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www.janitza.com

BCM Power Analyser

# UMG 804

User manual and technical data


Fig. UMG 804 (24 V), optional

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## Safety Information

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- **This product must be installed inside a suitable fire and electrical enclosure.**
- **Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.**
- **This equipment must only be installed and serviced by qualified electrical personnel.**
- **Do not use this product for life or safety applications.**
- **Do not install this product in hazardous or classified locations.**
- **Read, understand and follow the instructions before installing this product.**
- **Turn off all power supplying equipment before working on or inside the equipment.**
- **Product may use multiple voltage/power sources. Disconnect ALL sources before servicing.**
- **Use a properly rated voltage sensing device to confirm that power is off. DO NOT depend on this product for voltage indication.**
- **Current transformer secondaries (current mode) must be shorted or connected to a burden at all times.**
- **Products rated only for basic insulation must be installed on insulated conductors.**
- **Replace all doors, covers and protective devices before powering the equipment.**
- **The installer is responsible for conformance to all applicable codes.**

**Failure to follow these instructions will result in death or serious injury.**

A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and installations, and has received safety training to recognize and avoid the hazards involved. NEC Article 100
If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this material.

Provide a disconnect device to disconnect the meter from the supply source. Place this device in close proximity to the equipment and within easy reach of the operator, and mark it as the disconnecting device. The disconnecting device shall meet the relevant requirements of IEC 60947-1 and IEC 60947-3 and shall be suitable for the application. In the US and Canada, disconnecting fuse holders can be used. Provide overcurrent protection and disconnecting device for supply conductors with approved current limiting devices suitable for protecting the wiring.
Control system design must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure.

Examples of critical control functions are emergency stop and over-travel stop.

For Janitza measurement devices and components, use **only** current transformers intended for measuring purposes (“transformers”)!

“Transformers”, unlike “protection transformers”, go into saturation at high current peaks. “Protection transformers” do not have this saturation behavior and can therefore significantly exceed the rated values in the secondary circuit. This can overload the current measurement inputs of the measurement devices!

Furthermore, please note that Janitza measurement devices and components are **not** to be used for critical switching, control or protection applications (protective relays)! Observe the safety and warning information in the “Installation” and “Product safety” chapters!

**⚠ WARNING**

**LOSS OF CONTROL**

- **Assure that the system will reach a safe state during and after a control path failure.**
- **Separate or redundant control paths must be provided for critical control functions.**
- **Test the effect of transmission delays or failures of communication links.[1]**
- **Each implementation of equipment using communication links must be individually and thoroughly tested for proper operation before placing it in service.**

**Failure to follow these instructions may cause injury, death or equipment damage.**

[1] For additional information about anticipated transmission delays or failures of the link, refer to NEMA ICS 1.1 (latest edition). Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Controls or its equivalent in your specific country, language, and/or location.

**FCC Part 15 information Note:**
This equipment has been tested by the manufacturer and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications to this product without the express authorization of the manufacturer nullify this statement.

This Class A digital apparatus complies with Canadian ICES-003.


This symbol indicates an electrical shock hazard exists.


Documentation must be consulted where this symbol is used on the product.

## Subject to technical changes.

The content of our documentation has been compiled with the utmost care and is based on the latest information available to us. Nevertheless, we would like to point out that the updating of this document cannot always be performed simultaneously with the further technical development of our products. Information and specifications can be changed at any time.
Please consult *www.janitza.com* for information on the current version.

The English version is the original version of the documentation.

# Content

## For firmware version 1.126

**Earlier versions may not contain all the noted features.**

# 1. General information

## 1.1 Disclaimer

It is essential that the information products for the devices are observed to ensure safe operation and achieve the specified performance characteristics and product features.

Janitza electronics GmbH assumes no liability for personal injuries, property damage and financial losses resulting from the failure to observe the information products.

Make sure that your information products are legible and accessible.

## 1.2 Copyright notice



## 1.3 Technical changes

· Make sure that the user manual matches your device.
· First, make sure you have read and understood the document accompanying the product.
· Keep the documents accompanying the product accessible through its service life and hand them over to the subsequent owner where applicable.
· Refer to *www.janitza.com* for information concerning device revisions and the associated adjustments to the documentation accompanying the product.

## 1.4 About this user manual

Please send us any questions, comments or suggestions for improvement about the user manual via e-mail to info@janitza.com.

## 1.5 Defective device/disposal

Send **defective devices** back to the manufacturer for inspection (complete with accessories). Do not attempt to independently open or repair the device since otherwise the warranty claim will expire!

Please observe the national regulations for the **disposal**! Dispose of individual parts, where necessary, depending on the properties and existing country-specific regulations, e.g. as:
· Electronic waste
· Batteries and accumulators
· Plastic
· Metal
or commission a certified disposal company with the scrapping.

# 2. Safety

The safety chapter contain notes that must be observed for your personal safety and to prevent property damage.

## 2.1 Presentation of warning notices and safety instructions

The warning notices listed below
· can be found in the complete documentation.
· can be found on the devices themselves.
· point out potential risks and dangers.
· confirm information which clarifies or simplifies procedures.

The additional symbol on the device itself indicates an electrical danger that can result in serious injuries or death.

The general warning symbol calls attention to possible risks of injury. Observe all the instructions listed under this symbol in order to prevent injuries or even death.

### 2.2 Danger levels

Warning notices and safety instructions are highlighted by a warning symbol and the danger levels are presented as follows depending on the level of risk:

| ⚠ DANGER |
| --- |
| Indicates an imminently dangerous situation that will result in serious or fatal injuries in the event of noncompliance. |

| ⚠ WARNING |
| --- |
| Indicates an imminently dangerous situation that can result in serious or fatal injuries in the event of noncompliance. |

| ⚠ CAUTION |
| --- |
| Indicates an imminently dangerous situation that can result in minor injuries in the event of noncompliance. |

| *ATTENTION* |
| --- |
| Indicates an imminently dangerous situation that can result in property damage or environmental damage in the event of noncompliance. |

| *NOTE* |
| --- |
| Points out procedures during which a danger of injuries or property damage does **not** exist. |

### 2.3 Product safety

The device corresponds to the state of the art and complies with the generally accepted safety rules; nevertheless, dangers may arise.

Observe the safety requirements and warning notices. Failure to observe the notices can result in personal injury and/or damage to the product.

Any impermissible modification or use of this device
- exceeding the specified mechanical, electrical or other operating limits can result in personal injury and/or damage to the product.
- applies as “misuse” and/or “negligence” with respect to the product warranty and thus voids the warranty for coverage of potentially resulting damages.

Read and understand the user manual before installation, operation, maintenance and use of the device.

Only operate the device in flawless condition in compliance with this user manual and the accompanying documents. Send defective devices back to the manufacturer taking into consideration the transport conditions.
Keep the user manual through the entire service life of the device and always have it readily available for reference.

Also observe the applicable legal and safety requirements for your system for the respective application when using the device.

### 2.4 Dangers when handling the device

When operating electrical devices, specific parts of these devices can carry dangerous voltage. Therefore, property damage and personal injuries up to death can occur if they are not handled correctly.

Therefore, when handling our devices, always observe the following:
- Do not exceed the threshold values stated in the user manual and on the rating plate; this must also be observed during inspection and commissioning.
- Observe the safety instructions and warning notices in all documents that accompany the devices.

**⚠ WARNING**

**Risk of injury due to electric voltage!**
Serious personal injuries or death may occur!
Therefore, please observe the following:

- **Before starting work on your system, disconnect the system from the power supply! Secure it against being switched back on! Determine that there is no current! Ground and short-circuit! Cover or block off neighboring parts that are under voltage!**
- **Also make sure to check the surrounding area for dangerous voltage and switch it off if necessary during the operation and troubleshooting (especially with top hat rail devices)!**
- **For work on electrical systems, wear protective clothing and safety equipment according to applicable directives!**
- **Before connection, ground the device/ components at the ground wire connection, if available!**
- **Do not touch exposed or stripped cores that are under voltage! Fit wire end ferrules on the conductors made of individual wires!**
- **Dangerous voltages may be present in all circuit parts connected to the voltage supply.**
- **Secure the supply voltage with a suitable circuit breaker/fuse!**
- **Never switch off, dismantle or manipulate safety devices!**
- **There may still be dangerous voltages present in the device or in the components even after disconnection of the supply voltage (capacitor storage).**
- **Do not operate equipment with open current transformer circuits.**
- **Only connect screw-type terminals with the same numbers of poles and same type!**
- **Do not exceed the threshold values stated in the user manual and on the rating plate; this must also be observed during inspection and commissioning.**
- **Safety instructions and warning notices in the documents that accompany the devices and their components!**

**⚠ WARNING**

**Disregarding the connection conditions of the Janitza measurement devices or their components can lead to injuries and even death or to material damage!**

- Do not use Janitza measurement devices or components for critical switching, control or protection applications where the safety of persons and property depends on this function.
- Do not carry out switching operations with the Janitza measurement devices or components without prior inspection by your plant manager with specialist knowledge! In particular, the safety of persons, material assets and the applicable standards must be taken into account!

### 2.5 Electrically qualified personnel

To prevent personal injuries and property damage, only electrically qualified personnel may work on the devices and their components, assemblies, systems and circuits. They must also have knowledge

- of the national and international accident prevention regulations.
- of safety technology standards.
- in installation, commissioning, operation, enabling, grounding and labeling of electrical equipment.
- of the requirements for personal protective equipment.

Electrically qualified personnel, in terms of the safety-related notes in all documents accompanying the device and its components, are persons who can prove a professional qualification as an electrician.

**⚠ WARNING**

**Warning against impermissible manipulations or improper use of the device or its components!**
Opening, dismantling or impermissible manipulation of the device and its components, which exceeds the specified mechanical, electrical or other operating limits, can result in property damage or injuries up to death.

- **Only electrically qualified personnel may work on the devices and their components, assemblies, systems and circuits!**
- **Always use your device or components as described in the associated documentation.**
- **Send the device or components back to the manufacturer in the event of visible damage!**

### 2.6 Warranty in the event of damage

Any impermissible manipulation or use of the device applies as “misuse” and/or “negligence” with respect to the product warranty and thus voids the warranty for coverage of potentially resulting damages.

## 3. System Overview

The UMG 804 Multi-Circuit Monitoring System is designed to measure the current, voltage, and energy consumption and other critical power parameters up to 96 circuits.

Current transformers are connected via a variety of DIN Rail CT Interface Boards optimized for different applications that connect to the UMG 804 via network cables. Each DIN Rail CT Interface Board monitors up to 24 circuits and the UMG 804 hosts up to four interface boards.

The UMG 804 can communicate via Modbus RTU, Modbus TCP/IP, BACnet, SNMP and REST API as well as provides access to real time and logged data via an onboard web server.

Waveform capture and voltage events can be logged on a USB flash drive and viewed on the HTML console or exported over the network.

The UMG 804 also monitors two digital inputs and provides two digital outputs.

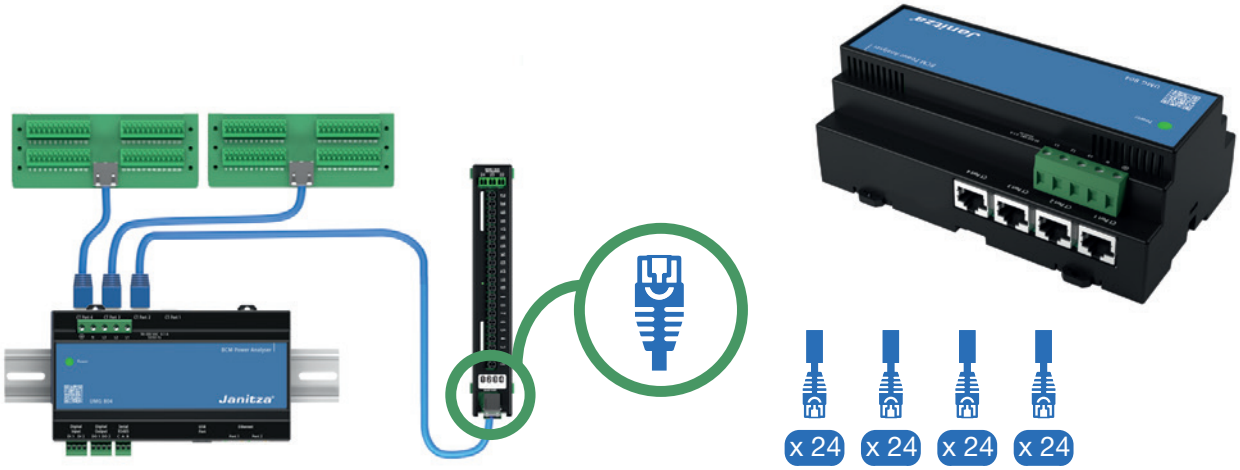



*Fig.: DIN Rail CT Interface Boards connect to the Smart Ports on the UMG 804 using network cables.*

**INFORMATION**
The UMG 804 can also be connected via Splitcore CT with Molex connector (available at Janitza electronics GmbH)

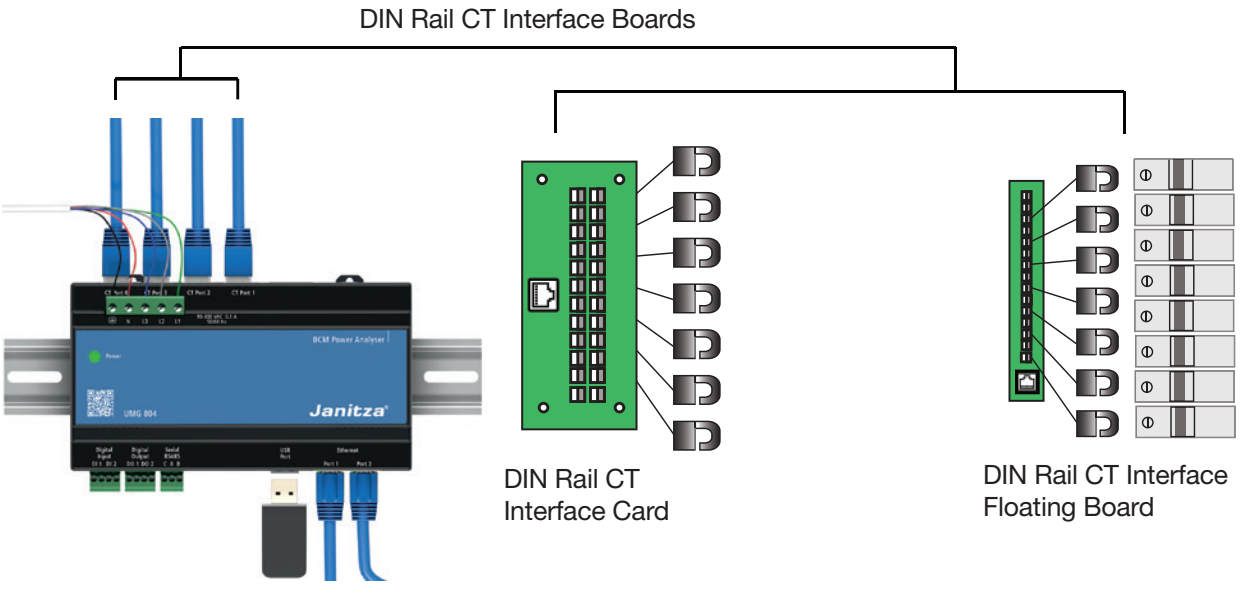



*Fig.: DIN Rail CT Interface Boards connect to the Smart Ports on the UMG 804 using network cables*

## 4. Order information

| Article | Short name | Item no.: |
|---|---|---|
| UMG 804 230 V AC | UMG 804 | 14.02.001 |
| UMG 804 230 V AC Advanced | UMG 804 | 14.02.002 |
| UMG 804 24 V DC | UMG 804 | 14.02.009 |
| UMG 804 24 V DC Advanced | UMG 804 | 14.02.010 |
| DIN Rail CT Interface Card | CTC24CV | 14.02.003 |
| DIN Rail CT Interface Floating Board | CTS24FBV | 14.02.004 |

| Current transformer | Primary current in A | Item no.: |
|---|---|---|
| CT-SC-010-50-JZ | 50 | 15.03.170 |
| CT-SC-010-50 | 50 | 15.03.133 |
| CT-SC-010-75-JZ | 75 | 15.03.130 |
| CT-SC-010-75 | 75 | 15.03.134 |
| CT-SC-012-100-JZ | 100 | 15.03.131 |
| CT-SC-012-100 | 100 | 15.03.172 |
| CT-SC-024-100 | 100 | 15.03.135 |
| CT-SC-024-200 | 200 | 15.03.136 |
| CT-SC-024-250 | 250 | 15.03.137 |
| CT-SC-036-400 | 400 | 15.03.138 |
| CT-SC-036-600 | 600 | 15.03.139 |

## 5. Technical data

| General | |
|---|---|
| Device dimensions (approx.) | w=158.7 mm, h=108.5 mm, d=59.2 mm<br>(w=6.248 in, h=4.271 in, d=2.330 in) |

| Transport and storage<br>The following information applies to devices which are transported or stored in the original packaging. | |
|---|---|
| Temperature | -40 °C to 70 °C (-40 °F to 158° F) |

| Ambient conditions during operation | |
|---|---|
| The device is intended for weatherproof, fixed installation and must be connected to the ground wire connection! Protection class I in acc. with IEC 60536 (VDE 0106, Part 1). | |
| Working temperature range | 0 °C to 60 °C (32 °F to 140 °F) |
| Relative humidity | < 95 % RH (without condensation) |
| Operating altitude | 0 .. 2000 m (1.24 mi ) max. |
| Pollution degree | pollution degree 2 |
| Mounting position | any orientation |
| Ventilation | not required; 3 W heat rejection |
| Protection against ingress of solid foreign bodies and water | requires secondary enclosure |

| AC Power Supply | |
|---|---|
| Installations of overvoltage category | internally fused; install external fuse as required by code |
| Protection of the supply voltage (fuse) | 1 A @ 300 V AC |
| Overvoltage category | II, degree 2 |
| Operating range | 90 .. 300 V AC (50-60 Hz) |
| Power consumption | <0.1 A @ 277 VAC (< 3 W) |

| 24 V DC Power Supply | |
|---|---|
| Installations of overvoltage category | internally fused; install external fuse as required by code |
| Protection of the supply voltage (fuse) | 0.5 A @ 24 V DC |
| Overvoltage category | III, degree 2 |
| Operating range | 12 .. 24 V DC |
| Power consumption | < 0.5 A @ 12 .. 24 V (< 3 W) |

| Terminal connection capacity (AC supply voltage)<br>Connectable conductors. Only one conductor can be connected per terminal! | |
|---|---|
| Single core, multi-core, fine-stranded | 24-12 AWG / 0.205-3.31 mm² |
| Terminal pins, core end sheath | slot screw type |
| Tightening torque | 5.0 Lb-In / 0.56 Nm |
| Stripping length | 5.5 mm (0.22 in) max. |

| Terminal connection capacity (DC supply voltage) | |
|---|---|
| Rigid/flexible | 22-16 AWG / 0.324-1.31 mm² |
| Flexible with core end sheath without plastic sleeve | 22-16 AWG / 0.324-1.31 mm² |
| Flexible with core end sheath with plastic sleeve | 22-16 AWG / 0.324-1.31 mm² |
| Tightening torque | 5.0 Lb-In / 0.56 Nm |
| Stripping length | 5 mm (0.20 in) recommeded |

| Current measurement on modules | |
|---|---|
| Rated current | 0 .. 600 A (external current transducer dependant) |
| Resolution | 0.01 A |
| Crest factor | 3.75 @ 100 % of 0.333 V signal |
| Overload for 1 s | 200 % |

| Voltage measurement<br>The voltage measurement inputs are suitable for measurements in the following power supply systems | | |
|---|---|---|
| Three-phase 4-conductor systems with nominal voltages up to | 480 V AC | |
| Three-phase 3-conductor systems, unearthed, with nominal voltages up to | 277 V AC | |
| **From a safety and reliability perspective, the voltage measurement inputs are designed as follows** | | |
| Overvoltage category | 230 V: Cat II | 24 V: CAT III |
| Protection of voltage measurement | Impedance limited plus clamping diodes / MOV | |
| Measurement range L-N | 0 .. 277 V AC | |
| Measurement range L-L | 0 .. 480 V AC | |
| Resolution | 0.01 V AC | |
| Crest factor | 1.9 @ 240 V AC | |
| Impedance | 2.5 MΩ | |
| Power consumption | <0.1 A @ 277 V AC (< 3 W) | |
| Sampling rate | 40 kHz | |
| Frequency range of the fundamental oscillation - Resolution | 40 .. 70 Hz. | |

| Digital inputs | |
|---|---|
| Quantity | 2 |

**Note:** two inputs for dry contacts

| Digital outputs | |
|---|---|
| Quantity | 2 |
| Switching voltage | 30 V DC |
| Switching current | 100 mA |
| Cable lenght | screw in terminal block |

| Terminal connection capacity (digital inputs and outputs) | |
|---|---|
| Rigid/flexible | 22-16 AWG / 0.324-1.31 mm² |
| Flexible with core end sheath without plastic sleeve | 22-16 AWG / 0.324-1.31 mm² |
| Flexible with core end sheath with plastic sleeve | 22-16 AWG / 0.324-1.31 mm² |
| Tightening torque | 5.0 Lb-In / 0.56 Nm |
| Stripping length | 5 mm (0.20 in) recommeded |

| **RS485 interface**<br>x-wire connection | |
|---|---|
| Protocol | MODBUS-RTU |
| Transmission rate | 9600, 19200, 38400, 57600, 115200 Baud |
| Termination resistor | 120 Ω (consult manual on master device) |

| **Ethernet interface** | |
|---|---|
| Connection | 10/100 |
| Function | Supports Modbus output as well as direct polling of HTML web pages from onboard server |
| Protocols | Modbus TCP/IP, BACnet IP |

**Note:** dual Ethernet ports to allow for connection of multiple devices without the requirement of switch.
REST protocols is supported.

| **Accuracy**<br>Measurement uncertainty on the device applies when using the following metering ranges. The measured value must be within the specified limits. The measurement uncertainty is not specified outside of these limits. | |
|---|---|
| Power/Energy<br>- DIN Rail CT Interface Floating Board<br>- DIN Rail CT Interface Card | IEC 61557-12 Class 0.5; IEC 62053-22 Class 0.5S |
| Current transformers<br>- CT-SC-010<br>- CT-SC-012<br>- CT-SC-024<br>- CT-SC-036 | IEC 61869-10 Class 0.5* |
| Voltage | ± 0.5 % of reading 90 to 277 VAC line-to-neutral |
| Current | Subject to external CT accuracy |
| Minimum ON Current | 50 mA |
| Circuit capacity | 24 x 4 channels (96 circuits total) |

| **AC Split Core Current Transformers Specifications** |
|---|
| Voltage outputs @ 0.333 V |
| Frequency 50 Hz - 400 Hz |
| Operating temperature -40 °C to 70 °C (-40 °F to 158 °F) |
| Storage temperature -45 °C to 85 °C (-49 °F to 185 °F) |
| UL certified |

| Modul | Art. no. | Input Current | Ø mm (in) | Cable lenght m (in) | Accuracy class | Usable for Interface |
|---|---|---|---|---|---|---|
| CT-SC-010-50-JZ | 15.03.170 | 50 A | 10 (0.394) | 0.25 (9.84) | 0.5* | Floating |
| CT-SC-010-50 | 15.03.133 | 50 A | 10 (0.394) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-010-75-JZ | 15.03.130 | 75 A | 10 (0.394) | 0.25 (9.84) | 0.5* | Floating |
| CT-SC-010-75 | 15.03.134 | 75 A | 10 (0.394) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-012-100-JZ | 15.03.131 | 100 A | 12 (0.472) | 0.25 (9.84) | 0.5* | Floating |
| CT-SC-012-100 | 15.03.172 | 100 A | 12 (0.472) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-024-100 | 15.03.135 | 100 A | 24 (0.945) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-024-200 | 15.03.136 | 200 A | 24 (0.945) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-024-250 | 15.03.137 | 250 A | 24 (0.945) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-036-400 | 15.03.138 | 400 A | 36 (1.420) | 2,0 (78.74) | 0.5* | DIN-Rail |
| CT-SC-036-600 | 15.03.139 | 600 A | 36 (1.420) | 2,0 (78.74) | 0.5* | DIN-Rail |

* in combination with the UMG 804 and the DIN Rail CT Interface Floating Board / DIN Rail CT Interface Card

Further information can be found in the separate data sheet for the current transformers.

# 6. Features and Monitored Parameters

## 6.1 Features

| Feature / Version | Standard (v1.048 or lower) | Enhanced (v1.126 or higher) |
|---|---|---|
| Supports 96 circuits using up to four interface cards | • | • |
| Dual Ethernet ports | • | • |
| Integrated webserver | Original version | • |
| Remote and local firmware upgrade | Local upload only | • |
| Network accessible configuration | • | • |
| Modbus TCP/IP and RTU output | • | • |
| Smart breaker trip detection | • | • |
| True circuit display | • | • |
| Alarming | Latching only | • |
| HTML interface | • | • |
| Lock device settings | CT size only | • |
| Waveform capture on an event per channel | • | • |
| BACnet interface | Basic function only | • |
| Sag/Swell detection and logging | | • |
| Virtual meters | | • |
| Potential transformer scaling | | • |
| REST API interface | | • |
| SNMP v2 interface | | • |
| CBEMA / ITIC compliance monitoring | | • |

- **Supports 96 circuits using up to four interface cards**:
  each of the four Smart Ports can host a CT interface card with 24 circuits.
- **Dual Ethernet ports**:
  two Ethernet ports allow for easy daisy chaining of communications connections to avoid costly dedicated wiring runs to switches.
- **Integrated web server**:
  access real time data and perform configuration using a standard internet browser; no software required.
- **Remote and local firmware upgrade**:
  upgrade firmware easily using a USB flash drive locally or over the network
- **Network accessible configuration**:
  configure the monitor over the network or using the configuration table with easy auto-upload using a USB flash drive.
- **Modbus TCP/IP and RTU output**:
  supports Modbus TCP/IP or Modbus RTU serial communications.
- **Smart breaker trip detection:**
  can detect fast drops in current to alert to potential open circuits/breaker trips.
- **True circuit display**:
  allows two and three-phase circuits to be grouped to provide an average output for the circuit as well as derived neutral.

- **Alarming**:
  provides alarms and status points with user-defined thresholds.
- **HTML interface:**
  easy read/write access to all device configurations and parameters.
- **Lock device settings:**
  protection against manipulations. Especially useful for billing applications in data centers.
- **Waveform capture on event per channel:**
  captures pre and post-event waveform data on all 96 channels simultaneously based on user-defined thresholds. Data is stored locally on a USB flash drive and may be uploaded over the network using the HTML console.
- **BACnet interface:**
  supports BACnet for all True Meter and Single Channel data.
- **Sag/Swell detection and logging:**
  stores waveform capture logs and CBEMA / ITIC violation logs and permits transfer of files over the network
- **Virtual meters**:
  allows up to 96 circuits to be grouped to provide a total output for the combined circuits.
- **Potential transformer scaling**:
  allows for easy scaling of connected potential transformers.
- **REST API interface**:
  use REST HTML queries to obtain meter data.
- **SNMP v2 interface**:
  supports SNMP v2 for all True Meter and Single Channel data.
- **CBEMA / ITIC compliance monitoring**:
  captures, logs and categorizes any voltage event that is outside of the CBEMA / ITIC power quality window.

**Note:**
SNMP and BACnet do currently not support alarming and are limited to single channel and True Meter/Virtual Meter readings

## 6.2 Monitored Parameters

| Monitored Parameter | Circuit Level | Input Level[1] |
|---|---|---|
| Current per phase | • | • |
| Max. current per phase | • | • |
| Avg. Current per phase | • | • |
| Current demand per phase | • | • |
| Max. current demand per phase | • | • |
| Current phase angle | • | • |
| Voltage Phase Angle | • | • |
| Real power (kW) per phase | • | • |
| Real power (kW) demand per phase | • | • |
| Real power (kW) demand max | • | • |
| Energy (kWh) per phase | • | • |
| Power factor | • | • |
| Power factor vector | • | • |
| Apparent Power (kVA) | • | • |
| Reactive Power (kVAr) | • | • |
| THDI | • | • |
| THDV | • | • |
| Waveform capture | • | • |
| Voltage, L-L and average | | • |
| Voltage, L-N and average | | • |
| Voltage, L-N and per phase | | • |

[1] Input level data can be calculated by summing up branch CT measurements or directly measured using CTs

# 7. UMG 804

## 7.1 Installation

**⚠ DANGER**

**Disconnect power to the panel or equipment on which the monitor is being installed before starting the installation.**

The UMG 804 can be housed in existing enclosures where permitted by code or inside standard electrical enclosures.

The UMG 804 is installed by mounting on standard 35mm DIN rail. The enclosure can be mounted in any orientation. Secure the DIN rail using a mechanical fastener such as sheet metal screw or bolt to a secure surface.

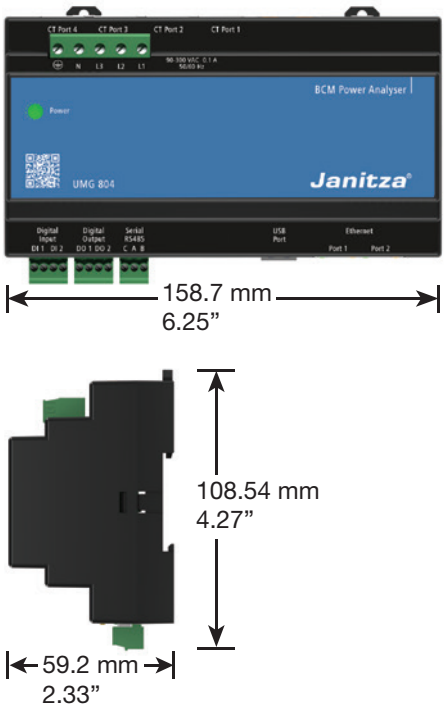



*Fig.: UMG 804 dimensions*

Mount the enclosure on the DIN rail by lifting up circlips and placing enclosure over the rail as shown. Once rail is in place push the circlips down to secure the enclosure in place.

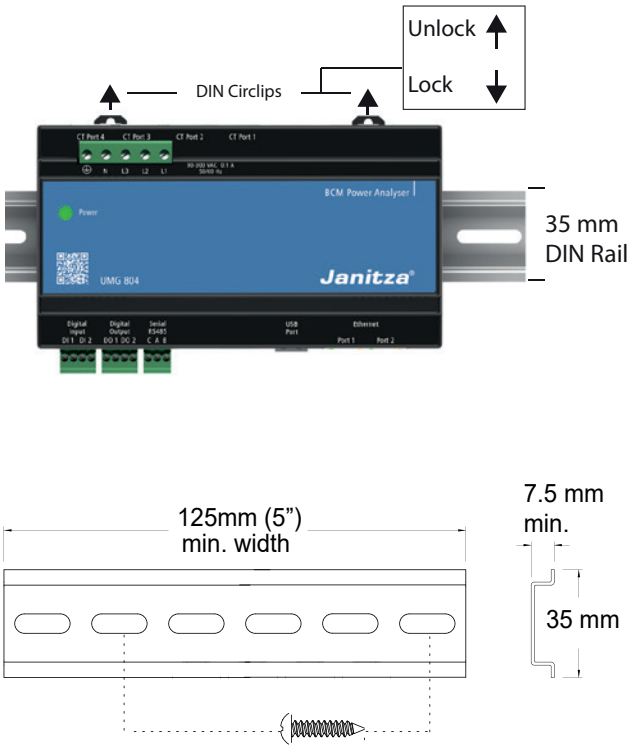



Fig. 5: UMG 804 Installation

## 7.2 Connection of modules

**⚠ CAUTION**

**Note that the when the Ethernet cable is run in the same raceway or conduit area it must have insulation rated to the correct voltages and listings required. For applications up to 240 VAC the in insulation must be rated to 300 VAC. For 480 VAC applications use 600 VAC insulation. The appropriate cables can be provided by Janitza.**

There are different application specific DIN Rail CT Interface Boards that connect to Smart Ports on the UMG 804 using network cable.
Cables are eight conductor network / Ethernet cables with RJ45 connector terminations; cables must have insulation voltages rated for the environment.
Cable runs between the UMG 804 and Interface Card can be up to 100 ft (33 m). For distances longer consult factory for details.

**Note:** CAT6A type cables are recommended for maximum noise immunity.

Cables can also be field constructed from network cable and terminated with RJ45 connectors. Always make sure that pin to cable connections on both sides of the cable match when making custom cables. Be sure that the mounting area allows for adequate wire bending radiuses per local and national electrical codes.

The UMG 804 is installed by mounting on standard 35 mm DIN rail. The enclosure can be mounted in any orientation. Secure the DIN rail using a mechanical fastener such as sheet metal screw or bolt to a secure surface.

**⚠ WARNING**

**Disregard of the connection conditions of the transformers to Janitza measurement devices or their components can lead to injuries or even death or to material damage!**

- Do not use Janitza measurement devices or components for critical switching, control or protection applications (protective relays)! It is not permitted to use measured values or measurement device outputs for critical applications!
- For Janitza measurement devices and their components use **only "Transformers for measurement purposes"** which are suitable for the energy monitoring of your system. Do **not use "Transformers for protection purposes"**!
- Observe the information, regulations and limit values in the usage information on **"Transformers for measuring purposes"**, specifically during testing and commissioning of the Janitza measurement device, the Janitza component and your system.

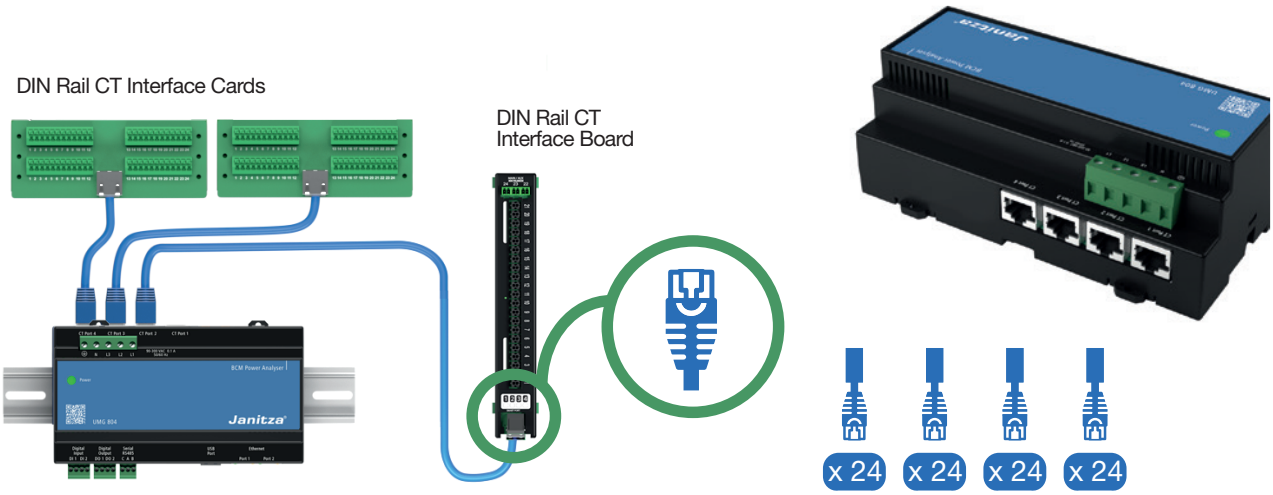



*Fig. : DIN Rail CT Interface Boards connect to the Smart Ports on the UMG 804 using network cables.*

- 100 ft (33 m) maximum lenght
- insulation must be rated for environment (i.e. 300 VAC)
- 8 conductor shielded network cables
- RJ45 Connectors

## Connector & Cable Ports

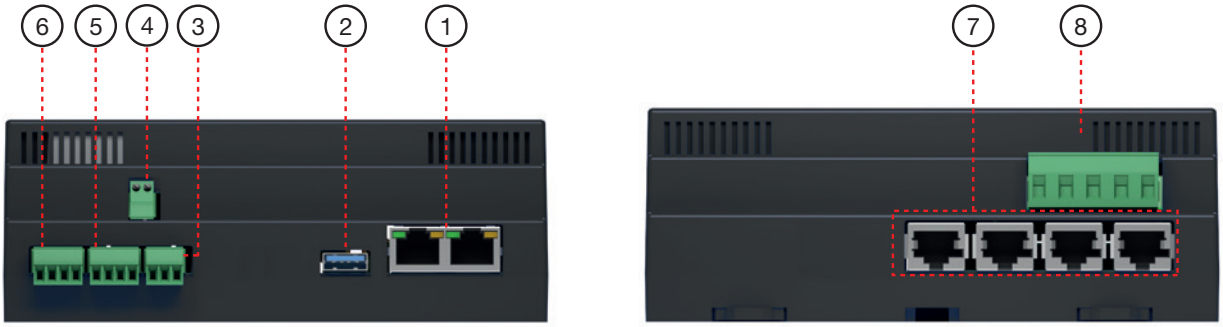



*Fig.: Connector*

1 Ethernet Ports: The UMG 804 is equipped with two Ethernet ports to facilitate easy daisy chaining of network connections. Either port may be used for network connectivity. The ports utilize standard RJ45 connectors.

Ethernet Port LED Status Indicators:

| LED | Status |
|---|---|
| green on | 10/100/100 Mbps traffic |
| orange on | the port is being connected, but no data is being transferred |
| orange blinking | data is being transferred |

2 USB Port: The USB port can be used both as a data interface port as well as hosting a data logging USB SD card on Advanced UMG 804s. The USB port can be used to configure the UMG 804 using a USB thumb drive with up to 32 GB in capacity the configuration file. See the “Configuration” section for details.

3 Serial Port: (RS-485 Modbus RTU 2 wire)

4 24 V terminal block: only for 24 V DC input version

5 Digital Input: two isolated dry contact digital inputs

6 Digital Output: two isolated dry contact digital outputs rated at 30 V x 0.1 A.

7 Interface Module ports (RJ45); for CT and auxiliary cards

8 Voltage Input Terminal Block

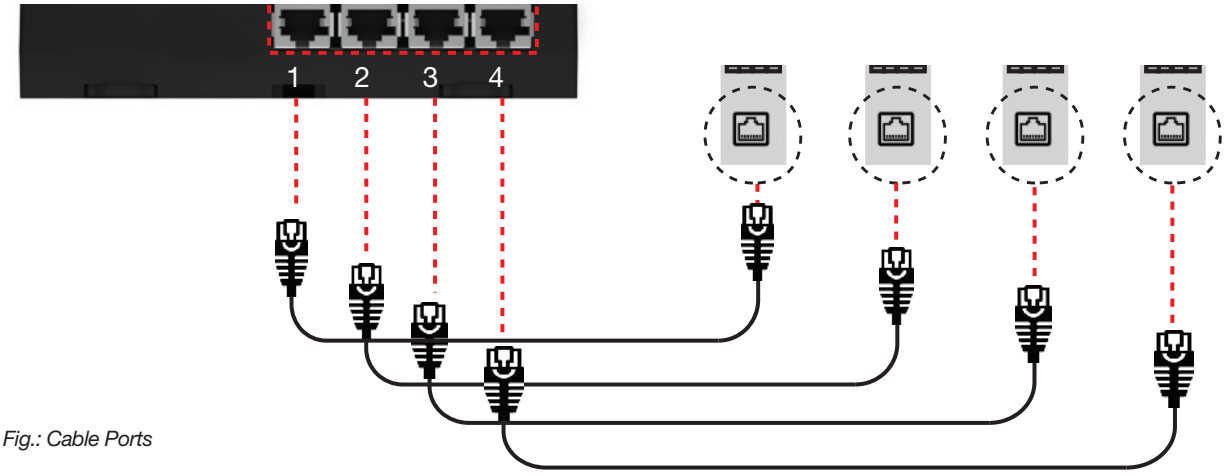



*Fig.: Cable Ports*

For circuit destination refer to „8.3 Panel Maps Configuration“ on page 30 or „9.3 Panel Maps Configuration“ on page 41, respectively.

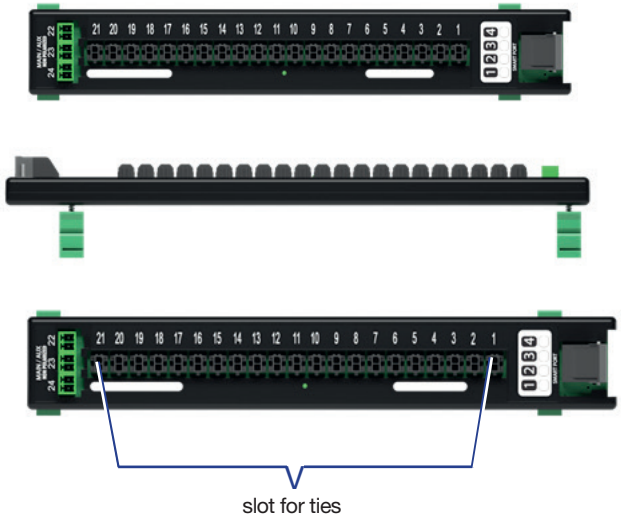
# 8. DIN Rail CT Interface Floating Board (CTS24FBV)

## 8.1 Overview

· The DIN Rail CT Interface Floating Boards are provided with DIN clips for mounting on a standard 35mm DIN rail. The suggested rail length is 10” (254 mm) or longer.

· DIN rails may be affixed mechanically with fasteners or using VHB tape; a permanent adhesive depending on regional codes.

· Floating Boards also have slots that allow them to be zip tied in place instead of using DIN rail.




## 8.2 Installation

· DIN Rail CT Interface Floating Boards are oriented according to the panelboard type and numbering scheme in one of the four configurations shown.

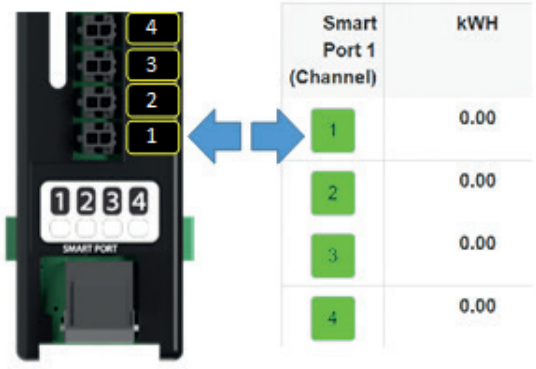
· In Top Feed and Bottom Feed orientations the panelboard type and numbering is identical however the user can select to install the Interface Board with the Smart Port (RJ45 connector) top facing (Top Feed) or bottom facing (Bottom Feed).

· Ensure that the connections to the UMG 804 Smart Ports match those shown on the orientation diagrams.

· Smart Ports hosting the Interface Card must be correctly set in the HTML console under Configuration > General Settings (refer to chapter „14.4.1 General Settings“ on page 65).

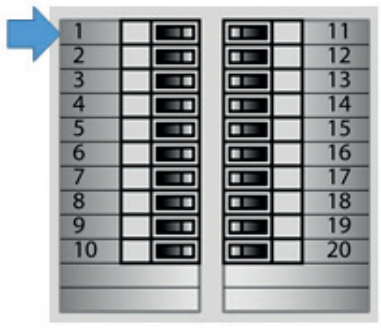
**CT Terminal Number**:
Refers to the terminal number on the CT strip which will also equal the Channel on the HTML interface.

| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 1 | 1 |
| 2 | 2 | 2 |




**Panel Board Circuit**:
This is the number of the panelboard circuit / pole.

| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 1 | 1 |
| 2 | 2 | 2 |



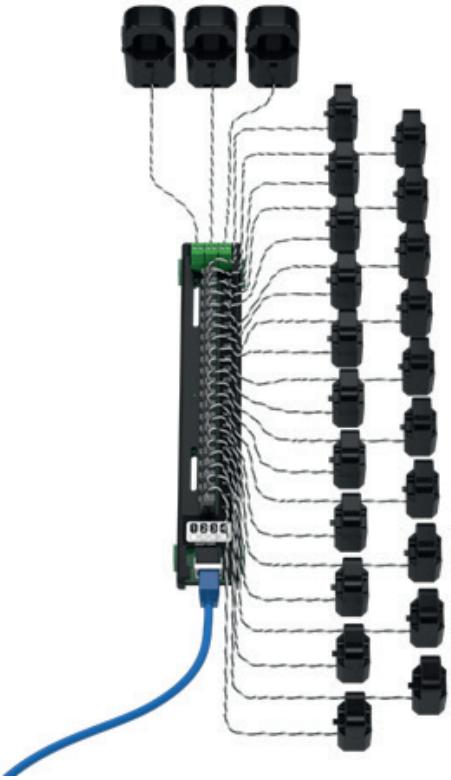

**Register Channel**:
Indicates the circuit channel on register map (1-96) that correspods to the related registers.

| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 1 | 1 |
| 2 | 2 | 2 |

| Channel | Register |
|---|---|
| CH 1 | 598 |
| CH 2 | 599 |
| CH 33 | 600 |

- Orient the DIN Rail CT Interface Floating Boards according to the panelboard type and numbering scheme in one of the four configurations shown in the Interface Board Orientation and Connection diagrams.
- In Top Feed and Bottom Feed orientations the panelboard type and numbering is identical however the user can select to install the Interface Board with the Smart Port (RJ45 connector) top facing (Top Feed) or bottom facing (Bottom Feed).
- The UMG 804 must be configured according to the selected orientation or else channels will not be aligned the panelboard pole numbers. This is done during the later in the process.

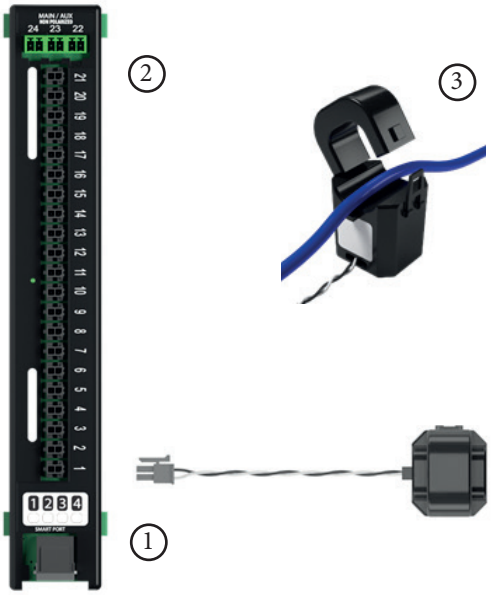
### 8.2.1 Current Transformer Types



1. Plug the branch CTs into the polarized connectors on the Interface Board, refer to (1)
2. Place the CT on the correct conductor being sure to align the CT with the correct terminal and breaker conductor skipping empty conductors, refer to (2)
3. Snap the CT closed around the conductor and make sure latch is locked, refer to (3)

**INFORMATION**

The CT Orientation is not important; the system will auto correct,

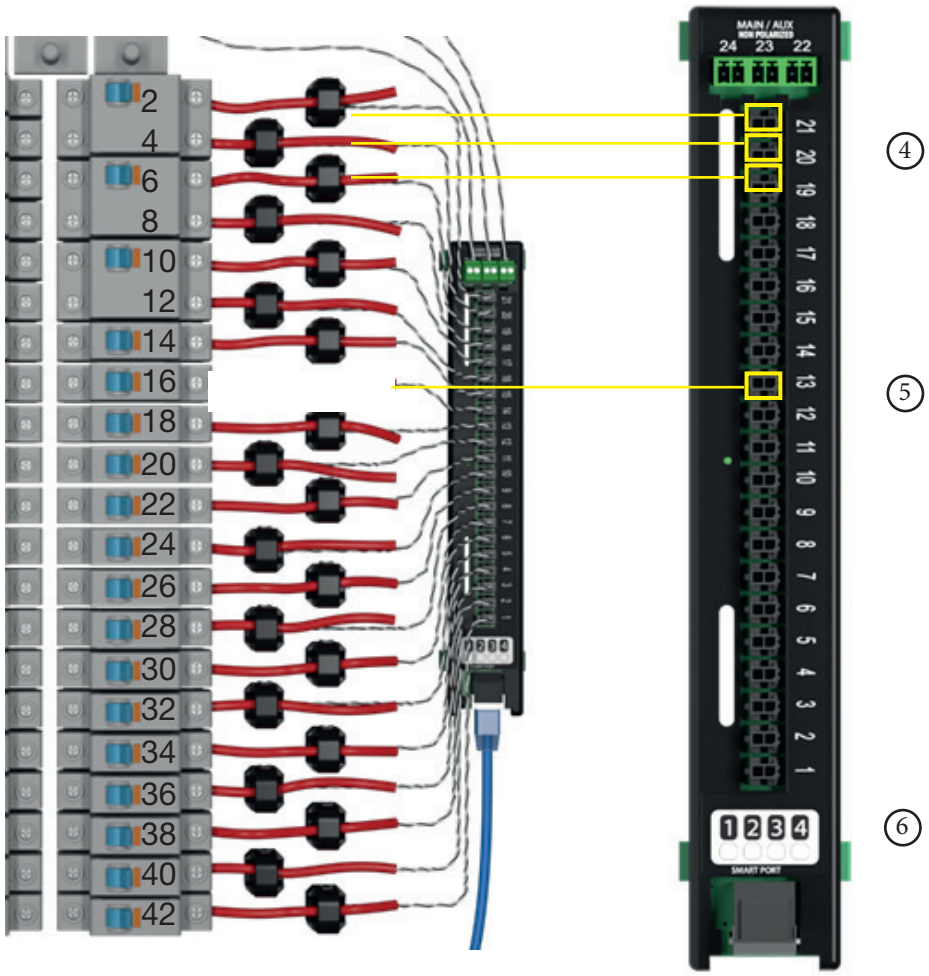


4. Double check that the CTs are connected to the corresponding conductor. Use the CT Interface Board Orientation and Connection diagram for reference if needed (refer to chapter „8.2.3 DIN Rail CT Interface Board Orientation“ on page 38.

5. The number on the position number on the CT Interface board must correspond to the correct panel pole number according the Panel Configuration schedule being used, refer to (4)

6. Ensure that unpopulated breakers are skipped, refer to (5)

7. Ensure that the CT Interface Board is connected to the correct Smart Port on the Core Module refer to (6)



### 8.2.2 Extensions of CT wires

· Branch CT wires can be extended by using extension leads that are available in a variety of lengths.

· Alternatively CTs may be spliced onto longer wires assuming an acceptable splicing method is used and carried out by a qualified person.

Extensions Lead

Mating Connectors

### 8.2.3 Auxiliary Inputs

· Each CT strip is equipped with three auxiliary CT terminals designed to support CTs for panel main input monitoring or additional branch circuits.

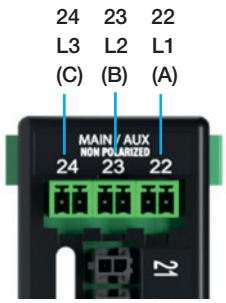
· The inputs are designed exclusively for 0.33 V output CTs.

· Typically only one CT strip (3 CTs) is used to monitor the mains as no neutral CT is needed as neutral can be derived using “True Circuit” configuration however all auxillary terminals can be used for mains monitoring I.e. L1, L2, L3, N, G or as extra terminals for branch circuits.

· Always be aware which strip was used to monitor the mains – use the strip plugged into Smart Port 1 and 3 to be consistent.

· Note that polarity and orientation of the CTs will be automatically corrected.

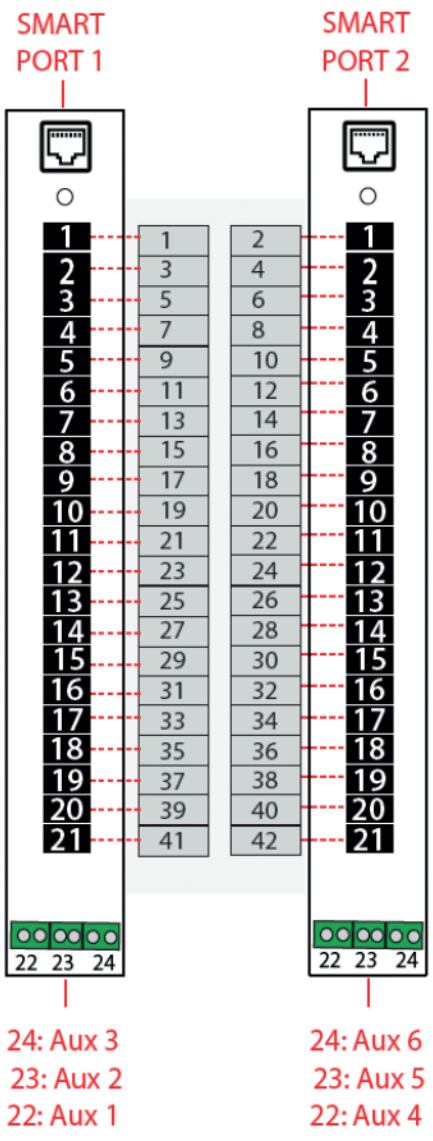
· Note that versions of the UMG 804 can use the Virtual Meter function to accurately total the branch circuits eliminating the need for main input CTs.



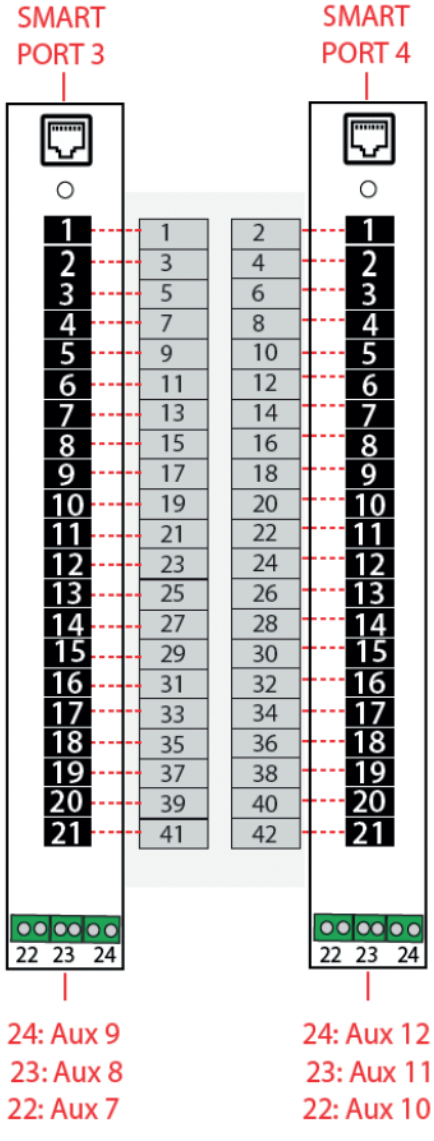

| SMART PORT | CT Terminal 22 | CT Terminal 23 | CT Terminal 24 | PANEL |
|---|---|---|---|---|
| 1 | L1 | L2 | L3 | 1 |
| 2 | Neutral | N/A | N/A | |
| 3 | L1 | L2 | L3 | 1 |
| 4 | Neutral | N/A | N/A | |

**IMPORTANT**:
Observe which CT strip auxiliary terminal blocks are designated for the main inputs. This will change depending on how the panels are configured. i.e. TOP FEED, BOTTOM FEED etc.

Main CTs PANEL 1



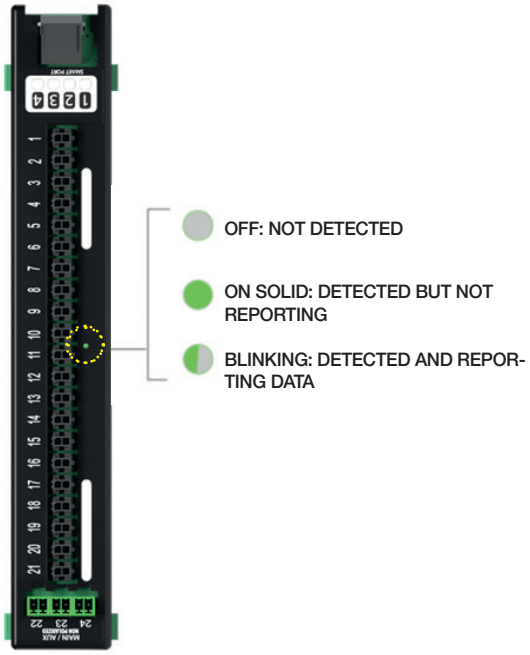

Main CTs PANEL 2



### 8.2.4 Status LED

· Once energized the status LED on each strip will indicate proper operation.

· This can also be confirmed on the Main Status page of the HTML console under the respective Smart Port settings „16.1 Main Status Page“ on page 49.



## 8.3 Panel Maps Configuration

### 8.3.1 Top Feed

**Panelboard 1**

| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 1 | 1 |
| 2 | 3 | 3 |
| 3 | 5 | 5 |
| 4 | 7 | 7 |
| 5 | 9 | 9 |
| 6 | 11 | 11 |
| 7 | 13 | 13 |
| 8 | 15 | 15 |
| 9 | 17 | 17 |
| 10 | 19 | 19 |
| 11 | 21 | 21 |
| 12 | 23 | 23 |
| 13 | 25 | 25 |
| 14 | 27 | 27 |
| 15 | 29 | 29 |
| 16 | 31 | 31 |
| 17 | 33 | 33 |
| 18 | 35 | 35 |
| 19 | 37 | 37 |
| 20 | 39 | 39 |
| 21 | 41 | 41 |
| Aux 1 / 22 | Aux 1 | 43 |
| Aux 2 / 23 | Aux 2 | 45 |
| Aux 3 / 24 | Aux 3 | 47 |

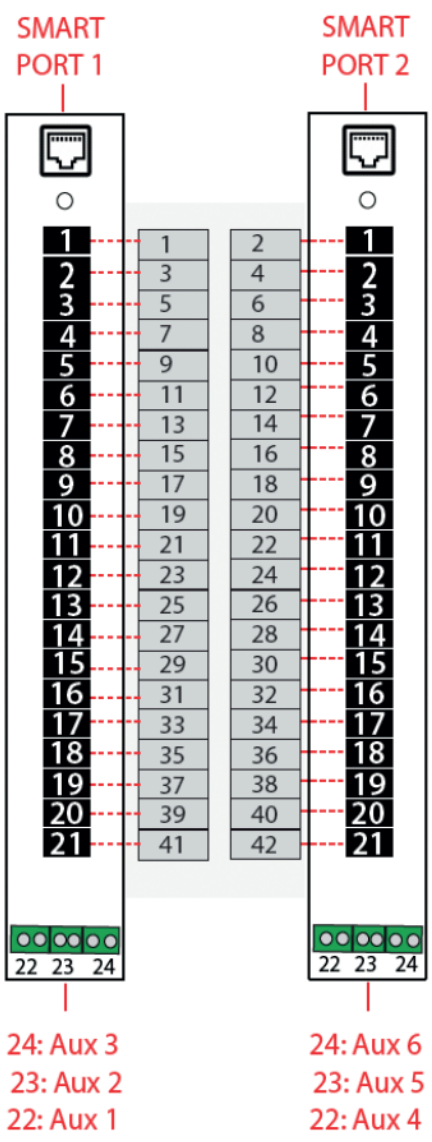
| SMART PORT 2 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 2 | 2 |
| 2 | 4 | 4 |
| 3 | 6 | 6 |
| 4 | 8 | 8 |
| 5 | 10 | 10 |
| 6 | 12 | 12 |
| 7 | 14 | 14 |
| 8 | 16 | 16 |
| 9 | 18 | 18 |
| 10 | 20 | 20 |
| 11 | 22 | 22 |
| 12 | 24 | 24 |
| 13 | 26 | 26 |
| 14 | 28 | 28 |
| 15 | 30 | 30 |
| 16 | 32 | 32 |
| 17 | 34 | 34 |
| 18 | 36 | 36 |
| 19 | 38 | 38 |
| 20 | 40 | 40 |
| 21 | 42 | 42 |
| Aux 1 / 22 | Aux 4 | 44 |
| Aux 2 / 23 | Aux 5 | 46 |
| Aux 3 / 24 | Aux 6 | 48 |

**Panelboard 2**

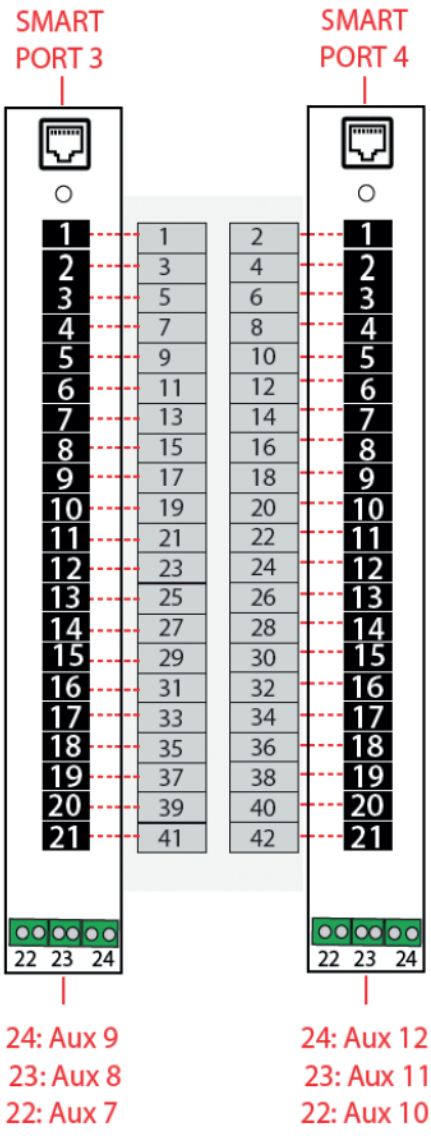
| SMART PORT 3 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 1 | 49 |
| 2 | 3 | 51 |
| 3 | 5 | 53 |
| 4 | 7 | 55 |
| 5 | 9 | 57 |
| 6 | 11 | 59 |
| 7 | 13 | 61 |
| 8 | 15 | 63 |
| 9 | 17 | 65 |
| 10 | 19 | 67 |
| 11 | 21 | 69 |
| 12 | 23 | 71 |
| 13 | 25 | 73 |
| 14 | 27 | 75 |
| 15 | 29 | 77 |
| 16 | 31 | 79 |
| 17 | 33 | 81 |
| 18 | 35 | 83 |
| 19 | 37 | 85 |
| 20 | 39 | 87 |
| 21 | 41 | 89 |
| Aux 1 / 22 | Aux 1 | 91 |
| Aux 2 / 23 | Aux 2 | 93 |
| Aux 3 / 24 | Aux 3 | 95 |

| SMART PORT 4 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 1 | 2 | 50 |
| 2 | 4 | 52 |
| 3 | 6 | 54 |
| 4 | 8 | 56 |
| 5 | 10 | 58 |
| 6 | 12 | 60 |
| 7 | 14 | 62 |
| 8 | 16 | 64 |
| 9 | 18 | 66 |
| 10 | 20 | 68 |
| 11 | 22 | 70 |
| 12 | 24 | 72 |
| 13 | 26 | 74 |
| 14 | 28 | 76 |
| 15 | 30 | 78 |
| 16 | 32 | 80 |
| 17 | 34 | 82 |
| 18 | 36 | 84 |
| 19 | 38 | 86 |
| 20 | 40 | 88 |
| 21 | 42 | 90 |
| Aux 1 / 22 | Aux 4 | 92 |
| Aux 2 / 23 | Aux 5 | 94 |
| Aux 3 / 24 | Aux 6 | 96 |

PANEL 1




PANEL 2



### 8.3.2 Bottom Feed

**Panelboard 1**

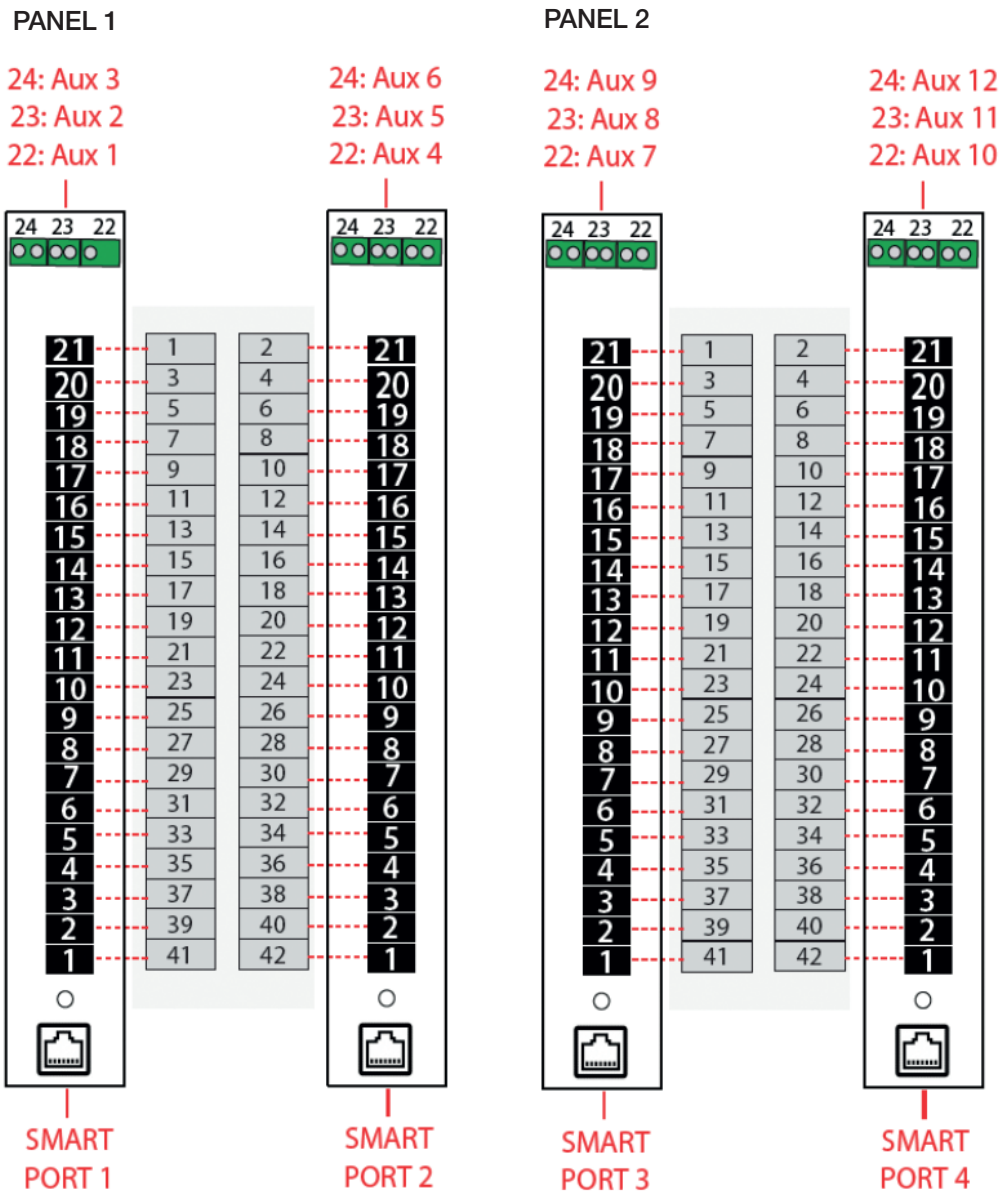
| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 1 |
| 20 | 3 | 3 |
| 19 | 5 | 5 |
| 18 | 7 | 7 |
| 17 | 9 | 9 |
| 16 | 11 | 11 |
| 15 | 13 | 13 |
| 14 | 15 | 15 |
| 13 | 17 | 17 |
| 12 | 19 | 19 |
| 11 | 21 | 21 |
| 10 | 23 | 23 |
| 9 | 25 | 25 |
| 8 | 27 | 27 |
| 7 | 29 | 29 |
| 6 | 31 | 31 |
| 5 | 33 | 33 |
| 4 | 35 | 35 |
| 3 | 37 | 37 |
| 2 | 39 | 39 |
| 1 | 41 | 41 |
| Aux 1 / 22 | Aux 1 | 43 |
| Aux 2 / 23 | Aux 2 | 44 |
| Aux 3 / 24 | Aux 3 | 45 |

| SMART PORT 2 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 2 |
| 20 | 4 | 4 |
| 19 | 6 | 6 |
| 18 | 8 | 8 |
| 17 | 10 | 10 |
| 16 | 12 | 12 |
| 15 | 14 | 14 |
| 14 | 16 | 16 |
| 13 | 18 | 18 |
| 12 | 20 | 20 |
| 11 | 22 | 22 |
| 10 | 24 | 24 |
| 9 | 26 | 26 |
| 8 | 28 | 28 |
| 7 | 30 | 30 |
| 6 | 32 | 32 |
| 5 | 34 | 34 |
| 4 | 36 | 36 |
| 3 | 38 | 38 |
| 2 | 40 | 40 |
| 1 | 42 | 42 |
| Aux 1 / 22 | Aux 4 | 46 |
| Aux 2 / 23 | Aux 5 | 47 |
| Aux 3 / 24 | Aux 6 | 48 |

**Panelboard 2**

| SMART PORT 3 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 49 |
| 20 | 3 | 51 |
| 19 | 5 | 53 |
| 18 | 7 | 55 |
| 17 | 9 | 57 |
| 16 | 11 | 59 |
| 15 | 13 | 61 |
| 14 | 15 | 63 |
| 13 | 17 | 65 |
| 12 | 19 | 67 |
| 11 | 21 | 69 |
| 10 | 23 | 71 |
| 9 | 25 | 73 |
| 8 | 27 | 75 |
| 7 | 29 | 77 |
| 6 | 31 | 79 |
| 5 | 33 | 81 |
| 4 | 35 | 83 |
| 3 | 37 | 85 |
| 2 | 39 | 87 |
| 1 | 41 | 89 |
| Aux 1 / 22 | Aux 1 | 91 |
| Aux 2 / 23 | Aux 2 | 92 |
| Aux 3 / 24 | Aux 3 | 93 |

| SMART PORT 4 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 50 |
| 20 | 4 | 52 |
| 19 | 6 | 54 |
| 18 | 8 | 56 |
| 17 | 10 | 58 |
| 16 | 12 | 60 |
| 15 | 14 | 62 |
| 14 | 16 | 64 |
| 13 | 18 | 66 |
| 12 | 20 | 68 |
| 11 | 22 | 70 |
| 10 | 24 | 72 |
| 9 | 26 | 74 |
| 8 | 28 | 76 |
| 7 | 30 | 78 |
| 6 | 32 | 80 |
| 5 | 34 | 82 |
| 4 | 36 | 84 |
| 3 | 38 | 86 |
| 2 | 40 | 88 |
| 1 | 42 | 90 |
| Aux 1 / 22 | Aux 4 | 94 |
| Aux 2 / 23 | Aux 5 | 95 |
| Aux 3 / 24 | Aux 6 | 96 |


PANEL 1
24: Aux 3
23: Aux 2
22: Aux 1
24: Aux 6
23: Aux 5
22: Aux 4
PANEL 2
24: Aux 9
23: Aux 8
22: Aux 7
24: Aux 12
23: Aux 11
22: Aux 10
24 23 22
SMART PORT 1
SMART PORT 2
SMART PORT 3
SMART PORT 4

### 8.3.3 Single Row Sequential

**Panelboard 1**

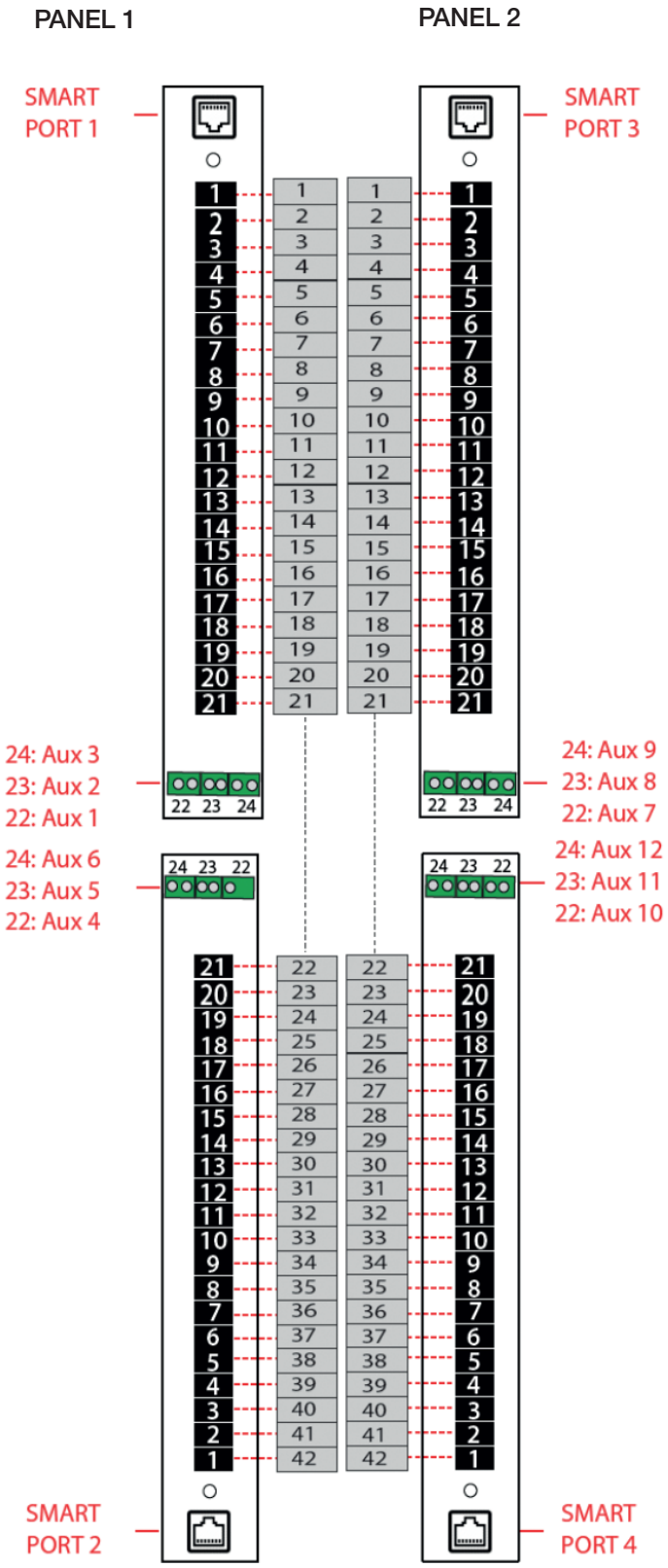
| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 1 |
| 20 | 3 | 3 |
| 19 | 5 | 5 |
| 18 | 7 | 7 |
| 17 | 9 | 9 |
| 16 | 11 | 11 |
| 15 | 13 | 13 |
| 14 | 15 | 15 |
| 13 | 17 | 17 |
| 12 | 19 | 19 |
| 11 | 21 | 21 |
| 10 | 23 | 23 |
| 9 | 25 | 25 |
| 8 | 27 | 27 |
| 7 | 29 | 29 |
| 6 | 31 | 31 |
| 5 | 33 | 33 |
| 4 | 35 | 35 |
| 3 | 37 | 37 |
| 2 | 39 | 39 |
| 1 | 41 | 41 |
| Aux 1 / 22 | Aux 1 | 43 |
| Aux 2 / 23 | Aux 2 | 44 |
| Aux 3 / 24 | Aux 3 | 45 |

| SMART PORT 2 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 2 |
| 20 | 4 | 4 |
| 19 | 6 | 6 |
| 18 | 8 | 8 |
| 17 | 10 | 10 |
| 16 | 12 | 12 |
| 15 | 14 | 14 |
| 14 | 16 | 16 |
| 13 | 18 | 18 |
| 12 | 20 | 20 |
| 11 | 22 | 22 |
| 10 | 24 | 24 |
| 9 | 26 | 26 |
| 8 | 28 | 28 |
| 7 | 30 | 30 |
| 6 | 32 | 32 |
| 5 | 34 | 34 |
| 4 | 36 | 36 |
| 3 | 38 | 38 |
| 2 | 40 | 40 |
| 1 | 42 | 42 |
| Aux 1 / 22 | Aux 4 | 46 |
| Aux 2 / 23 | Aux 5 | 47 |
| Aux 3 / 24 | Aux 6 | 48 |

**Panelboard 2**

| SMART PORT 3 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 49 |
| 20 | 3 | 51 |
| 19 | 5 | 53 |
| 18 | 7 | 55 |
| 17 | 9 | 57 |
| 16 | 11 | 59 |
| 15 | 13 | 61 |
| 14 | 15 | 63 |
| 13 | 17 | 65 |
| 12 | 19 | 67 |
| 11 | 21 | 69 |
| 10 | 23 | 71 |
| 9 | 25 | 73 |
| 8 | 27 | 75 |
| 7 | 29 | 77 |
| 6 | 31 | 79 |
| 5 | 33 | 81 |
| 4 | 35 | 83 |
| 3 | 37 | 85 |
| 2 | 39 | 87 |
| 1 | 41 | 89 |
| Aux 1 / 22 | Aux 1 | 91 |
| Aux 2 / 23 | Aux 2 | 92 |
| Aux 3 / 24 | Aux 3 | 93 |

| SMART PORT 4 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 50 |
| 20 | 4 | 52 |
| 19 | 6 | 54 |
| 18 | 8 | 56 |
| 17 | 10 | 58 |
| 16 | 12 | 60 |
| 15 | 14 | 62 |
| 14 | 16 | 64 |
| 13 | 18 | 66 |
| 12 | 20 | 68 |
| 11 | 22 | 70 |
| 10 | 24 | 72 |
| 9 | 26 | 74 |
| 8 | 28 | 76 |
| 7 | 30 | 78 |
| 6 | 32 | 80 |
| 5 | 34 | 82 |
| 4 | 36 | 84 |
| 3 | 38 | 86 |
| 2 | 40 | 88 |
| 1 | 42 | 90 |
| Aux 1 / 22 | Aux 4 | 94 |
| Aux 2 / 23 | Aux 5 | 95 |
| Aux 3 / 24 | Aux 6 | 96 |


PANEL 1
PANEL 2
SMART PORT 1
SMART PORT 3
24: Aux 3
23: Aux 2
22: Aux 1
24: Aux 9
23: Aux 8
22: Aux 7
24: Aux 6
23: Aux 5
22: Aux 4
24: Aux 12
23: Aux 11
22: Aux 10
SMART PORT 2
SMART PORT 4

### 8.3.4 Single Row Odd Even

**Panelboard 1**

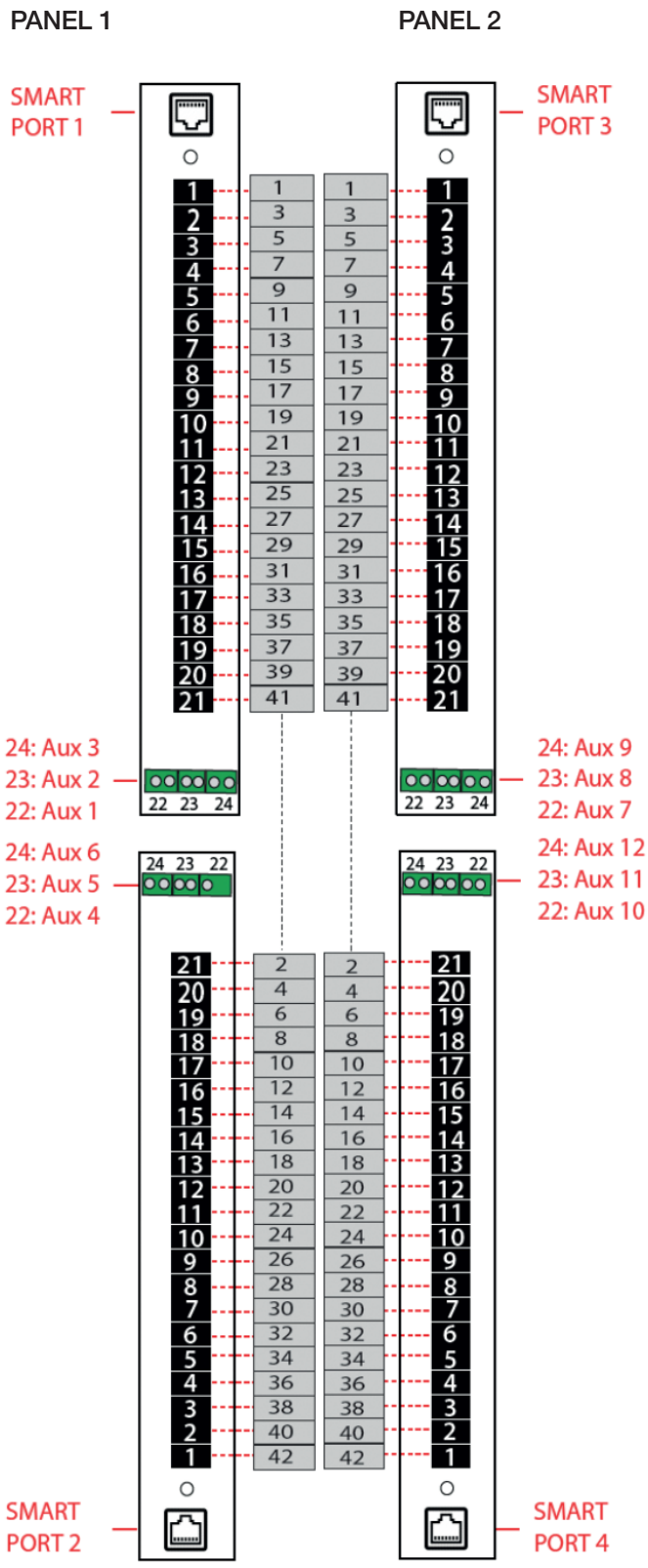
| SMART PORT 1 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 1 |
| 20 | 3 | 3 |
| 19 | 5 | 5 |
| 18 | 7 | 7 |
| 17 | 9 | 9 |
| 16 | 11 | 11 |
| 15 | 13 | 13 |
| 14 | 15 | 15 |
| 13 | 17 | 17 |
| 12 | 19 | 19 |
| 11 | 21 | 21 |
| 10 | 23 | 23 |
| 9 | 25 | 25 |
| 8 | 27 | 27 |
| 7 | 29 | 29 |
| 6 | 31 | 31 |
| 5 | 33 | 33 |
| 4 | 35 | 35 |
| 3 | 37 | 37 |
| 2 | 39 | 39 |
| 1 | 41 | 41 |
| Aux 1 / 22 | Aux 1 | 43 |
| Aux 2 / 23 | Aux 2 | 44 |
| Aux 3 / 24 | Aux 3 | 45 |

| SMART PORT 2 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 2 |
| 20 | 4 | 4 |
| 19 | 6 | 6 |
| 18 | 8 | 8 |
| 17 | 10 | 10 |
| 16 | 12 | 12 |
| 15 | 14 | 14 |
| 14 | 16 | 16 |
| 13 | 18 | 18 |
| 12 | 20 | 20 |
| 11 | 22 | 22 |
| 10 | 24 | 24 |
| 9 | 26 | 26 |
| 8 | 28 | 28 |
| 7 | 30 | 30 |
| 6 | 32 | 32 |
| 5 | 34 | 34 |
| 4 | 36 | 36 |
| 3 | 38 | 38 |
| 2 | 40 | 40 |
| 1 | 42 | 42 |
| Aux 1 / 22 | Aux 4 | 46 |
| Aux 2 / 23 | Aux 5 | 47 |
| Aux 3 / 24 | Aux 6 | 48 |

**Panelboard 2**

| SMART PORT 3 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 1 | 49 |
| 20 | 3 | 51 |
| 19 | 5 | 53 |
| 18 | 7 | 55 |
| 17 | 9 | 57 |
| 16 | 11 | 59 |
| 15 | 13 | 61 |
| 14 | 15 | 63 |
| 13 | 17 | 65 |
| 12 | 19 | 67 |
| 11 | 21 | 69 |
| 10 | 23 | 71 |
| 9 | 25 | 73 |
| 8 | 27 | 75 |
| 7 | 29 | 77 |
| 6 | 31 | 79 |
| 5 | 33 | 81 |
| 4 | 35 | 83 |
| 3 | 37 | 85 |
| 2 | 39 | 87 |
| 1 | 41 | 89 |
| Aux 1 / 22 | Aux 1 | 91 |
| Aux 2 / 23 | Aux 2 | 92 |
| Aux 3 / 24 | Aux 3 | 93 |

| SMART PORT 4 | | |
|---|---|---|
| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
| 21 | 2 | 50 |
| 20 | 4 | 52 |
| 19 | 6 | 54 |
| 18 | 8 | 56 |
| 17 | 10 | 58 |
| 16 | 12 | 60 |
| 15 | 14 | 62 |
| 14 | 16 | 64 |
| 13 | 18 | 66 |
| 12 | 20 | 68 |
| 11 | 22 | 70 |
| 10 | 24 | 72 |
| 9 | 26 | 74 |
| 8 | 28 | 76 |
| 7 | 30 | 78 |
| 6 | 32 | 80 |
| 5 | 34 | 82 |
| 4 | 36 | 84 |
| 3 | 38 | 86 |
| 2 | 40 | 88 |
| 1 | 42 | 90 |
| Aux 1 / 22 | Aux 4 | 94 |
| Aux 2 / 23 | Aux 5 | 95 |
| Aux 3 / 24 | Aux 6 | 96 |


PANEL 1
PANEL 2
SMART PORT 1
SMART PORT 3
24: Aux 3
23: Aux 2
22: Aux 1
24: Aux 9
23: Aux 8
22: Aux 7
24: Aux 6
23: Aux 5
22: Aux 4
24: Aux 12
23: Aux 11
22: Aux 10
SMART PORT 2
SMART PORT 4

## 8.4 Application Example

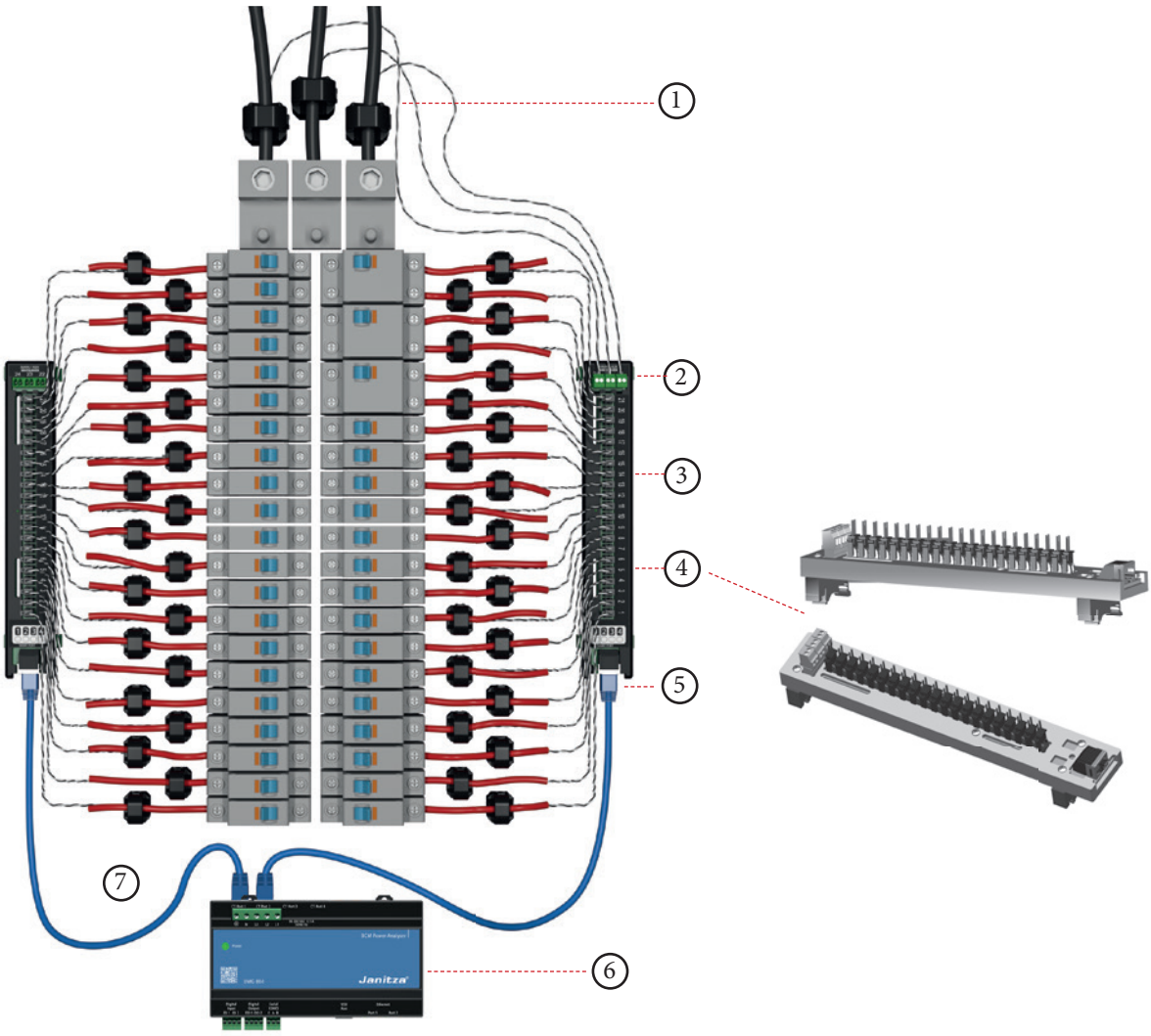



*Fig.: Branch Circuit Monitor installation overview with molex plugs*

(1) Main input CTs can be connected to CT auxiliary terminal blocks.

(2) Auxiliary CT Terminal Block: monitors up to three auxiliary CTs per DIN Rail CT Interface Floating Board, typically used to monitor main input circuits.

(3) Split core CTs are rated for different types (see at technical data).

(4) Molex connectors 1-21.

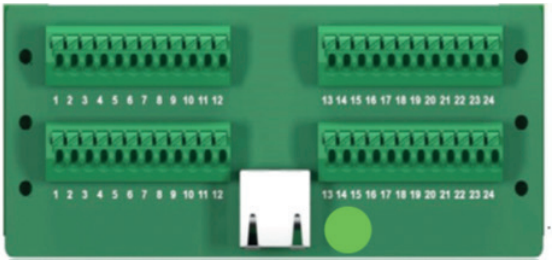
(5) Smart Port: RJ45 connector used to interface the CT strip with the UMG 804.

(6) UMG 804: hosts up to four interface floating boards.

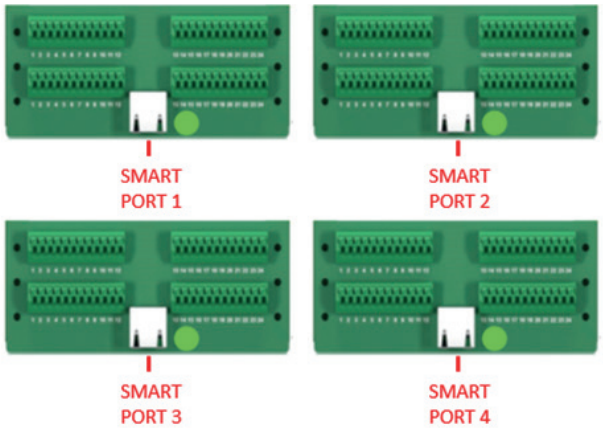
(7) Network Cable: used to connect Smart Ports to DIN Rail CT Interface Floating boards.

# 9. DIN Rail CT Interface Card (CTC24CV)

## 9.1 Overview




- DIN Rail CT Interface Cards are oriented according to the panelboard type and numbering scheme in one of the four configurations shown.
- Sequential configuration is used for the DIN Rail CT Interface Card. All the CT terminals will equal the channel number for the HTML display for their respective Smart Ports.
- In Top Feed and Bottom Feed orientations the panelboard type and numbering is identical however the user can select to install the Interface Card with the Smart Port (RJ45 connector) top facing (Top Feed) or bottom facing (Bottom Feed).
- Ensure that the connections to the UMG 804 Smart Ports match those shown on the orientation diagrams.
- Smart Ports hosting the Interface Card must be correctly set in the HTML console under Configuration>General Settings. Refer to chapter „16.4.1 General Settings“ on page 65.



## 9.2 Installation

**⚠⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**
- **While removing or installing panels and covers, assure that they do not contact an energized bus.**
- **NEVER bypass external fusing.**
- **NEVER short the secondary of a potential transformer.**
- **Before closimg covers and doors, carefully inspect the work area and remove any tools, wire scraps or other objects that may have been left inside the equipment.**

**Failure to follow these instructions will result in death or serious injury.**

The DIN Rail CT Interface Card is mounted as closed to the location where the CTs are placed to minimize CT wiring distance. The board is installed by mounting it on a standard 35 mm DIN rail strip which can be affixed mechanically using screws or bolts, or using VHB tape to affix the DIN rail.

### 9.2.1 Current Transformer Types

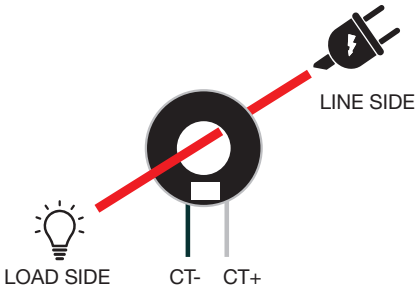
The DIN Rail CT Interface Card is designed to used 0.33 V output CTs provided by Janitza. Other 0.33 V CTs won`t work, Janitza does not warranty the performance if third party CTs are used.
DO NOT USE unburdened i.e. current output, CTs as these will destroy the board as well as can produce lethal voltages during installation.
CTs types (i.e. solid core and split core) and current ranges (i.e. 50 A – 600 A) may be mixed on any circuit so long as the correct current specification is configured in the CT setting on the configuration chart.


*Fig.: Current Transformer types*

Connect the current transformers (CT's) into to the CT terminal block as shown in figure 9 at following page.
Prior to inserting the CT wires ensure that at least 8 mm (¼") of CT conductor is uninsulated before inserting into the terminal. Gently pull the conductor after insertion to ensure that is secured by the cage connector.

If the conductor needs to be removed from the terminal push the lever on top of the terminal gently pull the conductor when the lever is depressed.

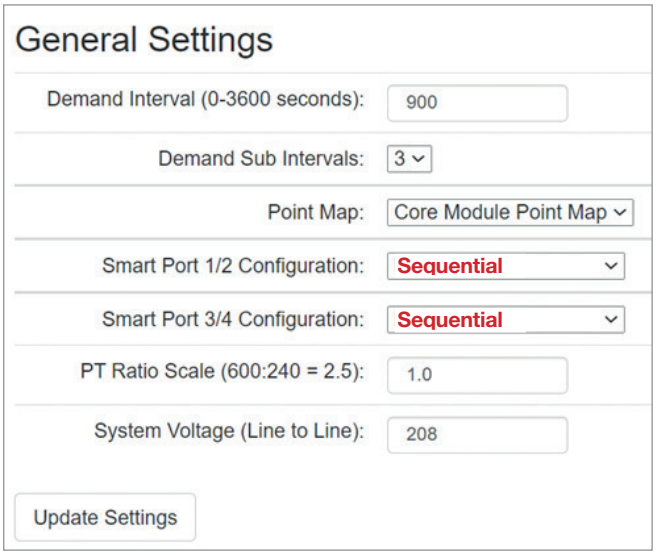
**Note:**
CT orientation and wiring polarity will be automatically corrected to provide the correct reading.



## 9.3 Panel Maps Configuration

### 9.3.1 Sequential

There are four Smart Port connectors (RJ45) on the UMG 804 that can host interface cards. The Smart Port receptacle selected for the card will affect how circuit numbers are referenced on that card. Channel numbers are cumulative so the card in Smart Port 1 will equal channels 1-24 , Smart Port 2 will equal 25-48, Smart Port 2 will equal 25-48 as in the table „Sequential configuration channel to terminal relationship“ on page 25.




Smart Ports hosting the the DIN Rail CT Interface Card should always use the “Sequential” configuration which is set in the HTML console under Configuration>General Settings. Sequential configuration will align the circuit / channel numbers with the numbering on the terminal block as seen on the table “Sequential Configuration”.

Note that devices plugged into Smart Port 1-2 (panel board 1) can be configured independently of panel 2 (Smart Port 3-4).

| Smart Port | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| Channels | 1-24 | 25-48 | 49-72 | 72-96 |

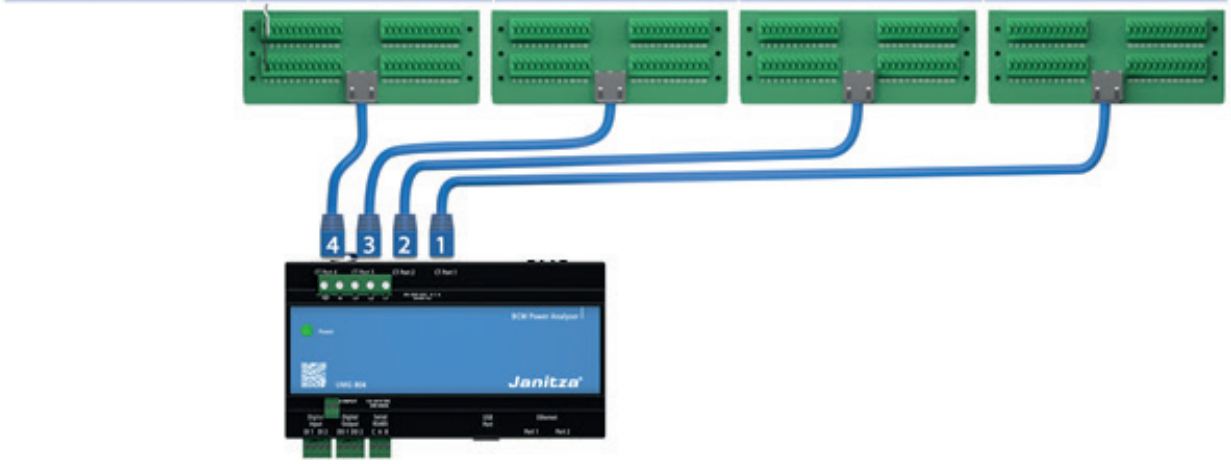



*Fig.: DIN Rail CT Interface Card connection overview*

## Panelboard 1

### SMART PORT 1

| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 2 | 2 |
| 3 | 3 | 3 |
| 4 | 4 | 4 |
| 5 | 5 | 5 |
| 6 | 6 | 6 |
| 7 | 7 | 7 |
| 8 | 8 | 8 |
| 9 | 9 | 9 |
| 10 | 10 | 10 |
| 11 | 11 | 11 |
| 12 | 12 | 12 |
| 13 | 13 | 13 |
| 14 | 14 | 14 |
| 15 | 15 | 15 |
| 16 | 16 | 16 |
| 17 | 17 | 17 |
| 18 | 18 | 18 |
| 19 | 19 | 19 |
| 20 | 20 | 20 |
| 21 | 21 | 21 |
| Aux 1 / 22 | Aux 1 | 22 |
| Aux 2 / 23 | Aux 2 | 23 |
| Aux 3 / 24 | Aux 3 | 24 |

### SMART PORT 2

| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
|---|---|---|
| 1 | 22 | 25 |
| 2 | 23 | 26 |
| 3 | 24 | 27 |
| 4 | 25 | 28 |
| 5 | 26 | 29 |
| 6 | 27 | 30 |
| 7 | 28 | 31 |
| 8 | 29 | 32 |
| 9 | 30 | 33 |
| 10 | 31 | 34 |
| 11 | 32 | 35 |
| 12 | 33 | 36 |
| 13 | 34 | 37 |
| 14 | 35 | 38 |
| 15 | 36 | 39 |
| 16 | 37 | 40 |
| 17 | 38 | 41 |
| 18 | 39 | 42 |
| 19 | 40 | 43 |
| 20 | 41 | 44 |
| 21 | 42 | 45 |
| Aux 1 / 22 | Aux 4 | 46 |
| Aux 2 / 23 | Aux 5 | 47 |
| Aux 3 / 24 | Aux 6 | 48 |

## Panelboard 2

### SMART PORT 3

| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
|---|---|---|
| 1 | 1 | 49 |
| 2 | 2 | 50 |
| 3 | 3 | 51 |
| 4 | 4 | 52 |
| 5 | 5 | 53 |
| 6 | 6 | 54 |
| 7 | 7 | 55 |
| 8 | 8 | 56 |
| 9 | 9 | 57 |
| 10 | 10 | 58 |
| 11 | 11 | 59 |
| 12 | 12 | 60 |
| 13 | 13 | 61 |
| 14 | 14 | 62 |
| 15 | 15 | 63 |
| 16 | 16 | 64 |
| 17 | 17 | 65 |
| 18 | 18 | 66 |
| 19 | 19 | 67 |
| 20 | 20 | 68 |
| 21 | 21 | 69 |
| Aux 1 / 22 | Aux 1 | 70 |
| Aux 2 / 23 | Aux 2 | 71 |
| Aux 3 / 24 | Aux 3 | 72 |

### SMART PORT 4

| CT Terminal # (=HTML Display Channel) | Panel Board Circuit # | Register Circuit # |
|---|---|---|
| 1 | 22 | 73 |
| 2 | 23 | 74 |
| 3 | 24 | 75 |
| 4 | 25 | 76 |
| 5 | 26 | 77 |
| 6 | 27 | 78 |
| 7 | 28 | 79 |
| 8 | 29 | 80 |
| 9 | 30 | 81 |
| 10 | 31 | 82 |
| 11 | 32 | 83 |
| 12 | 33 | 84 |
| 13 | 34 | 85 |
| 14 | 35 | 86 |
| 15 | 36 | 87 |
| 16 | 37 | 88 |
| 17 | 38 | 89 |
| 18 | 39 | 90 |
| 19 | 40 | 91 |
| 20 | 41 | 92 |
| 21 | 42 | 93 |
| Aux 1 / 22 | Aux 4 | 94 |
| Aux 2 / 23 | Aux 5 | 95 |
| Aux 3 / 24 | Aux 6 | 96 |

# 10. Voltage Input / Electrical Connections

**⚠⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- **While removing or installing panels and covers, assure that they do not contact an energized bus.**
- **NEVER bypass external fusing.**
- **NEVER short the secondary of a potential transformer.**
- **Before closing covers and doors, carefully inspect the work area and remove any tools, wire scraps or other objects that may have been left inside the equipment.**

**Failure to follow these instructions will result in death or serious injury.**

The UMG 804 must be connected to the voltage source being monitored. The Voltage Input terminal serves as the both power supply to the monitor and voltage sensing (230 V version).
All phases that are to be monitored must be connected. The current consumption of the monitor will not exceed 0.2 A at any operational voltage.
**The monitor is fused internally but additional fusing may be required per local and national codes**.

## 10.1 Voltage input 230 V AC

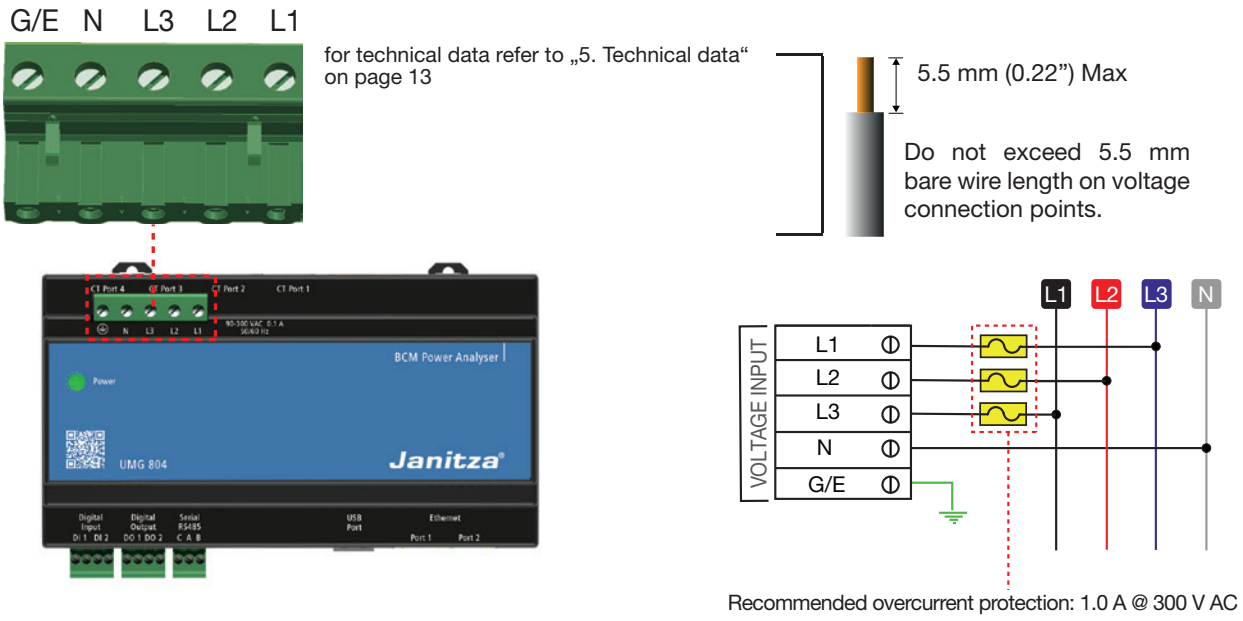
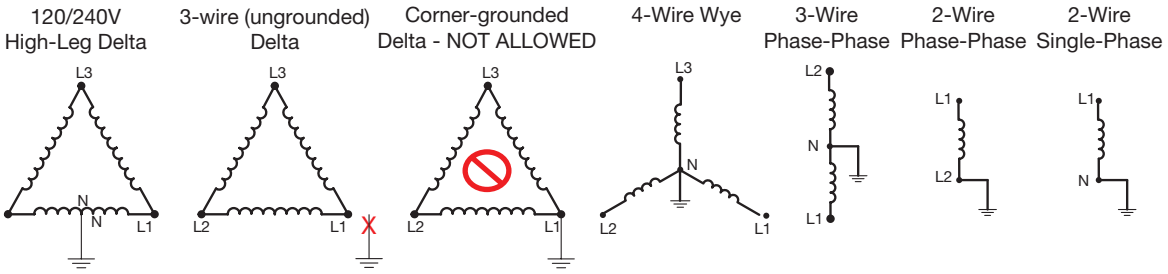



*Fig.: UMG 804 voltage connection wiring*

## 10.2 Acceptable wiring configurations

The monitor may be connected to any wiring configuration shown in the following figure except for corner grounded delta circuits.




## 10.3 Voltage input 24 V DC (optional)

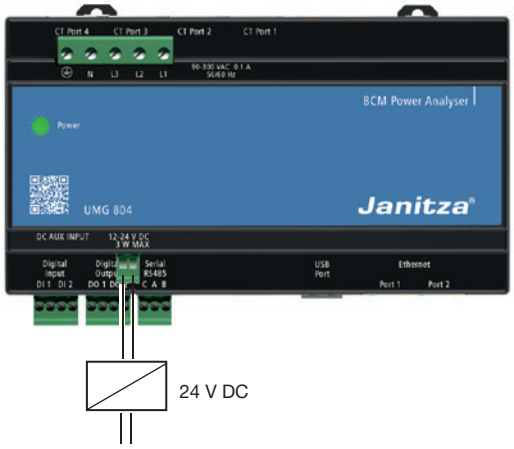
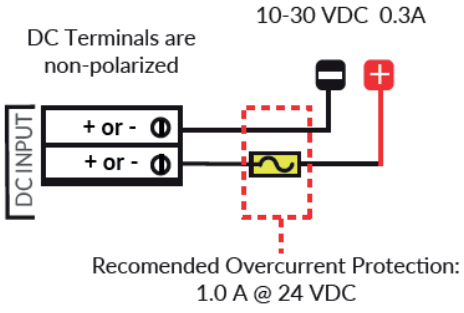



*Fig.: 24 V DC*

**NOTE**

Devices that can be operated with DC voltage are protected against polarity reversal



## 11. Serial Communications

The UMG 804 supports both Modbus TCP/IP and Modbus RTU serials communications.
Connect the shielded 2 wire cable to the 2-wire Modbus RS-485 network with the serial interface jack.
Mechanically secure the RS-485 cable(s) where they enter the electrical panel.
Connect serial cable(s) from the RS-485 loop to the serial connector on the UMG 804. Connect all RS-485 devices in a daisy-chain, and properly terminate the chain as shown on figure.
Follow all applicable wiring and termination connection guidelines for the standard in use.

Note that while both the Modbus RTU standards identify requirements for RS-485 line polarization/bias and termination, the value and placement of these resistors varies for each standard. The UMG 804 does not implement any RS-485 line polarization/bias or termination internally. For the RS-485 cable, use shielded, twisted-pair wire that is voltage-rated for the installation.
Connect the shield to Earth Ground somewhere on the RS-485 bus (single point connection only).

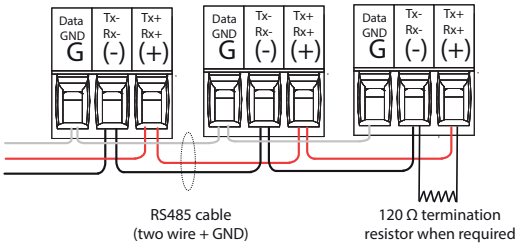



*Fig.: Serial communications wiring*

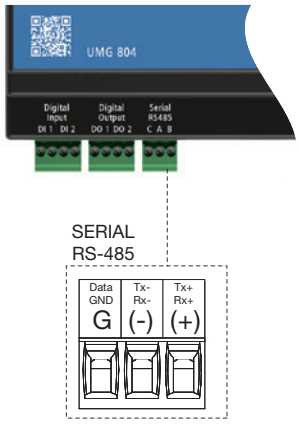



*Fig.: Serial communications port*

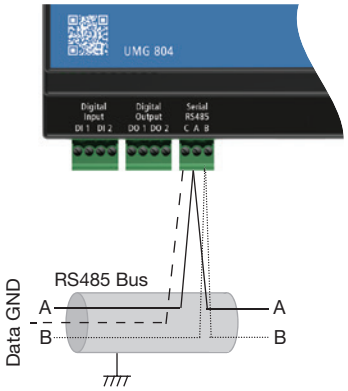



*Fig.: Serial communications port (detail)*

## 12. Ethernet Communications

The UMG 804s equipped with dual managed Ethernet ports. Either port can be used to communicate with the device. The free or open port can be used to link additional UMG 804s or other third party Ethernet devices to the network. To configure the IP settings see the configuration at next page.

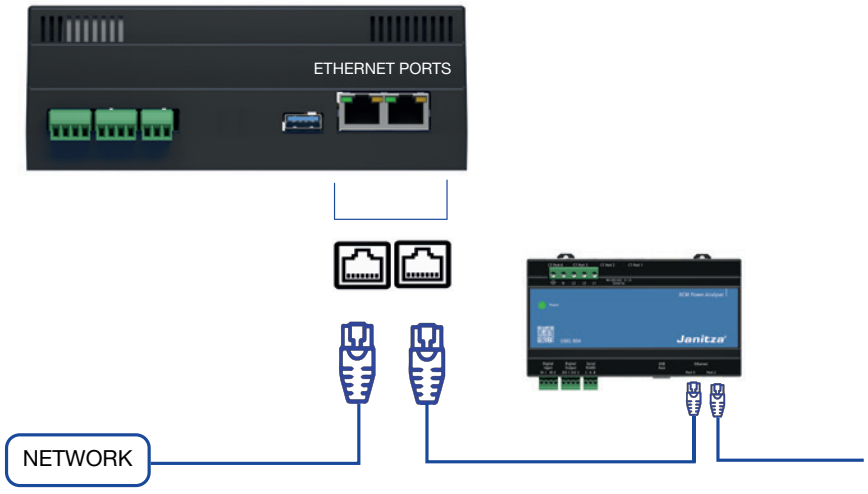
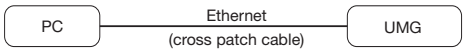



*Fig.: Ethernet port wiring*

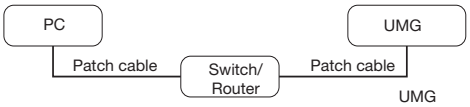
The 3 most common connections for communication between PC and device:

**1.**



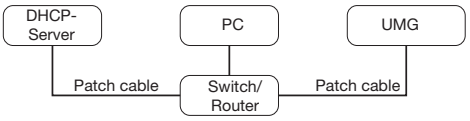

*The device and PC require a static IP address.*

**2.**




*The device and PC require a static IP address.*

**3.**




*The DHCP server automatically assigns IP addresses to the device and PC.*

Ethernet connection
**Recommendation:**
Use at least CAT5 cables!

**ATTENTION**

**Material damage due to security vulnerabilities in programs, IT networks and protocols.**
Security vulnerabilities can lead to data misuse and faults and even the standstill of your IT infrastructure.
**To protect your IT system, network, data communications and measurement devices:**

- **Inform your network administrator and/or IT representative.**
- **Always keep the meter firmware up to date and protect the communication to the meter with an external firewall. Close unused ports.**
- **Take protective measures against viruses and cyber attacks from the Internet, e.g. through firewall solutions, security updates and virus protection programs.**
- **Close security vulnerabilities and update or renew existing protection for your IT infrastructure.**

# 13. Configuration

The UMG 804 can be configured in three different ways:

1. Via the USB Interface using a USB Flash Drive with the Configuration File / spreadsheet. This is the recommended and most flexible method.

2. Using the homepage of the device by directly accessing the UMG 804 over an Ethernet connection. This can be done by entering the device‘s IP address into any standard HTML browser (Ethernet connection to the device required).

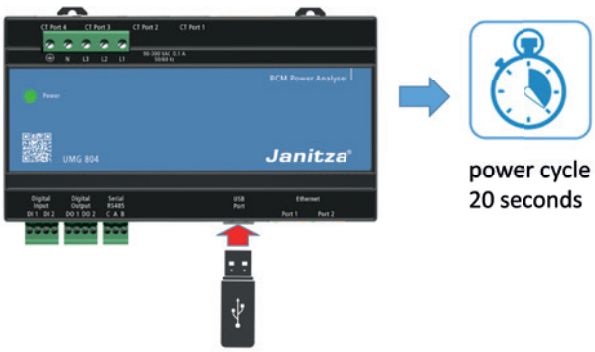
3. Writing to Modbus registers using a Modbus utility.

## 13.1 Via USB Interface

The “config.csv” file can be opened with any text editor or spreadsheet application. The initial text in all capitals refers to the field followed by a comma and the configuration value. These values may be changed manually and the file saved. It can then be loaded into the UMG 804 by power cycling the device with the USB drive installed. Note that the file must be saved as “config.csv”.

```
ADMIN_NAME,admin
ADMIN_PASSWORD,admin
DEVICE_NAME,Core Module
INSTALL_LOCATION1,East Building
INSTALL_LOCATION2,West Building
,
DHCP,0
IPV4ADDRESS,192.168.5.77
IPV4DNS1,8.8.8.8
IPV4GATEWAY,192.168.5.1
IPV4MASK,255.255.255.0
IPV4NTP,pool.ntp.org
```

1. Prepare a USB stick
   · The USB flash drive needs to be formatted FAT32
   · 32 GB or less in size
   · Recommended USB 3.x for reading/write speed
2. Prepare the configuration file.
   If required, rename the configuration file to “**config.csv**”
3. Copy the “**config.csv”** file to the USB stick
4. Turn off the UMG 804
5. Plugin the USB stick to the USB port of the UMG 804
6. Turn on the device
7. Wait 20 seconds
8. Update is done
9. Remove the USB stick




## 13.2 Via Device Homepage

See chapter „14.4.9 System“ on page 76.

## 13.3 Via Modbus Utility

Any user desired Modbus tool can be used to change the configuration of the UMG 804 directly via the corresponding Modbus addresses/registers. The required Modbus address list is available on *www.janitza.com.*

## 14. Device Homepage

· The UMG 804 is equipped with onboard HTML console for configuration, viewing and exporting data as well as upgrading firmware that can be accessed using any browser.

· The UMG 804 must be connected to a network using either of the two Ethernet ports and the device must be on the same network and subnet as the PC.

· Ideally isolate the UMG 804 by removing any other daisy chained Ethernet connections as they may have conflicting IP address if still left on the default address, or the wrong UMG 804 may be accidently accessed. The same is true if multiple UMG 804s are connected to a switch.

1. Connect to either of the Ethernet ports; take care not mistake “Smart Ports” for “Ethernet Ports” as both utilize RJ45 jacks.

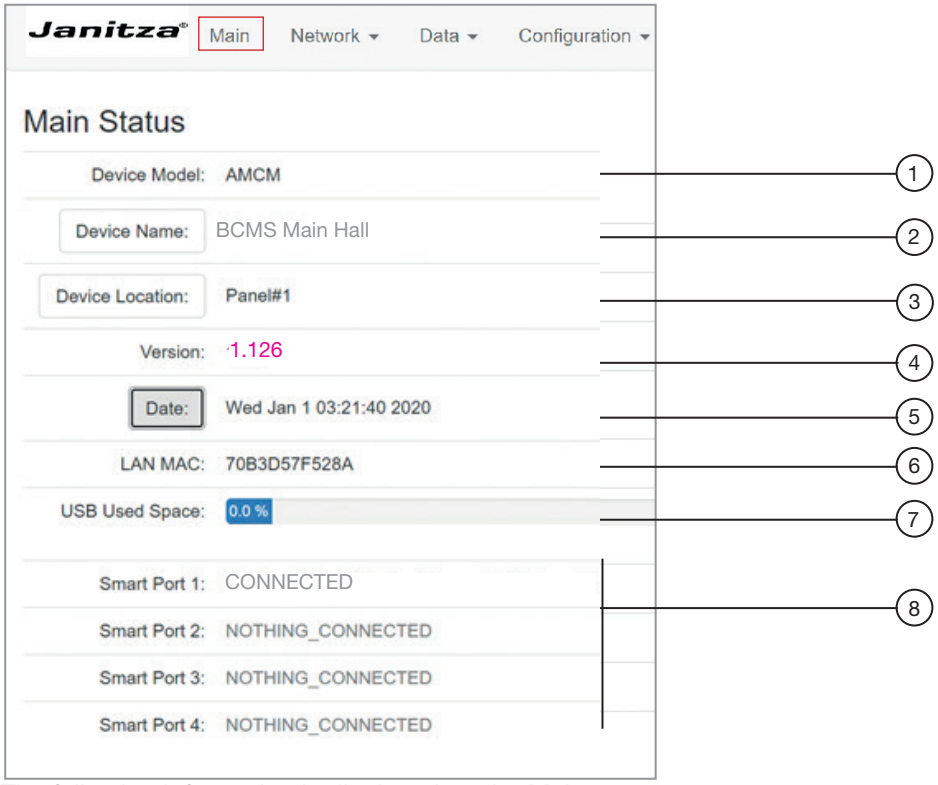
2. Using a standard web browser, enter the IP address of the UMG 804 and select the [Network] tab on the web console. The default IP address is 192.168.5.77

3. Use the default login of “admin” and default password of “admin”. This may be changed as required.

4. If the web console of the UMG 804 does not appear, ping the IP address using the windows command line prompt “ping 192.168.5.77” to confirm the communications link.

### 14.1 Main Status Page

· The **Main Status Page** indicates the identifying features of the UMG 804 including firmware version and connectivity status to interface devices connected to the Smart Ports.



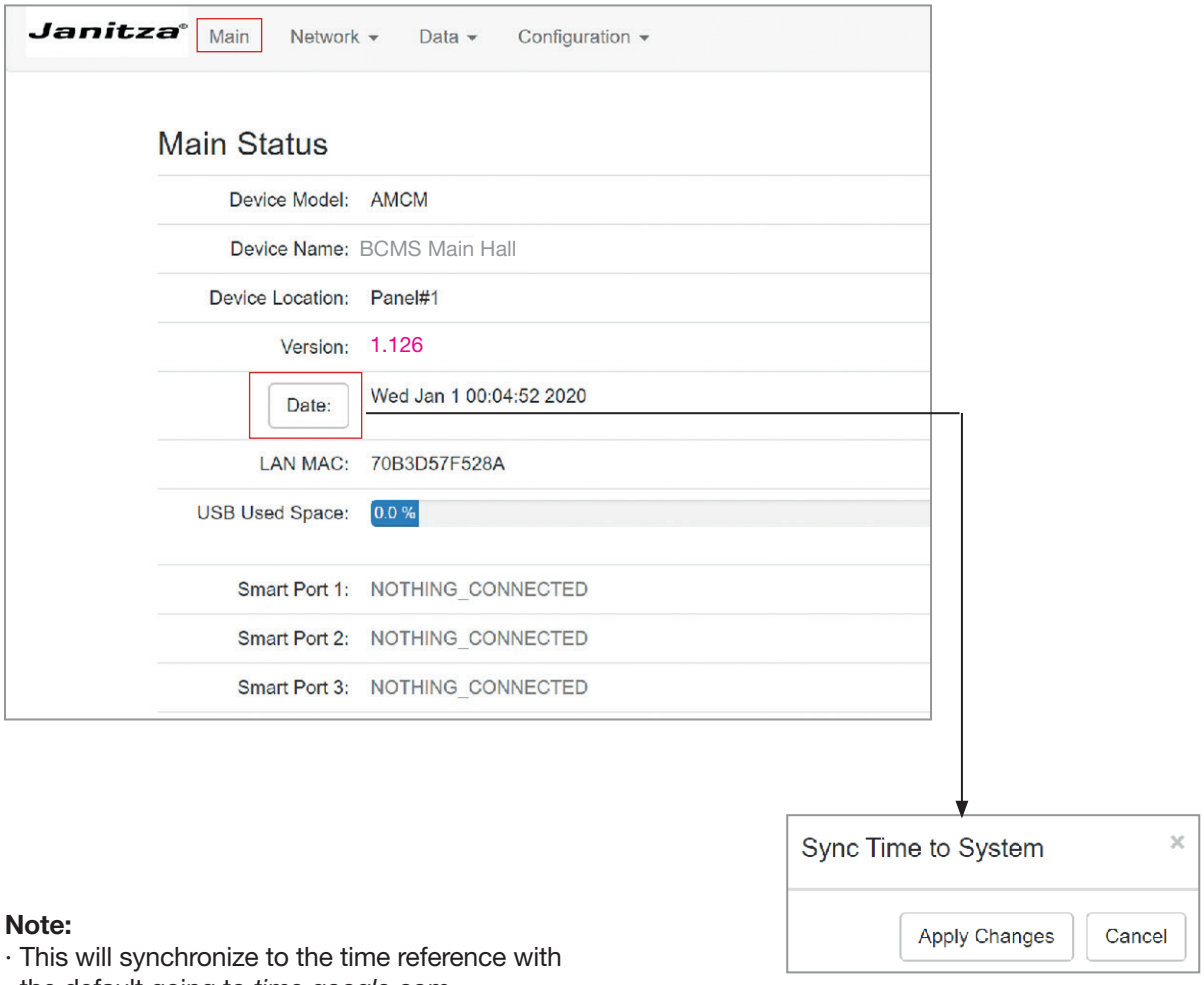

The following information is displayed on the Main Status page.

| | |
|---|---|
| 1 | **Device Model**: Device Model Description |
| 2 | **Device Name**: User input field up to 42 characters; can be changed via config.csv file or click on “Device Name” |
| 3 | **Device Location**: User input field up to 42 characters; can be changed via the config.csv file or click on “Device Location” |
| 4 | **Version**: Firmware Version |
| 5 | **Date**: The Date and Time auto defaults to *time.google.com* but can be set to another time reference using config.csv file or click on “Date” |
| 6 | **LAN MAC**: The MAC address is a permanent ID for the device and can be used to reference calibration records |
| 7 | **USB Used Space**: Denotes available capacity of USB drive if installed. USB is used to record waveform captures and CBEMA / ITIC events. It must not exceed 32 GB in capacity and must be a high quality drive |
| 8 | **Smart Port Connections**: Indicates if any modules are connected to the Smart Ports; an active module will be noted as “CONNECTED” |

### 14.1.1 Date and Time Reference

· The Date and Time can be synchronized by clicking on the **Date** button in the Main Status page.

· This reference may be changed in the config.csv file or on the Homepage to reference the desired NTP server.



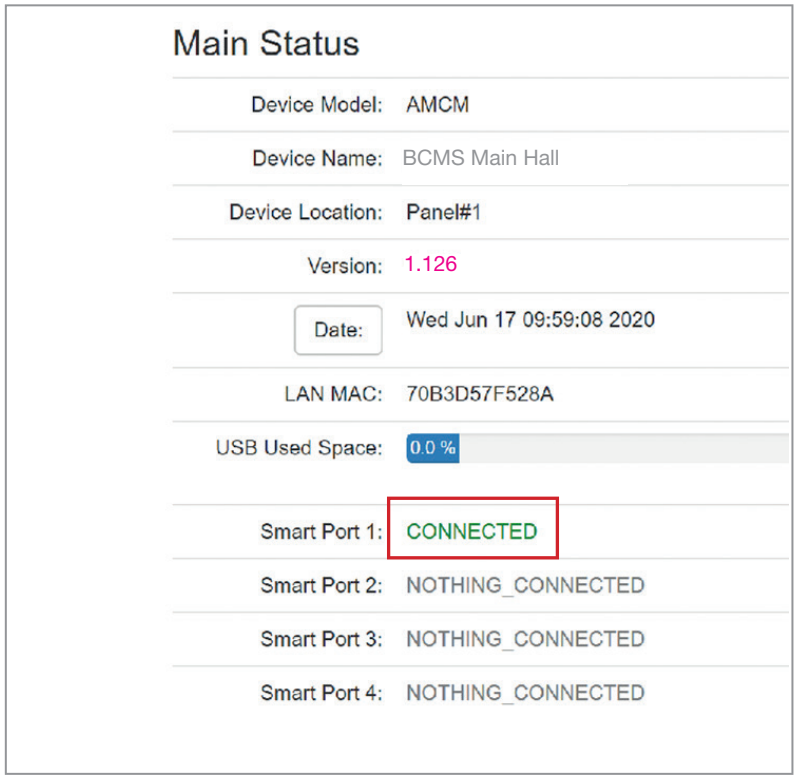

**Note:**

· This will synchronize to the time reference with the default going to *time.google.com*.

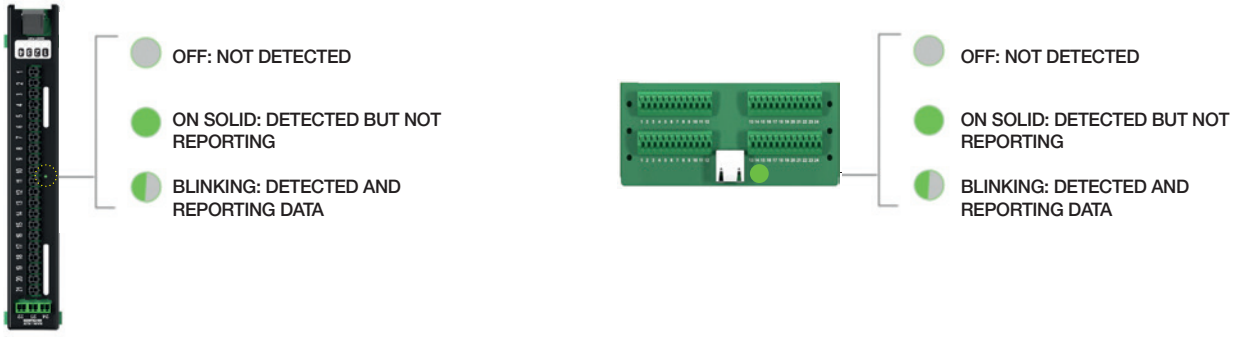
### 14.1.2 Smart Port Connectivity Status


The connection status of each module is visualized on the homepage and via a status LED on the module.

**Status on Homepage**
The designated Smart Port (1-4) will display as CONNECTED on the Main Status page.

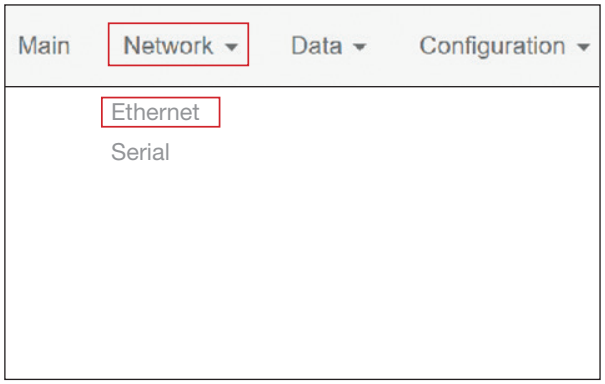



**Status on Modules (Status LED)**

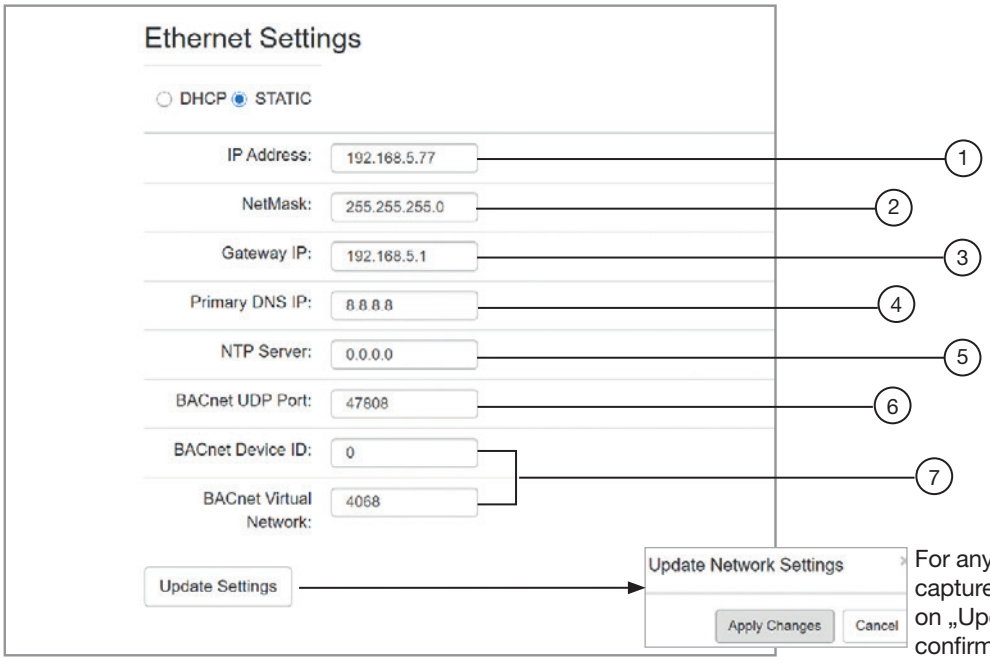


## 14.2 Network

### 14.2.1 Ethernet Settings



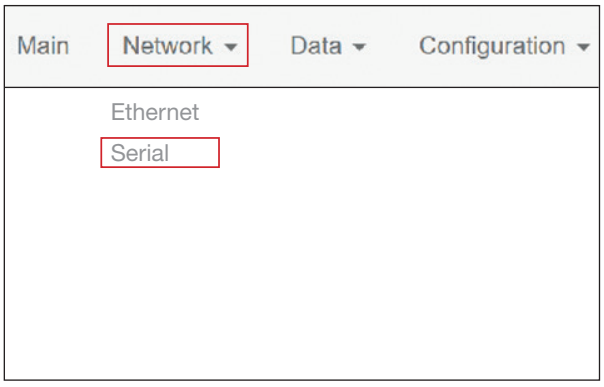

- The Ethernet Settings tabs allows for all IP based settings to be configured. These settings may also be configured using the config.csv file via USB drive or direct input from a Modbus write command.
- The factory default IP is always **192.168.5.77**
- The PC or device must be set to the same subnet as the IP address on the UMG 804 (see modifying subnet (i.e 1**92.168.5.XXX**) on PC for more details).
- Lost IP address: The IP address can also be revealed by inserting an USB into the UMG 804 and removing after approximately 20 seconds and a IPSetting.txt file will be written on the USB drive with the IP address.
- Note that if not using BACnet select disable BACnet.




For any of the changes to be captured, the user must click on „Update Settings“, and then confirm with „Apply Changes“.

| | |
|---|---|
| 1 | **IP Address:** Default is always **192.168.5.77** |
| 2 | **NetMask** |
| 3 | **Gateway IP** |
| 4 | **Primary DNS IP** |
| 5 | **NTP server**: NTP server is utilized for date and time references. Consult your system administrator for details or leave as default and time will be synced to *time.google.com* |
| 6 | **BACnet UDP Port**: Only required for BACnet applications. |
| 7 | **BACnet Device ID:** Only required for BACnet applications. |

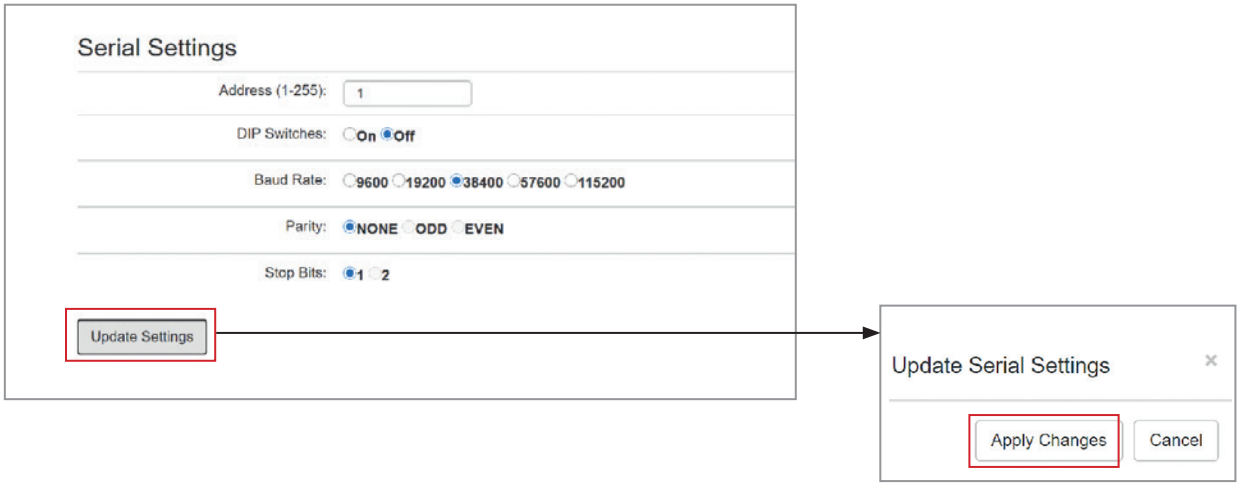
### 14.2.2 Serial Communications Settings




· The Serial Settings page allows for all serial-based settings to be configured. These settings may also be configured using the config.csv file via USB drive or using Modbus write commands.

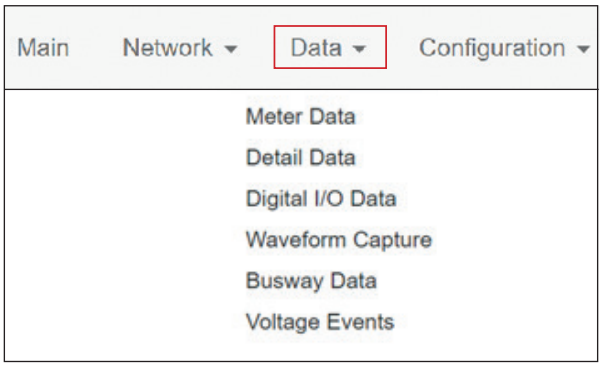
· All UMG 804s or devices sharing the same serial line must have unique addresses / slave IDs.

· The module is set up for two wire RS-485 Modbus RTU communications; see wiring details in „11.1 Voltage input 230 V AC“ on page 43,




The Update Settings must be selected for any of the above changes to be captured.

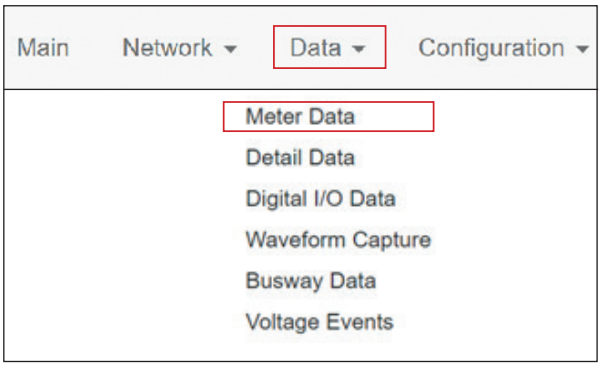
### 14.3 Data Menu




The options under the **Data menu** allow for viewing real time readings as well as waveform captures and voltage abnormalities.

- **Meter Data:** Displays data for “True Meters” and „Virtual Meters“. True Meters are circuits that are grouped to represent a single circuit breaker such as a 2P or 3P breaker. Virtual Meters use the same True Meter number but sum up the data for large groups of circuits to give panelboard, switchgear or busway totals.
- **Detail Data:** Display data for each of the meters 96 channels as well as alarm status, alarm configuration and system level voltage.
- **Digital I/O Data**: Displays status of native Digital I/O ports on the monitor as well as Digital Input cards.
- **Waveform Capture**: Provides access to view, download and trigger waveform captures.
- **Busway Data**: Currently not available.
- **Voltage Events:** Provides access to view and download voltage anomalies including sags, swells and CBEMA / ITIC violations.

### 14.3.1 True Meter Data Page




- The **Meter data page** provides an overview of all data for all True Meters and Virtual Meters. True Meters are groups of individual circuits that are combined to represent a single two-phase or three-phase circuit breaker allowing total data for the breaker to be presented.
- True meters will also derive the neutral phase of a “wye” or four wire circuit without requiring a neutral CT.
- Virtual Meters use the same True Meter number but sum up the data for large groups of circuits to give panelboard, switchgear or busway totals.

**INFORMATION.**

All voltages are common to all circuits / True Meters on the monitor.

To view a specific True Meter select the meter number from the **True Meter** drop down menu.

To assign a friendly name to a meter click on “Circuit Name.

TRUE METER

Meter Number: 1

Circuit Name: True Meter 1

Neutral Current: 0.00

Alarm Settings

Breaker Size: 30

Percent Utilized: 0.00

Frequency: nan

VOLTAGE SUMMARY

Circuit 1: 316.61 THD: 1.81

Circuit 2: 316.61 THD: 1.81

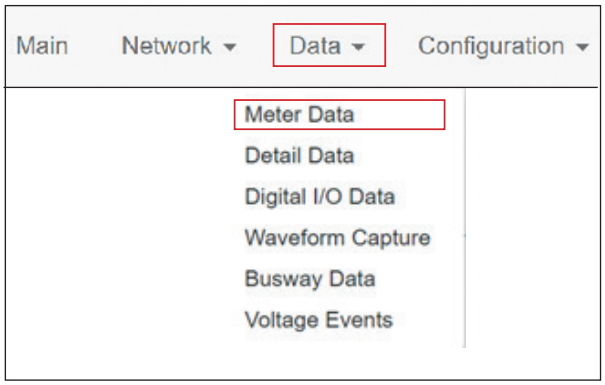
Circuit 3: 46.19 THD: 2.44

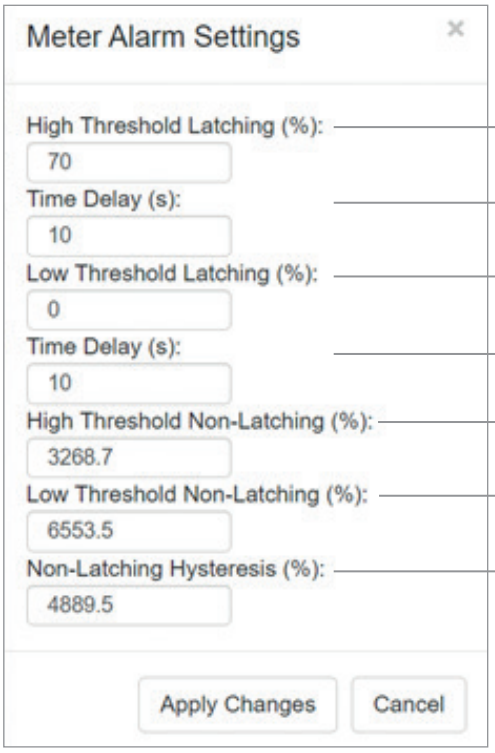
Avg LN: 226.47 Avg THD: 2.02

| Variable | Circuit 1 | Circuit 2 | Circuit 3 | Avg/Tot |
|---|---|---|---|---|
| kWH: | 0.00 | 0.00 | 0.00 | 0.00 |
| Voltage Phase: | L1 | L1 | L2 | 3 |
| Current: | 0.00 | 0.00 | 0.00 | 0.00 |
| kW: | 0.00 | 0.00 | 0.00 | 0.00 |
| kVA: | 0.00 | 0.00 | 0.00 | 0.00 |
| kVAR: | 0.00 | 0.00 | 0.00 | 0.00 |
| Power Factor: | 0.00 | 0.00 | 0.00 | 0.00 |
| Crest Factor: | 0.00 | 0.00 | 0.00 | 0.00 |
| THDI: | 0.00 | 0.00 | 0.00 | 0.00 |

### Current Alarm Settings

- Over and under current alarms thresholds are set separately for **True Meters** and **Virtual Meters** than for individual circuit channels not assigned a “meter number” which are set on the Detailed Data page.
- Setting any threshold to “0” will disable the alarm. It is suggested that the low current threshold be disabled unless there is a specific requirement.
- The threshold is a percentage of breaker size which is set on the “Breaker Size” page under the “Configuration” tab.
- Alarms can be set for both latching and non-latching alarm registers.




High Current Alarm threshold; percentage of breaker rating.

High Current Alarm time delay; duration event must be true before alarm is active.

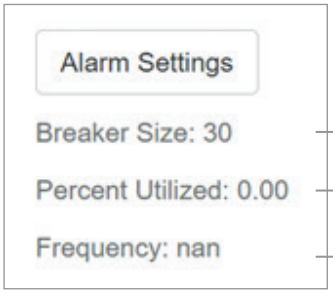
Low Current Alarm; set at 0 % to disable.

Low Current Alarm time delay; duration event must be true before alarm.

High Current Non-Latching Alarm; percentage of breaker rating.

Low Current Non-Latching Alarm; set at 0 % to disable. Percentage of change required to change alarm state.

Percentage of change required to change alarm state.



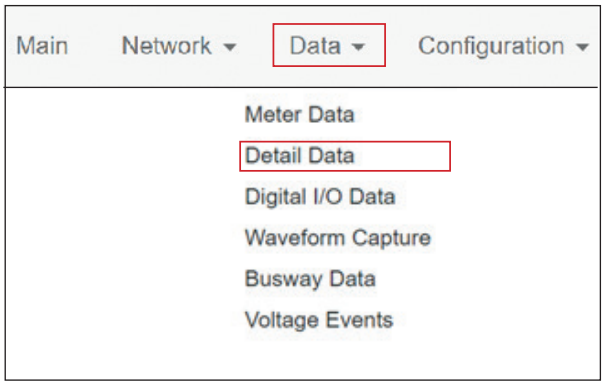

Breaker size setting (set on Breaker Size page).

Percent of breaker capacity used.

Measured frequency

Refer also to chapter „Setting Alarm Thresholds“ on page 58.

### 14.3.2 Detail Data

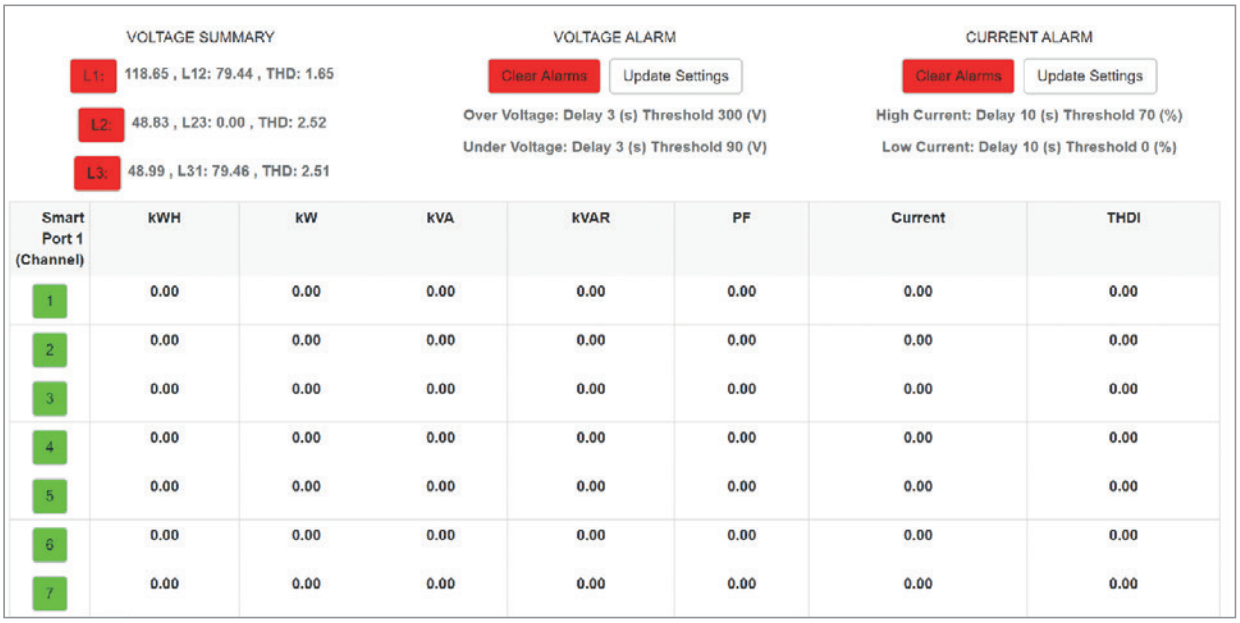



· The **Detail Data** page presents readings for all channels / circuits connected to the meter.

· Channels are organized according to the Smart Port on the meter they are connected to.

· The channel-to-circuit relationship will change according to how the Smart Ports are configured.

· **See Configuration > General Settings** page for a translation table that relates the channels to the circuits.




| Smart Port 1 (Channel) | kWH | kW | kVA | kVAR | PF | Current | THDI |
|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

### Viewing Alarm Status

· The **Detailed Data** page found under the **Data menu** will allow you to view and change thresholds for current and voltage based alarms. Any channel in alarm condition will appear red. Channels without alarm conditions will appear green.

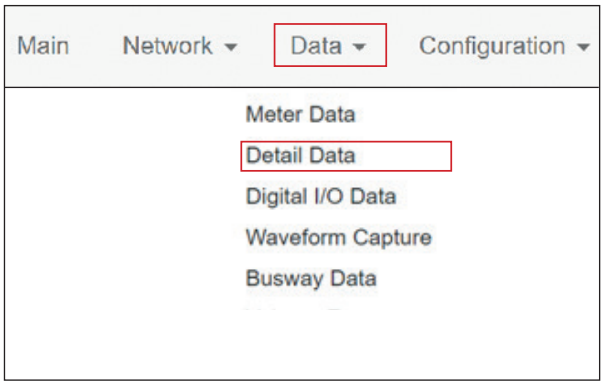
· To clear all alarms for voltage and / or current, select the **Clear Alarms** tab under the respective Voltage or Current Alarm menu.

· To clear alarms specific to a circuit or phase, select the phase or channel number highlighted in red and click on **Submit**.


**INFORMATION**

All alarms are latching so the presence of an alarm does not mean the state is true at the time unless the alarm reactivates

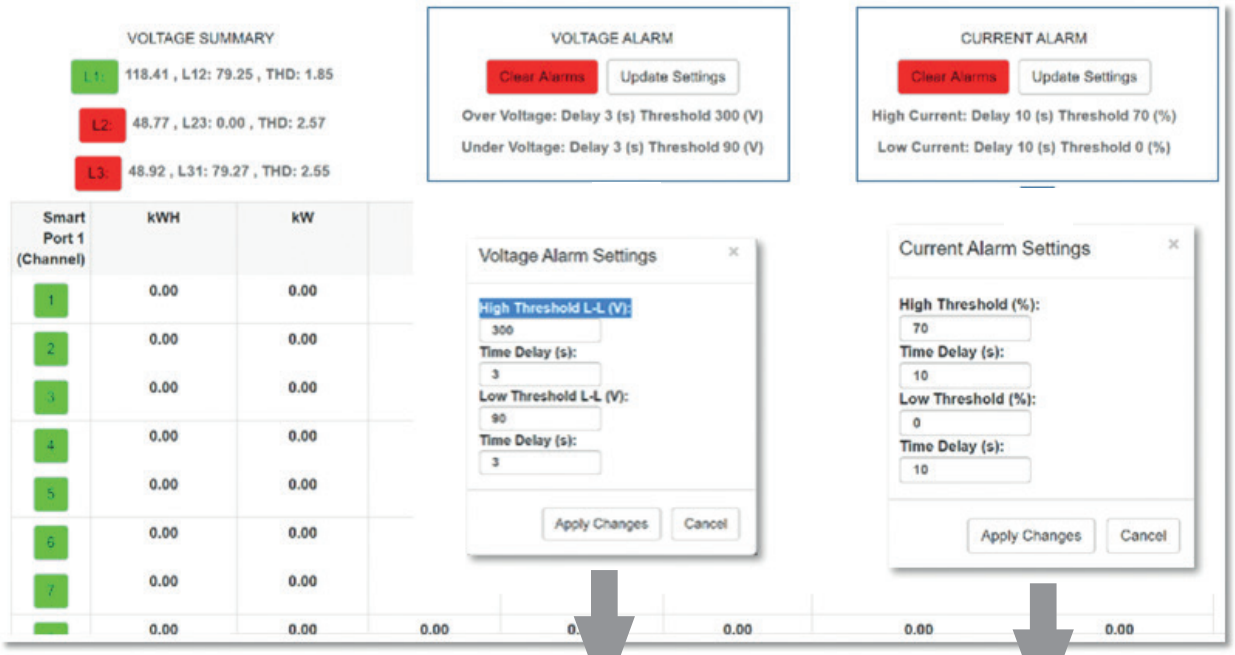
### Setting Alarm Thresholds




- Alarm thresholds can be set on the **Detail Data** page under the **Data Menu**.
- Voltage thresholds are set using the **Update Settings** button under the Voltage Alarm.

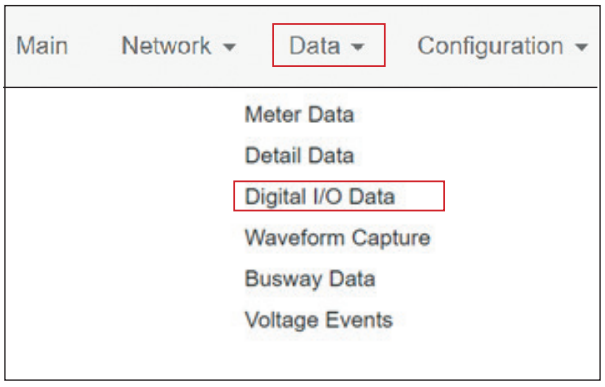
**INFORMATION**

Setting any threshold to “0” will disable the alarm. It is suggested that the low current threshold be disabled unless there is a specific requirement.




- Selecting the **Voltage Alarm Update Settings** button will reveal a menu for the high (upper) voltage threshold as well as low voltage threshold. The time delay for the respective thresholds will determine the duration the state must be true to activate the alarm.
- Selecting the **Current Alarm Update Settings** button will reveal a menu for the high (upper) current threshold as well as low current threshold. The time delay for the respective thresholds will determine the duration the state must be true to activate the alarm. Current thresholds are based on a percentage of the breaker rating which is set under the Configuration > Breaker Size page.

### 14.3.3 Digital I/O Data

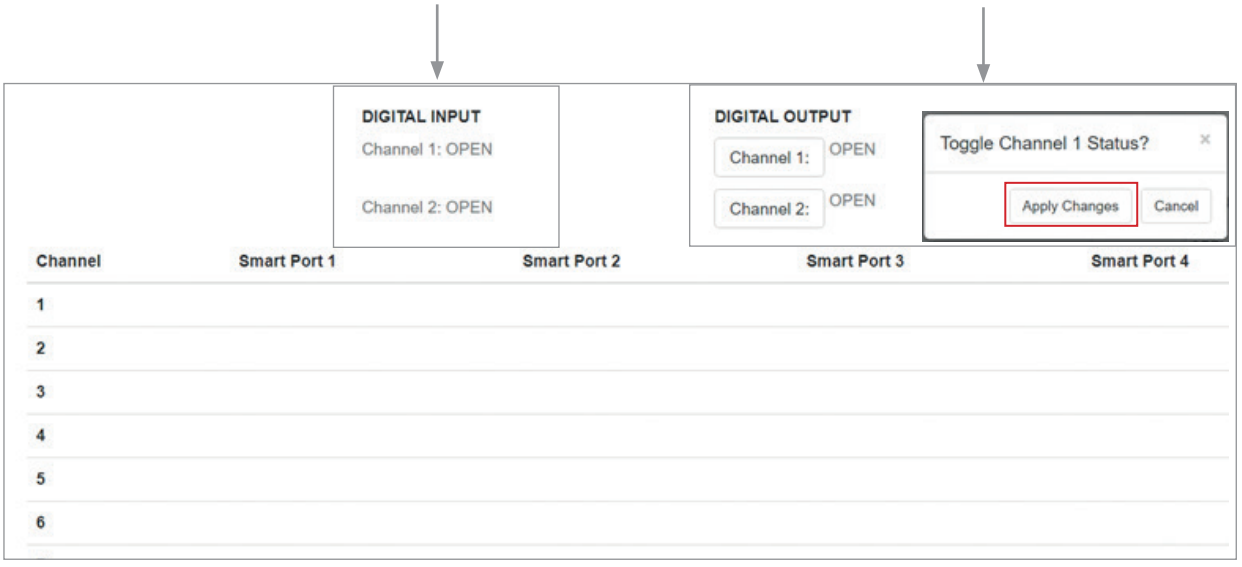



- The UMG 804 has two Digital Inputs and two Digital Outputs. The state of these can be seen on the Digital I/O Data page.
- The Digital Outputs state change be toggled on this page.
- The Digital Input status is high when the contacts are closed i.e. shorted.

**UMG 804 Digital Inputs and Outputs**

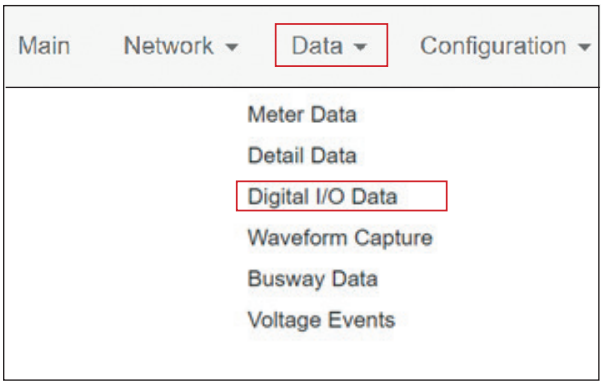
- Defines the state of the two dry contact **DIGITAL INPUTs** on the UMG 804.

- Defines the state of **DIGITAL OUTPUTs** for the two outputs on the UMG 804.
- State can be changed by writing to the Modbus register or selecting the CH.1 or CH.2 button the HTML console to toggle between states change. To take effect "Apply Changes" must be selected.



· When a 24 Channel Digital Input Card (dry contact) is plugged into a Smart Port, the status of each of the 24 inputs will be shown on the Digital I/O Data page under the specific Smart Port the Card is plugged into.

· When a specific channel is shorted / closed the state will be noted as closed.




Contact status

DIGITAL INPUT

Channel 1: OPEN

Channel 2: OPEN

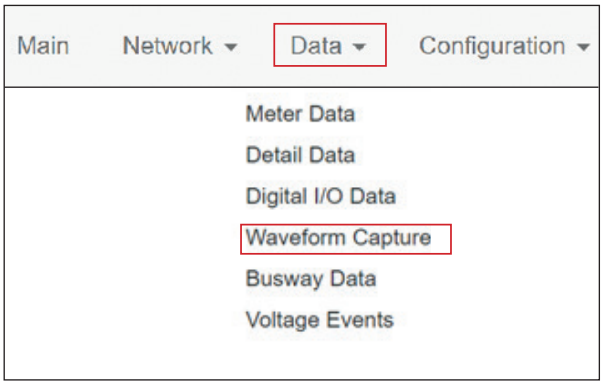
DIGITAL OUTPUT

Channel 1: OPEN

Channel 2: OPEN

| Channel | Smart Port 1 | Smart Port 2 | Smart Port 3 | Smart Port 4 |
|---|---|---|---|---|
| 1 | CLOSED | | | |
| 2 | CLOSED | | | |
| 3 | OPEN | | | |
| 4 | OPEN | | | |
| 5 | OPEN | | | |
| 6 | OPEN | | | |

### 14.3.5 Waveform Capture

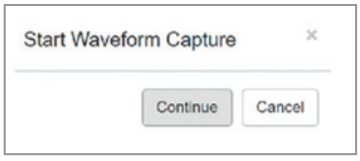


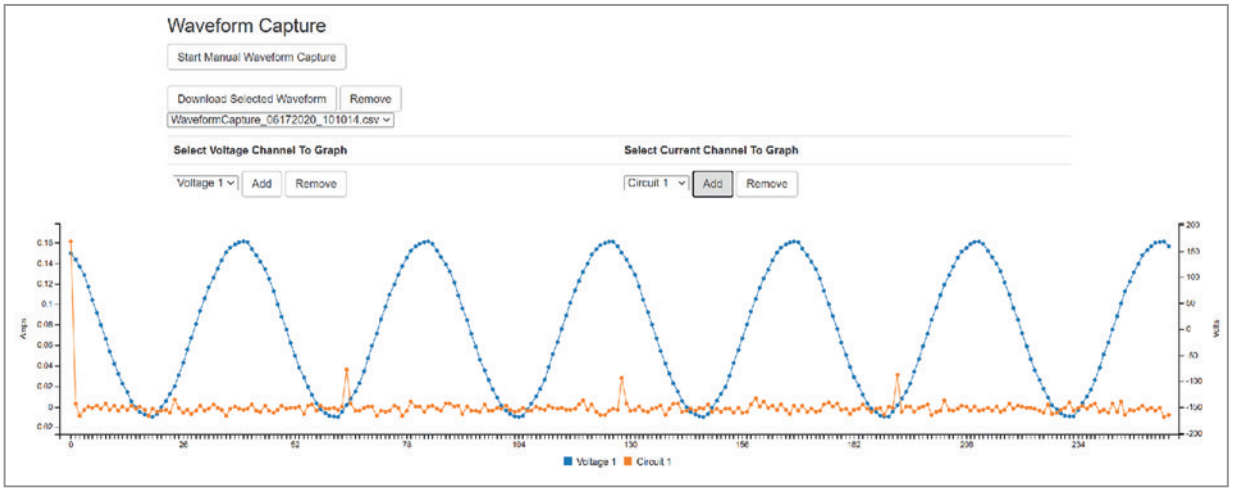

- The Waveform Capture function will capture up to six cycles (256 data points) of a waveform for all of the affected 96 channels in the event the voltage or current exceeds the waveform capture thresholds. No details of the event are lost as the monitor contains a rolling buffer.

- A USB drive must be installed in the meter (no larger than 32 GB) to capture waveforms. Captures are stored as csv files that can be viewed on applications such as MS Excel.

- **Automatic Captures:** Current and voltage thresholds to automatically trigger the captures using Modbus registers. Once the voltage exceeds or drops below the power supply of the meter the captures will cease.

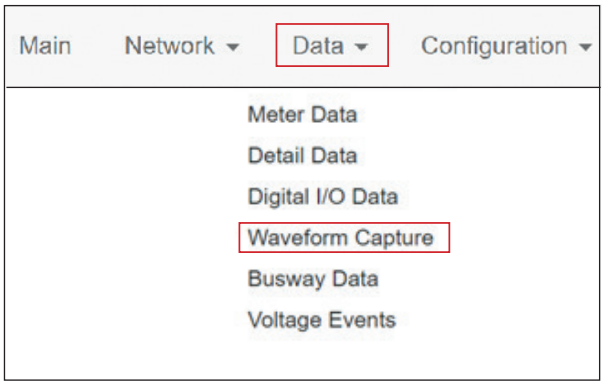
- **Manual Captures:** The „Start Manual Waveform Capture button“ will manually initiate a waveform capture for all 96 channels plotting six cycles of current and voltage.

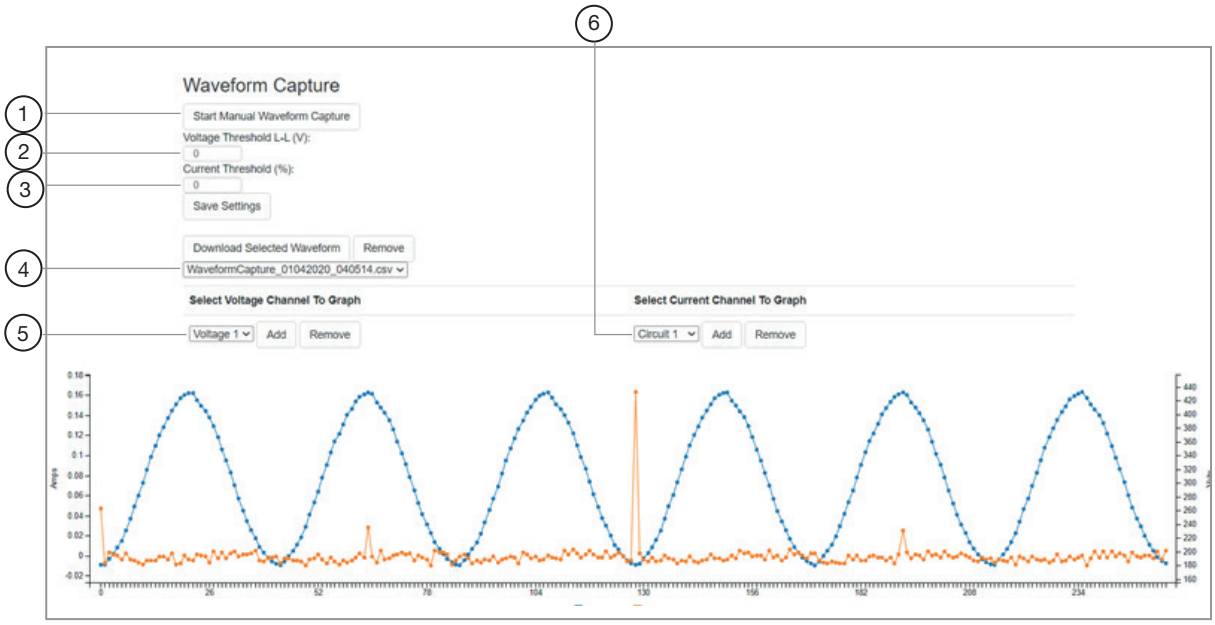


### Viewing and Downloading

- To view a waveform capture, select the capture from the drop down menu which uses the dd/mm/yy/hh/mn/ss file name and then select the phase and circuit / channel from the drop down menu followed by selecting **Add** to plot.
- Waveform data can also be downloaded over the network by selecting **Download Selected Waveform** and the csv file for all channels will be downloaded to the PC.

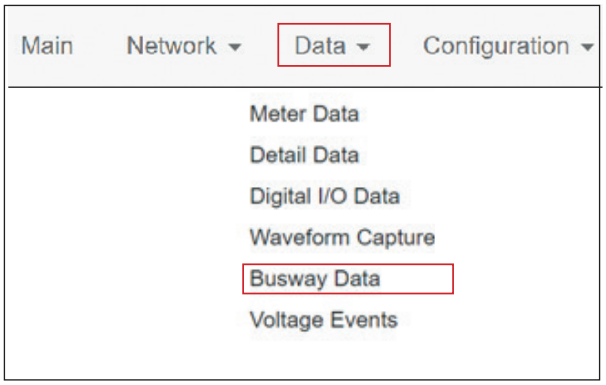



| | |
|---|---|
| 1 | Manually initiate waveform capture |
| 2 | Upper voltage threshold to auto trigger capture (L-L)- common to entire bus |
| 3 | Percent of maximum current as defined by breaker size setting to trigger auto capture – channel specific |
| 4 | Download waveforms from USB storage to local drive over network |
| 5 | Select voltage phase to plot |
| 6 | Select current phase(s) to plot |

### 14.3.6 Busway Data

Currently not available.



### 14.3.8 Voltage Events

· Any voltage event that violates the CBEMA / ITIC power quality window will be captured and written to the USB flash drive.

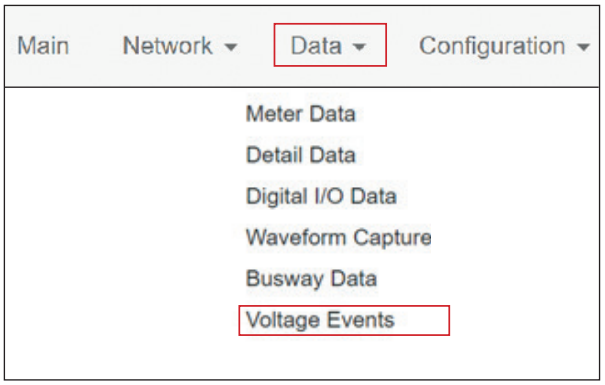
· A USB drive must be installed in the meter (no larger than 32 GB) to capture events.

· The “nominal” L-L system voltage must be correctly set on Configuration > General Setting Menu.

· Events can also be downloaded over the network as a .csv file by selecting the „**Download Voltage Events“** button.

· Events will be display on the local log and will display the time and date of occurrence (Timestamp), Event Type (Line Voltage Swell, Line Voltage Sag, Dropout, Low Frequency Decaying Ringwave, High-Frequency Impulse and Ringwave).

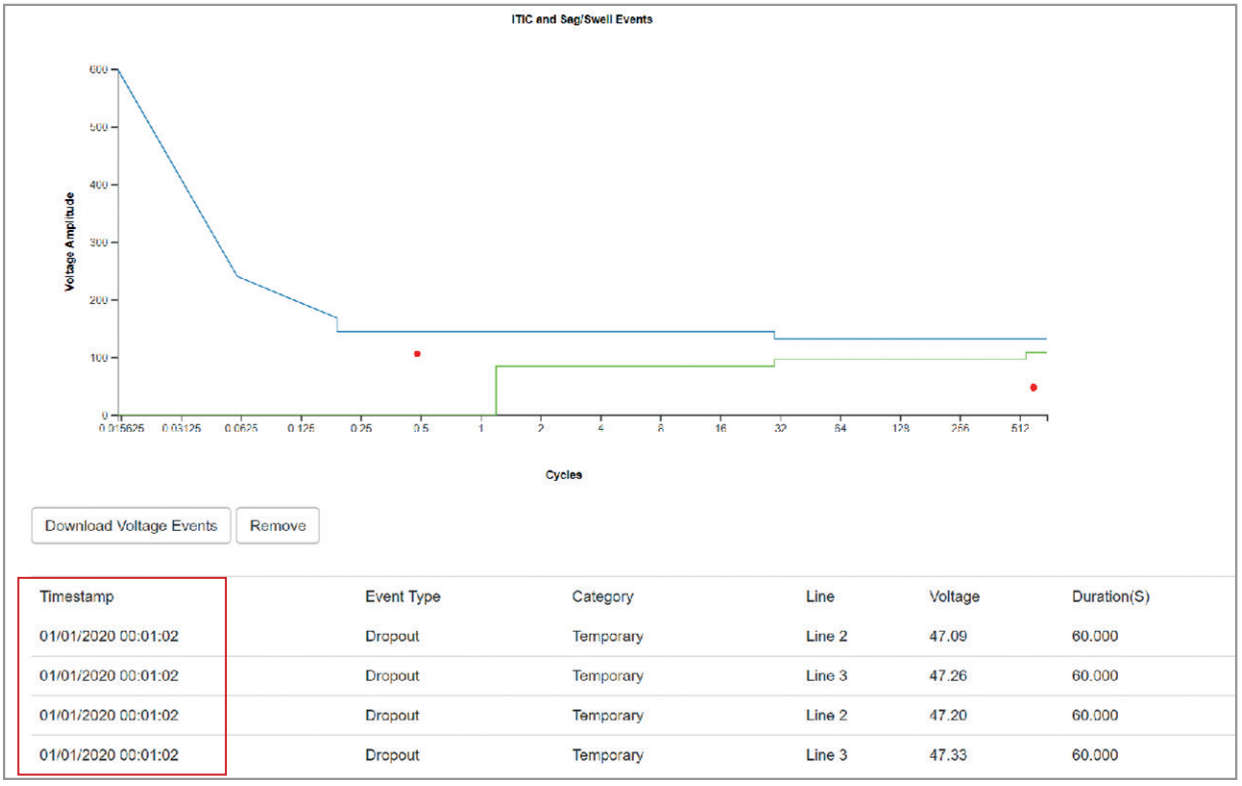
· Events are also written to Modbus registers as well as an event counter.



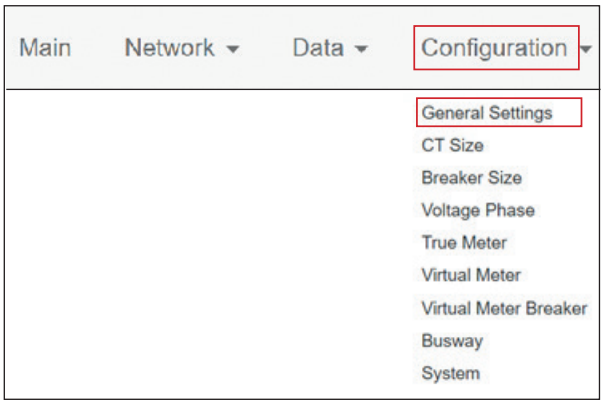

· Each event will be plotted by a single point in the graph according to where the voltage event occurred. Events can be cleared by selecting the „**Remove“** button.

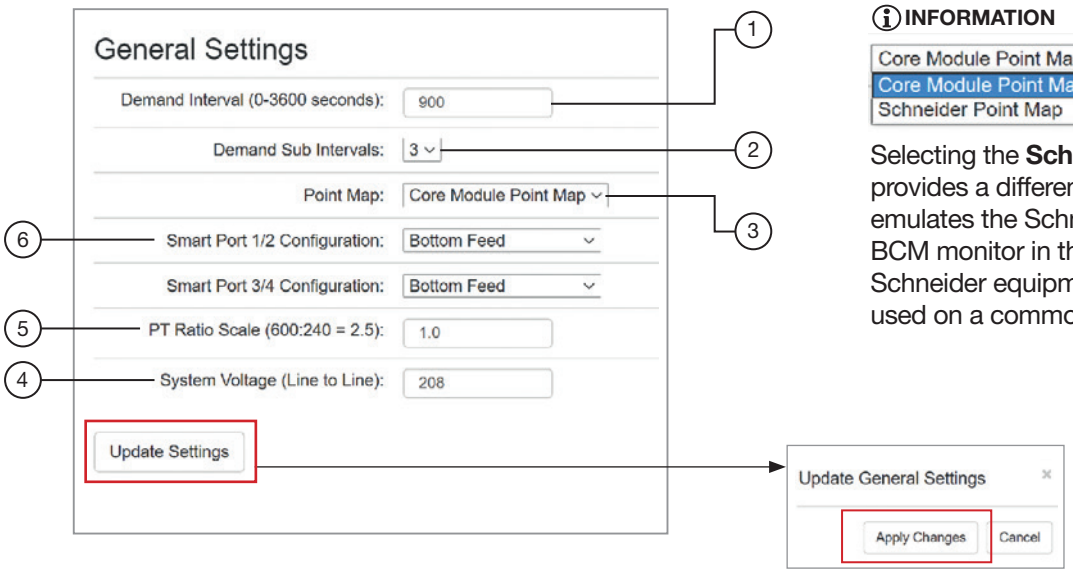
**INFORMATION**

**Note:** the upper and lower limits of the actual event will be truncated due to the meters power supply limits.



## 14.4 Configuration
### 14.4.1 General Settings

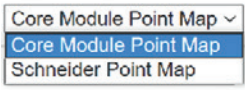






**INFORMATION**

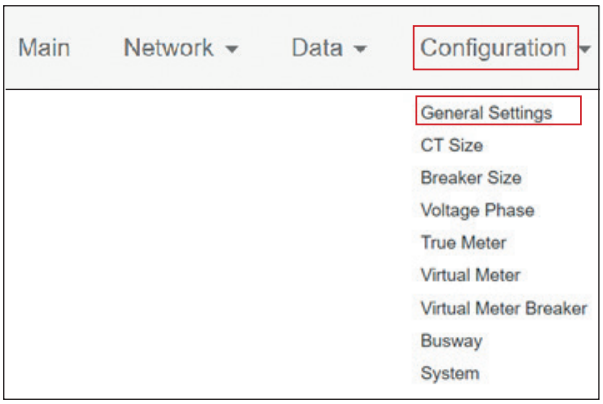



Selecting the **Schneider Point Map** provides a different register map that emulates the Schneider/Veris MCM/ BCM monitor in the event legacy Schneider equipment is also being used on a common system.

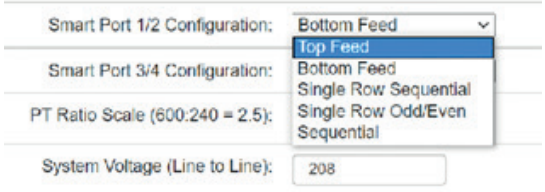
| | |
|---|---|
| 1 | **Demand Interval**: Kilowatt demand is a measure of the average rate at which kilowatt-hours are used during a certain time interval. This can be a value range from 0-3600 seconds.<br>It does not affect any parameter other than demand kWh. |
| 2 | **Demand Sub Intervals**: The demand interval can be broken down into subintervals. The meter calculates the average load in each subinterval as well as each Demand Interval. |
| 3 | **Point Map**: The monitor is capable of supporting different register maps. The standard register map is the UMG 804 Point Map that provides access to all of the features the module offers. |
| 4 | **System Voltage**: Provide the nominal system voltage (line to line) for the source. If a line to neutral single-phase source is being used input the line to neutral voltage. This is used in the calculation of the CBEMA / ITIC voltage event calculations. |
| 5 | **PT Ratio Scale**: provides a scaling factor for the voltage reference when using potential transformers to scale voltage for medium voltage applications. |
| 6 | **Smart Port Configuration:** refer to sections „Panel Maps Configuration“. |

**Important**: Always remember to select the **Update Settings** button to save settings.

### CT Strip Configuration

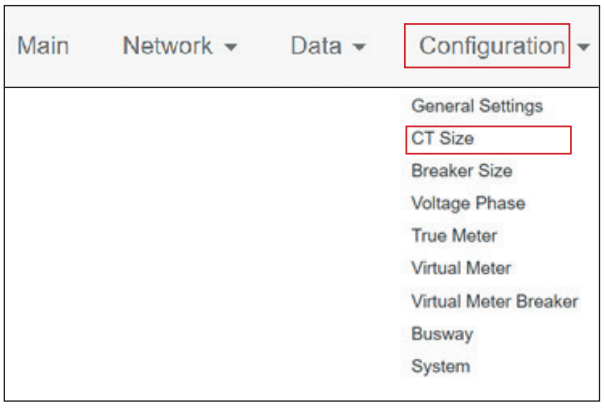



- The UMG 804 must be configured according to the physical orientation of the DIN Rail CT Interface Boards in order to correctly represent the channel to circuit relationship.
- The configuration is determined by the panelboard type and numbering sequence; five options are available.
- Configuration is set in the configuration menu “Smart Port Configuration” drop down menu.




- **Note**: DIN Rail CT Interface Boards plugged into Smart Port 1-2 (panel board 1) can be configured independently of panel 2 (Smart Port 3-4).
- The panel configuration maps can be looked up in sections „8.3 Panel Maps Configuration“ on page 30 and „9.3 Panel Maps Configuration“ on page 41.

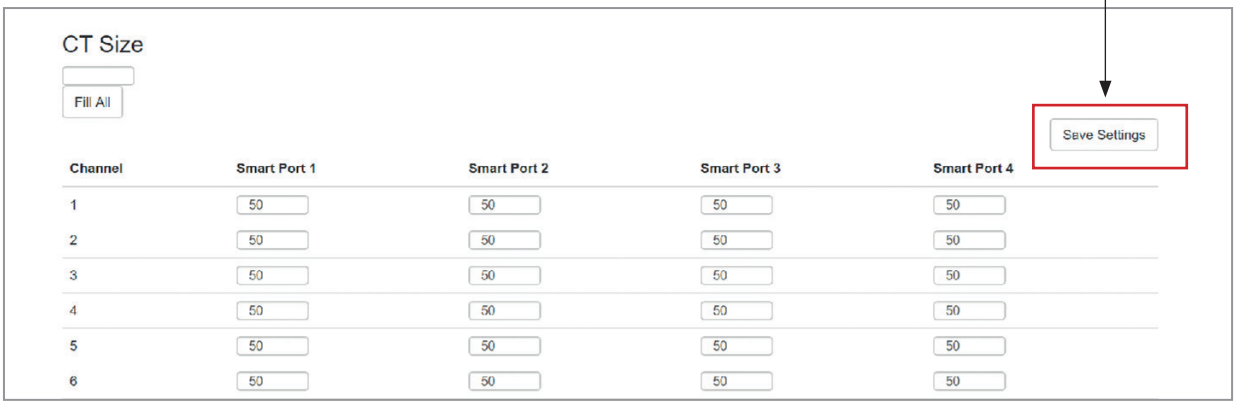
### 14.4.2 CT Size



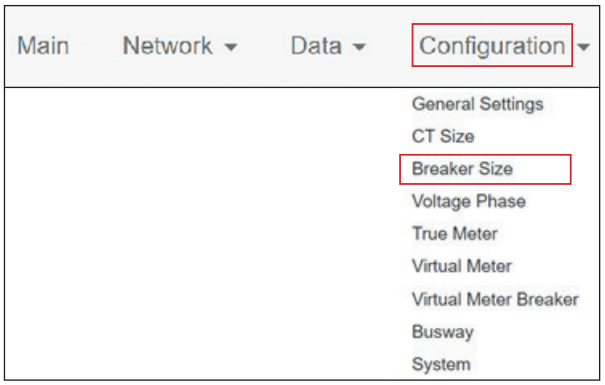

- The CT (current transformer) size configuration setting provides current transformer nominal amperage values for all circuit positions. This is critical as it affects the scaling of currents.
- **All CTs used are 0.33 V output.**
- To determine which channel corresponds to which circuit see the channel to circuit relation table as this is dependent on Smart Port Configuration.
- The **Fill All** field allows a single value to populate all fields with a similar value.
- To determine which channel corresponds to which circuit see the channel to circuit relation table as this is dependent on Panel Maps Configuration.

**INFORMATION**

**Important :** Always remember to select the “Save Settings“ button to save settings.



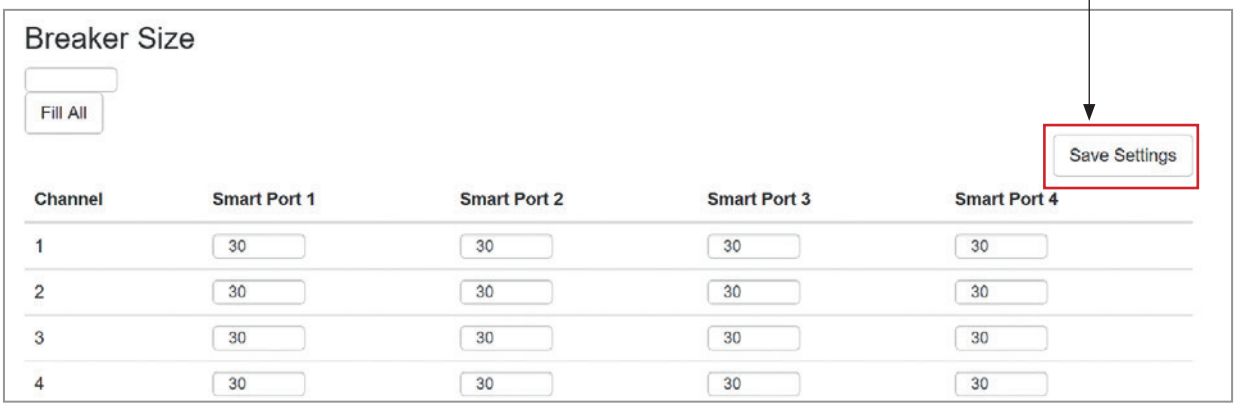
### 14.4.3 Breaker Size



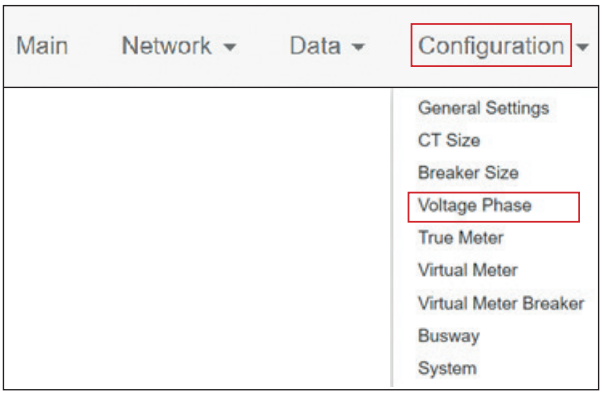

- The breaker size configuration setting provides trip ratings for each circuit breaker on each circuit. It does not influence any readings and is only used in over and under current alarms and percent circuit capacity calculations.
- The **Fill All** field allows a single value to populate all fields with a similar value.
- To determine which channel corresponds to which circuit see the channel to circuit relation table as this is dependent on Smart Port Configuration.

**INFORMATION**

Important : Always remember to select the **Save Settings** button to save settings.



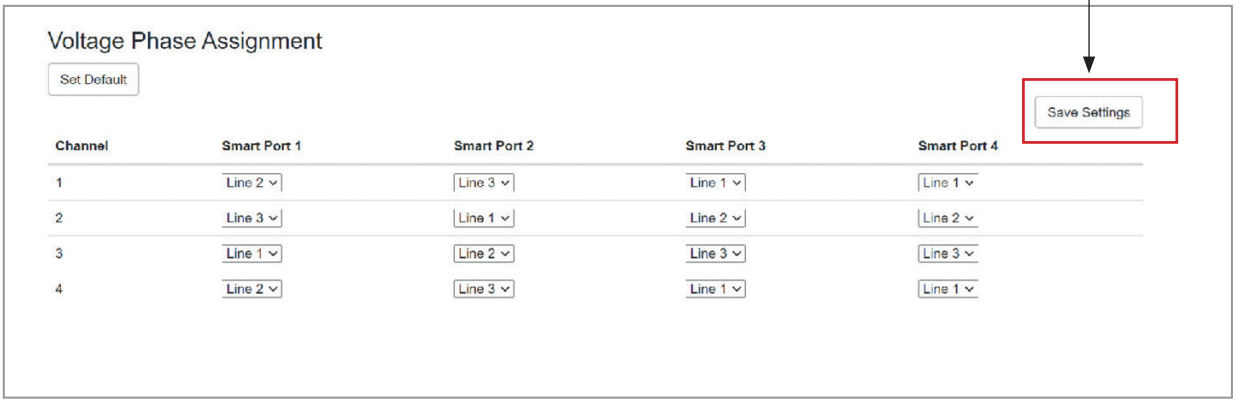
### 14.4.4 Voltage Phase



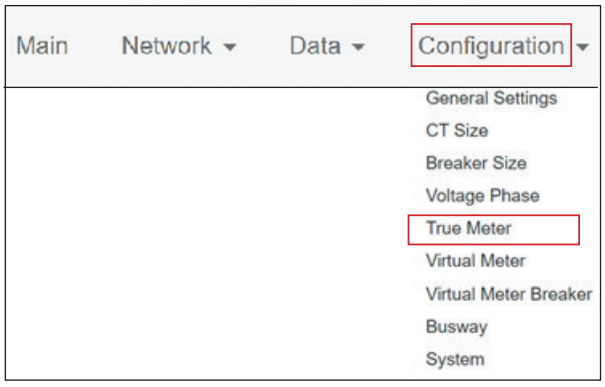

- The Voltage Phase Assignment assigns a voltage phase (L1, L2, L3) to each channel in the event non-sequential panel type or receptacle types are being used.
- **The default is L1-L2-L3 in sequential order.**
- To determine which channel corresponds to which circuit see the channel to circuit relation table as this is dependent on Smart Port Configuration.
- The **Set Default** button returns the system to the L1, L2, L3 sequential values.
- To determine which channel corresponds to which circuit see the channel to circuit relation table as this is dependent on Panel Maps Configuration.

**INFORMATION**

Important : Always remember to select the **Save Settings** button to save changes to settings.



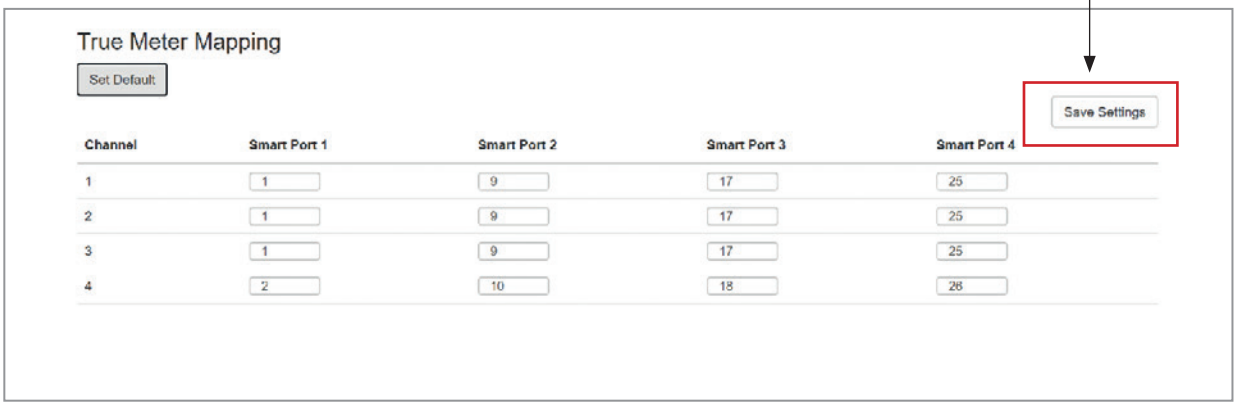
### 14.4.5 True Meter




- True Meter Mapping allows individual circuits/ channels to be grouped as one, two or three phase meters and read as a single meter meter with total readings for the meter.
- For example: if channels 1, 2, 3 are a three-phase circuit, you can now obtain readings for a single three-phase circuit rather than having to sum three independent channels.
- True Meter Mapping will mathematically derive the neutral current on three phase circuits, eliminating the need for a CT.

**INFORMATION**

Important : Always remember to select the **Save Settings** button to save changes to settings.



**True Meter Assignement - Example**

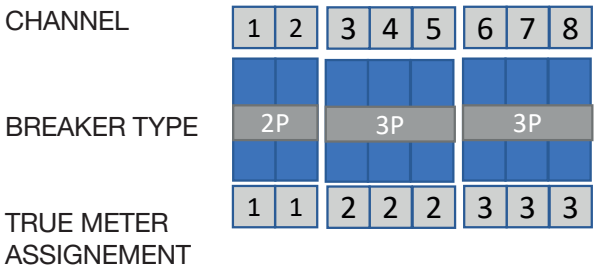
· In the below example each channel / pole on a breaker is assigned a common True Meter number (must be unique to that circuit) from 1-96.

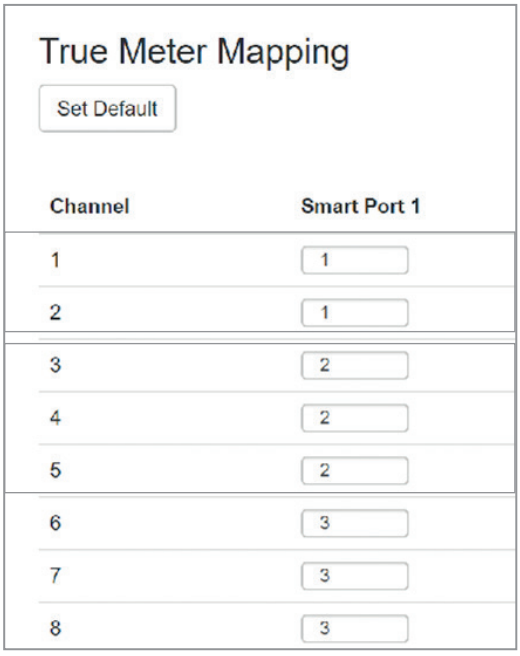
· This will also allow the circuit to be assigned a friendly name.

· Accessing Modbus data for friendly circuits is made easy as the registers start at base 10,000 for True Meter 1 and then advance by 500's.

· Each True meter has registers for each phase as well as total.

| True Meter | Register Base Address | Friendly Name |
|---|---|---|
| | | |
| 1 | 10000 | SERVER A01 |
| 2 | 11000 | MAINFRAME |
| 3 | 12000 | SOUTH HALL |
| 4 | 13000 | SPARE |



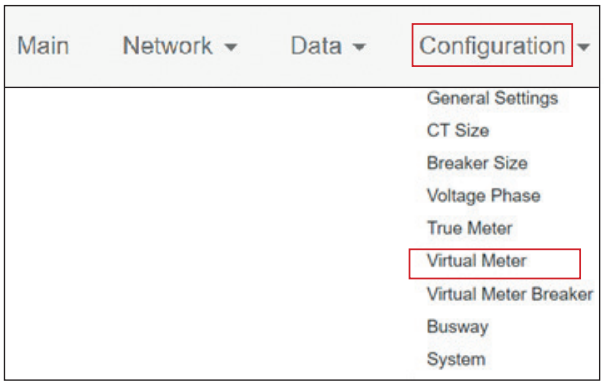




2 POLE CB = Meter #1

3 POLE CB = Meter #2

3 POLE CB = Meter #3

### 14.4.6 Virtual Meter




· "Virtual Meters" sum a group of channels / circuits to provide a single reading that is the sum of all the circuits. Virtual Meters can be used for generating:
  - Panelboard mains reading without the need for panel mains CTs.
  - Busway end feed monitoring without the need for CTs in the end-feed.
  - Totals for specific groups of circuits on switch gear to provide system level data.

· Virtual Meters are only available on UMG 804s with firmware versions 1.126 or higher; all UMG 804s can be upgraded.

· Virtual Meters share the same numbering group as True Meters therefore they must not use the same meter number assignment as any True Meter.

· Virtual Meters share the same Modbus registers as True Meters.

**Note:** Virtual Meters do not have the following functionality:

· The voltage assignments and readings are not active in the Custom Meters section of the point map. They are still valid in the per channel section and show up in the Detail Data web page.

These variables are not active for Virtual Meters:
· Neutral Current
· Current THD Average
· Current Demand
· kW Demand
· Max Current Demand
· Max kW Demand
· KWH Snapshot
· Crest Factor
· Waveform Capture
· Voltage Presence
· Zero current alarm

### Configuring Virtual Meters

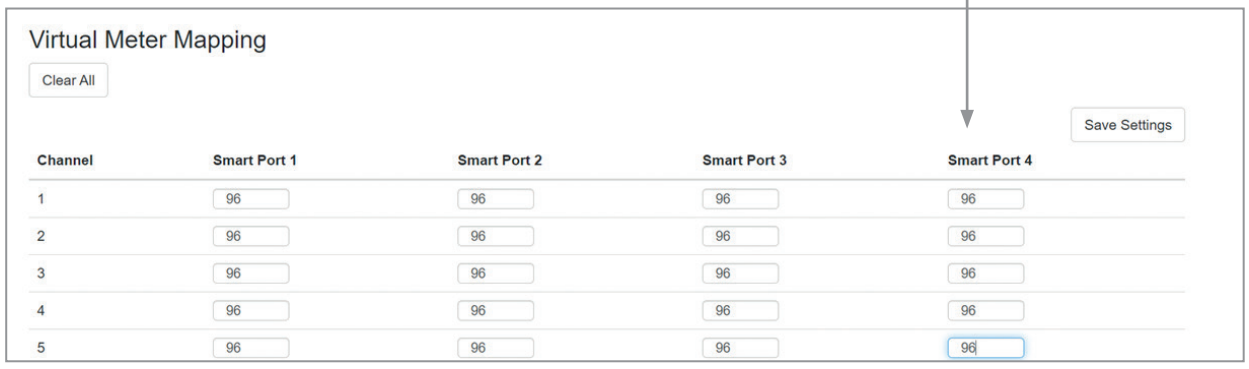
· To create a Virtual Meter go to the “configuration” tab on the HTML interface and select “Virtual Meter”.

· Using the Virtual Meter mapping template provide a common Virtual Meter number “1-96” for all the channels that are to be grouped to form the Virtual Meter.

· Note that Virtual Meters and True Meters use the same register maps and numbering allocation (1-96) so Virtual Meters must not use any number allocated to a True Meter. It is best to use high numbers such as 94-95-96 for Virtual Meters to ensure there is no conflict with True Meters.

· Refer to the Configuration Tables at the end of this document to determine the correct channels to group as this will vary with the configuration setting.

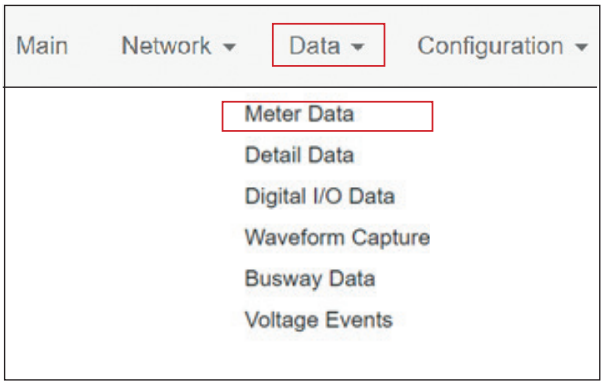
· In this example all circuits are grouped to virtual meter “96” creating a total for the for the entire panelboard and eliminating the need for main input current transformers

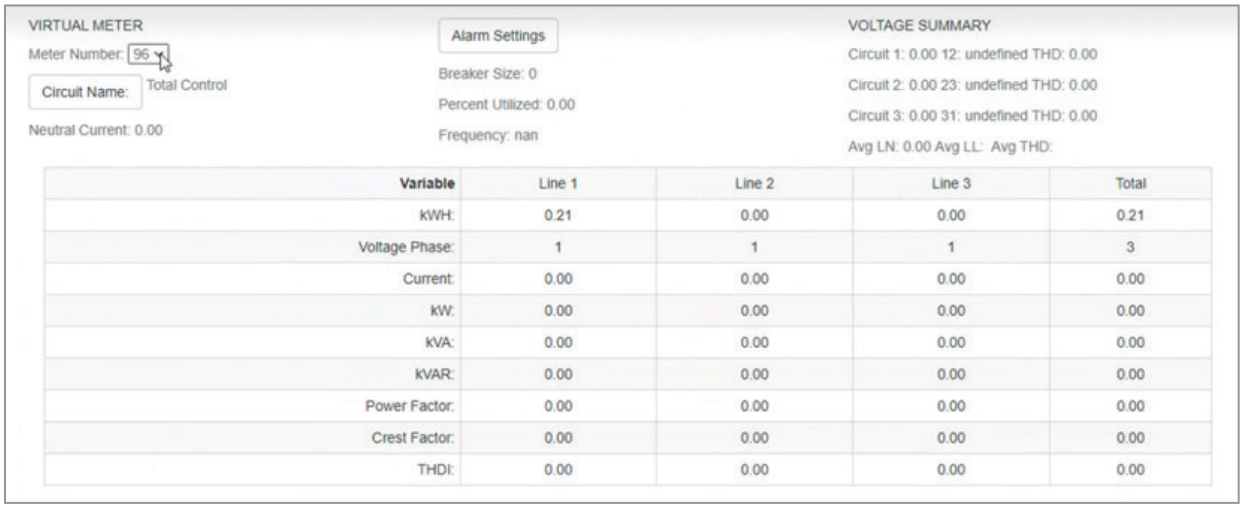


### Reading Virtual Meter Data

· To read Virtual Meter data go to the “Data” tab and select „Meter Data“ and “Virtual Meter”.

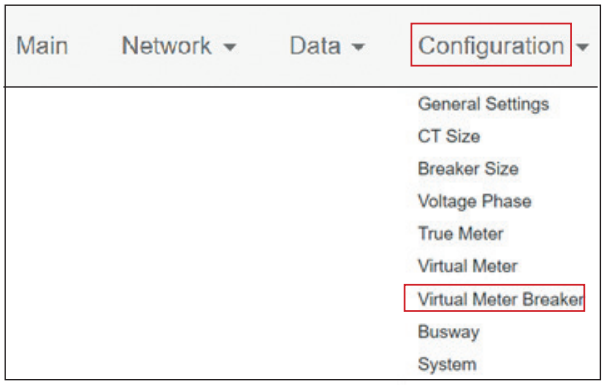
· Enter the number of the virtual meter you want to read.




| Variable | Line 1 | Line 2 | Line 3 | Total |
|---|---|---|---|---|
| kWH: | 0.21 | 0.00 | 0.00 | 0.21 |
| Voltage Phase: | 1 | 1 | 1 | 3 |
| Current: | 0.00 | 0.00 | 0.00 | 0.00 |
| kW: | 0.00 | 0.00 | 0.00 | 0.00 |
| kVA: | 0.00 | 0.00 | 0.00 | 0.00 |
| kVAR: | 0.00 | 0.00 | 0.00 | 0.00 |
| Power Factor: | 0.00 | 0.00 | 0.00 | 0.00 |
| Crest Factor: | 0.00 | 0.00 | 0.00 | 0.00 |
| THDI: | 0.00 | 0.00 | 0.00 | 0.00 |

### 14.4.7 Virtual Meter Breaker



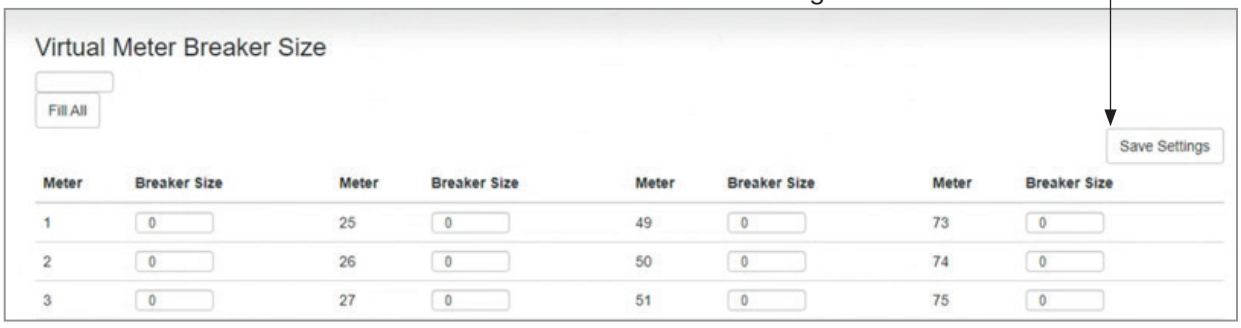

· The breaker size configuration is needed when alarming is used as the alarm threshold is based on a percentage of the breaker size.

· Enter the breaker size in Amps on the applicable Virtual Meter number.

· Click “Save Settings” when completed.

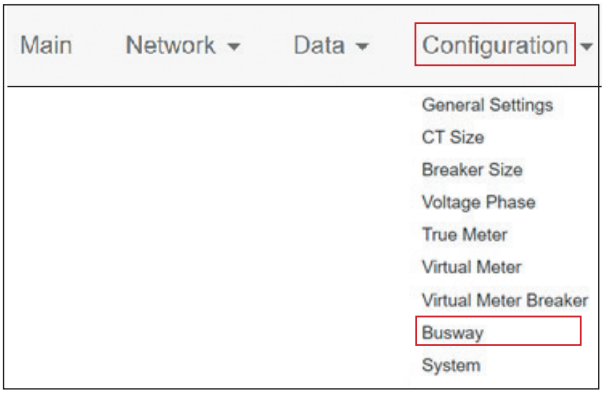
**INFORMATION**

**Important**: Always remember to select the **Save Settings** button to save changes to settings.

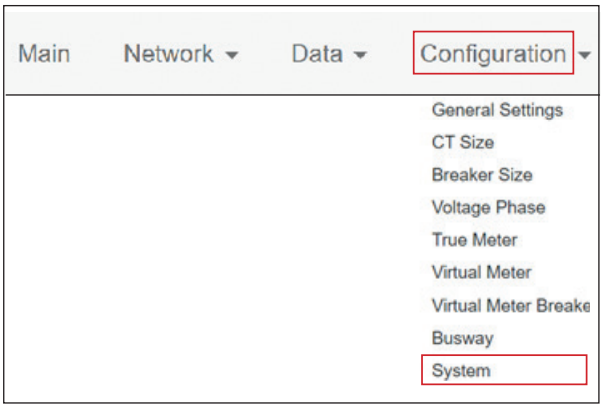



### 14.4.8 Busway Data

Currently not available.



### 14.4.9 System (Firmware Update)



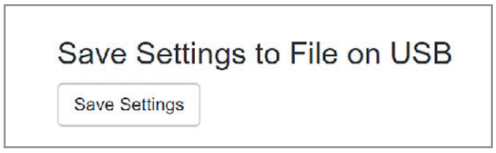

#### Save Settings to File on USB

This function will download all of the configuration settings from the UMG 804 to a .csv file on a USB drive installed in the UMG 804. This can then be used to verify settings as well as duplicate settings on other UMG 804s. Likewise configuration files can then be modified and uploaded to UMG 804s over the network if the module has a USB drive.

**Note:** be aware that all files will have the name config.csv and must maintain this name to allow them to auto upload so take care not to confuse with other config.csv files that may be on the same storage device.

#### Exporting configuration files over a network

1. Click on the **Save Settings** button under the **Save Settings to File on USB** heading.




2. The **config.csv** file will be downloaded to the **Downloads** folder of the PC.

3. This file can then be modified as needed using an application such as Excel or Word Pad and saved (i.e. modifying the IP address).

***NOTE***

- **The USB drive must be formatted FAT32**
- **32 GB or less in size**
- **Recommended USB 3.x for reading/write speed**

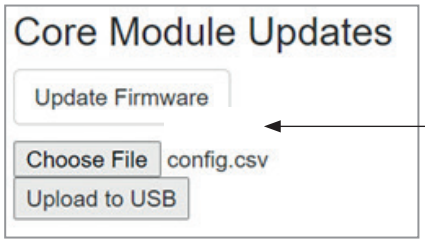
**Core Module Updates**

**1. Update Firmware**

· Uploading firmware requires that the firmware be transferred to a USB drive on the UMG 804. This can be accomplished either by a direct transfer of files from a PC to USB Drive or remotely (requires version 1.126 or higher) if the USB drive is installed in the UMG 804 is accessible over a network connection. The remote transfer of files does not support batch transfer so each file must be uploaded individually.

***NOTE***

**If the USB drive is not recognized during the update process, you may have to reboot the core device.**



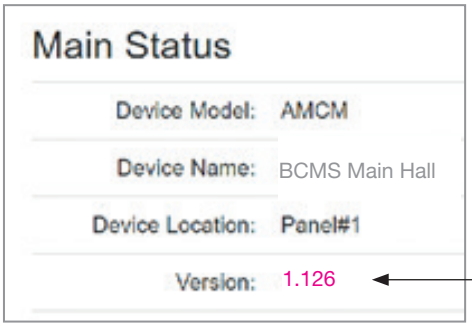

Use the “Upload to USB” feature to remotely transfer files to the USB resident in the UMG 804.

· Make sure no “config.csv” files are on the USB drive or else the configuration setting will be overwritten. Updating the firmware will not affect any configuration settings or erase kWh values.

· Interrupted uploads will cause the module to revert to the existing file after reboot and will not affect monitor performance.

· To view the existing firmware version go to the Main Status page of the HTML console.

· Failure to read the USB drive may result from the use of a lower quality USB drive.

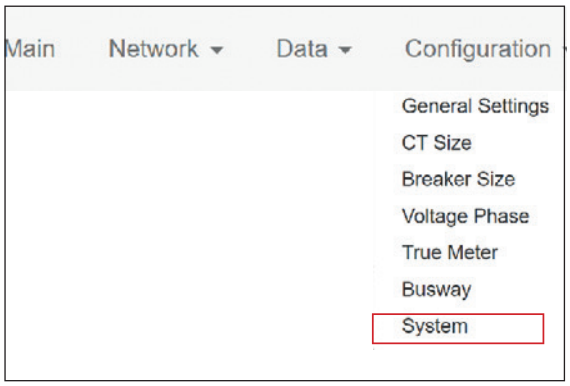



The firmware version can be referenced on the Main Status page.

1. Access the HTML console of the UMG 804 using a browser and the IP address of the UMG 804.

2. Insert USB flash drive that contains unzipped files into the UMG 804 USB port.


3. Under the “Configuration” tab select “System”.

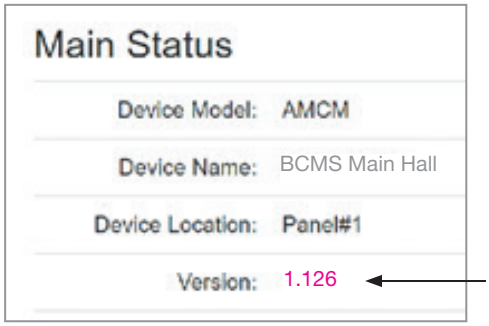



4. Select “Update Firmware”.


5. Select “continue” - the process will take around 30-60 seconds.

6. After 60 seconds the browser should auto refresh with the update; if not refresh, press (F5).


7. Go to Main Status Page and confirm that new F/W version loaded.



## 2. Configuration Files

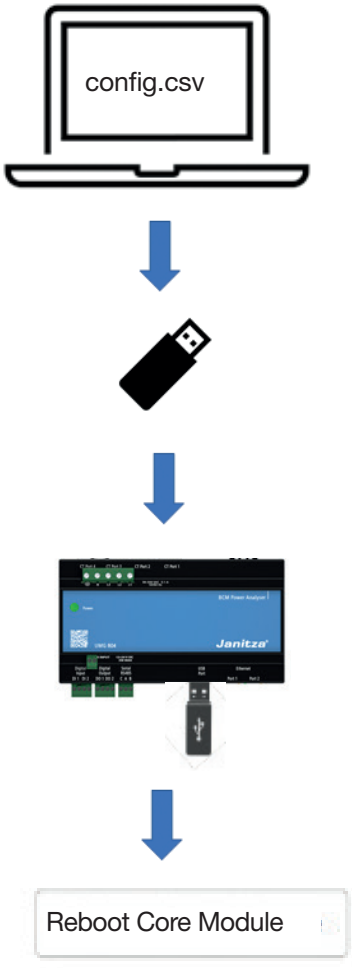
### Local Installation

· Place the USB flash drive with the “config.csv” file into the USB port of the UMG 804. Note that the name of the file must not be modified from “config.csv”

- For F/W versions 1.126 and higher the UMG 804 will automatically adopt the configuration files after approximately 15 seconds.

- For older firmware, reboot the UMG 804 using the HTML console “reboot” function under the “System” tab or remove power to the UMG 804, wait 10 seconds and then apply power and the file will be uploaded.

**Caution**: do not place the USB with the “config.csv” file in other UMG 804s unless intentional as the configuration settings may be automatically adopted.




### Remote Installation (firmware version 1.126 or higher)

Configuration files can be remotely uploaded over a network.This requires a USB drive to be present in the UMG 804.

1. Under *Core Module Updates* select “Choose File” and select the config.csv file to be uploaded.

2. Select “Upload to USB” and wait for the prompt “File uploaded. Waiting for response. Success!”


3. The config.csv file is now on the USB drive in the UMG 804. To upload the file into the UMG 804 select **“Reboot The Core Module”** and follow the prompts. Once rebooted the config files will be uploaded.

# 15. Troubleshooting

## 15.1 Network Connectivity

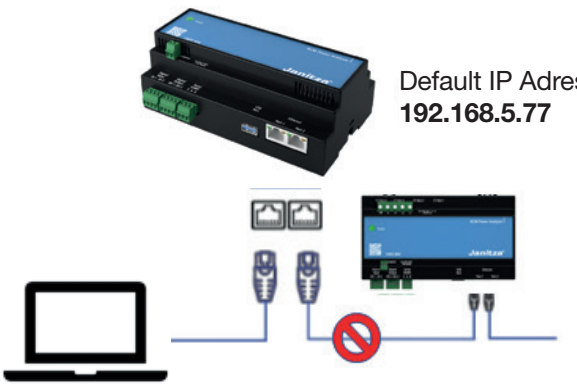
**Confirm Subnet is Correc**t: Make sure the PC or polling device is on the same subnet at the IP address of the UMG 804; see “modifying subnet addresses” section for details.

**Confirm IP Address**: Ensure that the IP address is correct; to recover the IP address of a UMG 804, insert a USB drive into the module and wait 15 seconds and the IP address will be written on a IPsettings.txt file on the USB.

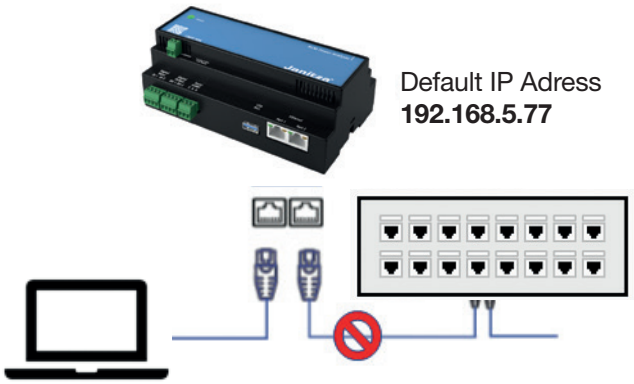
**Power Cycle UMG 804**: Remove power to the UMG 804 for approximately 10 seconds and re-apply. After 45-60 seconds attempt to reconnect. The issue may stem from multiple hard disconnections of the Ethernet connection with power cycling renewing all the open sockets.

**Ping the polling PC:** Using the command line on Windows type “ipconfig / all” and confirm that the PC subnet mask, subnet and gateway are all correct and that there are no conflicting IP addresses.

**Isolate UMG 804**: Make sure that the UMG 804 is isolated from other UMG 804s that may have the same IP address i.e. default address by removing the Ethernet cables linking the UMG 804 to other UMG 804s either daisy chained or going through a switch.



Default IP Adress
**192.168.5.77**



Default IP Adress
**192.168.5.77**

## 15.2 Recovering or Confirming an IP Address

· If the IP address of the UMG 804 is not known place a USB drive in the UMG 804 after it has booted up and stabilized and wait 15 seconds.

· Remove the USB drive that will now have a IP-settings.txt file with the IP address on it. This can be viewed using a standard text reader such as Word or Notepad.

· Older firmware will require that the UMG 804 be power cycled with the USB file in it for the .txt file to be written.

· **CAUTION:** Make sure the USB drive does not contain a CONFIG.CSV file as it will modify the configuration settings when inserted into the UMG 804.

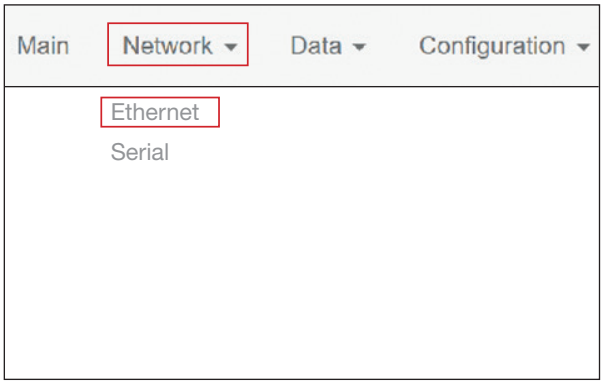
### 15.3 Modifying IP Addresses

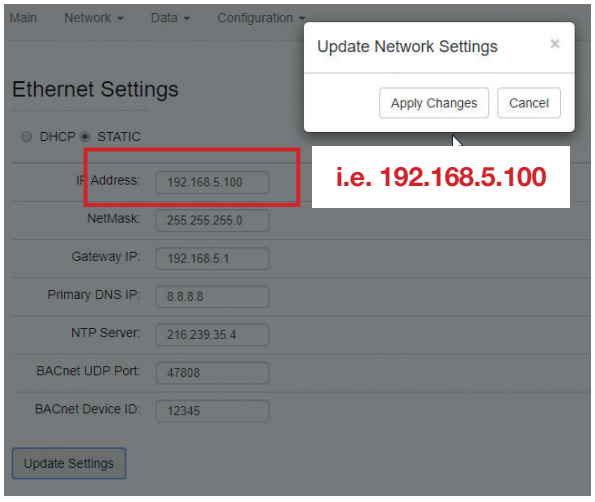
- IP addresses need to be changed on each UMG 804 to make them unique after firmware is uploaded to prevent conflicts from identical IP addresses on the same network.

- These will be interim IP addresses unless permanent addresses are available.

- Suggestion is 192.168.5.XXX where XXX = 100-150

- After changing the IP address write the end three numbers on the exterior of the tap-off and document.



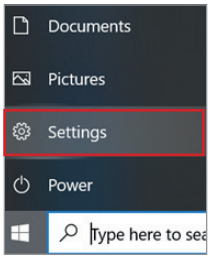



### 15.4 Modifying the Subnet (Windows 10)

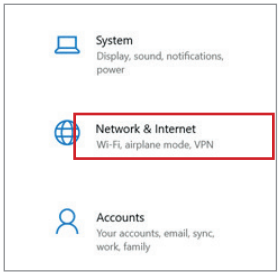
· If your PC fails to access the UMG 804 when directly plugged into a PC it could be a result of the PC not being on the same subnet as the UMG 804.

· To modify the subnet on your Windows 10 device follow the instructions listed:

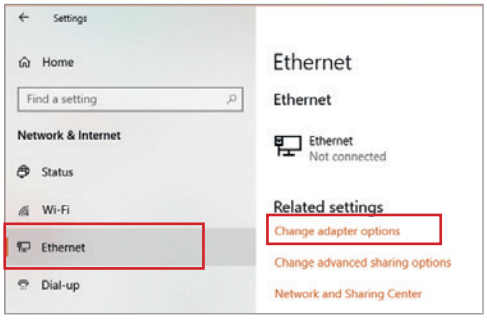
1. Go to the Windows icon and select settings; select Network and Internet.



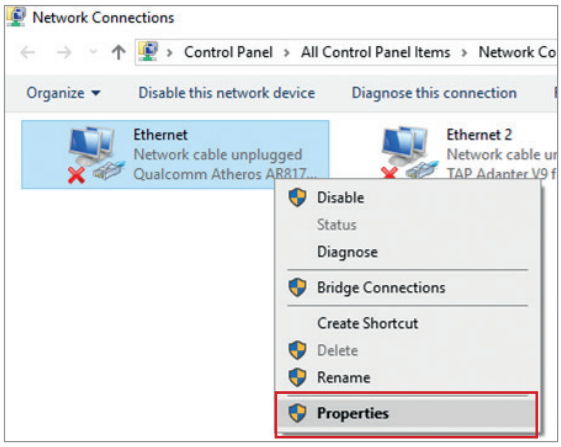

2. Select “Ethernet” and select “Change adapter options”



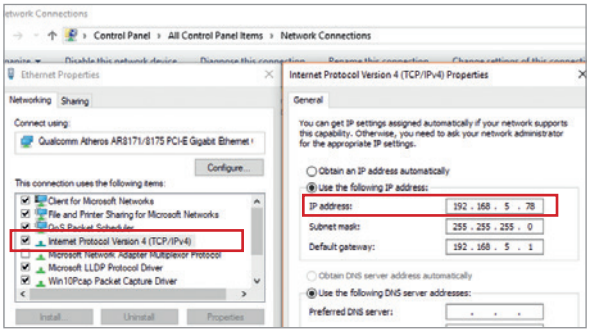

3. Select “Ethernet” and select “Change adapter options”



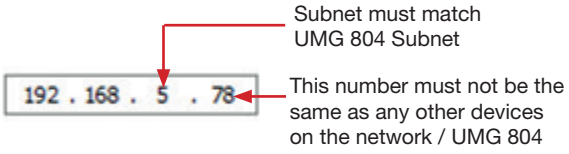

4. Select the Ethernet adapter and right click to reveal the menu; then click on “Properties”.




5. Select the “Internet Protocol Version 4 (TCP/IPv4)” field and then click configure; select “Use the following IP address”.




6. Click “Use the following IP address” setting. In the IP address field enter in the IP address of the device being polled with the exception of the last section i.e. “.78” in this example to avoid an IP address conflict with any other devices on the network.



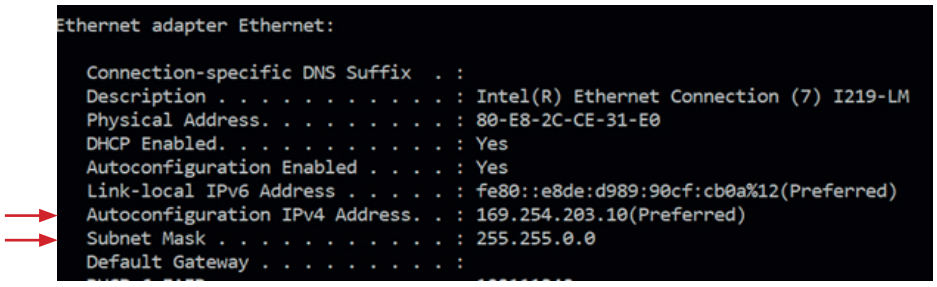

7. The default Subnet mask on the UMG 804 is 255.255.255.0. If the Subnet Mask on the UMG 804 is different modify it on the Windows property panel.

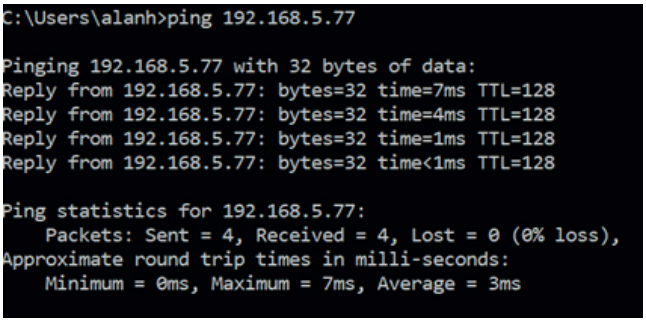
8. If going through a Gateway the default gateway address should be added.

### 15.5 Ping the Polling PC to establish IP Addressing

1. Using the command line on Windows type “ipconfig / all” and confirm that the PC subnet mask, subnet and gateway are all set correctly and that there are no conflicting IP addresses. The polling device must be on the same Subnet and Subnet Mask as UMG 804. If the communications are going through a Gateway in a network, the UMG 804 must be set to the correct Gateway or else it can be left blank.

2. Type “ping” _ followed by the IP address of the UMG 804 to see if the polling device is communicating with the UMG 804.



# 16. Appendix

## 16.1 Spreadsheet Utility (firmware 1.126 or higher)

### Using the Configuration Spreadsheet Utility

- The UMG 804 can be configured by using the Configuration spreadsheet utility which can be loaded onto the UMG 804 via a USB flash drive or over the network if a USB flash drive is populated in the UMG 804.
- Likewise the configuration file can also be downloaded from a UMG 804 either directly to a USB drive in the UMG 804 or over the network.
- The Configuration utility is designed to work with MS Excel and the resultant config.csv file can be manually edited to make individually changes like customized IP addresses.

### Editing the Configuration Utility

- Open the Configuration Utility spreadsheet and follow the instructions on the “Form Tab” of the spreadsheet.
- Edit the fields as needed.
- Save the file as “config.csv” onto a USB flash drive (must be a high quality drive that is <32 GB).

| | |
|---|---|
| ADMIN_NAME | admin |
| ADMIN_PASSWORD | admin |
| DEVICE_NAME | AM MCMS |
| INSTALL_LOCATION1 | PDU 1 |
| INSTALL_LOCATION2 | Panel |
| | |
| DHCP | OFF |
| IPV4ADDRESS | 192 . 168 . 5 . 177 |
| IPV4DNS1 | 8 . 8 . 8 . 8 |
| IPV4GATEWAY | 192 . 168 . 1 . 1 |
| IPV4MASK | 255 . 255 . 255 . 0 |
| IPV4NTP | pool.ntp.org |
| | |
| USENTP | OFF |
| | |
| SERIALSLAVEADDRESS | 10 |
| SERIALBAUDRATE | 38400 |
| SERIALPARITY | EVEN |
| SERIALSTOPBITS | 1 |
| SERIALDIPSWITCHENABLE | OFF |
| | |
| DEMANDSUBINTLENGTH | 900 |
| DEMANDSUBINTERVALS | 1 |
| | |
| CTCONFIGURATION1 | CT CARD |

### Direct Editing of Downloaded config.csv spreadsheets

- The values config.csv spreadsheet may be directly edited on the .csv file
- By deleting values from fields that do not have to be modified will only result in the populated values being uploaded; this is useful for modifying addressing without potentially overwriting other configuration fields.
- **Note:** all files need to be saved as “config.csv!

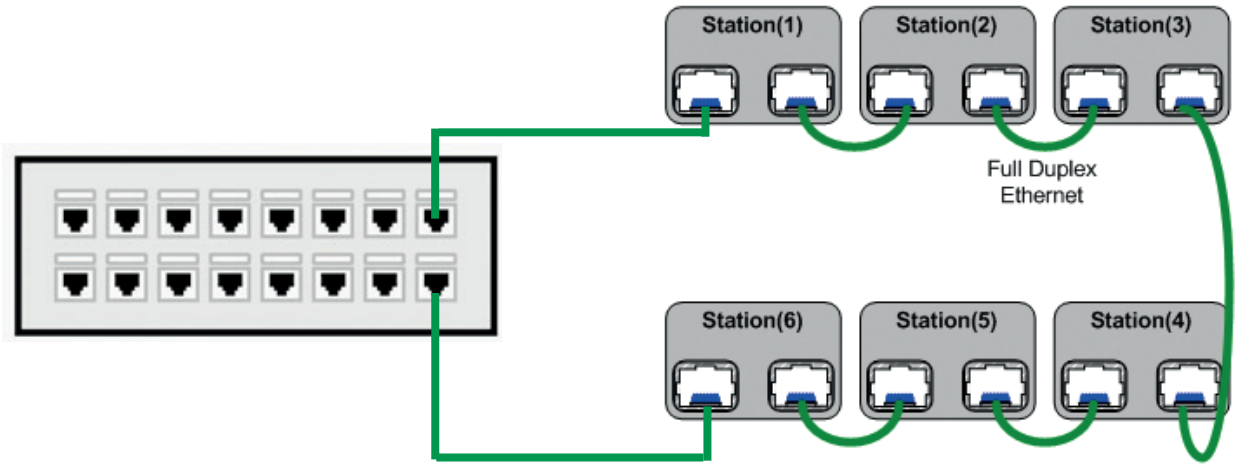
| | |
|---|---|
| ADMIN_NAME | |
| ADMIN_PASSWORD | |
| DEVICE_NAME | |
| INSTALL_LOCATION1 | |
| INSTALL_LOCATION2 | |
| | |
| DHCP | 0 |
| IPV4ADDRESS | 172.16.2.22 |
| IPV4DNS1 | 8.8.8.8 |
| IPV4GATEWAY | 192.168.1.1 |
| IPV4MASK | 255.255.255.0 |
| IPV4NTP | pool.ntp.org |

| | |
|---|---|
| 1 | Deleted values in fields not required |
| 2 | Modify values directly on .csv file |

### 16.3 Spanning Tree / Ring Topology

· UMG 804s may be set up in a Spanning Tree topology when daisy chained to avoid outages from the interruption of a connection in the wiring.

· Ensure that the router and or switch is capable of a Spanning Tree mode and that this function is enabled.



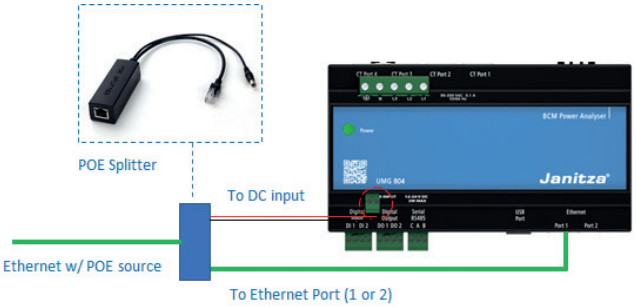

### 16.2 Using POE power for the UMG 804

· UMG 804s with the DC power input option can be powered by POE using a POE splitter.

· The nominal voltage for DC input is 24 V DC.

· A POE port splitter is required to separate the Ethernet and DC feed.

· Each UMG 804 uses 3 Watts of power.



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