Technical Specifications

SENSX EXTREME READER

RFID Reader Specifications

Feature	Specification
Product Name	SensX Extreme
Reader Protocol	EPC Class 1 Gen 2 and 18000 – 6C
Operating Frequency	902.75 MHz – 927.25 MHz
Hopping Channels	50
Channel Spacing	500 KHz
Channel Dwell Time	< 0.4 seconds
RF Transmitter	< 30 dBm
Modulation Methods	Phase Reversal – Amplitude Shift Keying (PR-ASK) Double Side Band – Amplitude Shift Keying (DB-ASK)
20 dB Modulation Bandwidth	< 100 KHz

Sensors Specifications

Feature	Specification
UHF RFID	EPC Class 1 Gen 2 and 18000- 6C

Specifications Subject to Change
DCN-ST-00008-D
March 2022

Antenna and RF Interface Specifications

Feature	Specification
External RF Antenna Ports	4 x RP-TNC
RF Transmit Power (dBm)	+33 dBm
Operating Frequency	902.75 MHz – 927.25 MHz (Region code is field assignable via software)

The reader table refers to US and Canadian specifications only. Reader models released for the other countries may have different power levels, frequency of operation, and channel spacing in compliance with local regulations where the product is sold.

Digital Interface Specifications

Feature	Specification
Ethernet – Data and Power	10/100Base-T TCP/IP; Ethernet Rugged IP67 (RJ-45) accepting Class 4 PoE, with dust cap
GPIO (incl. Input power)	2 input, 2 output, optically isolated; +12 to +24 VDC input and gnd; Rugged IP67 6-pin circular male pin connector with dust cap

Physical and Environmental Specifications

Feature	Specification
Dimensions (l-w-h) including interfaces	(mm) 240 x 55 x 125 / (in) 9.4 x 4.9 x 2.1
Weight	Approximately 1120 g (2.46 lbs)
Operating Temperature	-40°C to +50°C
Operating Environment	100% humidity

Power Specifications

Feature	Specification
Input Power (PoE)	802.3at PoE (25.5 - 30W) • RJ-45, Class 4 PD (receive power) 802.3at Power Injector (P/N SPOE29WC4)
Input Power (VDC)	+12-24 VDC via GPIO connector
Software Support	SensThys Console, SDKs (VB.Net, C# and Java)
Power Consumption (33dBm)	Power into Extreme: 13 to 15W typical

Compliance

Feature	Specification
Compliance Certifications	IP-67 (designed to be compliant) UL: Safety tested to UL 60950-1 (pending)
Country Compliance	US: FCC Part 15; FCC ID: MAD-RU00-M03 Australia: ACMA AS NZS 4268 New Zealand - TBD China: CMIIT ID: 2019DJ1414 Industry Canada: pending

Part Numbers

	Extreme
North America	SX11480F
Europe	SX11480E

Power Supply

SensThys recommends using the shielded SensThys injector (P/N:SPOE29WC4), as it is fully 802.3at compliant.

SensThys highly recommends that both shielded PoE injector AND shielded CAT6 cables be used for all SensArray installations.

Part Number	Description
SPOE29WC4	SensArray, CORD PACK Class 4 Power over Ethernet (PoE+) Power Injector, Shielded

Physical Connections

Extreme Reader with Cap and Chains, Dust covers.

RF Antenna Connectors

The Extreme provides four (4) RP-TNC connectors (pins) on the unit for connecting up to four (4) UHF RF antennas. The connectors are labeled "ANT1", ANT2", ANT3" and "ANT4" from right to left on the unit.

The RP-TNC connectors are covered by cap and chain when not in use.

For most applications standard RF cabling is suggested. However, in extreme conditions, IP-67 compliant RF cables must be used.
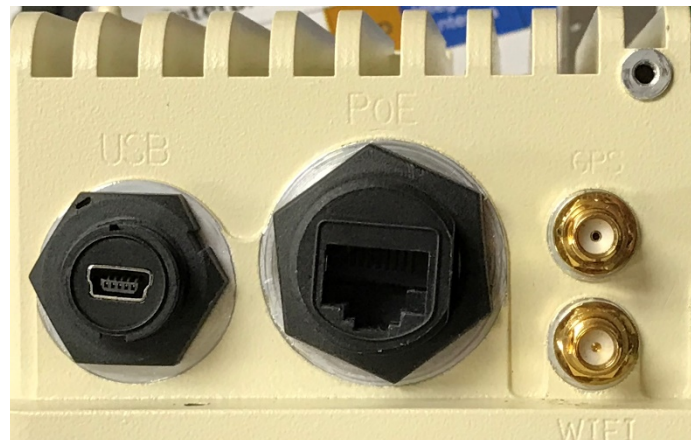
Ethernet Connector (labeled "PoE")

The Extreme provides a ruggedized RJ-45 connector for standard Ethernet and PoE+ connectivity. The connector is labeled "PoE".

The Ethernet connection is not crossover. It is not auto-MDIX PoE+ port.

The Extreme accepts for 802.3at or Class 4 PoE. (25.5 -30W)

The RJ-45 connector should be covered by the duct cap when not in use.

GPIO (General Purpose Input/Output) Connector

The SensX Extreme GPIO port provides two inputs and two outputs, which are all opto-isolated. The connector also has a pin for external ground and a pin for VDC to power the GPIO outputs, this voltage is referred to as VCC.

The pinout assignments for ground, power, the two inputs and two outputs are below.

Please see the *Extreme GPIO Deployment Guide* for details and example circuits.

Extreme GPIO Pin-out Specifications
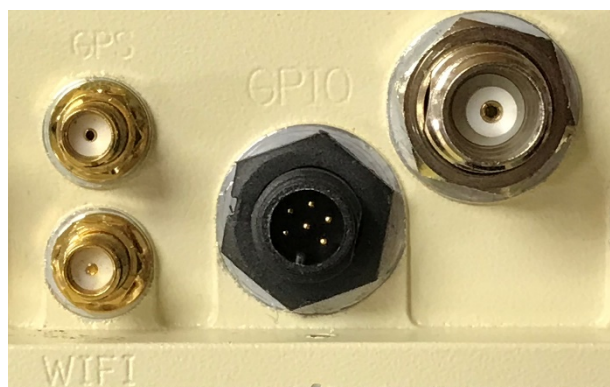
Pin	Assignment	Wire Color		Description
		Prior to Feb 2022	**On or after Feb 2022**	
1	Input 2	White	Orange	V<1, Low. 5-24V, High
2	Ext Ground	Black		Connect to external ground
3	Input 1	Blue		V<1, Low. 5-24V, High
4	Output 2	Yellow		When Output = "1", V (pin 4) = voltage at Pin 5 (VCC)
5	VCC	Red		Input Voltage (5-24V)
6	Output 1	Green	Brown	When Output = "1", V (pin 4) = voltage at Pin 5 (VCC)

Drawings

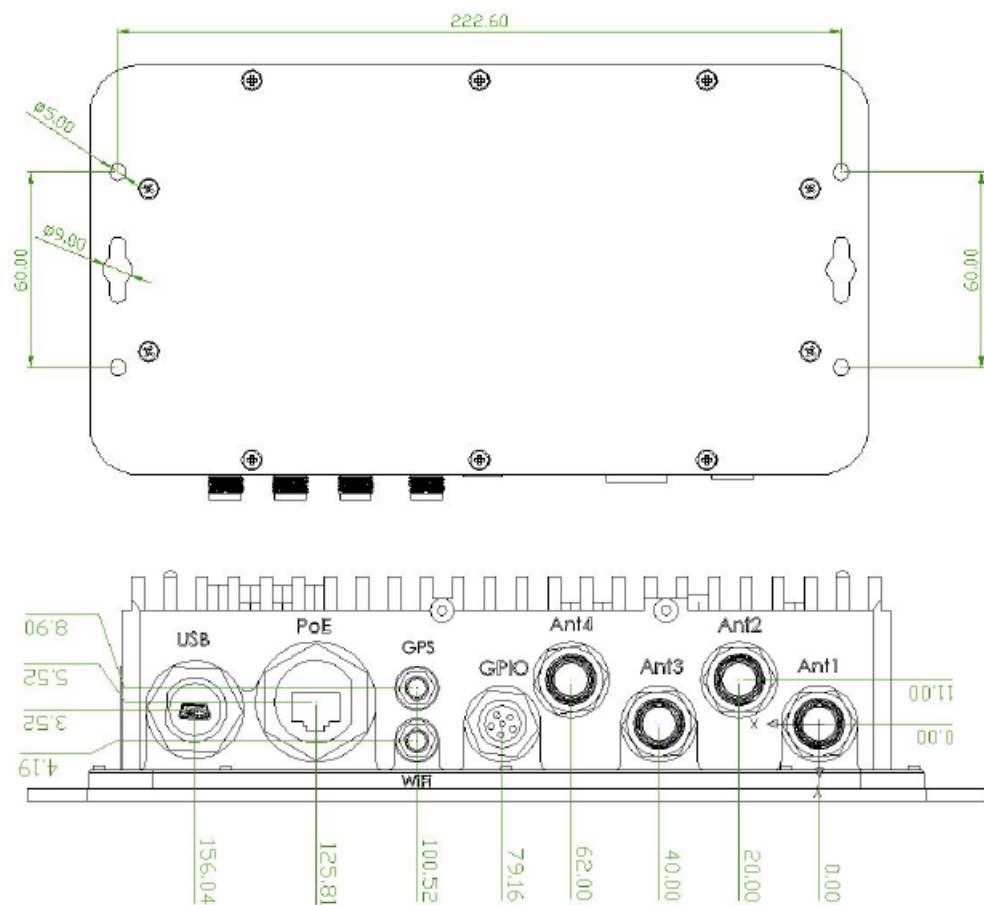The Extreme reader dimensions are presented below (in mm):

Figure 1: Dimensions of the Extreme

Coming Features

The hardware and operating system of the Enterprise supports many additional functions and sensors, including GPS (location), WiFi, Bluetooth and BLE Beacon detection.

These sensors will be formally introduced in future revisions for Extreme.