

Physical Installation User Guide for Outpost Central WASP2

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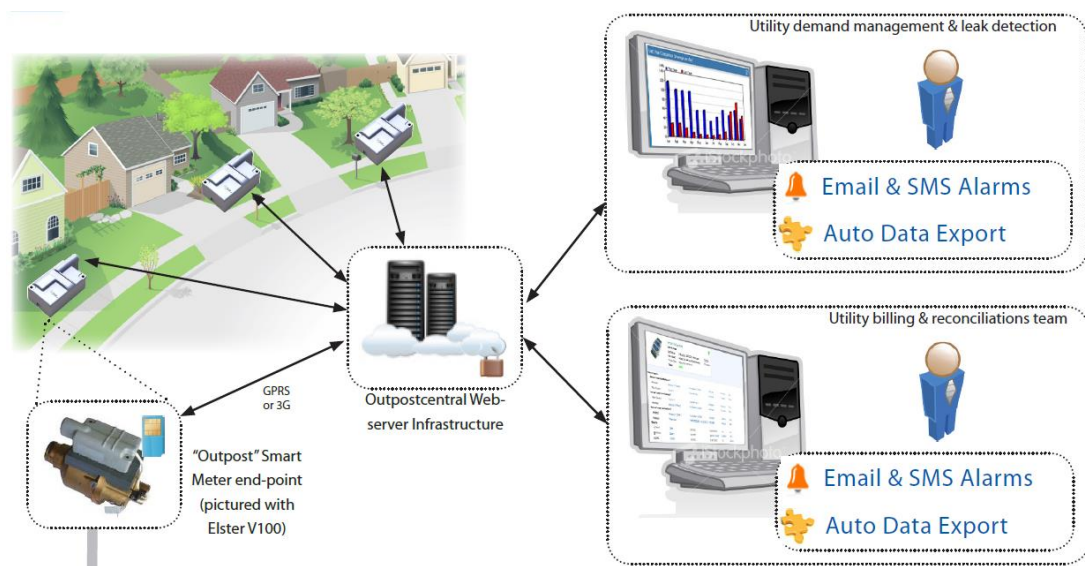
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I.0 OVERVIEW

The Outpost Central smart water metering solution comprises ultra-low-power WASP2 wireless data loggers which collect water use data from virtually any water meter. Data is transferred to cloud-hosted servers via 3G or GSM cellular networks, where it is available a purpose built web software application.



2.0 HARDWARE

2.1 General

The WASP2 data logger can be connect to any compatible meter or sensor within mobile phone range. The hardware contains and internal power supply. It is IP68 rated thus suitable for direct attachment to water meters, and the enclosure design integrates support for a number of physical mounting options.

Upon initial activation, a WASP2 will connect to the www.outpostcentral.com webserver to download configurations settings (which can be changed at any point via our website). From that point it will enter a continuous cycle of reading meters and/or sensors and uploading those readings based on the configuration settings stored in the Outpost Central website.

2.2 Activation

The WASP2 can be activated at any time using a magnet. WASP2s are shipped from our factory with the SIM pre-installed and deactivated, and the SIM will self-register upon activation.

2.2.1 Activation Procedure

Using a small magnet, the WASP2 can be forced to attempt an immediate connection to the website. A successful connection will validate the GPRS/3G coverage at the chosen installation location and will also upload details of signal strength and pulse count to the website.

The installer can also view the results of the signal strength and pulse count data by using smart-phone (see next section).

When using the magnet to test connectivity observe the LEDs on the front cover during the swipe activation. Blue, Red, Green and Orange LEDs indicate the following:

BLUE Activity indication. The WASP2 is attempting to find a cellular operator and make a connection.

RED Error Indication. Something has gone wrong in the connection process. The error type is indicated by the number of contiguous flashes of the red LED in a group of flashes.

GREEN Successful connection. A green LED means the WASP2 has connected to the website and uploaded data successfully.

ORANGE LED is an indicator of a contact closure event on one of the 2 counter channels. The orange LEDs can be used to confirm correct connection to a water meter. The orange LEDs only remain active during the website connection sequence after a magnet swipe – about 40s to 60s.

In order to activate the GPRS/3G connection with the magnet, complete the following steps:

1. Activation

Hold the magnet over the magnet icon as indicated in below:



2. Operator Connection

A blue LED will immediately light up to indicate WASP2 activation. The blue LED will remain solid for a period of 10s to 60s as a cellular operator is located. This process may take longer if a unit has recently been transported from a different country or region. In this case it may be attempting to find the correct GSM operator.

3. Signal Strength

Once an operator is found the blue LED will flash a code indicating the current GSM/3G signal strength. 1 flash indicates low signal. 2 flashes indicates average signal. 3 flashes indicates good signal strength.

The signal strength flashing will continue while the WASP2 attempts to make a cellular data connection and upload data to the web. This process may continue for longer than normal if the unit has a lot of data to unload from the internal memory.

4. Connection Status

Upon a successful connection the light will turn green to indicate a successful connection to the website.

Green status LED
confirms successful
server connection



5. Failed Connection

Upon a failed connection, the light will turn red to indicate a failure. The number of consecutive flashes of red LED indicates the following problems:

# RED Flashes	Problem
1	Internal SIM card deactivated or damaged
2	Insufficient signal strength to attach to cellular operator
3	Signal lost during attachment to cellular operator
4	Failed to attach to cellular data network. This could be due to a loss of signal, or SIM cellular data connections not permitted with the cellular operator.
5	Failed to connect to Outpostcentral.com. This could be due to a fault in the cellular operator's gateway to the internet, or the Outpostcentral.com server could be down.
6	Attached to Outpostcentral.com and sent data, but failed to receive a response. This could be due to a fault with the Outpostcentral.com server.
7	WASP2 has failed to connect to Outpostcentral.com 5 times consecutively.
8	Test mode. Contact Outpostcentral.com
9	Test mode. Contact Outpostcentral.com

General Troubleshooting of Failed Connections

If a WASP2 unit failed to give a Green LED for a successful connection, check the following:

1. Insufficient Signal strength. Check signal with your Smart Phone. If unit is below a manhole cover, in meter pit with a covered lid, or in a basement, consider moving the unit to a higher or more open location.
2. Temporary cellular network problem. Test the network with your smart phone (after first ensuring it is operating on the same network), if it's OK then retry with the WASP2.
3. Damaged WASP2 unit. The unit has been damaged since last used. Check connections to meters/sensors have not mistakenly fed high voltages into WASP2 device.

2.3 Deactivation

Deactivation occurs via our website. A WASP2 will enter deactivated mode following its next upload after the "Deactivate" setting has been set on the website (you can force the WASP2 to collect the "deactivate" setting by forcing a server connection with a magnet activation, otherwise the WASP2 will deactivate on its next scheduled upload.

2.4 Signal Strength

The WASP2 provides user feedback regarding cellular signal strength. This information is available via LED's during a user-initiated upload, via the smartphone installation software, or via the main website. In order to optimise battery life it is important to optimise signal strength wherever possible.

Placement of the Outpost WASP2 is therefore important to ensure adequate GSM/3G signal strength is available. This may mean installing the WASP2 as high as possible, or avoiding installation under or behind metal and/or concrete.

Poor GSM signal strength may cause the Outpost WASP2 to make more attempts than normally required to contact the website and therefore exhaust the internal batteries more quickly. It can also cause a delay in meter/sensor readings being transferred to the website.

Poor signal starts to affect battery life at around 30% GSM signal strength, and generally will be too low for normal operation at less than 20% signal strength for GSM or 5% for 3G/NextG.

If an Outpost WASP2 is left installed in poor signal strength expect to see the unit appearing "offline" from time to time, and the website battery gauge to show a higher than normal battery drain rate.

Very poor GSM/3G signal strength can result in the Outpost WASP2 device lasting less time than the rated battery life, or not connecting at all.

2.5 Water Meter Connection

For WASP2 variants *WASP2-3G-1FM12*, connectors (M12) need to be fitted to the water meter pulse cable for connection to the WASP2's FM12 connector. Note that the WASP2 counter channel for receiving the water meter pulse signal is accessed via pins 2 (signal/+) and 4 (ground/-) of the M12 connector. For mechanical/reed switch type pulse leads, polarity does not need to be observed. However, for newer inductive type pulse leads (e.g. Actaris/Itron Cyble and Elster PR7), polarity must be observed (i.e. M12 Pin 2 = +, M12 Pin 4 = -). Documentation confirming the correct wire pair to use, and the polarity, is generally supplied with pulse leads by the manufacturer.

For *WASP2-3G-1TL2* variants, the Elster T-probe reed switch is pre-terminated on the logger.

2.6 Installation Considerations

The WASP2 is an extremely rugged and durable product, and is therefore suited to a range of installation methods. The following considerations may be worthwhile when determining an installation method:

- Signal strength should be optimised
- Positioning the WASP2 where flooding may occur is not recommended

The Outpost WASP2 can be mounted either using < 5mm dia screws through the main body, or using an appropriate sized cable tie (nylon or stainless steel) across the body as indicated below.



WASP-2G-1FL secured with stainless steel cable tie

3.0 SOFTWARE SETUP

The m.outpostcentral.com mobile software application designed for use on smartphones and tablets to allow quick, easy and paperless hardware installation and commissioning by installers. Note that m.outpostcentral.com, while accessible via any “Client” login type, is a completely separate software platform to the main www.outpostcentral.com website and is designed for installation and commissioning functions only. All other functions are designed to be accessed via the main web software at www.outpostcentral.com.

Please refer to the separate manual for details on the use of m.outpostcentral.com.