

This Quick Start Guide is designed to familiarize the user with the connection and configuration of the DTS DC DIN rail mounted DC power & energy meter with RS-485 or TCP communications. These instructions are given using the Windows OS.

## 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 DC Application / Connection Examples in section 2)
- DTS DC 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 DC datasheet from <http://www.measurlogic.com/MonitorsMeters/DCsolarPV/dts-dc.html>

## 2. Connecting the DTS DC

Wiring Voltage and Current Inputs



The DTS DC is connected as a 3 wire configuration reducing the possibility of in-correct connections resulting in damage to the instrument. It accepts a DC voltage input directly up to 800Vdc (model dependant). The current can be from a 50-100mV shunt or up to 10A direct connection (model dependant). 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 DC label. The Current and Voltage terminal strip is pluggable to allow easy replacement of the DTS DC, if required. Removing the terminal strip should only be done once power has been removed from the DTS DC. Input wiring terminals accept 2.5 mm<sup>2</sup> (12 awg) wire. The wires are connected by means of screw terminals that clamp down onto the input wires. The voltage input requires fusing, not included, (see diagrams below) and should be rated at 1A. Please check with local code requirements to ensure correct installation.

Wiring Auxiliary Power Input (AUX)



The DTS DC meter is powered from a DC auxiliary supply 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
- Auxiliary power will not be needed for "self-powered" models

**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 DC.**

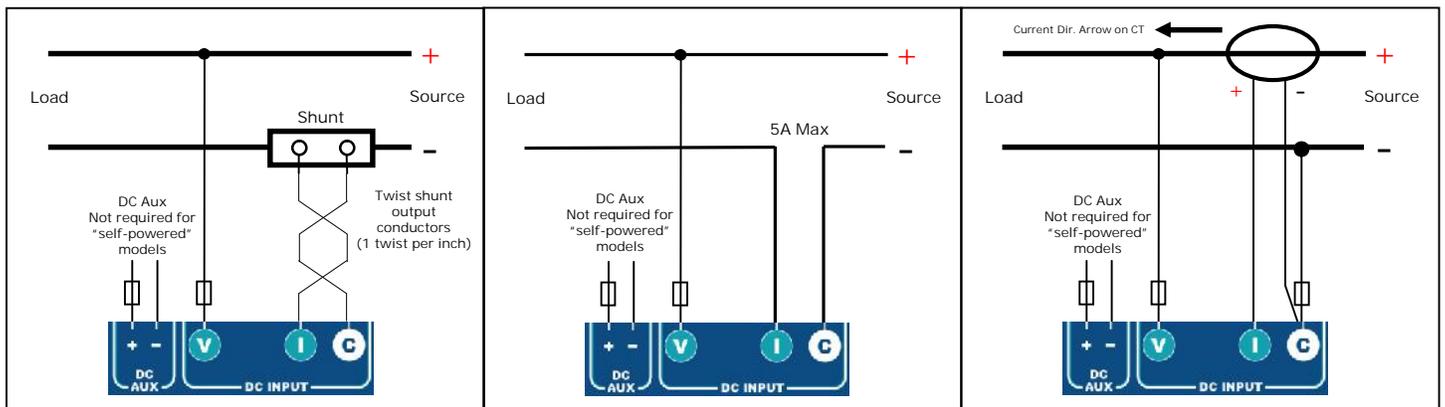
The following connection diagrams depict some examples of typical applications. If there are any variances please consult Measurlogic

### Application/Connection Examples

SHUNT – Current Measurement in -VE Leg (recommended)

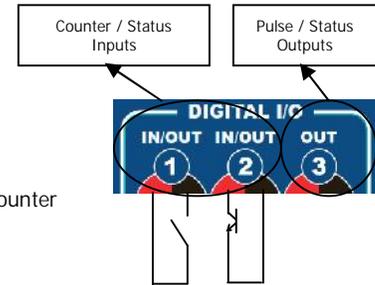
5A Direct – Current Measurement in -VE Leg

HALL EFFECT – Current Measurement in +VE Leg



## Wiring Digital Inputs and Outputs

Depending on the model the DTS DC can support a digital output and 2 digital inputs. The I/O wiring terminals are located on the bottom side of the DTS DC and are represented on the label as seen in this diagram.



Counter / Status Inputs (Marked 1, 2)

- The 2 digital inputs can be configured using the DTS Config software tool to be status or counter inputs. 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)

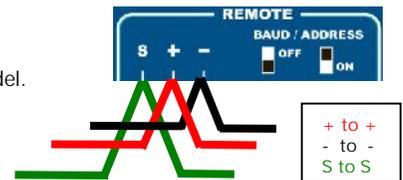
- The digital outputs are potential free N.O. solid state relays, depending on the model. It can be configured for energy pulses or threshold/status triggers using the DTS Config software tool. It also addressable through the Modbus communications interface.

## Wiring Communications Interface

The DTS DC 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 Modbus RTU protocol. Connection is by means of a pluggable 3 way screw terminal that accepts 2.5 mm<sup>2</sup> (12 awg) wire. Suggested communications wire is 18-22 AWG 2 core shielded cable. To connect multiple DTS DC 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 DC unit, default parameters for RS-485 Modbus 2-wire communications are: Modbus Address: 100, Baud Rate 9600, Parity: None, Data Bits: 8, Stop Bits: 1. This is notated as 9600,N,8,1 100. This denotes as all switches off and is how each DTS DC is shipped !!

### Setting of Modbus Address and baud rate

The DTS DC with RS-485 communications has an 8 way DIP switch, situated next to the pluggable 3 way terminal, that provides for flexible yet simple user configuration of the unit and is divided into 2 groups:



- Modbus Address (add each switch value when ON) – Example in picture is 9600 Baud & Modbus 105
- Baud Rate

| Description                                   | Switch Position |     |     |     |     |     |     |     |
|---|-----------------|-----|-----|-----|-----|-----|-----|-----|
|   | 1               | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
| Modbus Address                                |                 | 64  | 32  | 16  | 8   | 4   | 2   | 1   |
| 9600 Baud Rate                                | Off             |     |     |     |     |     |     |     |
| 19200 Baud Rate                               | On              |     |     |     |     |     |     |     |
| Modbus addr 100 & 9600 Baud (Default setting) | Off             | Off | Off | Off | Off | Off | Off | Off |

### RJ45 TCP Communications

TCP / Ethernet communication is available through the RJ45 socket mounted on the DTS DC. Modbus TCP or BACnet/IP are the protocols available, depending on model. Connect to an Ethernet switch by means of a straight CAT5 cable. Each DTS DC with TCP connectivity has a unique MAC address which is listed on the label.



The default IP address is 192.168.1.150 and the default Modbus address is 100.

The IP address can be changed to any valid IP address using a utility called DTSsetupTCP. Download the latest version of DTSsetupTCP from <http://www.measurlogic.com/software>. Alternatively, an e-mail can be sent to [info@measurlogic.com](mailto:info@measurlogic.com) to request the latest version or its Quick Start Guide.

## 3. Installation of DTS Config Configuration and Monitoring Software

- DTS Config is a program used to easily monitor and configure meters from the DTS family from your local PC or across the LAN.
- Download the latest version of DTS Config from <http://www.measurlogic.com/software>. Alternatively, an e-mail can be sent to [info@measurlogic.com](mailto:info@measurlogic.com) to request the latest version of DTS Config.
- Access the DTSTConfigSetup file to begin the installation process
- Follow the instructions on the screen.

If there are any questions please contact:

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