

# mIoT

## Captis Range

The mIoT Captis cellular data logger opens up a new world of convenience when it comes to remote measurement.

The Captis device has been developed to fill niche measurement requirements across a broad range of applications and remote locations.

Captis is designed to measure a range of parameters; be small in size; run for extended periods of time on a single battery; and have connection across cellular networks including CAT M1 and NB-IoT.

Built small and unobtrusive, Captis measures only 75 x 80 x 50 mm and weighs less than 500g. It's currently available in two versions: Pulse and Multi, each being housed in the same IP 68 rated enclosure.

Each Captis device acts as an extra employee, virtually visiting the sensor or meter, reading it as often as required, and reporting results back to the end user via email, sms or a cloud platform - saving time, money and resources.



## Features

- Cellular connected (CAT M1, NB-IOT, 3G/4G)
- Embedded SIM card - SMS alarms
- Remotely configurable. Recording interval, calibration, ending interval
- Able to receive a firmware upgrade over the air
- Measure and monitor: Pulse, switch, analogue, Modbus, ISM, flow, pressures, level, water quality, temperature etc
- 6 different inputs that can all be run simultaneously
- Easy Installation: No external power or data connection required
- Low profile for unobtrusive installation
- Able to be installed in-ground
- Extended battery life of 5-7 years
- Replaceable battery
- Low Cost: Short payback. Fraction of the cost of alternative solutions
- Reduces manual reading
- Made in Australia



Captis - Pulse

## Applications

The mIoT Captis range can be applied to multiple applications within industry sectors:

- Utilities: Monitor water quality parameters like pH, temperature, ORP and conductivity
- Smart Cities: Monitor buildings and other assets, receive notification of water usage.
- Transport: Receive daily traffic information from external sensors.
- Rural: Monitor silo, tank and dam levels

## Captis Specifications Comparison

	Captis Multi	Captis Pulse
Applications	Sensor reading	Meter reading
Battery Voltage	3.6V	3.6V
Battery Type	"D" Size Lithium	"D" Size Lithium
Battery Life	Up to 7 years*	Up to 7 years*
Input Line 1	Pulse	Pulse
Line 2	Switch	Switch
Line 3	Modbus	-
Line 4	Intelligent Sensor Mgt (ISM)	-
Line 5	Analogue 0-2.5VDC	-
Line 6	Intelligent Sensor Mgt (ISM)	-
Outputs	Email, SMS	Email, SMS
Attachment	.csv custom formatted	.csv custom formatted
	MQTT	MQTT
Data Presentation	Cumulocity, Email	Cumulocity, Email
Unit Dimensions	75 x 80 x 50 mm	75 x 80 x 50 mm
Antenna	Internal	Internal
IP Rating	IP 68***	IP 68***
Measurements - Max	1 per minute**	1 per minute**
Measurements - Min	1 per month**	1 per month**
Send Invertals - Max	1 per 10 minutes**	1 per 10 minutes**
Send Invertals - Min	1 per month**	1 per month**

\* Dependant on environmental cellular network and log and send frequency

\*\* Has direct impact on battery life

\*\*\* Capable of constant submersion with an external antenna

## Inputs

- **Pulse 1** - operates in low power mode - totalising pulses when it wakes up - typically measuring flow.  
*Note: All commons (Pin 2, 5, 8, 11) are common with each other.*
- **Switch/Pulse 2** - alert during low power mode - the Captis will wake up from this input interrupting sleep.
- **5V Out (Sensor power)** - part of the analogue input system. The Captis has a range of analogue sensors that require 5VDC to power the sensor. This 5VDC is only active during measurement.
- **Analogue In (0-2.5V)** - connects to the output of the analogue sensor.
- **Modbus RTU** - connection to sensors that have Modbus RTU (RS485) outputs, the advantage of this communication is that several parameters can be conveyed from one sensor and/or several sensors connected by Modbus.
- **Intelligent Sensor Mgt (ISM)** - A selection of intelligent water quality sensors from Mettler Toledo

## Power Modes

The Captis has several power modes during operation:

**Sleep: 7 -20uA:** Pulse 1 input remains operational.

**Measure:** 10 to 20mA, wake occurs at the beginning of every logging interval.

**Send:** 0 - 500mA - Unit wakes for transfer of data to the cloud platform.

## Wire Colours and Function

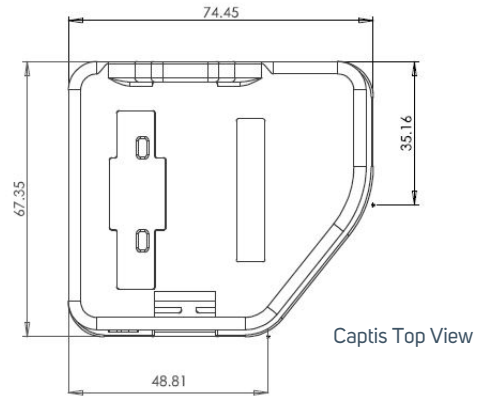
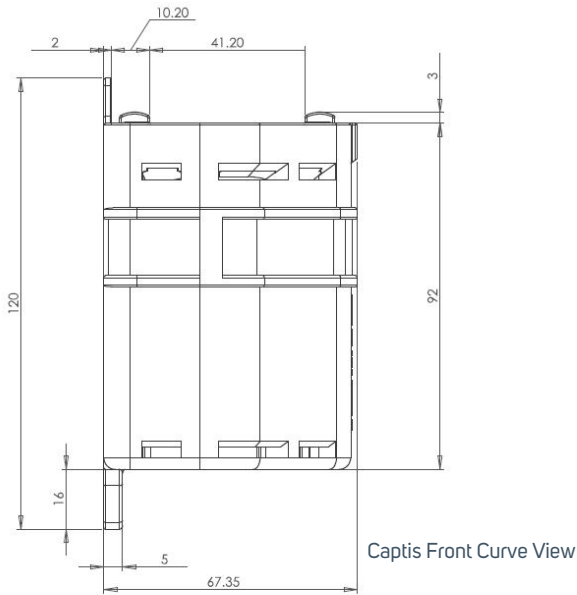
### Captis Multi

Colour	Function
Red	NC
Orange	+5V sensor power
Yellow	Pulse/Switch 1 +
Green	Pulse/Switch 2 +
Blue	Analog Input
Purple	ISM Channel 1
Pink	ISM Channel 2
Brown 1	GND
Brown 2	GND

Colour	Function
Black	NC
Grey	DO +
White	DO -
Red/Black	Pulse/Switch 1 -
Red/White	Pulse/Switch 2 -
Red/Green	RS485 A+/RS232 TX
Red/Yellow	RS485 B-/RS232 RX
Red/Brown	GND
Red/Blue	GND

### Captis Pulse

Colour	Function
White	Pulse/Switch 1 +
Black	Pulse/Switch 1 -
Red	Pulse/Switch 2 +
Blue	Pulse/Switch 2 -



## Captis Alarming/Fast Logging

The mIoT Captis has on board capabilities for handling process alarms and higher resolution logging, based on measured process values. This feature ensures that critical alarm conditions are never missed and users are informed immediately.

### Fast Log/Send

The "fast log" feature provides higher resolution data logging based on certain alarm conditions. The Captis will swap the normal log interval and send interval to a second set of higher frequency logging and sending intervals on a configurable alarm value - returning to the normal logging interval and send interval when that state has cleared.

*For example, your Captis device may be recording the level of a river every hour and sending info once per day to conserve battery, but in the case of a flood you require more timely info so you could set a threshold (for example above 4m) and when the level is above this you could set it to record the level every 5 minutes and send every 30 minutes (for example). When the level drops back below the threshold it will return to the regular measure and send intervals.*

### Process Alarms

The alarms will trigger based on the process data values at the time of logging, the alarm trigger contains a setpoint and a hysteresis value. The alarming can happen on process values above the setpoint+hysteresis or below setpoint-hysteresis, or on both conditions.

An email or SMS or both can be sent on the transition from normal state to alarm state. The Captis has onboard capabilities for up to 5 email addresses and/or SMS numbers.

The recipients will receive an alarm text showing the process description and value at the time of alarming.

## Security Features

### Firmware Upgrades

- Over the air firmware downloads over SSL
- AES encrypted firmware image file
- Firmware signing and program memory checksum generation

### Data Storage

- Non-removable data storage
- Hardware encryption of parameters and credentials



## Contact

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