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Tél. : 33(0)5 55 06 87 87 - Fax : 33(0)5 55 06 88 88
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Connected load shedder

Cat.Nos : 4 121 72 - 1 991 20
Included in packs : 4 121 92/93 - 1 991 56

Home + Control

CONTENT **Page**

1. CHARACTERISTICS

■ 1.1 Use

The connected load shedder is designed for single-phase installations only. It helps users manage their electrical contract limits and avoid excessive consumption while maintaining comfort by not cutting off power to priority devices.

Real-time Measurement:
The device measures the total electrical consumption of a single-phase powered home in real-time using the included closed current transformer. Users can view their electrical consumption and consumption history on a smartphone via the Home + Control app.

Load Shedding:
It can proactively and gradually turn off the most energy-consuming devices when nearing the subscribed power limit (or a consumption threshold set in the app) by controlling connected sockets, cable outlets, or contactors in the home.

This process follows user-defined priorities. Devices are automatically turned back on once the risk of overconsumption is eliminated.

Photovoltaic
The load shedding device can be integrated into a solar production system. When combined with other connected modules (see "I measure and control my production" packs), it displays the home's consumption.

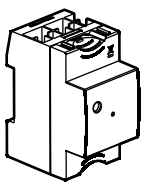
In a photovoltaic setup, both the "load shedding" and "total consumption measurement" functions can work together.

Technology
The load shedding device is a control unit, not an electrical cut-off device. It measures single-phase current using a closed current transformer (included with the device) and transmits data via radio frequency to the connected network

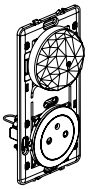
■ 1.2 Installation conditions

Only one load shedding device allowed per installation.
Using a connected load shedding device requires prior installation of:

- A Control Module Cat.No 4 121 81



- or a connected starter pack "with Netatmo"
(Principle drawing, works with any type of connected starter pack "with Netatmo").



- or any other "with Netatmo" connection interfaces.

■ 1.3 Range

The connected load shedder is included in photovoltaic packs:
- Cat.No 4 121 92/93
- Cat.No 1 991 56

■ 1.4 Technical data of the connected load shedder

Width	1 module (17,7 mm)
Nominal primary current (Ipn)	80 A AC single-phase
Power consumption	0.3 W Maxi
Nominal supply voltage	100 V to 240 V AC
Rated operating voltage (Ue)	100 to 240 V
Nominal frequency	50 Hz / 60 Hz
Rated frequency	50 Hz / 60 Hz
Rated impulse withstand voltage (Uimp)	4 kV
Overvoltage category	III
Ambient operating temperature	Min. = + 5 °C Max. = + 45 °C
Ambient storage temperature	Min. = - 40 °C Max. = + 70 °C
Altitude influence	No influence up to 2000 m
Protection degrees	Terminal protection: IP2x (wired device) Front face protection: IP3XD
	Class II, front face covered
	Shock protection: IK04
Pollution degree	2

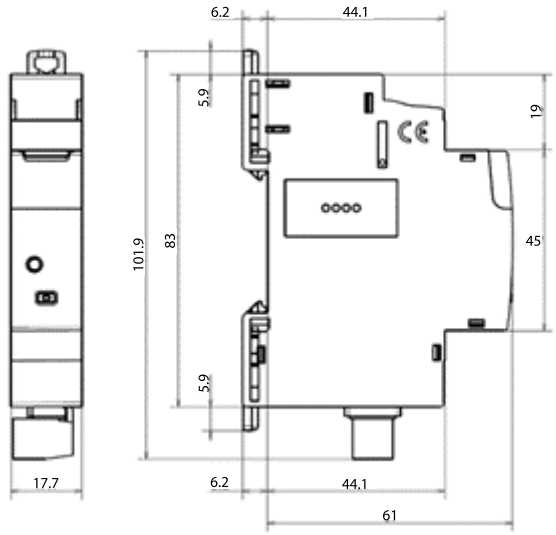
1. CHARACTERISTICS *(continued)*

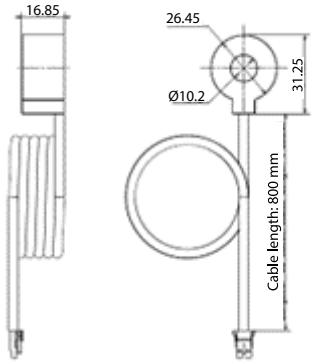
Plastic material	Self-extinguishing polycarbonate. UL 94 Classification: V0
Weight	91 g
Compatible application	**Home + Control** Available for free on Google Play or App Store

■ 1.5 Technical data of the current transformer

Maximum primary current measured	80 A AC
Transformation ratio	1000 : 1
Nominal thermal short-circuit current	Ith = 3 kA effective/1s
Nominal dynamic current	Idyn = 9 kA
Nominal voltage level for insulation	3 kV effective value 50 Hz/1min
Insulation class	Measurement sensor class A according to EN/IEC 61869-2
Measurement accuracy	Measurement chain accuracy Module + Current transformer: +/-1% for a measured current >2A and cosφ≥0.8

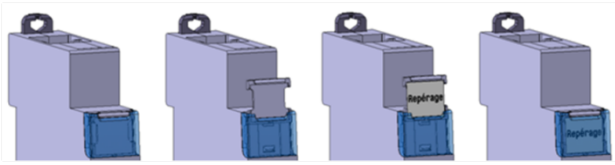
■ 1.6 Dimensions





1.7 Circuit identification

Circuit identification is done using a label inserted into the label holder located on the front face of the connected load shedder.



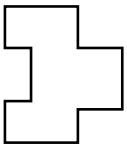
2. POSITIONING

The single-phase connected load shedder is mounted on an EN/IEC 60715 or DIN 35 symmetrical rail.

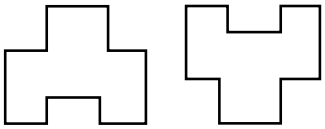
■ 2.1 Mounting position

The connected load shedding device can be mounted in three different ways:

Vertical mounting



Horizontal mounting



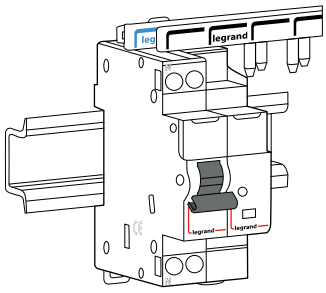
Flat mounting

Recommended tool for rail mounting:
Blade screwdriver (max. 5.5 mm).

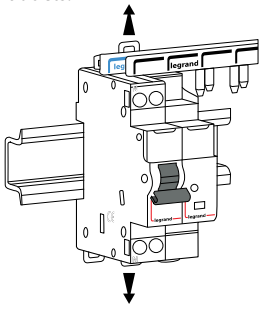
■ 2.2 Positioning in a row

The product profile and terminal positioning allow the passage of single-phase, three-phase, and Plug-In connection combs at the top of the product. Therefore, it is possible to freely choose the position of the connected load shedder in the row, and to connect products on the same rail using a comb.

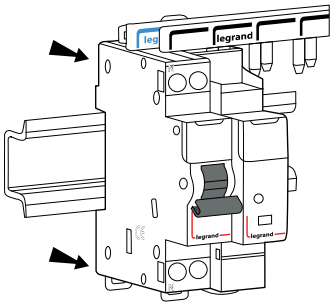
2. POSITIONING *(continued)*



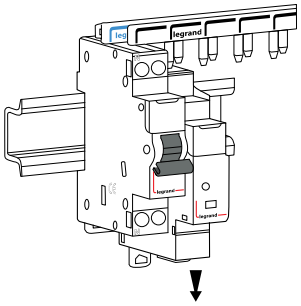
In case of maintenance, it is possible to replace a connected load shedder in the middle of a combed row upstream without disconnecting other products.



1. Set the claws to the unlocked position.



2. Pull the device forward to release it from the rail.



3. Pull the device downwards to fully disengage it from the comb teeth.

3. CONNECTIONS

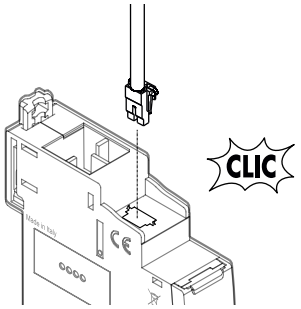
■ 3.1 Current transformer connection

The current transformer of the connected load shedding device is to be installed on the main power supply line (total consumption measurement).

If multiple connected devices measure total consumption, the total consumption information displayed in the application is prioritized as follows:

- from the connected eco-meter
- from the connected load shedder
- from the energy meter

The current transformer connection is done by inserting its connector into the slot provided on the connected load shedder until it locks (clips)



If necessary, use a small screwdriver on the clips to disconnect it.

Current transformer capacity				
Conductor section	1,5 mm²	2,5 mm²	6 mm²	10 mm² à 25 mm²
Number of flexible or rigid conductors	8	5	3	1

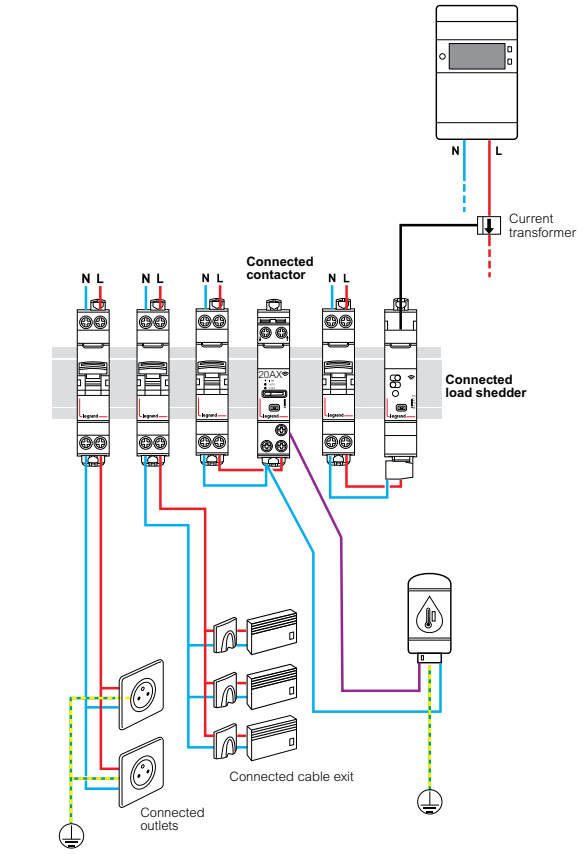
Wiring Diagram

The current transformer can be connected to a general meter, or a photovoltaic production.

REMINDER: The load shedding function requires the installation of a connected load shedder and at least one product from the "with Netatmo" range offering measurement and control functions (e.g., connected socket, connected cable outlet, connected contactor, etc.).

Here are the wiring diagrams for:

- a standard electrical installation:



N (neutral): blue

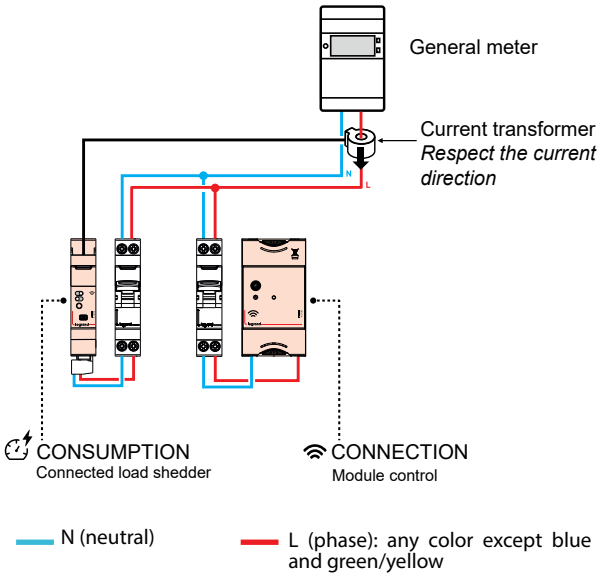
L (phase): any color except blue and green/yellow

Earth: green/yellow

Phase after contact: usually violet, orange…

3. CONNECTION *(continued)*

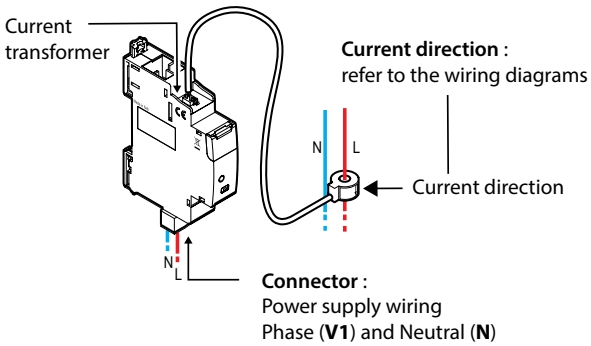
- a photovoltaic production:



In a photovoltaic installation, the load shedding device cannot operate alone. It provides the total measurement (consumption part), while the photovoltaic measurement function (production part) is managed by a single-phase energy meter "with Netatmo" (refer to the technical documentation).

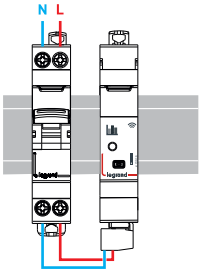
■ 3.2 Connector connection

The connection of the power supply to the connector is done as follows:



Wire the connected load shedder after a C2 to C16 protection circuit breaker according to the cable section used.

If conditions allow it, the existing electrical protections in the electrical panel can be reused for this purpose.



■ 3.3 Screw terminal connections

Types of terminals	Cage terminals
Depth	9 mm
Recommended stripping length	8 mm
Screw head	Slotted 3.5 mm
Screw type	M3
Tightening torque	0,5 Nm

Here are the sections accepted by the screw terminal for connecting copper conductors:

	Without ferrule	**With ferrule**
Rigid cable	1x (1 to 2.5 mm^2)	-
	2x (1 to 1,5 mm^2)	
Flexible cable	1x (1 to 2,5 mm^2)	1 x (1 to 1.5 mm^2)
	2 x (1 to 1.5 mm^2)	

4. CONFIGURATIONS

■ 4.1 Configuration via the application

Configuration and data visualization are done via smartphone with the Home + Control app.

General functioning

The maximum power subscribed with the energy supplier is to be completed in the application. The instant overconsumption threshold at which the device enters load shedding mode (automatically cutting off an electrical line) is fixed and set by default at 130 %. This value can be adjusted from 100 % minimum to 200 % maximum in 10 % increments in the application.

REMARK: The connected load shedder does not disconnect circuits that consume less than 50W. The "refrigerator" and "router" circuits cannot be shed.

Functionality

- TURNING OFF :

In the Home + Control app, set up the priority list to define the order in which the various devices integrated into the load shedding scenario will be turned off (previously associated with certain "with Netatmo" products: plug, contactor, dry contact, etc.). To avoid overload, the connected load shedder will then turn off these devices one by one.

- HEATING CYCLE:

When this feature is implemented, it becomes the default priority number 1 to turn off, regardless of the established list. Heaters are turned off cyclically to distribute the off cycles across different rooms in the house, maintaining occupant comfort.

- TURNING BACK ON :

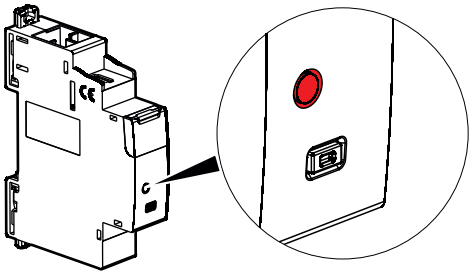
When the peak consumption is avoided, the load shedding device analyzes the available energy. The devices are turned back on in the reverse order of the configured priority list in the Home + Control app. The "Heating Cycle" option will be reactivated once the priority list elements are turned back on.

■ 4.2 Configuration visualization

Indicators

Indicators are visible on the front panel.

4. CONFIGURATIONS *(continued)*



In configuration :

Color	Status	Meaning
Red	Steady	**Transient state.** Connected load shedder not paired with the radio network.
Green	Steady	**Transient state.** Connected load shedder paired with the radio network (when the radio network is still open).
	Off	**Normal state.** Connected load shedder paired with the radio network (when the radio network is closed).

In operation:

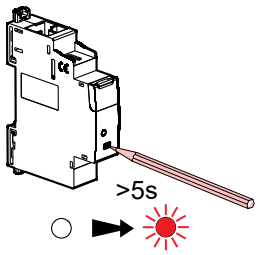
Color	Status	Meaning
	Off	No load shedding in progress.
Red	Blinking	**Three-phase installation:** Check if the connected load shedder is connected to the same phase as the current transformer.
		Any installation: Significant phase shift between voltage and current on the line caused by a load with an unfavorable power factor (motor, pool pump, certain lighting, etc.).
Blue	Blinking	**Effective load shedding:** Loads to be shed are turned off in order of priority until the subscribed power limit with the supplier is met.

■ 4.3 Removing a connected load shedding device from a connected installation

Resetting a connected load shedder is done to remove it from a connected installation.

This is easily done by pressing the configuration button on the connected load shedder for more than 5 seconds until the configuration indicator lights up red.

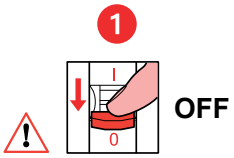
It is then no longer affiliated with the Control Module / Control Plug.



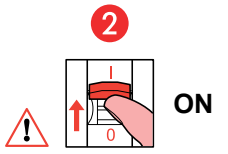
■ 4.4 Adding a connected load shedding device to a connected installation

REMINDER: To create a connected installation, a Control Module Cat.No 4 121 81 is required; either a connected starter pack or any other "with Netatmo" connection interface.

The main circuit breaker must be turned off beforehand.



After wiring and checking the installation, replace the faceplate so that no live parts are accessible.
Turn the main circuit breaker back on so that the connected devices are powered simultaneously and connect to the network.



Complete the installation in the Legrand Home + Control app.
Download the Home + Control app and follow the instructions to add the connected product to your installation.

Home + Control

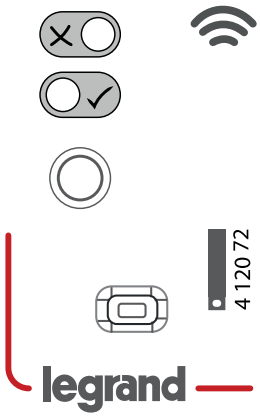
Télécharger dans l'App Store

DISPONIBLE SUR Google Play

■ 4.5 Other configurations and actions

All other functionalities and configurations (e.g., setting up scenarios, schedules, etc.) are explained step-by-step directly in the smartphone app.

5. MARKING



6. COMPLIANCES AND APPROVALS

Compliance with standards:
EN/IEC 61010-1

Environmental respect compliance – Response to European Union directives:
- Compliance with Directive 2011/65/EU known as "RoHS II" which bans hazardous substances such as lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)

- Compliance with Directives 91/338/EEC of 18/06/91 and Decree 94-647 of 27/07/04.

- REACH regulation compliance

Plastic Materials:
- Halogen-free plastic materials.

- Marking of parts in accordance with ISO 11469 and ISO 1043.

- EN ISO 306:2004, Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) (ISO 306: 2004)

- ISO 7000:2004, Graphical symbols for use on equipment - Index and synopsis

Packaging
- Design and manufacture of packaging in compliance with Decree 98-638 of 20/07/98 and Directive 94/62/EC.