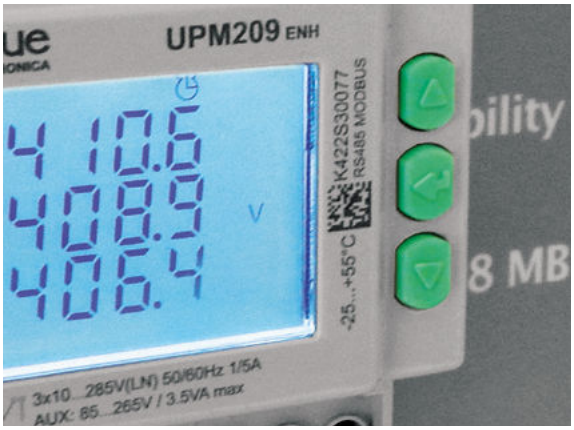
algodue®
ELETTRONICA



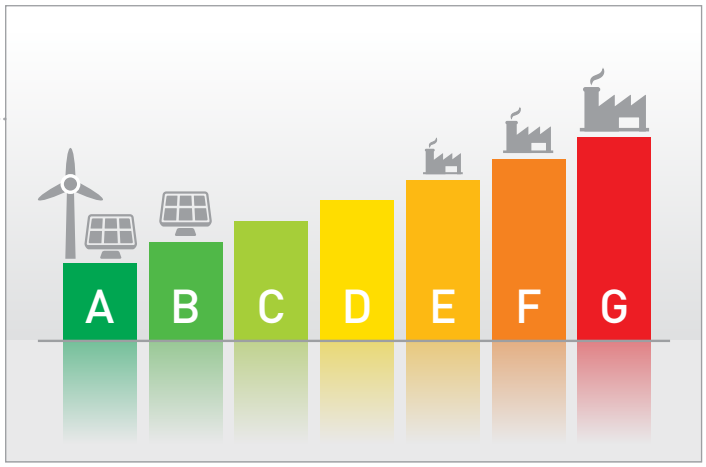
NETWORK ANALYZERS CATALOGUE

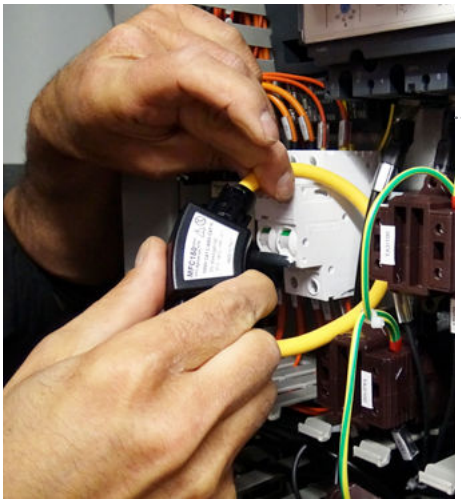
MADE IN ITALY

APPLICATIONS

ENERGY AUDITS

The energy service companies, starting from the energy diagnosis, identify the best possible interventions to optimise consumption. In order to carry out a diagnosis that identifies the present and possibly future energy requirements of the company, they need measuring instruments such as Algodue network analyzers.





RETROFITTING

Algodue Smart Kits are often used in modifications in / growth / upgrades of existing electrical installations as they are the best solution in different situations:

- Installing a new analyzer and current transformers in a cabinet is not always possible due to limited space, the Smart Kit is the compact solution.
- There are projects where there might be changes on the installation in the future, the Smart Kit offers this flexibility.
- The analyzers with CT inputs need an external integrator to use Rogowski coils, the Smart Kit has already an input suitable for direct connection to Rogowski coils.

ENERGY MONITORING

Through the measurement and analysis of electrical parameters it is possible to control and manage energy consumption and relative costs, obtaining an effective and tangible result in terms of yield and savings. The network analyzers proposed by Algodue are the right solution both for the simple measurement and for the complete energy management system in the industrial, tertiary and civil sectors.

FEATURES

INFORMATION MANAGEMENT

Carrying out network monitoring provides the data needed to identify sources of energy waste and to take prompt action.

REMOTE MANAGEMENT

Algodue network analyzers allow the creation of a centralised communication network for control, analysis and automatic data transfer.

MIN/AVG/MAX AND ENERGY FILE

The data logger function allows the monitoring of data trends over time. The MIN/AVG/MAX file provides 3 values for each parameter, at selected rate, to obtain a very detailed picture, while the energy file makes it possible to understand where to intervene to improve the efficiency of the installation.

ANALYSIS OF NETWORK CONDITIONS

Algodue network analyzers measure all the main parameters to analyse installation conditions: current, voltage, energy (active and reactive), energy factor, harmonics, THD, etc.

POLICY OF OPTIMISING CONSUMPTION AND INCREASING PLANT EFFICIENCY

Constantly monitoring the "health" of the installations by means of control and measurement equipment allows a policy to be implemented to eliminate unnecessary consumption and inefficiencies in the installation. Wouldn't "a policy of optimising consumption and increasing the efficiency of the installation" be better?

COMPACTNESS (AND SCALABILITY)

The compactness allows maximum use in electrical panels even those with limited space, offering great flexibility. The possibility of adding options to some models allows functionality to be extended at any time to suit requirements.

ALGODUE BENEFITS

ACCURACY

Active energy class 1 or 0.5 according to the model.

THD AND HARMONICS

Measurement and storage of THD values and harmonics of voltage and current up to 63rd, according to the model.

ETHERNET VERSION

The Ethernet version of the Algodue network analyzers has an embedded webserver that allows instrument management, FW update, data download, real time display of values, etc.

MADE IN ITALY

Careful selection of components and reduction of internal working temperatures, coupled with strict manufacturing and control standards, guarantee a product with excellent quality and lasting reliability.

MINIMUM INVESTMENT - WIDE POSSIBILITIES

Algodue Smart Kits are a ready-to-use measuring kit that allow, with a single type of product, to meet totally different measuring needs.

FREE SOFTWARE

The WintoolNET and Modbus Client softwares can be downloaded free of charge from www.algodue.com and allow full management of the network analyzers, according to the model.

A WIDE RANGE

THE RANGE OF NETWORK ANALYZERS THAT HAS A SOLUTION FOR EVERY NEED

Algodue network analyzers are multifunctional meters that provide all the necessary measurements for energy efficiency analyses and to ensure the monitoring of electricity distribution:

UPM RANGE, innovative solution for measuring electrical parameters

MODEL	CURRENT INPUTS (make one choice only)		INPUTS & OUTPUTS			COMMUNICATION PORT (make one choice only)		MEMORY	THD	HARMONICS
	For 1/5A CTs	80A direct connection	DO	DI	AO	RS485	ETHERNET			
UPM209 BASIC	•	•	1*			•	•	1 MB	•	
UPM209 ENH	•	•	1*			•	•	8 MB	•	Up to 15th
UPM309 BASIC	•	•	2	1	1°	•	•	1 MB	•	
UPM309 ENH	•	•	2	1	1°	•	•	8 MB	•	Up to 15th

SMART KIT, ready to use

MODEL	CURRENT INPUTS	INPUTS & OUTPUTS			COMMUNICATION PORT (make one choice only)		MEMORY	THD	HARMONICS
	Per bobine Rogowski MFC150 (incluse)	DO	DI	AO	RS485	ETHERNET			
UPM209RGW	•	1*			•	•	8 MB	•	Up to 15th
UPM309RGW	•	2	1	1°	•	•	8 MB	•	Up to 15th

UPA RANGE, suitable for monitoring energy consumption and key electrical parameters

MODEL	CURRENT INPUTS	INPUTS & OUTPUTS			COMMUNICATION PORT	THD	HARMONICS
	For 1/5A CTs	DO	DI	AO	RS485		
UPA20	•	1^	3^		•^	•	
UPA30	•	2^	2^	2^	•^	•	Up to 63rd
UPA41	•	2^	2^	2^	•^	•	Up to 63rd

* available only in case of instrument with RS485 port
° option on request, available only in case of instrument with RS485 port
^ option on request, available only by external plug-in module

UPM RANGE

THD & HARMONICS

UP TO 8 MB MEMORY

ETHERNET & RS485

REAL TIME VALUES

UP TO 24 REGISTERED PARAMETERS

UPM209

UPM309

FEATURES

- Built-in communication
- Remote management
- Alarm display on webserver
- Easy and quick to install and program
- Maximum compactness
- Large LCD display
- Version for standard CTs of 1 or 5A
- Version for direct connection up to 80A
- For DIN rail and panel mounting

APPLICATIONS

- Energy audits
- Energy monitoring and control systems
- Load monitoring of individual machines
- Power peak control
- Control panels, generators, motor control, etc.
- Remote sensing of consumption and calculation of costs

UPM209

4 DIN modules multifunction three-phase meter

1/5A CT, 80A DIRECT

- 4 DIN modules compact version
- Fully bi-directional four quadrants measurements for all energies and powers
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- Version for 1 or 5A CT or for direct connection up to 80A
- Possibility to connect by PT
- Up to 8 MB for data recording (ENH version)
- Possibility to record all energy counters (ENH version)
- Up to 24 parameters selectable among real time measurements for MIN/AVG/MAX recording (ENH version)
- MODBUS RTU/ASCII communication by RS485 port or MODBUS TCP communication by Ethernet port
- Possibility to manage the instrument in remote mode by WintoolNET software or by Web interface

SPECIFICATIONS

POWER SUPPLY	
Voltage range:	85 ... 265 VAC/110 VDC ±15%
Safety:	300 V CAT III
Maximum consumption:	Instrument with RS485 port: 1,6 VA - 1 W Instrument with Ethernet port: 4,5 VA - 1,6 W
Frequency:	50/60 Hz
VOLTAGE INPUTS	
Voltage range:	3x10/17 ... 3x285/495 VAC
Safety:	300 V CAT III
Minimum voltage for FFT calculation:	20/35 VAC (multiplied by PT ratio in case of PT use) with direct connection
CURRENT INPUTS	
Maximum value:	1/5A CT model: 6 A 80A model: 80 A
Starting current (I_{st}):	1/5A CT model: 2 mA 80A model: 20 mA
CT burden:	1/5A CT model: 0,04 VA
Minimum current for FFT calculation:	1/5A CT model: 100 mA * CT ratio 80A model: 200 mA
TYPICAL ACCURACY	
Voltage:	±0.2% reading in 10% FS...FS range (FS=Full Scale value)
Current:	±0.4% reading in 5% FS...FS range
Power:	±0.5% reading ±0.1% FS (PF=1)
Frequency:	±0.1% reading ±1 digit in 45...65 Hz range
Active energy:	Class 1 according to IEC/EN 62053-21
Reactive energy:	Class 2 according to IEC/EN 62053-23
DISPLAY & KEYBOARD	
Display:	Backlighted LCD, 43x29 mm 3 rows, 4 digits + symbols
Keyboard:	3 front buttons + 1 protected button

MORE ▶

COMMUNICATION PORT	
Type:	RS485 optoisolated or Ethernet (RJ45)
Protocols:	MODBUS RTU/ASCII in case of RS485 port HTTP, NTP, DHCP, MODBUS TCP in case of Ethernet port
Baud rate:	300 ... 57600 bps in case of RS485 port 10/100 Mbps in case of Ethernet port

DIGITAL OUTPUT (DO)	
Type:	Passive optoisolated
Maximum values (according to IEC/EN 62053-31):	27 VDC - 27 mA
Energy pulse length (only for DO in pulse mode):	50 ±2ms ON time
Maximum output reaction time (only for DO in alarm mode):	1 s

WIRE DIAMETER FOR TERMINALS	
Measuring terminals (A & V):	1/5A CT model: 1,5 ... 6 mm^2 80A model: 1,5 ... 35 mm^2
Terminals for digital output, AUX input, RS485 port:	0,14 ... 2,5 mm^2

SIZE & WEIGHT	
LxHxP, W:	72x90x65 mm, max 436 g

ENVIRONMENTAL CONDITIONS	
Operating temperature:	-25°C ... +55°C (3K6)
Storage temperature:	-25°C ... +75°C (2K3)
Max humidity (without condensation):	80%
Sinusoidal vibration amplitude:	50 Hz ±0,075 mm
Protection degree - frontal part:	IP51 (granted only in case of installation in a cabinet with at least IP51 protection degree)
Protection degree - terminals:	IP20
Pollution degree:	2
Installation and use:	Internal

STANDARD COMPLIANCE (for the parts applicable for the instrument)	
Directives:	2014/30/UE, 2014/35/UE
Safety:	EN 61010-1, EN 61010-2-030, EN 61010-2-032
EMC:	EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

ORDER CODE	VERSION		POWER SUPPLY	COMMUNICATION PORT with SIGN BIT in Modbus		APPARENT EN. COUNTER (VAh)	I/O	REMOTE MANAGEMENT	
	BASIC	ENH	Auxiliary	RS485	ETHERNET	SEPARATED Ind&Cap	DO	WintoolNET	Web Server
FOR 1/5A CTs (not included)									
1208.0001.0001	•		85...265VAC/110VDC ±15%	•		•	•	•	
1208.0002.0001	•		85...265VAC/110VDC ±15%		•	•		•	•
1208.0003.0001		•	85...265VAC/110VDC ±15%	•		•	•	•	
1208.0004.0001		•	85...265VAC/110VDC ±15%		•	•		•	•
80A DIRECT CONNECTION									
1209.0001.0001	•		85...265VAC/110VDC ±15%	•		•	•	•	
1209.0002.0001	•		85...265VAC/110VDC ±15%		•	•		•	•
1209.0003.0001		•	85...265VAC/110VDC ±15%	•		•	•	•	
1209.0004.0001		•	85...265VAC/110VDC ±15%		•	•		•	•

OPTIONS AVAILABLE ONLY ON REQUEST (MOQ 30 PCS)
2'S COMPLEMENT for sign representation in Modbus protocol
TOTAL apparent energy counters (Ind+Cap)

To be indicated together with the selected order code from the list above.

BACK TO UPM RANGE

UPM309

DIN 96x96 multifunction three-phase meter

1/5A CT

- DIN 96x96 ultra compact version, only 39 mm depth
- Fully bi-directional four quadrants measurements for all energies and powers
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- Version for 1 or 5A CT and for direct connection up to 6A
- Possibility to connect by PT
- Up to 8 MB for data recording (ENH version)
- Possibility to record all energy counters (ENH version)
- Up to 24 parameters selectable among real time measurements for MIN/AVG/MAX recording (ENH version)
- MODBUS RTU communication by RS485 port or MODBUS TCP communication by Ethernet port
- Possibility to manage the instrument in remote mode by WintoolNET software or by Web interface
- 2 digital outputs, 1 digital input, 1 analog output (optional)
- Accuracy class 0.5 according to IEC/EN 61557-12 for active power/energy

SPECIFICATIONS

POWER SUPPLY		
Voltage range (according to the model):	Instrument with RS485 port:	230 VAC ±15% 115 VAC ±15% on request 85...265 VAC/110 VDC ±15% on request
	Instrument with Ethernet port:	85...265 VAC/110 VDC ±15%
Safety:	300 V CAT III	
Frequency:	50/60 Hz	
VOLTAGE INPUTS		
Maximum measurable voltage:	600 VAC L-L	
Safety:	300 V CAT III	
Minimum voltage for FFT calculation:	20/35 VAC (multiplied by PT ratio in case of PT use) with direct connection	
Input impedance:	>1,3 MOhm	
Frequency:	45 - 65 Hz	
CURRENT INPUTS		
Maximum value:	7 A	
Starting current (I_{st}):	2 mA	
CT burden:	max 0,15 VA per phase	
Minimum current for FFT calculation:	100 mA * CT ratio	
TYPICAL ACCURACY / PERFORMANCE CLASS (device only)		
Voltage:	±0.2% reading in 10% FS...FS range (FS=Full Scale value)	
Current:	±0.4% reading in 5% FS...FS range	
Frequency:	±0.1% reading ±1 digit in 45...65 Hz range	
Active power/energy:	Class 0.5 according to IEC/EN 61557-12	
Reactive power/energy:	Class 2 according to IEC/EN 61557-12	
DISPLAY & KEYBOARD		
Display:	Backlighted LCD, 78x61 mm 3 rows, 4 digits + symbols	
Keyboard:	4 front buttons	

MORE

COMMUNICATION PORT	
Type:	RS485 optoisolated or Ethernet (RJ45)
Protocols:	MODBUS RTU in case of RS485 port HTTP, NTP, DHCP, MODBUS TCP in case of Ethernet port
Baud rate:	300 ... 57600 bps in case of RS485 port 10/100 Mbps in case of Ethernet port

2 DIGITAL OUTPUTS (DO)	
Type:	NPN or PNP, passive optoisolated
Maximum values (according to IEC/EN 62053-31):	27 VDC - 27 mA
Energy pulse length (only for DO in pulse mode):	50 ±2ms ON time
Max output reaction time (only for DO in alarm mode):	1 s

ANALOG OUTPUT (AO)	
Type:	Active optoisolated
Selectable ranges:	0...20 / 4...20 mADC
Maximum load:	500 Ω

DIGITAL INPUT (DI)	
Type:	Optoisolated
Voltage range:	80 ... 265 VAC-DC

WIRE DIAMETER FOR TERMINALS	
Measuring terminals (A&V):	2,5 mm^2 / 14 AWG
Terminals for I/O, AUX, RS485 port:	1,5 mm^2 / 16 AWG

SIZE & WEIGHT	
LxHxP, W:	96x96x39 mm, max 310 g

ENVIRONMENTAL CONDITIONS	
Operating temperature:	-25°C ... +55°C (3K6)
Storage temperature:	-25°C ... +75°C (2K3)
Max humidity (without condensation):	80%
Sinusoidal vibration amplitude:	50 Hz ±0,075 mm
Protection degree - frontal part:	IP54 (granted only in case of installation in a cabinet with at least IP54 protection degree)
Protection degree - terminals:	IP20
Pollution degree:	2
Installation and use:	Internal

STANDARD COMPLIANCE (for the parts applicable for the instrument)	
Directives:	2014/30/EU, 2014/35/EU
Safety:	EN 61010-1, EN 61010-2-030, EN 61010-2-032
EMC:	EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

ORDER CODE	VERSION		POWER SUPPLY	COMMUNICATION PORT with SIGN BIT in Modbus		APPARENT EN. COUNTER (VAh)	I/O			REMOTE MANAGEMENT	
	BASIC	ENH	Auxiliary	RS485	ETHERNET	SEPARATED Ind&Cap	DI	DO	AO	WintoolNET	Web Server
FOR 1/5A CTs (not included)											
1211.0001.0001	•		230VAC ±15%	•		•	•	•		•	
1211.0002.0001		•	230VAC ±15%	•		•	•	•		•	
1211.0003.0001		•	230VAC ±15%	•		•	•	•	•	•	
1211.0004.0001		•	85...265VAC/110VDC ±15%		•	•	•	•		•	•

OPTIONS AVAILABLE ONLY ON REQUEST (MOQ 30 PCS)
2'S COMPLEMENT for sign representation in Modbus protocol
TOTAL apparent energy counters (Ind+Cap)
PNP type digital outputs
115VAC ±15% or 85...265VAC/110VDC ±15% power suppply

To be indicated together with the selected order code from the list above.

BACK TO UPM RANGE

SMART KIT

- THD & HARMONICS
- UP TO 8 MB MEMORY
- ETHERNET & RS485
- EMBEDDED WEBSERVER
- 3 ROGOWSKI COILS

UPM209RGW

UPM309RGW

FEATURES

- 1 network analyzer + 3 Rogowski coils
- Ready to install kit
- 4 KITS available: 30, 45, 70, 90 cm coil lengths
- Built-in communication
- Remote management
- 3 available current full scales
- Quick and easy to install and program
- Maximum compactness
- Large LCD display
- For DIN rail and panel mounting

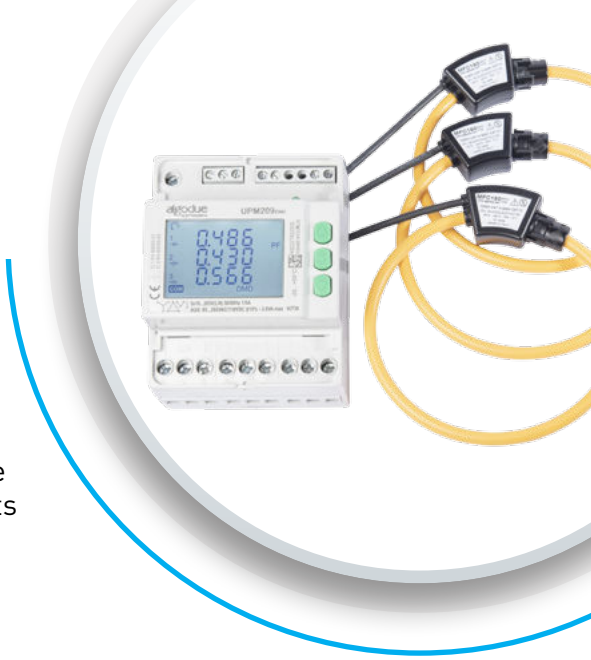
APPLICATIONS

- Retrofitting
- Energy audits
- Energy monitoring and control systems
- Load monitoring of individual machines
- Power peak control
- Control panels, generators, motor control, etc.
- Remote sensing of consumption and calculation of costs

UPM209RGW

4 DIN modules multifunction three-phase meter with Rogowski coils

KIT30, KIT45, KIT70, KIT90



- 4 DIN modules compact version
- Fully bi-directional four quadrants measurements for all energies and powers
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- 4 available KITs: 30, 45, 70, 90 cm coil length
- 3 selectable current scales
- Possibility to connect by PT
- Up to 8 MB for data recording
- Possibility to record all energy counters
- Up to 24 parameters selectable among real time measurements for MIN/AVG/MAX recording
- MODBUS RTU/ASCII communication by RS485 port or MODBUS TCP communication by Ethernet port
- Possibility to manage the instrument in remote mode by WintoolNET software or by Web interface

SPECIFICATIONS

POWER SUPPLY	
Voltage range:	85 ... 265 VAC/110 VDC ±15%
Safety:	300 V CAT III
Maximum consumption:	Instrument with RS485 port: 1,6 VA - 1 W Instrument with Ethernet port: 4,5 VA - 1,6 W
Frequency:	50/60 Hz
VOLTAGE INPUTS	
Voltage range:	3x10/17 ... 3x285/495 VAC
Safety:	300 V CAT III
Minimum voltage for FFT calculation:	20/35 VAC (multiplied by PT ratio in case of PT use) with direct connection
CURRENT INPUTS	
Maximum value:	3 selectable scales, 500/4000/20000A
Starting current (I_{st}):	0.3 A for FSA 500 A, 1 A for FSA 4000 A, 10 A for FSA 20000 A
Minimum current for FFT calculation:	70 A for FSA 500 A, 400 A for FSA 4000 A, 1500 A for FSA 20000 A
TYPICAL ACCURACY	
Voltage:	±0.2% reading in 10% FS...FS range (FS=Full Scale value)
Current:	±0.4% reading in 5% FS...FS range 2% harmonic accuracy ±2 digits
Power:	±0.5% reading ±0.1% FS (PF=1)
Frequency:	±0.1% reading ±1 digit in 45...65 Hz range
Active energy:	Class 1 according to IEC/EN 62053-21
Reactive energy:	Class 2 according to IEC/EN 62053-23
DISPLAY & KEYBOARD	
Display:	Backlighted LCD, 43x29 mm 3 rows, 4 digits + symbols
Keyboard:	3 front buttons + 1 protected button

MORE ▶

COMMUNICATION PORT	
Type:	RS485 optoisolated or Ethernet (RJ45)
Protocols:	MODBUS RTU/ASCII in case of RS485 port HTTP, NTP, DHCP, MODBUS TCP in case of Ethernet port
Baud rate:	300 ... 57600 bps in case of RS485 port 10/100 Mbps in case of Ethernet port

DIGITAL OUTPUT (DO)	
Type:	Passive optoisolated
Maximum values (according to IEC/EN 62053-31):	27 VDC - 27 mA
Energy pulse length (only for DO in pulse mode):	50 ±2ms ON time
Maximum output reaction time (only for DO in alarm mode):	1 s

WIRE DIAMETER FOR TERMINALS	
Measuring terminals (A & V):	1,5 ... 6 mm^2
Terminals for digital output, AUX input, RS485 port:	0,14 ... 2,5 mm^2

SIZE & WEIGHT	
LxHxP, W:	72x90x65 mm, max 436 g

ENVIRONMENTAL CONDITIONS	
Operating temperature:	-25°C ... +55°C (3K6)
Storage temperature:	-25°C ... +75°C (2K3)
Max humidity (without condensation):	80%
Sinusoidal vibration amplitude:	50 Hz ±0,075 mm
Protection degree - frontal part:	IP51 (granted only in case of installation in a cabinet with at least IP51 protection degree)
Protection degree - terminals:	IP20
Pollution degree:	2
Installation and use:	Internal

STANDARD COMPLIANCE (for the parts applicable for the instrument)	
Directives:	2014/30/UE, 2014/35/UE
Safety:	EN 61010-1, EN 61010-2-030, EN 61010-2-032
EMC:	EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

ORDER CODE	ROGOWSKI KIT DETAIL		VERSION	POWER SUPPLY	COMMUNICATION port with SIGN BIT in Modbus		APPARENT EN. COUNTER (VAh)	I/O	REMOTE MANAGEMENT	
	Length [cm]	Int. diam. [cm]	ENH	Auxiliary	RS485	ETHERNET	SEPARATED Ind&Cap	DO	WintoolNET	Web Server
ROGOWSKI COIL KIT: NO. 3 MFC150 INCLUDED, 3 m CABLE										
1210.0001.0001	30	~7 (7x9)	•	85...265VAC/110VDC ±15%	•		•	•	•	
1210.0002.0001	45	~13	•	85...265VAC/110VDC ±15%	•		•	•	•	
1210.0003.0001	70	~21	•	85...265VAC/110VDC ±15%	•		•	•	•	
1210.0004.0001	90	~27	•	85...265VAC/110VDC ±15%	•		•	•	•	
1210.0005.0001	30	~7 (7x9)	•	85...265VAC/110VDC ±15%		•	•		•	•
1210.0006.0001	45	~13	•	85...265VAC/110VDC ±15%		•	•		•	•
1210.0007.0001	70	~21	•	85...265VAC/110VDC ±15%		•	•		•	•
1210.0008.0001	90	~27	•	85...265VAC/110VDC ±15%		•	•		•	•

OPTIONS AVAILABLE ONLY ON REQUEST (MOQ 30 PCS)
2'S COMPLEMENT for sign representation in Modbus protocol
TOTAL apparent energy counters (Ind+Cap)
CABLE LENGTH different from standard (3m): 5, 7, 10 m

To be indicated together with the selected order code from the list above.

BACK TO SMART KIT

UPM309RGW

DIN 96x96 multifunction three-phase meter with Rogowski coils

KIT30, KIT45, KIT70, KIT90

- DIN 96x96 ultra compact version, only 39 mm depth
- Fully bi-directional four quadrants measurements for all energies and powers
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- 4 available KITs: 30, 45, 70, 90 cm coil length
- 3 selectable current scales
- Possibility to connect by PT
- Up to 8 MB for data recording
- Possibility to record all energy counters
- Up to 24 parameters selectable among real time measurements for MIN/AVG/MAX recording
- MODBUS RTU communication by RS485 port or MODBUS TCP communication by Ethernet port
- Possibility to manage the instrument in remote mode by WintoolNET software or by Web interface
- 2 digital outputs, 1 digital input, 1 analog output (optional)
- Accuracy class 0.5 according to IEC/EN 61557-12 for active power/energy

SPECIFICATIONS

POWER SUPPLY		
Voltage range (according to the model):	Instrument with RS485 port:	230 VAC ±15% 115 VAC ±15% on request 85...265 VAC/110 VDC ±15% on request
	Instrument with Ethernet port:	85...265 VAC/110 VDC ±15%
Safety:	300 V CAT III	
Frequency:	50/60 Hz	
VOLTAGE INPUTS		
Maximum measurable voltage:	600 VAC L-L	
Safety:	300 V CAT III	
Minimum voltage for FFT calculation:	20/35 VAC (multiplied by PT ratio in case of PT use) with direct connection	
Input impedance:	>1,3 MOhm	
Frequency:	45 - 65 Hz	
CURRENT INPUTS		
Maximum value:	3 selectable scales, 500/4000/20000A	
Starting current (I_{st}):	0.3 A for FSA 500 A, 1 A for FSA 4000 A, 10 A for FSA 20000 A	
Minimum current for FFT calculation:	70 A for FSA 500 A, 400 A for FSA 4000 A, 1500 A for FSA 20000 A	
TYPICAL ACCURACY / PERFORMANCE CLASS (device only)		
Voltage:	±0.2% reading in 10% FS...FS range (FS=Full Scale value)	
Current:	±0.4% reading in 5% FS...FS range 2% harmonic accuracy ±2 digits	
Frequency:	±0.1% reading ±1 digit in 45...65 Hz range	
Active power/energy:	Class 0.5 according to IEC/EN 61557-12	
Reactive power/energy:	Class 2 according to IEC/EN 61557-12	
DISPLAY & KEYBOARD		
Display:	Backlighted LCD, 78x61 mm 3 rows, 4 digits + symbols	
Keyboard:	4 front buttons	

MORE

COMMUNICATION PORT	
Type:	RS485 optoisolated or Ethernet (RJ45)
Protocols:	MODBUS RTU in case of RS485 port HTTP, NTP, DHCP, MODBUS TCP in case of Ethernet port
Baud rate:	300 ... 57600 bps in case of RS485 port 10/100 Mbps in case of Ethernet port
2 DIGITAL OUTPUTS (DO)	
Type:	NPN or PNP, passive optoisolated
Maximum values (according to IEC/EN 62053-31):	27 VDC - 27 mA
Energy pulse length (only for DO in pulse mode):	50 ±2ms ON time
Max output reaction time (only for DO in alarm mode):	1 s
ANALOG OUTPUT (AO)	
Type:	Active optoisolated
Selectable ranges:	0...20 / 4...20 mADC
Maximum load:	500 Ω
DIGITAL INPUT (DI)	
Type:	Optoisolated
Voltage range:	80 ... 265 VAC-DC
WIRE DIAMETER FOR TERMINALS	
Measuring terminals (A & V):	2,5 mm^2 / 14 AWG
Terminals for I/O, AUX, RS485 port:	1,5 mm^2 / 16 AWG
SIZE & WEIGHT	
LxHxP, W:	96x96x39 mm, max 310 g
ENVIRONMENTAL CONDITIONS	
Operating temperature:	-25°C ... +55°C (3K6)
Storage temperature:	-25°C ... +75°C (2K3)
Max humidity (without condensation):	80%
Sinusoidal vibration amplitude:	50 Hz ±0,075 mm
Protection degree - frontal part:	IP54 (granted only in case of installation in a cabinet with at least IP54 protection degree)
Protection degree - terminals:	IP20
Pollution degree:	2
Installation and use:	Internal
STANDARD COMPLIANCE (for the parts applicable for the instrument)	
Directives:	2014/30/EU, 2014/35/EU
Safety:	EN 61010-1, EN 61010-2-030
EMC:	EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

ORDER CODE	ROGOWSKI KIT DETAIL		VERSION	POWER SUPPLY	COMMUNICATION PORT with SIGN BIT in Modbus		APPARENT EN. COUNTER (VAh)	I/O			REMOTE MANAGEMENT	
	Length [cm]	Int. diam. [cm]	ENH	Auxiliary	RS485	ETHERNET	SEPARATED Ind&Cap	DI	DO	AO	WintoolNET	Web Server
ROGOWSKI COIL KIT: NO. 3 MFC150 INCLUDED, 3 m CABLE												
1212.0001.0001	30	~7 (7x9)	•	230VAC ±15%	•		•	•	•		•	
1212.0002.0001	45	~13	•	230VAC ±15%	•		•	•	•		•	
1212.0003.0001	70	~21	•	230VAC ±15%	•		•	•	•		•	
1212.0004.0001	90	~27	•	230VAC ±15%	•		•	•	•		•	
1212.0005.0001	30	~7 (7x9)	•	230VAC ±15%	•		•	•	•	•	•	
1212.0006.0001	45	~13	•	230VAC ±15%	•		•	•	•	•	•	
1212.0007.0001	70	~21	•	230VAC ±15%	•		•	•	•	•	•	
1212.0008.0001	90	~27	•	230VAC ±15%	•		•	•	•	•	•	
1212.0009.0001	30	~7 (7x9)	•	85...265VAC/110VDC ±15%		•	•	•	•		•	•
1212.0010.0001	45	~13	•	85...265VAC/110VDC ±15%		•	•	•	•		•	•
1212.0011.0001	70	~21	•	85...265VAC/110VDC ±15%		•	•	•	•		•	•
1212.0012.0001	90	~27	•	85...265VAC/110VDC ±15%		•	•	•	•		•	•

OPTIONS AVAILABLE ONLY ON REQUEST (MOQ 30 PCS)
2'S COMPLEMENT for sign representation in Modbus protocol
TOTAL apparent energy counters (Ind+Cap)
PNP type digital outputs
115VAC ±15% or 85...265VAC/110VDC ±15% power suppply
CABLE LENGTH different from standard (3m): 5, 7, 10 m

To be indicated together with the selected order code from the list above.

BACK TO SMART KIT

UPA RANGE

MODULARITY

REMOTE DETECTION OF CONSUMPTION

I/O

CLASS 0.5S

THD & HARMONICS

UPA20

UPA30

UPA41

Plug-in modules for UPA

FEATURES

- Identification of installation errors
- Quick access button for measurements
- Remote transmission of electrical values by plugging in optional module
- Active energy class 0.5 S
- Ease to use
- Additional functions by plugging in optional modules
- Large backlit screen
- Current transformer version
- For panel mounting
- UL listed product

APPLICATIONS

- Control panels, generators, etc.
- Energy monitoring systems
- Load monitoring of individual machines

SECTORS

- Industry
- Tertiary sector
- Infrastructure

UPA20

DIN 96x96 multifunction multi-measurement meter

- DIN 96x96 compact version
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- For current transformers (not included)
- Wiring error detection
- Available optional plug-in modules for communication, inputs/outputs
- Active energy class 0,5 S according to IEC 62053-22
- Compliant with IEC 61557-12, the reference standard for PMDs (Performance Metering & monitoring Devices)
- UL listed product - UL no. E231725

SPECIFICATIONS

CURRENT MEASUREMENTS (TRMS)	
Via CT primary	9.999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0,6 VA
Measurement updating period	1 s
Accuracy	0,2%
Permanent overload	6 A
Intermittent overload	10 In over 1 s

VOLTAGE MEASUREMENTS (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0,2%

POWER MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

POWER FACTOR MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

FREQUENCY MEASUREMENT	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0,1%

ENERGY ACCURACY	
Active (according to IEC 62053-22)	Class 0,5 S
Reactive (according to IEC 62053-23)	Class 2

AUXILIARY POWER SUPPLY	
Alternative voltage	110 ... 400 VAC
AC tolerance	±10%
DC voltage	120 ... 289 VDC
DC tolerance	±20%
Frequency	50/60 Hz
Power consumption	10 VA

OPERATING CONDITIONS	
Operating temperature range	-10° ... +55°C
Storage temperature	-20° ... +85°C
Relative humidity	95%

ORDER CODE	MODEL	POWER SUPPLY	CERTIFICATION
	Name	Auxiliary	UL
UPA20			
1213.0001.0001	UPA20	110...400VAC/120...350VDC	•

BACK TO UPA RANGE

UPA30

DIN 96x96 multifunction meter for energy monitoring

- DIN 96x96 compact version
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- For current transformers (not included)
- Programmable VT
- Wiring error detection
- Display of predective power values
- Available optional plug-in modules for communication, inputs/outputs, temperature
- Active energy class 0,5 S according to IEC 62053-22
- Compliant with IEC 61557-12, the reference standard for PMDs (Performance Metering & monitoring Devices)
- UL listed product - UL no. E231725

SPECIFICATIONS

MEASUREMENT OF CURRENTS ON INSULATED INPUTS (TRMS)	
Via CT primary	9.999 A
Via CT secondary	1 o 5 A
Measurement range	0 ... 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0,2%
Permanent overload	6 A
Intermittent overload	10 In for 1 s

VOLTAGE MEASUREMENTS (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
VT primary measurement	500.000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50/60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0,2%

CURRENT - VOLTAGE PRODUCT	
Limitation for CT 1 A	10.000.000
Limitation for CT 5 A	10.000.000

POWER MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

POWER FACTOR MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

FREQUENCY MEASUREMENT	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0,1%

ENERGY ACCURACY	
Active (according to IEC 62053-22)	Class 0,5 S
Reactive (according to IEC 62053-23)	Class 2

AUXILIARY POWER SUPPLY	
Alternative voltage	110 ... 400 VAC
AC tolerance	±10%
Direct current	120 ... 350 VDC/12 ... 48 VDC
DC tolerance	±20% / -6 ... +20%
Frequency	50/60 Hz
Power consumption	≤ 10 VA

OPERATING CONDITIONS	
Operating temperature range	-10° ... +55°C
Storage temperature	-20° ... +85°C
Relative humidity	95%

ORDER CODE	MODEL	POWER SUPPLY	MEASURED NEUTRAL CURRENT	CERTIFICATION
	Name	Auxiliary	Permanent module	UL
UPA30				
1214.0001.0001	UPA30	110...400VAC/120...350VDC		•
1214.0002.0001	UPA30	12...48VDC		•

BACK TO UPA RANGE

UPA41

DIN 96x96 multifunction meter for energy monitoring

- DIN 96x96 compact version
- Main electrical parameters measured and displayed for a cost-effective consumption analysis
- For current transformers (not included)
- Programmable VT
- Wiring error detection
- Display of predective power values
- Available optional plug-in modules for communication, inputs/outputs, temperature
- Active energy class 0,5 S according to IEC 62053-22
- Compliant with IEC 61557-12, the reference standard for PMDs (Performance Metering & monitoring Devices)

SPECIFICATIONS

MEASUREMENT OF CURRENTS ON INSULATED INPUTS (TRMS)	
Via CT primary	9.999 A
Via CT secondary	1 o 5 A
Measurement range	0 ... 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0,2%
Permanent overload	6 A
Intermittent overload	10 In for 1 s

VOLTAGE MEASUREMENTS (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
VT primary measurement	500.000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50/60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0,2%

CURRENT - VOLTAGE PRODUCT	
Limitation for CT 1 A	10.000.000
Limitation for CT 5 A	10.000.000

POWER MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

POWER FACTOR MEASUREMENT	
Measurement updating period	1 s
Accuracy	0,5%

FREQUENCY MEASUREMENT	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0,1%

ENERGY ACCURACY	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2

AUXILIARY POWER SUPPLY	
Alternative voltage	110 ... 400 VAC
AC tolerance	±10%
Direct current	120 ... 350 VDC/12 ... 48 VDC
DC tolerance	±20% / -6 ... +20%
Frequency	50/60 Hz
Power consumption	≤ 10 VA

OPERATING CONDITIONS	
Operating temperature range	-10° ... +55°C
Storage temperature	-20° ... +85°C
Relative humidity	95%

ORDER CODE	MODEL	POWER SUPPLY	MEASURED NEUTRAL CURRENT	CERTIFICATION
	Name	Auxiliary	Permanent module	UL
UPA41				
1215.0001.0001	UPA41	110...400VAC/120...350VDC	•	
1215.0002.0001	UPA41	12...48VDC	•	

BACK TO UPA RANGE

PLUG-IN MODULES FOR UPA

Plug-in modules to be combined
to UPA series

PLUG-IN MODULES FOR UPA20

The following plug-in modules can be combined to UPA20 only.

485-MDB-20

RS485 communication with MODBUS protocol (speed up to 38400 baud)

1DO-20

1 digital output which can be allocated to:

- pulses: configurable (type, weight, duration) to kWh or kvarh
- monitoring: I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, P_Σ, Q_Σ, S_Σ, PF_Σ, $THDA_{L1}$, $THDA_{L2}$, $THDA_{L3}$, $THDV_{L1}$, $THDV_{L2}$, $THDV_{L3}$, $THDV_{L1-L2}$, $THDV_{L2-L3}$, $THDV_{L3-L1}$, time counter
- equipment control

1DO-3DI-20

3 digital inputs for information report from an external contact and 1 digital output which can be allocated to:

- pulses: configurable (type, weight, duration) to kWh or kvarh
- monitoring: I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, P_Σ, Q_Σ, S_Σ, PF_Σ, $THDA_{L1}$, $THDA_{L2}$, $THDA_{L3}$, $THDV_{L1}$, $THDV_{L2}$, $THDV_{L3}$, $THDV_{L1-L2}$, $THDV_{L2-L3}$, $THDV_{L3-L1}$, time counter
- equipment control

TECHNICAL SPECIFICATIONS OF PLUG-IN MODULES FOR UPA20

PULSE OR ALARM OUTPUT FOR 1DO-20 / 1DO-3DI-20	
Number of relays	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10^8

INPUTS FOR 1DO-3DI-20	
Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers

485-MDB-20	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	1400 ... 38400 baud

ORDER CODE	MODEL Name	TYPE Description	CERTIFICATION UL
PLUG-IN MODULES FOR UPA20			
1216.0001.0001	485-MDB-20	RS485 Modbus communication	•
1216.0002.0001	1DO-20	1 digital output configurable for pulses/alarms	•
1216.0003.0001	1DO-3DI-20	1 digital output configurable for pulses/alarms, 3 digital inputs	

MORE ▶

PLUG-IN MODULES FOR UPA30/UPA41

The following plug-in modules can be combined to UPA30 or UPA41 only.

485-MDB-30-41

RS485 communication with MODBUS protocol (speed up to 38400 baud)

2PULSE-30-41

2 configurable pulse outputs (type, weight and run) on ±kwh, ±kvarh and kVAh

2DO-2DI-30-41

2 digital inputs for pulse counting and 2 digital outputs which can be allocated to:

- monitoring: I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, $\pm P_\Sigma$, $\pm Q_\Sigma$, S_Σ, PF_Σ, $THDA_{L1}$, $THDA_{L2}$, $THDA_{L3}$, $THDA_N$, $THDV_{L1}$, $THDV_{L2}$, $THDV_{L3}$, $THDV_{L1-L2}$, $THDV_{L2-L3}$, $THDV_{L3-L1}$, P_{PRED}, Q_{PRED}, S_{PRED}, T°C internal, T°C1 external, T°C2 external, T°C3 external, time counter
- remote control
- timed remote control

2AO-30-41

2 analog outputs which can be allocated to:

- I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, $\pm P_\Sigma$, $\pm Q_\Sigma$, S_Σ, PF_Σ, I_Σ, V_Σ, P_{PRED}, Q_{PRED}, S_{PRED}, T°C internal, T°C1 external, T°C2 external, T°C3 external, 30 VDC power supply

TEMP-30-41

Detection of internal temperature (T°C internal) and up to 3 external temperature through PT100 probes (T°C1 external, T°C2 external, T°C3 external)

» TECHNICAL SPECIFICATIONS OF PLUG-IN MODULES FOR UPA30/UPA41

OUTPUTS (ALARMS / CONTROL) FOR 2DO-2DI-30-41	
Number of relays	2(1)
Type	250 VAC - 5 A - 1150 VA

INPUTS FOR 2DO-2DI-30-41	
Number	2(1)
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers

2PULSE-30-41	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 108

2AO-30-41	
Number of outputs	2(2)
Type	Insulated
Scale	0 / 4 ... 20 mA
Load resistance	600 Ω
Maximum current	30 mA

485-MDB-30-41	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 ... 38400 baud

INPUTS FOR TEMP-30-41	
Type	PT100
Connection	2, 3 or 4 wires
Dynamic	-20°C ... 150°C
Accuracy	± 1 digit
Maximum length	300 cm

ORDER CODE	MODEL Name	TYPE Description	CERTIFICATION UL
PLUG-IN MODULES FOR UPA30/UPA41			
1216.0004.0001	485-MDB-30-41	RS485 Modbus communication	•
1216.0005.0001	2PULSE-30-41	2 digital outputs configurable for pulses	•
1216.0006.0001	2DO-2DI-30-41	2 digital outputs configurable for pulses/alarms, 2 digital inputs	•
1216.0007.0001	2AO-30-41	2 analog outputs	•
1216.0008.0001	TEMP-30-41	Temperature detection	
ACCESSORIES FOR TEMP-30-41 MODULE			
7502.0004.0001	PT100 screw	PT100 temperature probe, M6 screw	
7502.0005.0001	PT100 lug	PT100 temperature probe, M6 lug	

BACK TO UPA RANGE

CUSTOMIZATION

All our products can be adapted, customized and developed according to specific project or market requirements.

We are able to support you from the first feasibility study, through the development of your type of personalization, up to its production and delivery, ensuring high standards of quality and flexibility.

STANDARD BRAND LABELLING

Examples of customizations:

- Front panel with customized specifications (logo, colors, buttons, etc)
- Packaging labels
- Communication parameters
- Tool Software
- Web Server
- Multilingual user manual + Quick Guide in 4 languages

ADVANCED BRAND LABELLING

Examples of customizations:

- Designing customized plastic parts (custom molds)
- Implementing customized firmware functions
- Hardware reengineering

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algodue® ELETTRONICA
Via Piero Gobetti 16/F
28014 Maggiora (NO)
www.algodue.com

FOR INFO
Barbara Sacco
Export Manager

+39 0322 89864
sales@algodue.it
barbara_sacco