



**From LCD indicator ;**

- Total energy consumption
- Energy consumption according to tariff
- Instantly consumed power
- Instantly voltage and instantly carried current values
- Intervention to meter
- Info of battery state
- Demand info
- Date and clock info
- Phase cut, phase line and current direction info
- Credit info, meter serial number and version can be followed and these information can be transferred at the same time to hand computer thanks to optical port.

## ETP5100

### Specifications of the Manas Brand Multi-tariff Active & Reactive Prepaid Electronic Electricity meter

ETP 5100 MANAS Brand 5 (100)A Kombi Electronic Electricity meter records the active and reactive power consumption according to the tariff corresponding to the consumption time of the day;

It has the feature of programming the 4 tariffs in 8 different periods of the day as weekdays, Saturday and Monday.

This electricity meter can programmed when required without dismounting it.

It is capable of holding the load profile in its memory for 40 to 80 days.

It can perform the reading procedure even during power failure and can communicate through the optical port

It can shift automatically to summer/winter times (forward/back), and the real time is not affected from power failure.

It is capable of keeping the information of each phase separately and the interrupted information of the 3-phase.

### Smart Card

The smart card, is a plastic card which is in the dimension of a credit card and in which there is a micro controller. It provides a complex mechanism of safety and keeping data in an electronic environment. In this system, smart card is used as a communication intermediary between administration and consumer. The consumer can load the energy amount buying from administration sales agency to his prepaid electronic electricity meter as he wants. The smart card carries back the metering data from the consumer's Electronic Meter to the utility.

### Properties of Smart Card

- Smart cards are compliant with ISO 7816
- 100.000 mating cycles
- Smart card can keep data at least 10 years without corruption
- Operating temperature is 0-50C
- Max. operating humidity rate is 90%
- During data dealings with the smart card an algorithm of a patented code (like DES, RSA, .. etc) is used

### Prepayment System Advantages; For Utility there is NO;

- Meter Reading
- Distribution of bills
- Following up unpaid bills
- Fine for bad payers
- Connecting-Disconnecting Charge
- Paying TAV of uncollected bills
- Disputes between Utility and customer
- Disputes between land lord and tenant

### For Customers there is NO;

- Following up of bills
- No queues
- Disputes between land lord and tenant

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## OPTIONAL

### RF MODULE:

This module could be integrated in the main board of meter, so it is an internal part of the meter. It provides ETSI directive. Data of meter within network coverage could be read from the control unit, environmental hardware could be controlled. Between Control Unit and RF module there is an encrypted transfer of data.

### Radio Frequency Features

Modulation	FSK (Frequency Shift Keying)
Frequency Carrier	868/915 MHz (Software Adjustable)
	433 MHz (Hardware and Software Adjustable)
Frequency Steps	16

## Functional Specifications

Wide Operating Voltage Range	2.2V-3.8V
Operating Temperature	-40°C / +85°C
Communication Range (Indoor) (Outdoor)	35m. 75m.
TTL UART Communication	up to 19.2 kbps
Low Operating Current	8 uA @ 3.6V
Encrypted Data Communication	
High quality temperature stability of the RF parameters	
High quality adjacent channel rejection/blocking	
Related Directire	R&TTE (1999/5/EC)
Related Standards	ETSI EN 301 489-1 V1.6.1 ETSI EN 301 489-3 V1.4.1 EN 60529

## ACCESS POINT UNIT :

Access point unit provides GPRS, Ethernet and RF communication. This device tries to open in server TCP/IP socket over Ethernet. If it fails, over GPRS communication a backup of Ethernet is kept. Thanks to this communication, required meter data or orders by server are transferred to meter with RF and then re-transferred to server getting again the same way.

Triband / Quadband GSM / GPRS  
GPRS cl 10 (Package)  
10/100 Mbit Ethernet  
TCP IP Socket

## GPRS MODULE SPECIFICATIONS

### General features

- Quad-Band 850/ 900/ 1800/ 1900 MHz
- GPRS multi-slot class 10/8
- GPRS mobile station class B
- Compliant to GSM phase 2/2+
  - Class 4 (2 W @850/ 900 MHz)
  - Class 1 (1 W @ 1800/1900MHz)
- SAIC (Single Antenna Interference Cancellation) support
- Control via AT commands (GSM 07.07 ,07.05 and
- Supply voltage range : 3.2 ... 4.8V
- Low power consumption: 1.0mA (sleep mode&BS-PA- MFRMS=9)
- Operation temperature: -40°C to +85 °C

Related Directire	R&TTE (1999/5/EC)
Related Standards	ETSI EN 301 489-1 V1.8.1 ETSI EN 301 489-7 V1.3.1 EN 60950-1 EN 301 511

### Specifications for CSD Data

- CSD up to 14.4 kbps
- USSD
- Non transparent mode

### Software features

- 0710 MUX protocol
- Embedded TCP/UDP protocol
- FTP/HTTP
- FOTA (available at Q3 2010)
- MMS (available at Q3 2010)
- Embedded AT (available at Q3 2010)

### Specifications for GPRS Data

- GPRS class 10: max. 85.6 kbps (downlink)
- PBCCH support
- Coding schemes CS 1, 2, 3, 4
- PPP-stack

## Technical Specifications

Nominal voltage	3x230/400 V
Nominal current	3x 5 (100) A
Frequency	50 Hz
Electricity meter coefficient	3200 imp/KWh - 3200 imp/KVarh
Accuracy	Class B (TS EN 50470- 3 ) Class 2 (TS EN 62053-23)
Mechanic class	M1
Class of electromagnetic	E2
Battery life	4 years on the shelf - 10 years under power
Protection class	IP54
Operation temperature range	-40 0C +70 0C
Data protection	Non-erasable memory
LCD display	4x20 matrix, backlight feature
Communication	Optical interface (IEC 62056-21)
Standard	TS EN 62053-23 / TS EN 50470-1 / TS EN 50470-3
Time accuracy	0.5 sec/day (IEC 1038)
Dimensions	140 x 265 x 80 mm
Weight	1600gr



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