

WSDA[®] -Base-101

Data Sheet

Analog Output Base Station



Introduction

The WSDA[®] -Base-101 Analog Output Base Station operates as an integral part of MicroStrain[®] mXRS[™] Wireless Sensor Networks. It provides seamless communication between a host PC, single board computer, or microcontroller and remote wireless nodes.

Coupled with MicroStrain[®] Node Commander[®] software, the WSDA[®] -Base-101 supports configuration of the wireless nodes including discovery, initialization, radio frequency, sample rate, reading/writing to node EEPROM, calibrating node sensors, managing node batteries including sleep, wake, and cycle power, and upgrading node firmware.

The WSDA[®] -Base-101 supports all data acquisition sessions between wireless nodes and host computers including Synchronized Sampling (both Continuous and Burst modes), Armed Datalogging, Datalogging, Streaming and Legacy Low Duty Cycle.

WSDA[®] -Base-101 has an analog out back panel that supports analog data acquisition equipment (DAQs). Up to 8 sensor channels from one or multiple wireless nodes operating in low duty cycle mode can be fed into a DAQ with simultaneous digital feed to PC, or a DAQ with PC removed (stand-alone configuration).

Features & Benefits

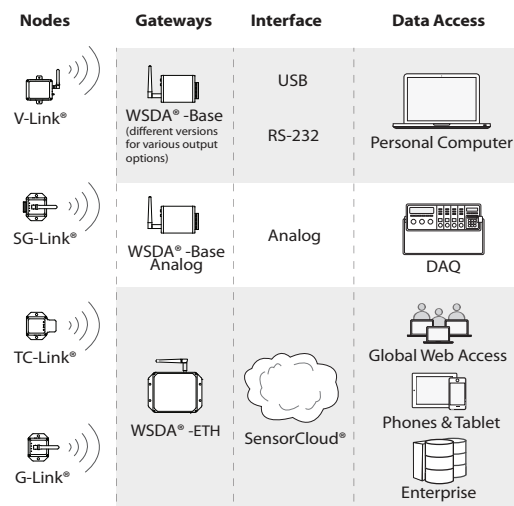
- Support for hundreds of simultaneously sampling wireless sensor nodes
- Node to node synchronization of +/- 32 microseconds
- Ultra-stable on-board precision timing reference of +/- 3 ppm over industrial temperature range
- Extended wireless communication range to 2 km
- 8 channel support for Analog DAQ's
- Stand alone operation using front panel buttons

Applications

- Condition based monitoring of machines and aircraft
- Health monitoring of civil structures and vehicles
- Embedded OEM sensing systems
- Smart structures and materials
- Experimental test and measurement
- Robotics and machine automation
- Vibration and acoustic noise testing
- Sports performance and sports medicine analysis
- Distributed security networks

System Overview

At the heart of MicroStrain's mXRS[™] Wireless Sensor Networks is the WSDA[®] -Base, which uses our exclusive beaconing protocols to synchronize precision timekeepers embedded within each sensor node in the network. The WSDA[®] -Base also coordinates data collection from all sensor nodes. Users can easily program each node on the scalable network for simultaneous, periodic, or burst mode sampling with our Node Commander[®] software, which automatically configures network radio communications to maximize the aggregate sample rate.



Specifications

Node support	V-Link®-mXRS™, SG-Link®-mXRS™, G-Link®-MXRS™, DVRT-Link™-mXRS™, TC-Link®-6CH-mXRS™, TC-Link®-1CH-mXRS™, EH-Link®, SG-Link® OEM-S, TC-Link® OEM all legacy 2.4 GHz wireless nodes
Host communication interface	USB 2.0 virtual serial communication @ 921,600 bps
Communication cable	3 foot USB standard to USB micro-B
Power	USB @ 5 volt standard; Auxiliary @ 3.6 to 13.0 volts DC
Power consumption	65.6 mA - 8 active node channels operating at 256 Hz Legacy Low Duty Cycle with analog outputs active 45.7 mA - Idle
Analog output	supports Streaming and Low Duty Cycle data collection 8 each 0-3 volt DC Analog Out channels 1 each Analog Out Update Indicator channel 1 each One Pulse per Second Input/Output channel
Analog stand alone operation	front panel buttons allow most software functions including trigger, sleep, beaconing, etc.
Analog low pass filter	-3 dB cutoff @ 375 Hz
Radio frequency (RF) transceiver carrier	2.4 GHz direct sequence spread spectrum, license free worldwide (2.405 to 2.480 GHz) – up to 16 channels, radiated power programmable from 0 dBm (1 mW) to 16 dBm (39 mW)
RF data packet standard	IEEE 802.15.4, open communication architecture
Range for bi-directional RF link	16 dBm (39 mW) Extended Power with range up to 2 kilometers (not available in Europe) 10 dBm (10 mW) Standard Power with range up to 1 kilometer 0 dBm (1 mW) Low Power with range up to 70 meters
Node synchronization	1 Hz beacon provides +/-32 microsecond node to node synchronization
Status LED	multi-color LED signals activity status
Operating temperature	-40 °C to +85 °C electronics only; -30 °C to +70 ° with standard enclosure
Dimensions	97 mm x 70 mm x 20 mm without antenna
Weight	137 grams
Enclosure material	black anodized aluminum
Software	Node Commander® Windows XP/Vista/7 compatible
Software development kit	includes Data Communication Protocol and sample code
FCC ID	XJQMSLINK0001

