CDS549 Stratus Pulse Logger User Manual

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1 CDS549 STRATUS PULSE LOGGER

1.1 Introduction

The Stratus Pulse logger is a robust, sophisticated 3G GSM logger/controller with a wide range of input capabilities, making it ideal for a large number of measurement applications.

Communication to your own server and database can be achieved via the internet or a private APN. The software running on these servers is supplied free of charge. The Stratus Pulse Logger has been designed to allow for easy installation and setup without the need for a complicated server infrastructure. Setup and management software (CloudWorks) is also supplied free of charge to allow clients to manage their own networks and data. There are no monthly charges for collecting and hosting data as the client can provide this service themselves.

1.2 Features

- Uses 3G/Edge/GPRS (UMTS/HSPA) technology. This has become essential as many cellular network providers around the world will soon no longer be supporting older GPRS technologies, rendering legacy GPRS dataloggers obsolete. This has already started happening in many countries around the world.
- Bluetooth interface - setup and manual data collection can be achieved through the Bluetooth interface negating the need for cables that invariable fail during continuous use.
- Optional external power operation with battery failover.
- Uses standard off-the-shelf alkaline batteries. This logger uses 3x standard D Cell alkaline batteries that can last in excess of 5 years under normal usage. Many other loggers use lithium batteries that are expensive and difficult to obtain. Other problems involving lithium batteries are the restrictions when shipping using airfreight. All lithium batteries need to be shipped as hazardous cargo that is becoming increasingly difficult to achieve as many airlines are no longer allowing these batteries on their aircraft.
- 2 x Pulse input ports - Pulse inputs are used on metering devices that supply a pulse output for a measured amount of product.
- ECO interface for connecting to GWF meters..

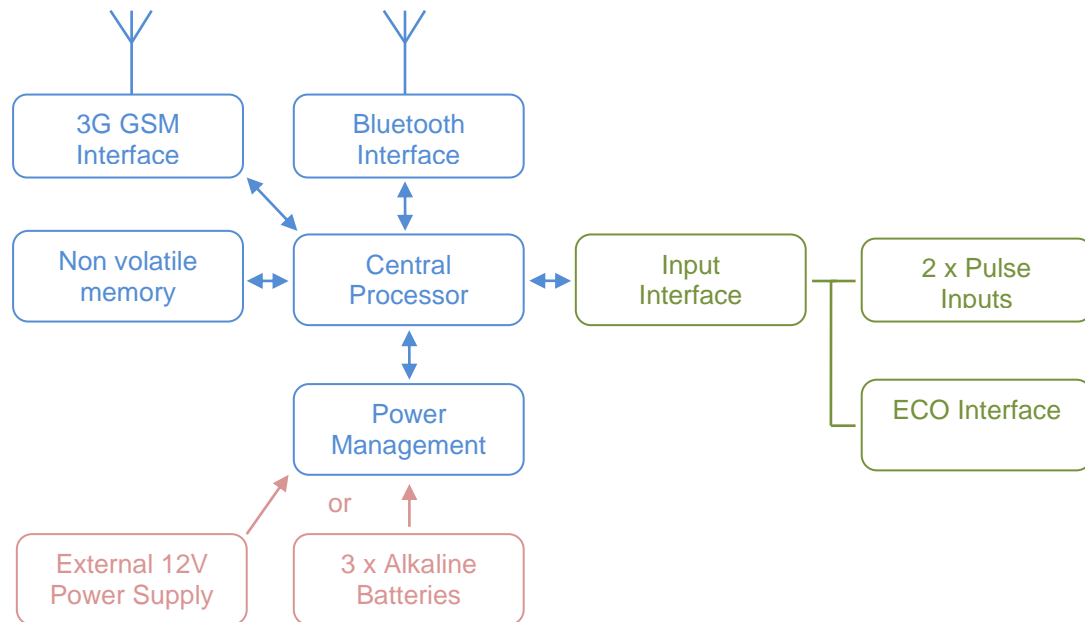| DOCUMENT NAME	CLASSIFICATION	DATE	PAGE
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- Large onboard non-volatile memory - This logger can record in excess of 14400 datalog records (application dependent).
- Logging intervals from 1 minute to 1 month. Information is internally logged, time and date stamped and transmitted at programmable intervals.
- Remote programming of all setup parameters via GPRS link or SMS.
- Ideal for leak detection, alarming to prevent water loss.
- Onboard Bluetooth can stream diagnostic information about signal strength, network status etc.
- Touch sensitive button and LED's for manual wakeup to server and diagnostic purposes etc.
- Available with the standard internal antenna or a connector (SMA) for an external antenna. Note that the external connector will affect the IP rating.

1.3   Specifications

- GPRS/EDGE/3G (UMTS/HSPA) Modem Technology
- Bluetooth interface
- Powered by battery or external 12V supply
- Option of external power with battery failover and sleep
- All management software supplied free
- Standard Alkaline Batteries - 3 x D cells (5+ years)
- 2 x Pulse inputs
- ECO interface for connecting to GWF electronic meters
- Up to 14400 record datalog memory (application dependent)
- Full SMS driven command set
- Logging intervals 1 minute to 1 month
- Rugged housing with seal eye
- Touch sensitive button and LED Diagnostics
- Configuration and diagnostics through Bluetooth interface
- Fully configurable remotely
- Stream data in real-time when powered by external supply
- Size 185mm x 130mm x 55mm (including cable glands)
- Housing Protection Class :
  - o   Standard internal antenna : IP68 - Max 1.2m, 30 days
  - o   External antenna connection : IP65
- Environment : -20°C to 80°C humidity = 90% non condensing. Check battery specifications for low power systems
- Uses a Micro SIM card

1.4   Architecture

1.5   Power Modes

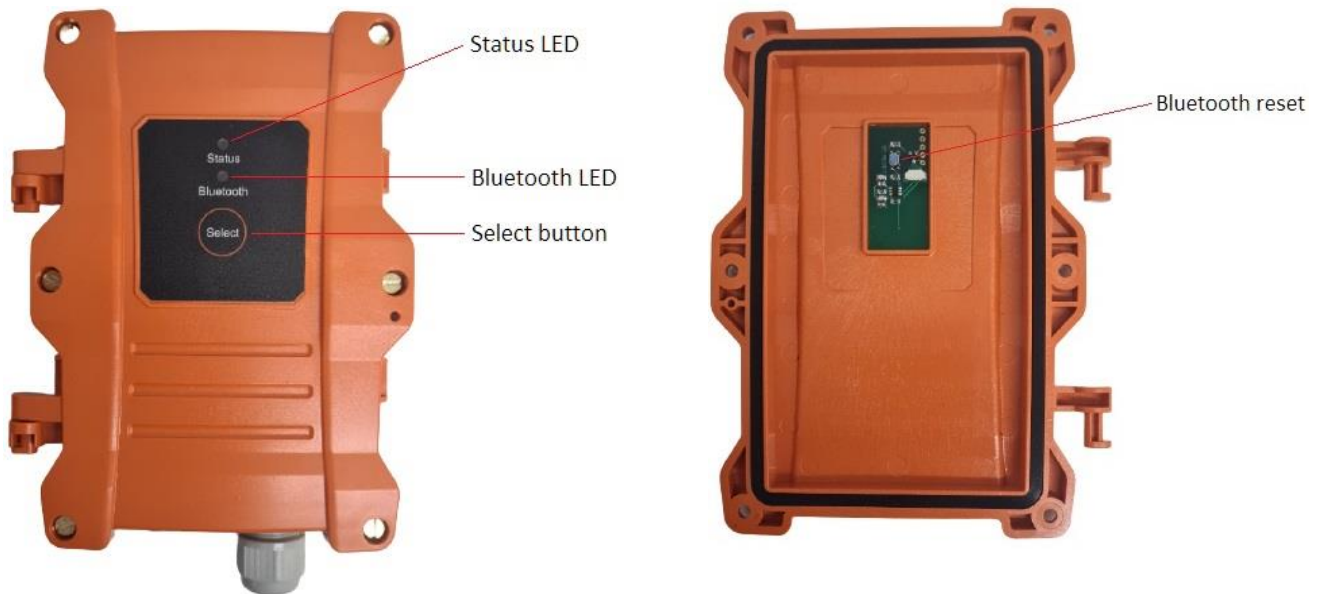The Stratus Pulse Logger can operate in one of two power configurations.

- Mains powered - in this mode the logger can be continuously connected to the server allowing for the streaming of live data.
- Battery powered - The Stratus Pulse logger uses standard 'D' Cell alkaline batteries that will last several years depending on the operation. In this mode, the logger will 'wakeup' (adjustable - normally 6 hourly) and upload its recorded data to a remote database.

- External 12V (8-15V) 2A supply - in this mode the logger can be continuously connected to the server allowing for the streaming of live data. Batteries can be fitted and the logger will automatically switch to battery mode should the power fail.

1.6   LED and button functions

On the front of the logger, there are 2 LED's and a touch sensitive 'SELECT' button. Internally on the reverse side of the lid is the Bluetooth reset button.

1.6.1   LED functions

Blue LED - Bluetooth status

- Flashing indicates the Bluetooth is ready to receive an incoming connection
- Solid light indicates and active connection

Red LED - Logger status

- Solid - Logger is in Command Mode (normally accompanied by an active Bluetooth connection)
- Fast flash - Logger is currently initiating a connection to the server
- Slow Flash - Connection has been established to the server

1.6.2   Pushbutton Functions

SELECT touch button - Please note, this button is touch sensitive in order to maintain the waterproof status of the housing.

- Single short push will toggle the Bluetooth radio on and off.
- A push of more than 3 seconds will result in the logger establishing a connection to the server and uploading its datalog.

BLUETOOTH RESET button - This button is used to reset the Bluetooth interface in the event of a lost password or generally configuration loss.

The Bluetooth interface of this logger can be configured to have a access password which will limit external access to only those issued the password. Should this password get lost, the logger can be opened and the Bluetooth interface reset to disable the security. It is advisable to then connect to the logger again and setup a new password. This is explained later in this document.
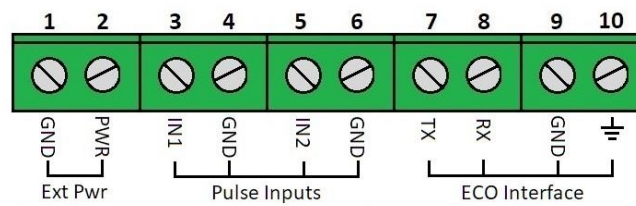
In order to reset the Bluetooth interface, with the housing open, please follow the below procedure.

- Remove all power from the logger - remember to remove the batteries if external power is present.
- Press and hold the Bluetooth reset button.
- Power up the logger again while holding the button. Bluetooth LED will be on confirming the button has been pressed.
- Once the Red Status LED comes on again, the button can be released.
- This will now reset the Bluetooth interface.

1.7   Connections

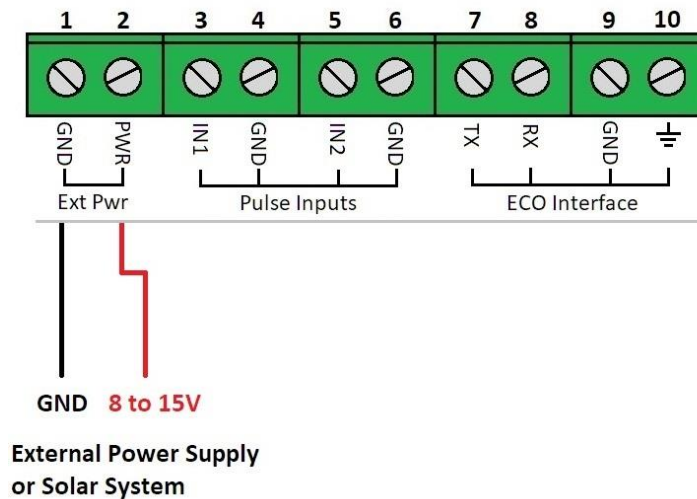Connections are available on a series of 10 terminal connectors.

These connections are as follows:

1. External Power Supply / Solar system ground (optional)

2. External 12V Power Supply / Solar system (optional)

3. Pulse input 1 positive

4. Pulse input 1 ground

5. Pulse input 2 positive

6. Pulse input 2 ground
7. ECO Transmit line

8. ECO Receive line

9. ECO ground connection

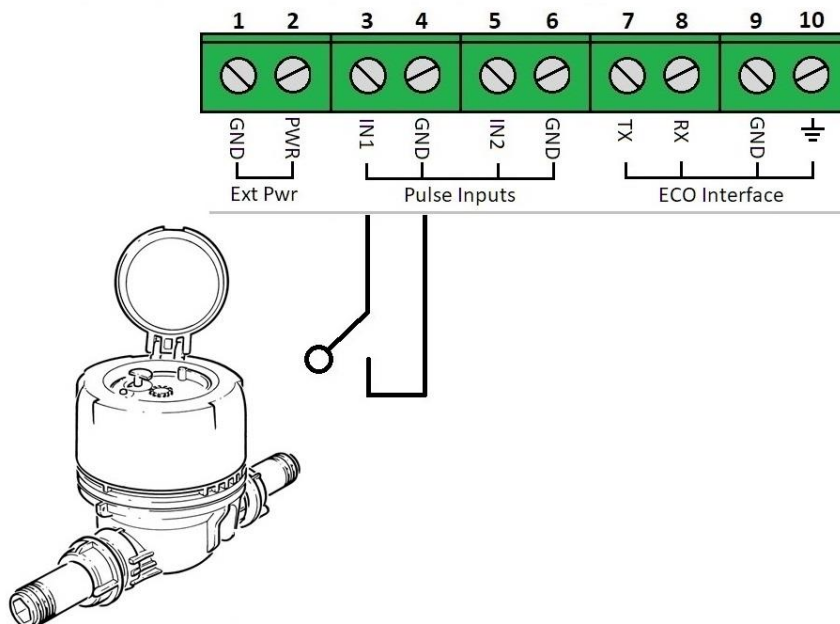10. System earth - used for transient voltage suppression

1.8   External Power Supply / Solar System Connection

The CDS549 Stratus Pulse logger can be powered entirely from an external 12V (8-15V) 2A power supply or solar power source. Using a solar power source and also populating the logger with alkaline batteries means that the logger can be put into dual mode. In this mode, while there is solar power available, the logger will remain online with the server. Should the solar power fail, the logger will automatically switch to 'battery' mode until the solar power source is restored. This is ideal for remote applications where there is no mains power available and streaming data is required.

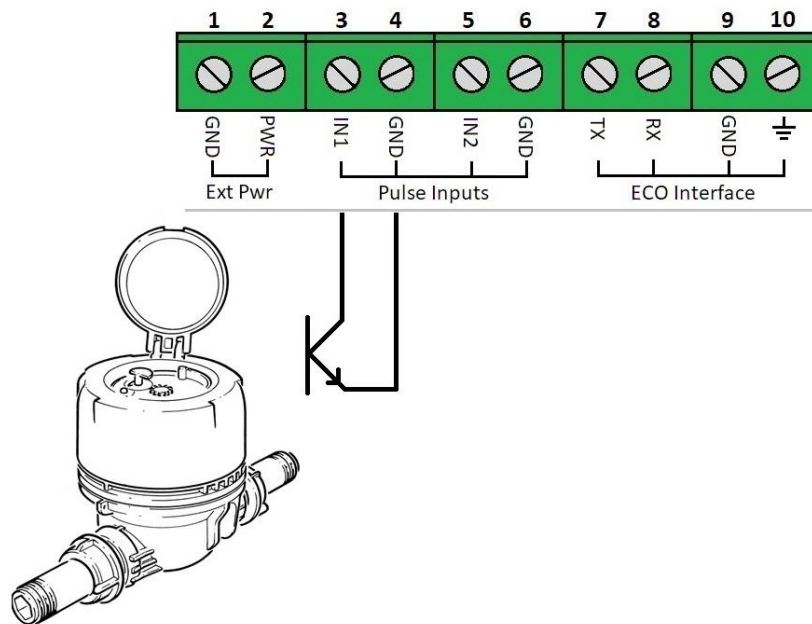## 1.9   Using the pulse inputs

Onboard the Stratus Pulse logger are 2 pulse inputs. Pulse inputs are used by metering type devices (eg water or energy meter) to measure consumption.

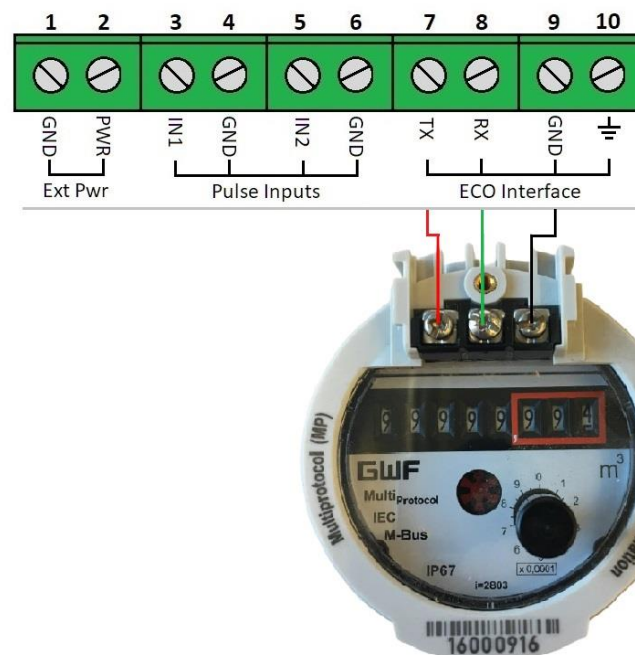Example configuration of water meter with a volt free switch (e.g. reedswitch)

Example configuration of water meter with electronic interface. Please note the polarity of the interface. Ground connection to pin 4 (or 6 for Input 2).

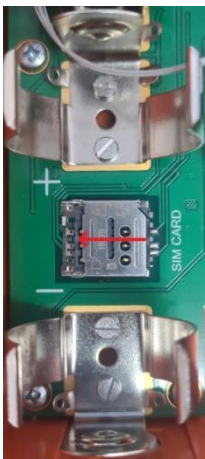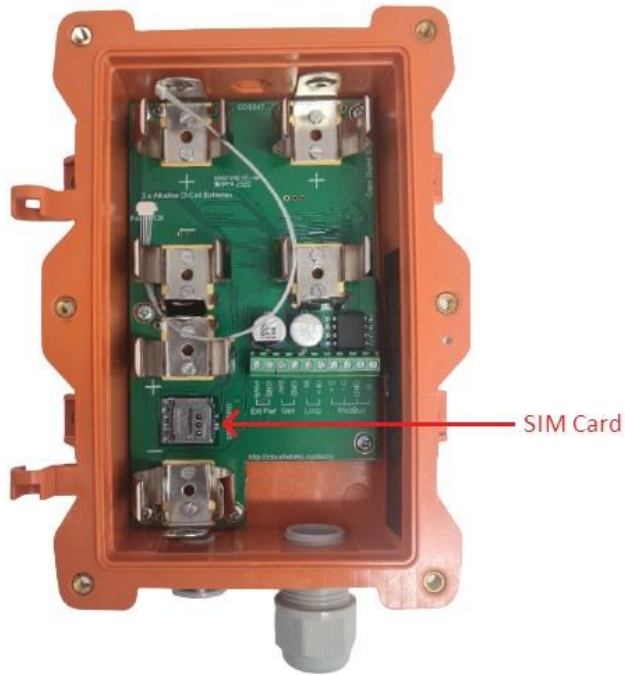## 1.10 Using the ECO interface

The onboard ECO interface is primarily used to support the GWF range of water meters with these interfaces installed. The interface provides power to the meter, as well as reading back the data string from the meter.
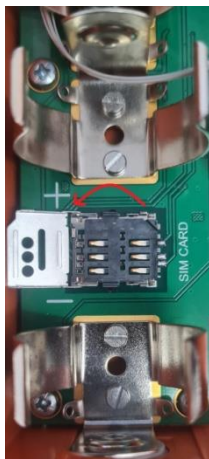
1.11 Sim card and battery installation

The CDS549 Stratus logger uses a MicroSIM and is installed as follows.
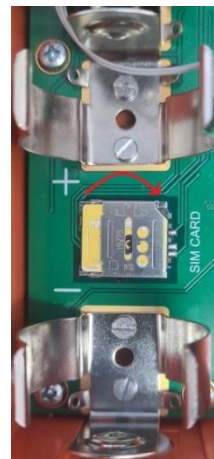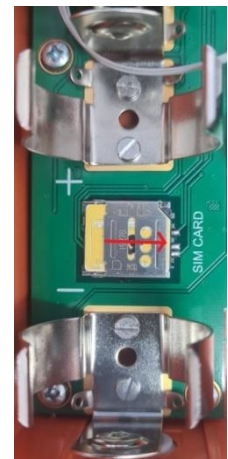

1.   2.   3.   4.   5.

1. Slide the cover plate backwards to unlock.
2. Flip the cover plate up to expose the connections.
3. Place the sim card with the connections facing downwards. Please note the position of the notch.
4. Flip the cover plate down again to cover the sim card.
5. Slide the cover plate forward again to lock into the base.

Battery Installation

1.12 Installation considerations

The CDS549 Stratus Pulse logger is environmentally rated to IP68 - max1.2m. In order to achieve this, it is critical that any cables entering the logger are properly sealed by the IP68 gland. This gland is designed to only have one cable exiting the logger and not multiple ones. Multiple cables will prevent the gland from achieving a proper seal.

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1.1 Logger setup

This logger can be configured using 3 different methods:-

1. Through the local Bluetooth interface.
2. Remotely when a logger is powered and is currently online.
3. Via the Offline scripting method for battery operated loggers that sleep most of the time.

All the details for Bluetooth connections and related settings are available in the CloudWorks Client software and can be accessed directly from there.