

INERTIA GATEWAY

Product Datasheet



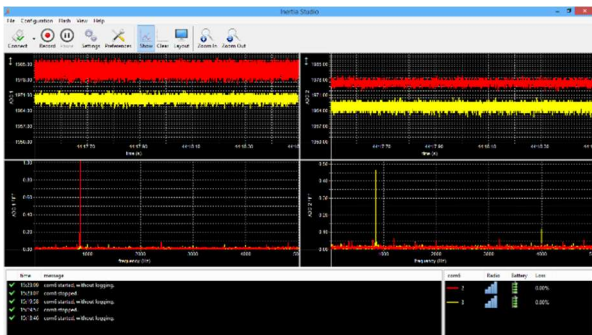
Description

Inertia Gateway is the central hub in the wireless network of Inertia sensor nodes. It receives the sampled data from the sensor nodes and transmits it to the computer using the USB or optionally the Ethernet interface. It also manages the time synchronization, achieving a network-wide synchronization accuracy of less than 100 ns.

Inertia Gateway comes in two versions:

- **Basic Inertia Gateway**, providing USB connection.
- **Advanced Inertia Gateway**, providing USB connection, raw Ethernet interface, DC power input and BNC I/O ports for synchronization with external systems, such as cameras.

Inertia Gateway connects using USB to a computer that runs the Inertia Studio software, enabling real-time visualization of sensor data and over-the-air reconfiguration of the sensors and wireless parameters. Using Inertia Studio, the I/O ports of the Advanced Inertia Gateway can be configured either as Start Trigger or as Sampling Clock, in order to synchronize with external systems. All data retrieved by Inertia Studio is logged for post-analysis and optionally made available for remote TCP/IP connections.



Inertia Studio visualization software

Key features

- Gateway for both ProMove and *nexoDAQ* product series
- 4 Mbps wireless data rate in the 2.4 GHz license-free frequency band
- Real-time, high-speed wireless data acquisition from sensor nodes at tens of kHz
- Ensures tight sampling synchronization (<100ns) among sensor nodes
- Over-the-air setup and reconfiguration
- USB connection to a computer running Inertia Studio
- Optional raw Ethernet interface
- Optional BNC I/O ports for synchronization with external systems
- Optional external DC power input

Absolute maximum ratings

To prevent deterioration or destruction, Inertia Gateway maximum ratings should not be exceeded at any time.

PARAMETER	Basic Inertia Gateway	Advanced Inertia Gateway
Mini-USB VBUS input voltage	5.5 V	5.5 V
DC power input voltage	-	48 V
Synchronization ports input voltage	-	± 100 V
Synchronization ports input current	-	100 mA
Synchronization ports output current	-	100 mA

Technical specifications

PARAMETER	COMMENTS	Basic Inertia Gateway	Advanced Inertia Gateway
Wireless communication			
Frequency band		2.4 GHz	2.4 GHz
Data rate		Max. 4 Mbps	Max. 4 Mbps
TX Power		Max. 10 dBm	Max. 10 dBm
Range	LOS at max. TX power	30 m	30 m
Connectivity			
Mini-USB	Data transfer, visualization, configuration and power	Full speed	Full speed
Ethernet	Data transfer using raw Ethernet	-	100 Mb/s
DC power input	External power	-	7 – 12 V, max. 2 A
Network			
Size	Depends on sampling frequency	Max. 39 nodes	Max. 39 nodes
Time synchronization among nodes		< 100 ns	< 100 ns
External synchronization			
Interface		-	2 x BNC
Impedance	Selectable, both input and output	-	50 Ohm, HIGH
Input voltage range	50 Ohm input impedance	-	-5 V – 5 V
	High input impedance	-	-10 V – 10 V
Output voltage range	50 Ohm output impedance	-	0 V – 3.3 V, 0 V – 5 V, -5V – 5 V
	High output impedance	-	0 V – 3.3 V, 0 V – 5 V, -10 V – 10 V
Synchronization modes		-	Clock, Trigger
Synchronization frequency range	Clock mode, both input and output	-	1 Hz – 1500 Hz
Software			
Visualization software	Runs on Windows Vista, 7, 8, 8.1, 10, both 32 and 64 bits, Ubuntu Linux	Inertia Studio	Inertia Studio
Miscellaneous			
Dimensions	Without antenna and connectors	12.7 x 8 x 3 cm	12.7 x 8 x 3 cm
Weight	Without antenna	202 g	226 g
Enclosure material		Aluminum & ABS	Aluminum & ABS
Operating temperature range		0 – 35 °C	0 – 35 °C

Product images

