

Main Features

Measurements

- Three-phase 3-wire or 4-wire unbalanced load operation
- True RMS metering provides accurate measurement even for distorted waveform
- Fully bi-directional, four-quadrant readings
- Volts, Amps, Power, PF, Frequency, Energy, Min/Max values, Demand and more
- Individual & total harmonic distortion for voltage and current up to the 31st order
- Direct measurement up to 600 (750)V_{AC}
- Programmable 1A / 5A current full scale.

Modularity

- Two slots for plug-in option boards
- The transducers version, the ANSI 4" display unit and the compact DIN 96 instrument allow various mounting combinations to fit the requirements of new installations as well as retrofit applications. The "Physical Configurations" page shows the mounting combinations

On-Board Memory

- 128k or 2MBytes non-volatile memory for data storage
- Programmable start/stop time of recordings
- Wraparound or Fill (FIFO/Stack) selectable recording mode
- Min/Avg/Max logging every 1, 5, 10, 15, 30, 60 minutes, programmable up to eight selectable parameters
- Total and daily energy consumption recording . Are stored the individual consumptions of more than 300 days
- Event, alarm and digital outputs ON/OFF recording

Communication

- Both RS232 and RS485 included in the basic unit. The selection is made by dip-switches
- Modbus protocol or standard ASCII protocol
- Communication speed programmable up to 57,600 bps
- Optional 10/100 Ethernet, Profibus or Lonbus interfaces

Inputs & Outputs

- Up to 6 digital outputs for energy pulsing or for alarm tripping. Two digital Optomos ML outputs are included in the basic unit.
- Up to 4 analog outputs 0-20 or 4-20 mA
- Optional four digital inputs for pulse counting

Other

- Real time waveform downloading via communication port. This function allows to represent graphically on the PC the three voltages and the three currents with 128 samples per cycle.
- On-board HTML Web Page server or direct communication through Ethernet / Internet network using Modbus or standard ASCII protocol
- Real Time Clock with battery backup

INSTANTANEOUS MEASUREMENTS		
PHASE VOLTAGE	$V_{L1-N} - V_{L2-N} - V_{L3-N}$ [V]	●
LINE VOLTAGE	$V_{L1-L2} - V_{L2-L3} - V_{L3-L1}$ [V]	●
SYSTEM VOLTAGE	V [V]	●
LINE CURRENT	$I_{L1} - I_{L2} - I_{L3} - I_N$ [A]	■
SYSTEM CURRENT	I [A]	■
POWER FACTOR	$PF_{L1} - PF_{L2} - PF_{L3}$	●
SYSTEM POWER FACTOR	PF	●
COSØ	$DPF_{L1} - DPF_{L2} - DPF_{L3}$	○
APPARENT POWER	$S_{L1} - S_{L2} - S_{L3}$ [VA]	■
SYSTEM APPARENT POWER	S [VA]	■
ACTIVE POWER	$P_{L1} - P_{L2} - P_{L3}$ [W]	■
SYSTEM ACTIVE POWER	P [W]	■
REACTIVE POWER	$Q_{L1} - Q_{L2} - Q_{L3}$ [var]	■
SYSTEM REACTIVE POWER	Q [var]	■
FREQUENCY	f [Hz]	●
DEMAND (AVERAGE VALUES)	$P_{AV} - S_{AV} - Q_{AV} - I_{AV}$	●
THERMAL CURRENT	$I_{L1} - I_{L2} - I_{L3}$ [A ² s]	□
VOLTAGE THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%]	○
CURRENT THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%]	○
FFT ANALYSIS 31 ST	$V_{L1-N} - V_{L2-N} - V_{L3-N} - I_{L1} - I_{L2} - I_{L3}$ [% , V , A]	○
UNBALANCE	V, I [%]	□
PHASE REVERSAL	123 / 132	●
REAL TIME CLOCK	Date, Time	●
STORED DATA		
SYSTEM ACTIVE ENERGY	[Wh]	■
SYSTEM APPARENT ENERGY	[VAh]	■
SYSTEM LAGGING REACTIVE ENERGY	[varh ind]	■
SYSTEM LEADING REACTIVE ENERGY	[varh cap]	■
MIN / MAX VALUES WITH TIME REFERENCE ⁽¹⁾	7xV, 5xI, f, 4xPF, 6xTHD	□
PEAK VALUES	$P_{AV} - S_{AV} - Q_{AV} - I_{AV}$	●
PROGRAMMABLE RECORDINGS		
DAILY CONSUMPTION (More than 300 days)	[Wh, VAh, varh]	■
ALARM / EVENT LOG	4 Set Points, Outputs ON/OFF, Instrument ON/OFF	□
MIN / AVG / MAX VALUES ⁽²⁾	[⁽²⁾]	●
● = Standard ■ = Bi-directional value □ = Extended Measurement ENH ○ = Optional		
(1) Time reference information (date and hour) is available only via serial port (2) Programmable every 1, 5, 10, 15, 30, 60 min - Maximum 8 measured parameters		

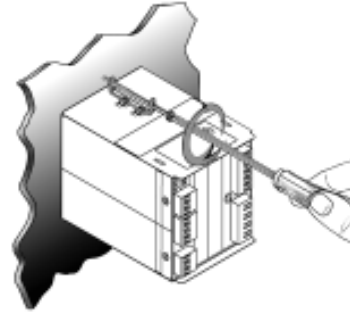
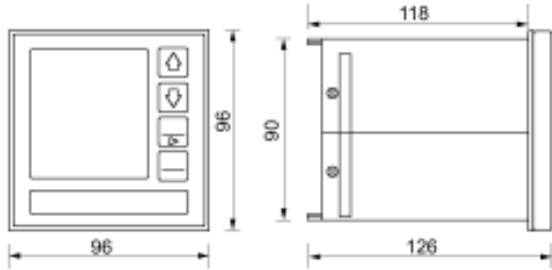
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PHYSICAL CONFIGURATIONS

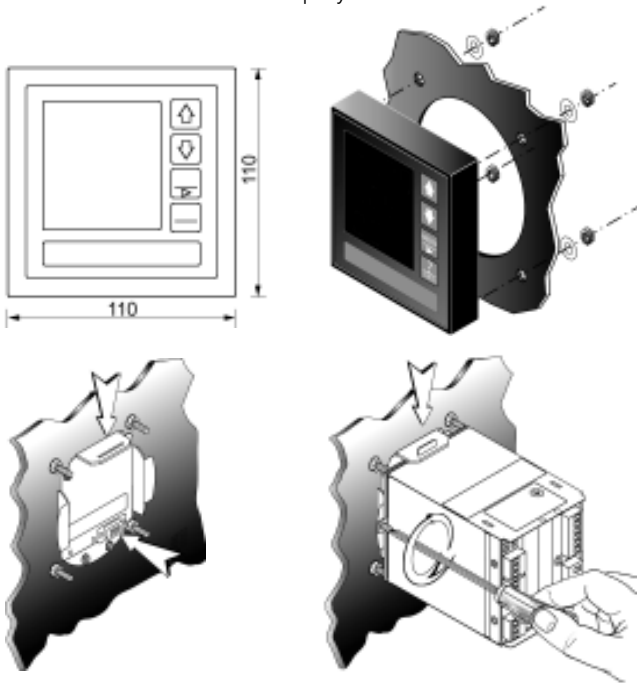
Compact DIN 96x96 instrument

Compact version according DIN 96 standard (92 x 92 mm cutout)



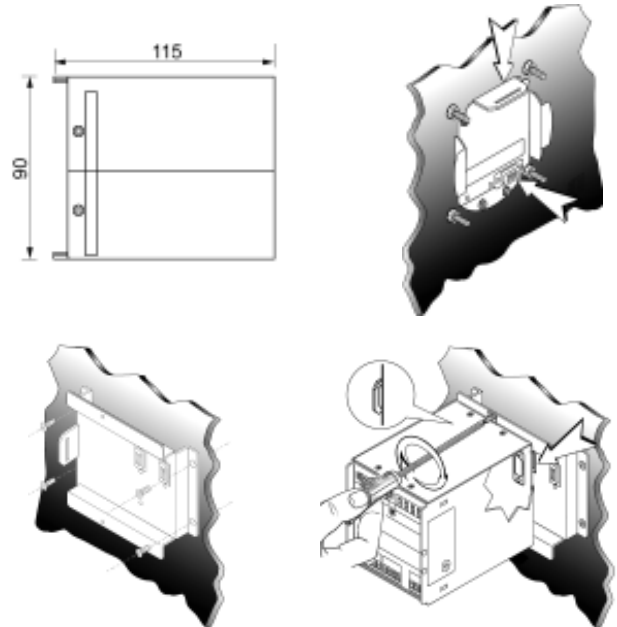
ANSI 4" instrument (display + transducer)

The drawings below show the transducer mounted on the backside of the ANSI 4" display.



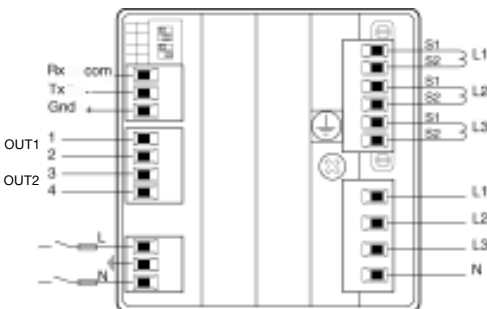
Transducer

The transducer can be mounted, using the adapter, on a flat surface or on a DIN Rail. It can be connected to the display by a 3m (~10 feet) provided cable.



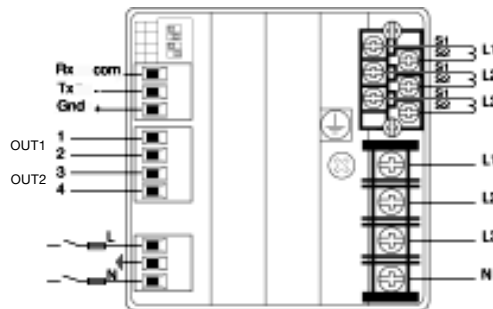
Rear connections - Standard pluggable terminals

The RS232 / RS485 programmable port and the two digital outputs are included in the basic configuration. Two slots are available for option boards.



Rear connections - Barrier terminal strips (OPTION)

The RS232 / RS485 programmable port and the two digital outputs are included in the basic configuration. Two slots are available for option boards.



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ORDERING INFORMATION													
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<p>UBN310</p> <p>Series</p> <p>User's Manual Language D = German I = Italian U = English</p> <p>Communication Protocol B = ASCII Standard C = Modbus E = Ethernet board L = Lonbus board P = Profibus board</p> <p>Aux Power Supply A = 65 ÷ 250V_{AC} / 90 ÷ 250V_{DC} R = 19 ÷ 60V_{DC}</p> <p>Serial Port 5 = RS232/485 selectable by dip-switches (1)</p> <p>Memory 1 = 128 kBytes (1) 6 = 2 MBytes + Extended measurement ENH</p> <p>Firmware Options 2 = Basic version (1) 3 = Harmonics to 31st + DPF 4 = Enhanced package + Harmonics + DPF + 2MBytes</p> <p>Unused X = None</p>						<p>Physical Configuration</p> <p>STANDARD PLUGGABLE TERMINALS (EU) A = DIN 96x96 Instrument B = ANSI Display + Transducer C = ANSI Display + Transducer + Cable + mounting accessories E = Transducer + mounting accessories</p> <p>BARRIER TERMINAL STRIPS (USA) G = DIN 96x96 Instrument H = ANSI Display + Transducer I = ANSI Display + Transducer + Cable + mounting accessories K = Transducer + mounting accessories</p> <p>Inputs (2) X = None 4 = No.1 DI4-TR board - (No.4 digital inputs)</p> <p>Analog Outputs (2) X = None A = No.1 AO2-0420 board - (No.2 programmable analog outputs) R = No.2 AO2-0420 boards - (No.4 programmable analog outputs)</p> <p>Digital Outputs (2) 2 = Basic version with No.2 built-in optomos outputs (50V - 300mA_{AC-DC}) (1) 4 = No.1 DO2-ML board - (No.2 ML outputs) 6 = No.1 DO4-ML boards - (No.4 ML outputs) R = No.1 DO2-R board - (No.2 relay outputs) S = No.1 DO4-RML board - (No.2 relay outputs + No.2 ML outputs) V = No.1 DO2-MH board - (No.2 MH outputs) W = No.1 DO4-MH boards - (No.4 MH outputs)</p>							
PLUG-IN BOARDS													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> D02-ML No.2 Optomos Outputs (50V - 300mA_{AC-DC}) D02-MH No.2 Optomos Outputs (250V - 80mA_{AC-DC}) D02-R No.2 Relay Outputs (250V - 2A_{AC} resistive) D04-ML No.4 Optomos Outputs (50V - 300mA_{AC-DC}) D04-MH No.4 Optomos Outputs (250V - 80mA_{AC-DC}) D04-RML No.2 Relay + No.2 Optomos (ML) Outputs AO2-0420 No.2 0-20 or 4-20mA Analog Outputs </td> <td style="width: 50%;"> DI4-TR No.4 Digital Inputs for Voltage-Free Contacts PROFI Profibus DP Interface LON Lonbus Interface ETH 10/100 Ethernet Interface </td> </tr> </table>						D02-ML No.2 Optomos Outputs (50V - 300mA _{AC-DC}) D02-MH No.2 Optomos Outputs (250V - 80mA _{AC-DC}) D02-R No.2 Relay Outputs (250V - 2A _{AC} resistive) D04-ML No.4 Optomos Outputs (50V - 300mA _{AC-DC}) D04-MH No.4 Optomos Outputs (250V - 80mA _{AC-DC}) D04-RML No.2 Relay + No.2 Optomos (ML) Outputs AO2-0420 No.2 0-20 or 4-20mA Analog Outputs	DI4-TR No.4 Digital Inputs for Voltage-Free Contacts PROFI Profibus DP Interface LON Lonbus Interface ETH 10/100 Ethernet Interface	<p>NOTES</p> <p>1) The basic instrument configuration includes:</p> <ul style="list-style-type: none"> • Power Supply 65 ÷ 250V_{AC} / 90 ÷ 250V_{DC} • No.2 Optomos outputs (50V - 300mA_{AC-DC}) • RS232 / 485 selectable by dip-switches • 128 kBytes data recording memory • Real Time Clock with battery backup <p>2) The basic instrument can be equipped with maximum 2 option boards.</p>					
D02-ML No.2 Optomos Outputs (50V - 300mA _{AC-DC}) D02-MH No.2 Optomos Outputs (250V - 80mA _{AC-DC}) D02-R No.2 Relay Outputs (250V - 2A _{AC} resistive) D04-ML No.4 Optomos Outputs (50V - 300mA _{AC-DC}) D04-MH No.4 Optomos Outputs (250V - 80mA _{AC-DC}) D04-RML No.2 Relay + No.2 Optomos (ML) Outputs AO2-0420 No.2 0-20 or 4-20mA Analog Outputs	DI4-TR No.4 Digital Inputs for Voltage-Free Contacts PROFI Profibus DP Interface LON Lonbus Interface ETH 10/100 Ethernet Interface												

Subject to change without notice



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