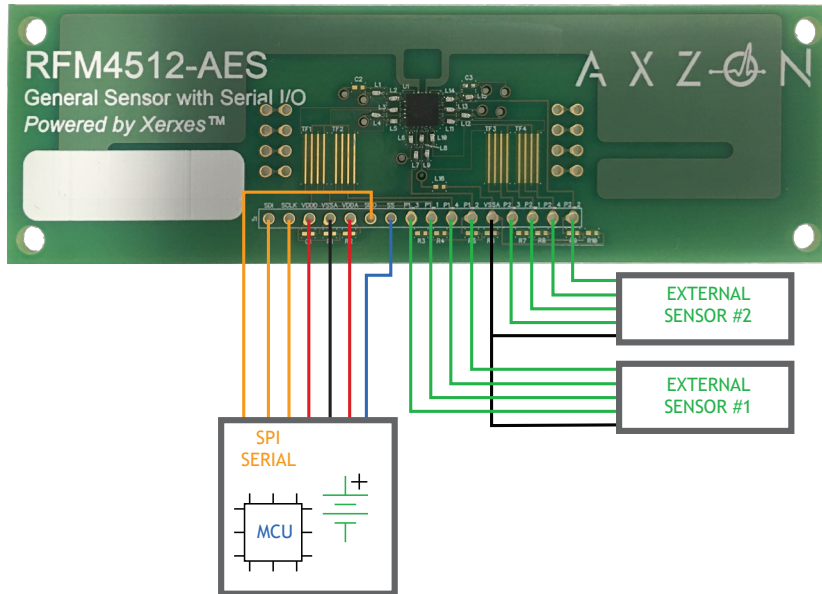


Wireless Configurable Sensor

for MCU and SPI sensor applications



RFM4512

APPLICATIONS

Environmental monitoring
Combines with transducers
Data center monitoring
Block-chain encryption
Anti-counterfeiting
Configurable sensing

KEY FEATURES

Standard temperature range
-40 °C to +85 °C

Powered by Xerxes™

Supports prototyping

SPI and MCU support

Battery-free design

Sensor size
103 x 32 x 1.6 mm

Battery-free monitoring

The Xerxes™ X1 IC enables the RFM4512 wireless, maintenance-free and battery-free, passive sensor. The RFM4512 configurable sensor adds secure communication to on-board temperature sensing. SPI channel supports direct connection to MCU.

Wireless sensing

A completed sensor combines the RFM4512 with external transducers like RTDs, gases, strain, load, optical and other traditional sensing elements using voltage, resistance and capacitance. The sensor supports a soldered header or wire connections.

Industrial temperature range

The RFM4512 has a standard operating temperature range of -40°C to +85 °C. This covers the nominal operating temperatures of most equipment and environmental operating conditions.

Flexible easy to install design

The RFM4512 incorporates an integrated RF antenna to communicate with a RAIN/UHF compliant reader, but is not suitable for direct use on metal. Nylon mounting standoffs are recommended.

Compliance

The RFM4512 is available in FCC and EU/ETSI frequency ranges. The RFM4512 requires a RAIN/UHF compliant reader.

RFM4512 Performance Data

General Xerxes X1 sensor with SPI serial I/O interface for connection to an MCU

PARAMETER	VALUE
Normal temperature range	-40 °C to +85 °C
Compatible standards	EPC class 1 gen 2 v2.0.1 ISO 18000-63
Integrated circuit	Powered by Xerxes™ X1
TID memory	96-bits
EPC memory	160-bits supporting up to 128-bit EPC
EPC programming format	128-bit, lower-order 8 hex characters with leading zeros
User memory	64-Words 22-Word block for Access/Kill passwords/keys 6-Word TID, and 8-word EPC plus 1-word PC 26-Word user memory 1-Word outside of reserved space
Sensor die cut size	103 x 32 x 1.6 mm
Analog Port	-400 mV to +400 mV centered on +0.67 V internal reference
Differential voltage input range	
Analog Port	10 mV to +90 mV referenced to +0.67 V internal reference
Single-ended voltage input range	
ADC accuracy	1 %FS
ESD immunity (HBM)	
Shipment method	Singulated in bag
Minimum order quantity	25 pc MOQ
Ordering information	RFM4512-AFS (FCC 902 to 928 MHz) RFM4512-AES (ETSI 865.6 MHz to 867.6MHz)

