



Temperature and RH% Whisker.IO™ Sensor

General Description

Whisker.IO SensorBlocks™ are battery powered, long range wireless devices that can monitor and control the world around them from up to 4 miles away. They are designed to be extremely flexible and can easily be configured to meet exacting requirements.

The *Temperature/RH SensorBlock* measures temperature and relative humidity using an internal digital sensor. See specifications for more information.

Power

Each SensorBlock™ can be powered for up to 5 years from 2xAA batteries or can be powered externally via the removable terminal strip.

Normally, the block would be powered by batteries, but if the open collector output is required, the block will need to be powered externally from a 2.7 to 3.6V power supply.

Mechanical

Commercial blocks are extremely small (3x2x1.5”) and come with a multi-use mounting bracket that can be attached in a number of ways. The bracket can be screwed to a wall using the included screws and wall anchors or it can be strapped (or zip tied) to an odd shaped surface like a pipe.



Antenna

For normal applications, the SensorBlock™ comes standard with an internal antenna. In applications where extreme range is required or where an external antenna is required, SensorBlocks can be shipped with a RPSMA antenna connector which is compatible with our TQX-900E di-pole antenna.

Internal Channels

SensorBlocks are configured with up to six (6) input and/or output channels. These can be analog, digital, or serial (UART/I2C). Refer to application note AN-M01 for information about Whisker.IO channels.

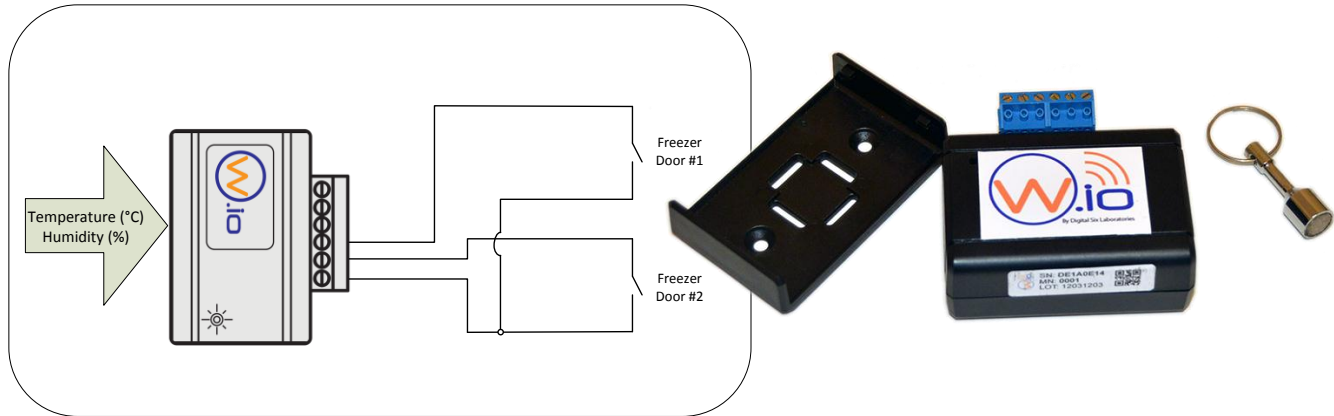
Channel	Description	Sampling
A13	Battery Voltage	Periodic, Window Event
A14	Temperature (+/- 1C)	Periodic, Window Event
A15	Humidity (+/- 4%)	Periodic, Window Event

External Connections

Every block is shipped with a 6 position removable terminal strip that can be used to connect to external sensors and devices and to provide external power.

Terminal	Description	Sampling
1	VCC	NA
2	A11 – 0-2.5V analog	Periodic, Window Event
3	DO0 – open collector	NA
4	DI1 – dry contact in	Periodic, Change Event
5	DI0 – dry contact in	Periodic, Change Event
6	GND	NA

Typical Application – Freezer Monitoring



Electrical Specification

Parameter	Minimum	Typical	Maximum	Units
External Supply voltage	1.8	3.0	3.6	VDC
Battery life – 2xAA Energizer Alkaline		5		Year
Operating Temp. Range (with alkaline batteries)	-20	25	40	°C
Operating Temp. Range (with LiFeSO2 batteries)	-40	25	60	°C
Operating Temp. Range - external power	-40	25	85	°C
Transmission range		4		Miles ¹
Temperature measurement range	-40		80	°C
Temperature measurement accuracy	-1		+1	°C
Humidity measurement range	0		100	%
Humidity accuracy measurement	-4		+4	%
AIN1 analog voltage input range	0		2.5	V
AIN1 analog-to-digital conversion resolution		10		Bits
Maximum periodic sample rate	-	-	24	Hours/sample
Minimum periodic sample rate	5	-	-	Minutes/sample
DO0 – open collector output sink current			500	mA
DO0 – open collector output max voltage			50	VDC

Order Information

Part Number	Description
SB-900-0002-I	902-928MHz Temp/RH SensorBlock with internal antenna
SB-900-0002-E	902-928MHz Temp/RH SensorBlock with external RPSMA connector
SB-868-0002-I	868MHz Temp/RH SensorBlock with internal antenna
SB-868-0002-E	868MHz Temp/RH SensorBlock with external RPSMA connector