



XENIT
by ATEX

MADE IN ITALY

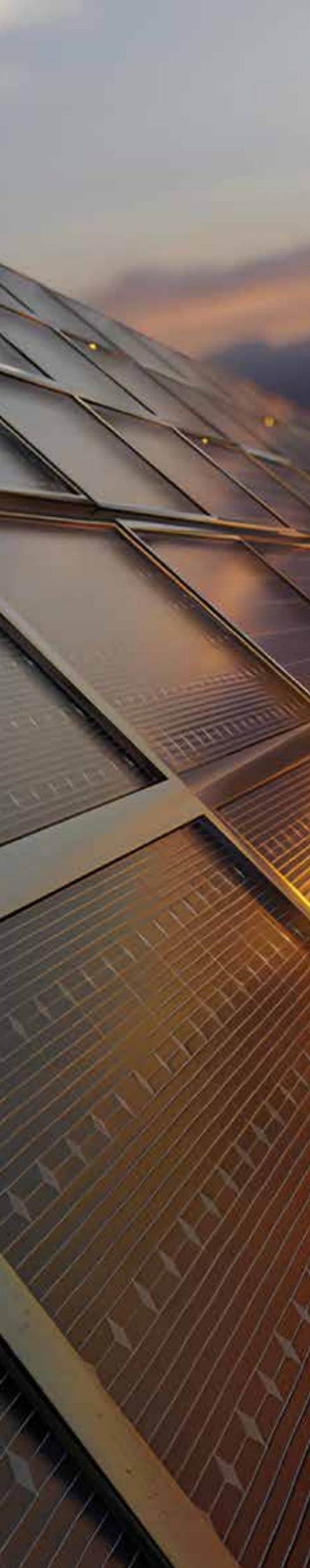
Mia Energy Kit Power Reducer

Hot Water Thermal Storage from PV system
Smart management of PV self-consumption



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Xenit is a division of ATEX INDUSTRIES
for Photovoltaic and Safety.



Xenit is engaged in the continuous research and development of **electronic devices for the revamping and management of photovoltaic energy**, as well as for the **safety and monitoring of AC and DC power lines**.



Discover our website

Photovoltaic Revamping

With the APID series of devices, we restore the power of PV systems affected by P.I.D., a degradation phenomenon that causes the progressive loss of power and consequent economic damage. On new systems APID prevents the onset of P.I.D.



Energy Management

MIA ENERGY is an automatic system that optimises the self-consumption of the energy produced by residential photovoltaic systems and improves the ability to consume the energy produced immediately and on site, shifting consumption to the peak phase of energy production.

Electric lines monitoring

The patented HELP series makes AC and DC power lines safe, monitoring the presence of cables, energy efficiency, status and the presence of loads. HELP is an advanced system, which can be integrated with IoT services, which recovers and shares information, facilitating predictive actions.



Mia Energy Power Reducer

It is an automatic system that allows the production of **hot water** for domestic and technical purposes, self-consuming all the energy produced by the photovoltaic system without purchasing it from the grid and avoiding the need to sell energy at a low return.

It can autonomously power boilers/heat pumps/puffers/hot water tanks equipped with a heating element with a power of up to 6.0 kW, thus creating **thermal storage** that ensures maximum economic benefit from the PV, saving on electricity and gas costs.

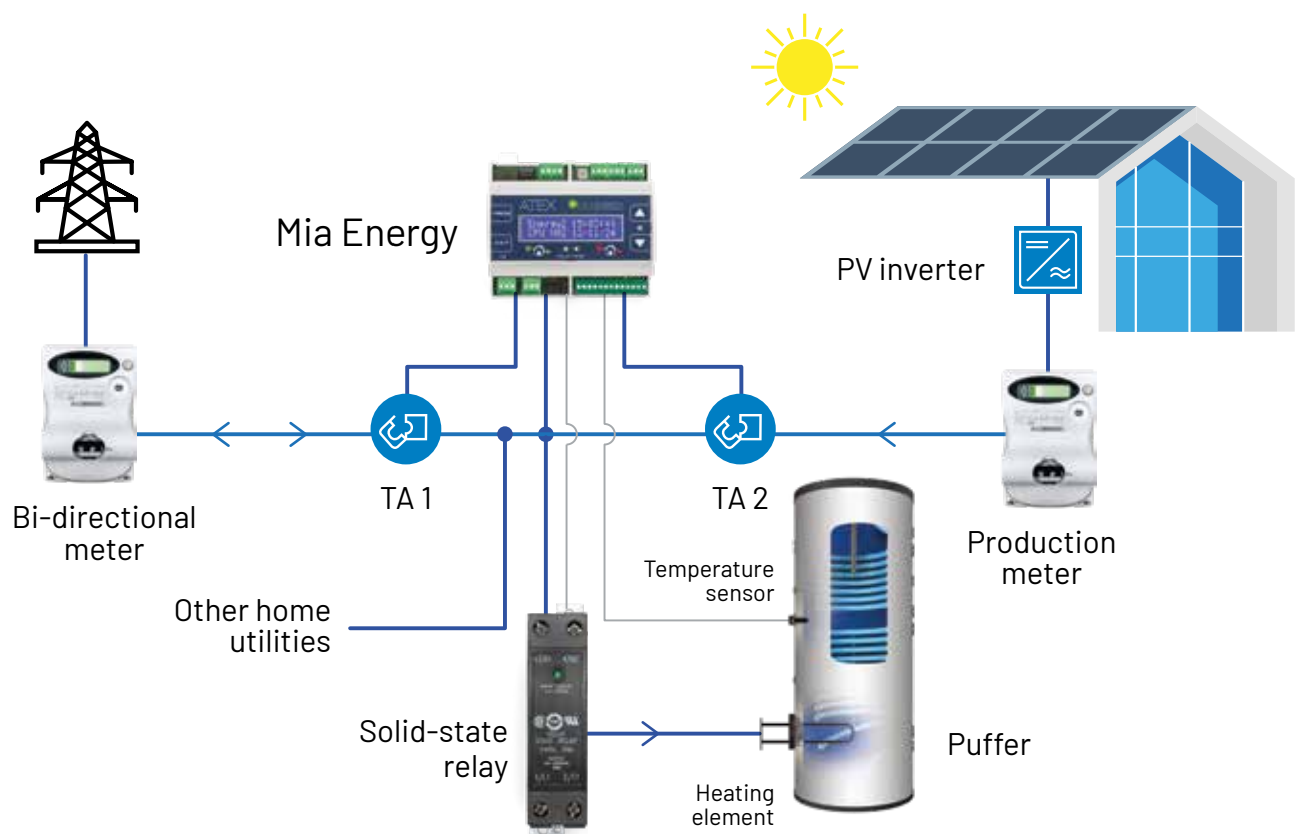


How does it work?

Mia Energy Power Reducer automatically monitors the PV system, controlling the home's production and self-consumption. When energy is available from PV, instead of feeding it into the grid, the solid-state relay modulates in proportion to the PV energy, acting as a power modulator, powering the heating element.

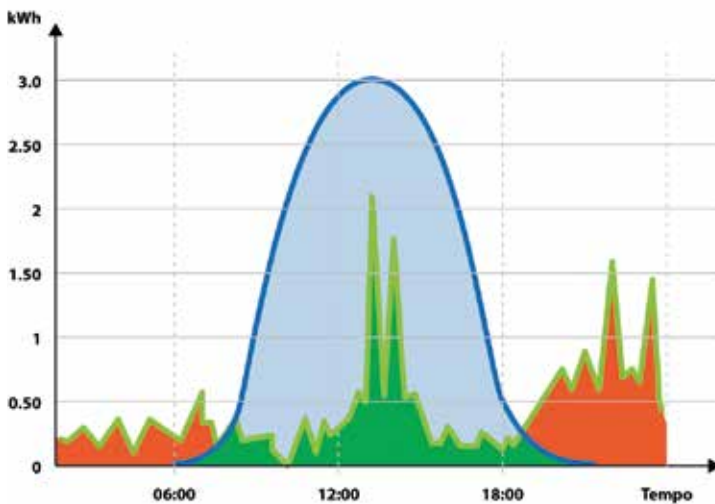
Where can it be installed?

Mia Energy Power Reducer can be installed easily and with no plumbing work on single-phase PV systems up to 6.0 kW, or using one phase on three-phase systems up to 20 kW.



What is the benefit?

- **Save on gas and electricity costs**, because by using all the energy available from the PV, we always keep the water temperature close to the desired optimum temperature, so the boiler only runs when it needs to compensate.
- **Maximum economic yield from the PV system** due to self-consumption of the energy produced.



Photovoltaic energy management Self-consumption contest and effects

- GREEN LINE daily domestic consumption
- BLUE LINE photovoltaic system production
- ORANGE AREA energy purchased from the grid
- BLUE AREA surplus energy that is normally sold to the grid, which becomes self-consumption with the use of Mia Energy Power Reducer.
- GREEN AREA standard self-consumption without the use of Mia Energy Power Reducer

What if no energy is available from the PV system?

By setting "Forced Heating Function", Mia Energy Power Reducer detects the water temperature, through the temperature sensor provided; if it falls below the programmed level, the static relay activates until the desired temperature is reached, beyond which priority will once again be given to PV self-consumption, when available.

Extra functions of Mia Energy Power Reducer:

- **Monitors and displays the energy produced, consumed, fed in**, via the on-board display.
- **Output for SG-Ready utilities (e.g. Air conditioning unit).**
- Output for switching inductive/capacitive loads on/off.
- **PV system lockout signal.**
- **Anti Blackout function** for overloads. If more energy is drawn from the grid than that stipulated in the contract, Mia Energy Power Reducer can temporarily disconnect an "expendable" load, for the time needed to return within the permitted consumption. This avoids tripping the magnetothermic switch and the consequent blackout.
- **Grid Balance function.** In areas with high photovoltaic density, line overvoltages are frequent, causing inverters to disconnect from the grid. In this case, Mia Energy Power Reducer forcibly activates a load (e.g. the electric boiler) for the time needed to lower the mains voltage, returning it to a safe level.

Mia Energy Kit Power Reducer composition and main technical specifications

KIT CODE	13064.2050.0
COMPOSITION	Mia Energy controller - Solid-state relay with modulator function - NTC sensor for controlling water temperature.



Mia Energy controller

RATED POWER SUPPLY	230+/- 20% (184..276V)
ABSORPTION	1.5W Min 4W Max (with two external relays active and possible buffer battery charging)
BUFFER POWER SUPPLY	Integrated battery charging for external buffer battery 12V 1.2A Pb (not provided)
PARAMETER DISPLAY	16x2 backlit BLUE LCD display
PARAMETER SETTING	4 buttons: Prog-Exit-Up-Down
VISUAL SIGNALS	1 x 2-colour LED for signalling energy import or export
BUZZER	Max set consumption exceeded, Blackout, Inverter fault
CLOCK/CALENDAR	Maintains correct time for 6 months in the event of power failure.
INTERNAL MEMORY	Stores consumption with history of energy consumed, produced and fed in over the last year, at every hour of the day. History of every year for 64 years.
RELAY OUTPUTS	2 relays Max 230V 5A 150W (for SG-Ready version)
DIGITAL OUTPUTS	2 NPN outputs max 300mA for controlling 2 external relays, total max permitted consumption for 2 external relays: 0.8w
PROPORTIONAL OUTPUTS	2 analogue outputs 0..10v or PWM 1Hz or PWM 100Hz Duty Cycle variable between 0 and 100% in 1% steps, for solid-state relay control with modulating function.
MEASUREMENT OF ENERGY PRODUCED AND SELF-CONSUMED	2 inputs for TA Max 32 A Resolution 0.01 A; 10 mm max diameter internal TV cable with resolution 1v; Calculation of power in watts with power factor and resolution 1w
WATER TEMPERATURE MEASUREMENT	2 inputs for NTC temperature sensors (for proportional outputs V1 and V2. The first takes priority over the second)
ANALOGUE INPUTS	2 analogue inputs 0...60V, for switching device outputs on and off depending on input voltage.
ENERGY SETTINGS	0 to 7 kW in import and export in 0.1 kW steps
TEMPERATURE	Use: -10 to +50°C; <80% R.H. non-condensing; Storage: -20 to +70°C; <80% R.H. non-condensing
CONTAINER	Plastic 6 Modules
MOUNT	DIN Rail
DIMENSIONS	D105 x L110 x H65 mm
WEIGHT	340 g
PROTECTION RATING	IP20
COMPLIANCE	Safety: EN60950-1:2006 - A11:2009 - A1:2010 - A12:2011 - A2:2013 EMC: IEC EN 61000-6-3 - EN 55022 - IEC EN 61000-6-1 - IEC EN 61000-6-2 - EN 55024 - IEC 61000-4-2 - IEC 61000-4-3 - IEC 61000-4-4 - IEC 61000-4-5 - IEC 61000-4-6 - IEC 61000-4-11
SINGLE PRODUCT REORDER CODE	13064.2036.0



Solid-state relay 30A, 12/24DC, for loads up to 6 kW

MODEL	Without zero crossing suitable for PWM settings 1Hz and 100Hz
CONTROL VOLTAGE	4 - 32 VDC
LOAD VOLTAGE	24 - 280 VAC
MAX CURRENT	30A at 25°C
OPERATING TEMPERATURE	-40°C to +80°C
APPLICABLE RESISTIVE LOAD	6 kW
MOUNT	DIN Rail
DIMENSIONS	H82 - P99 - L22,5mm
WEIGHT	280 g
PROTECTION RATING	IP20
COMPLIANCE	IEC 62314     
SINGLE PRODUCT REORDER CODE	13064.2042.0



NTC temperature sensor 10K +/-1%

DIMENSIONS	Type 103AT-11, Range -20° + 105 for controlling boiler water temperature.
SINGLE PRODUCT REORDER CODE	13064.2043.0

Other self-consumption solutions

KIT MIA ENERGY KIT SG-READY - CONTROL TWO SG-READY UTILITIES	13064.2051.0
KIT MIA ENERGY KIT RESISTIVE LOADS - CONTROL RESISTIVE LOADS UP TO 3.5 KW	13064.2054.0
KIT MIA ENERGY KIT CAPACITIVE AND INDUCTIVE LOADS - CONTROL RESISTIVE LOADS UP TO 6.0 KW	13064.2055.0



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