

A Group brand

# Energy meter 100A

# direct connection

1. USE

Three-phase active and reactive energy meter with direct connection. The device, in 6 DIN modules, is self-powered and is equipped with ModBus and pulse output and double tariff input.

## 2. RANGE

Code Art.	Model	Connection	Weight
CE6DJ0DTCL1	ModBus and pulse Double Tariff	Srew terminals	0,5Kg

## 3. INSTALLATION

#### Fixing:

On EN/IEC 60715 symmetric rail or DIN 35 rail.



#### Necessary tools:

For fastening the device on the DIN rail: 5.5 mm flat screwdriver (from 4 to 6 mm).

#### Operating position:

Vertical,





Technical data sheet: IDP000207EN\_01

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BTicino SpA Viale Borri 231, 21100 Varese - Italia www.imeitaly.com

## Codes: CE6DJ0DTCL1

## Model: CONTO D6-Pd

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#### 4. DIMENSIONS

#### Housing: 6 module DIN43880



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## 5. CONNECTIONS

#### Wiring diagrams:



#### Terminal board marking and diagram combination:



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#### 6. OPERATING DATA

#### 6.1 ELECTRIC DATA

#### Currents:

- Starting current, Ist: 40mA
- Min. current, I<sub>min</sub>: 500mA
- Transitional current, It: 1A
- Reference current, I<sub>ref</sub>: 10A
- Max. current, I<sub>max</sub>: 100A

#### Rated voltage:

- Reference three-phase voltage: 3x230V~ / 3x400V

#### Frequenza nominale:

- F<sub>n</sub>: 50Hz; 60Hz
- Permitted variation: 49...51Hz; 59...61Hz
- Connectable section:
- Copper wires
- Voltage connection terminals (L1, L2, L3, N):

	Without bush	With bush
Rigid wire	1 x 4 + 50 mm²	-
Flexible wire	1 x 4 ÷ 35 mm²	1 x 4 + 35 mm²

**ATTENTION:** for safety reasons, it is compulsory not to exceed 4 A/mm<sup>2</sup> as current density in the input terminals

- Neutral connection terminal (N):

_	Without bush	With bush
Rigid wire	1 x 4 ÷ 16 mm²	-
Flexible wire	1 x 4 + 16 mm²	1 x 4 + 16 mm²

- Terminal blocks in the upper part of the meter (input, pulse output):

	Without bush	With bush
Rigid wire	1 x 0,2 + 1,5 mm²	-
Flexible wire	1 x 0,2 + 1 mm²	1 x 0,2 + 1 mm²

#### Necessary tools:

- Voltages connection terminals (L1, L2, L3): flat screwdriver 6 mm or Pozidriv PZ2

- Neutral connection terminal (N): flat screwdriver 4 mm
- Terminal blocks in the upper part of the meter (input, pulse output): flat screwdriver 2,5 mm.

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## 6.2 MECHANICAL DATA

#### Screw terminals:

- Depth of the terminals: 8mm
- Lengths of the wire stripping: 8mm

#### Screw head:

- Voltage connection terminals (L1, L2, L3): screws with countersunk head with hexagon socket and Pozidriv No. 2
- Neutral (N) connection terminal: screw/screws with countersunk head with hexagon socket and Pozidriv No. 2
- Terminal boards in the upper part of the meter (input, impulse output): screws with countersunk head with hexagon socket

#### Recommended torque:

- Voltage connection terminals (L1, L2, L3): 3 Nm
- Neutral (N) connection terminal: 1 Nm
- Terminal boards in the upper part of the meter (input, impulse output): 0.2 N/m

#### Maximum torque:

- Voltage connection terminals (L1, L2, L3): 4 Nm
- Neutral (N) connection terminal: 1,2 Nm
- Terminal boards in the upper part of the meter (input, impulse output): 0.3 Nm

#### Terminal protection:

- The power terminals are protected with sliding and sealable terminal front covers which are integrated in the device



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## 7. GENERAL FEATURES (continues)

#### Marking data:

Indelible marking



- **1.** Keypad made up of 3 double-function pushbuttons (display/configurations)
- 2. Metrological LED
- **3.** Output connection terminals
- 4. LCD Display
- 5. Consult the user manual before installation
- 6. Double insulation
- 7. Connection on 4-wire three-phase line
- 8. Anti-rotation device (anti-decreasing)
- 9. Voltage/Current
- 10. Frequency

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## 7. GENERAL FEATURES

#### Laser marking





**Right side** 

Wiring diagram

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## 7. GENERAL FEATURES (continues)

#### Display:

- LCD, backlit, 8 digit
- **Risolution:** - Total meters: 1kWh/kvarh
- Partial meters: 0,01kWh/kvarh
- Tariff meters: 0,01kWh/kvarh
- Maximum indication
- Total meters : 999 999 99
- Partial meters: 999 999,99
- Tariff meters: 999 999,99

#### Metrological LED: 5Wh/imp.

#### Display of the value and programming:

- By means of the front keypad, 3 pushbuttons.
- Change protected by identification code (predefined code 1000); the code can be changed during the programming procedure.

## Measurements and precision:

- Conformity with EN/IEC 62053-21
- Active Energy cl.1
- Conformity with EN/IEC 62053-23
- Reactive Energy cl.2
- Conformity with EN/IEC 61557-12
- Current: cl.0,5 - Voltage: cl.0,5
- Frequency: ± 0,1 Hz
- Instantaneous total active power, phase, average value and max. average value cl.1
- Instantaneous total active power, phase, average value and max. average value: cl.1
- Instantaneous total reactive power, phase: cl.2
- Instantaneous total apparent power, phase: cl.1
- Power Factor: cl.1

#### Average power:

- Measurement: active power
- Calculation: moving average, on the selected period
- Average time: 5/8/10/15/20/30/60 min.

#### Hour meter:

- Counting of operating hours and minutes (resettable meter)
- Resolution: 7 figures (5 for the hours + 2 for the minutes)
- Maximum display: 99 999.59 (tariff total)
- Count start: three-phase active power "Pn"

- Programmable value: 0,4...50% Pn -

(Pn = three-phase active power, related to 400V and 10A = 6,9kW)



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## 7. GENERAL FEATURES

#### Digital input

- The digital input allows switching the energy counting on 2 tariffs
- 2 input terminals with common point (1 C)
- Rated voltage: 12 24V d.c. max. 10mA



## Features of the ModBus communication port:

- Programmable addresses: from 1 to 255  $(5^{\ast})$
- Communication speed: 4.8 9.6 19.2\* 38.4 kbps
- Parity bit: none, even\*, odd
- Stop bit: 1
- Galvanically isolated with respect to the measurement inputs
- Standard RS485 3 wires, half-duplex
- Modbus® RTU protocol
- Response time (question/response time-out): ≤ 200ms

#### Features of the Impulse output:

- Optorelay with potential-free SPST-NO contact
- Type S0 (IEC/EN62053-31)
- Voltage Uimp: Max. 27V a.c./d.c.
- Current limp: Max. 50 mA
- Programmable impulse weight, possible values:
- 1 10\* 100 1k 10k Wh/imp or varh/imp
- Programmable impulse duration, possible values: 50\* -100 200 300 400 500ms
- \* Factory setting

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## 7. GENERAL FEATURES

## Auxiliary power supply:

- Shunted from the power socket (Self-supplied)

#### Operating room temperatures:

- Min. = - 25 °C Max. = + 55 °C.

#### Room storage temperatures: - Min. = - 25 °C Max. = + 70 °C.

## Short-duration overcurrent:

- 30 I<sub>max</sub> per 10ms

## Short circuit current:

- I<sub>max</sub> (kA): 21,7 (∆t: 7,34msec) - Energy 1.14 MA²s

#### Voltage circuit self-consumption:

- Max.1,5VA (1,5W) three-phase

#### Current circuit self-consumption:

- Max.2,5W for each phase

# Maximum dissipated thermal power for the thermal dimensioning of the panels: ≤ 10W

#### Protection class:

- Terminal protection index against solid bodies and liquids: IP 20 (IEC/EN 60529).
- Housing protection index against solid bodies and liquids: IP 54 (IEC/EN 60529).

#### Protection of the device:

- By means of thermal-magnetic circuit breaker In 100A

Room: mechanical M1 – electric E2

Housing material: Self-extinguishing polycarbonate

Packaged volume: 1,5dm<sup>3</sup>.

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## 8. CONFORMITY AND CERTIFICATIONS

#### Insulation

- Measurement categories: III
- Level of pollution: 2
- Insulation voltage, Ui: 300V, Phase-Neutral

#### Dielectric rigidity:

- Power supplies/ Outputs: 4kV / 50Hz / 1min
- Housing / Terminals: 4kV / 50Hz / 1min

#### Pulse:

- Power supplies: 6.3kV / 1.2  $50\mu sec$  / 0.5J
- Power supplies/ Outputs: 6.3kV / 1.2- 50µs / 0.5J

#### In compliance with the standards:

- Precision class: Class 1 active energy (EN/IEC 62053-21)
- Precision class: Class 2 reactive energy (EN/IEC 62053-23)
- Electromagnetic compatibility: Tests in accordance with EN/IEC 62052-11 / EN 50470-1, -3
- Precision class according to IEC/EN61557-12

#### Respecting the environment - Conformity with the CEE directives:

- Conformity with directive 2011/65/EU modified by directive 2015/863 (RoHS 2) which restricts hazardous substances such as lead, mercury, cadmium, hexavalent chromium, brominated flame retardants, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)

- Conformity with directive 91/338/CEE of 18/06/91 and decree 94-647 of 27/07/04
- Conformity with the REACH regulation

#### Plastic materials:

- Plastic materials without Halogens.
- Part marking according to standards ISO 11469 and ISO 1043.

#### Packaging:

- Packaging designed and produced in accordance with Decree 98-638 of 07.20.98 and directive 94/62/CE

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#### 9. COMMUNICATION





- <sup>(1)</sup> RS485: Required use of Belden 9842, Belden 3106A (or equivalent) for a maximum length of 1000 m, or Category 6 cable (FTP or UTP) for a maximum length 50 m
- (2) Resistance not furnished supplied to be connected between "+ and -" of the 1st and last device of the line

<sup>(3)</sup> Ethernet: Cat. 6 (FTP/UTP)

#### Modbus communication tables

- MODBUS communication tables are available at http://www.imeitaly.com, inserting the "CE6DJ0DTCL1" code in the search field.