










# Site Sentinel<sup>®</sup>

Ultra low-power, flexible Cellular data logger + RTU



-  SEWER-MANHOLE MONITORING
-  WATER GRID-ZONE PRESSURE MONITORING
-  STREAM FLOW & LEVEL MONITORING
-  FLOOD WARNING
-  INTERNAL 4G CAT-M1/NB-IoT MODEM
-  LONG BATTERY LIFE
-  REMOTE DEVICE MANAGEMENT
-  REMOTE DATA LOGGING
-  MODBUS COMMS FOR SMART INSTRUMENTS

## X1-002

The X1 is the flagship variant of the Site Sentinel<sup>®</sup> data logger and RTU family, providing highly-reliable, direct-to-host data monitoring in a single package, aimed at the utility and environmental sector.

The Site Sentinel<sup>®</sup> X1-002's flexible device configuration enables the measurement of a variety of analog and digital signals. This data is stored internally on non-volatile flash memory with upstream communications provided using an internal 4G cellular modem, permitting use on 4G CAT-M1 and NB-IoT networks worldwide.

Host compatibility is ensured with integrated support for DNP3.0 and FTP data protocols. Complete control is handed to the user to allow custom data reporting and wake-from-sleep regimes to be configured to balance battery life against data reporting requirements. Remote configuration and device management is supported via leading industry SCADA applications, remote firmware download capability is provided via FTP file transfer.

Additional communications port provides Modbus Master communications capability. User configurable Modbus table permits download of pre-defined or ad-hoc Modbus data profiles to support 'smart' downstream devices such as flowmeters, power meters and water quality probes.

The device is housed in a low-profile, robust ABS-plastic enclosure, UV stabilised and rated at IP68, allowing for direct outdoor installation, capable of withstanding submersion to a depth of four metres for four continuous days. An in-built solar regulator/ battery charger is standard across all models in the X1 product range.

# Technical Specifications

## General

Supply Voltage	3.5 – 8.5V DC, High-capacity, internal Lithium battery pack (field replaceable), built in solar regulator
Current Draw	50 $\mu$ A sleep, 5 mA active, 200 mA cell communications, 2 A (peak) cell network detect
Real Time Clock	Internal – Year, month, day, hour, minute, second, Automatic DNP3 time synchronisation from DNP3 master, Automatic cellular network time sync or NTP time sync when using FTP data export mode
Temperature	-20°C to +85°C Celsius
Humidity	0 to 90% relative humidity, non-condensing
Programming	Windows based Configurator M+ configuration software, Remote device management via DNP3, Remote firmware download via FTP, local programming port, live local diagnostics
Mounting	90 mm (h) x 125 mm (d, nominal) / 155 mm (d, maximum), supplied with stainless steel mounting bracket and installation kit that includes O-Rings, O-Ring grease and Antenna
Environmental	IP68 (4 metres depth/4 days duration)

## IO Interfaces

Digital Input	4 x Low-current dry-contact binary inputs (non-isolated). Each input supports pulse counting, up to 3Khz (sleep/wake mode dependant), Forward/Reverse/Nett Totalisers with 32-bit rollover
Analogue Input	4 x Inputs, 0–20 mA, 0–2.048V DC or 0–5V DC (user selectable, per channel), 15 bit resolution (non-isolated), 4 x user-configurable alarm limits per channel
System Input	Internal measurement of Cell Network RSSI, RTU temperature, RTU battery voltage and Session Status code
Switched DC Out	Supplies up to 80 mA to power external sensors (24V, 5V or Battery Volts, user selectable)
Serial Comms	1 x Modbus master 3-wire RS232 or 2-wire RS485 user selectable

## Telemetry

4G Cellular	Supports World-wide 4G/LTE Cat-M1 / NB-IoT Bands: B1, B2, B3 (1800 MHz.), B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28 (700MHz.), B66, B71, B85. Class 3 Output Power (+23dBm)
Antenna	Internal antenna / External SMA female connector, user selectable
SIM Card	1.8 and 3V UICC (Standard size SIM card)
Data Protocols	DNP3.0 Slave unsolicited / polled mode, FTP data export
Host Support	True TCP support to DNP host (supports three Master IP addresses)
Security	CHAP or PAP authentication, SIM credentials, configurable username, password and APN, built in IP firewall, 512-Bit AES Encrypted firmware download

## Approvals

Build	RoHs
Standards	RCM (AUST/NZ), EMC compliance, other export standards on request
Production	Proudly Made in Australia

## Factory Accessories

Standard Accessories	Each device is supplied with a battery, stainless steel quick release mounting bracket and installation accessories kit.
Optional Accessories	A comprehensive range of factory manufactured or sourced accessories to ensure reliable and swift solution deployment. Visit <a href="https://www.37s.com.au">37s.com.au</a>



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