Tyco Electronics

Installation Guide

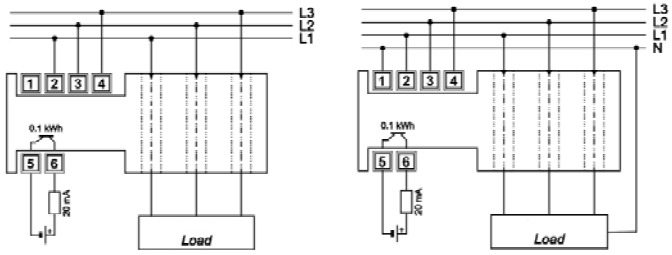
3 Phase direct connected 100 Amps kWh DIN rail meter
Model Number: DRK-3P-400-D100

Warning: Engineering work should be performed only by qualified, trained personnel abiding by local safety regulations. Ensure power is disconnected from the unit before commencing work. Follow all local regulations and site rules to ensure a safe working environment. The unit must be installed in a protective housing so that the terminals are inaccessible after fitting. Voltage connections must be fused. Do not power or connect the instrument if any part of it is damaged. Please read through these instructions before commencing installation.

WIRING GUIDE

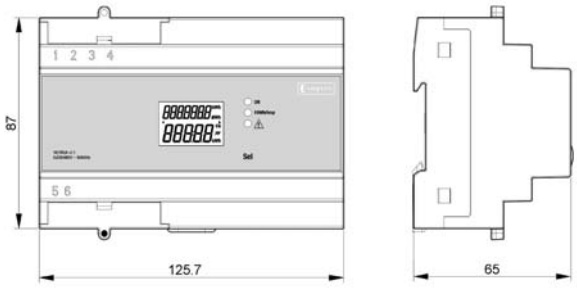
1. The instrument should be connected as shown in one of the diagrams as appropriate for 3 wire or 4 wire.
2. Pass the Load cables through the product, ensuring that the directional arrows indicated by Diagram (A) are followed. If yellow LED is lit, it indicates a wrong connection, (please read section "Connection Errors").
3. Connect the kWh pulsed output as shown in Diagram (A) ensuring that the polarity is correct. Terminals – (5) & + (6).
4. Disconnect power before attempting any changes.

(A) ***Electrical Connections***



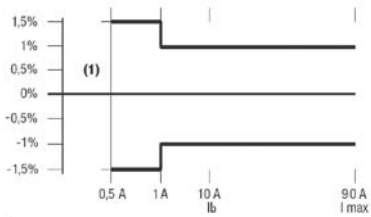
TECHNICAL SPECIFICATIONS

- Accuracy: **Class 1** in accordance with (**CEI-EN 62053-21** standard), Diagram (C)
- Operating voltage: **3 x 230V L-N, 400V L-L** (-15% / +10%)
- Frequency: 50/60 Hz
- Input current: Ib = 10A, Diagram (C)
- Maximum current: 100A
- Maximum power consumption (Burden): <2.5 VA
- Operating temp. -10 °C to +45 °C
- Relative humidity: 10% at 90% non condensing
- Connection type: Direct for current conductors with galvanic isolation between the voltage and current terminals, by direct insertion of the current conductor vertically into the housing (case).
  Maximum wire size for pulsed connection 2.5mm^2
  Maximum diameter of through-hole for phase cables 12.5mm
- Pulsed Output : Opto isolated, open collector type
  Impulse duration 100mS ± 15%
  Pulse voltage 9-24Vdc ± 10%
  Switchable output current 20mA max
- Signalling LEDs: Green = power on
  Red = flashing at 10Wh
  Yellow = wrong connection
- Display unit: LCD, 7 + 5 digit
- Partial resolution: 10Wh from 000.00 kWh to 999.99 kWh
  100Wh from 1000.0 kWh to 9999.9 kWh (Automatic)
- Total resolution: 0.1 kWh from 000000.0 kWh to 999999.9 kWh
  1Wh from 1000000 kWh to 9999999 kWh (Automatic)
- Insulation voltage: 4kV between output pulse and all other terminals
  4kV between accessible parts (front) and all other terminals
- Air and surface Distances: According to standards for products CEI-EN 62052-11 & CEI-EN 62053-21
- EMC Specifications: As required in conformity with current directive CEI-EN 62052-11 for static power meters of Class 1.
- Housing: 7 DIN, colour grey RAL 7035
- Protection level: IP20/IP51 at the front



(B) ***Dimensions***

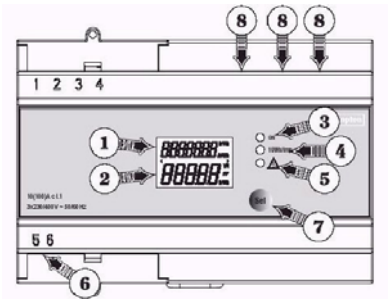
(C) ***Maximum Measurement Error***



(D) ***Instrument Feature Location***

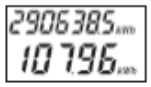
FEATURE LOCATION

1. Total energy reading displayed.
2. Partial energy reading displayed.
3. Green LED: when lit indicates power is on.
4. Red LED: when flashing indicates energy is being metered (1 flash = 10Wh).
5. Yellow LED: when lit indicates wrong connection.
6. Opto isolated pulsed output.
7. Page/backlight selection key.
8. Through-holes for passage of phase cables to be metered.

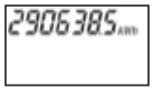


OPERATION

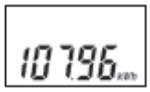
- Green LED lit indicates power is on.
- After connecting the device, correct operation is indicated by the flashing Red LED which occurs every 10Wh.
- At switch on, the main page is displayed representing Total Energy (upper reading, 7 digits) and the Partial Energy (lower reading, 5 digits) of energy metered.
- If the yellow LED stays lit when power is applied, check the installation for connection errors. (Please read section “Connection Errors”).
- Readings are displayed with 0.1 unit resolution; when end scale measurement is reached within the range the unit switches from kWh to MWh.
- To display Total Energy only, press the “Sel “ key. Note: this reading cannot be re-set.
- To display Partial Energy, press the “Sel” key again. Note: when the maximum value is reached, the unit automatically resets the value back to zero.
- To reset the Partial Energy value to zero, select the Partial reading only and then press and hold the “sel” key for more than 4 seconds.
- To return to the main page, where both readings can be viewed, press the “Sel” key again.
- In order to enable/disable the backlight while on the main page, press and hold the “Sel” key for more than 5 seconds and the ON/OFF backlight status will be displayed.



Main Page



Total Reading



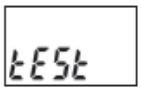
Partial Reading

Backlight status

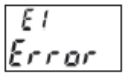
Note: When the backlight is switched ON by pressing the “Sel” key, this will hold the light ON for 30 seconds. Each time the key is pressed the light will remain ON for 30 seconds.

CONNECTION ERRORS

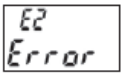
- During the first 3 minutes after switch on, a connection check is automatically performed to detect any connection errors. The Yellow LED will light if the energy at one or more phases appears to be negative. In this case, to display the phase error, first press the “Sel” key to enter the Total Energy page. Then press and hold the “Sel” key for more than 4 seconds, until the test reading appears. The wrong connection is indicated by a negative energy reading (E1 and/or E2 and/or E3) followed by the “Error” message. This test can be performed at any time.



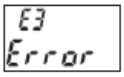
• **Warning:** To restore correct operation of the unit, first turn the unit off, then correct the connections and switch on again.



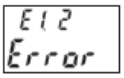
PHASE 1 Error



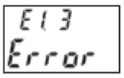
PHASE 2 Error



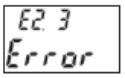
PHASE 3 Error



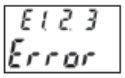
PHASE 1 & 2 Error
E1 & E2 are negative



PHASE 1 & 3 Error
E1 & E3 are negative



PHASE 2 & 3 Error
E2 & E3 are negative



PHASE 1, 2 & 3 Error
E1, E2 & E3 are negative

CONFORMITY TO EU DIRECTIVES

73/23/EEC modified by **93/68/EEC** (Low Voltage Electrical Equipment)
89/336/EEC modified by **92/31/EEC** and **93/68/EEC** (EMC) is declared with reference to the following harmonised standard:

1. **Safety**: CEI-EN 62052-11 (2003-03) and CEI-EN 62053-21 (2003-03)
2. **Electromagnetic compatibility**: CEI-EN 62052-11 (2003-03)) and CEI-EN 62053-21 (2003-03)

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