

# Falcon Cellular

4G LTE CAT-M1 NB-IoT Remote Sensor in a Rugged Housing



## APPLICATIONS



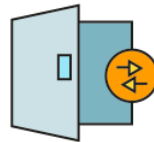
Run Hour  
Monitoring



Temperature  
/ cold-chain



Tank  
levels



Door open  
/ close



Meter pulse  
counting

The Falcon Cellular is a super smart, battery powered monitoring device in a rugged housing. Super long battery life is possible with LTC (Lithium Thionyl Chloride) batteries, or connect to a power source for a permanent solution. Multiple input interfaces and a digital output allow for monitoring and control for many years. Uses a combination of GPS and Wi-Fi to track assets both outdoors and inside buildings, warehouses etc

## FEATURES

- LTC, 3 x AA off-the-shelf batteries or line power
- Rugged waterproof housing
- 2 x Digital Inputs
- 1 x Analog Input
- I<sup>2</sup>C interface for a wide range of sensors including: Temperature, Humidity, Vibration, CO<sub>2</sub> gas and many others
- 1 x Switched Ground Digital Output
- On-board GPS for location
- Wi-Fi sniffing for low power location updates and indoor localization

## MECHANICAL SPECIFICATIONS

**Compact Housing** The IP67 rated housing is made of sturdy ABS/Polycarbonate plastic to survive bumps and knocks and to survive many years in the sun and weather. It is low-profile and caters for a number of cable glands to allow for waterproof cable entry to the housing. The housing screws together for easy assembly, and has convenient mounting tabs.

**Dimensions** L 135 x W 90 x H 35mm

**Operating Temperature** -20°C to +60°C<sup>1</sup>  
1) Batteries are affected by temperature extremes and typical performance is dependent on temperature

## POWER

**Line Power** 5-16V line power option

**Batteries** 3 x AA Lithium Thionyl Chloride (LTC) batteries for super-long life and extended temperature tolerance

The device can be wired into power and also have batteries installed. Then if there is a cut to external power, operation will continue on battery power.

## OTHER

**3-axis accelerometer** The 3-axis accelerometer allows the Falcon to 'sleep' in an ultra-low power state yet still wakeup when movement occurs.

**Flash Memory** Internal memory can store up to 20,000 records, Normally data is sent to the server immediately but if the device is out of range there is space to ensure no data is lost.

## CONNECTIVITY

**SIM Size** Micro SIM (3FF) form factor

**4G Modem** uBlox SARA-R410M Modem operates on all major global LTE-Cat-M1 and NB-IoT bands. These new low-power networks are specifically designed for IoT applications, providing great battery life

Supported LTE bands:  
1-5, 6, 8, 12, 13, 17, 19, 20, 25, 26, 28

## TRACKING

**GPS and Cellular Antenna** Internal GPS and cellular antennas tuned by RF laboratories for optimal performance.

**GPS/GLONASS tracking** Concurrent GPS and GLONASS tracking  
72 channel high sensitivity receiver  
-167dBm industry leading tracking performance

**AssistNow Offline** AssistNow Offline aiding data for extremely fast time-to-first-fix and performance in urban canyon environments

**Low Noise GPS Amplifier (LNA)** GPS signals are boosted by a special low-noise amplifier (LNA). This allows operation where normal units will fail to receive GPS signal

**WPS** Wi-Fi Positioning System (WPS) detects nearby Wi-Fi networks to determine location. Enables lower power location updates, and indoor location (e.g. a pallet in the basement of a building)

## INPUTS AND OUTPUTS

<b>I<sup>2</sup>C Interface</b>	I <sup>2</sup> C (inter-IC communications) is an interface commonly used in sensor modules. This allows the device to talk to a wide range of sensors including: temperature, humidity, vibration, CO <sub>2</sub> gas and many others. Contact Digital Matter about sensor support.
<b>2 x Digital Inputs</b>	2 x digital inputs with configurable pull-up/down Optimised for low power pulse counting
<b>1 x Digital output</b>	1 x switched ground digital output, easily wired up to switch external lights, relays, buzzers etc
<b>1 x Analog input</b>	0-30V Analog input with auto-ranging

## FIRMWARE SMARTS

<b>AES-256 Security</b>	The Falcon uses bank-level AES-256 device authentication and data encryption to ensure that your data is kept private and secure
<b>Adaptive Tracking</b>	Adaptive-Tracking technology enables the accelerometer and GPS data to be used intelligently to work out if it is moving and to send frequent updates, as well as to scale the update rate down to once per day if the asset is stationary to preserve battery life

