Crompton Instruments
Kilowatt Hour Energy Meters

TE connectivity ENERGY

Kilowatt Hour Energy Meters

An extensive range of DIN-rail and panel mounted Kilowatt hour meters which measure the real consumption of active energy. These instruments are ideal for secondary metering in switchgear, plant instrumentation and process control applications.

These models incorporate an electro-mechanical kWh counter or LCD display with associated electronics within the instrument case. Requiring no maintenance, the kWh energy meters support energy efficiency and awareness whilst ensuring systems remain balanced and safe.

Features
High accuracy
Pulsed output optional
DIN-rail or panel mounted
Active energy consumption indication
Direct connection

Benefits
Energy efficiency and awareness
Balanced and safe systems
No maintenance

Applications
Switchgear
Distribution systems
Generator sets
Control panels
Energy management
Building management
Utility power monitoring
Process control
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Panel Mounted Integra Ci1 Energy Meter

The Integra Ci1 energy meter is specially designed and developed as a cost affected watt hour and VAr hour meter to complement the current Crompton Instruments Ci meter series. The Integra Ci1 self-contained 96mm DIN panel mounted Watt hour, VAr hour meter measures the real consumption of active and reactive energy to Class 1.0 accuracy.

Programmable functions

Integra Ci1 kWh meter provides simple programming to suit single-phase, three-phase three-wire and three-phase four-wire un-balanced system configurations, CT ratio settings and configuration of selected communication options. To prevent unauthorised access to the product configuration settings, all set-up screens offer password protection.

Features

- Backlit LCD screen
- Bezel depth 6.1mm
- Plug-in output modules
- Programmable CT ratio
- User programmable system configuration
- Phase diagnostic indication
- System running indication
- Removable energy threshold (1%)

Benefits

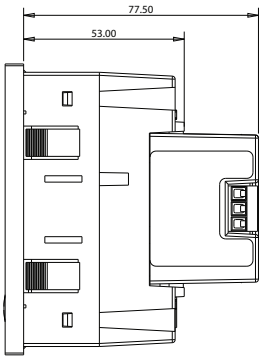
- Cost effective
- Intuitive navigation
- Easy 'clip-in' panel mounting

Standards

IEC 61326
IEC 61010-1
IEC 62053-21
RoHS Compliant

Parameters

Button	Screen	Parameters
CT	1	CT Ratio
Wh	2 3	IMPORT Wh EXPORT Wh
VArh	4 5	IMPORT VArh EXPORT VArh
TEST	6	Phase sequence diagnostic



Specifications

Input	
Nominal input voltage	100-289V AC L-N (173-500V AC L-L)
Max. continuous input overload voltage	120% of nominal
Max. short duration input voltage	2 x range maximum (1 second application repeated 5 times at 5 min intervals)
Nominal input voltage burden	< 0.2VA per phase
Nominal input current	5A AC rms
Max. continuous input overload current	120% of nominal
Max. short duration input current	10 x range maximum (1 second application repeated 5 times at 5 min intervals)
Frequency	45-66Hz
Auxiliary	
Operating range	110-400V AC nominal +/- 10% (99-440V AC absolute limits) or 120-350V DC +/- 20% (96-420V DC absolute limits)
Auxiliary burden	5 VA (Max)
Accuracy	
Active energy (Wh)	Class 1 (IEC 62053-21)
Reactive energy (VArh)	+/- 1% of range
Display	
LCD	8 character backlit counter (########.#) After the maximum reading is reached the digits will return to zero
Output modules (optional)	
Pulsed output relays	1 per module (2 modules fitted per Ci1)
Contact rating	50mA max at 250V AC
Type	Solid state relay
RS485 output module	1 RS-485 communication module (maximum of 1 module fitted per Ci1)
Type	2-wire half duplex
Baud rate	2400, 4800, 9600, 19200, 38400
Enclosure	
Enclosure style	DIN 96 panel mount
Dimensions	96x96x64.1mm (depth behind panel without module 58mm, with module 82.5mm)
Panel cut-out	92x92mm
Panel thickness	1-5mm
Front protection rating	IP52

Ordering Codes

Description	Cat. no.
Integra Ci1 base unit	CI1-01
Options	
Pulsed output	CI-PUL-01
Modbus® RS485 output	CI-MOD-01
Accessories	
IP65 protective cover	3 G365 02
IP54 panel gasket	3 C345 01

Single-phase DIN-rail kWh Energy Meters

DRK-1PPO-240

Single-phase 230V – 15A Direct Connected, Pulse Output

This innovative two DIN module kWh energy meter measures the real consumption of active energy to Class 2 accuracy with a resolution of 0.1kWh displayed via a non-zeroing mechanical counter on the front panel. The module is operated via an internal shunt with pulsed output optically isolated from the power-supply and load. Ideally suited for environments with Category III over-voltage and level 2 pollution in accordance with IEC EN 61010-1.

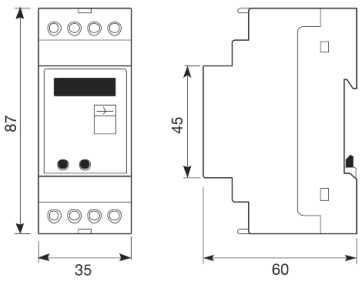
Specifications

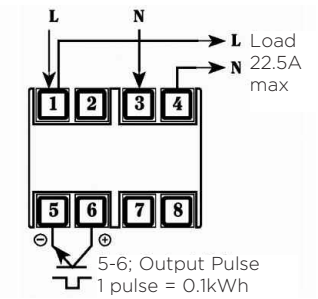
Active energy accuracy	Class 2
Input frequency	45 – 65Hz
Nominal input voltage	230V
Input voltage tolerance	–15% to +10% of nominal
Nominal input voltage burden	4VA
Input current	Base 15A
Startup current	50mA
Max continuous input current	22.5A
Nominal input current burden	2VA
Current measurement	Internal shunt
System CT ratios	Direct connection up to 22.5A
Pulsed output	Opto-isolated
Pulse duration	75 milliseconds
Pulsed frequency	1 per 0.1kWh
Counter	5-digit + 1 decimal point mechanical counter
Reading resolution	0.1kWh
LED indicator display	Green – power supply Red – active power consumption @ 1 beat per 1Wh
Enclosure material	Class V-0 in accordance with UL94
Compliant with	IEC EN 61010-1CAT III, IEC EN 61036, EMC and LVD
Operating temperature	–10°C to +45°C
Storage temperature	–25°C to +70°C
Relative humidity	0 - 95%, non-condensing
Dimensions	2 x DIN modules wide x 87mm high
IP protection	IP51 at front, IP20 at rear

Ordering Codes

Description	Cat. no.
1-phase 230V – 15A direct connected, pulse output	DRK-1PPO-240

Dimensions and Connections





Features

- Class 2 accuracy
- Pulsed output
- Direct connection up to 15A
- Non-zeroing 5-digit + 10th mechanical counter
- Static meter with direct start-up 22.5A max
- Active energy consumption indication
- 2 DIN module format

Benefits

- Replaces outdated rotating disk meters
- Increased energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- Maintenance free

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor control
- Secondary metering

Approvals

IEC EN 61010-1 CAT III
IEC EN 61036
EMC and LVD

Single-phase DIN-rail kWh Energy Meters

DRK-1PCT-240

Single-phase 230V – CT Connected 5A, Pulse Output

This innovative four DIN module kWh energy meter measures the real consumption of active energy to Class 2 accuracy with a resolution of 1 kWh displayed via a mechanical counter on the front panel. The module is operated via an internal current transformer with pulsed output optically isolated from the power supply and load.

Specifications

Active energy accuracy	Class 2
Input frequency	50 – 60Hz
Nominal input voltage	230V AC
Input voltage tolerance	–15% to +10% of nominal
Nominal input voltage burden	<2.5VA
Nominal input current	5A
Startup current	15mA
Max continuous input current	6A
Nominal input Current burden	<2.5VA
Current measurement	Internal current transformer
System CT ratios	5, 10, 25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600, 800, 1000A
Pulsed output	Opto-isolated
Pulse duration	<100 milliseconds
Pulsed frequency	1 per kWh
Pulse capacity	3 - 30V DC, <20mA
Counter	7-digit mechanical counter
Reading resolution	1 kWh
LED indicator display	Green – power supply Red – active power consumption @ 1 beat per 1/16 kWh
Enclosure material	Class V-0 in accordance with UL94
Compliant with	IEC EN 61010-1, IEC EN 61036, EMC and LVD
Operating temperature	–10°C to +45°C
Storage temperature	–25°C to +70°C
Relative humidity	0 - 95%, non-condensing
Dimensions	4 x DIN modules wide x 87mm high
IP protection	IP20

Features

- Direct connection up to 15A
- Class 2 accuracy
- Pulsed output
- Selectable CT ratios
- Dip switch settings
- 7-digit mechanical counter
- Insulated CT connections
- Active energy consumption indicator
- 4 DIN module format

Benefits

- Increased energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- Maintenance free

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor control
- Secondary metering

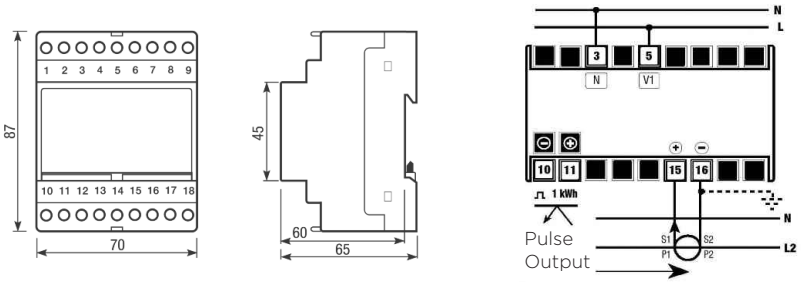
Approvals

IEC EN 61010-1
IEC EN 61036
EMC and LVD

Ordering Codes

Description	Cat. no.
1-phase 230V - CT connected 5A, pulsed output	DRK-1PCT-240

Dimensions and Connections



Three-phase DIN-rail kWh Energy Meters

DRK-3PCT-415

Three-phase 400V CT Connected 5A, Pulse Output, Three- or Four-wire System

This innovative four DIN module kWh energy meter measures the real consumption of active energy to Class 2 accuracy with a resolution of 1kWh displayed via a mechanical counter on the front panel.

The module is operated via an internal current transformer with pulsed output optically isolated from the power supply and load.

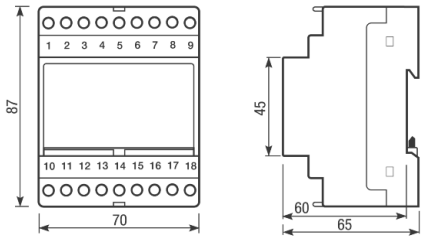
Specifications

Active energy accuracy	Class 2
Input frequency	50 - 60Hz
Nominal input voltage	400V L-L (230V L-N))
Input voltage tolerance	–15% to +10% of nominal
Nominal input voltage burden	<2.5VA
Nominal input current	5A
Startup current	15mA
Max continuous input current	6A
Nominal input current burden	<2.5VA
Current measurement	Internal current transformer
System CT ratios	5, 10, 25, 50, 75,100, 125, 150, 200, 250, 300, 400, 500, 600, 800, 1000A
Pulsed output	Opto-isolated
Pulse duration	<100 milliseconds
Pulsed frequency	1 per kWh
Pulse capacity	3 - 30V DC, <20mA
Counter	7-digit mechanical counter
Reading resolution	1 kWh
LED indicator display	Green – power supply Red – active power consumption @ 1 beat per 1/4 kWh Yellow: warning of 1/4 kWh negative
Enclosure material	Class V-0 in accordance with UL94
Compliant with	IEC EN 61010-1, IEC EN 61036, EMC and LVD
Operating temperature	–10°C to +45°C
Storage temperature	–25°C to +70°C
Relative humidity	0 - 95%, non-condensing
Dimensions	4 x DIN modules wide x 87mm high
IP protection	IP20

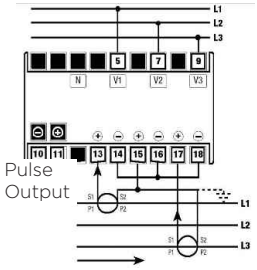
Ordering Codes

Description	Cat. no.
3-phase 230V -CT connected 5A, pulsed output, 3 or 4-wire	DRK-3PCT-415

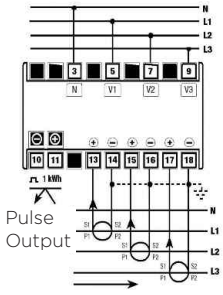
Dimensions and Connections



DRK-3PCT Three-phase CT connected 5A(*) three-wire system



DRK-3PCT Three-phase CT connected 5A(*) four-wire system



Features

- Class 2 accuracy
- Pulsed output
- Selectable CT ratios
- Dip switch settings
- 7-digit mechanical counter
- Insulated CT connections
- Active energy consumption indicator
- 4 DIN module format
- 3 or 4-wire systems

Benefits

- Increased energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- Maintenance free

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor control
- Secondary metering

Approvals

IEC EN 61010-1
IEC EN 61036
EMC and LVD

Three-phase DIN-rail kWh Energy Meters

DRK-3PCT-415-LCD

Three-phase 400V CT Connection 5A, Pulse Output, 3 or 4-wire System

This four DIN module kWh energy meter measures the real consumption of active energy. The meter has the highest accuracy Class 2 with easy wiring, back illuminated LCD display, non-zeroing total counter and zeroing partial counter and is operated via a internal current transformer with pulsed output optically isolated from the power supply and load.

Specifications

Active energy accuracy	Class 2
Input frequency	50/60Hz
Nominal input voltage	400V L-L (230 L-N)
Input voltage tolerance	-15% to + 10% nominal
Normal input voltage burden	< 2.5VA
Nominal input current	5A
Minimum start-up current	15mA
Max continuous input current	6A
Nominal input current	< 2.5VA
Current measurement	Internal current transformer
System CT ratios	5,10,25,50,75,100,125,150,200,250,300,400,500,600,800, 1000A
Pulsed output	Opto-isolated, open collector type
Pulsed voltage	9-24V DC $^{+}$/-10% (switchable O/P current 20mA max.)
Pulse duration	100 milliseconds $^{+}$/-15%
Pulsed frequency	1 per 0.1 kWh
Display	LCD 7 + 5 digits
Reading resolution	1 kWh
LED indicator display	Green – power supply
	Red – active power consumption @ 1 beat per _ kWh
	Yellow – wrong connection
Enclosure material	Class V-0 in accordance with UL94
Compliant with	IEC EN 61010-1, IEC EN 61036, EMC and LVD
Operating temperature	-10°C to +45°C
Storage temperature	-25°C to +70°C
Relative humidity	10 – 90% non-condensing
Dimensions	4 x DIN modules wide x 87mm high
IP protection	IP51 at front, IP20 at rear

Ordering Codes

Description	Cat. no.
3-Phase 230 (400)V AC – CT Connected 5A, pulsed output, 3 or 4 wire	DRK-3PCT-415-LCD

Features

- Class 2 accuracy
- Pulsed output (Opto)
- LCD display
- Non-zeroing total counter
- Active energy consumption indicator
- 4 DIN module format
- Also available as a mechanical counter

Benefits

- Energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- No maintenance

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Secondary metering

Approvals

IEC EN62052-11
IEC EN62053-21
EMC and LVD

Concentrator Module for kWh Energy Meters

DRK-485-230

8 Input Remote kWh Energy Consumption Monitoring Device

The DRK-485 concentrator module remotely monitors energy consumption from up to 8 Crompton kWh meters within a 25 metre radius. The device communicates through a Modbus® connection to a computer COM port via a RS485 serial line. Up to 32 concentrator modules can be connected to the RS485 line without the need for signal amplifiers. Up to 247 modules in groups of 32 can be connected when separated by signal amplifiers.

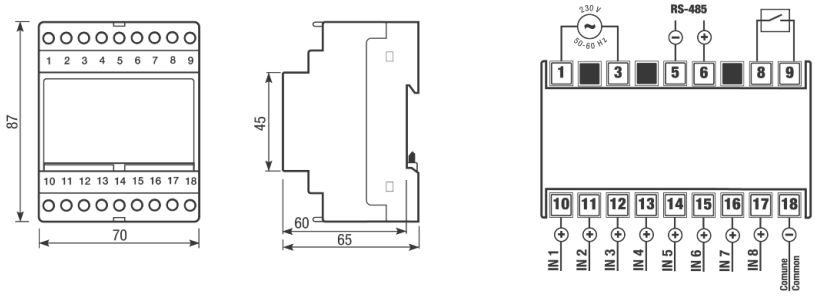
Specifications

Input frequency	50 - 60Hz
Nominal input voltage	230V AC
Input voltage tolerance	–15% to +10% of nominal
Nominal input voltage burden	2VA
Digital communications	RS485 interface Modbus® protocol
Band handling	Dual charge
Baud rate	9600 bits per second
Transmission mode	ASCII
Error detection method	Longitudinal redundancy check
Max number of contactors	Up to 8 input signals (1 and 3-phase)
Pulse input duration	<100 milliseconds
LED indicator display	Green – power supply Red – data transit via RS485
Enclosure material	Class V-0 in accordance with UL94
Compliant with	IEC EN 61010-1, IEC EN 50081-1, IEC EN 50082-1, EMC and LVD
Operating temperature	–10°C to +45°C
Storage temperature	–25°C to +70°C
Relative humidity	0 – 95%, non-condensing
Dimensions	4 x DIN modules wide x 87mm high
IP protection	IP41 to front, IP20 to rear

Ordering Codes

Description	Cat. no.
Remote kWh energy consumption monitoring device	DRK-485-230

Dimensions and Connections



Features

- Collects up to 8 pulsed inputs
- Remote monitoring device
- Modbus® protocol
- 8 dip switch settings
- Dual charge rate handling
- Data transit and power indicators
- 4 DIN module format

Benefits

- Pulse collection
- Increased energy efficiency and awareness
- Balanced and safe systems
- Maintenance free

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor control
- Secondary metering

Approvals

IEC EN 61010-1
IEC EN 50081-1
IEC EN 50082-1
EMC
LVD

Single-phase DIN-rail kWh Energy Meters (Direct Connection)

DRK-1P-230-D63

This three DIN module kWh energy meter measures the real consumption of active energy. The module meter has the highest accuracy class (1) with easy wiring, back illuminated LCD display, non-zeroing total counter and partial zeroing counter. This module passes the load cable through the case allowing up 63A direct connection.

Specifications

Active energy accuracy	Class 1 in accordance with CEI-EN 62053-21
Input frequency	50-60Hz
Nominal input voltage	230V AC
Input voltage tolerance	-15% to +10% of nominal voltage
Nominal input voltage burden	<2.5VA
Max input current	63A
Current input Ib	10A
Start-up current	40mA
Nominal input power burden	<2.5VA
Pulsed output	Opto-isolated, open collector
Pulsed voltage	9-24 V DC $^{+}$/-10% (switchable O/P current 20mA max)
Pulsed duration	100 milliseconds $^{+}$/-15%
Pulsed frequency	1 per 0.1kWh
Display	LCD 7 + 5-digit
Reading resolution	0.1kWh and/or 0.1MWh (automatic)
LED indicator display	Green – Power supply Red – Flashing @ 10Wh
Enclosure material	Grey RAL 7035 class V-0 in accordance with UL94
Compliant with	IEC EN 62052-11, IEC EN 62053-21, EMC and LVD
Operating temperature	-10°C to +45°C
Storage temperature	-25°C to +70°C
Relative humidity	10% - 90%, non-condensing
Dimensions	3 x DIN modules wide 53.7mm x 87mm high
Max. diameter of through-hole	12.5mm
IP protection	IP51 at front, IP20 at rear

Features

- Class 1 accuracy
- Direct connected 63A
- Pulsed output (Opto)
- LCD display
- Non-zeroing total counter
- Active energy consumption indication
- 3 DIN module format

Benefits

- Energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- No maintenance

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Secondary metering

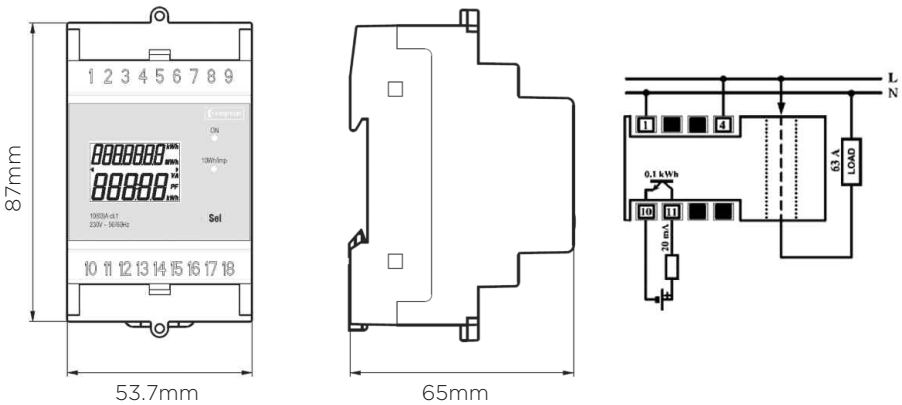
Approvals

IEC EN62052-11
IEC EN62053-21
EMC and LVD

Ordering Codes

Description	Cat. no.
1-phase 230V – 63A direct connected, pulsed output (Opto)	DRK-1P-230-D63

Dimensions and Connections



Three-phase DIN-rail kWh Energy Meters (Direct Connection)

DRK-3P-400-D100

This seven DIN module kWh energy meter measures the real consumption of active energy. The module meter has the highest accuracy class (1) with easy wiring, back illuminated LCD display, non-zeroing total counter and partial zeroing counter. This module passes the load cable through the case allowing up 100A direct connection on a three-phase system.

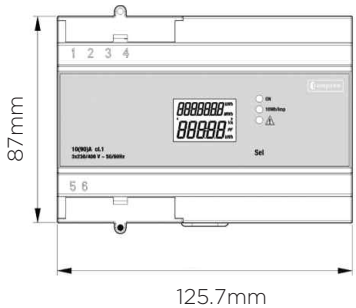
Specifications

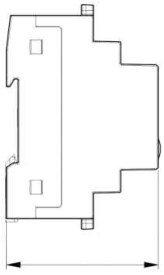
Active energy accuracy	Class 1 in accordance with CEI-EN 62053-21 standard
Input frequency	50 - 60Hz
Nominal input voltage	3 x 230V AC L-N (400V L-L)
Input voltage tolerance	-15% to +10% of nominal voltage
Burden	< 2.5VA
Max input current	100A
Pulsed output	Opto-isolated, open collector type
Pulsed voltage	9-24V DC +/-10% (switchable O/P current 20mA max)
Pulsed duration	100 milliseconds +/-15%
Pulsed frequency	1 per 0.1 kWh
Display	LCD 7 + 5-digit
Reading resolution	0.1 KWh from 0000000.0KWh – 999999.9KWh 1 KWh from 1000000KWh to 9999999KWh (Automatic)
LED indicator display	Green - power supply Red - flashing @ 10kWh Yellow – indicates wrong connection
Enclosure material	Grey RAL 7035 class V-0 in accordance with UL94
Compliant with	IEC EN62052-11, IEC EN62053-21 (2003-03) EMC and LVD
Operating temperature	-10°C to +45°C
Storage temperature	-25°C to +70°C
Relative humidity	10% - 90%, non-condensing
Dimensions	7 x DIN modules wide 125.7mm x 87mm high
IP protection	IP51 at front, IP20 at rear

Ordering Codes

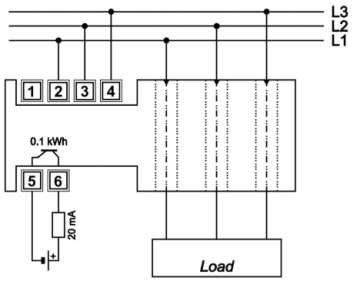
Description	Cat. no.
3-phase 230V L-N (400V L-L) – 100A direct connected, pulsed output (Opto)	DRK-3P-400-D100

Dimensions and Connections

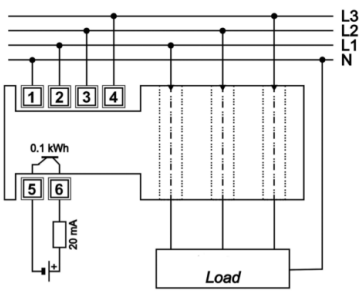




Three-wire System



Four-wire System



Features

- Class 1 accuracy
- Direct connected 100A
- Pulsed output (Opto)
- LCD display
- Non-zeroing total counter
- Active energy consumption indication
- 7 DIN module format

Benefits

- Energy efficiency and awareness
- High accuracy
- Balanced and safe systems
- No maintenance

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Secondary metering

Approvals

IEC EN62052-11
IEC EN62053-21
EMC and LVD

About TE Connectivity

TE Connectivity is a global, $12.1 billion company that designs and manufactures over 500,000 products that connect and protect the flow of power and data inside the products that touch every aspect of our lives. Our nearly 100,000 employees partner with customers in virtually every industry – from consumer electronics, energy and healthcare, to automotive, aerospace and communication networks – enabling smarter, faster, better technologies to connect products to possibilities.

TE Energy – innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, street lighting, power measurement and control.

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