

# PEL 110 SERIES

**Simultaneous power  
and energy loggers**

**The loggers for efficient  
consumption!**

- Possibility of recordings covering several months
- Breakdown of energy losses
- Installation without cutting off the mains supply
- Android application with motor diagnostics



**Energy**

**Industry**

**Motor**



*Measure up*



# Save money by controlling your energy consumption.

To optimize your energy efficiency, reduce costs and improve the performance of your electrical systems, the simultaneous power and energy loggers in the PEL 110 Series are ideal tools.

## THE PEL 110 SERIES

### PEL 112



3 voltage inputs, 3 current inputs. **Compact and magnetized** with no display, this model supports **negative temperatures** and is suitable for use in cold rooms ( $-20\text{ }^{\circ}\text{C}$ ).

### PEL 113



3 voltage inputs, 3 current inputs. With a quadruple backlit digital display.

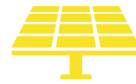
### PEL 115



4 voltage inputs, 4 current inputs. The all-terrain model in an **IP67 site-proof casing**.

## THE MARKETS

From electricity generators through to consumers, the PEL power loggers are very simple to interface everywhere.



### Renewable energies

*photovoltaic, wind, hydroelectric, thermal and thermo-dynamic*



### Process industries

*metallurgy, glassmaking, paper, chemicals, agri-food, etc.*



### Building construction and renovation

*housing, facilities, etc.*



### Public services/transport

*monitoring where the consumption is occurring (lighting, roads, motorways, tunnels, rail, etc.)*



### Datacenter

*monitoring and analysis of consumption*



# APPLICATIONS



## ENERGY AUDITS

- Voluntary (ISO 50001, etc.) or mandatory operation aiming to reduce energy consumption: buildings, housing, infrastructure, equipment, etc.
- Implementation of measurement campaigns focused on energy for comprehensive diagnosis of the electrical installation
- Identification of the causes of overconsumption by the equipment or overbilling



## PREVENTIVE AND PREDICTIVE MAINTENANCE

- Industrial equipment monitoring
- Analysis of consumption due to the Air-conditioning, Ventilation and Heating systems
- Sizing of a power factor correction cabinet
- Redistribution of the loads on the electrical grid
- + Motor diagnostics: measurement of a motor's speeds, efficiency and torque without using mechanical sensors

## OUTDOOR USE ON ELECTRICITY POLES

The PEL 115 is integrated in a rugged, waterproof casing ensuring IP67 ingress protection.

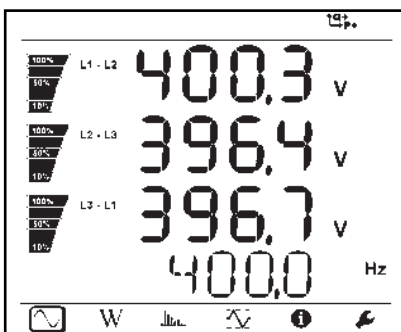


**PEL115**

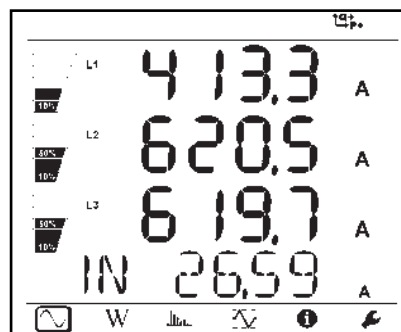
# Keep datacenters' hyperconsumption under control with the PEL110 Series

The vast volume of data requiring constant management places a heavy load on the servers and cooling systems. Consumption monitoring is a key factor for preventing failures and overconsumption. This helps to control costs and make the datacenter more reliable.

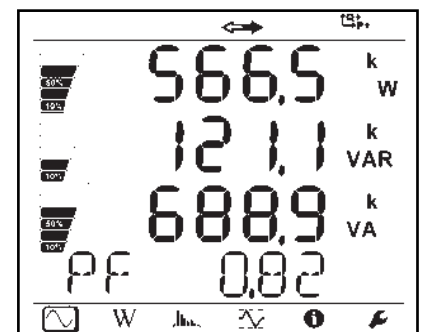
## MEASUREMENTS & FUNCTIONS



Voltage



Current



Power/PF

- RMS and DC measurements with 128 samples/cycle simultaneously on each phase
- AC and/or DC voltage measurements up to 1,000 V
- Current up to 10 kA AC, 5 kA DC (depending on the current sensor).
- Active, reactive (N,D,Qf) and apparent power values
- Active energy values
- Fundamental active power values (Pf), balanced active power values (P+) and unbalance active power (Punb)
- Motor measurements and characterization
- Self-powered via the phase
- Extensive measurement range by using voltage and current ratios
- Breakdown of energy losses
- The phase data:  $\cos \varphi$ ,  $\tan \Phi$ , power factor (PF)
- Crest factor
- THD calculation for currents and voltages
- DC, 50 Hz, 60 Hz and 400 Hz measurements (Naval, etc.)
- Recording of the measurements and calculation results on the SD card
- Automatic recognition of the type of sensor connected

## PEL Transfer software

This application software can be used to set up the **PEL 110s** and **process the energies**.

A **mathematical algorithm** applied to the **power measurement** campaigns automatically provides a breakdown of all the energy values, highlighting any **losses detected**.

Users have everything they need to rank the priorities of their operations.

Energy consumption reports can be generated very simply.



Monitor your electricity consumption in real time or periodically

## Android application

Use the Android application to view your PEL's connection to the electrical network



**Verification of the connections before starting to record**



**Download of the measurements recorded in the PELs**



**Display of the results of the various measurements and analyses**

- **Useful energy**
- **Unbalance active energy**
- **Harmonic active energy**
- **Non-active energy**
- **Reactive energy**
- **Distorting energy**
- **Apparent energy**



# NETWORK COMMUNICATION

The PELs are equipped with a wide range of wired and wireless communication possibilities. The free PEL Transfer software interface allows you to monitor the data on a PC in real time.

## Ethernet

When possible, the PELs can be connected together via an Ethernet-type wired link. The PEL Transfer software then takes control of all the instruments connected. The Ethernet link can be used at the same time as Wifi connections.

## WiFi

The PELs offer 2 Wifi operating modes. They can be connected to the company's IT network via a server. They can also be addressed directly by a PC or smartphone.

## IRD DataView® Synch

A secure server is provided so that you can view your data from anywhere in the world.

## USB

USB connections can be used to configure or download the data, as well as to take control of an instrument whatever the circumstances.



*With wired or Wifi connections, it is possible to monitor or recover the data from several PELs connected to the same network*



*PEL Transfer software*



**With PEL Transfer, you obtain the value of your electricity consumption in the local currency (€, £, \$, etc. - 8 tariff ranges).**



## Current sensors compatible with the PEL models



Model	MN93	MN 93A	MINI 94	MA194-250 MA194-350 MA194-1000	PAC93	A193-450	A193-800	C193	E94	J93	MA196*	A196-610*
References	P01120425B	P01120434B	P01106194	P01120593 P01120592 P01120594	P01120079B	P01120526B	P01120531B	P01120323B	P01120044	P01120110	P01120568	P01120554
Measurement range	500 mA to 200 A <sub>Ac</sub>	0,005 A <sub>Ac</sub> to 5 A <sub>Ac</sub> 0,2 A <sub>Ac</sub> to 100 A <sub>Ac</sub>	50 mA to 200 A <sub>Ac</sub>	200mA to 10kA <sub>Ac</sub>	1 A to 1000 A <sub>Ac</sub> 1 A to 1300 A <sub>Ac</sub>	200 mA to 10 kA <sub>Ac</sub>	200 mA to 10 kA <sub>Ac</sub>	1 A to 1000 A <sub>Ac</sub>	100 mA to 10 A <sub>Ac</sub> /DC 100 mA to 100 A <sub>Ac</sub> /DC	50 A to 3500 A <sub>Ac</sub> 50 A to 5000 A <sub>Ac</sub>	200 mA to 10 kA <sub>Ac</sub>	100 mA to 10 kA <sub>Ac</sub>
Clamping Ø / length (mm)	Ø 20	Ø 20	Ø 16	Ø 70/250 Ø 100/350 Ø 300/1000	1 x Ø 39 2 x Ø 25	Ø 140 / 450	Ø 70/250 / 800	Ø 52	Ø 11.8	Ø 72	Ø 100 / 350	Ø 190 / 610
IEC 61010	600 V CAT III / 300 V CAT IV		IEC 61010 CAT III - 600 V / CAT IV - 300 V	1000V CATIII / 600V CATIV	600 V CAT III / 300 V CAT IV	1000 V CAT III / 600 V CAT IV		600 V CAT IV	600 V CAT III / 300 V CAT IV	600 V CAT III / 300 V CAT IV	1000 V CAT III / 600 V CAT IV	1000 V CAT III / 600 V CAT IV

\*PEL115

## Other accessories

BB196 cables kit (x 5), IP67.....	<b>P01295479</b>
Mains power cable.....	<b>P01295174</b>
PEL mains adapter.....	<b>P01102204B</b>
Cables/clips kit (x4).....	<b>P01295476</b>
Set of inserts/rings.....	<b>P01102080</b>
5 A adapter.....	<b>P01101959</b>
DataView® Software.....	<b>P01102095</b>
No. 23 Bag.....	<b>P01298078</b>
Pole mounting kit.....	<b>P01102146</b>



References : P01102204B

*For long-term campaigns, the mains adapter for self-powering the PEL is ideal: no more worrying about your batteries!*



# TECHNICAL SPECIFICATIONS

Models	PEL 112	PEL 113	PEL 115
Display	None	Quadruple digital display	
Types of installations	Single-phase, split-phase, three-phase with or without neutral, and many other specific configurations		
Number of channels	3 voltage inputs, 3 current inputs (neutral current calculated)		4 voltage inputs, 4 current inputs
<b>Measurements</b>			
Network frequencies	DC, 50 Hz, 60 Hz and 400 Hz		
Voltage (measurement ranges)	10.00 -1,000 Vac / 100.00 - 1,000 Vdc		
Current (see previous page)	5 mAac to 10 kAac / 50 mAdc to 5 kAdc		
<b>Calculated measurements</b>			
Ratio	Up to 650,000 V / up to 25,000 A		
Power (P, Pr, P+, P <sub>unb</sub> , Qr, N, D, S)	10 W to 10 GW / 10 var to 10 Gvar / 10 VA to 10 GVA		
Energy	Up to 4 EWh / 4 EVAh / 4 Evarh (E = 10 18)		
Phase	cos φ, tan Φ, PF		
Harmonics	THD		
<b>Additional functions</b>			
Phase order	Yes		
Min / Max	Yes		
Alarm	Yes		
Mounting	Magnet		Hook (Opt.)
<b>Recording</b>			
Acquisition rate / Aggregation period	5 measurements/s - 1 min to 60 min		
Data storage	SD card, 8 GB (up to 32 GB on SD-HC card)		
Communication	USB, Ethernet, Wifi (Access point and Hotspot), IRD Server DataView® Synch		
Power supply	110 V - 250 V (+10 %, -15 %) at 50-60 Hz & 400 Hz		Powered by the phase - 1,000 V AC/DC
Safety	IEC 61010 600 V CAT IV and 1000 V CAT III		IEC 61010 1000 V CAT IV
<b>Mechanical specifications</b>			
Dimensions	256 x 125 x 37 mm without sensor		245 x 270 x 180 mm without sensor
Weight	900 g	950 g	<3400 g
Casing	IP54		IP67
Operating temperatures	-20°C to +50°C		-20°C to +50°C

## STATE AT DELIVERY:

### A PEL 112 OR PEL 113 IS DELIVERED WITH:

1 carrying bag, 4 voltage cables, 4 crocodile clips, 1 set of inserts/rings, 1 SD card, 1 SD Card-USB adapter, 1 USB cable, PEL TRANSFER PC software & User's Manual downloadable from our website, 1 Quick Start Guide.

### A PEL 115 IS DELIVERED WITH:

1 bag for the accessories, 5 x IP67 voltage cables, 5 lockable crocodile clips, 1 set of inserts/rings, 1 SD card, 1 SD Card-USB adapter, 1 USB cable, PEL TRANSFER PC software & User's Manual downloadable from our website, 1 Quick Start Guide.

## REFERENCES TO ORDER:

PEL 112 without current sensors ..... **P01157156**  
 PEL 113 without current sensors ..... **P01157157**  
 PEL113 with MA194-350 sensors and adapter..... **P01300003**  
 PEL 115 without current sensors ..... **P01157169**



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