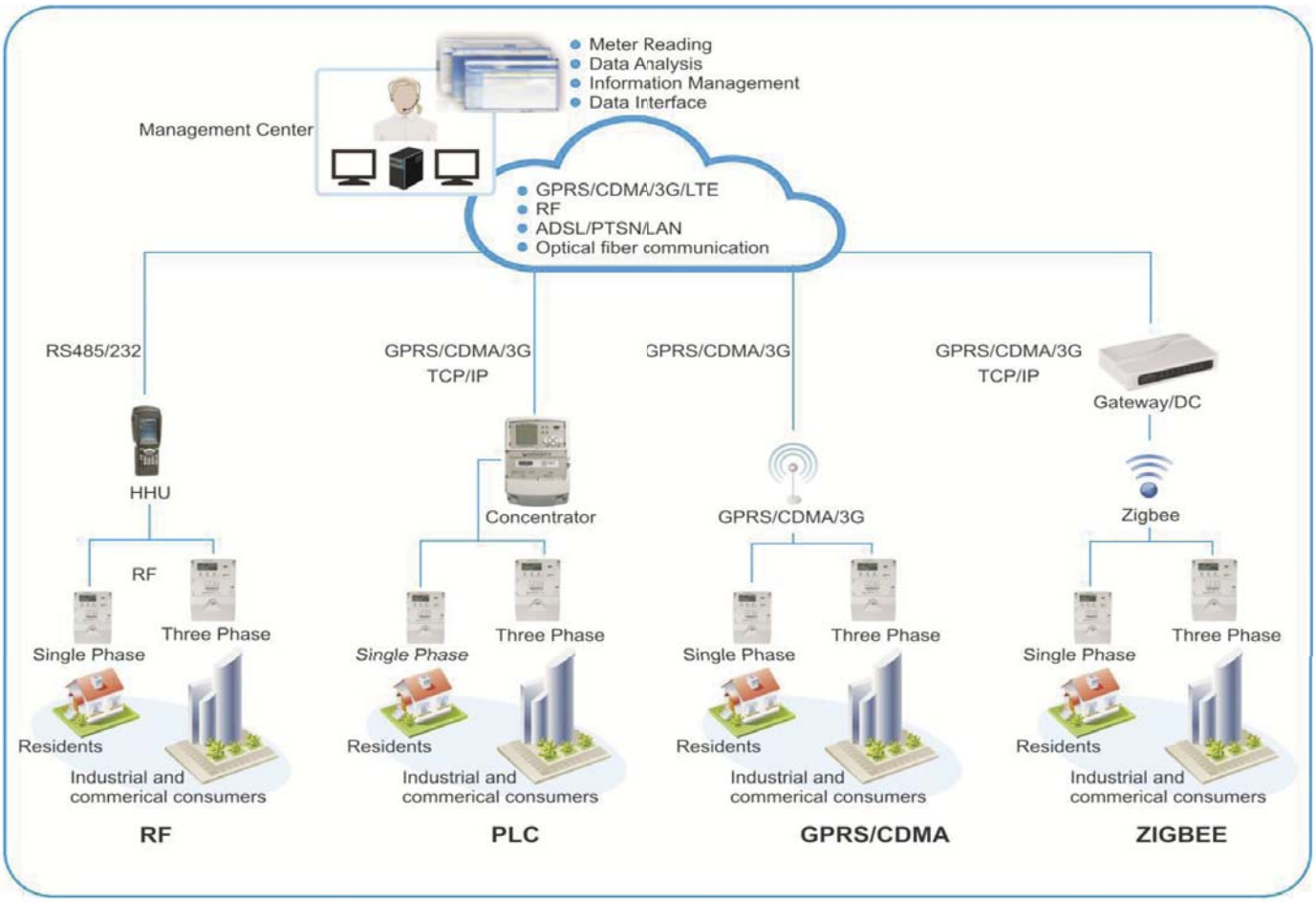
The Token KWH Meter Series

P174E

E24 offers a turnkey prepaid KWH metering solution allowing efficient remote billing.

The Token KWH Meter Series uses Token technology to refill meters and operates over RF or PLC chanels to efficiently transfer data to a single point of management.

E24 Prepaid KWH Meters
Token Technology



E24 offers a comprehensive range of KWH meters to cover a wide range of applications:

RF Meters allow customers to use a mobile handheld RF concentrator to gather data from RF meters and connect to management center.

PLC KWH Meters can transmit data over power lines to a data concentrator which can deliver data to management center via GPRS or Ethernet.

GPRS Meters can of course deliver data to management center without concentrators.

Zigbee KWH meters can also deliver data to the management center via a Zigbee gateway connected to management center through GPRS.

Token Prepaid KWH Meters

E24 EMT1-60 (Single Phase) and EMT3-60 (Three Phase) are multi-function smart meters with modular design allowing accurate measurement of energy. They can be fitted with either one of the following possible modules: RF, GPRS,PLC or Zigbee modules directly in the field for flexible deployment.

EMT1-60 and EMT3-60 comply with STS Standard and can be used for prepaid or postpaid applications depending on utility copany requirements.

EMT1-60 and EMT3-60 can be optionally connected to a Customer Interface Unit (EMT-CIU) to allow customers to read and enter data from the confort of their homes.

Features[1]

> Detailed Digital Display

> 5A to 80 A per Phase

> Overload Protection

> Wide Operating Voltage (184 to 264Vac)

> RS485 Modbus RTU

> Wide operating Temperature Range (-20 to + 85 Degrees C)

> Multi-Tariff and Time of Use (TOU)

> Built-in full protection and diagnostic mechanism.

> Meter Temperaing Protection

> Built-in rechargeable battery

> IP 54 Protection

(1) Reffer to technical for more details

Split Token Prepaid KWH Meter

E24 EMT1-S60 (Single Phase) and EMT3-S60 (Three Phase) are multi-function smart meters with modular design allowing accurate measurement of energy.

EMT1-S60 uses PLC or RF connectivity while EMT3-S60 can be fitted with either one of the following possible modules: RF, GPRS,PLC (default) or Zigbee modules directly in the field for flexible deployment.

EMT1-S60 and EMT3-S60 comply with STS Standard and can be used for prepaid or postpaid applications depending on utility company requirements.

EMT1-S60 and EMT3-S60 must be connected to a Customer Interface Unit (EMT-CIU) to allow customers to read and enter data from the confort of their homes or business.

Features[1]

> Detailed Digital Display

> 5A to 80 A per Phase

> Overload Protection

> Wide Operating Voltage (184 to 264Vac)

> RS485 Modbus RTU

> Wide operating Temperature Range (-20 to + 85 Degrees C)

> Multi-Tariff and Time of Use (TOU)

> Built-in full protection and diagnostic mechanism.

> Meter Temperaing Protection

> Built-in rechargeable battery

> IP 54 Protection

(1) Reffer to technical for more details

Data Concentrator

E24 EMT-DC is an advanced data concentrator capable of providing accurate data about the low voltage network, concentrate data from connected KWH meters through PLC (OFDM or BPSK) or RF and reports abnormal events. EMT-DC connects to Data Management Center through GPRS, DSL and fiber optics.

Features[1]

> Detailed Digital Display

> High Accuracy

> Mutiple Communication (RF or PLC from Subscribers, GPRS, Ethernet, or Fiber Optics to Data Center)

> Wide Operating Voltage (154 to 286Vac)

> RS485 Modbus RTU

> Wide operating Temperature Range (-30 to + 70 Degrees C)

> Multi-Tariff and Time of Use (TOU)

> Built-in full protection and diagnostic mechanism.

> Meter Temperaing Protection

> Built-in rechargeable battery

> IP 54 Protection

(1) Reffer to technical for more details

Data Concentrator

E24 EMT-CIU is a Customer Interface Unit allowing customers to read their energy consumption, credit balance, credit limitation as well as recharging their meter from the confort of their home.

The EMT-CIU can gather information from any E24 meter that uses PLC or RF communication.

Features[1]

> Detailed Large Digital Display with backlit instructions
> High Accuracy
> Mutiple Communication (RF or PLC)
> Wide Operating Voltage (154 to 286Vac)
> Remaining Energy Bar Indicator
> Wide operating Temperature Range (-20 to + 70 Degrees C)
> Multi-Tariff and Time of Use (TOU)
> Alarm LED indicator
> Alarm low battery indication
> Built-in rechargeable battery
> Communication Status with MCU

(1) Reffer to technical for more details

Accessories

E24 offers mutltiple communication modules that can fit its range of Meters to include RF, GPRS, Zig-bee and PLC.

3G、GPRS/GSM module

PLC module

RF module

ZIGBEE module

E24 offers anti tamper boxes with allowing to install the required breakers (breaker not included).

Technical Specifications

EMT1-60

Accuracy	
Active energy	1 (IEC62053-21)
Reactive energy	2 (IEC62053-23)
Impulse	1000 imp/kWh, 1000imp/kvarh
Voltage	
Working Voltage	Upper limit value:264.5V, Lower limit value:184V
Maximum voltage	500V (48 hours)
Short -time Withstand Over-voltage (1 minute)	600V AC
Nominal Voltage	230
Frequency	50Hz±5Hz
Current	
Rated Current	5A
Maximum Current	80A
Over-Current in short time	30Imax
Starting Current	20mA
Limit current for accurate metering	1.2 × Imax
Meter operation	
Power Consumption	Voltage circuit of each phase : <1.5W (or <8VA) @230V Current circuit of each phase : <0.2VA@ Base Reference Current (Ib)
Internal Relay	
Current	Unipolar bi-stable latching relay 100A Load switch standard grade: UC2 (IEC62055-31) ON 1800A, 6000A to withstand short-circuit current Maximum switching power interrupting device: 22500VA
Input and Output	
Meter impulse output	LED, optoelectronic isolation
Environmental condition	
Working temperature range	-25℃~+85℃
Storage temperature range	-40℃~+85℃
Humidity requirement	Relative humidity range is 0~95% at maximum temperature of 55℃ During the night: 100 % relative humidity(max) During the day: 25 % relative humidity Used in region with altitude less than 3500m
Lightning Protection	Built-in varistor protection can be applied to protect from lightning
Altitude	Less than 3500m
Real-time clock	
Real-time clock frequency	Oscillator frequency 32.768kHz
Real-time clock accuracy	≦5ppm
Real-time clock back -up Power supply	Columnar battery, 3.6 V lithium-ion battery capacity ≥1200mAh After power failure, the battery can support clock working more than 10 years, two years shelf time
Battery for no power reading	Columnar battery: 3.6 V Lithium -ion battery capacity ≥1200mAh After power failure, the batte ry powered clock can work more than 10 years.
Time Of Use	
Rate	Multiple tariffs & Time-of-Use (TOU) billing (8 tariffs, 24 time intervals, 16 daily tariffs, 2 weekly tariffs, 12 seasonal tariffs, 50 holiday tariffs)
Special days	Up to 200 programmable special days
Communication	
Infrared communication	According 62056-21 E mode
Communication module	Hot Swap Modules GPRS/3G cellular modem, PLC, RF
Versatile RS -232/485	universal serial communications port (up to 115,200 bps)
Communication Protocols	DLMS/COSEM, 62056-21
Load profile	
Number of channel and interval	8 programmable channel and Interval programmable from 1 minute to 60 minutes
Capacity	1 channel time interval 15 minutes is 80 days
Mechanical specification	
Weight	Around 600g
Protection class	IP54, Comply with IEC60529-4
Dimension	210.0mm X 135.0mm X 72.0mm;
Housing and terminal layout	BS5685/DIN 43857
Housing protection grade	IP54 IEC60529-4
Housing Material	Fire retardant, flame resistant, thermal deformation engineering plastic PC+GF Inflaming retardant test comply with 960°C glow wire test requirement (IEC60695-2-1). Fire resistant test : UL94-V0 rated @1.5mm. No toxic gases emitted: Green Material
Terminal and Sealing	
Terminals	Terminals layout complies with BS5685/ DIN 43857 Two screws on the pressure-plate main terminal. The material is rust-proof.
Terminal material	Fire retardant, flame resistant, anti-thermal deformation engineering plastic PC+20%GF Flame retardant test: pass 960°C glow wire test (IEC60695-2-1) Fire resistant test: UL94-V0 rated @1.5mm. No toxic gases emitted: green Material
Sealing	Four seals on meter: 1)Two manufacturer seals on the top of meter cover; 2) One seal for terminal cover 3) One seal on communication module

Technical Specifications

EMT3-60

Accuracy	
Active energy	Class 1 (IEC62053-21)
Reactive energy	Class 2 (IEC62053-23)
Impulse	1000 imp/kWh, 1000imp/kvarh
Voltage	
Working Voltage	Upper limit value:264.5V, Lower limit value:184V for each phase
Maximum voltage	500V（48 hours）
Short -time Withstand Over-voltage (1 minute)	600V AC
Nominal Voltage	3*230/400V
Frequency	50Hz±5Hz
Current	
Rated Current	10A
Maximum Current	100A
Over-Current in short time	30Imax
Starting Current	20mA
Limit current for accurate metering	1.2 × Imax
Meter operation	
Power Consumption	Voltage circuit of each phase：＜1.5W（or ＜8VA）@230V Current circuit of each phase：＜0.2VA@ Base Reference Current (Ib)
Internal Relay	
Current	Unipolar bi-stable latching relay 100A Load switch standard grade: UC2 (IEC62055-31) ON 1800A, 6000A to withstand short-circuit current Maximum switching power interrupting device: 22500VA
Input and Output	
Meter impulse output	LED, optoelectronic isolation
Environmental condition	
Working temperature range	-25℃~+85℃
Storage temperature range	-40℃~+85℃
Humidity requirement	Relative humidity range is 0~95% at maximum temperature of 55℃ During the night: 100 % relative humidity(max) During the day: 25 % relative humidity Used in region with altitude less than 3500m
Lightning Protection	Built-in varistor protection can be applied to protect from lightning
Altitude	Less than 3500m
Real-time clock	
Real-time clock frequency	Oscillator frequency 32.768kHz
Real-time clock accuracy	≤5ppm
Real-time clock back -up Power supply	Columnar battery, 3.6 V lithium-ion battery capacity ≥1200mAh After power failure, the battery can support clock working more than 10 years, two years shelf time
Battery for no power reading	Columnar battery: 3.6 V Lithium -ion battery capacity ≥1200mAh After power failure, the batte ry powered clock can work more than 10 years.
Time Of Use	
Rate	Multiple tariffs & Time-of-Use (TOU) billing (8 tariffs, 24 time intervals, 16 daily tariffs, 2 weekly tariffs, 12 seasonal tariffs, 50 holiday tariffs)
Special days	Up to 200 programmable special days
Communication	
Infrared communication	According 62056-21 E mode
Communication module	Hot Swap Modules GPRS/3G cellular modem, PLC, RF
Versatile RS -232/485	universal serial communications port (up to 115,200 bps)
Communication Protocols	DLMS/COSEM, 62056-21
Load profile	
Number of channel and interval	8 programmable channel and Interval programmable from 1 minute to 60 minutes
Capacity	1 channel time interval 15 minutes is 80 days
Mechanical specification	
Weight	Around 1200g
Protection class	IP54, Comply with IEC60529-4
Dimension	300.0mm X 170.0mm X 85.0mm
Housing and terminal layout	BS5685/DIN 43857
Housing protection grade	IP54 IEC60529-4
Housing Material	Fire retardant, flame resistant, thermal deformation engineering plastic PC+GF Inflaming retardant test comply with 960°C glow wire test requirement (IEC60695-2-1). Fire resistant test：UL94-V0 rated @1.5mm. No toxic gases emitted: Green Material
Terminal and Sealing	
Terminals	Terminals layout complies with BS5685/ DIN 43857 Two screws on the pressure-plate main terminal. The material is rust-proof.
Terminal material	Fire retardant, flame resistant, anti-thermal deformation engineering plastic PC+20%GF Flame retardant test: pass 960°C glow wire test（IEC60695-2-1） Fire resistant test: UL94-V0 rated @1.5mm. No toxic gases emitted: green Material
Sealing	Five seals on meter: 1)Two manufacturer seals on the top of meter cover; 2) Two seal for terminal cover 3) One seal on communication module

Technical Specifications

EMT-DC

Accuracy	
Active energy	Class 0.5S (IEC62053-22)
Reactive energy	Class 2 (IEC62053-23)
Impulse	Active: 5000imp/kWh Reactive: 5000imp/kVarh
Measurement Modes	3 phase 3 wire (2 element) 3 phase 4 wire (3 element)
Voltage	
Working Voltage	70%Un—130% Un
Maximum voltage	500V (48 hours)
Nominal Voltage	3*230 V/400 V
Frequency	45-65 Hz
Current	
Rated Current	1.5A, 5A
Maximum Current	5A, 6A
Over-Current in short time	300A
Input and Output	
Meter impulse output	LED, optoelectronic isolation
Input signal	4 isolated TTL signalnputs,and 1 isolated dry input
Output signal	3 Outputs areTTL: · Active energy impulse Signal · Reactive energy impulse Signal · PPS Pulse Per Second
Environmental condition	
Working temperature range	-30℃~+ 70℃
Storage temperature range	-30℃~+ 70℃
Humidity requirement	95%
Altitude	Less than 3500m
LCD	
Backlight	Supported
Mode	scroll display mode, keypad query mode and keypad,setting mode
Display Parameters	Displays any available meter parameter
Type	Dot matrix LCD
Communication	
Built-in infrared port	Supports IEC62056-21standard
Communication modules	Two slots of Field- replaceable Hot Swap Modules:GPRS/3G cellular modem, PLC or RF modem
PLC type	Prime, G3, BPSK
RF type	Mesh RF, point to point
485Port	Twoport s (up to 115,200 bps)
PS2	PS2 port for local O & M
Ethernet port	Ethernet 10/100 Base-T port (TCP protocols)

USB	USB 2.0 full speed device port for fast local communications and data retrieving
Communication Protocols	DLMS/COSEM, RTU MODBUS, DNP3.0, MV90TM, IEC 870-5-102, GB 376.1, D
Real-time clock	
Real-time clock frequency	Oscillator frequency 32.768kHz
Real-time clock accuracy	≦5ppm
Real-time clock back -up Power supply	At least ten years, two years shelf time
Clock source	Mains synchronized or internal crystal time keeping.
Time Of Use	
Rate	Multiple tariffs & Time-of- Use (TOU) billing (8 tariffs, 24 time intervals, 16 daily tariffs, 2 weekly tariffs, 12 seasonal tariffs, 50 holiday tariffs)
Special days	Up to 200 programmable special days
Maximum Demand	Multiple tariffs &Time-of-Use Power Demand (block and sliding demands)
Profile / Storage	
Number of channel and interval	16 programmable channel and Interval programmable from 1 second to 1 month
Channel	Energy, instantaneous readings, pulsing inputs, average/min /max readings
Capacity	128 Mbytes FLASH extendable to 256 Mbytes FLASH
Power Quality	
Sags/swells (dips/over- voltages)	
Power quality comply with IEC61000-4-30 A Class	
Interruptions	
Frequency variations	
Flicker according to IEC 61000-4-15	
Voltageunbalance	
Harmonics and inter- harmonics according to IEC 61000-4-7 Class I	
3 voltages and 4 currents (including neutral current)	
Fast transient ove-rvoltages	
Voltage and current THD, current TDD and K factor	
Mechanical specification	
Weight	Around 2 000g
Protection class	IP54, Comply with IEC60529 4
Dimension	290mm×180 mm×96 mm (L*W*D)
Power Consumption	
Without communication	≤ 10W
With communication	≤ 15W

Technical Specifications

EMT-CIU

Module information	
Type	CIU-PLC
Application	For prepayment meter like Three phase meter DTZ1513 and Single phase meter DDZ1513
Communication	
Communication type	Power line wave -carrier communication
Communication line	PLC modulation: PSK PLC frequency : 125kHz ; Standards: IEC61334-4-41, ISO/IEC13239 and EN 50065 Information transfer rate: 550bps Protocol: Physical layer DLMS/COSEM; PLC enables multi-level relay and distributed dynamic networking Communication distance: <150m
Working C ondition	
Working temperature	-25°C ~ +70°C
Storage temperature	-40°C ~ +80°C
Humidity	Relative humidity range is 0 ~ 95% @55°C
Power supply	
AC Power supply	AC supply power: Rated voltage: 230V AC; Voltage range: -25%~+15% Working frequency: 50Hz; Power consumption: <1.2W/<5VA @ 230V Insulation: Double insulation Connection mode: Detachable power plug/socket
Battery	Battery supply power (supply power at AC failure) 4X1.5 Volt AA battery (typical working life-more than 2 years)
LCD and Keypad	
Display and indication port	With large screen, wide angle, wide temperature range of LCD display mode, Digital display is 8 bits, IEC62056 display code encoding, visualized prompt symbol, remaining energy bar indicator, alarm/tip LED indicator, indication symbol of battery voltage, instruction of communication status with MCU, LCD screen with backlit instruction, LCD display screen dimension: 60.0X 31.0mm LCD visual window dimension: 55.4X22.0mm LCD character dimension (height × width) : 12X4.5mm Display can be manual scroll display and automatic scroll display (default); Displayed items are programmable. Displayed item with automatic scroll display is remaining electricity.
Keyboard	12-key keyboard, keyboard tip sound, error indication of inputting, with Braille symbols.
Physical Characteristic	
Cover and terminal layout	Mounted on wall indoors which is easy for operation and observation; Battery can be replaceable. It has AC power plug and should be connected to AC power during operation.
Protection Class	IP54
Cover material	Fire retardant, flame resistant, anti-thermal-deformation engineering plastic PC + 10%GF; Fire retardant test complies with 960°C glowing filament test (IEC60695-2-1) Flammability test: UL94-V0 rated @1.5mm. No toxic gases emitted: Green material
Dimension	110mm(L) ×140.0mm(W) ×52.0mm(H)
Weight	Around 450g

Ordering Information

Ref Number	Description
EMT1-60	Prepaid Energy Meter, Token Type, Single Phase, 220V, 20(60)A, 50/60Hz, PLC Communication, RS485-MODBUS
EMT3-60	Prepaid Energy Meter, Token Type, Three Phase, 380/220V, 3x20(60)A, 50/60Hz, PLC Communication, RS485-MODBUS
EMT-CIU	Customer Interface Unit for Prepaid Energy Meter, Token Type, PLC Communication
EMT-DC	Prepaid Energy Meter, Token Type, PLC communication, Data Concentrator, RS485-MODBUS
EMT-WS	Prepaid Energy Meter Workstation with Management software
EMT1-S60	Prepaid Energy Meter, Split Token Type, Single Phase, 220V, 20(60)A, 50/60Hz, PLC Communication, RS485-MODBUS
EMT3-S60	Prepaid Energy Meter, Split Token Type, Single Phase, 380/220V, 3x20(60)A, 50/60Hz, PLC Communication, RS485-MODBUS
EMT1-BOX	Prepaid Energy Meter, Box for Single Phase Meter with breakers
EMT3-BOX	Prepaid Energy Meter, Box for Three Phase Meter with breakers
EMT-RF	Prepaid Energy Meter, RF Module
EMT-PLC	Prepaid Energy Meter, PLC Module
EMT-GPRS	Prepaid Energy Meter, GPRS Module
EMT-ZIG	Prepaid Energy Meter, Zigbee Module

PV Panels

PV Cabling Kits

PV Mounting Kits

Charge Controllers

PV Inverters

PV Controllers

E24 Modular Range Of Products For Building Easy, Flexible & Evolutive Solutions

E24 products dynamically evolve with the lifestyle and work style of its customers while easing the installation process.

E24 products are conceived in modules allowing for an easy upgrade to adjust with the needs of the customers. Being modular and easy to connect E24 products allow installers to easily configure the required modules for an optimal solution while offering easy upgrade options.

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