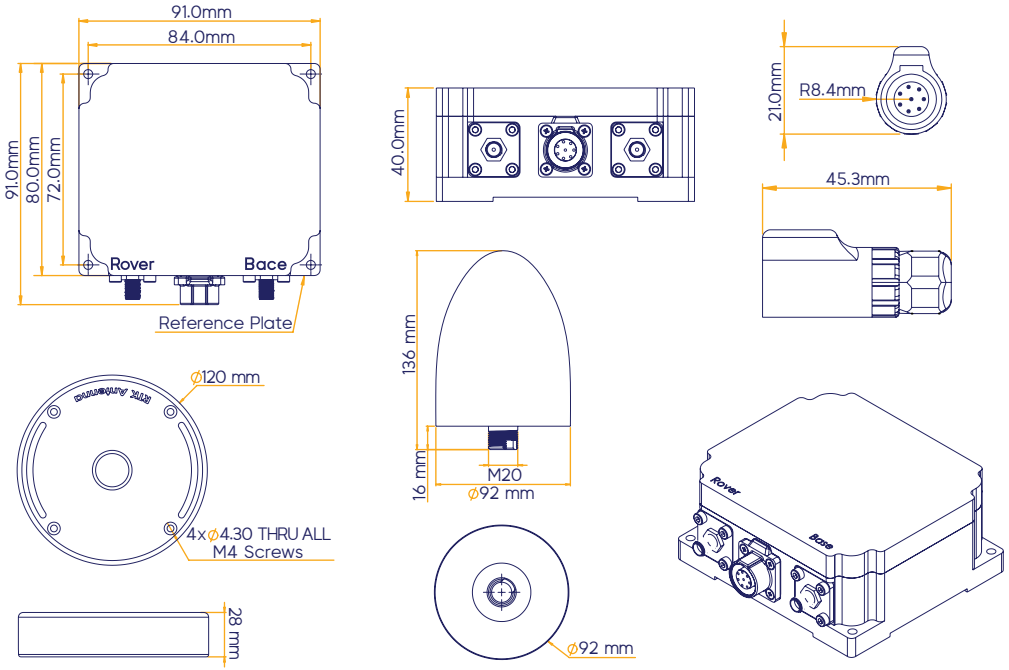
The system operates using two high-precision GPS antennas mounted at a fixed distance from each other. By analyzing the phase difference of the GPS signals received by the antennas, it calculates the exact angle relative to true north and measures the distance between the antennas with accuracy up to 1 cm.

To further improve accuracy, the system uses RTK correction data, reducing positioning error to just a few centimeters—and under optimal conditions, even to the millimeter level. For best performance, a stable data link is required, as RTK technology depends on a base station or a network of reference stations to provide real-time positioning corrections. nitial startup time depends on satellite acquisition and may vary with weather conditions. With its high precision, the GPS RTK North Finder is a valuable tool for applications such as surveying, navigation, and other precision orientation tasks.

FEATURES

- Support for multiple GNSS constellations, including GPS, GLONASS, Galileo, BeiDou, and QZSS, as well as optimal constellation combinations.
- Output azimuth accuracy: 0.05 RMS based on a 2 m baseline
- Higher accuracy can be achieved by increasing the antenna arm length
- Inclination and position measurement
- Time to first fix (TTFF): up to 1 minute under open-sky condition
- IP67 protection
- Support for RS485, RS232, and CAN communication protocols, depending on the model

Dimension Specifications:



Technical SPEC

Parameter		Value					
Receiver Type		Multi-band GNSS					
Heading Accuracy		0.05°rms (Baseline 2 m)					
Response Time		Environment dependent					
GNSS		GPS+GLO+ GAL+BDS	GPS+GLO+ GAL	GPS+GAL	GPS+GLO	GPS+BDS	GPS
Acquisition (Cold Start)		25 s	25 s	30 s	25 s	30 s	30 s
Max Navigation Update Rate (RTK)		8 Hz	10 Hz	15 Hz	15 Hz	15 Hz	20 Hz
Convergence Time (RTK)		<10 s	<10 s	<10 s	<10 s	<10 s	<30 s
Horizontal Position Accuracy (CEP) (RTK)		0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm
Vertical Position Accuracy (Median) (RTK)		0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm	0.01 m +1 ppm
Baseline Accuracy (RTK)		0.01 m	0.01 m	0.01 m	0.01 m	0.01 m	0.01 m
Sensitivity	Tracking And Nav	-167dBm	-				
	Reacquisition	-160dBm					
	Cold Start	-148dBm					
	Hot Star	-157dBm					

GNSS Performance

GPS/QZSS	GLONASS	Galileo	BeiDou	NavIC
L1C/A (1575.420 MHz)	L1OF (1602 MHz+k*562.5 kHz,k = -7,...,6)	E1-B/C (1575.420 MHz)	B1I (1561.098 MHz)	-
L2C (1227.600 MHz)	L2OF(1246 MHz+k*437.5 kHz,k = -7,...,6)	E5b (1207.140 MHz)	B2I (1207.140 MHz)	-

Electronic SPEC

Parameter	Value	Unit
External Power Supply	7~36	V
Current Consumption	80 @ 24 v	mA
Startup Time	Less Than 1 min in Open Sky	
Digital Output	RS485	
Sampling Rate	8 Hz	
Output Data Rate	115200 bit/sec (Default)	
Frame Data Structure	RTU Modbus / ASCII Modbus / String	
Connector	CNLINKO female 8 pin	
Cable Specifications	AWG 1x8x24 (20 cm)	

Mechanical & Environmental SPEC

Parameter		Value	Unit
Main Body	Dimension	91x80x40	mm
	Weight	454	gr
	Material	Hard Anodized Aluminum	-
	Installation Method	Bolt and Nut (M3)	-
Antenna (Selectable)	Dimension	136x92x92	mm
	Weight	326	gr
	Cable Length	1	m
	Connector	UFL (female threaded)	-
	Part Number	AQHA.11	-
	Installation Method	Nut (M20)	-
Antenna Basis	Dimension	120x120x28	mm
	Weight	323	gr
	Material	Hard Anodized Aluminum	-
	Installation Method	Bolt and Nut (M3)	-
Operating Temperature		-30 ~ +70	°C
Storage Temperature		-40 ~ +85	°C
Ingress Protection		IP67	-

APPLICATIONS

- Marine and land applications
- Precise measurement of position and geographica north direction
- Accurate navigation in the oil and gas industry

Pharos G1 North Finder

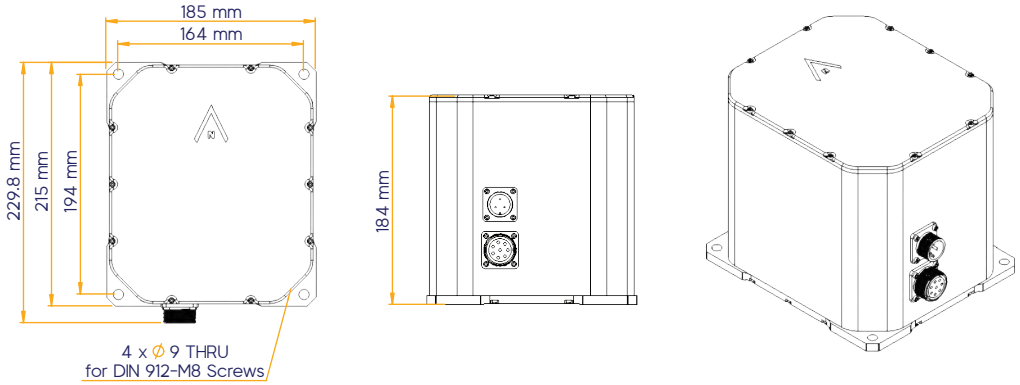
DESCRIPTION

The PHAROS G1 north-finding system uses advanced inertial measurement technology and a fiber optic gyroscope (FOG) to determine true north with an accuracy of 0.016 sec(lat) in 4 minutes and 0.032 sec(lat) in 3 minutes.
This high level of precision is maintained even in harsh magnetic environments or when GNSS signals are unavailable.
A key advantage of the PHAROS G1 over similar products is its ability to deliver fast, accurate, and stable navigation performance in vibrating or harsh environments—conditions in which many other systems experience significant degradation.
This makes the PHAROS G1 an excellent choice for demanding applications and challenging operational settings.

FEATURES

- Fiber Optic Gyroscope (FOG) technology
- North-finding accuracy 0.016°sec(lat)(1σ)
- North-finding time: 3 and 4 minutes
- Capability to display pitch and roll angles of the system within ±10°
- North-finding capability on inclined platforms up to ±5°
- Azimuth transfer capability from the base platform to the sighting platform up to 80°(Considering the additional inclinometer and the transfer process)
- Maintenance north-finding accuracy in vibrating environments (e.g, vibration caused by generators)
- Can be equipped with a module for transmitting and receiving data from external GNSS modules
- Functional fault detection and alerting capability
- Support NMEA and isolated RS422, RS232, Ethernet and CAN protocols
- Immunity to EMI and compatibility with EMC
- IP67 protection

Dimension Specifications:



Technical SPEC

Parameter	Value	
North Finder Type	Rotary North Finder based on FOG	
North seeking time	4 min	3 min
North finding accuracy	Less than 0.016° x sec(lat)(1σ)	Less than 0.032°x sec(lat)(1σ)
Heading Accuracy	Less than 0.01° RMS or Less than 0.03° MAX	
Leveling Rang	± 10°(roll & pitch)	
Platform level range	± 5°(roll & pitch)	
Max elevation	80°(Considering the additional inclinometer and the transfer process)	
Warm-up time	3 min	
Vibration error (deg) (f ≥ 5 Hz)	$A=\begin{cases}0.216\ for\ 3\ \text{min}\ north\ seeking\\0.131\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ $E=\omega\,(Ae^{-0.42f}+Be^{-0.08f})$ $B=\begin{cases}0.012\ for\ 3\ \text{min}\ north\ seeking\\0.007\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ * f is the vibration frequency in Hz * ω is the angular velocity of the vibrat ion in °/sec	

Electronic SPEC

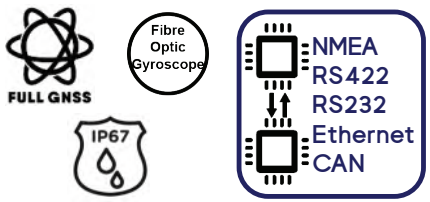
Parameter	Value	Unit
External Power Supply	12 ~ 29.4	V (DC)
Current Consumption	Max: 1.5 @ 24 V Typical: 0.4 @ 24 V	A
Digital Output	2xRS422 , RS232 , CAN , LAN	
Frame Data Structure	Serial / NMEA 0183 / Modbus	
Output Data Rate	9600 ~ 1,000,000 bit/sec	
Cable Specifications	Shielded Awg 24 , Shielded Awg 22	
Connector	Military grade	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimension	215x185x198	mm
Weight	7500	gr
Material	Hard Anodized Aluminum	-
Installation Method	Nut and Bolt	-
Operational Temperature	-10 ~ +50	°C
Storage Temperature	-20 ~ +60	°C
Protection	IP67	
Vibration	According to IDS841 Sweep 2Hz - 13.2Hz at ±5 mm, 13.2Hz - 100Hz at 7 m/s 2 and for 2 hours on each resonance, otherwise 2 hours at 30Hz in all three axes	
Shock resistance	According to IDS841 Operating: 20g , 6 ms	

APPLICATIONS

- Satellite-independent north finding
- Surveying and navigation
- Geophysical and scientific research
- Industrial and commercial applications
- Marine and aviation applications



Pharos G2 North Finder

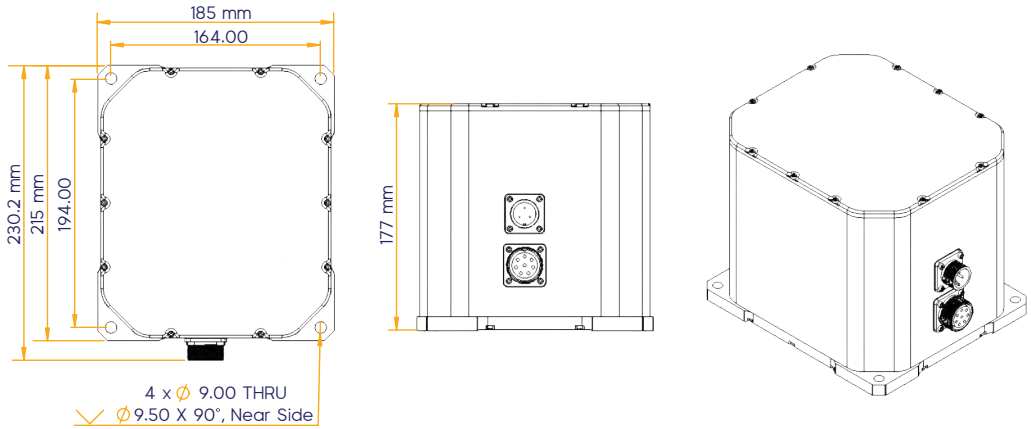
DESCRIPTION

The PHAROS G2 north-finding system uses advanced inertial measurement technology and a Fiber Optic Gyroscope (FOG) to determine true north with an accuracy of 0.08°sec(lat) in 4 minutes and 0.15° sec(lat) in 3 minutes.
This high level of precision is maintained even in environments with severe magnetic interference or where GNSS signals are unavailable.
A key advantage of the PHAROS G2 over similar systems is its ability to deliver fast, accurate, and stable navigation performance in vibrating and harsh environments, where many other devices suffer performance degradation.
This makes the PHAROS G2 an excellent choice for sensitive applications and demanding operational conditions.

FEATURES

- Fiber Optic Gyroscope (FOG) technology
- North-finding accuracy 0.08°sec(lat)(1σ)
- North-finding time: 3 and 4 minutes
- Capability to display pitch and roll angles of the system within ±10°
- North-finding capability on inclined platforms up to ±5°
- Azimuth transfer capability from the base platform to the sighting platform up to 80°(Considering the additional inclinometer and the transfer process)
- Maintenance north-finding accuracy in vibrating environments (for example, vibration caused by generators)
- Can be equipped with a module for transmitting and receiving data from external GNSS modules
- Functional fault detection and alerting capability
- Supports NMEA and isolated RS422, RS232, Ethernet, and CAN protocols
- Immunity to EMI and compatibility with EMC
- IP67 protection

Dimension Specifications:



Technical SPEC

Parameter	Value	
North Finder Type	Rotary North Finder based on FOG	
North seeking time	4 min	3 min
North finding accuracy	Less than 0.08°x sec(lat)(1σ)	Less than 0.15°x sec(lat)(1σ)
Heading Accuracy	Less than 0.01° RMS or Less than 0.03° MAX	
Leveling Rang	± 10°(roll & pitch)	
Platform level range	± 5°(roll & pitch)	
Max elevation	80°(Considering the additional inclinometer and the transfer process)	
Warm-up time	3 min	
Vibration error (deg) (f ≥ 5 Hz)	$A=\begin{cases}0.216\ for\ 3\ \text{min}\ north\ seeking\\0.131\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ $E=\omega\left(Ae^{-0.42f}+Be^{-0.08f}\right)$ $B=\begin{cases}0.012\ for\ 3\ \text{min}\ north\ seeking\\0.007\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ * f is the vibration frequency in Hz * ω is the angular velocity of the vibrat ion in ◦/sec	

Electronic SPEC

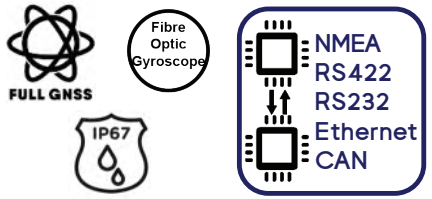
Parameter	Value	Unit
External Power Supply	12 ~ 29.4	V (DC)
Current Consumption	Max: 1.5 @ 24 V Typical: 0.4 @ 24 V	A
Digital Output	2xRS422 , RS232 , CAN , LAN	
Frame Data Structure	Serial / NMEA 0183 / Modbus	
Output Data Rate	9600 ~ 1,000,000 bit/sec	
Cable Specifications	Shielded Awg 24 , Shielded Awg 22	
Connector	Military grade	

Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimension	215x185x177	mm
Weight	7500	gr
Material	Hard Anodized Aluminum	-
Installation Method	Nut and Bolt	-
Operational Temperature	-10 ~ +50	°C
Storage Temperature	-20 ~ +60	°C
Protection	IP67	
Vibration	According to IDS841 Sweep 2Hz - 13.2Hz at ±5 mm, 13.2Hz - 100Hz at 7 m/s 2 and for 2 hours on each resonance, otherwise 2 hours at 30Hz in all three axes	
Shock resistance	According to IDS841 Operating: 20g , 6 ms	

APPLICATIONS

- Satellite-independent north finding
- Surveying and navigation
- Geophysical and scientific research
- Industrial and commercial applications
- Marine and aviation applications



Pharos G3 North Finder

DESCRIPTION

The PHAROS G3 north-finding device, using advanced inertial measurement technology and a Fiber Optic Gyroscope (FOG), determines true north with an accuracy of 0.35°sec(lat) in 4 minutes and 0.5°sec(lat) in 3 minutes. This level of precision remains consistent even in environments with severe magnetic interference or where GNSS signals are unavailable.

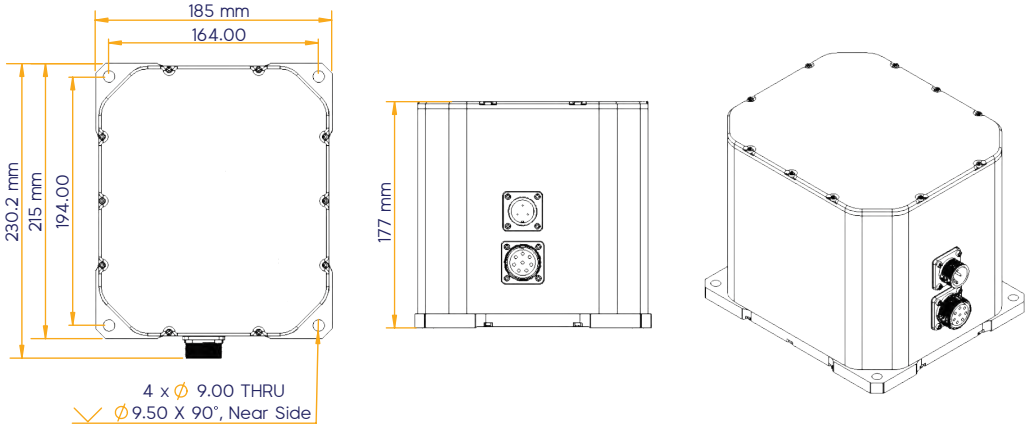
A key advantage of the PHAROS G3 over similar systems is its ability to deliver fast, accurate, and stable navigation performance in vibrating and challenging environments—conditions in which many other devices experience performance degradation.

This makes the PHAROS G3 an excellent choice for sensitive applications and harsh operational conditions.

FEATURES

- Fiber Optic Gyroscope (FOG) technology
- North-finding accuracy 0.08°sec(lat)(1σ)
- North-finding time: 3 and 4 minutes
- Capability to display pitch and roll angles of the system within ±10°
- North-finding capability on inclined platforms up to ±5°
- Azimuth transfer capability from the base platform to the sighting platform up to 80°(Considering the additional inclinometer and the transfer process)
- Maintenance north-finding accuracy in vibrating environments (for example, vibration caused by generators)
- Can be equipped with a module for transmitting and receiving data from external GNSS modules
- Functional fault detection and alerting capability
- Supports NMEA and isolated RS422, RS232, Ethernet, and CAN protocols
- Immunity to EMI and compatibility with EMC
- IP67 protection

Dimension Specifications:



Technical SPEC

Parameter	Value	
North Finder Type	Rotary North Finder based on FOG	
North seeking time	4 min	3 min
North finding accuracy	Less than 0.35° x sec(lat)(1σ)	Less than 0.5°x sec(lat)(1σ)
Heading Accuracy	Less than 0.01° RMS or Less than 0.03° MAX	
Leveling Rang	± 10°(roll & pitch)	
Platform level range	± 5° (roll & pitch)	
Max elevation	80° (Considering the additional inclinometer and the transfer process)	
Warm-up time	3 min	
Vibration error (deg) (f ≥ 5 Hz)	$A=\begin{cases}0.216\ for\ 3\ \text{min}\ north\ seeking\\0.131\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ $E=\omega\,(Ae^{-0.42f}+Be^{-0.08f})$ $B=\begin{cases}0.012\ for\ 3\ \text{min}\ north\ seeking\\0.007\ for\ 4\ \text{min}\ north\ seeking\end{cases}$ * f is the vibration frequency in Hz * ω is the angular velocity of the vibrat ion in °/sec	

Electronic SPEC

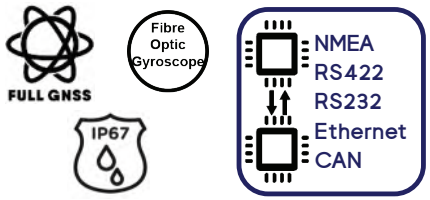
Parameter	Value	Unit
External Power Supply	12 ~ 29.4	V (DC)
Current Consumption	Max: 1.5 @ 24 V Typical: 0.4 @ 24 V	A
Digital Output	2xRS422 , RS232 , CAN , LAN	
Frame Data Structure	Serial / NMEA 0183 / Modbus	
Output Data Rate	9600 ~ 1,000,000 bit/sec	
Cable Specifications	Shielded Awg 24 , Shielded Awg 22	
Connector	Military grade	

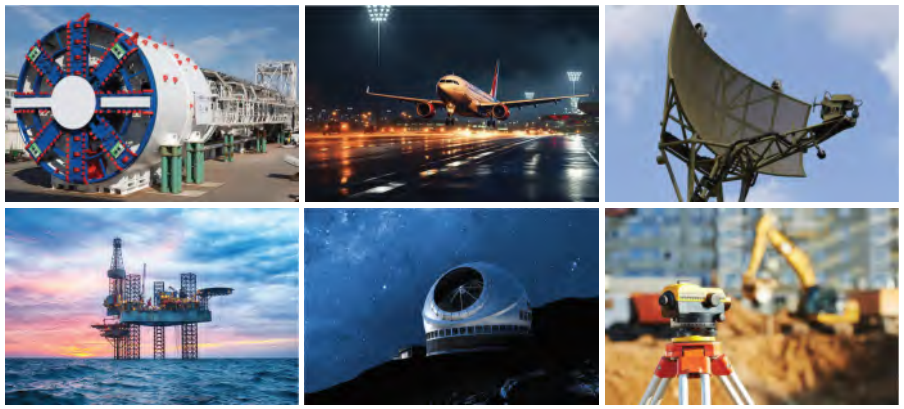
Mechanical & Environmental SPEC

Parameter	Value	Unit
Dimension	215x185x177	mm
Weight	7500	gr
Material	Hard Anodized Aluminum	-
Installation Method	Nut and Bolt	-
Operational Temperature	-10 ~ +50	°C
Storage Temperature	-20 ~ +60	°C
Protection	IP67	
Vibration	According to IDS841 Sweep 2Hz - 13.2Hz at ±5 mm, 13.2Hz - 100Hz at 7 m/s 2 and for 2 hours on each resonance, otherwise 2 hours at 30Hz in all three axes	
Shock resistance	According to IDS841 Operating: 20g , 6 ms	

APPLICATIONS

- Satellite-independent north finding
- Surveying and navigation
- Geophysical and scientific research
- Industrial and commercial applications
- Marine and aviation applications





The Next Innovation is Hidden...

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