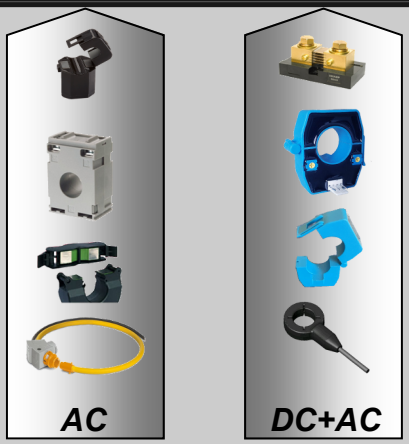
TRMS panel Voltmeter, Ammeter, frequency meter
Direct or alternative current 50Hz, 60Hz, 400Hz — *IPL36L*

LOREME

- ***RMS measures AC + DC:***
  Single phase or balanced three phase 0...440Hz
  PWM, wave train,
  Phase angle variation,
  high level harmonics signals.
- ***Multi sensor for current measurement:***
  Shunt, transformer, Rogowski coil,
  Hall effect sensor or direct input 1A and 5A.
- ***Programmable:***
  function: voltmeter, ammeter, frequency meter
- ***6 digits measure display***
  4 digits alphanumerical display for the unit
  Display: U, I, Hz
- ***option:***
  isolated analog output, 2 relay outputs
  RS485 Modbus RTU
  ETHERNET Modbus TCP (6 concurrent connections) & SNMP
- ***Universal ac/dc wide range power supply***



The IPL36L is an indicator for measuring, monitoring and retransmission of current, voltage and frequency of an AC or Dc electrical network. Implementation is fast by simple configuration of input parameters. The various output options allow a wide range of application: measurement, protection, control, …...

measurement:
- AC or DC; single phase or balanced three phases (configurable TP, CT ratio or shunt sensitivity).
- 2 voltage calibers: 150V, 600V others on request up to 1000V.
- 2 current calibers: 200mV (external shunt), 1A or 5A internal shunt.
- Hall effect sensor (+/- 4V input)
- configurable integration time from 10 ms to 60 seconds for the measurement in slow waves train applications.
- frequency range from 1Hz to 440 Hz.

Front face:
- 6 digits 14,2 mm LED display for the measure
- 4 digit alphanumeric LED matrix display for the units
- 2 red LEDs to display the relay status
- 3 push buttons for:
  * The complete configuration of the device
  * Selecting the displayed value (U, I, Hz)
  * The setting of alarm thresholds, ...

Relays (/R option):
1 or 2 relays, configurable alarm with selection of the monitored measure (U, I, Hz). Threshold, direction, hysteresis and delay are individually adjustable on each relay (on & off delay).

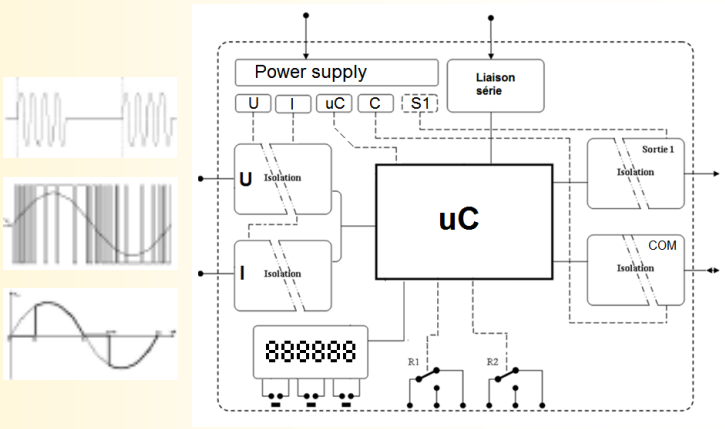
Analog output (/S option):
1 isolated analog output, completely configurable:
measuring type and range to follow: (U, I, Hz)
type and range of analog output (0 .. 10 V, 0 ... 4 ... 20 mA)
response time (filter), limitation….

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.

Realization:
- Slot-in box 96x48 mm, un-pluggable connectors,
- degree of protection: IP20 option IP65, conformal coating,
- Complete galvanic isolation.

Block diagram:



Associated current sensors

shunt | current transformer | Hall effect sensor | Rogowski coil

Version and order code:

IPL36L	Direct input 1A / 5A or mV with remote shunt
IPL36L-Hall	Input for Split-core Hall effect sensor HcO type (up to +/-1200Adc+ac)
IPL36L-Rogo	Input for Rogowski coil Rogoflex LT type (up to 2000Arms)
IPL36L/R1	+ 1 relay
IPL36L/R2	+ 2 relays
IPL36L/S	+ 1 analog output
IPL36L/CM	+ MODBUS RTU LINK
IPL36L/CMTCP	+ ETHERNET MODBUS TCP / SNMP LINK

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

TYPE	RANGE	ACCURACY
AC voltage	150 ; 600 V	+/- 0.3% input range
DC voltage	+/-200 ;+/- 900 V	+/- 0.3% input range
Input impedance	500Kohms - 2Mohms	
Overload	2 x rated voltage during 3 s	
Measure threshold	0.5% of input range	
Power consumption	0.12 W	
current ac/dc	+/-250mV (200mVac) (for shunt 50mV; 60mV; 100mV or split core Ct) 1Aac; 5Aac direct input or current transformer +/- 4V for Hall effect sensor (sensor power supply:+/- 15V)	
Input impedance	0.05 ohms: 5A / 0.25 ohms: 1A	
Overload	6 x rated current during 3 s	
Measure threshold	0.5% of input range	
Power consumption	max 1.25 W	
Frequency	0Hz / 1Hz….440 Hz	+/- 0.2 %

Other input range on request.
Note: use transformer for greater scope in AC.

- measures / response time: sampling integration programmable from 10ms to 60s.

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
Load	0 ... 750 Ohms	
Voltage	0 ... 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

Universal: (2 versions: non polarized standard or low voltage)
standard: 21Vdc, 55Vac....to.....265Vac/dc, 3VA
low voltage: 12Vdc....to.....30Vdc, 3VA

ENVIRONMENT

Operating temperature	-10 to 60 °C
Storage temperature	-20 to 85 °C
Drift (% of full scale)	< 0.03 % / °C
Humidity	85 % not condensed
Weight	~ 250 g
Protection rating	IP20 (option IP65 front)
Dielectric strength	1500 Vrms permanently Inputs / Power / Outputs / Relays
MTBF (MIL HDBK 217F)	> 2 000 000 Hrs @ 25°C
Life time	> 200 000 Hrs @ 30°C

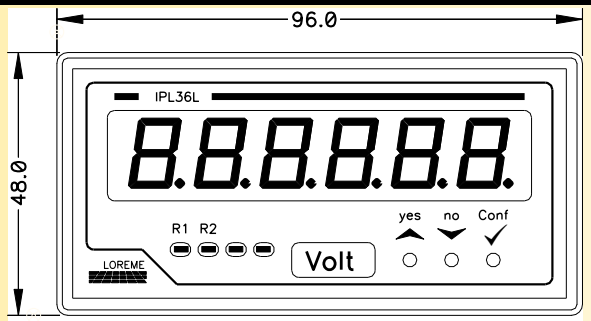
Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE

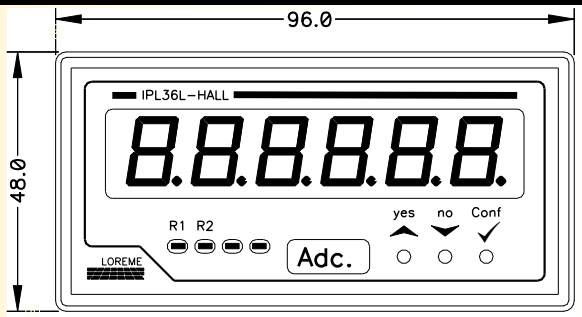
Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4
EN 61000-4-2 ESD	EN 61000-4-8 AC MF	EN 55011 group 1 class A
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	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

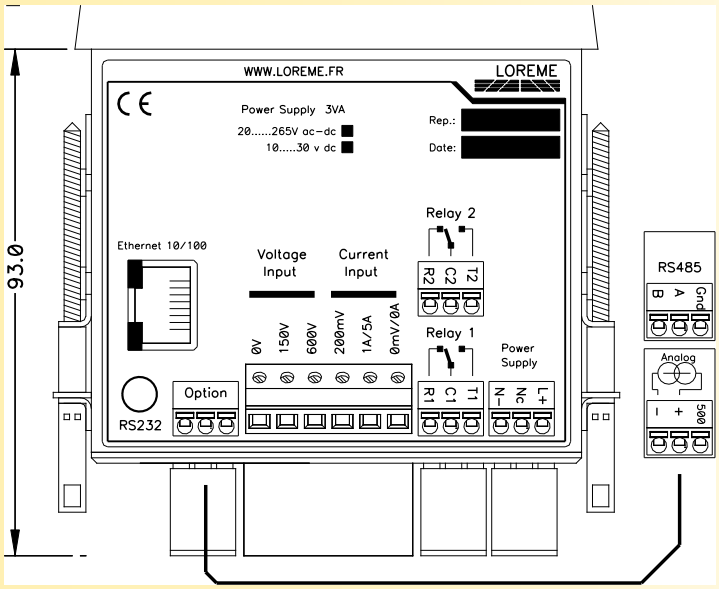
CE

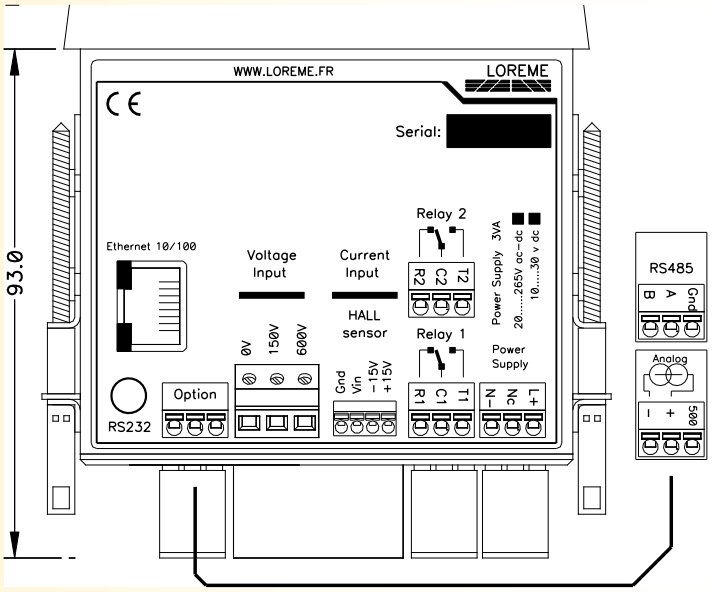
WIRING AND OUTLINE DIMENSIONS:

panel cutout : 92.5 x 42.5 mm









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