ND26

POWER NETWORK METER

ND26 is Multiload Monitor with 12 single phase load or 4 three phase load option. It measures important electrical parameters of multiple loads simultaneously in a single unit, eliminating the need and cost of multiple panel meters. It provides quick, easy and error free current connections with plug and play connectors. It measures real time electrical parameters like Active / Reactive / Apparent energy and power, current, THD, demand, max demand for each load.
The instrument has 4 configurable relay outputs, which can be used for Limit / Pulse / 3Phase Load Health Monitoring / Tariff / RTC / Timer tripping / RTC / Timer tripping or alarms. This instrument communicates with either MODBUS or Ethernet connection.

Applications:

- Large Power Distribution System
- Data Center Metering
- 3 Phase Load Health Monitoring
- Sub Tenant Energy Consumption
- Individual Load Management
- Tariff Based Load Tripping

Product Features:

Multiple Circuit Monitoring
- Measures & monitors Instantaneous Current, Voltage, Power & Energy for multiple loads simultaneously.
- Meter allows 4 Three Phase or 12 Single Phase or Hybrid Load connections with the help of 12 Current and 1 channel 3 phase voltage measurement.

Plug and Play Current transformer
- *RJ 12 connector is available for External CT connection, which enables easy, fast and error free installation. 2 meter long cable is provided with the CT.*

Direct remote access
- Remote configuration of the Instrument via MODBUS or Ethernet.
- Remote access of measured parameters.

Relay Output (optional)
- *Potential free, very fast acting relay contact configurable as:*
- **Pulse** *output which can be used to drive an external counter for energy measurement.*
- **Limit** *(alarm) switch.*
- **Timer** *mode for switching ON & OFF for configurable number of times.*
- *Switch for* **unhealthy Three Phase load**.
- *Energy* **Tariff** *based tripping.*
- **RTC** *based tripping and un-tripping for configurable days of the week.*
- **Remote Relay Control** *using* MODBUS or ethernet

THD and Individual Harmonics Measurement
- *The instrument measures per phase THD and individual harmonic up to 31st harmonics for each voltage & current.*

RTC (Real Time Clock)
- *Inbuilt real time clock for display of date and time, along* with time stamping for data logging and Event recording.

Easy & Cost Effective Installations
- Multiple circuit Connections on Single board provide easy & economical installation process.

Big LCD display with Backlit
- *LCD shows* 4 measurement parameters along with 9 digit energy parameter at a glance. It also shows load graphics for individual phases of the load.
- The four keys provided at the front help in easy navigation between the loads and the corresponding measurement parameter screens.

Prepaid Tariff based tripping
- *This feature provides the luxury of tripping the load whose energy has crossed the required threshold of the configured tariff amount.*
- *The user just needs to set the energy, top-up amount and the rate per unit (kilo) of energy.*

Health Monitoring of Three Phase Load
- *This feature is applicable only for Three Phase loads.*
- *A Three Phase load (such as a Three Phase motor) can be monitored for phase failure, phase reversal, voltage & current unbalance, under frequency, under voltage, over voltage and over current.*
- *Further, set a relay on this mode and trip the configured load for protection against such faults.*

Onsite programmable
- Onsite Programmable System Configuration 3PH4W / 3PH3W / 1PH2W / No Load for each channel.
- Onsite Programmable CT Primary, PT Primary and PT Secondary.

Product Features:

Energy as per IEC 62053

- *Independent counter for Import Active energy (kWh), Export Active energy (kWh), Capacitive Reactive energy (kVArh), Inductive Reactive energy (kVArh) or Apparent energy (kVAh) measurement.*
- *Active Energy accuracy Class 1 as per IEC 62053 - 21 or Class 0.5S as per IEC 62053-22 (on order).*

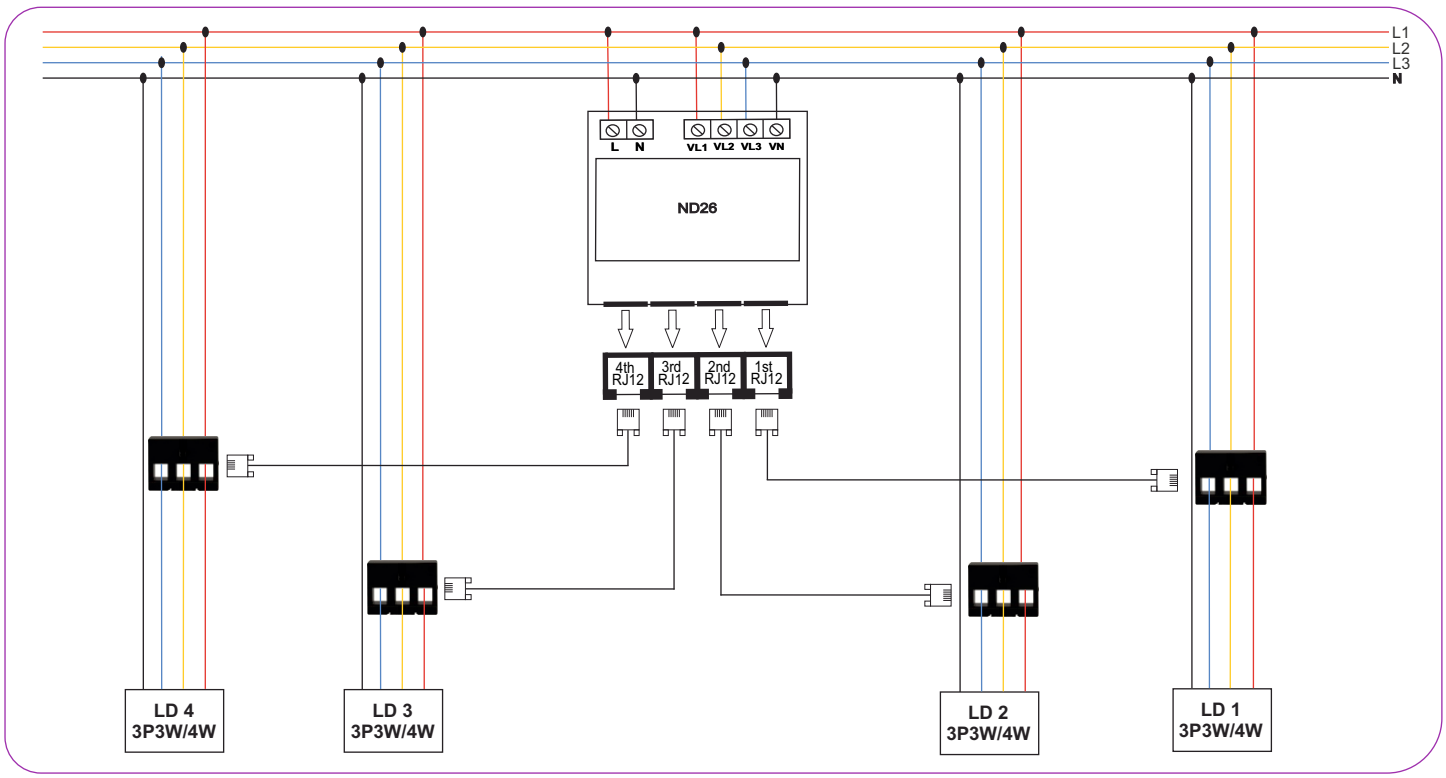
- **Compliance to International Safety standards**
  Compliance to International Safety standard IEC 61010-1- 2010.

- **EMC Compatibility**
  Compliance to International standard IEC 61326.

Data logging

- Meter has inbuilt 8MB Flash for datalogging.
- **Event Logging**: *Previous 5 events of fixed parameters can be logged with Date and time.*
- **Time based logging**: *User selectable parameters (1 to 120) can be logged at regular intervals (1 to 60 min) with Date and Time stamp in internal memory and and can be accessed via Modbus or Ethernet or USB.*
- *If 1 Parameter for example energy is selected with logging interval of 15 minutes, log of maximum 5.5 years are available for user.*
- *If 120 Parameters are selected with logging interval of 60 minutes, log of maximum 197 days are available for user.*
- **Load Profile logging**: *Logging of energy consumed and peak Demand (Power and Current) in a day and in a month for efficient tracking of load behaviors. Maximum 1 year daily and 14 years of monthly log is available for user.*

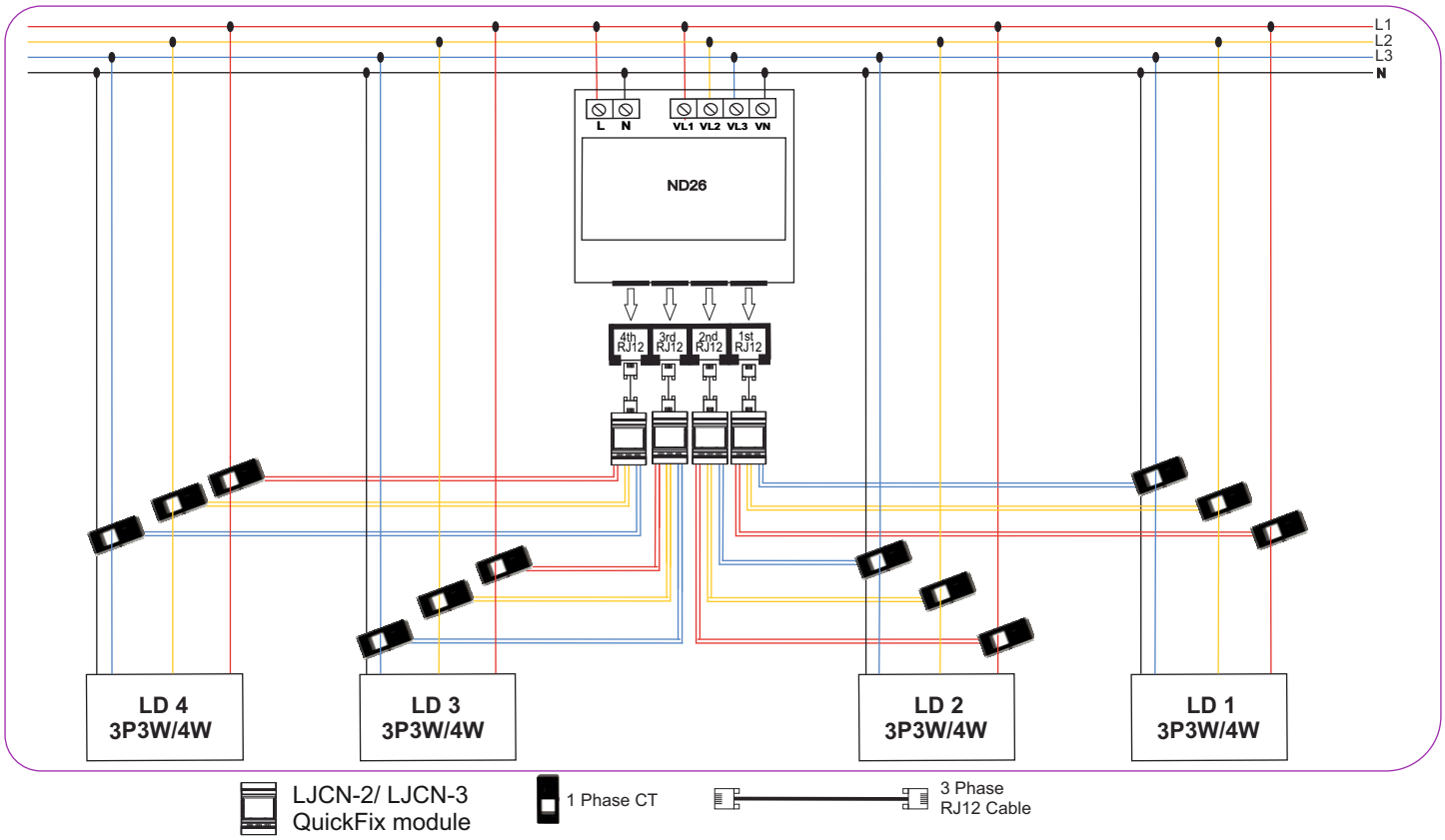
All 3Phase Load Connections with 3Phase RJ12 CT :



3-phase current transformers LJ25 / LJ35 / LJ45

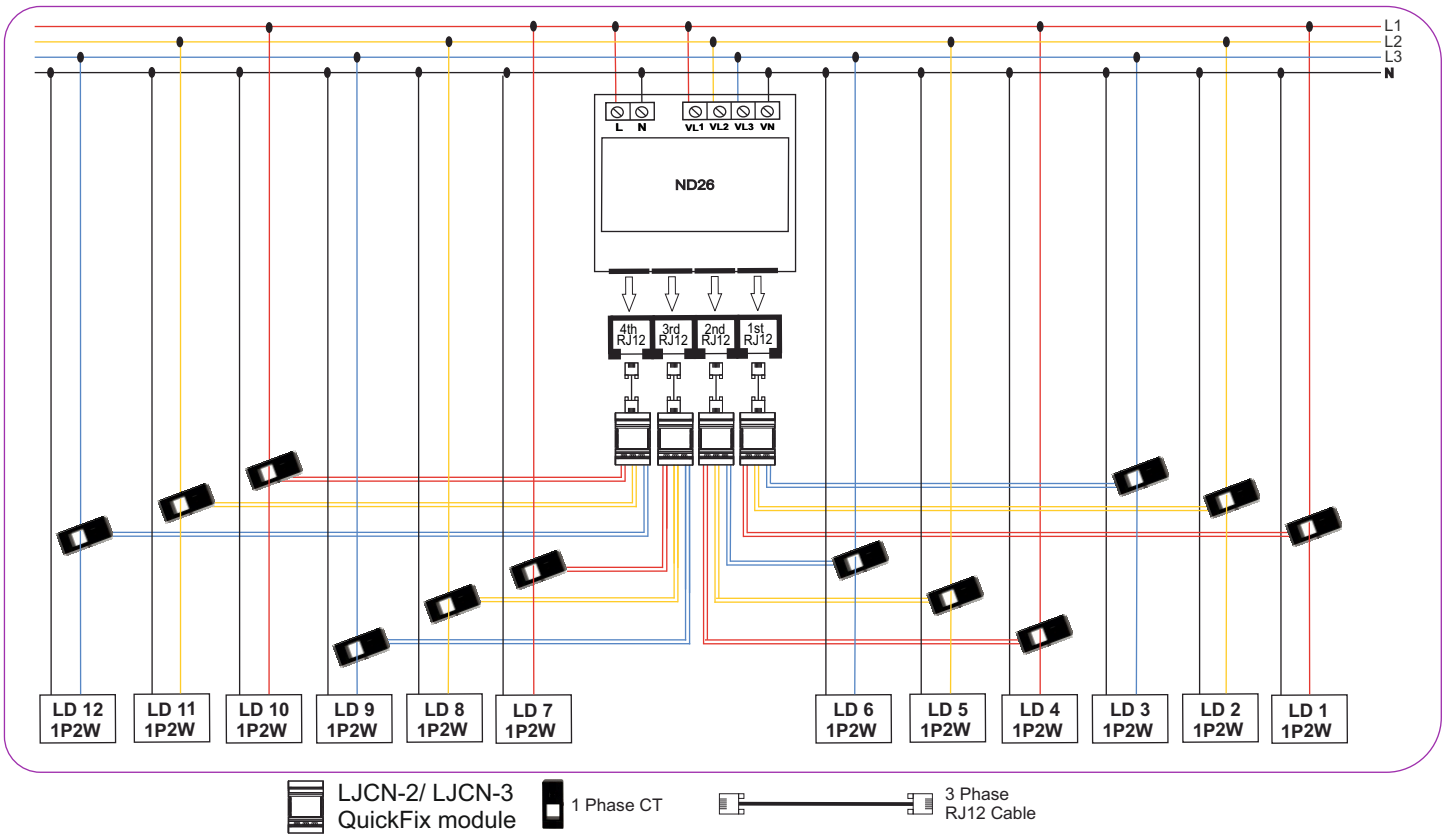
3 Phase RJ12 Cable

All 3Phase Load Connections With 1Phase 5A/1A CT :

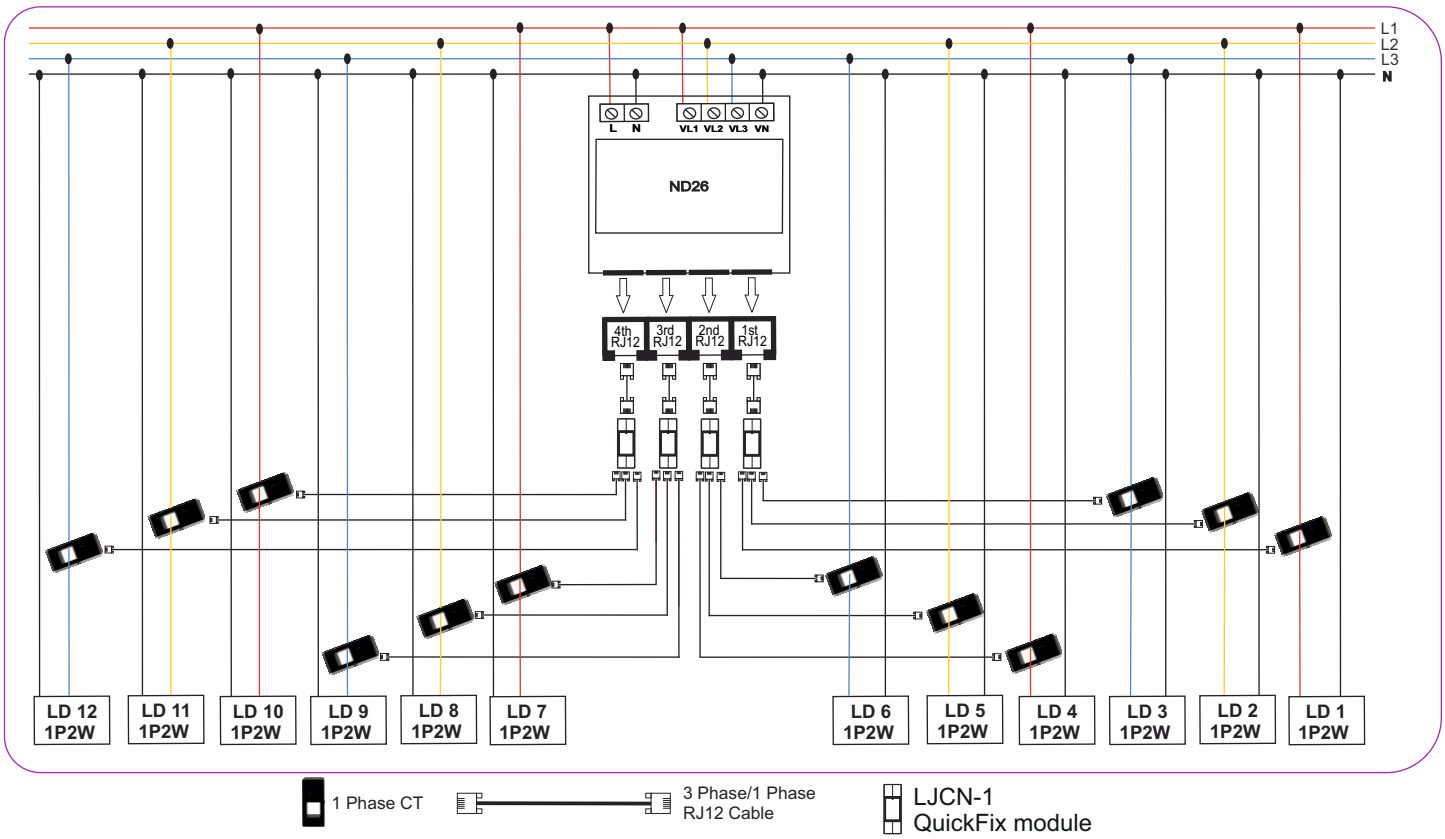


***Note** : User can use 3 phase 5A/1A CT instead of 3x 1 phase 5A/1A CT.*

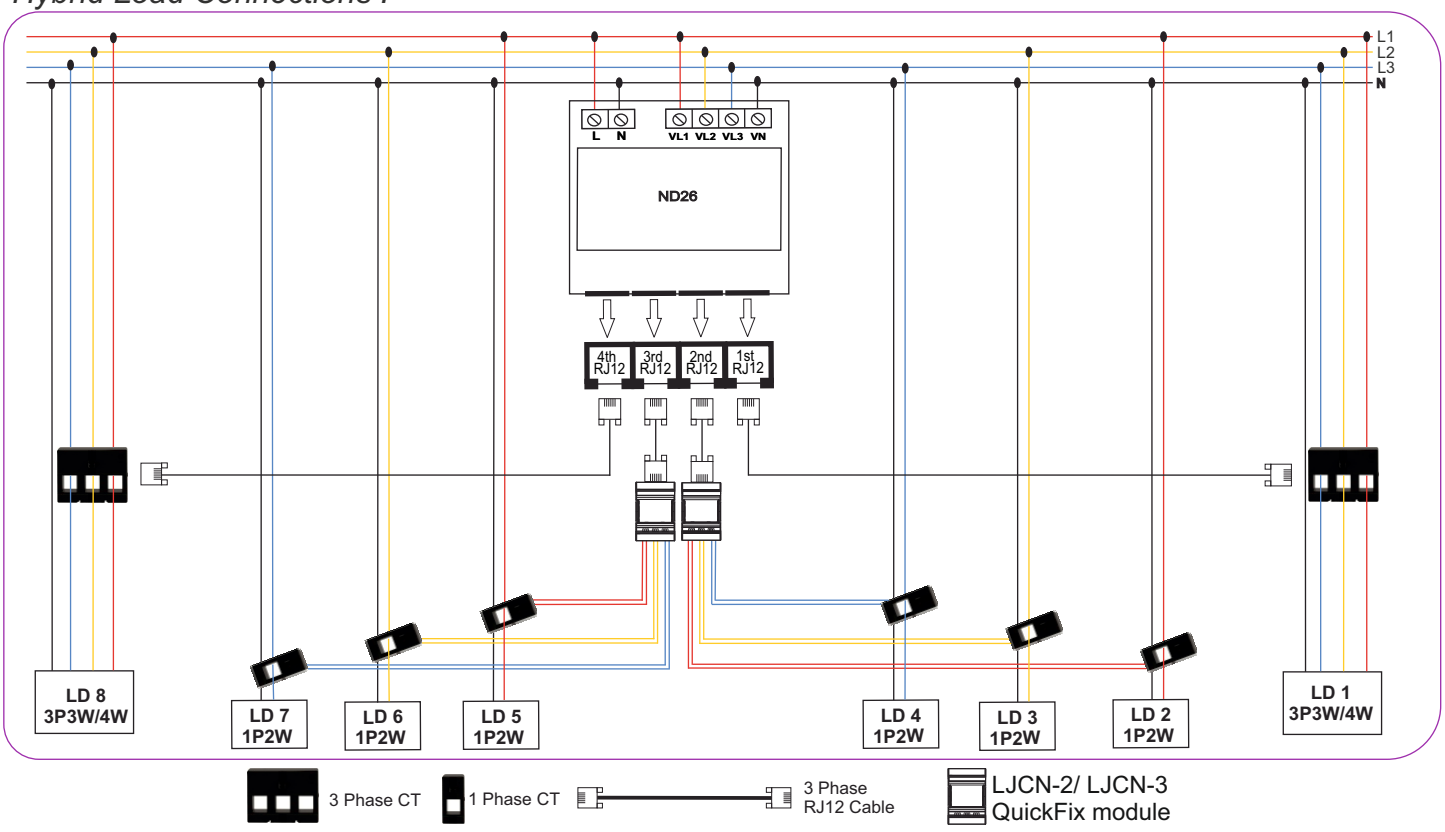
All 1Phase Load Connections With 1Phase 5A/1A CT :



All 1-Phase Load Connections With 1-Phase RJ12 CT :

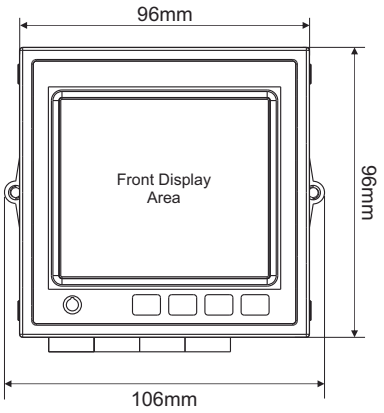


Hybrid Load Connections :

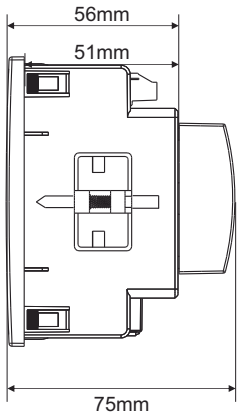


***Note** : Many combinations of 1 Phase 3 Phase load are possible in above hybrid load connection.

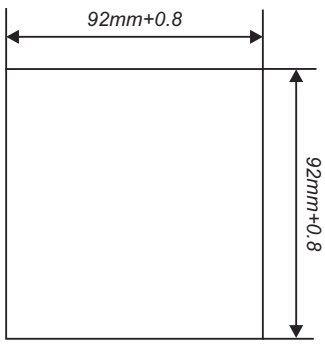
Dimensions Details



Front View



Side View

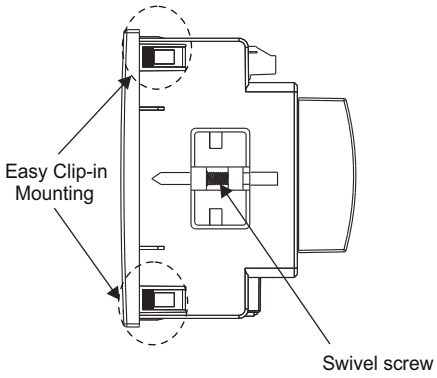


Panel Cutout

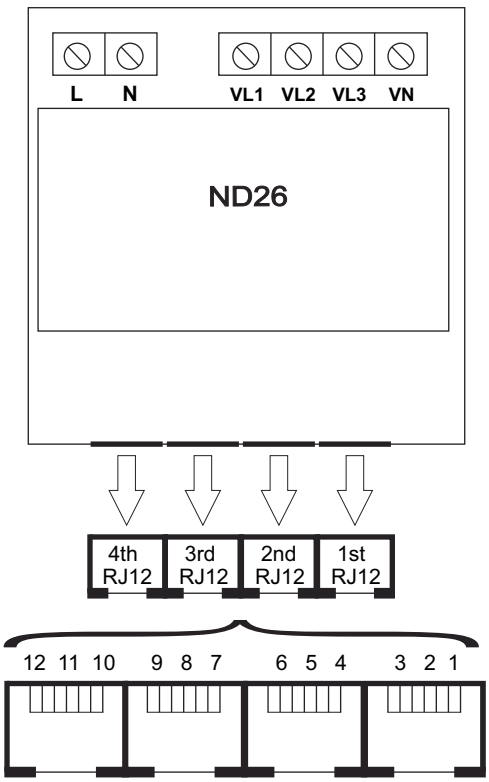
Technical Specifications:

Input Voltage	
Nominal input voltage (AC RMS)	*100VLL to 600VLL (57.5 VLN to 346.42 VLN) programmable on site.*
System PT primary values	*100VLL to 1200kVLL programmable on site.*
Max continuous input voltage	*120% of nominal value*
Overload Withstand	*2 x rated value for 1 second, repeated 10 times at 10 second intervals*
Overload Indication	"-OL-" >121% of Nominal value
Nominal input voltage burden	*< 0.3VA approx. per phase (at nominal 240V)*
Input Current	
Nominal input current	100 mA
System CT primary values	*From 1A to 9999A*
Max continuous input current	*120% of nominal value*
Overload Withstand	*5 x rated value for 1 second, repeated 5 times at 5 minute intervals*
Overload Indication	"-OL-" >121% of Nominal value
Nominal input current burden	*< 0.05VA approx. per phase*
Auxiliary Supply	
Auxiliary supply range	*100-550V AC/DC*
Aux Supply frequency	*45 to 65 Hz range*
Auxiliary Supply burden (at 230V AC DC)	
With Addon card	*< 8 VA approx (2 Relay)* *< 10 VA approx (4 Relay)*
With Ethernet card	*< 9 VA approx.*
Operating Measuring Ranges	
Current (Energy Measurement)	*1...120% of nominal value*
Starting current	*As per Standard IEC62053-21 (Class 1)* *As per Standard IEC62053-22 (Class 0.5S) (optional)*
Voltage	*20...120% of nominal value*
Power Factor	*0.5 Lag ... 1... 0.8 Lead*
Frequency	*45Hz to 66Hz*
Reference Conditions for Accuracy	
Reference temperature	*23°C +/- 2°C*
Input Waveform	*Sinusoidal (distortion factor 0.005)*
Input frequency	*50/60 Hz ± 2%*
Auxiliary supply	*230V AC/DC ± 1%*
Auxiliary supply frequency	*50/60 Hz ± 1%*
Total Harmonic distortion	*50% up to 15th Harmonics* *10% up to 31st Harmonics* *(Current range 20%...100% of nominal value)*
Voltage range	*50%...100% of nominal value*
Accuracy	
Active Energy	*Class 1 as per IEC 62053 - 21* *Class 0.5S as per IEC 62053 - 22 (optional)*
Apparent Energy	*Class 1*
Reactive Energy	*Class 2 as per IEC 62053 - 23*

Installation

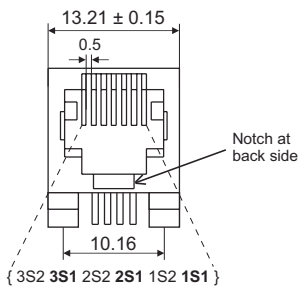


Electrical Connection (Backview)



12 CHANNELS FOR CURRENT INPUT

Note : Use a single RJ12 input for "**1** Three Phase load" or "**3** Single Phase loads".



Meter Side RJ 12 Connection

Technical Specifications:

Accuracy	
Active Power	*±0.5% of nominal value*
Re-Active Power	*±1.0% of nominal value*
Apparent Power	*±0.5% of nominal value*
Power Factor/Phase Angle	*±3°*
Voltage	*±0.5% of nominal value*
Current	*±0.5% of nominal value*
Frequency	*± 0.2% of mid frequency*
THD (Voltage/Current)	*± 3.0%*
Display update rate	
Response time to step input	*1 sec approx.*
Applicable Standards	
Electromagnetic Compatibility	*IEC 61326-1, Table 2*
Immunity	*IEC 61000-4-2, -3, -4, -5, -6, -8, -11*
Emission	*CISPR 11*
Safety	*IEC 61010-1-2010*
IP for water & dust	*IEC 60529*
Pollution degree	*2*
Installation category	*III*
Isolation	
Protective Class	*2*
High voltage test	
1. Input + Aux vs Surface	*4kV RMS, 50Hz, 1min*
2. Input vs Remaining Circuit	*3.3kV RMS, 50Hz, 1min*
Environmental	
Operating temperature	*-20 to +70°C*
Storage temperature	*-25 to +75°C*
Relative humidity	*0...95% RH (non condensing)*
Warm up time	*Minimum 3 minute*
Shock (As per IEC60068-2-27)	*Half sine wave, Peak acceleration 30gn (300 m/s^2), duration 18ms.*
Vibration	*10...150...10 Hz, 0.15mm amplitude*
Number of Sweep cycles	10 per axis
Enclosure	*IP20 (Terminal side) and IP54 (Front side)*
Interfaces	
Impulse Led	For Energy testing
Relay (Optional)	*250 VAC, 5 A AC* *30VDC, 5A DC*
Modbus (Optional)	*RS485, max.1200m* *Baud rate : 4.8k, 9.6k, 19.2k, 38.4k, 57.6kbps.*
Ethernet (Optional)	*Ethernet access on Modbus TCP/IP Protocol.*
Weight	*320 grams Approx.*

Measured Load Parameters System wise (availability on display & modbus): ✓ : Available × : Not Available

Sr No	Load Parameters	3 Phase 4Wire	3Phase 3Wire	1Phase 2Wire
1.	System Import Active Energy[1]	✓	✓	×
2.	System Export Active Energy[1]	✓	✓	×
3.	System Capacitive Reactive Energy[1]	✓	✓	×
4.	System Inductive Reactive Energy[1]	✓	✓	×
5.	System Apparent Energy[1]	✓	✓	×
6.	Channel Import Active Energy[1]	✓	×	✓
7.	Channel Export Active Energy[1]	✓	×	✓
8.	Channel Capacitive Reactive Energy[1]	✓	×	✓
9.	Channel Inductive Reactive Energy[1]	✓	×	✓
10.	Channel Apparent Energy[1]	✓	×	✓
11.	System Active Power (kW)	✓	✓	×
12.	System Reactive Power (kVAr)	✓	✓	×
13.	System Apparent Power (kVA)	✓	✓	×
14.	Channel Active Power (kW)	✓	×	✓
15.	Channel Reactive Power (kVAr)	✓	×	✓
16.	Channel Apparent Power (kVA)	✓	×	✓
17.	System Power Factor	✓	✓	×
18.	Channel Power Factor	✓	×	✓
19.	System Phase Angle	✓	✓	×
20.	Channel Phase Angle	✓	×	✓
21.	System Import kW Demand	✓	✓	×
22.	System Export kW Demand	✓	✓	×
23.	System Capacitive kVAr Demand	✓	✓	×
24.	System Inductive kVAr Demand	✓	✓	×
25.	System kVA Demand	✓	✓	×
26.	System Current Demand	✓	✓	×
27.	Channel Import kW Demand	✓	×	✓
28.	Channel Export kW Demand	✓	×	✓
29.	Channel Capacitive kVAr Demand	✓	×	✓
30.	Channel Inductive kVAr Demand	✓	×	✓
31.	Channel kVA Demand	✓	×	✓
32.	Channel Current Demand	✓	×	✓
33.	System Max Import kW Demand	✓	✓	×
34.	System Max Export kW Demand	✓	✓	×
35.	System Max Capacitive kVAr Demand	✓	✓	×
36.	System Max Inductive kVAr Demand	✓	✓	×
37.	System Max kVA Demand	✓	✓	×
38.	System Max Current Demand	✓	✓	×
39.	Channel Max Import kW Demand	✓	×	✓
40.	Channel Max Export kW Demand	✓	×	✓
41.	Channel Max Capacitive kVAr Demand	✓	×	✓
42.	Channel Max Inductive kVAr Demand	✓	×	✓
43.	Channel Max kVA Demand	✓	×	✓
44.	Channel Max Current Demand	✓	×	✓
45.	System Run Hour	✓	✓	×
46.	Channel Run Hour	✓	×	✓
47.	On Hour	✓	✓	✓
48.	Number of Interruptions	✓	✓	✓
49.	System Current	✓	✓	×
50.	Channel Currents	✓	✓	✓
51.	System Current THD	✓	✓	×
52.	Channel Current THD	✓	✓	✓
53.	Current Channel Individual Harmonics (Up to 31st)	✓	✓	✓
54.	System Neutral Current	✓	×	×

Measured Load Parameters System wise (availability on display & modbus): ✓ : Available × : Not Available

Sr No	Load Parameters	3 Phase 4Wire	3Phase 3Wire	1Phase 2Wire
55.	Frequency	✓	✓	✓
56.	RPM	✓	✓	✓
57.	Phase Sequence Indication	✓	✓	×
58.	Current Reversal Indication	✓	×	✓
59.	Phase (Current & Voltage) Absent Indication	✓	×	×

Note: 1. Energy on display is auto ranging & unit for Energy parameters on modbus are dependent on CT PT ratio or unit selected by user.

Measured Voltage Parameters (availability on display System wise): ✓ : Available × : Not Available

Sr No	Voltage Parameters	3 Phase 4Wire	3Phase 3Wire	1Phase 2Wire
60.	System Voltage L-N[2]	✓	×	×
61.	System Voltage L-L[2]	×	✓	×
62.	Voltage L1[2]	✓	×	if Related
63.	Voltage L2[2]	✓	×	if Related
64.	Voltage L3[2]	✓	×	if Related
65.	Voltage L12[2]	✓	✓	×
66.	Voltage L23[2]	✓	✓	×
67.	Voltage L31[2]	✓	✓	×
68.	System Voltage L-N THD[2]	✓	✓	×
69.	System Voltage L-L THD[2]	✓	✓	×
70.	Voltage L1 THD[2]	✓	×	if Related
71.	Voltage L2 THD[2]	✓	×	if Related
72.	Voltage L3 THD[2]	✓	×	if Related
73.	Voltage L12 THD[2]	×	✓	×
74.	Voltage L23 THD[2]	×	✓	×
75.	Voltage L31 THD[2]	×	✓	×
76.	Individual Harmonics of VL1(Up to 31st Harmonics)[2]	✓	×	if Related
77.	Individual Harmonics of VL2 (Up to 31st Harmonics)[2]	✓	×	if Related
78.	Individual Harmonics of VL3 (Up to 31st Harmonics)[2]	✓	×	if Related
79.	Individual Harmonics of VL12(Up to 31st Harmonics)[2]	×	✓	×
80.	Individual Harmonics of VL23 (Up to 31st Harmonics)[2]	×	✓	×
81.	Individual Harmonics of VL31 (Up to 31st Harmonics)[2]	×	✓	×

Note: 2. All the listed Voltage Parameters are available on modbus but only those which are relevant to the load are shown on display screen. For 1P2W load, only that phase voltage from which the load current is acquired, i.e., the Related voltage, is shown on display.

Total / Overall Parameters (availability on display & modbus): ✓ : Available × : Not Available

Sr No	Load Parameters	Availability
82.	Total System Voltage LN avg	✓
83.	Total System Voltage LL avg	✓
84.	Total System Current sum	✓
85.	Total System Active Power sum	✓
86.	Total System Reactive Power sum	✓
87.	Total System Apparent Power sum	✓
88.	Total System PF avg	✓
89.	Total System PA avg	✓
90.	Total System Wh Import sum	✓
91.	Total System Wh Export sum	✓
92.	Total System VArh Capacitive sum	✓
93.	Total System VArh Inductive sum	✓
94.	Total System VAh sum	✓
95.	Total System Wh Import overflow count	✓
96.	Total System Wh Export overflow count	✓
97.	Total System VArh Capacitive overflow count	✓
98.	Total System VArh Inductive overflow count	✓

Total / Overall Parameters (availability on display & modbus): ✓ : *Available* × : *Not Available*

Sr No	Load Parameters	Availability
99.	*Total System VAh overflow count*	✓
100.	*Total System kW Import Demand sum*	✓
101.	*Total System kW Export Demand sum*	✓
102.	*Total System kVAr Capacitive Demand sum*	✓
103.	*Total System kVAr Inductive Demand sum*	✓
104.	*Total System kVA Demand sum*	✓
105.	*Total System A Demand sum*	✓
106.	*Total System kW Import Max Demand*	✓
107.	*Total System kW Export Max Demand*	✓
108.	*Total System kVAr Capacitive Max Demand*	✓
109.	*Total System kVAr Inductive Max Demand*	✓
110.	*Total System kVA Max Demand*	✓
111.	*Total System Current Max Demand*	✓

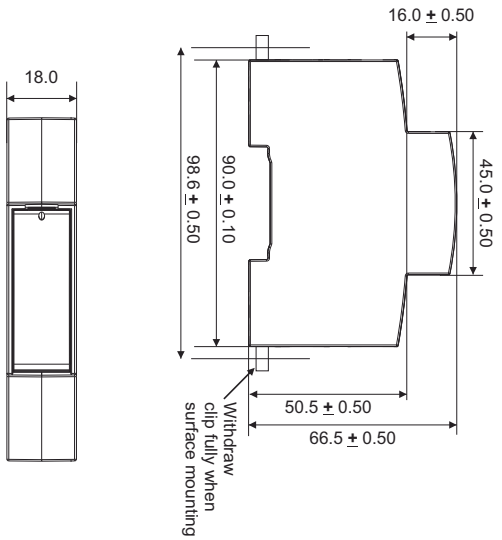
ADDITIONAL ACCESSORIES

Quickfix modules for RJ12 CT

LJCN-1 : 1-Phase RJ12 to 3-Phase RJ12 QuickFix module

The QuickFix Module combines the connections of up to three 1-phase RJ12 current transformers, to a single 3-phase RJ12 output for a RJ12 input meter.

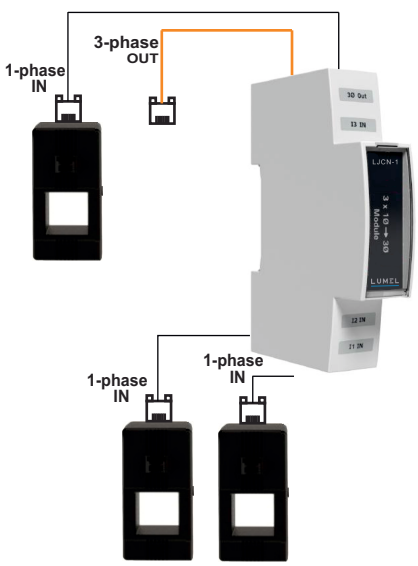
Dimensions



Technical Specifications:

Mounting	35mm DIN Rail (DIN50022)
Termination	CT to Adaptor - RJ12 Patch Cable Adaptor to Meter - RJ12 Patch Cable
Operating Temperature	-20 °C to 70 °C
Storage Temperature	-25 °C to 75 °C

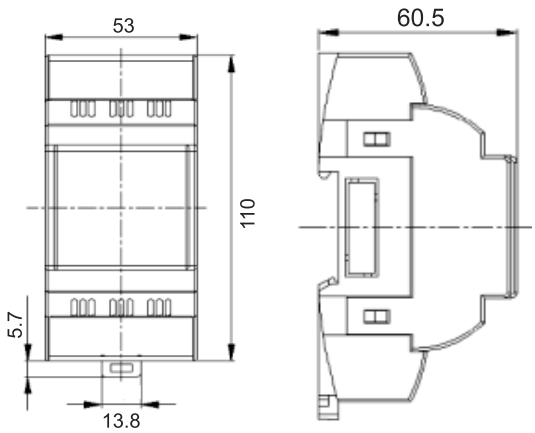
Connections :



LJCN-2 / LJCN-3: 3-phase5A/1A to 100mA RJ12 QuickFix module

The QuickFix Module allows for the connections of up to three standard current transformer, or standard split-core current transformers (with 1A or 5A secondary), to a 100mA RJ12 input meter.

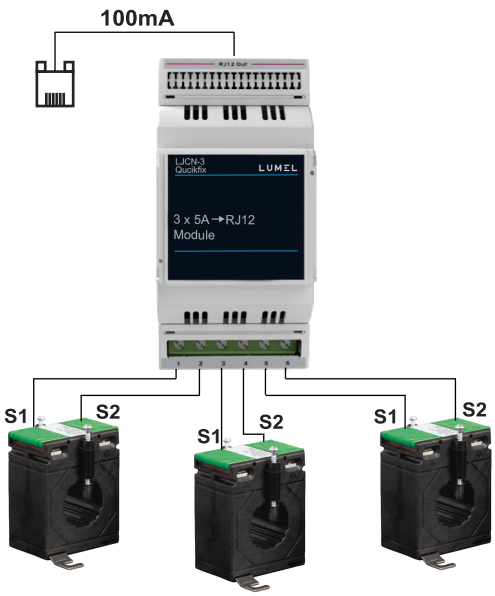
Dimensions Details:



Technical Specifications:

Burden	0.3VA per phase (1A / 5A)
Accuracy	0.5%
Mounting	35mm DIN Rail (DIN50022)
Termination	CT to Adaptor - Rising clamp screw terminals Adaptor to Meter - RJ12 Patch Cable
Max input Current	120% of nominal current
Output Current	100mA
Operating Temperature	-20 °C to 70 °C
Storage Temperature	-25 °C to 75 °C
Isolation	3000Vrms

Connections:



3 x 1-phase Current Transformers

Order Code:

LJCN-X000000000000

1 : 1-phase RJ-12 to 3-phase RJ-12 QuickFix module
2 : 1A to 100mA RJ-12 QuickFix module
3 : 5A to 100mA RJ-12 QuickFix module

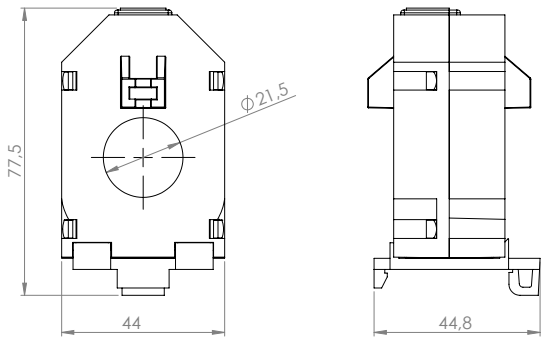
Order Code Example:

LJCN-1000000000000 : 1-phase RJ-12 to 3-phase RJ-12 QuickFix module

Current Transformers with RJ12 Output :

TRANSFORMERS TO COOPERATION WITH ND26

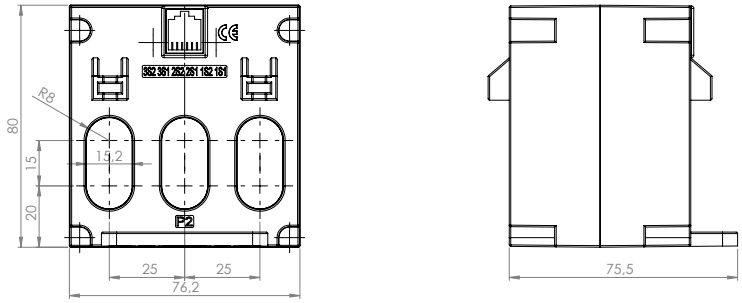
Single-phase transformer RJ12 -hole diameter 21 mm



Code	Current ratio	Power/class
LJ12-132235S 000000 *	**50A/100mA**	**0.25VA/1**
LJ12-142235S 000000	60A/100mA	0.25VA/1
LJ12-182235S 000000	100A/100mA	0.25VA/0.5; 0.35VA/1
LJ12-202235S 000000	125A/100mA	0.25VA/0.5; 0.35VA/1
LJ12-222235S 000000	150A/100mA	0.25VA/0.5; 0.35VA/1
LJ12-232235S 000000	160A/100mA	0.25VA/0.5; 0.35VA/1
LJ12-242235S 000000	200A/100mA	0.25VA/0.5; 0.5VA/1
LJ12-272235S 000000	250A/100mA	0.25VA/0.5; 0.5VA/1

* - item available from our stock

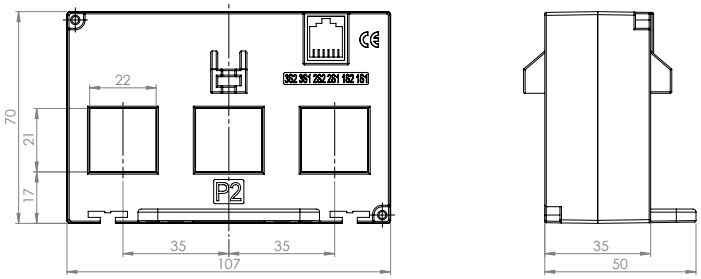
Three-phase transformer RJ12 - busbar 15 x 15 mm



Code	Current ratio	Power/class
LJ25-142231S 000000	60A/100mA	0.25VA/1
LJ25-182235S 000000 *	**100A/100mA**	**0.25VA/0.5; 0.35VA/1**
LJ25-202235S 000000	125A/100mA	0.25VA/0.5; 0.35VA/1
LJ25-222235S 000000	150A/100mA	0.25VA/0.5; 0.35VA/1
LJ25-232235S 000000	160A/100mA	0.25VA/0.5; 0.35VA/1
LJ25-242235S 000000	200A/100mA	0.25VA/0.5; 0.35VA/1

* - item available from our stock

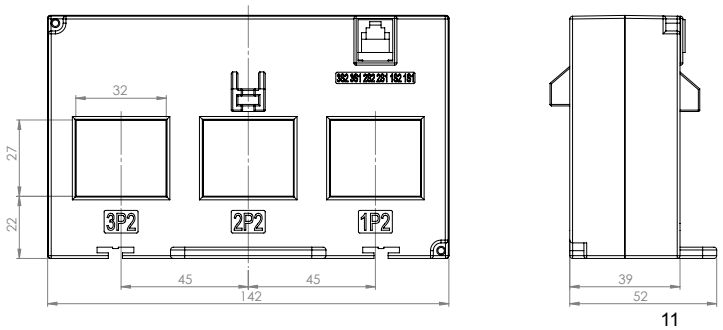
Three-phase transformer RJ12 - busbar 22 x 21 mm



Code	Current ratio	Power/class
LJ35-142231S 000000	60A/100mA	0.25VA/1
LJ35-182235S 000000 *	**100A/100mA**	**0.25VA/0.5; 0.35VA/1**
LJ35-202235S 000000	125A/100mA	0.25VA/0.5; 0.35VA/1
LJ35-222235S 000000 *	**150A/100mA**	**0.25VA/0.5; 0.5VA/1**
LJ35-232235S 000000	160A/100mA	0.25VA/0.5; 0.5VA/1
LJ35-242235S 000000 *	**200A/100mA**	**0.25VA/0.5; 0.5VA/1**
LJ35-272235S 000000	250A/100mA	0.25VA/0.5; 0.5VA/1

* - item available from our stock

Three-phase transformer RJ12 - busbar 32 x 27 mm

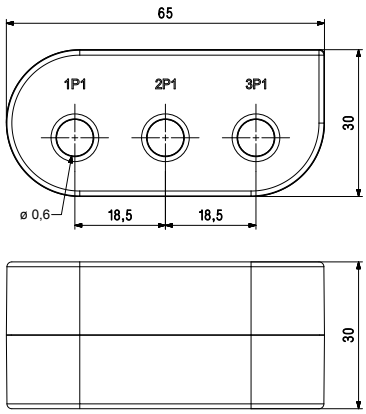


Code	Current ratio	Power/class
LJ45-272235S 000000 *	**250A/100mA**	**0.25VA/0.5; 0.5VA/1**
LJ45-312235S 000000	400A/100mA	0.25VA/0.5; 0.5VA/1
LJ45-332235S 000000	600A/100mA	0.25VA/0.5; 0.5VA/1

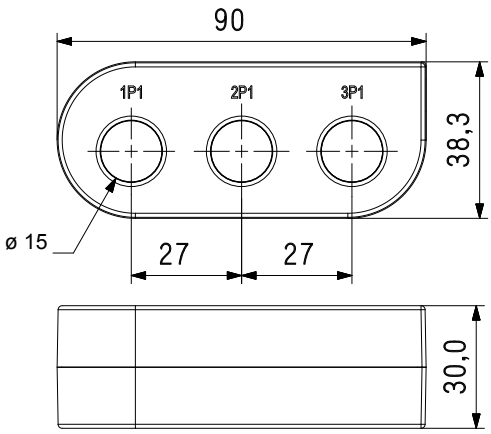
* - item available from our stock

Current Transformers with RJ12 Output :

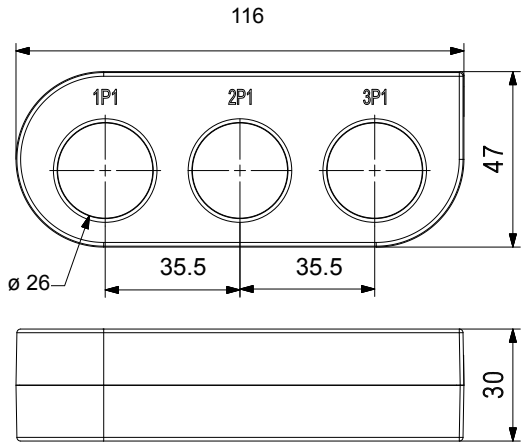
Three-phase transformer with RJ12 cable - hole diameter 6 mm, cable lenght 2 m	**Code**	**Current ratio**	**Power/class**
	L308 0631011BLRJ00	63A/100mA	0.1VA/0,5



Three-phase transformer with RJ12 cable - hole diameter 15 mm, cable lenght 2 m	**Code**	**Current ratio**	**Power/class**
	L306 1251011BLRJ00	125A/100mA	0.1VA/0,5



Three-phase transformer with RJ12 cable - hole diameter 26 mm, cable lenght 2 m	**Code**	**Current ratio**	**Power/class**
	L307 2501011BLRJ00	250A/100mA	0.1VA/0,5



Meter Order Code:

ND26	1	3	01	01	X	H	5	00	M	X

Communication:

RS485 + 2 Relay + USB	B
RS485 + 2 Relay + USB + Datalogging	C
RS485 + 4 Relay	D
RS485 + 4 Relay + Datalogging	E
Ethernet	F
Ethernet + Datalogging	G

Language:

Polish/English	M

Acceptance tests:

without additional quality requirements	0
acc. to customers request	X

Order Code Example:

ND26-130101GH50000

ND26 meter with accuracy class 0.5s, Ethernet interface, Datalogging, without additional quality requirements.

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