

Series 6000 Multi-Function Panel Meter

Cat. Nos. 60P00, 61P00, 62P00
Installation Manual



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1 DOCUMENTATION



All documentation on the Series 6000 is available on the website at www.leviton.com.

2 HAZARDS AND WARNINGS


The term “device” used in the paragraphs below refers to the Series 6000. The assembly, use, servicing and maintenance of this product must only be carried out by trained, qualified professionals.

Leviton shall not be held responsible for failure to comply with the instructions in this manual.

2.1 Risk of electrocution, burns or explosion

	Caution: risk of electric shock.	Ref. ISO 7000-0434B (2004-01)
	Caution: refer to the accompanying documentation each time this symbol is shown.	Ref. ISO 7010-W001 (2011-05)



- Only duly authorized and qualified personnel may work or install/uninstall the device.
- The instructions are valid together with the specific instructions for the device.
- The device is designed only for its intended purpose as set out in the instructions.
- Only accessories authorized or recommended by Leviton may be used in association with the device.
- Before proceeding with installation, cleaning, disassembly, connection, or maintenance work, the device and system must be cut off from the mains to avoid electrocution and damaging the system and device.
- This device is not designed to be repaired by the user.
- For any questions related to the disposal of the device, please contact Leviton.

	DO NOT clamp or pull out NON-INSULATED conductors carrying DANGEROUS VOLTAGE which could cause an electric shock, burn or arc flash.	Ref. IEC 61010-2-032
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FAILURE TO COMPLY WITH THE INSTRUCTIONS OF THE DEVICE AND THIS SAFETY INFORMATION CAN CAUSE BODILY INJURY, ELECTRIC SHOCK, BURNS, DEATH OR DAMAGE TO PROPERTY.

2 HAZARDS AND WARNINGS

2.2 Risk of damaging the device

	Caution: risk of electric shock.	Ref. ISO 7000-0434B (2004-01)
	Caution: refer to the accompanying documentation each time this symbol is shown.	Ref. ISO 7010-W001 (2011-05)

- To ensure that the device operates correctly, make sure that:
- The device is correctly installed.
- There is a maximum voltage at the voltage measurement input terminals of 520 V AC phase-phase or 300 VAC phase-neutral.
- There is a maximum voltage at the auxiliary power supply input terminals of 400 V AC.
- The network frequency indicated on the device is observed: 50 or 60 Hz.
- Always connect the TE, TR or CRS current sensors using the recommended connection cables and observing the maximum prescribed currents.
- When the ambient temperature exceeds +50°C, the minimum temperature rating of the copper cable to be connected to terminal must be +85°C.

Failure to respect these precautions could cause damage to the device.

2.3 Responsibility

- Assembly, connection and use must be carried out in accordance with the installation standards currently in force.
- The device must be installed in accordance with the rules given in this manual.
- Failure to observe the rules for installing this unit may compromise the device's intrinsic protection.
- The device must be positioned within an installation which complies with the standards currently in force.
- Any cable which needs to be replaced may only be replaced with a cable having the correct rating.
- Despite constantly striving for quality in preparing this manual, errors or omissions are always a possibility and are not the responsibility of Leviton.

3 PRELIMINARY OPERATIONS

To ensure the safety of staff and the equipment, it is vital to read and absorb the contents of these instructions thoroughly before commissioning.

Check the following points as soon as you receive the package containing the device:

- The packaging is in good condition
- The device has not been damaged during transit,
- The device part number conforms to your order
- The package includes:
 - One (1) device equipped with removable terminals
 - One (1) line resistor (ref. 4899 0019)
 - One (1) Quick Start guide

4 INTRODUCTION

4.1 Series 6000 Presentation

The Series 6000 is a compact panel meter (PMD*) with a 96mm x 96mm format. It is designed for measuring, monitoring and reporting electrical energy. The Series 6000 offers a range of functions for measuring voltage, current, power, energy and quality. It allows the analysis of a single-phase or three-phase load.

The Series 6000 has 3 digital inputs (pulse metering, status checking) and 2 outputs (Alarm or pulses). The standard version of the device has RS485 Modbus communication. Depending on the models, Ethernet or Profibus communication may also be provided. The Ethernet model also has a built-in web server.

The connection mode for the current sensors allows quick, easy installation. Their automatic identification (type and rating) by the Series 6000 significantly reduces the risk of errors during installation. In addition, this approach, based on combining the sensor with the meter, means the overall accuracy of the Series 6000 + Current sensor measurement chain can be guaranteed for all values measured.

The product is configured from the display or via the Easy Config software. The measurements can be accessed via the WEBVIEW web server, enabling real-time monitoring of the electrical values and reporting of the energy data.

*PMD: Performance Measuring and Monitoring Device in accordance with IEC 61557-12.

4.1.1 Range



Series 6000

Ref. 60P00 : Model with Modbus communication

Ref. 61P00 : Model with Modbus + Ethernet communication

Ref. 62P00 : Model with Modbus + Profibus communication

4 INTRODUCTION

4.1.2 Principle



Current sensors (CTS and CRS models)

4 INTRODUCTION

4.1.3 Functions

The Series 6000 boasts numerous functions, including:

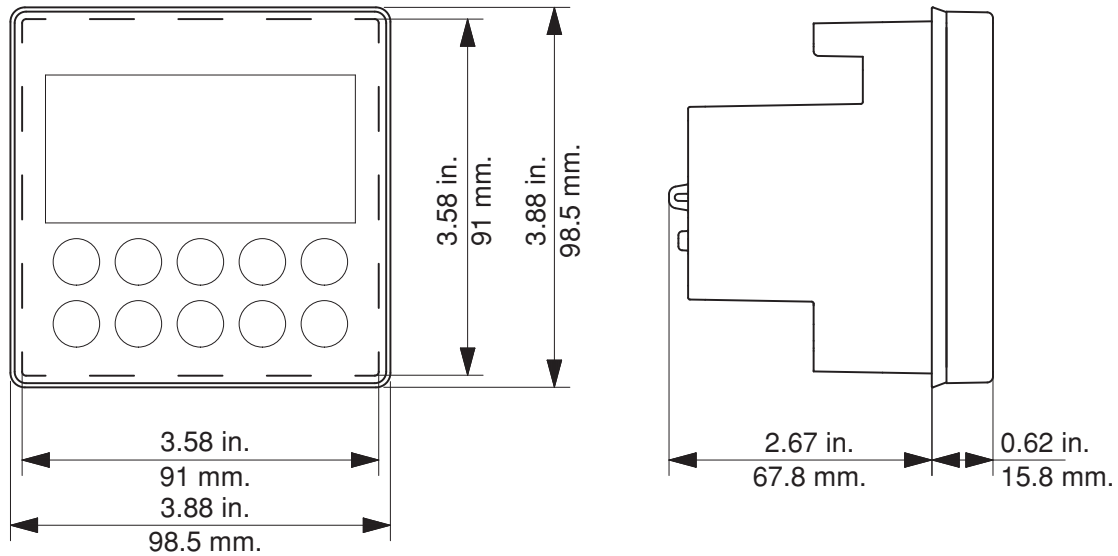
- General Measurements
 - Electrical values, voltage, current, frequency
 - Power, power factor, cos phi and tan phi
 - 4 quadrant operation
 - Predictive power
 - The overall accuracy of the Series 6000 + Sensors measurement chain guarantees up to class 0.5 (depending on the current sensor used) in power and active energy in accordance with IEC 61557-12
- Quality
 - Current, phase-to-neutral voltage and phase-to-phase voltage
 - THD, TDD and harmonics up to level 63 for voltage and current
 - Voltage and current crest factor
 - Voltage and current unbalance
 - K-factor
 - EN50160 events (Uswl, Udip, Uint) and current overloads
- Data Log
 - Recording of averaged electrical values
 - Recording and timestamping of min/max electrical values
- Metering
 - Active, reactive, apparent energy total and partial
 - Load curves
 - Multi-tariff metering
- Alarm
 - Timestamped alarms with boolean combination
 - Advanced alarms
- Connection to the network
 - 3 current inputs with automatic recognition of the current sensors by quick connection (type RJ12)
 - Control of the connection, detection of the current sensors and auto-configuration of the networks
 - Guaranteed overall accuracy of the Series 6000 + Sensors measurement chain in accordance with IEC 61557-12
- Inputs/outputs
 - 3 logic inputs
 - 2 logic outputs
- Communication
 - RS485 Modbus RTU
 - RS485 Modbus RTU and Profibus
 - RS485 Modbus RTU and Ethernet (Modbus TCP, BACnet)
- Web Server
 - Embedded Web Server for the Series 6000 Ethernet model

4 INTRODUCTION

	Series 6000		
Reference	60P00	61P00	62P00
Number of current inputs	3	3	3
Metering			
Total and partial Ea+, Ea-, Er+, Er-, Eap	•	•	•
Multi-tariff (max. 8)	•	•	•
Multi-measurement			
V1, V2, V3, Vn, U12, U23, U31, f			
I1, I2, I3, IN	•	•	•
P, Q, S, PF per phase, $\sum P$, $\sum Q$, $\sum S$, $\sum PF$	•	•	•
Predictive power P, Q, S	•	•	•
Phi, cos Phi, tan Phi	•	•	•
Quality			
Voltage unbalance Vnba, Vnb, Unba, Unb	•	•	•
Current unbalance Inba, Inb	•	•	•
THDV1, THDV2, THDV3, THDVn, THDU12, THDU23, THDU31	•	•	•
THDI1, THDI2, THDI3, THDIn, THD Isys, TDD	•	•	•
Individual harmonics V, U, I (up to level 63)	•	•	•
Crest Factor, k-factor	•	•	•
Overvoltages, Voltage dips, Supply voltage interruptions according to EN 50160	•	•	•
Overcurrents	•	•	•
Alarms			
Thresholds	•	•	•
Digital	•	•	•
Boolean	•	•	•
Inputs/Outputs			
Number	3/2	3/2	3/2
Trends			
Load curves	•	•	•
Energy index		•	
Average values		•	
Web Server			
Power & Energy Monitoring		•	
Communication			
RS485 RTU Modbus	•		
RS485 Modbus RTU and Profibus DPV1			•
RS485 Modbus RTU and Ethernet (Modbus TCP, BACnet)		•	
SNTP, SMTP, FTP		•	

4 INTRODUCTION

4.1.4 Dimensions





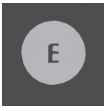
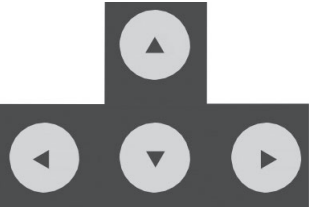



4.1.5 Front panel

1. Screen 350 x 160
2. LEDs
3. 10 capacitive touch keys




4 INTRODUCTION

The display consists of a screen and 10 keys:

	Shortcut keys for load measurements: current, active power, reactive power, apparent power, power factor, cos phi
	Shortcut keys for electrical network measurements: phase-to-neutral voltage, phase-to-phase voltage, frequency Shortcut keys for the Wizard by holding down
	Shortcut keys for active, reactive, apparent energy meters (total and partial values)
	Arrow keys for navigation
	Use this to go up a level in the display navigation menus and to return to the main menu by holding down
	Use this to save favorite screens by holding down and then to view them with a short press Use this to remove favorite screens by holding down
	Use this to confirm your navigation or entry selection

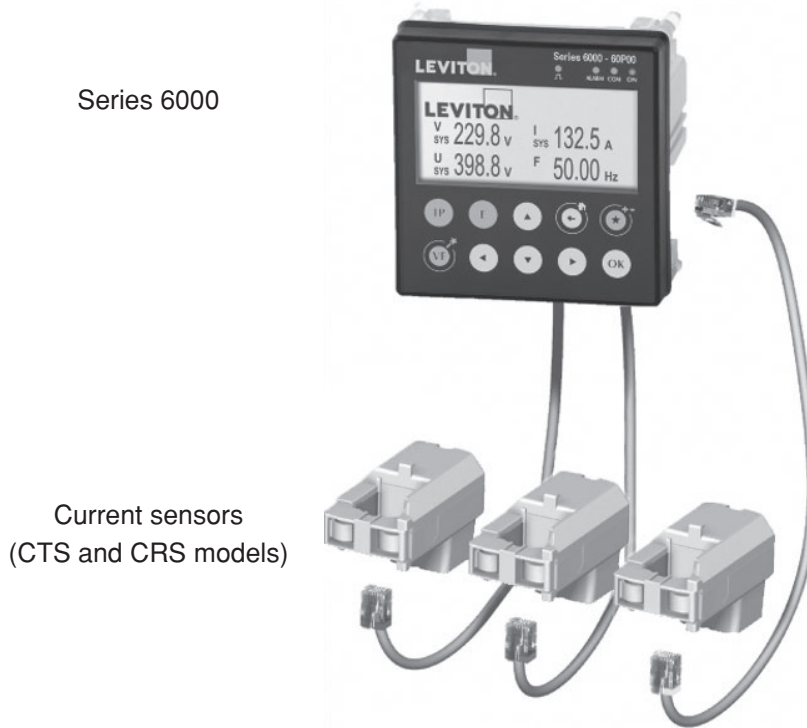
LED display:

	<p>⏏</p> <ul style="list-style-type: none"> - Flashing: metering of consumption pulses pulse weight: 0.1 Wh <p>ALARM</p> <ul style="list-style-type: none"> - Off: no alarm in progress - Flashing: system alarm in progress - Fixed: alarm in progress or alarm ended and not acknowledged <p>COM</p> <ul style="list-style-type: none"> - Off: no communication - Flashing: communication in progress on the RS485 bus <p>ON</p> <ul style="list-style-type: none"> - Off: device is off - On: product working OK <p>NOTE: When the 4 LEDs are flashing: a problem has been detected in the device</p>
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4 INTRODUCTION

4.2 Presentation of associated current sensors

Various types of current sensors are connected to the meter: split core (CTS), Rogowski coil (CRS). The variety between these sensors means they can be adapted to any type of new, existing or high-current existing installation. The Series 6000 recognizes the sensor size and type. In addition, combining them means the overall accuracy of the Series 6000 + current sensor measurement chain can be guaranteed over a large measurement range.



For connecting the current sensors, use Leviton branded cables only, CCSRJ straight cables, twisted pair, unshielded, 600 V, -10°C / +70°C.
It is recommended that all the current sensors are installed in the same direction.

Connection cables for current sensors:

RJ12 connection cables	1	2	5	10	Female to Female RJ12 Connector
Number of cables	Reference	Reference	Reference	Reference	Reference
1	-	-	CCSRJ-105	CCSRJ-110	
3	CCSRJ-301	CCSRJ-302	-	-	CCSJR-3FF

* Do not exceed a maximum length of 10 meters.

4 INTRODUCTION



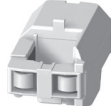
4.2.2 CTS split-core current sensors

The CTS series split-core current sensors are used to set up measurement points in a new or existing installation without interfering with its cabling. Thanks to the specific link, they are recognized by the Series 6000 and the overall accuracy of the measurement chain is guaranteed.

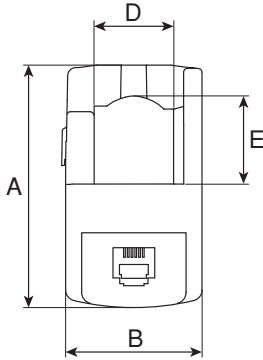
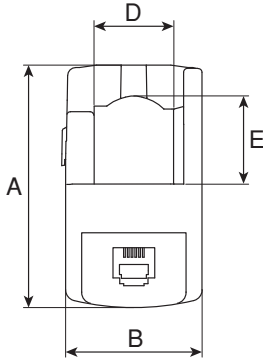
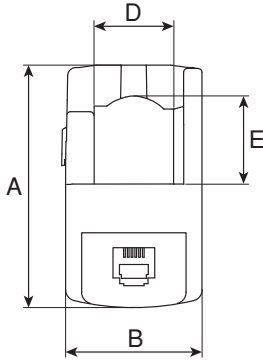
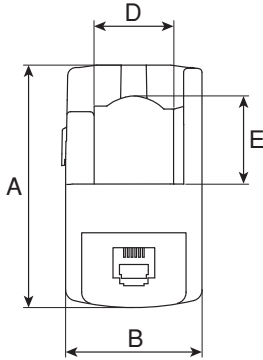
In addition, CTS sensors detect the presence of a voltage in the cable passing through them.

4.2.2.1 Range

Four models are available from 25A to 600A to analyze several types of loads.

				
	CTS1A-K10	CTS2B-G14	CTS3C-G21	CTS6D-G32
Cable passage diameter	Ø 10 mm	Ø 14 mm	Ø 21 mm	Ø 32 mm
Nominal current range I _n	25 - 63 A	40 - 160 A	63 - 250 A	160 - 600 A
Recommended cable section	6 mm ² (CTS-10)	10 mm ² (CTS-14)	50 mm ² (CTS-21)	50 mm ² (CTS-32)
Maximum I	75.6 A	192 A	300 A	720 A
Part number	CTS1A-K10	CTS2B-G14	CTS3C-G21	CTS6D-G32

4.2.2.2 Dimensions

				
	CTS1A-K10	CTS2B-G14	CTS3C-G21	CTS6D-G32
A	1.75 in. 44 mm	2.63 in. 67 mm	2.56 in. 65 mm	3.38 in. 86 mm
B	1.02 in. 26 mm	1.14 in. 29 mm	1.45 in. 37 mm	2.08 in. 53 mm
C	1.10 in. 28 mm	1.10 in. 28 mm	1.69 in. 43 mm	1.85 in. 47 mm
D	-	0.55 in. 14 mm	0.82 in. 21 mm	1.26 in. 32 mm
T	-	0.59 in. 15 mm	0.90 in. 23 mm	1.30 in. 33 mm
Diameter	0.39 in. 10 mm	0.55 in. 14 mm	0.82 in. 21 mm	1.26 in. 32 mm

4 INTRODUCTION

4.2.3 CRS flexible current sensors

The CRS flexible current sensors use the Rogowski principle, covering a wide current range without saturation.

Their flexible design and easy opening system enables a quick installation inside electrical panels, making them particularly well suited for adding measuring points in existing electrical installations, especially when space is limited.

The secure lock technology prevents non voluntary openings of the Rogowski rope.

4.2.3.1 Range

Three models are available, covering a large current range up to 6000 Amps with openings of different shapes and sizes. They include a compact and self-supplied integrator, required to shape the current signal.

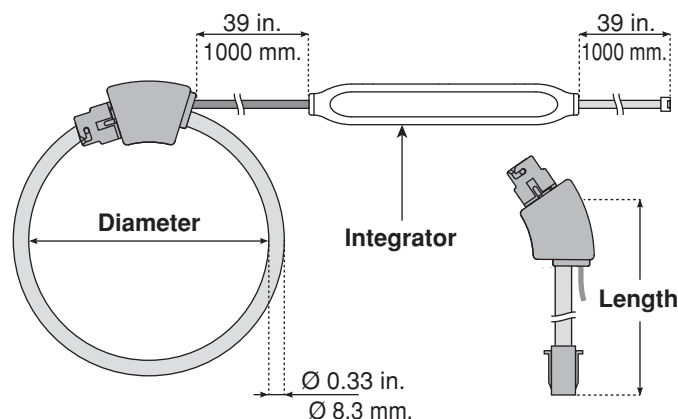


Due to the specific RJ12 connection, the CRS current sensors can only be used with Series 6000 meters. Used in conjunction with these PMD equipped with RJ12 connectors, the overall accuracy of the measurement chain is guaranteed.

	CRS4K	CRS6K	CRS6K
Ø (mm)	200	300	600
I nom. (a.c.)	600 ... 4000A	1600 ... 6000A	1600 ... 6000A
Part number	CRS4K-WRL	CRS6K-WRM	CRS6K-WRN

4.2.3.2 Dimensions

	CRS4K	CRS6K	CRS6K
Diameter D	7.87 in. 200 mm	11.81 in. 300 mm	23.62 in. 600 mm
Perimeter P	24.72 in. 628 mm	37.09 in. 942 mm	74.21 in. 1885 mm
Integrator	8.04 in. x 0.75 in. x 0.6 in. 128 mm x 19 mm x 15 mm		



5 INSTALLATION

The following paragraphs describe the installation of the Series 6000 and associated sensors.

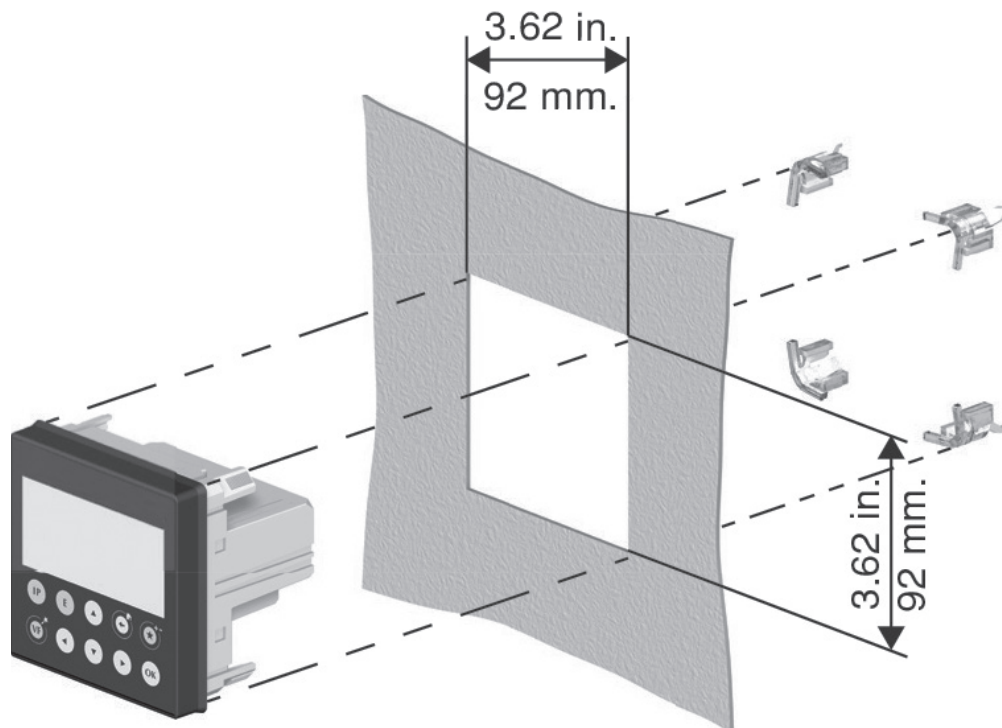
5.1 Recommendations and safety

Refer to the safety instructions (section “2. Hazards and warnings”, page 4)

- Keep away from electromagnetic interference generator systems.
- Avoid vibrations with accelerations greater than 1 g for frequencies lower than 60 Hz.
- The device must not be cleaned.
- Do not install outdoor.

5.2 Installing Series 6000 meters

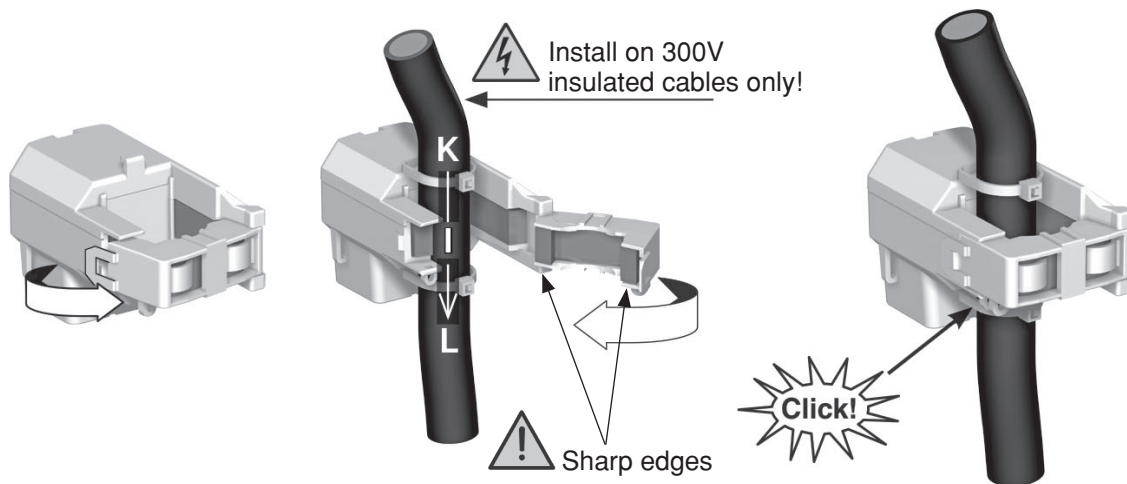
The Series 6000 is to be fitted onto a door with a 92 x 92 mm cutout.



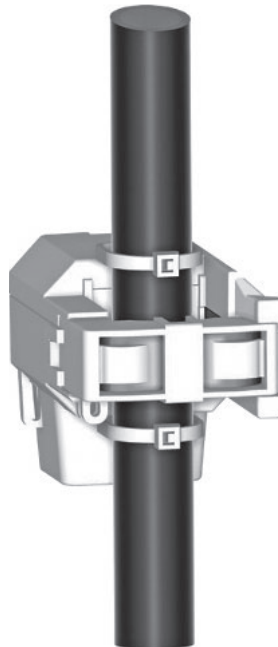
5 INSTALLATION

5.4 Installing CTS split-core sensors

5.4.1 Cable mounting



Recommended installation



Do NOT clamp or pull out NON-INSULATED conductors carrying DANGEROUS VOLTAGE which could cause an electric shock, burn or arc flash.
Ref. IEC 61010-2-032

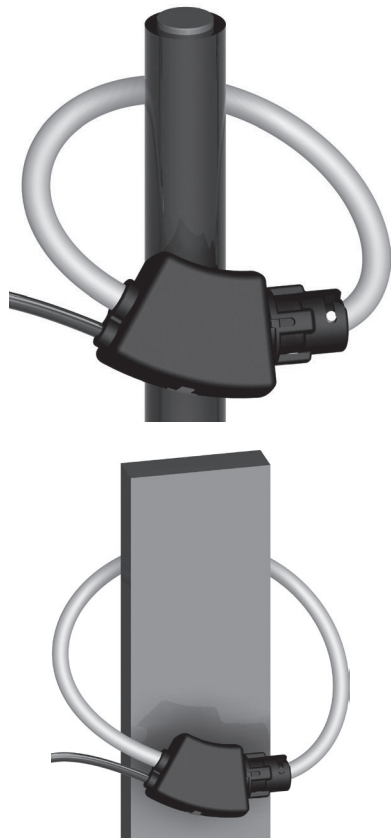
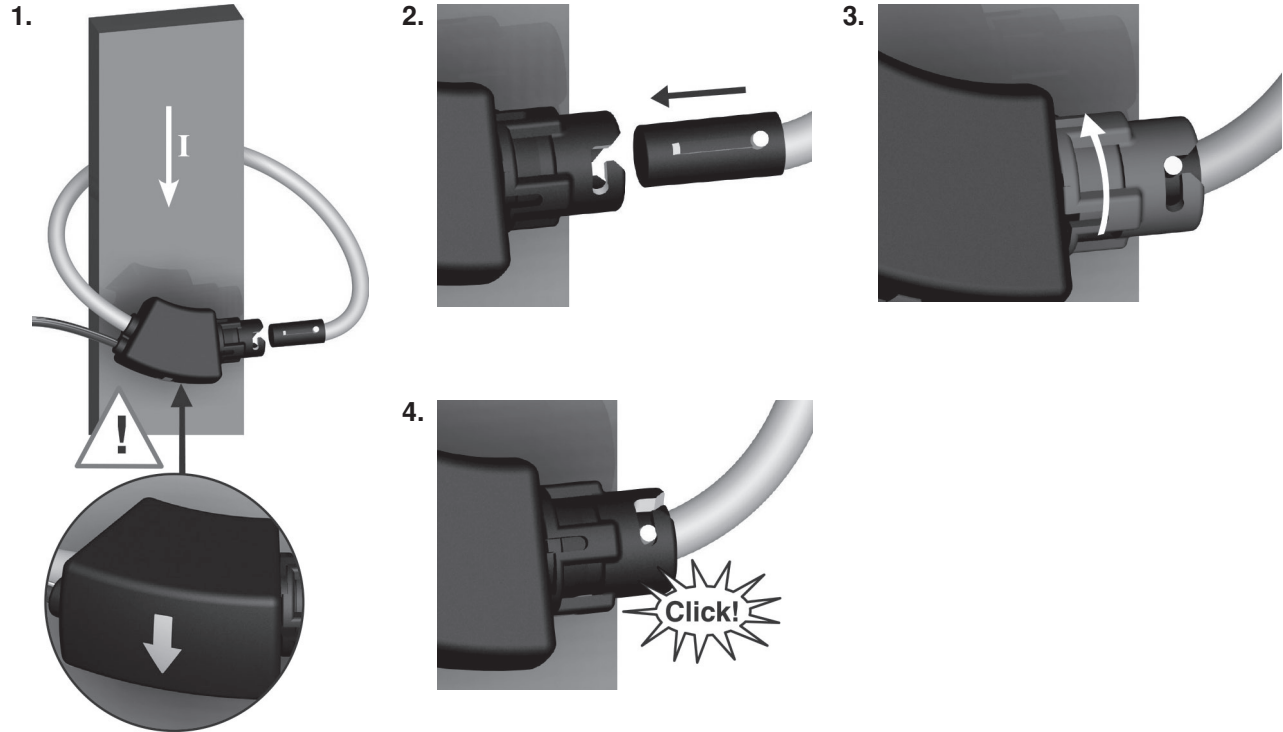


Before closing the CTS sensor, check the air gap is clean (no contamination or corrosion)

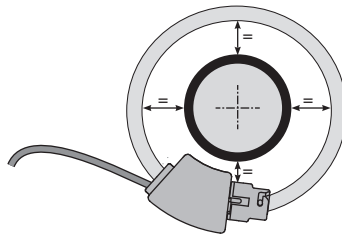
5 INSTALLATION

5.5 Installing CRS Flexible current sensors

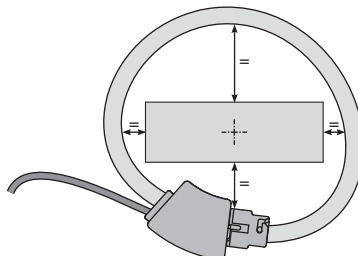
5.5.1 Bar or cable mounting



Centered position for the best measurement



Centered position for the best measurement

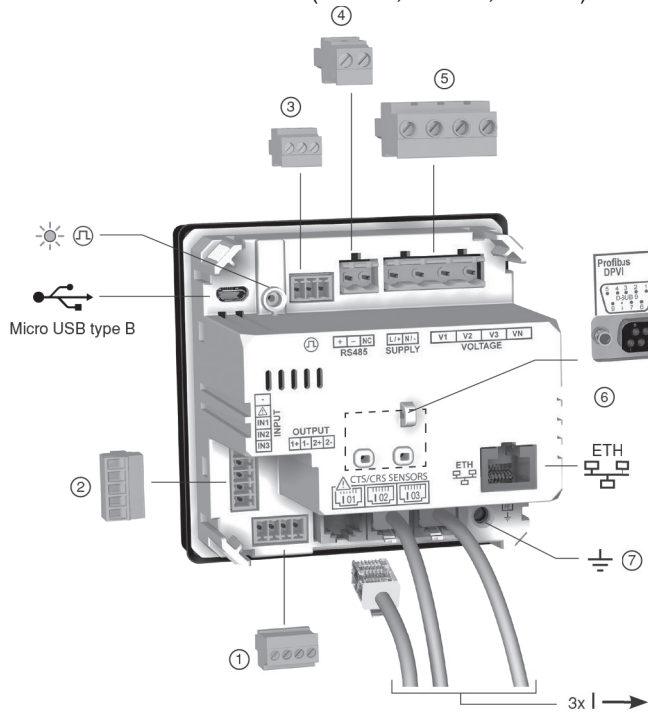


Do NOT clamp or pull out NON- INSULATED conductors carrying DANGEROUS VOLTAGE which could cause an electric shock, burn or arc flash.
Ref. IEC 61010-2-032

6 CONNECTION

6.1 Series 6000 connection

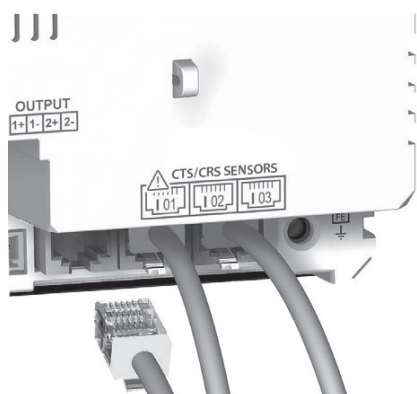
Series 6000 (60P00, 61P00, 62P00)



①	2x OUTPUT 30 VDC - 20 mA max. - SELV	x= 7 mm 0.14 mm ² - 1.5 mm ²	0.25 N.m max.
②	3x INPUT 12 VDC - 27 mA max. - SELV	x= 7 mm 0.14 mm ² - 1.5 mm ²	0.25 N.m max.
③	RS485 MODBUS SELV	x= 7 mm 0.14 mm ² - 1.5 mm ²	0.25 N.m max.
④	SUPPLY 110-400 VAC 50-60Hz 120-300 VDC	x= 7 mm 0.2 mm ² - 2.5 mm ²	0.6 N.m max.
⑤	V1-V2-V3-VN 50-300 VAC (L/N) 87-520 VAC (L/L')	x= 7 mm 0.2 mm ² - 2.5 mm ²	0.6 N.m max.
⑥	ETHERNET PROFIBUS	-	-
⑦		x= 8 mm 0.2 mm ² - 4 mm ²	0.6 N.m max.

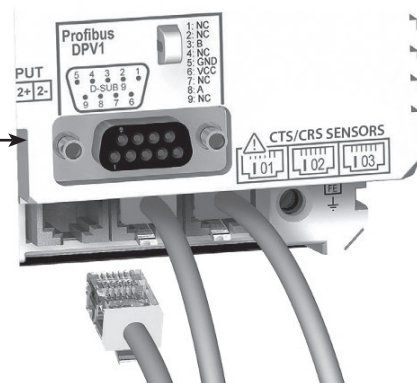
SELV: Safety Extra Low Voltage

Series 6000 (60P00, 61P00, 62P00)



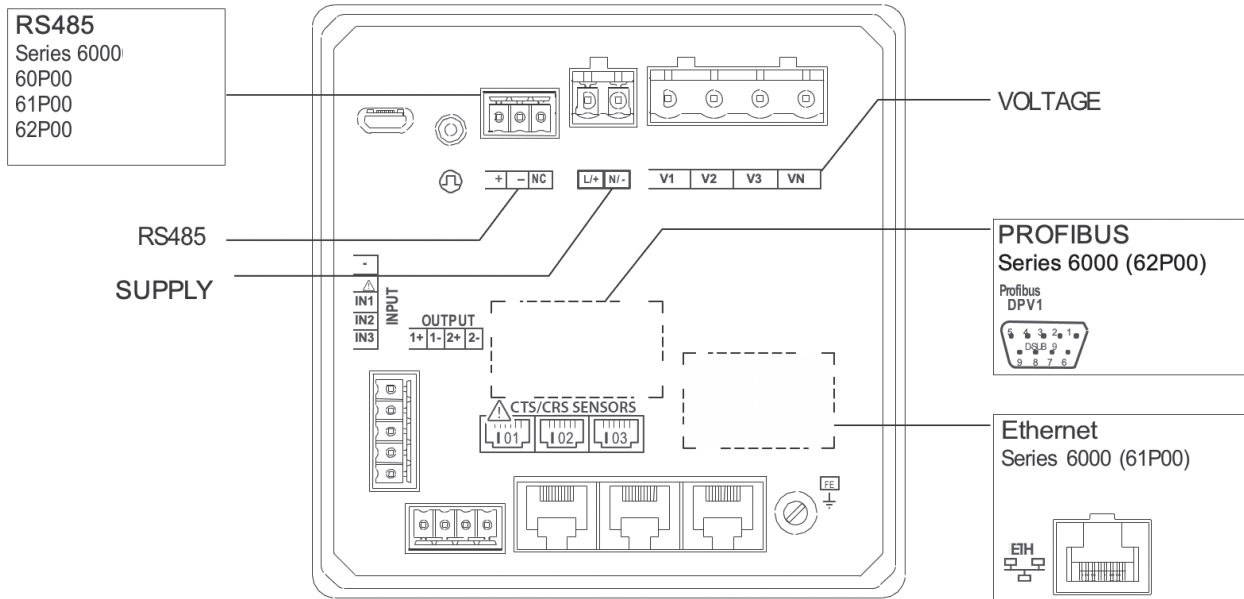
Profibus model (62P00)

Communication PROFIBUS



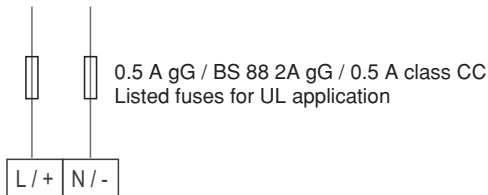
6 CONNECTION

Description of the terminals



Supply ④

110-277VAC L/N 50-60Hz
 277-400VAC L/L' 50-60Hz
 120-300 VDC

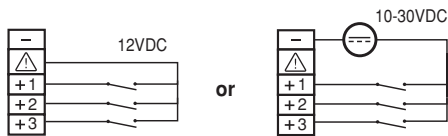


Sensors

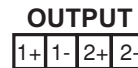
CTS/CRS sensors



3x Inputs ②

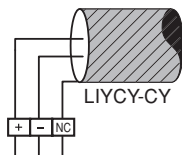


2x Outputs ①

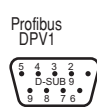


Communication ③ ⑥

RS485 MODBUS



PROFIBUS



- 1: NC
- 2: NC
- 3: B
- 4: NC
- 5: GND
- 6: VCC
- 7: NC
- 8: A
- 9: NC

ETHERNET



Means to prevent loosening of the conductors must be fitted on the nearest of the connections.

6 CONNECTION

6.2 Connection to the electrical network and to the loads

The Series 6000 can be used on single-phase, two-phase or three-phase circuits.

6.2.1 Configurable loads based on the network type

The table below summarizes the load that it is possible to configure depending on the type of network at the installation.

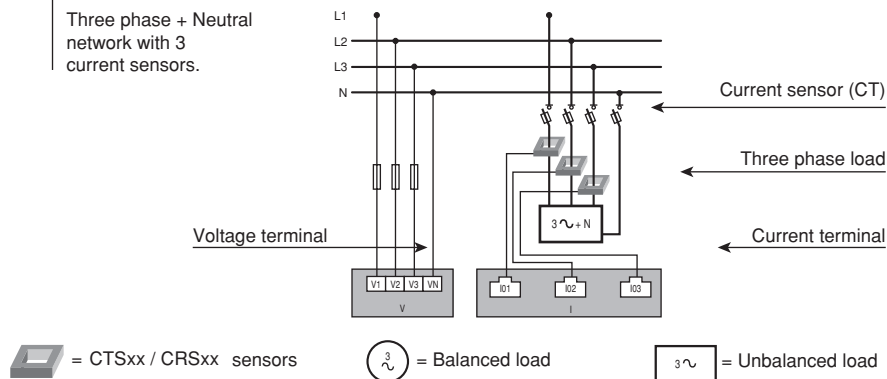
Network type	Configurable load
1P+N single- phase	1P+N – 1CT
2P two-phase	2P – 1CT
2P+N two-phase	2P+N - 2CT
3P three-phase	3P – 3CT / 3P – 2CT / 3P – 1CT
3P+N three-phase	3P+N – 3CT / 3P+N – 1CT

6.2.2 Description of the main network and load combinations

Legend:

3P+N – 3CT

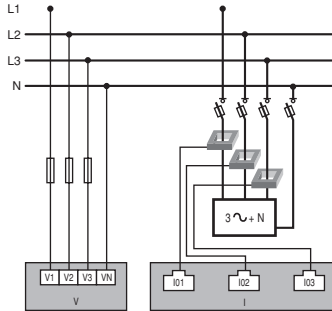
Three phase + Neutral network with 3 current sensors.



6 CONNECTION

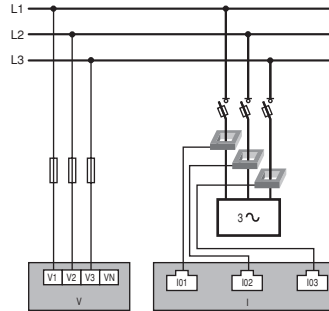
Three-phase + Neutral 3P+N – 3CT

(1 three-phase load + measured Neutral)



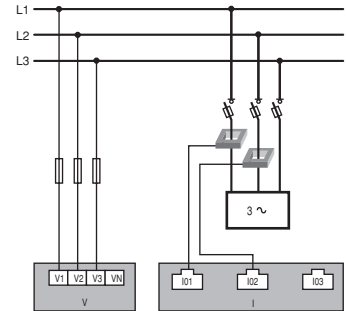
Three-phase 3P – 3CT

(1 three-phase load)



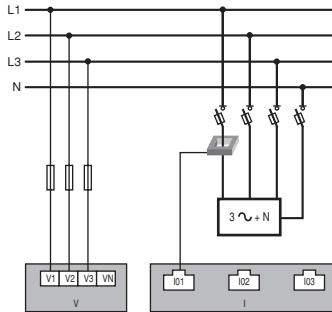
Three-phase 3P – 2CT

(1 unbalanced three-phase load)



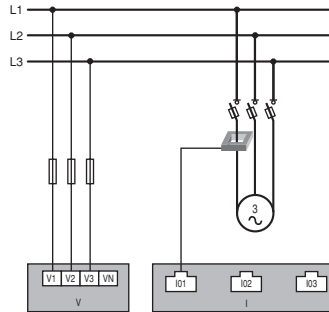
Three-phase 3P+N – 1CT

(1 balanced three-phase load)



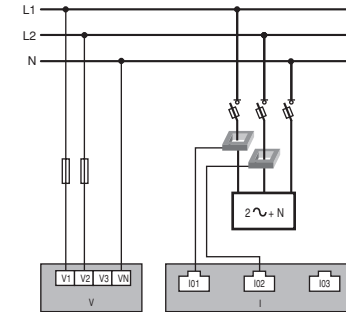
Three-phase 3P – 1CT

(1 two-phase load)



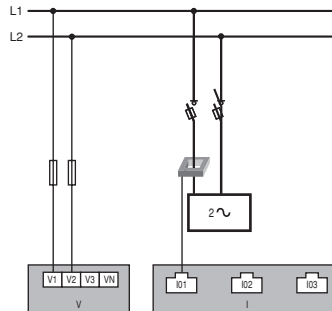
Two-phase + Neutral 2P+N – 2CT

(1 two-phase load + measured Neutral)



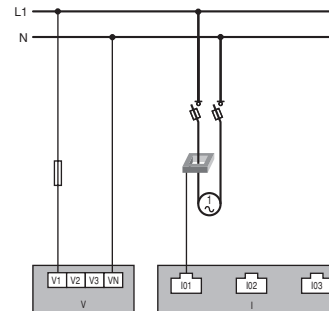
Two-phase 2P – 1CT

(1 two-phase load)



Single phase 1P+N – 1CT

(1 single-phase load)



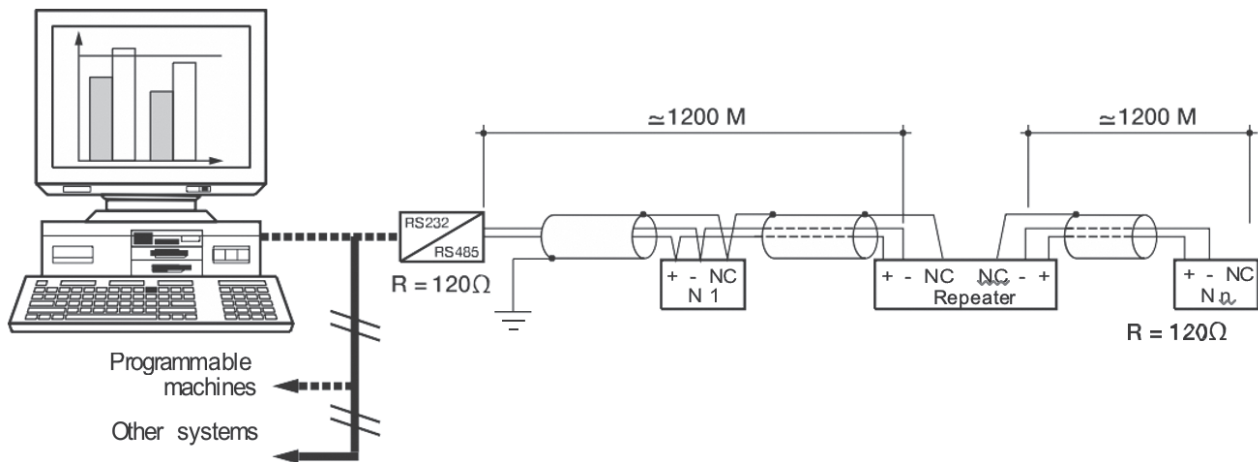
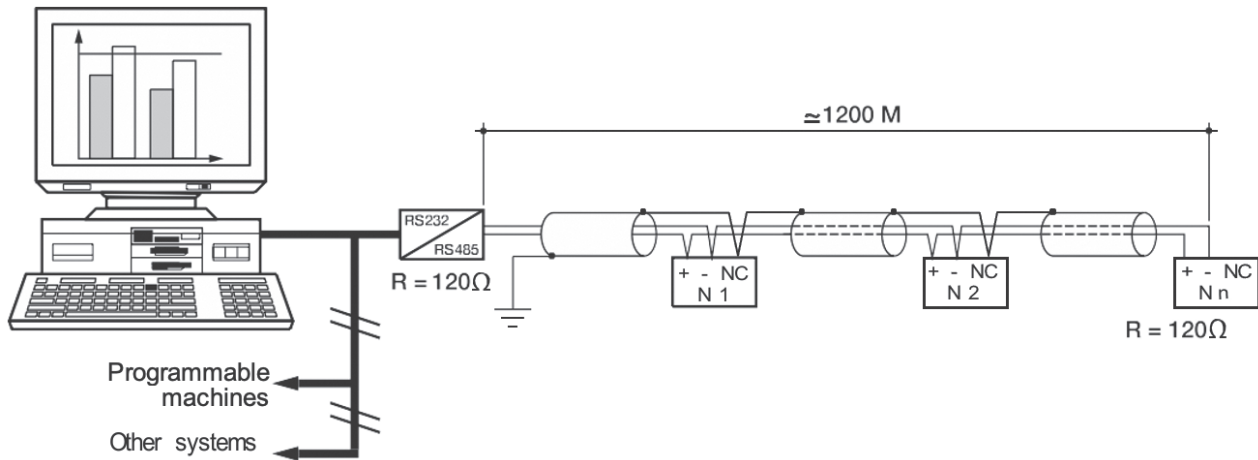
⏏ Fuse: 0.5 A gG / 0.5 A class CC

7 COMMUNICATION

7.1 Modbus General information

The Modbus RTU available on the Series 6000 communicates via an RS485 series link (2 or 3 wires) which is used to operate products from a PC or an API.

In a standard configuration, an RS485 connection is used to connect 32 products to a PC or a controller over 1200 meters.



7.2 RS485 rules

A LIYCY shielded twisted pair must be used. We recommend using a shielded twisted pair with a general LIYCY-CY shielding in an environment where there is interference or in a very long network with a number of products.

If the distance of 1200 m is exceeded and/or the number of products is greater than 32, a repeater must be added to enable additional products to be connected.

A 120 Ohm resistor must be fixed at both ends of the connection.

7.3 Modbus and Profibus communication tables

The Modbus and Profibus communication tables and the associated explanations are available on the Series 6000 documentation page on the website at www.leviton.com.

8 CONFIGURATION

The device can be configured directly from the Series 6000 screen or with the Easy Config software. The following paragraphs describe configuration with Easy Config for different types of communication architecture and several types of connected Leviton products.

8.1 Configuration using Easy Config

8.1.1 Connection modes

Configuration using Easy Config directly (USB)



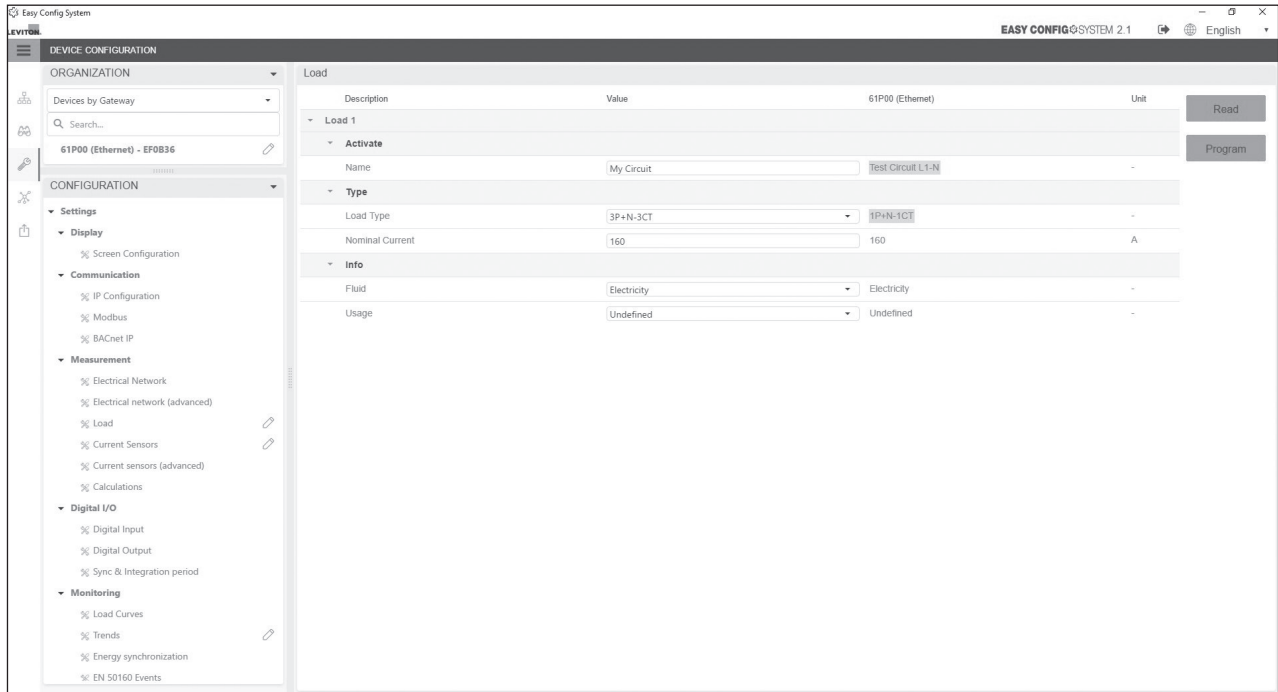
Configuration using Easy Config (Ethernet)



8 CONFIGURATION

8.1.2 Using Easy Config

Easy Config is configuration software used to set product parameters easily and quickly. Parameters are set in successive steps:



For each setting selected a customized screen appears, depending on the connected product.

8 CONFIGURATION

Load configuration

The type of load can be accessed in the load configuration menu. The user can also define its nominal current, the name of the load, its usage and its location within the electrical installation.

The user selects the nominal voltage, the network frequency, the direction of phase rotation and whether or not a voltage transformer is used.

Description	Value	61P00 (Ethernet)	Unit
Load 1			
Activate			
Name	My Circuit	Test Circuit L1-N	-
Type			
Load Type	3P+N-3CT	3P+N-1CT	-
Nominal Current	160	160	A
Info			
Fluid	Electricity	Electricity	-
Usage	Undefined	Undefined	-

Calculation method

The integration period and the synchronization methods of the different electric parameters are defined on this screen.

Description	Value	61P00 (Ethernet)	Unit
Calculations			
Integration Periods			
Integration Period - Inst. Values	5	5	x0.2 s
Integration Period - Avg Values	1 Minute	1 Minute	-
THD			
THD Type	THD (Fundamental)	THD (Fundamental)	-
THD Method	Total	Total	-
Other			
Calculation method for Q/S/EI/ES/PF	Arithmetic	Arithmetic	-
Phase to neutral voltage Lowest Level	10	10	V
PF Convention	IEC	IEC	-
Average min/max mode	Normal	Normal	-

8 CONFIGURATION

Alarms

The type of alarm and the configuration are set in Easy Config, see section “10. ALARMS”, for further details.

Other settings

The other settings, such as Memory allocation, Multi-tariff, Inputs/Outputs, Quality events, Communication and other controls are also carried out with Easy Config.

Example of the screen for setting the Quality parameters of the electrical network:

The screenshot displays the 'Easy Config System' interface for configuring a device. The main window is titled 'DEVICE CONFIGURATION' and shows the configuration for a '61P00 (Ethernet) - EF0836' device. The configuration is organized into sections: 'ORGANIZATION' (Devices by Gateway, Search...), 'CONFIGURATION' (Calculations, Digital I/O, Monitoring, Alarms), and 'EN 50160 Events'. The 'EN 50160 Events' section is expanded to show the following parameters:

Description	Value	Unit	61P00 (Ethernet)
EN 50160 Events			
Common			
Voltage reference	Fixed	Fixed	-
Dip			
Threshold	90	%	90
Hysteresis	2	%	2
Swell			
Threshold	110	%	110
Hysteresis	2	%	2
Interruption			
Threshold	5	%	5
Hysteresis	2	%	2

The interface also features a left sidebar with a navigation tree and a right sidebar with 'Read' and 'Program' buttons.

8 CONFIGURATION

8.2 Configuration from the display

8.2.1 Navigation



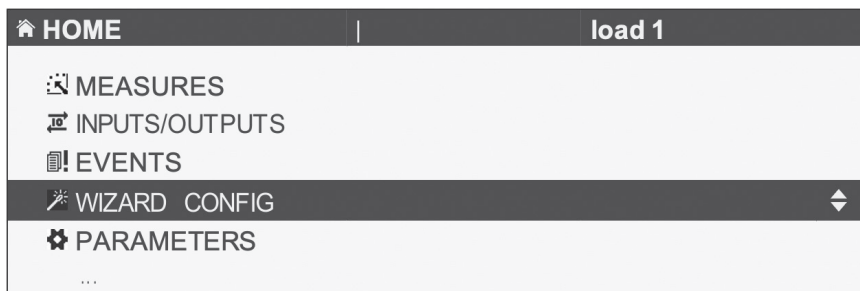
To access navigation, press “OK” to view the different menus available:



8.2.2 Description of the Wizard

The wizard allows very fast configuration of the main parameters of the Series 6000:

The wizard is launched automatically at the first use and on demand for later uses. It is also possible to access the wizard by holding down the “VF” button or via the menu on the screen using the “UP ARROW” and “DOWN ARROW” navigation buttons and confirming with “OK”.



The wizard begins by choosing the language and allows configuration of the main parameters of the Series 6000 by means of a series of screens:

- Date/time
- Load type
- Integration period
- Communication

The Wizard can be launched using 2 modes chosen by the user:

- “SMART CONFIG” mode: The type of electrical network and the load are detected automatically
- “MANUAL CONFIG” mode: the user himself configures the parameters of the electrical network and of the load

Note: the default access code for configuration is 100

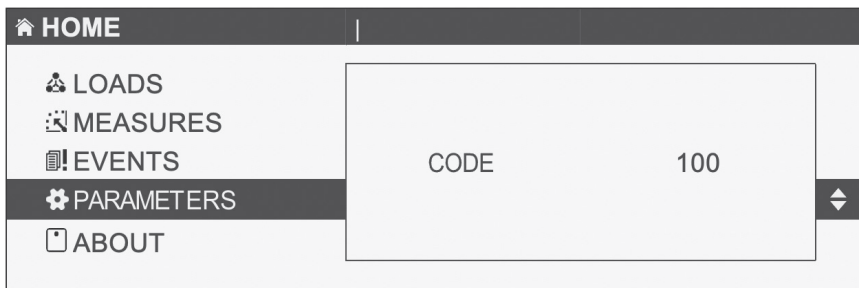
8 CONFIGURATION

8.2.3 Complete configuration

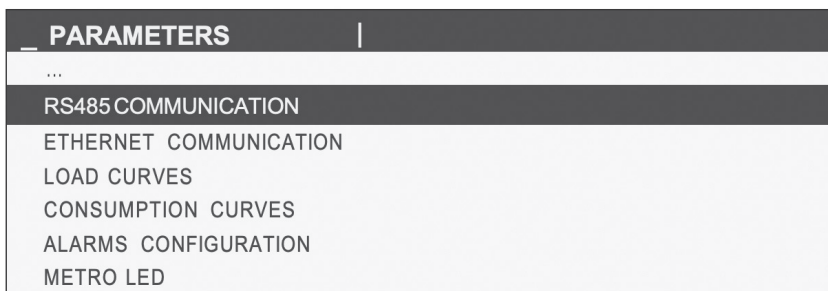
To access the complete configuration of the product and in particular the configuration of the alarms and of the additional parameters not covered by the Wizard, select the “PARAMETERS” menu:



Enter the password “100” using the arrow pad (4 arrow keys) and confirm with “OK”:



This gives access to the whole configuration of the Series 6000:



- DISPLAY: selection of the language, of the date and time and of the access code
- LOAD: selection of the type of load, of the nominal current, of rotation and of the voltage transformer
- SENSORS: selection of current direction
- CALCULATION: selection of the instantaneous and mean integration period
- INPUTS/OUTPUTS: settings of the inputs and outputs
- RS485 COMMUNICATION: settings of the RS485 communication parameters
- ETHERNET COMMUNICATION: settings of the Ethernet communication parameters
- PROFIBUS COMMUNICATION: settings of the Profibus communication parameters
- LOAD CURVES: settings of the integration period, synchronization and selection of the calculated load curves
- CONSUMPTION CURVES: settings of the integration period and synchronization of the consumption curves
- ALARMS CONFIGURATION: configuration of the alarms
- METRO LED: settings of the metrological LED parameters

8 CONFIGURATION

8.3 Screen menu structure

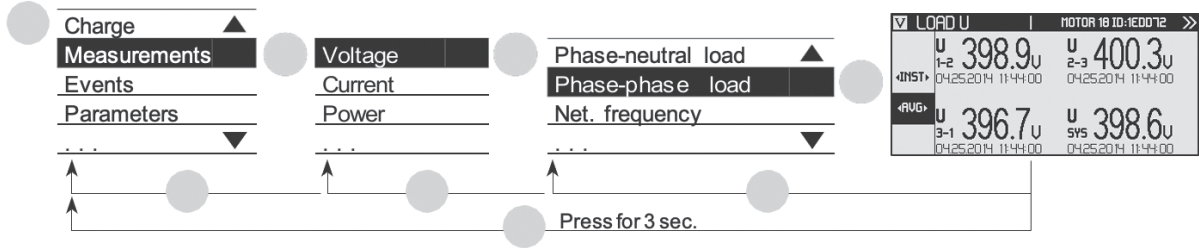
Menu structure			
Measurements	Voltages	Phase-neutral voltage	
		Phase-phase voltage	
		Frequency	
		Phase-neutral voltage unbalance	
		THD Phase-neutral voltage	
		THD Phase-neutral network	
		Phase-neutral voltage harmonics	
		Phase-neutral voltage crest factor	
		Phase-phase voltage unbalance	
		THD Phase-phase voltage	
		Phase-phase voltage harmonics	
		Phase-phase voltage crest factor	
		Current	Current
			System Current
	Current Unbalance		
	Current THD		
	Currents K factor		
	Current Harmonics		
	Current crest factor		
	Power		Active power
		Reactive power	
		Apparent power	
		Predictive power	
		Power factor	
		Cos Phi	
		Tan Phi	
	Energy	Positive active energy	
		Negative active energy	
		Positive reactive energy	
		Negative reactive energy	
		Positive/negative inductive/capacitive reactive energy	
		Apparent energy	
	Reset	Reset of all the min/max values	
Inputs/outputs	Digital inputs	Status	
	Digital outputs	Status	
Events	In progress	Alarms and Quality Events in progress	
	History	Alarms and Quality Events ended and logged	
Configuration Wizard		Wizard configuration screens	
Parameters	Screen	Languages, Date format, Date, Time, Configuration access code	
	Loads	Type of loads, Nominal values (V, I, f), Rotation, Voltage transformer	
	Sensors	Current direction, Transformation ratio detected	
	Integration period	Integration period instantaneous values and mean values	
	Inputs/outputs	Name, Function (status, circuit breaker, pulse meter), Mode (N.O., N.C.)	
	RS485 communication	Baudrate, stop bit, parity, address	
	Ethernet communication	DHCP, IP Address, Template, Router	
	Profibus communication	Address, exchanges with the master (parameters and diagnostic)	
	Load curves	Integration period, Synchronization, Choice of load curves to be saved (P+, P-, Q+, Q-, S)	
	Consumption curves	Integration period, Synchronization	
	Alarm configuration	Alarm on instantaneous measurement, Alarm on digital input, System alarm	
	Metrological LED	Choice of energy allocated to the LED (Ea+, Ea-, Er+, Er-, Es)	
About	IP address		
	MAC address		
	Serial number		
	Software version		
	Reboot		

Note: the menus available depend on the product models.

9 USE

9.1 Browse

Browsing through the “MEASUREMENTS” menu allows access to all the measurements.



9.2 Shortcuts

The shortcut keys of the display “IP”, “E”, “VF” allow quick access to the current, power, energy, voltage or frequency measurements.

	Shortcut keys for load measurements: current, active power, reactive power, apparent power, power factor, cos phi
	Shortcut keys for electrical network measurements: phase-to-neutral voltage, phase-to-phase voltage, frequency Shortcut keys for the Wizard by holding down
	Shortcut keys for active, reactive, apparent energy meters (total and partial values)

9.3 Favorites

Use the Favorites function to save specific screens and to access them directly without browsing through the menus.

	Use this to save favorite screens by holding down and then to view them with a short press. Use this to remove favorite screens by holding down
--	--

9.4 Screen display of measurements

The instantaneous and/or mean values are displayed depending on the types of measurement, shown as a numerical value or in graphic form.

10 ALARMS

10.1 Alarms upon events

Alarms can be generated when a threshold is exceeded for the electrical measurements, consumption, variations in level or change in input status. Also, combinations can be made on the alarms created.

Up to 50 alarms detected are saved and timestamped; an alarm can have 3 distinct statuses: Alarm active, Alarm completed, Alarm completed and acknowledged. Alarms can be acknowledged either automatically or by user action, as required.

Up to 8 alarms for an electrical measurement are configured per item of equipment and 9 for changes in status of a digital input.

The alarms are configured on the screen or via the Easy Config software.

10.1.1 Electrical parameters

- Alarm upon variation in the instantaneous or average value of an electrical value: Current, voltage, frequency, power, power factor, Cos phi, harmonic distortion rate
- Selection of the hysteresis and high/low threshold
- Setting a time delay at the start and end of the alarm
- For the associated total harmonic distortion, voltage and current three-phase values, an alarm may be generated if the condition is fulfilled on a combination of phases:
 - On a single-phase: Phase1, Phase2, Phase3
 - On all the phases simultaneously: Phase1 and Phase2 and Phase3
 - On one phase of the three phases: Phase1 or Phase2 or Phase3

Example of configuring an alarm on the current via Easy Config:

Description	Value	61P00 (Ethernet)	Unit
Measurement Alarm 1			
Common			
Alarm Activation	Enabled	Disabled	-
Name	Measure Alarm 1	Measure Alarm 1	-
Type			
Alarm on	Inst I1	Inst I1	-
Access	Single phase	Single phase	-
Information			
Criticality	Information	Information	-
Acknowledgement			
Acknowledgement Method	Auto	Auto	-
Acknowledgement Input	None	None	-
Output			
Output Report	Not Used	Not Used	-
Threshold			
High Threshold	25000	1000000000	mA
Low Threshold	5	-1000000000	mA
Hysteresis	0	0	%
Delay			
Startlap Delay	0	0	x0.5 s
Dropout Delay	0	0	x0.5 s
Measurement Alarm 2			
Common			
Alarm Activation	Disabled	Disabled	-

10.1.2 Voltage and current unbalance (in a three-phase network)

- Alarms on voltage unbalances: Unba, Unb
- Alarm upon current unbalance: Inba, Inb
- Selection of the hysteresis and high/low threshold
- Setting a time delay at the start and end of the alarm

10 ALARMS

10.1.3 EN 50160 voltage quality events

- Alarms on quality events for the voltage provided: voltage dips (Udip), temporary overvoltages (Uswl) and voltage outages (Uint).

10.1.4 Consumption

- Alarm on the energies: Ea+, Ea-, Er+, Er-, Eap
- Selection of a high threshold (excessive consumption)

10.1.5 Digital inputs

- Alarm upon change of status for a digital input
- Choice of a rising or falling edge
- Setting a time delay at the start and end of the alarm

Example of configuring an alarm on a digital input via Easy Config:

The screenshot displays the 'Easy Config System' interface for configuring a 'Logical Alarm 1'. The left sidebar shows the navigation menu with 'Alarms' expanded. The main panel shows the configuration details for 'Logical Alarm 1' on a '61P00 (Ethernet)' device. The configuration is as follows:

Section	Parameter	Value	Unit
Logical Alarm 1	Description	61P00 (Ethernet)	
	Unit		
Common	Alarm Activation	Enabled	Disabled
	Name	Digital Alarm 1	Digital Alarm 1
Type	Digital Input Selection	Not Used	Not Used
	Criticality	Information	Information
Acknowledgement	Acknowledgement Method	Auto	Auto
	Acknowledgement input	None	None
Output	Output Report	Not Used	Not Used
	Delay		
Delay	Startup Delay	0	x0.5 s
	Dropout Delay	0	x0.5 s
Logical Alarm 2	Alarm Activation	Disabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1
Logical Alarm 3	Alarm Activation	Disabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1

10.1.6 Combination of alarms

- 4 boolean combinations (OR, AND) on the defined alarms (electrical values, energy, inputs, etc.)

The screenshot displays the 'Easy Config System' interface for configuring a 'Combination Alarm 1'. The left sidebar shows the navigation menu with 'Alarms' expanded. The main panel shows the configuration details for 'Combination Alarm 1' on a '61P00 (Ethernet)' device. The configuration is as follows:

Section	Parameter	Value	Unit
Combination Alarm 1	Description	61P00 (Ethernet)	
	Unit		
Common	Alarm Activation	Enabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1
Type	Alarm 1 Type	Measurement	Measurement
	Alarm Number	Alarm 1	Alarm 1
	Operation	AND	AND
	Alarm 2 Type	Measurement	Measurement
Information	Criticality	Information	Information
	Acknowledgement		
Acknowledgement	Acknowledgement Method	Auto	Auto
	Acknowledgement input	Not Used	Not Used
Output	Output Report	Not Used	Not Used
	Delay		
Combination Alarm 2	Alarm Activation	Disabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1
Combination Alarm 3	Alarm Activation	Disabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1
Combination Alarm 4	Alarm Activation	Disabled	Disabled
	Name	Combination Alarm 1	Combination Alarm 1

10 ALARMS

10.2 System alarms

If an installation error is detected during setup, an alarm will be automatically generated.

10.2.1 Current/voltage compatibility

- Alarm upon connection error between the current and the voltage
- Requires a certain load level: $0.6 < PF < 1$ and $I > 2\% I_n$

10.2.2 Incorrect direction of rotation (three-phase network)

- Alarm upon identification of the incorrect direction of phase rotation (for example 3-2-1 instead of 1-2-3)

10.2.3 Faulty current sensor

- Alarm for detecting the absence of a current sensor

10.3 Setting up alarms

The installation alarms are automatically detected and alarms upon events are configured with the Easy Config software.

There are several ways of identifying the presence of an alarm:

10.3.1 ALARM LED on front

- Blinking: System Alarm
- Fixed: Alarm upon event (takes priority if there is a system alarm at the same time)

10.3.2 Activation of an output

- If an output is present on the product, it can be activated when an alarm is detected

10.3.3 Activation of an input

- If an input is present, the alarm can be acknowledged from this input. Acknowledgment of an alarm can only be taken into account if the alarm is complete

10.3.4 RS485 Modbus

- Information on the alarms with timestamping available via the RS485 communication bus
- Sends alarm acknowledgment

10.3.5 Screen and WEBVIEW

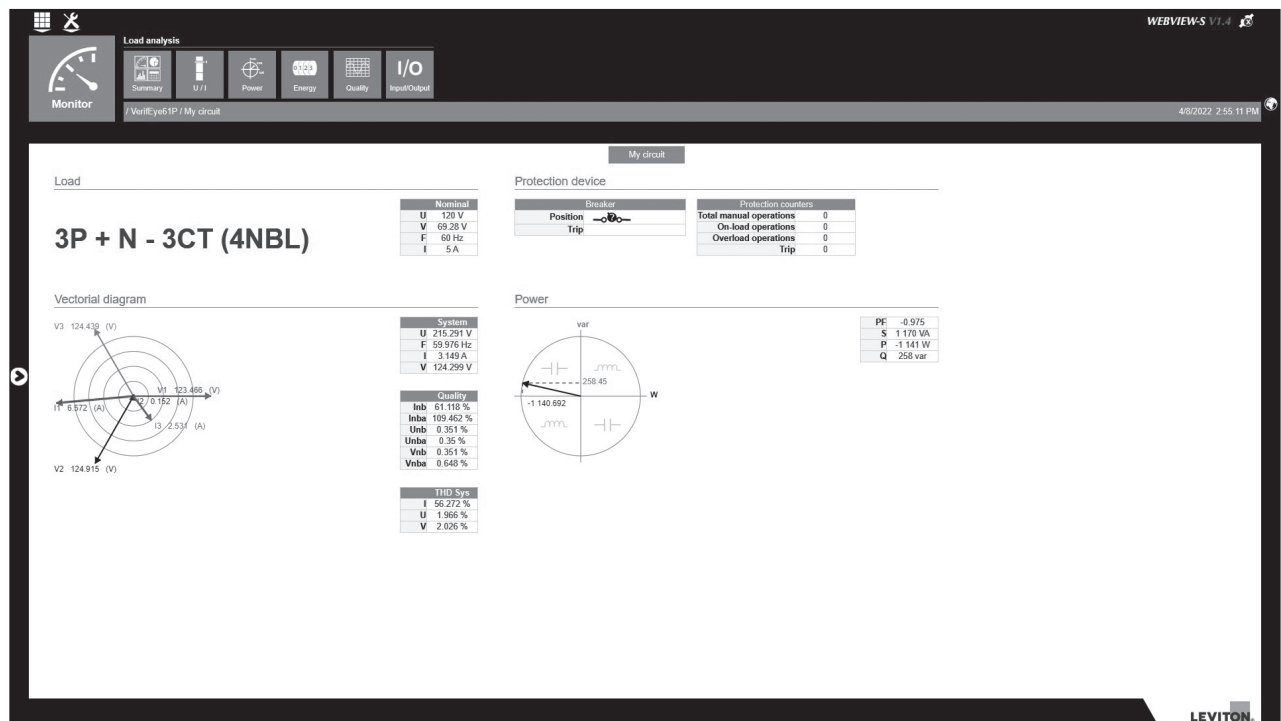
- Information on the alarms with timestamping
- Sends alarm acknowledgment

11 WEB SERVER

The Ethernet version of the Series 6000 (61P00), has an embedded web server. This web server allows access to all the measurements of the electrical parameters and of the energy measured by the meter.

The default IP address for accessing the web server is the following: 192.168.0.4

Below are some examples of the web server screen:



12 CHARACTERISTICS

12.1 Series 6000 characteristics

12.1.1 Mechanical features

Casing type	Fitted on a door with format 96x96
Protection degree	IP52 front panel / IP20 rear panel
Type of screen	Capacitive touch-screen technology, 10 keys Screen resolution: 350 x 160 pixels
Weight	ref 60P00: 326 g ref 61P00: 341 g ref 62P00: 349 g

12.1.2 Electrical specifications

Auxiliary power supply			
Voltage	110-277VAC L/N 277-400VAC L/L' 120-300 VDC Overvoltage category III		
Frequency	50-60 Hz		
Power consumption	4825 0500: 110-277VAC L/N: 4VA 277-400VAC L/L': 5VA 120-300VDC: 1.5VA	4825 0501: 110-277VAC L/N: 6VA 277-400VAC L/L': 8VA 120-300VDC: 2.5VA	4825 0502: 110-277VAC L/N: 6VA 277-400VAC L/L': 8VA 120-300VDC: 2.5VA
Connection	Removable spring-cage terminal block, 2 positions, 0.5 - 2.5 mm ² solid cable or 0.25 - 1.5 mm ² stranded cable with end piece		

12.1.3 Measuring characteristics

Measurement accuracy	
Accuracy	According to IEC 61557-12 PMD DD classification in association with dedicated sensors (TE, TR, CRS)
Energy and power measurement	
Active energy and active power accuracy	Class 0.2 Series 6000 only Class 0.5 with CTS or CTR sensors
Accuracy of reactive energy	Class 2 with sensors
Power factor measurement	
Accuracy	Class 0.5 with CTS or CTR sensors
Voltage measurement	
Characteristics of the network measured	50-300 VAC (L/N) - 87-520 VAC (L/L') - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0,1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, 0.5 - 2.5 mm ² solid cable or 0.25 - 1.5 mm ² stranded cable with end piece

12 CHARACTERISTICS

Current measurement	
Number of current inputs	3
Associated current sensors	Split-core CTS, flexible CTR current sensors
Accuracy	Class 0.2 Series 6000 only Class 0.5 with CTS or CTR sensors
Connection	Specific Leviton cable with RJ12 connectors

12.1.4 Input/output characteristics

Inputs	
Accuracy	3
Number	Optocoupler with internal (12 VDC \pm 10%) or external (12-24 VDC \pm 20%) polarisation
Type / Power supply	Logical state, pulse meter, circuit breaker status or synchronization pulse (input 1)
Input function	Removable screw terminal block, 5 positions, stranded or solid 0.14 - 1.5 mm ² cable
Outputs	
Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Configurable alarm signal (current, power, etc.) when threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.14 - 1.5 mm ² cable

12.1.5 Communication specifications

RS485	
Product	60P00
Link	RS485
Connection type	2 to 3 half duplex wires - SELV
Protocol	Modbus RTU
Baudrate	9600 to 115200 bauds
Function	Data configuration and reading
Connection	Removable screw terminal block, 3 positions, stranded or solid 0.14 - 1.5 mm ² cable
ETHERNET	
Product	61P00
Link	Ethernet
Connection type	Ethernet 10/100 Base-T - SELV
Protocol	Modbus TCP (port 502), Modbus RTU over TCP (port 503)BACnet, SNTP, SMTP, FTP
SNTP protocol	Updates from an NTP server.
SMTP protocol	Sends a mail in case of an alarm
FTP protocol	Saves the measurement files on an FTP server
Functions	Data configuration and reading
Connection	RJ45 port

12 CHARACTERISTICS

PROFIBUS	
Product	62P00
Link	RS485 - SELV
Protocol	PROFIBUS DPV1
Functions	PROFIBUS communication
Connection	SubD9 Connector
USB	
Connection	USB 2
Protocol	Modbus RTU on USB
Function	Configuration
Connection	Type B micro USB connector

12.1.6 Environmental specifications

IP	IP52 front IP20 rear
Ambient operating temperature	-10 - +70°C (IEC 60068-2-1 / IEC 60068-2-2)
Storage temperature	-25 - +85°C (IEC 60068-2-1 / IEC 60068-2-2)
Operating humidity	+70°C / 97% HR (IEC 60068-2-30)
Operating altitude	< 2,000 m
Vibration	0.35 mm, 25 Hz, 20 min/axe (IEC 61557-12)
Impact resistance	Front panel: 5J - casing: 1J (IEC 61010-1 Ed 3.0)

12.1.7 Electromagnetic compatibility

Immunity to electrostatic discharges on contact	IEC 61000-4,-2	LEVEL III	Criterion A
Immunity to electrostatic discharges in the air	IEC 61000-4,-2	LEVEL III	Criterion A
Immunity to radiated radio-frequency fields	IEC 61000-4,-3	80-1000MHz LEVEL III 1400-2700MHz LEVEL III	Criterion A
Immunity to electrical fast transients/bursts	IEC 61000-4,-4	Power supply LEVEL III Voltage measurement LEVEL IV Current inputs LEVEL III RS485 LEVEL III Ethernet LEVEL III Profibus LEVEL III E/S LEVEL III Earth LEVEL III	Criterion B Criterion B Criterion A Criterion A Criterion A Criterion A Criterion A Criterion A
Immunity to impulse waves	IEC 61000-4,-5	Power supply LEVEL III Voltage measurement LEVEL III RS485 LEVEL II Ethernet LEVEL II Profibus LEVEL II E/S LEVEL II	Criterion A Criterion A Criterion A Criterion B Criterion A Criterion A

12 CHARACTERISTICS

Immunity to conducted disturbances, induced by radio-frequency fields	IEC 61000-4,-6	Power supply LEVEL III Voltage measurement LEVEL III Current inputs LEVEL III RS485 LEVEL III Ethernet LEVEL II Profibus LEVEL III E/S LEVEL III Earth LEVEL III	Criterion A Criterion A Criterion A Criterion A Criterion A Criterion A Criterion A
Immunity to power frequency magnetic fields	IEC 61000-4,-8	400A/m	Criterion A
Immunity to voltage dips, short interruptions and voltage variations	IEC 61000-4,-11	Voltage dip: 0% for 1 cycle 40% for 10/12 cycles 70% for 25/30 cycles Short interruption: 0% for 250/300 cycles	Criterion A Criterion A Criterion A Criterion C
Radiated emissions	CISPR11	Gr:1 - CLASS A	N/A
Conducted emissions	CISPR11	Gr:1 - CLASS B	N/A
Electrical environment	Industrial		

12.1.8 Safety

Safety	Compliant with Low Voltage Directive: 2014/35/EU of 26 February 2014 (IEC EN61010-1 & IEC EN61010-2-030) Compliant with Electromagnetic Compatibility Directive: 2014/30/EU of 26 February 2014
Insulation	Installation category III (300VAC Ph/N), degree of pollution 2
UL	UL61010-1 & UL61010-2-030 UL installation: Series 6000 and current sensors have to be enclosed inside an NRTL certified electrical/fire enclosure, Listed Industrial Control Equipment, or similar equipment.

12.1.9 Service life

MTCRS (mean time to failure)	> 100 years
------------------------------	-------------

12 CHARACTERISTICS

12.2 CTS and CRS sensor characteristics

CTS - Split-core sensor			
Model	TR-10 / CTS-10	TR-21 / CTS-21	TR-32 / CTS-32
Nominal current range I_n (A)	26 - 63	63 - 250	160 - 600
Max. current (A)	75.6	300	720
Weight (g)	74	211	311
Max. voltage	300 V		
Voltage detection	CTS		
Rated withstand voltage	3 kV		
Frequency	50/60 Hz		
Intermittent overload	10x I_n in 1 second		
Measurement category	CAT III		
Protection degree	IP20 / IK06		
Operating temperature	-10 - +55°C		
Storage temperature	-25 - +85°C		
Relative humidity	95% RH without condensation		
Altitude	< 2,000 m		
UL	UL 61010		
Connection	Leviton RJ12 cable, straight, twisted pair, unshielded, 600 V -10 / +70 °C - SELV		
CRS - Flexible current sensor			
Model	CRS4K	CRS6K	
Nominal current range I_n (A)	150 - 600	1600 - 6000	
Weight (g)	114	220	
Max. voltage	600 V		
Rated withstand voltage	3.6 kV		
Frequency	50 / 60 Hz		
Intermittent overload	10x I_n in 1 second		
Measurement category	CAT III		
Protection degree	IP30 / IK07		
Operating temperature	-10 - +70°C		
Storage temperature	-25 - +75°C		
Relative humidity	95% RH without condensation		
Altitude	< 2,000 m		
UL	UL 61010		
Connection	Leviton RJ12 cable, straight, twisted pair, unshielded, 600 V -10 / +70 °C - SELV		

13 PERFORMANCE CLASSES

Performance classes are drawn up in compliance with IEC 61557-12 Edition 1 (08/2007)

Classification of the Series 6000 meter	DD in combination with dedicated sensors
Temperature	K55
Overall operating performance class for active power or active energy	0.5 in combination with CTS & CRS sensors

13.1 Specification of the characteristics

Symbol	Function	Overall operating performance class Series 6000 + dedicated sensors* (CTS, CRS) in compliance with IEC 61557-12	Measurement range
Pa	Total active power	0.2% Series 6000 only 0.5 with CTS & CRS sensors	10% - 120% In 2% - 120% In 2% - 120% In
Q_A, Q_V	Total reactive power (arithmetic, vectorial)	1 with CTS or CRS sensors	5% - 120% In
S_A, S_V	Total apparent power (arithmetic, vectorial)	0.5 with CTS or CRS sensors	10% - 120% In
Ea	Total active energy	0.2% Series 6000 only 0.5 with CTS or CRS sensors	10% - 120% In 2% - 120% In 2% - 120% In
Er_A, Er_V	Total reactive energy (arithmetic, vectorial)	2 with CTS or CRS sensors	5% - 120% In
Eap_A, Eap_V	Total apparent energy (arithmetic, vectorial)	0.5 with CTS or CRS sensors	10% - 120% In
f	Frequency	0.02	45 - 65 Hz
I	Phase current	0.2 Series 6000 only 0.5 with CTS or CRS sensors	5% - 120% In 10% - 120% In 10% - 120% In
INc	Calculated neutral current	1 with CTS or CRS sensors	10% - 120% In
U	Voltage (Lp-Lg or Lp-N)	0.2	50 - 300 VAC Ph/N
PF_A, PF_V	Power factor (arithmetic, vectorial)	0.5 with CTS or CRS sensors	0.5 lagging to 0.8 leading
Pst, Plt	Flicker (short-term, long-term)	-	-
Udip	Voltage dip (Lp-Lg or Lp-N)	0.5	-
Uswl	Voltage swell (Lp-Lg or Lp-N)	0.5	-
Uint	Voltage interruption (Lp-Lg or Lp-N)	0.2	-
Unba	Voltage amplitude unbalance (Lp-N)	0.5	-
Unb	Voltage phase and amplitude unbalance (Lp-Lg or Lp-N)	0.2	-
THDu, THD-Ru	Total harmonic distortion rate of the voltage (relative to the fundamental, relative to the efficient value)	1	Orders 1 to 63
Uh	Voltage harmonics	1	-
THDi, THD-Ri	Total harmonic distortion rate of the current (relative to the fundamental, relative to the efficient value)	1 with CTS or CRS sensors	Orders 1 to 63
Ih	Current harmonics	1 with CTS or CRS sensors	-
Msv	Centralized remote control signals	-	-

*With Leviton connection cables.

13 PERFORMANCE CLASSES

13.1 Specification of the characteristics

Symbol	Function	Overall operating performance class Series 6000 + dedicated sensors (CTS & CRS) in compliance with IEC 61557-12	Measurement range
f	Frequency	0.02	45 - 65 Hz
I	Phase current	0.2 Series 6000 only 0.5 with CTS & CRS sensors	5% - 120% I _n 10% - 120% I _n 10% - 120% I _n
I _{Nc}	Calculated neutral current	1 with CTS or CRS sensors	10% - 120% I _n
U	Voltage (Lp-Lg or Lp-N)	0.2	50 - 300 VAC Ph/N
P _{st} , P _{lt}	Flicker (short-term, long-term)	-	-
U _{dip}	Voltage dip (Lp-Lg or Lp-N)	0.5	-
U _{swl}	Voltage swell (Lp-Lg or Lp-N)	0.5	-
U _{int}	Voltage interruption (Lp-Lg or Lp-N)	0.2	-
U _{nba}	Voltage amplitude unbalance (Lp-N)	0.5	-
U _{nb}	Voltage phase and amplitude unbalance (Lp-Lg or Lp-N)	0.2	-
U _h	Voltage harmonics	1	-
I _h	Current harmonics	1 with CTS or CRS sensors	-
Msv	Centralized remote control signals	-	-

14 STANDARD STATEMENTS AND WARRANTY

FCC STATEMENT:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by Leviton Manufacturing Co., could void the user's authority to operate the equipment.

FCC SUPPLIER'S DECLARATION OF CONFORMITY:

This device manufactured by Leviton Manufacturing Co., Inc. 201 North Service Road, Melville, NY 11747. www.leviton.com. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IC Statement:

This device complies with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

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For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada ULC** to the attention of the **Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320**.

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for 5 years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option. **For details visit www.leviton.com or call 1-800-824-3005.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose,** but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to 5 years. **Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation.** The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

For Technical Assistance Call: 1-800-824-3005 (USA Only) or 1-800-405-5320 (Canada Only) www.leviton.com

