









# SITE SENTINEL® X1

Ultra low-power, flexible Cellular data logger + RTU



# X1

-  SEWER-MANHOLE MONITORING
-  WATER GRID-ZONE PRESSURE MONITORING
-  STREAM FLOW & LEVEL MONITORING
-  FLOOD WARNING
-  INTERNAL 3G OR 4GX CAT-M1/NB-IoT MODEM
-  LONG BATTERY LIFE
-  REMOTE DEVICE MANAGEMENT
-  REMOTE IMAGE CAPTURE

The X1 is the flagship variant of the Site Sentinel® 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® X1'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 3G or 4GX cellular modem. The cellular options provide support for tri-band 3G or 4GX option, permitting use on CAT-M1 and NB-IoT networks.

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 user communications port supports corrections to the XCAM-001 Image Capture Camera.

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 many 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 (see table)
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, date, 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 +65°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/diagnostics port
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	NATA certified to IP68 (4 metres depth/4 days duration)

## IO Interfaces

Digital Input	Up to 4x low-current dry-contact binary inputs (non-isolated), see table. Each input supports pulse counting, up to 3Khz (sleep/wake mode dependant), Forward/Reverse/Nett Totalisers with 32-bit rollover
Analogue Input	Up to 4x inputs, 0–20 mA, 0–2.048V DC or 0–5V DC (user selectable, per channel), 15 bit resolution (non-isolated, see table), 4x 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	1x Modbus Master 3-wire RS232 or 3-wire RS485 user selectable (see table)

## Telemetry

3G Cellular (Standard)	Supports 3G B1 (2100), B5 (850), B8 (900), Class 3 output power (+24dBm)
4G Cellular ("-4G" Option)	Supports 4G/LTE CAT-M1/NB-IoT, B28 (700), B3 (1800), Class 3 output power (+23dBm)
Antenna	Internal antenna (2dBi Gain) / 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, FTP image file 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

Accessories	A comprehensive range of factory manufactured or sourced accessories to ensure reliable and swift solution deployment (see website)
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## KEY FEATURES

	X1-000	X1-001	X1-002
Digital I/P	2	2	4
Counters	2	2	4
Analog I/P		2	4
Solar Regulator		✓	✓
MODBUS Comms			✓
Magnetic Swipe	✓	✓	✓