Point Yellow is a secure, compact and fully programmable mains-powered RTU, providing users with an all in-one device suitable for various automation and remote monitoring applications. With its wide range of onboard, software configurable I/O, Point Yellow is the versatile choice to improve operational efficiency and performance.

KEY FUNCTIONALITY:

- Real-time remote monitoring of up to 28x I/O channels including analogue, digital and counter inputs
- Communicates with Medina or DNP3 Telemetry Masters
- Multiband modem supporting 4G LTE, 3G and 2G networks
- Back up comms route using Ethernet
- Connects to Medina or DNP3 masters (e.g. ClearSCADA)
- Support for IEC-61131 programs using Straton workbench
- IO expansion capability using Modbus TCP
- Flexible integrated DIN rail mount installation bracket
- Local diagnostic points, such as Comms signal strength, Temperature, Battery Voltage
- Remote configuration and firmware upgrade facility
- Easy to configure and monitor using Poco+ software and Straton workbench

ONBOARD I/O

Point Yellow provides real time remote monitoring of sensors and devices connected to its onboard I/O. It has a multitude of options including analogue, digital and counter inputs and digital outputs.

The following table lists the available I/O:

Type	Max No.	Range	Notes
Digital input	16	0-1	Volt-free, includes a debounce filter
Digital output	4	0-1	10–30V. Max switch current 250mA per channel
Counter input	14	32-bit	Volt-free, up to 100 Hz, includes a debounce filter
High speed counter	2	32	Volt-free, up to 10 kHz, includes a debounce filter
Current loop	8	4-22mA	Configurable 24V isolated excitation, 200mA total
Voltage	8	0-5V or 0-10V	Configurable input range

The current loop inputs can be configured to provide a 24V excitation voltage providing up to 200mA in total across all sensors, thereby minimising the on-site wiring and simplifying the installation.

COMMS

The Point Yellow has an integrated LTE modem that supports 4G with fall back to 3G and 2G networks. The unit has an external SMA connector allowing users to select the most appropriate antenna for their selected application. The Point Yellow provides the following functionality with regards to communication:

- Multiband modem supporting 4G, 3G and 2G networks
- Support for a third-party external antenna
- Configurable periodic scheduled dial back
- Trigger dial in using easy access button
- Back up communication option using Ethernet port
- RF band support
- 4G LTE-Cat 1: B1 (2100MHz), B3 (1800MHz), B7 (2600MHz), B8 (900MHz), B20 (800MHz), B28 (700MHz),
- 3G HSPA+, UMTS: B1(2100MHz), B8 (900MHz),
- 2G EDGE, GPRS: 900MHz, 1800MHz

ANALOGUE INPUTS

The Point Yellow supports four distinct types of analogue input. Each of the 8x channels can be configured for one of the following input types.

- Active loop analogue input (4-20mA with 24V excitation voltage)
- Passive loop analogue input (4-20mA)
- Voltage analogue input (0-5V)
- Voltage analogue input (0-10V)

The analogue inputs are provided as two isolated banks of 4 channels. The optional 24V excitation voltage for the active loop inputs can provide up to 100mA per bank of 4 channels.

DIGITAL AND COUNTER INPUTS

The Point Yellow can be configured to read up to 16x digital inputs (DI). Each of these inputs is defined as volt-free. i.e. no whetting voltage is required for the change in state to be detected. The DI's will also accept a 0-3V signal as a digital input.

All of the digital input channels can also be configured as counter inputs (100Hz) with 2x channels supporting up to 10kHZ. All feature debounce circuits as standard.

DIGITAL OUTPUTS

The Point Yellow has 4x digital outputs that can be used for switching external loads up to 250mA per channel. Each channel can be configure to latch (switch state), pulse (switch load on and then off) or toggle (continually switch on and off).

INTERNAL MONITORING

In addition to external sensor reading the Point Yellow can monitor and report information about itself. Some of the parameters monitored include:

- External supply voltage
- Temperature
- Cellular signal strength (for the external and internal antenna)
- Modem error code
- No. of successful and unsuccessful calls to the Telemetry Master
- Cell information including, Mobile Country Code and Mobile Network Code
- Datalogger/RTU device serial number and SIM card number

All these internal values can be accessed remotely as points on the Telemetry Master and can be configured with trends and events.

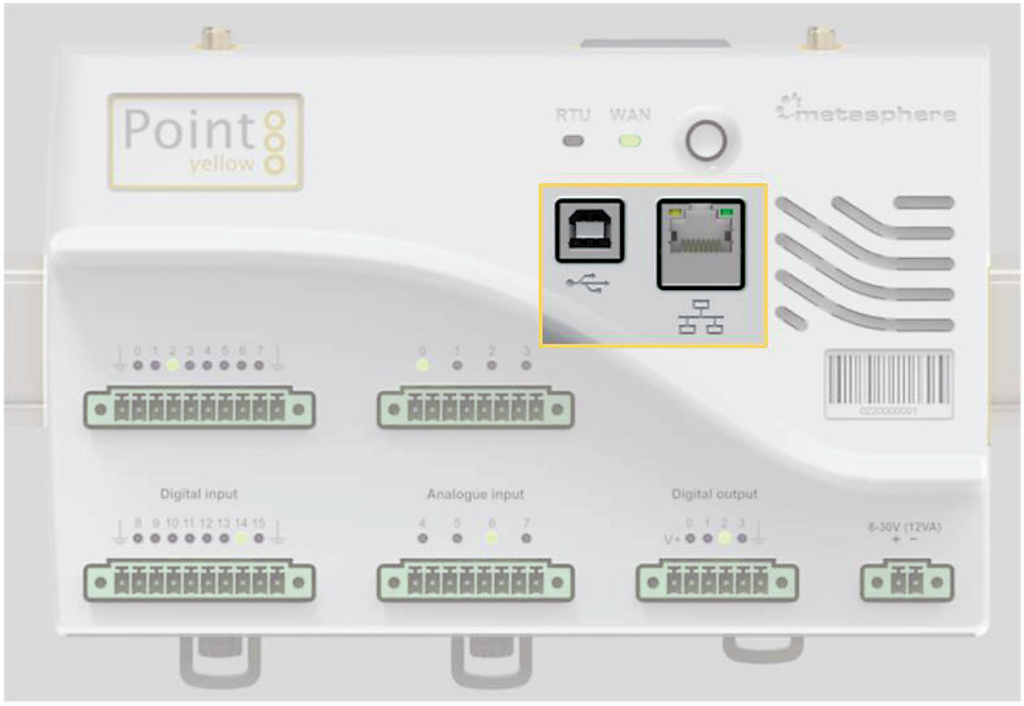
LOGIC PROGRAMMING

The Point Yellow utilises the Straton automation software a powerful automation platform allowing users to implement their own logic sequences using the Straton workbench utilising the Point Yellow IO to derive new points and/or control the digital outputs.

This flexible software allows programs to be written using all of the IEC-61131 languages including ladder logic, functional block diagrams and structured text, with support for logic, timers, calculations and expansion protocols (TCP Modbus).

PORTS

The Point Yellow has 2x communication ports on the front face shown below:



The USB port is used for connecting the Point Yellow to a PC for configuration and local monitoring using Poco+.

The Ethernet port can be used for connecting an additional WAN route using and external modem or router. This allows users to provide a layer of redundancy in the event that the internal LTE modem is not able to communicate. This port can also be used to connect to external Modbus TCP devices such as additional IO blocks.

LEDS

There are LED indicators for each I/O channel to show the current status.

- Analogue inputs - Illuminated when configured and a valid input is detected. Out of range inputs are shown by the LED flashing
- Digital inputs – Open or closed circuit
- Digital outputs – LED illuminated when load is energised

In addition to the individual IO LED's the Point Yellow has two status LED's that indicate the current status of the Point Yellow and the modem.

- RTU – Shows the current status of the Point Yellow e.g. booting, running etc.
- WAN – This LED is illuminated when the modem is communicating

DNP3 PROTOCOL

The Point Yellow can be configured as a DNP3 slave device, capable of the following:

- DNP Level 2 + parts of level 3 and level 4
- Class 1, 2 and 3 Events
- Level change event model for analogue inputs with up to 10 limits
- Contactable events (Alarms)
- Periodic events (Trends)
- Object Group 0 device attributes
- File transfer and activation
- Time synchronisation with Telemetry Master
- Object 20 (Counter) writes
- Object 110 (string) points
- Supports unsolicited reporting
- Frozen counters

MEDINA PROTOCOL

The Point Yellow can be configured as a Medina slave device, capable of the following:

- Deployment on our Palette web-hosted telemetry system
- Monitoring of inputs
- Eventing and Alarming
- Logging sensor measurements (Trending)
- File transfer
- Time synchronisation with Telemetry Master

MEMORY

The Point Yellow has 256MB of flash and 128MB of RAM for storing configurations, and telemetry data. This is sufficient for storing over 50,000 telemetry events, alarms or trend values. User configurations and other diagnostic files are stored in flash memory so are preserved over power cycles.

CONFIGURATION

The Point Yellow configuration is stored in non-volatile memory meaning that it is retained after a power reset.

The Point Yellow can be configured locally by connecting over USB to a Microsoft Windows PC running the Metasphere application, Poco+. The RTU can also be configured remotely via Medina or DNP3.

FIRMWARE UPGRADE

Point Yellow supports firmware upgrades, either over-the-air using the Medina protocol, DNP3 file transfer or locally via the USB cable from Poco+.

Users should be aware that remote firmware upgrade may take a longer to complete when communicating over 2G connections due to the limited bandwidth available compared to 4G or direct USB transfer.

CONFIGURATION

The Point Yellow can be powered by a suitable external DC power supply. This can include a battery back up facility if compatible with the power supply unit.

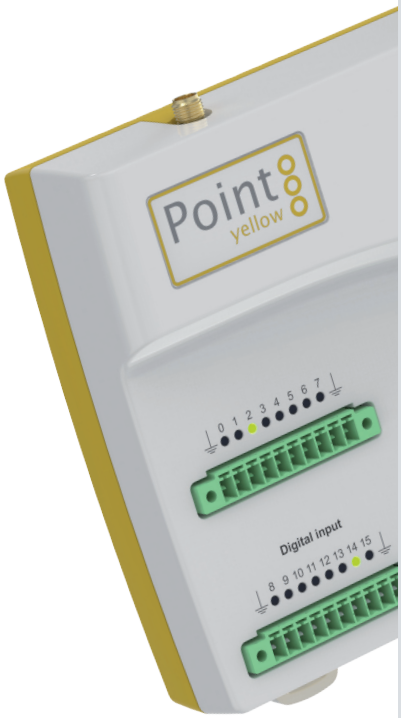
The power supply should be rated at 45W with a voltage range of 10-30V DC.

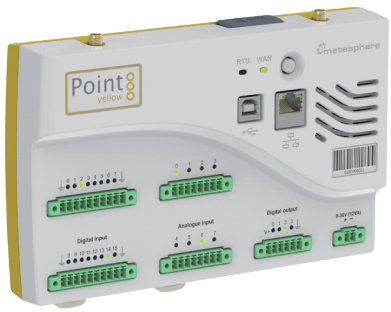
metasphere
make data count

POINT YELLOW

TECHNICAL SPECIFICATION

Point yellow





Analogue Inputs	8 channels Type: Current loop (4-20mA) or Voltage (0-5V, 0-10V) Accuracy: ±0.5% (full scale) Resolution: 16-bits 24V isolated excitation voltage Two banks of 4 channels isolated from each other
Digital inputs	16 channels (14x 100Hz and 2x 10kHz counters) Volt free +/- 15kV ESD protection 32-bit count
Digital outputs	4 channels Open collector with diode protection Voltage 10 to 30V Load current 250mA per channel
Power	DC power input (10-30V DC) Max power 45W (3A @15V) Sensor power supply (12V DC, current loop or voltage)
Protocols	Medina DNP3 with support for SAv5 Modbus TCP master (Ethernet)
Memory	256MB flash memory 128MB static RAM
Comms	LTE with 2G/3G fallback. (IP only) E10/100 Ethernet (WAN or Expansion)
Programming	IEC-61131 5x languages using Straton workbench
Local monitoring	Ambient temperature sensor (± 1˚C) External supply (± 3%)
Remote management	Remote firmware upgrade Remote configuration
Dimensions	190mm × 120mm × 35mm 0.3 Kg (fully assembled)
Environmental	-20˚C to +70˚C 5% - 95% Relative humidity non-condensing

Point Yellow Data sheet
April-23

FIND OUT MORE!

If you could like to monitor and control remote assets, get in touch to find out how **POINT YELLOW** can transform your network.

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