

This Quick Start Guide is designed to familiarize the user with the connection and configuration of the DTS 310 DIN rail mounted single/3-phase power & energy meter with BACnet MS/TP or BACnet/IP communications.

1. Supplied Items

Check that the meter and equipment matches your order specifications and has not been damaged during shipping. The following component(s) are included in the package:

- Quick Start Guide (**DTS 310 Application / Connection Examples** in section 2)
- DTS 310 power monitor. Check input ranges, output configuration and auxiliary power supply (if applicable) on the label of the unit. For a more detailed explanation of the part number please download the latest version of the DTS 310 datasheet from <http://www.measurlogic.com/MonitorsMeters/DinRailMount/dts310.html>

2. Connecting the DTS 310

Wiring Voltage and Current Inputs



The DTS 310 accepts voltage inputs directly up to 480V 3 phase L-L or through PTs (potential transformers) for higher voltages. Three phase currents are measured via "safe" voltage input CTs (current transformers). Connection of any other CT than that supplied by Measurlogic with the meter could cause damage to the instrument. **If there are any questions please call Measurlogic before powering up the unit.** Please refer to **Application/Connection Examples** for information on wiring conventions.

Input wiring terminals are clearly indicated and located on the upper side of the DTS 310 label. The Current and Voltage terminal strips are pluggable to allow easy replacement of the DTS 310, if required. Removing the terminal strips should only be done once power has been removed from the DTS 310. Input wiring terminals accept 2.5 mm² (12 awg) wire. The wires are connected by means of screw terminals that clamp down onto the input wires. The voltage/PT inputs require fuses, not included, (see diagrams below) and should be rated at 1A 600Vac. Measurlogic can provide an in-line fuse kit as an option if required.

Wiring Optional Auxiliary Power Input (AUX)



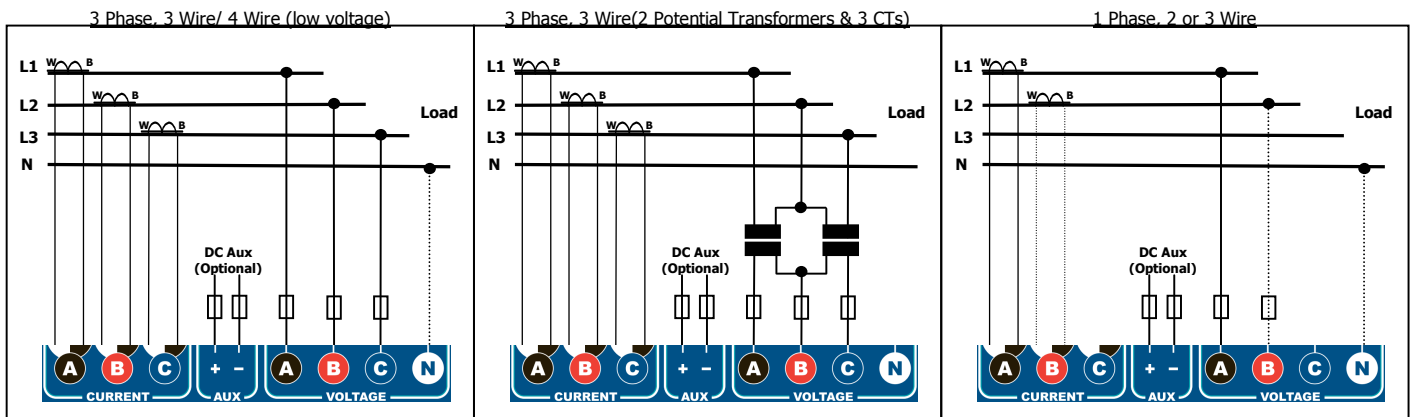
The DTS 310 operates normally when power is applied to Phase A, Phase B and/or Neutral depending on model number so no additional auxiliary power supply is needed. To provide added flexibility to the DTS 310 meter it can be powered from a DC auxiliary supply (model dependant) in the following ranges. (Fuses not included with meter but are offered as an option). See the rating label of the unit for more information.

- 12 Vdc **OR** 24 Vdc **OR** 48 Vdc

Note: It is important to pay attention to the polarity when using a DC power supply. See label above for a reference to the polarity. Incorrect connection **will** damage the DTS 310.

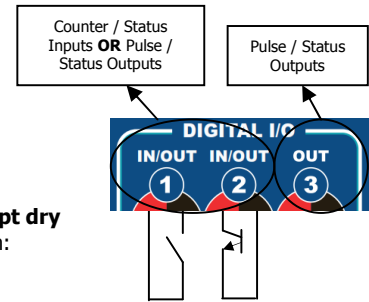
The following connection diagrams depict some examples of typical applications. Other connection configurations are possible. (Consult Measurlogic)

Application/Connection Examples



Wiring Digital Inputs and Outputs

Depending on the model, the DTS 310 can support up to 3 digital outputs and up to 2 digital Inputs across a total of 3 I/O points. The I/O wiring terminals are located on the bottom side of the DTS 310 and are represented on the label as seen in this diagram.



Counter / Status Inputs (Marked 1, 2)

- Digital inputs function simultaneously as both status indicators and counters. They will **accept dry contacts** or **NPN open collector inputs** and must be connected as shown in this diagram:

Pulse / Status Outputs (Marked 1, 2 or 3)

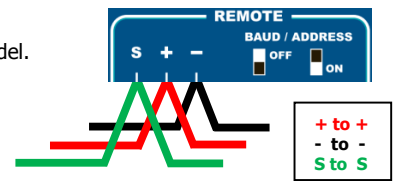
- The digital outputs are **potential free N.O. solid state relays**, depending on the model. They can be configured for energy pulses or threshold / status triggers. They are also forceable through the communications interface.

Wiring Communications Interface

The DTS 310 has either a 2-wire RS-485 or Ethernet communications interface depending on model.

2 Wire RS-485 Communications

The RS-485 port communicates using the BACnet MS/TP protocol. Connection is by means of a pluggable 3-way screw terminal that accepts 2.5 mm² (12 awg) wire. Suggested communications wire is 18-22 AWG 2-core shielded cable. To connect multiple DTS 310 meters on the same 2 wire network the meters should be daisy chained together. **DO NOT connect the meters in a STAR topology.**



- Unless otherwise stated through correspondence or specified on the label of the DTS 310 unit, default parameters for RS-485 2-wire BACnet MS/TP communications are Device ID: 100, MAC Address: 100, Baud Rate: 9600, Parity: None, Data Bits: 8, Stop Bits: 1. This is notated as #100; 9600,N,8,1. This is denoted as all switches OFF and is how each DTS 310 is shipped.**

Setting of Device ID, MAC Address, and Baud Rate

The DTS 310 with BACnet MS/TP communications has an 8-way DIP switch, situated next to the pluggable 3-way terminal, that allows for simple field configuration of the unit and is divided into 2 groups:



- Device ID & MAC Address (add each switch value when ON for desired value)
- Baud Rate (example in picture is Baud Rate 9600, Device ID 105, and MAC Address 105)

Description	Switch Position							
	1	2	3	4	5	6	7	8
Device ID & MAC Address		64	32	16	8	4	2	1
9600 Baud Rate	Off							
38400 Baud Rate	On							
ID/MAC 100 & 9600 Baud (Default Setting)	Off	Off	Off	Off	Off	Off	Off	Off

Ethernet Communications

Ethernet communication is available through the RJ45 jack mounted on the DTS 310, depending on the model. When ordered with the BACnet/IP protocol, BACnet/IP and Modbus TCP are both available and can be addressed simultaneously. Connect to an Ethernet switch by means of a straight CAT5 Ethernet cable. Each DTS 310 with Ethernet communications has a unique MAC address which is listed on the label. **The factory default is static (DHCP disabled) IP Address 192.168.1.150 and the default BACnet Device ID, BACnet MAC Address, and Modbus Address is 100.** The IP address can be changed to any valid IP address using the **DTS Toolbox** utility.



Download the latest version of **DTS Toolbox** from <http://www.measurlogic.com/software>. Alternatively, an e-mail can be sent to info@measurlogic.com to request the latest version.

If there are any questions please contact:

Measurlogic Inc.
 Toll-Free: 1-877-PQ-SOLNS (777-6567)
 Tel: 1-303-805-5252
 Email: info@measurlogic.com