PROGRAMMABLE NETWORK

CONVERTER ANALYSER IPL244, IPL144L

- ***High adaptability:*** *direct, alternative, single-phased, three-phased balanced, unbalanced, with or without neutral,*
- ***High display capacity:*** *10 simultaneous values (IPL244)*
  3 simultaneous values (IPL144L)
- ***8 output slots:*** *analog, relay, RS485, ...*
- ***Fully insulated 3U, 3I***
- ***Universal power supply***

IPL244

IPL144L

The IPL244/144L belongs to the new generation of universal analyser for any type of network. Without transformer on the input, it does not distort nor dephase the signals applied to its terminals, which ensures their perfect analysis.

FUNCTIONALITY:

Applications:
- Measure, control, pilot, regulation, protection.

Measures:
Thanks to its integrated calculation functions, the IPL244/144L allows the measure of all electric measures:
- direct voltage and current (700 Vdc, 7 Adc),
- effective alternating voltage and current (500 Vac, 5 Aac),
- inverse current,
- active (P), reactive (Q), apparent (S), power (generated-consumed),
- cos φ (power factor) inductive-capacitive,
- frequency (35 to 400 Hz),
- active, reactive, generated, consumed energy, with independant addition by channel (saved), reset in configuration or with keyboard (lockable in the configuration),
- configurable transformation ratio (current and voltage).

Display:

IPL244:
- 10 values displayed simultaneously, selected by 3 press-buttons and/or RS232 configuration
- 8 values of 3 digits 1/2 and 2 values of 7 digits 1/2 (L1, L2, L3 / I1, I2, I3 / ...)

IPL144L:
- 3 values displayed simultaneously, selected by 1 press-button
- 3 values of 7 digits
- display of the type and the value

- Display with red leds 7.62 mm great luminosity
- Automatic change of the scale factor (V-kV, A-kA, kW-MW)
- Automatic positioning of the decimal point.

Outputs slots:
The IPL244/144L is equipped with 8 slots. Each slot can receive either:
- one insulated analog ouput, assigned to any chosen measure,
- one configurable relay in alarm or energy counting,
- one numerical RS485 link with MODBUS/JBUS protocol.
(data in integer 32 bits and floating 32 bits IEEE (optional))

Options:
- power cut option soon available.

GENERALITY:

Environment:
- Slot-in plastic box, U-link fastening
  - IPL244: 144 x 144 x 175, cut-off 139 x 136,
  - IPL144L: 144 x 72 x 175, cut-off 139 x 66,
- Plug-in connector, connection with screw-terminals (2.5 mm²) or with threaded rod for current input (optional),
- Protection index IP20 (option IP54, RS232 on back side).

Security:
The IPL244/144L has been designed in accordance with the problems met in industrial environments:
- galvanic insulation inputs / ouputs / power supply / contacts,
- saving of configuration parameters in EEPROM, safety of data holding > 10 years,
- saving of energy meters in RAM, safety of data holding > 10 years,
- noise immunity,
- watchdog supervising the program process,
- regeneration of internal parameters at each measure,
- algorithm checking continuously the validity of the measures

DIALOGUE - CONFIGURATION:

Thanks to its front-side keyboard, the IPL244/144L allows to reset the energy meters, to change the pages of visualization, ...

The user can visualize and configure all the parameters of the IPL244/144L via the RS232 link.

The device can interact via the RS232 serial link (jack 3.5, or option: DB9 on back side), with any system emulating a terminal. Example: Terminal program in Windows: ----> (Free supply of cable and terminal program in DOS on simple request).

RS232 transmission format:
- 9600 bauds,1 start bit, 8 data bits, 1 stop bit.

Through the terminal, the user will be able to:
- visualize the measures, the actual configuration,
- make a new configuration of the IPL244/144L.

The configuration mode allows to choose:
- the wiring type (direct, alternative, single-phase, three-phase, balanced, unbalanced, with or without neutral, 3 independant wattmeters, ...),
- the PT and CT ratio,
- the working relays mode,
- the RS485 link parameters,
- the type and the scale of the analog ouputs,
- the display type.

The simultaneous display of all the measures can only be done with the program Kermit from PC in full-page mode. In 2-line mode, only a message of access to the configuration is displayed. The full-page function slows down the device.

Accuracy at 90 days (20 °C +/- 2 °C)

INPUT

TYPE	RANGE	ACCURACY
Alternative voltage	500 V (direct)	+/- 1.5 V
Direct voltage	+/- 700 V (direct)	+/- 1.5 V
And		
Alternative voltage	125 V (direct)	+/- 0.37 V
Direct voltage	+/- 175 V (direct)	+/- 0.37 V
Input impedance	2 M / 500 kOhms	
Overload	3 x UN during 3 s	
Measure threshold	5 V / 1.5 V	
Absorbed power	0.12 W / 0.03 W	
Alternative current	5 A (direct)	+/- 15 mA
Direct current	+/- 5 A (direct)	+/- 15 mA
Input impedance	0.05 Ohms	
Overload	6 x IN during 3 s	
Measure threshold	0.1 A	
Absorbed power	1.25 W	
Other calibers on request,		
Current	1 A	+/- 0.3 %
Voltage	100 V	+/- 0.3 %

Note: use a transformer for an upper range (only in alternating).

Frequency	35 to 400 Hz	+/- 0.2 %

METROLOGY

(accuracy is given in percentage of the full calibrers)

Active power	+/- 0.6 %	
Reactive power	+/- 1 %	(in % app. P)
COS φ	+/- 0.6 %	
Active energy	+/- 0.6 %	
Reactive energy	+/- 1 %	

(conditions: freq. 45/65 Hz, cos φ > 0.7 ; peak factor 1.4 ; calibres U/I 10 to 90%)

measures / response time: } depending on the configuration type
Measure rate: 1 to 3 per second
Response time: from 300 to 900 ms

OUTPUT

TYPE	RANGE	ACCURACY
Current	0 ... 4 ... 20 mA	+/- 10 µA
Load:	500 Ohms	
Voltage	0 / 10 V	+/- 5 mV
External shunt	500 Ohms (supplied separately)	

RELAYS

Commutation capacity	5 A / 250 V
Reverse contact	Type RT
Impulse rate in counting	2 / s max.
Impulse width	200 ms

POWER SUPPLY

Universal voltage	1st scale	80 Vac to 250 Vac, 80 Vdc to 300 Vdc,
	or 2nd scale	20 Vac to 60 Vac, 20 Vdc to 80 Vdc,
Power		7 VA

ENVIRONMENT

Temperature	
Operating	-10 to 60 °C
Storage	-20 to 85 °C
Influence (of the full scale)	< 0.03 % / °C
Humidity	85 % (not condensing)
Weight	~ 950 g
Protection	IP20 (option IP54, RS232 on back side)
Dielectric rigidity	1500 Veff continuous (Input/Outputs/Pwr./Contacts)

Electromagnetic compatibility

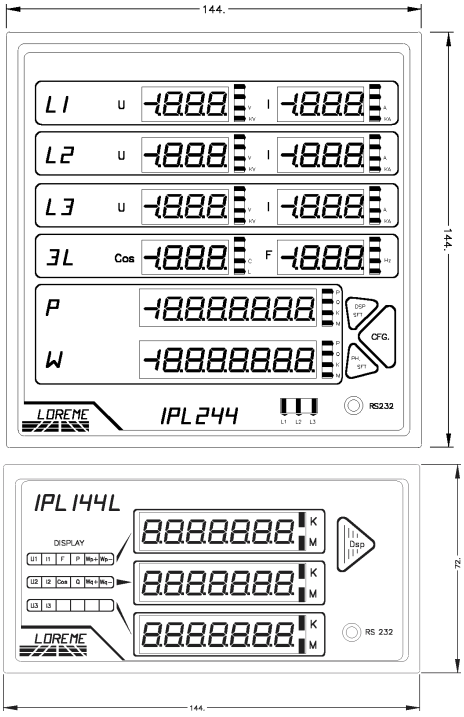
Generic standards: NFEN50081-2 / NFEN50082-2

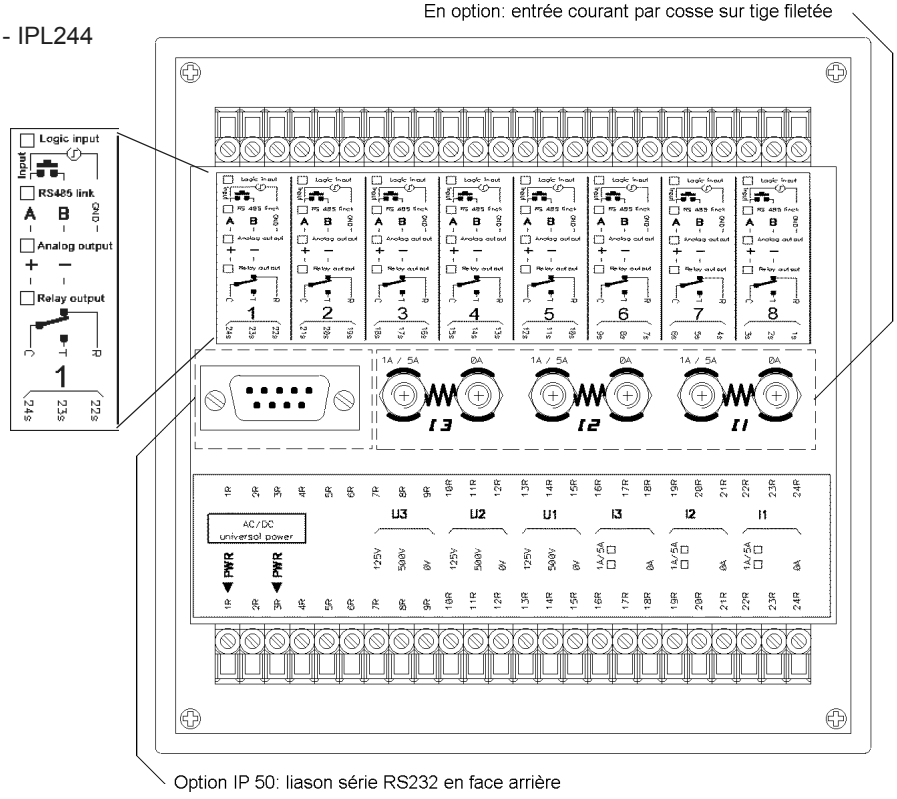
EN61000-4-2	no influence		B
EN61000-4-4	no influence		B
ENV50140	< +/- 5 %		A
ENV50141	< +/- 3 %		A
ENV50204	no influence		A
EN55011	meet	group1	class A

CE

WIRING AND DIMENSIONS:

Identical wiring for IPL244 and IPL144L.
Cut-off: 66 x 139 mm - IPL144L, 136 x 139 mm - IPL244
Insertion depth: 175





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