Metron2
Telemetry that makes sense

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british engineering excellence awards
WINNER

QUICK START GUIDE

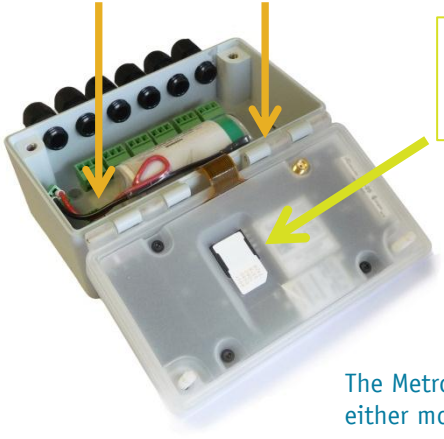
1.Safety

Refer to full user manual (www.powelectrics.co.uk/metron2). Do not recharge internal battery. Do not connect to voltages > 24 Vdc. Do not use on aircraft.

2.Mounting

The unit needs a mobile phone signal to work – the stronger the signal the better so try and avoid mounting inside metal cabinets or underground. The unit is weather-proof but you need to make sure the glands are tight; that if no cable is going through a gland that you fit the blanking plugs and you fit the blanking plugs over the fixings inside the device.

2 x 5.5mm diameter mounting holes on 112mm centres



3.Sim card

Make sure it has credit, doesn't need a PIN code & there is network coverage where you plan to use it.

4. Antenna

The Metron2 has an integral antenna but if you signal is poor then either move the Metron2 or fit an external antenna using the SMA connector, running the cable out through a gland. Select external antenna via menu or set in the configuration.

5. How does it work?

Unit asleep Screen & GSM off

- The real time clock is counting time and wakes the device up depending on how it is programmed.

Wake up interval - powers the sensors and takes readings

- 10 high alarm thresholds and 10 low alarm thresholds for each of the 4 channels – if threshold breached then it transmits immediately

Transmit interval (or upon alarm) it powers up the GSM engine

Readings & alarms are sent via GSM/GPRS

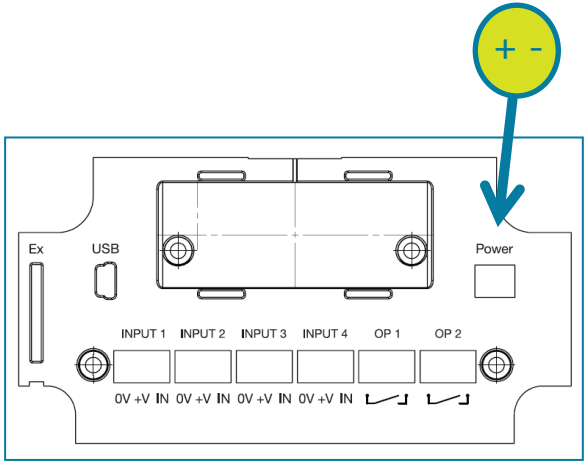
You can program the Metron2 to work in different ways - under 'system' there is the 'modem power scheme.' Unit can switch off everything or it can keep the modem on so it can receive 'polls.' The configuration effects current consumption and therefore battery life.

6.Power

Your choice of power source needs to suit your application and your hardware, either an internal 3.6v, 17AH battery (not rechargeable) or an external 6 to 24 Vdc power source (could be solar, wind, a larger battery, or a 110/230 Vac to 6-24Vdc power supply). The supply needs to be quite well regulated and capable of delivering a peak of 0.5A.

INTERNAL BATTERY – USE MODEL METRON2/SSM - GREEN STICKER NEAR POWER CONNECTOR

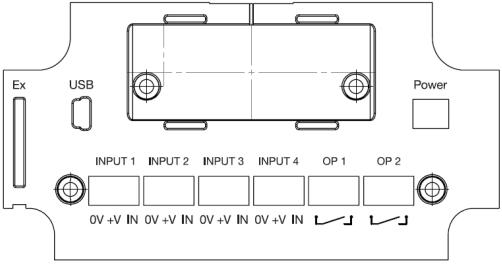
EXTERNAL 6-24 Vdc – USE MODE METRON/S – BLUE STICKER NEAR POWER CONNECTOR

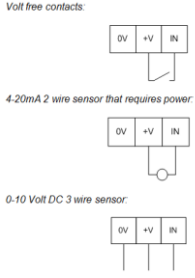


Select 'Safe Shutdown' from the menu before disconnecting power

7.Connect sensors

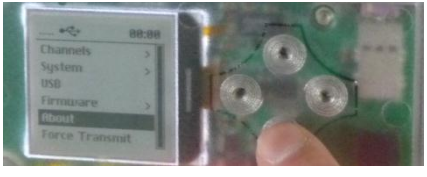
Run the cable through the glands & tighten. Unplug the green connectors and wire in as required.





8.Using the menu

With the power connected press on of the buttons if the display is not on to 'wake the unit up.' Enter the PIN (default = 1234) followed by the right arrow. Navigate around the menu. Use the menu to check signal strength, look at inputs, check the configuration and much more..



Up

Go back a level of the menu ('escape')

Select the highlighted option

Down

9. Programming

You will need a windows based pc and a mini usb cable (not supplied).

1. Download the configuration tool & usb driver from www.powelectrics.co.uk/metron2
2. Unzip & save the usb driver somewhere on your pc where you can find it again and rename as .inf
3. Make sure you have power onto the Metron2 and that the screen is on
4. Connect the USB cable & install the driver

If you lose your connection disconnect the usb cable, close the config tool and wait for the screen to go off. Touch a button to bring the screen back on, connect the usb cable and re-open the config tool.

5. Install the configuration tool
6. Write your configuration – the bubble help will make life easy for you – don't forget to save it
7. Download to your device

To **program remotely** use the configuration tool to create the text strings and then send them by text message – next time the modem is powered and the unit is connected to the mobile phone network it will receive & process the text message. Be careful – the syntax must be exactly the same & you can't have two comma's next to each other. Note the comma at the end of each command line – this must be in your text message.

There are a series of commands summarised below:-

0 – sets the real time clock
1 – phonebook
2 – system
3 – inputs
4 – change password
5 – erase configuration
6 – request readings
7 – gprs settings
8 – digital output control

10. Technical summary

IP67 (if you fasten the lid, tighten glands, fit blanking plugs where glands are unused and fit blanking plugs over the fixing holes).
4 inputs (0-10 volts, 4-20mA, 0-20mA or volt free contact)
2 outputs (latching relays) – **only fitted on special request**
Sensor excitation (5 or 21.6 volts)
Current consumption:

Deep sleep	~110 microamps
Stand by	~ 20 mA (modem on, screen & sensors off)
Screen on	add 33mA
USB connected	add 38mA

During 'read now' cycle add 50mA average

Configurable parameters:

System: wake up interval, transmit interval, modem state (includes idle, gprs pollable, sms pollable, transmit on power up), text message format, internal or external antenna selection, synchonisation time and transmission window, display live sensor readings if left button pressed.

Inputs: type (analogue or digital), tag name, units of measure, zero & span (scaling), 10 high (rising) and 10 low (falling) alarm thresholds, call out delay, hysteresis, input type, sensor excitation voltage & settling time, linearisation (32 point strapping tables), text for hi to low / lo to hi transition (for digital inputs).

Outputs: what text to be sent to switch on/off or if controlled from an alarm threshold.

Communications: 4 phonebook entries, GPRS settings including APN, username & password for the sim card and IP address & port of hosts, protocol required (various supported).

Note: If gprs is configured then sms is only used as a backup and only 1st phonebook entry is used.