

CORE COMMUNICATIONS

Thread X3

The Thread X3 is designed for customers needing broadband connectivity for high data-rate, high-power industrial projects. This autonomous device features an integrated 4G/ modem, wireless mesh networking, and a battery pack in a weather-resistant enclosure.

It integrates seamlessly with Worldsensing’s Multi-net network deployments through CMT Cloud for a wide catalog of sensors. It can also operate via Bentley’s software platform for alternative network operations.



Multiple Modes of Communication

WITH PRIORITIZATION AND INTELLIGENT FAIL-OVER

CELLULAR

Deploy distributed devices connected to Cellular networks

Globally Compliant Cellular

Operate on 600+ cellular networks across 190 countries. No provisioning or carrier management required.

WIRELESS MESH

Extend sensor networks with resilient wireless mesh technology

Wireless Gateway

As a wireless gateway, the Thread X3 enables efficient connectionless low-power wide area (LPWA) wireless communication with compatible devices and smart sensors. The interface built on the MQTT-SN standard, provides scalable and secure wireless network management, security, and cloud connectivity.

Intelligent Wireless Networking

Automatic network role detection Gateway, Repeater, or Endpoint.

Adaptive and Resilient

Self-forming long-range wireless mesh networking.

ETHERNET

Connect to existing networks where wired Internet infrastructure exists

Secure Wired Networking

10/100 Ethernet interface with end-to end encrypted communication secured by TLS 1.2



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Configurable Sensor Interfaces

DENSE SENSOR INSTALLATIONS

Cost-effectively manage nested sensors. Attach multiplexer (MUX) devices to support up to 128 sensors.

RELAY CAPABILITIES

Each device port can output 12 V that can be toggled on and off manually, via API integration, by alert trigger, or by recorded flow (flowmeter connected). The 12 V output can be used to control a relay (like a solid state relay) or to just provide direct power for a simple audio/visual alarm.

Thread Manager

MANAGE YOUR BROADBAND CONNECTIVITY IN CMT CLOUD

Use the **Thread Manager** in CMT Cloud to easily configure and manage your Thread X3 device and connected sensors. Fully integrated with the CMT Cloud platform, it enables advanced data management and ready-to-use monitoring solutions. Securely stream data to your preferred visualization tools.

NETWORK MANAGEMENT

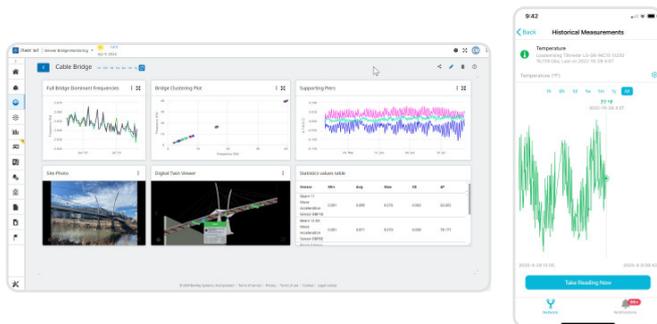
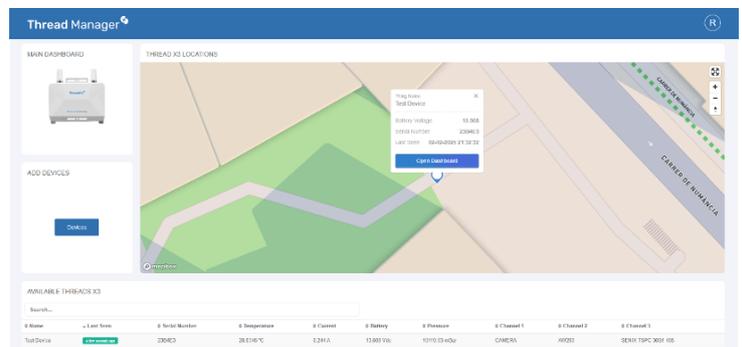
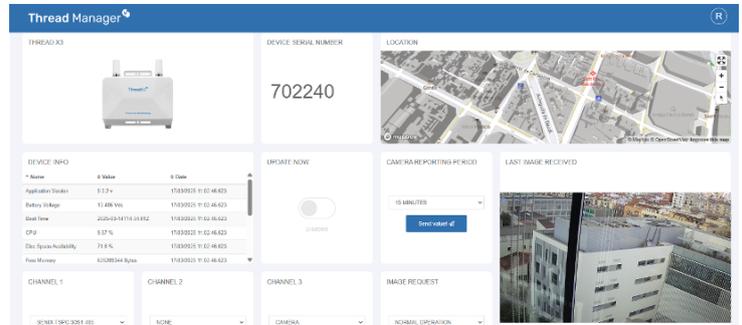
- Add/remove Thread X3 devices easily using a dedicated user interface.
- Assign coordinates to define device locations

DEVICE MANAGEMENT

- Monitor diagnostic metrics, manage firmware updates, and change the reporting period for connected devices like cameras.
- Integrate connected sensors into risk management systems to act on potential anomalies.
- Link up to three cameras or other sensors to respond effectively.

DATA MANAGEMENT

- Export data via MQTT or advanced API integrations to third party software.



iTwin by Bentley

ALTERNATIVE FOR ADVANCED DATA VISUALIZATION TOOLS

MAIN FEATURES

- Thread X3 configuration and management
- Sensor Integration Builder (SIB) and sensor driver library
- Data visualization and analytics
- Alert configuration
- Productivity Applications (reports, slope stability, remote sensing, environmental, groundwater management)

MOBILE APP ENABLED

Commission sensor networks using only your phone. Scan the unique Thread QR code using your phone camera to easily add a Thread device to your account. Instantly access your data from any sensor. anywhere.

TECHNICAL SPECIFICATIONS
MECHANICAL

Dimensions	14.76" (37.49 cm) x 12.47" (31.63 cm) x 3.39" (8.61 cm)
Weight:	8.6 lb (3900 g)
IP-Rating:	66
Humidity:	5 to 95% non-condensing
Operating Temperature:	-40 °F to 158 °F (-40°C to 70 °C)
Wireless Connector:	N-type female coaxial
Cellular Connector:	N-type female coaxial
Network Connector:	Lemo 8-pin
Sensor Connector:	Lemo 12-pin
GENERAL	
EMMC Flash Memory	8GB

MESH WIRELESS NETWORKING

Mesh Wireless Frequency:	870 MHz	900 MHz LP	900 MHz HP
Mesh Wireless Range:	0.5 miles	3.5 miles	7.5 miles
Output Power:	25 mW	250 mW	1000 mW
RF Data Rate (max):	80 kbps	250 kbps	250 kbps
POWER			
Input Voltage:	Nominal voltage 24 Vdc, range 15–26 Vdc		
Power Input:	Up to 2500 mA (Charge mode) 200 mA RMS (Standard mode) 20 mA RMS (Low power mode) @24 Vdc		
Direct Connect Solar Panel:	Maximum Peak Power (Pmax): 160 W Maximum open circuit voltage (Voc): 22.9 V Optimum operating voltage (Vmp): 20.2 V Maximum operating current (Imp): 7.92 A		
Battery	12.8 V 9.9 AH (126.72Wh) LiFeP04		

INTERNAL SENSORS

System Temperature:	-40 °F to 158 °F (-40 °C to 70 °C), precision +/- 0.5 °F
Barometer	Measurement range 0.26 bar – 1.26 bar, precision 0.00025 bar RMS

WIRED INTERFACES

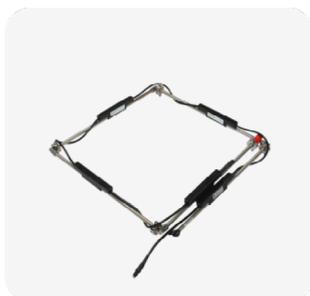
	Communication	Power
Network I/O:	10/100 Ethernet	None
Sensor I/O:	Interface 01: USB, RS232, RS485, 4–20 mA Interface 02: RS232, RS485, 4–20 mA Interface 03: RS232, RS485, 4–20 mA	12 or 15 Vdc Out, up to 20 W

CELLULAR NETWORKING

	4G Bands	3G Bands	2G Bands
North America:	B2[1900], B4[1700], B5[850], B12[700], B13[700], B14[700], B66[1700], B71[600]	B2[1900], B4[1700], B5[850]	–
Europe:	B1[2100], B3[1800], B7[2600], B8[900], B20[800]	B1[2100], B8[900]	GSM900, DCS1800
Australia:	B1[2100], B3[1800], B5[850], B8[900], B9[1800], B18[850], B19[850], B26[850], B28[700]	B1[2100], B5[850], B6[800], B8 (900), B19[800]	GSM850/900, DCS1800, PCS1900
South America:	–	B1[2100], B2[1900], B4[1700], B5[850], B8[900]	–

COMPATIBLE SENSORS VIA THREAD MANAGER

MANUFACTURER	SENSOR NAME	SENSOR TYPE
DGSI Slope	GeoFlex	In-place inclinometers
Soil Instruments	GEOSmart	In-place inclinometer
Roctest	GEOString	In-place inclinometer
Campbell Scientific	AVW200 VW Analyser Module	Interface Module
General	Warning Light (example)	Relay-triggered audio/visual alarm
General	4-20mA analog multipurpose	4-20mA
Leica	Total station TM/TS/MS series	Total Station
Measurand	SAAV ShapeArray	Inclinometer ShapeArray
Senix	ToughSonic 100 14'/30' range (RS232/RS485)	Ultrasonic distance sensor
Worldsensing	In-field Camera	Camera
Vaisala	WXT536 Weather Monitoring Station	Weather Station



GeoFlex In-Place Inclinometer



AVW200 VW Analyser Module



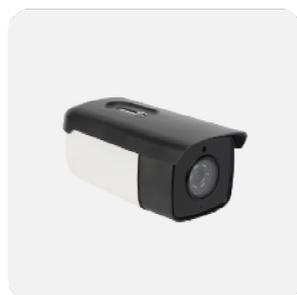
Warning Light



Total station TM/TS/MS series



ToughSonic 100 14'/30' Ultrasonic Distance Sensor



In-field Camera



WXT536 Weather Monitoring Station



SAAV Measurand Shapearray



GeoSmart In-Place Inclinometer



GeoString In-Place Inclinometer



Multi-purpose 4-20mA sensors

COMPATIBILITY		
MANUFACTURER	SENSOR NAME	SENSOR TYPE
Advantech	ADAM 4000 Series	Interface Module
Badger Meter	380 Series BTU Meter M2000 Flowmeter M5000 Flowmeter	BTU Meter Flowmeter Flowmeter
BeadedStream	M-Link Connection for Digital Temperature Cable Recite Connection for Digital Temperature Cable	Temperature Sonde Temperature Sonde
Call & Nicholas	Instruments SlideMinder	Linear Displacement
Campbell Scientific	AVW200 VW Analyzer Module LevelVUEB10 Bubbler Water Content Refractometer CS725 Snow Water Equivalent Sensor	Interface Module Water level Refractometer Snow Depth Sensor
DGSI	MEMS Tiltmeter	Tiltmeter
DYWIDAG (DSI)	DYNA Force	Elasto-Magnetic Sensor
Euromag International	MC608 Converter	Flowmeter
FloWav	PS1000 SOE	Flowmeter
Geosense	Smartmux Tilt Meter	Interface Module Tiltmeter
Geokon	8960 VW Data Logger Horizontal IPI 6155 IPI 6180 Thermistor String 3810A Triaxial Tilt Beam 6195	Vibrating Wire datalogger In-Place Inclinator Vertical In-Place Inclinator Thermistor String Tiltbeam
Gill	Maximet	Weather Station
In-Situ	AquaTROLL 500 Data Logger AquaTROLL 200 Data Logger LevelTROLL 200, 400, and 700 RuggedTROLL Data Logger 200	Water quality Water quality Water level Water level
Jewell Instruments	Lily Borehole Tiltmeter Tuff Tilt Digital Tiltmeter D801	Tiltmeter Tiltmeter
Leica	GMX910 Total station TM/TS/MS series	GNSS Total Station
Measurand	ShapeArray (Current Models) ShapeArray XYZ (Older Models)	Shape Array Shape Array
RocTest	RT-VLOG VW Logger RxBx Remote Reading Pendulum Station	Vibrating Wire Datalogger Pendulum
SLB (Schlumberger)	VDF (AC) Power Houses	Variable frequency drive
Schneider	ALTIVAR 630	Variable frequency drive
Seafloor Systems	Hydrolite Plus Single Frequency Hydrolite Plus Dual Frequency	Single Beam Sonar
Senix	ToughSonic Ultrasonic Distance Sensor	Distance sensor
Solinst	Solinst Levellogger 5	Water level
Somfy	Universal RTS Interface II (URTSI 11-16 Channel)	Interface module
Topcon	GNSS AGM-1	GNSS

COMPATIBILITY		
MANUFACTURER	SENSOR NAME	SENSOR TYPE
Turner Designs	C3 Submersible Fluorometer	Fluorometer
Vaisala	AQT530 Air Quality Monitoring Station WXT536 Weather Monitoring Station	Air quality monitor Weather station
Worldsensing	In-field Camera	Digital Camera
YieldPoint	d-Exto Multiple Rod Extensometer d-MPBX Multiple Point Borehole Extensometer	Extensometer Extensometer
YSI	IQ SensorNet VisoTurb®	Turbidity probe

FOR MORE INFORMATION
Scan to access the user guide for this device.



GENERAL DISCLAIMER:

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