DTS 310 kWh meter with pulse output

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:

- **kWh pulse output.**

Applicable DTS 310 Models		
DTS 310 Model #	**Measurlogic Part #**	**Description**
DTS 310-34-NN-P-4	**D310-0056**	• 208V-480V 3ph 3 or 4 wire • 333mV / Rogowski CTs • Self-powered • kWh pulse output
DTS 310-36-NN-P-3	**D310-0136**	• 208V-600V 3ph 3 or 4 wire • 333mV / Rogowski CTs • 24Vdc auxiliary powered • kWh pulse output
DTS 310-36-NN-P-6	**D310-0180**	• 208V-600V 3ph 4 wire • 333mV / Rogowski CTs • Self-powered • kWh pulse output

If you do not see your specific meter model number above please contact Measurlogic Inc. at 303-805-5252 or info@measurlogic.com.

ATTENTION	
For more information please use the DTS 310 installation guide https://www.measurlogic.com/product/dts-310/	

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Quick Start Guide - DTS 310-3x-NN-P-x (kWh Pulse Output)

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 kWh pulse output.

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:

- **The DTS 310 power meter.** 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: https://www.measurlogic.com/product/dts-310/
- The necessary green terminal plugs are fitted to the DTS meter.

Connecting the DTS 310

Wiring Voltage and Current Inputs

The DTS 310 accepts voltage inputs directly up to 480V or 600V 3 phase L-L (model dependent) or through PTs (potential transformers) for higher voltages. Three phase currents are measured via "safe" **333mV or Flexible Rogowski CTs** (current transformers). Connection of any other CT than these outputs 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 mm^2 (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.

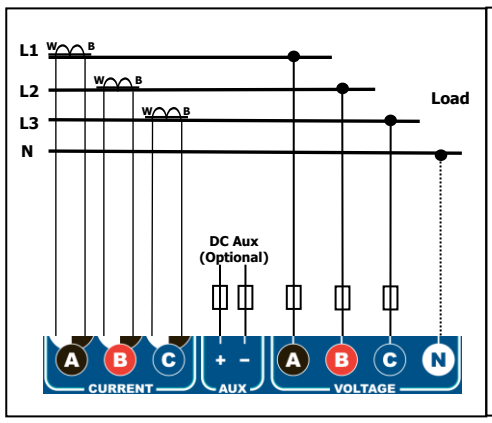
- 12 Vdc **OR** 24 Vdc **OR** 48 Vdc

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.

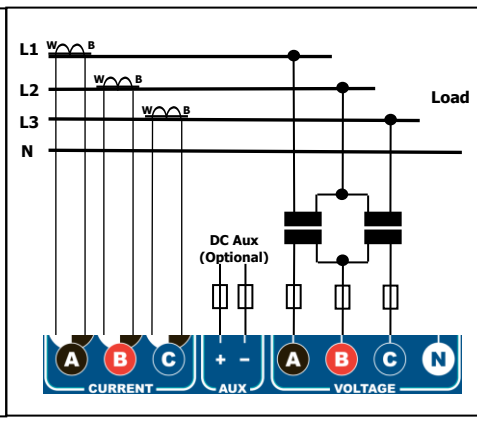
The following connection diagrams depict some examples of typical applications.
Other connection configurations are possible. (Consult Measurlogic)

Application/Connection Examples

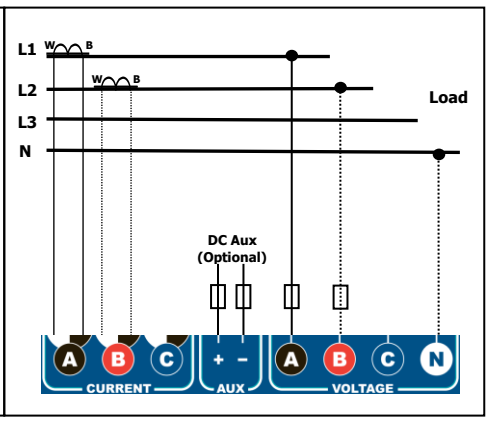
3 Phase, 3 Wire/ 4 Wire (low voltage)



3 Phase, 3 Wire(2 Potential Transformers & 3 CTs)



1 Phase, 2 or 3 Wire



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Wiring the Digital Pulse Output

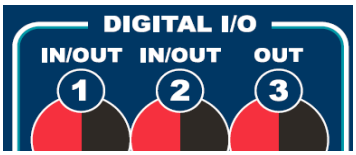
When ordered as an kWh energy pulse meter, the DTS 310 has a single digital output that functions as a pulse corresponding to measured kWh.

Digital Inputs (Marked 1, 2)

- Unused – do not connect.

Digital Output (Marked 3)

- The digital output is a **potential-free NO (Normally Open) solid state relay** output.
- The maximum switching voltage is 50Vdc and the maximum switching current is 100mA.
- The relay closure pulse width is 100ms. This minimum time between any two pulses is 100ms.
- **The pulse rate is fixed at 1 pulse per kWh.**



"1" & "2" are unused for a kWh energy pulse meter

Pulse Rate
OUT3
1 Pulse Per kWh

Switch Settings for the Current Sensor Type and Rating

The DTS 310 energy pulse meter has an 8-way DIP switch situated next to the pluggable 6-way I/O terminal. [SW.1..SW.3] are is used to configure current sensor type and sensitivity (Highlighted in BLUE in the diagram below). [SW.4..SW.8] are used to configure the CT Rating current. (Highlighted in RED in the diagram below).

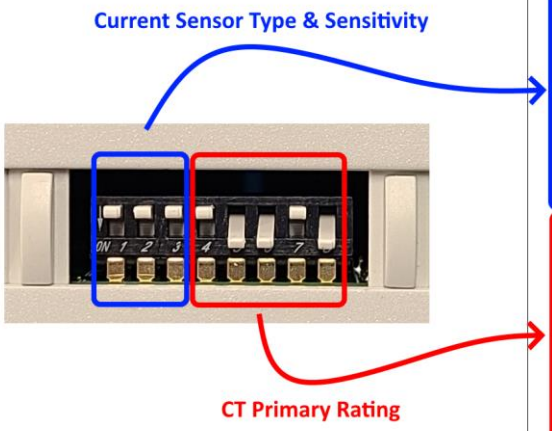
ATTENTION – SWITCHES [SW.1..SW.8]

- The DTS 310 will be shipped with all the switches in the "**OFF**" position.
- The DTS 310 switches **MUST** be setup by the user to match the attached CTs.

The DTS 310-3x-NN-P-x meter is compatible with the following current sensors:

- **333mV Output CTs** – This type of current sensors is internally burdened so that the voltage output is 333mV for the current rating that is specified on the CT itself. The current rating of the CT must be specified when ordering and cannot be changed in the field. The switches [SW.1..SW.3] on the DTS meter must be set for "333mV CT" and the current switches [SW.4 .. SW.8] must correspond with the Rated Current of the CT.

- **Rogowski Coil CTs** – This is a flexible CT. The sensitivity of this type of current sensor is specified in milli-volts (mV) per 1000A at 60Hz. Different models of Rogowski Coils have different sensitivities, which must be selected from the tables and the switches [SW.1..SW.3] set accordingly. The CT Rating that is set on the switches does not affect the current measurement values. We recommend that you set the CT Rating switches [SW.4 .. SW.8] be set to the panel rating or the expected nominal current being measured.



CT Type and Sensitivity

SW.1	SW.2	SW.3	Sensitivity	Type
OFF	OFF	OFF	333mV	CT
OFF	OFF	ON	140mV	Rogowski Coil (per 1000A 60Hz)
OFF	ON	OFF	70mV	
OFF	ON	ON	120mV	
ON	OFF	OFF	400mV	
ON	OFF	ON	RESERVED	
ON	ON	OFF	RESERVED	
ON	ON	ON	CUSTOM	

MEASURLOGIC

DTS 310 SWITCH SETTINGS

Pulse Rate
OUT3
1 Pulse Per kWh

SCAN ME

CT RATING (Amps)

SWITCH POSITION 4	5	6	7 OFF	8 OFF	7 OFF	8 ON	7 ON	8 OFF	7 ON	8 ON
OFF	OFF	OFF	CUSTOM		1		5		20	
OFF	OFF	ON	25		50		75		100	
OFF	ON	OFF	125		150		200		250	
OFF	ON	ON	300		400		450		500	
ON	OFF	OFF	600		750		800		900	
ON	OFF	ON	1000		1200		1500		1600	
ON	ON	OFF	2000		2500		3000		4000	
ON	ON	ON	5000		RESERVED		RESERVED		RESERVED	

Switches: ON = ◻◹ OFF = ◻⌐ www.measurlogic.com

ATTENTION

If multiple CTs per phase are required, please consult our document "**Using Multiple CT Sets with DTS Meters**" in the "Technical" section of the DTS 310 webpage at https://www.measurlogic.com/product/dts-310/

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Switch Label Lookup Examples	Corresponding Switch Settings

CT Type and Sensitivity

SW.1	SW.2	SW.3	Sensitivity	Type
OFF	OFF	OFF	333mV	CT
OFF	OFF	ON	140mV	Rogowski Coil (per 1000A 60Hz)
OFF	ON	OFF	70mV	
OFF	ON	ON	120mV	
ON	OFF	OFF	400mV	
ON	OFF	ON	RESERVED	
ON	ON	OFF	RESERVED	
ON	ON	ON	CUSTOM	

MEASURLOGIC
DTS 310 SWITCH SETTINGS
Pulse Rate OUT3 1 Pulse Per kWh
SCAN ME

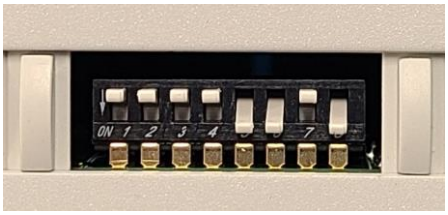
CT RATING (Amps)

SWITCH POSITION 4	5	6	7 OFF	8 OFF	7 OFF	8 ON	7 ON	8 OFF	7 ON	8 ON
OFF	OFF	OFF	CUSTOM		1		5		20	
OFF	OFF	ON	25		50		75		100	
OFF	ON	OFF	125		150		200		250	
OFF	ON	ON	300		400		450		500	
ON	OFF	OFF	600		750		800		900	
ON	OFF	ON	1000		1200		1500		1600	
ON	ON	OFF	2000		2500		3000		4000	
ON	ON	ON	5000		RESERVED		RESERVED		RESERVED	

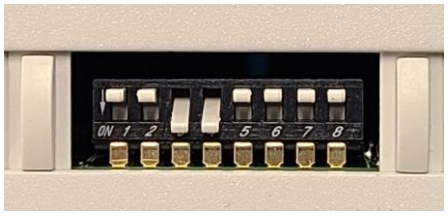
Switches: ON = OFF = www.measurlogic.com

Standard 333mV CT

Current Rating of CT is 400A

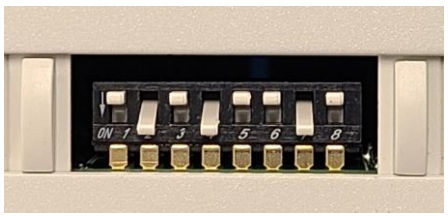


Rogowski Coil
140mV per 1000A @ 60Hz
Used at nominal 600A



The Maximum Current for this Rogowski Coil is 2500A

Rogowski Coil
70mV per 1000A @ 60Hz
Used at nominal 800A



The Maximum Current for this Rogowski Coil is 5000A

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