

# SG-Link<sup>®</sup>OEM

## 2.4 GHz OEM Wireless Module



### Introduction

The SG-Link<sup>®</sup>OEM wireless module is designed to provide sensor manufacturers with a low cost method of adding wireless capability to their product line.

With one differential channel, which includes full strain gauge conditioning and programmable offset, and one single-ended channel, the module is compatible with most types of analog sensors including strain gauges, displacement sensors, load cells, torque transducers, pressure sensors, accelerometers, geophones, temperature sensors, inclinometers, and others.

It's fast, extremely versatile and designed to operate as part of a high speed wireless sensor network. Featuring 2 KHz sweep rates, combined with 2 MB flash memory, these little nodes pack a lot of power in a small package. With every node in the wireless network assigned a unique 16 bit address, a single host transceiver can address hundreds of multi-channel sensor clusters.

A scalable system architecture enables small and large networks of nodes to collect data simultaneously using a broadcast trigger command. When triggered, the node can log data to its internal memory, or transmit real-time data to a PC or gateway using parallel frequency streaming (FDMA) or time-slotted communications (TDMA).

OEM manufacturers can develop their own applications with our software development kit for Microsoft<sup>®</sup> Visual Studio C++. NET 7.1, Microsoft<sup>®</sup> VB 6.0, Microsoft<sup>®</sup> VB.NET 2003, Microsoft<sup>®</sup> VB.NET 2005 and LabVIEW<sup>®</sup> 7.1.

### Features & Benefits

- out of the box wireless sensing capability for most analog sensors
- 2.4 GHz direct sequence spread spectrum radio is license free worldwide
- IEEE 802.15.4 open communication architecture
- supports simultaneous streaming from multiple nodes to PC
- operates in datalogging or streaming mode
- communication range up to 70 m line-of-sight, 300 m with high gain antennas
- low power consumption for extended use
- free software development kit enables OEM's to easily develop custom applications

### Applications

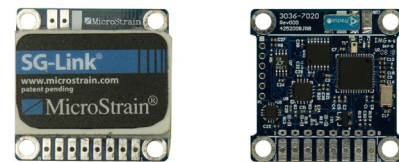
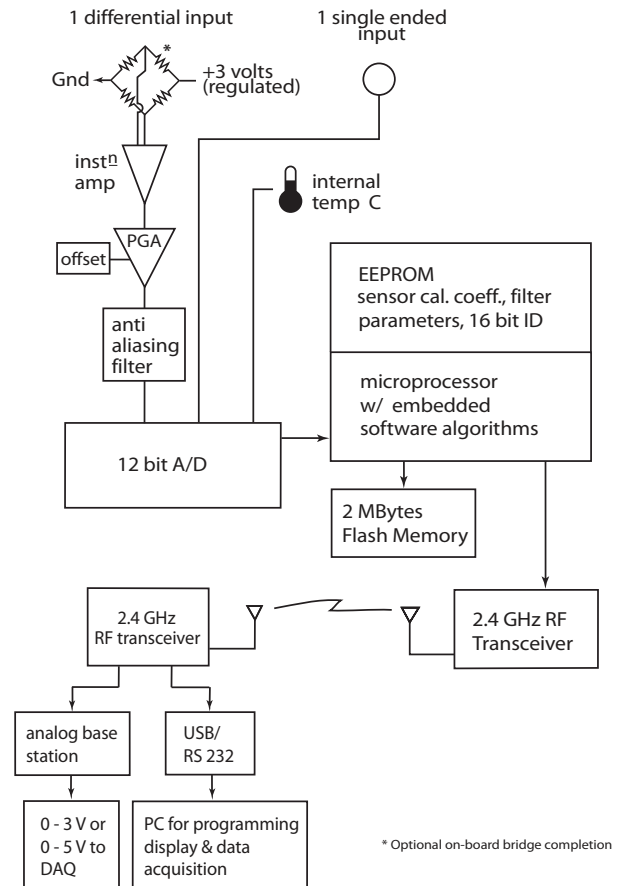
Provides wireless sensing capability to OEM manufacturers





## Specifications

Input channels	1 full differential input channel, 350 Ω resistance or higher (with optional bridge completion), 1 single ended input (0 - 3 volts maximum), and internal temperature sensor
Temperature sensor	-40 °C to 70 °C range, typical accuracy ±2 °C (at 25 °C)
Anti-aliasing filter bandwidth:	-3 dB cutoff at 250 Hz (factory adjustable)
Measurement Accuracy	± 0.1% full scale typical
Resolution	1 bit: 0.024% 1 microstrain typical for 3 wire full bridge strain gauge (when used in accordance with <b>MicroStrain®</b> recommendations)
DC bridge excitation	+3 volts DC at 50 mA maximum (pulsed to sensors for sample rates of 100 Hz and below to conserve power)
Programmable gain	software programmable: 20 to 2560
Programmable offset	software programmable
Analog to digital (A/D) converter	successive approximation type, 12 bit resolution
Data storage capacity	2 megabytes (approximately 1,000,000 data points)
Data logging mode	log up to 1,000,000 data points (from 100 to 65,500 samples or continuous) at 32 Hz to 2048 Hz
Sensor event driven trigger	commence datalogging when threshold exceeded
Real-time streaming mode	transmit real time data from node to PC - rate depends on number of active channels: 1 channel - 4 KHz, 2 channels - 2 KHz, 3 channels - 1.33 KHz
Low duty-cycle mode	supports multiple nodes on single RF channel, from 1 sample per hour to 250 Hz
Synchronization between nodes	datalogging ±4 μsec ± 50 ppm. LDC mode time stamped at PC
Sample rate stability	± 25 ppm for sample rates > 1 Hz, ±10% for sample rates ≤ 1 Hz
Wireless shunt calibration	channel 1. Internal shunt calibration resistor 499 KΩ
Radio frequency (RF) transceiver carrier	2.4 GHz direct sequence spread spectrum, license free worldwide (2.405 to 2.480 GHz) - 16 channels. radiated power 0dBm (1mW)
RF data packet standard	IEEE 802.15.4, open communication architecture
RF data downloading	8 minutes to download full memory
Range for bi-directional RF link	70 m line-of-sight, up to 300 m with optional high gain antenna
Battery	customer supplied from 3.2 to 9 volts
Power consumption	<b>SG-Link®OEM</b> node only: real-time streaming - 25 mA, datalogging - 25 mA, sleeping - 0.1 mA external sensors: 350 Ω strain gauge - 8 mA, 1000 Ω strain gauge - 3 mA (to calculate total power consumption, add sensor consumption to above)
Operating temperature	-40 to +85°C
Maximum acceleration limit	500g standard (high g option available)
Dimensions/weight	standard configurations: unpotted - 33 mm x 30 mm x 5 mm - weight 4.8 grams custom configurations available on request, for example: potted - 31 mm x 30 mm x 7.8 mm - weight 10 grams unpotted - 31 mm x 21 mm x 5 mm - weight 3 grams unpotted - 25.4 mm diameter x 6.3 mm - weight 3.1 grams for dimensional print go to <a href="http://www.microstrain.com">www.microstrain.com</a>
Software	<b>Node Commander®</b> Windows XP/Vista compatible
Compatible base stations	USB, RS-232, Analog, <b>WSDA®</b>



custom configurations available upon request



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Patent Pending