Wattmeter and energy counter TRMS (true RMS)
Direct or alternative current 50Hz , 60Hz , 400Hz

IPL36

- ***TRMS measurement AC + DC:***
  Single-phase or balanced three-phase 0...440 Hz
  PWM, Wave train,
  Phase angle variation,
  High level harmonics signals
- ***Multi sensors for current measurement :***
  Shunt, transformer, Rogowski coil,
  Hall effect sensor or direct input 1A and 5A.
- ***Programmable:***
  voltmeter, ammeter, wattmeter, var meter,
  power factor, Cos phi, frequency meter.
- ***6 digits measure display, 96 x 48mm format***
  4 digits alphanumerical display for measure unit
  Display: U, I, Cos, P, Q, S, Hz (energy in option)
- ***option:***
  isolated analog output, 2 relay outputs, RS485 Modbus,
  Ethernet Modbus TCP (6 connections) and SNMP
- ***Universal wide range ac/dc power supply***

AC ***DC+AC***

The IPL36 is an indicator for measuring, monitoring and for the transmission of electrical measurement. Implementation is fast by simple configuration of transformer ratio or shunt sensitivity. The various output options allow a wide range of application: measurement, protection, control, …...

Measurement:
- Direct or alternative current network, single-phase or balanced three-phase (configurable PT and CT ratios or shunt sensitivity).
- 2 voltage input range: 150V and 600V others on request up to 1000V.
- 2 current input range: 200mV (external shunt), 1A / 5A internal shunt.
- current measured by Hall effect sensor (+/- 4V rating, +/-10V peak)
- active (P), reactive (Q), apparent (S) power consumed / generated
- active energy (integrator option)
- cos φ (power factor) , frequency 1Hz to 440 Hz
- configurable integration time from 0.01 to 60 seconds for the measurement in slow waves train applications.
- function : hold time of maximal value (voltage and current)

Front face:
- 6 digits LED display, 14,2 mm height for the measure
- 4 digits alphanumeric LED matrix display for the units
- 2 red LEDs for relay status indication
- 3 push buttons :
  * Full configuration of device
  * Select of displayed value (U, I, Cos, P, Q, S, Hz)
  * Setting of alarm thresholds, ...

Relays (/R option): maximum of 2 relays configurable:
- in alarm, selection of the monitored measure (U, I, Cos, P, Q, S, Hz),
- threshold, direction, hysteresis and delay for each relay.
- with the integrator option (IPL36-i), the relay can provide pulse for energy count. The pulse weight is user configurable.

Analog output (/S option):
- 1 isolated analog output, fully configurable:
  measure type and range to monitor: (U, I, Cos, P, Q, S, Hz)
  type and range of analog output (0 .. 10 V, 0 ... 4 ... 20 mA)
  response time (filter), limitation……

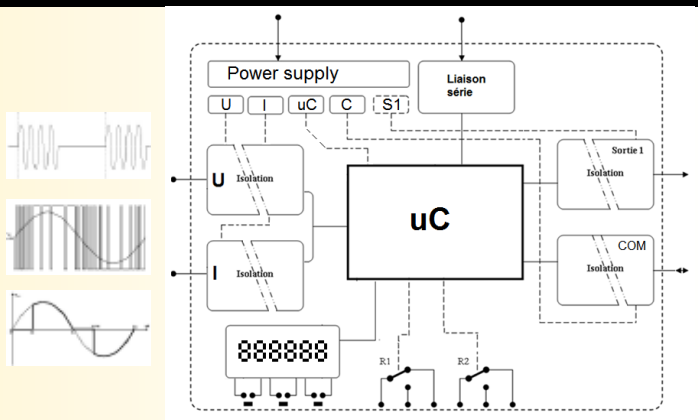
Communication (/C option):

RS485 link	Modbus RTU
Ethernet (RJ45) link	Modbus TCP / SNMP , Web server

Configuration:
The device can be configured via the front face or via the serial RS232. (USB cable -> 3.5 jack supplied separately)
- Firmware update is possible via this USB link.

Feature:
- DIN panel case : 96x48 mm, pluggable connectors,
- protection rating: IP20, IP65 in option, conformal coating

Synoptic:



Associated current sensors

shunt | current transformer | Hall effect sensor | Rogowski coil

Version and order code:

Request a quote

IPL36	Direct input 1A / 5A or mV for remote shunt
IPL36-Hall	Input for split-core Hall effect sensor HcO type (up to +/-1200 Adc+ac)
IPL36-Rogo	Input for Rogowski coil Rogoflex LT type (up to 2000Arms)
IPL36-i	Integrator option for energy count AC and DC.
IPL36/R1	+ 1 relay
IPL36/R2	+ 2 relays
IPL36/S	+ 1 analog output
IPL36/CM	+ RS485 MODBUS RTU
IPL36/CMTCP	+ ETHERNET MODBUS TCP / SNMP

options /S, /CM, /CMTCP are not combinable.

90 days accuracy (20 °C +/- 2 °C) DATA SHEET CAN BE DOWNLOADED ON WWW.LOREME.FR

TECHNICAL SPECIFICATIONS

INPUT

ac/dc voltage input range	150Vac (200Vdc) / 600Vac (+/-1000Vdc)
Input impedance	500Kohms / 2Mohms
Overload	2 Un for 3 sec
Measure threshold	0.5% of full scale
Accuracy	+/- 0.3% of full scale
Power consumption	0.12 W

ac/dc current +/-250mV (200mVac) *for shunt 50mV; 60mV; 100mV or "Tio" Split-core current sensor*
1Aac, 5Aac *direct input or for current transformers*
+/- 10Vmax for Hall effect sensor input
(+/-15V sensor power supply included)

Input impedance	0.05 ohms: 5A / 0.25 ohms: 1A
Overload	6 x In for 3 sec (on 1A / 5A direct input)
Measure threshold	0.5% of full scale
Accuracy	+/-0.3% full scale
Power consumption	1.25 W
Frequency	0Hz / 1Hz....440 Hz +/- 0.2 %

METROLOGY

(the accuracies are given in percentage of full ranges)

DC or Active power	+ / - 0.5%
Reactive power	+ / - 1% (in % of apparent power)
Cos phi (power factor)	+ / - 0.5%

(conditions: F:45/65 Hz, power factor> 0.7, peak factor 1.4; range U / I 10 to 90%)
1ms sampling interval, sampling integration programmable from 10ms to 60sec.

Communication

RS485	600...19200 bps	Modbus RTU
Ethernet (RJ45)	10/100 M	Modbus TCP/SNMP

ANALOG OUTPUT

TYPE	RANGE	ACCURACY
Current	0 ... 4 ... 20 mA	+/- 10 µA
Maximum load	750 Ohms	
Voltage	0 ... 5 ... 10 V	+/- 5 mV
on shunt	500 Ohms	

RELAY

Changeover contact. Switching power:
dc: 220Vdc-0.24A-60W; 125Vdc-0.24A-30W; 30Vdc-2A-60W
ac: 250Vac-0.25A-62.5VA; 125Vac-0.5A-62.5VA
surge voltage: 3Kv between coil/contact; 2.5Kv contact/contact
mechanical endurance: 10^8 operations
Shock resistance (functional): 300g

POWER SUPPLY (2 versions, not polarized)

standard: 21Vdc .... to 265Vac/dc, 3VA
low voltage: 12Vdc....to.....30Vdc, 3VA

ENVIRONMENT

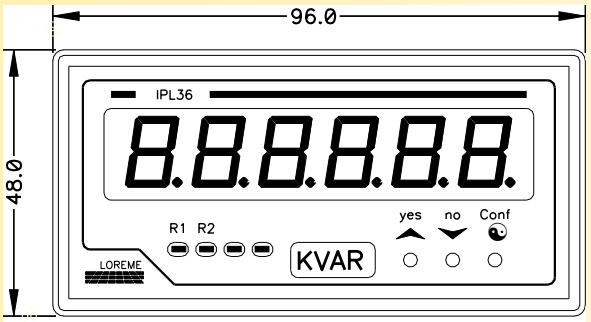
Operating temperature	-25 to 60 °C
Storage temperature	-25 to 85 °C
Thermal drift (% of full scale)	< 0.03 % / °C
Humidity	85 % not condensed
Weight	~ 250 g
Protection rating	IP20 (IP65 front face in option)
Dielectric strength	1500 Vrms continuous Inputs/Power/Outputs/Relays
MTBF (MIL HDBK 217F)	> 2 000 000 Hrs @ 25°C
Life time	> 200 000 Hrs @ 30°C
Shock IEC 60068-2-27 (operating)	15 G / 11 ms
Bump IEC 60068-2-29 (transportation)	40 G / 6 ms
Vibration IEC 60068-2-6 (operating)	1 G / 10 - 150 Hz
Vibration CEI 60068-2-6 (transportation)	2 G / 10 - 150 Hz

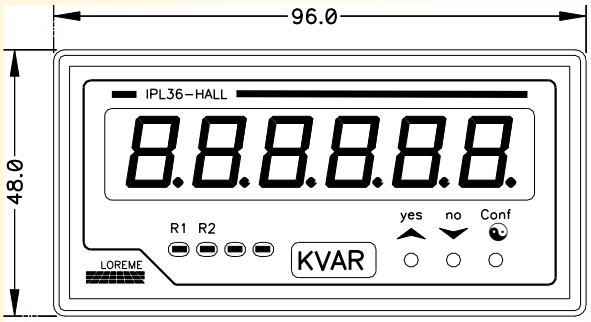
Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE

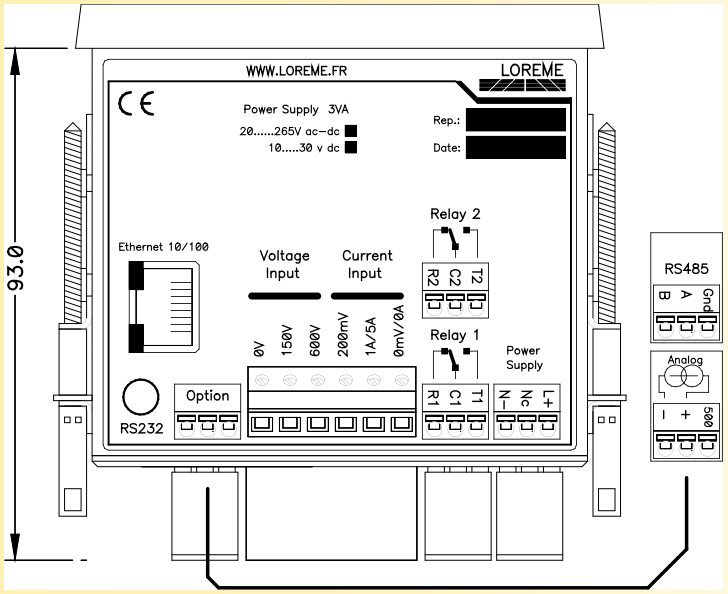
Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4
EN 61000-4-2 ESD	EN 61000-4-8 AC MF	EN 55011 group 1 class A
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	
EN 61000-4-6 RF	EN 61000-4-29 DC dips	

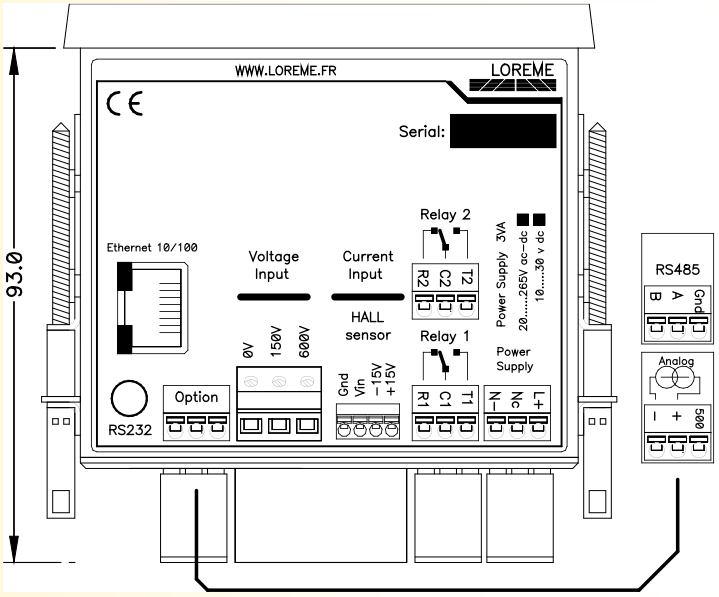
CE

WIRING AND OUTLINE DIMENSIONS: *panel cutout : 92.5 x 42.5 mm*









E 2 **LOREME** 12, rue des Potiers d'Etain - 57071 Metz ☎ 03.87.76.32.51 - www.loreme.fr - Email: Commercial@Loreme.fr - Technique@Loreme.fr