# INSTALLATION MANUAL

# T201DCH100-OPEN
# T201DCH300-OPEN
# T201DCH600-OPEN

## PRELIMINARY WARNINGS

The word **WARNING** preceded by the symbol ⚠ indicates conditions or actions that put the user's safety at risk. The word **ATTENTION** preceded by the symbol ⚠ indicates conditions or actions that might damage the instrument or the connected equipment.
The warranty shall become null and void in the event of improper use or tampering with the module or devices supplied by the manufacturer as necessary for its correct operation, and if the instructions contained in this manual are not followed.

| | |
|---|---|
|  | **WARNING**: The full content of this manual must be read before any operation. The module must only be used by qualified electricians. Specific documentation is available using the QR-CODE shown on page 1. |
|  | The module must be repaired and damaged parts replaced by the Manufacturer. The product is sensitive to electrostatic discharges. Take appropriate measures during any operation. |
|  | Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows the product must be surrendered to a collection centre authorized to recycle electrical and electronic waste. |

DOCUMENTATION
T201DCH100-OPEN

DOCUMENTATION
T201DCH300-OPEN

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T201DCH600-OPEN

SENECA

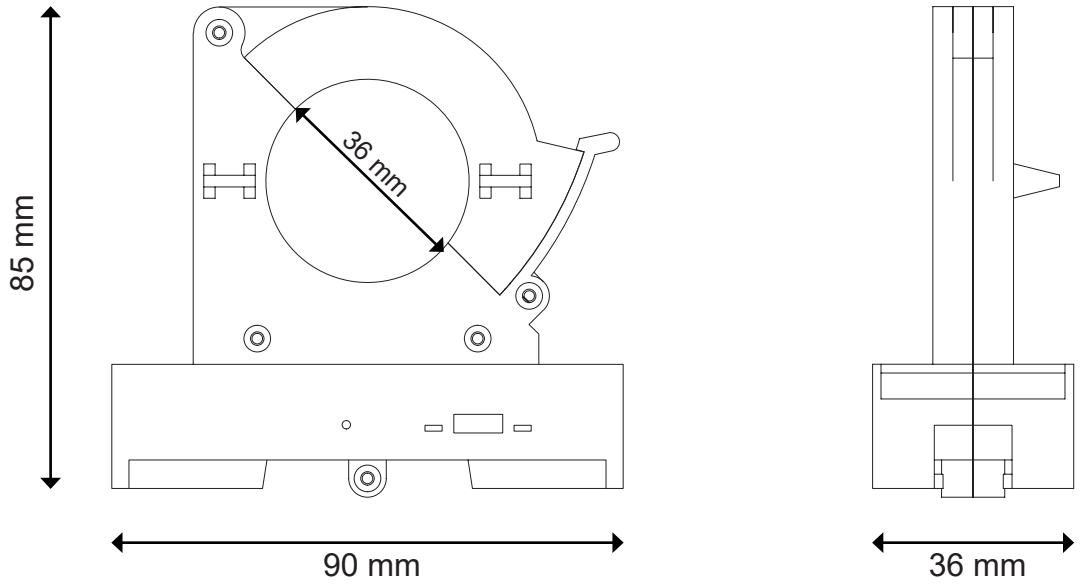
QUALITY MANAGEMENT SYSTEM
ISO 9001:2015

**SENECA s.r.l.; Via Austria, 26 – 35127 – PADOVA – ITALY; Tel. +39.049.8705359 - Fax +39.049.8706287**

## CONTACT INFORMATION

| | | | |
|---|---|---|---|
| Technical support | support@seneca.it | Product information | sales@seneca.it |

## MODULE LAYOUT

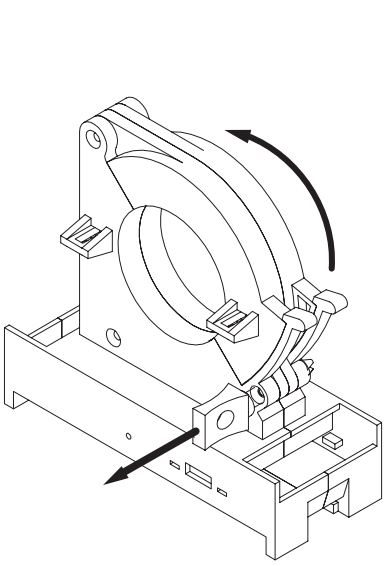



**Dimensions LxHxD:** 90 x 85 x 36 mm; **Weight:** ≈ 145 g; **Enclosure:** PA6, black

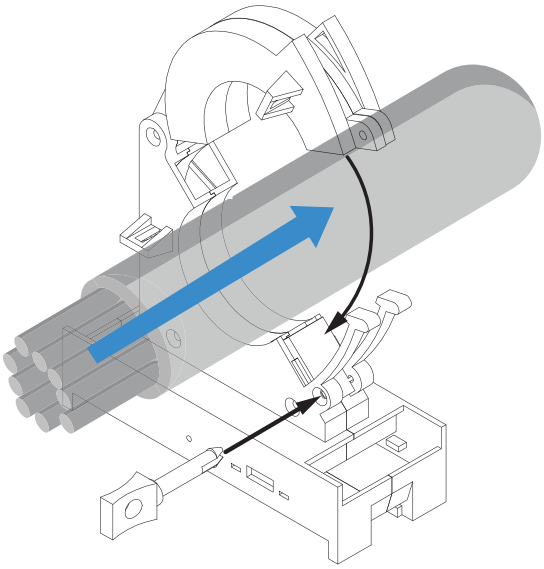
## SIGNALS VIA LED ON FRONT PANEL

| LED | STATUS | LED meaning |
|---|---|---|
| PWR/COM Green | ON | The device is powered correctly |
| PWR/COM Green | Flashing | Communication via USB and RS485 port |
| D-OUT Yellow | ON | Digital output activated |

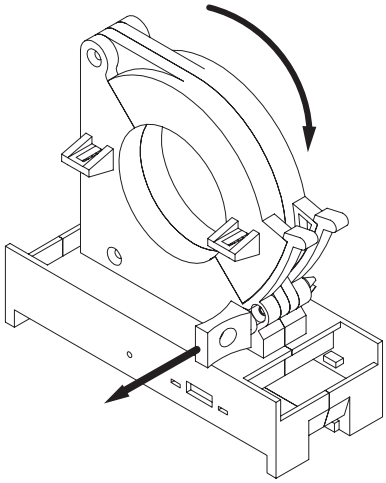
## INSTALLATION REGULATIONS



Remove the locking pin to allow the instrument to be opened.
When using for the first time, the instrument will not be blocked by the pin.



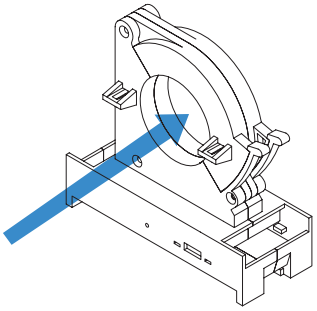
Position the reading instrument using the DIN rail or the clamps.
The reading direction of the instrument is indicated in the reference drawing above.



Close the instrument using the locking pin.
Apply sufficient pressure to engage the upper half core with the locking lugs.

### ⚠ CAUTION

Make sure that the direction of the current flowing through the cable is that shown in the figure (incoming). To increase the sensitivity of the current measurement, insert the cable several times into the central hole of the instrument, creating a series of loops.
The sensitivity of the current measurement is proportional to the number of passages of the conductors in the hole, if the loops are not homogeneously distributed a reading error could occur.



# TECHNICAL SPECIFICATIONS

| | | |
|---|---|---|
| **CERTIFICATIONS** | CE UKCA | |
| **POWER SUPPLY** | Voltage: on Vcc and GND terminals, 11.5 – 28 Vdc;<br>Absorption: Typical: 38 mA (LOAD EXCLUDED) | |
| **INSULATION** | Using an insulated conductor, its sheath determines the insulation voltage.<br>An insulation of 3 kVac is guaranteed on bare conductors | |
| **ENVIRONMENTAL CONDITIONS** | *Temperature*: -25 ÷ + 70°C<br>*Humidity*: 10% ÷ 90% non condensing.<br>*Altitude:* Up to 2000 m above sea level<br>*Storage temperature:* -40 ÷ + 85°C<br>*Protection rating:* IP20. | |
| **ASSEMBLY** | DIN rail 35 mm IEC EN60715 or fixing with plastic ties. | |
| **CONNECTIONS** | Removable 5-way screw terminals, 5 mm pitch for cables up to 2.5 $mm^2$<br>micro USB (FOR CONFIGURATION ONLY) | |
| **COMMUNICATION PORT** | RS485 serial port on terminals A+ and B-; or on USB port | |
| **INPUT (on 36 mm through hole)** | *Type of measurement*: AC/DC TRMS or DC Bipolar<br>*Crest factor*: 2<br>*Pass-band:* 1 kHz<br>*Overload:* 2000 A impulsive, 3 x $I_N$ continuing | |
| **CAPACITY** | **AC/DC True RMS (DIP7=OFF)** | **DC Bipolar (DIP7=ON)** |
| **T201DCH100-OPEN** | 50A or 100A | ±50A or ±100A |
| **T201DCH300-OPEN** | 150A or 300A | ±150A or ±300A |
| **T201DCH600-OPEN** | 300A or 600A | ±300A or ±600A |
| **ANALOGUE OUTPUT on Vout and GND terminals** | *Type*: 0 ÷ 10 Vdc, minimum load $R_{LOAD}$ =2 kΩ.<br>*Protection*: Reverse polarity protection and over voltage protection<br>*Resolution:* 13 bit (10000 points)<br>*EMI error:* < 0.5%<br>*Temperature coefficient*: < 200 ppm/°C<br>*Hysteresis on measurement*: 0.2% of full scale<br>*Response speed:* With “Fast” filter 800 ms. With “Slow” filter 2000 ms.<br>**The type of output can be selected via software** | |
| **DIGITAL OUTPUT** | *Type*: active, 0- Vcc, maximum load 50 mA<br>**The type of output can be selected via software** | |
| **ACCURACY** | **below 2% of full scale** | **above 2% of full scale** |
| **T201DCH100-OPEN** | 1% of full scale at 50/60 Hz, 23°C | 0.5% of full scale at 50/60 Hz, 23°C |
| **T201DCH300-OPEN** | 2% of full scale at 50/60 Hz, 23°C | 1% of full scale at 50/60 Hz, 23°C |
| **T201DCH600-OPEN** | | |
| **OVERVOLTAGE CATEGORIES** | *Bare conductor:* CAT. III 300 V<br>*Insulated conductor:* CAT. III 600 V | |

## USB PORT

The module is designed to exchange data according to the modes defined by the MODBUS protocol. It has a micro USB connector and can be configured using applications and/or software programs. The USB communication has priority over the RS485 communication.

The USB serial port uses the following communication parameters: **38400,8,N,1**

The USB communication port responds exactly like the RS485 port with the exception of the communication parameters. During the use of the USB port, the 485 bus will be inactive; it will reactivate automatically a few seconds after the release of the USB port. EASY SETUP is the software to use for the configuration. For further information go to the website on the cover.

## SETTING THE DIP-SWITCHES

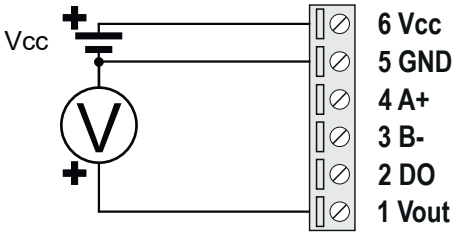
The position of the DIP-switches defines the Modbus communication parameters of the module: Address and Baud Rate. The following table shows the Baud Rate and Address values according to the DIP- SWITCH setting:

| DIP-Switch status | | | | | | | |
|---|---|---|---|---|---|---|---|
| DIP 1 2 3 4 | ADDRESS | DIP 5 6 | BAUD RATE | DIP 7 | TYPE OF MEASUREMENT | DIP 8 | MEASURING SCALES |
| | #1 | | 9600 | | AC/DC true RMS | | Full scale |
| | #2 | | 19200 | | DC Bipolar | | Half scale |
| | #3 | | 38400 | **DIP-switches must be set while the module is not powered on in order to avoid damaging it.** | | | **KEY** |
| • • • • • • | #... | | 57600 | | | | |
| | #14 | **The instrument is supplied configured for 100A (DCH100), 300A (DCH300) and 600A (DCH600), with 800 ms filter inserted and TRMS mode selected.** | | | | | **ON** |
| | #15 | | | | | | **OFF** |

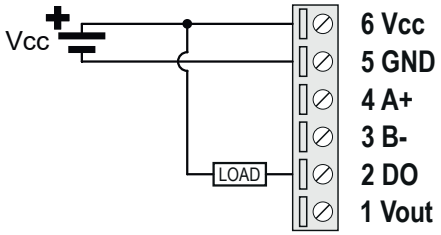
**Note:** When DIP switches 3 to 8 are OFF, the communication settings are taken from programming (EEPROM).

## ELECTRICAL CONNECTIONS

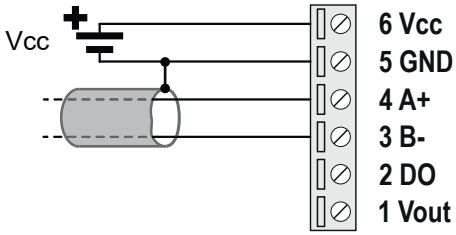
**ANALOGUE OUTPUT**




**DIGITAL OUTPUT**



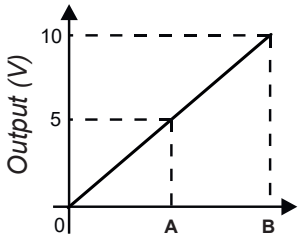

**RS485 SERIAL PORT**




## ANALOGUE OUTPUT BEHAVIOUR

**AC/DC TRUE RMS**

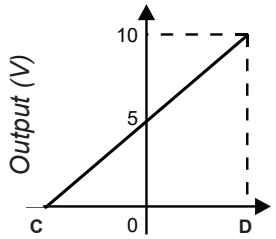
| MODEL | DIP7 | DIP8 | A | B |
|---|---|---|---|---|
| T201DCH100-OPEN | OFF | OFF | 50A | 100A |
| | OFF | ON | 25A | 50A |
| T201DCH300-OPEN | OFF | OFF | 150A | 300A |
| | OFF | ON | 75A | 150A |
| T201DCH600-OPEN | OFF | OFF | 300A | 600A |
| | OFF | ON | 150A | 300A |




*Input (A) TRMS*

**DC BIPOLAR**

| MODEL | DIP7 | DIP8 | C | D |
|---|---|---|---|---|
| T201DCH100-OPEN | ON | OFF | -100A | +100A |
| | ON | ON | -50A | +50A |
| T201DCH300-OPEN | ON | OFF | -300A | +300A |
| | ON | ON | -150A | +150A |
| T201DCH600-OPEN | ON | OFF | -600A | +600A |
| | ON | ON | -300A | +300A |




*Input (A) DC Bipolar*