ENERGYMETER-01-DIN RS485

Three Phases Energy Meter & Analyser

Total Active Energy (ΣkWh)

Electrical Datas Monitored with MODBUS RTU

V_{L1}, V_{L2}, V_{L3}
$V_{L12}, V_{L23}, V_{L13}$
$I_{L1}, I_{L2}, I_{L3}, I_{Neutral}$
Hz
P_1, P_2, P_3
Q_1, Q_2, Q_3
S_1, S_2, S_3
$Cos\Phi_1, Cos\Phi_2, Cos\Phi_3$
$PF_{D1}, PF_{D2}, PF_{D3}$
ΣPF
$\Sigma P, \Sigma Q_i, \Sigma Q_c, \overrightarrow{\Sigma Q}, \overrightarrow{\Sigma S}$
İmport **kWh**
Import **kVARh**(ind)
Import **kVARh**(cap)
kVAh
Export **kWh**
Export **kVARh**(ind)
Export **kVARh**(cap)
3 – 31. current odd harmonics
3 – 31. voltage odd harmonics
Zero cross angles of three phases

General

The device monitors the total active energy (ΣkWh) of the three phases by metering AC RMS mains voltage and RMS mains current. Current and Voltage transformer primer value can be adjusted with the parameter menu.Our device is a cost effective solution and has all the essential parameters especially for automation firms working in the area of energy saving,mains analysing and product cost analysing.The device can be integrated to scade systems easily by using MODBUS-RTU with RS485 port.With the data table(register table), each three phases – neutral voltages,phase-phase voltages, currents and neutral current, frequency, power factors,power factor distorsion , import and export active power,reactive power, active and reactive energy, amplitude and % value of voltages and currents of the each odd harmonics from 3. to 31., and zero cross angles of three phases voltages and currents can be monitored and analysed.
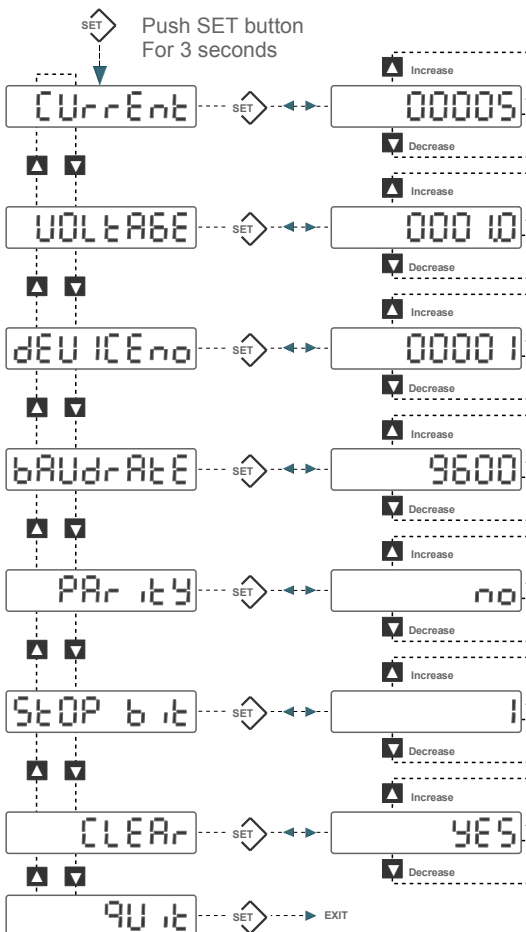
MODBUS – RTU PROTOCOL

ADRESS 8 BIT	FUNCTION 8 BIT	DATA 8 BIT	CRCL 8 BIT	CRCH 8 BIT	T 3,5 Character waiting time

Maximum length of this packet is 255 Byte.

MODBUS – RTU Functions

03H	REGISTER READ
06H	REGISTER WRITE
10H	MULTIPLE REGISTER WRITE

ENTER PARAMETER MENU:

PARAMETERS:

The device enter the parameter menu by pushing the SET button for 3 seconds.With the direction buttons , it is possible to go up and down along the parameter menu.After pushing the SET button, the value can be increased or decreased with the direction buttons.By pushing the direction buttons longer, the value increase or decrease faster. With the SET button, the adjusted value will be recorded in the memory.
Current : Current Transformer Primer Value (5 .....10000 / 5A)
Current tran. primer value is adjusted.Ex:For 500 / 5A current trans. ,500 is entered.
Voltage :Voltage Transformer Ratio (1 .....1000)
If there is no voltage transformer, this value must be 1.This is also factory default value.
Device No : Device number can be adjusted between 1-255.
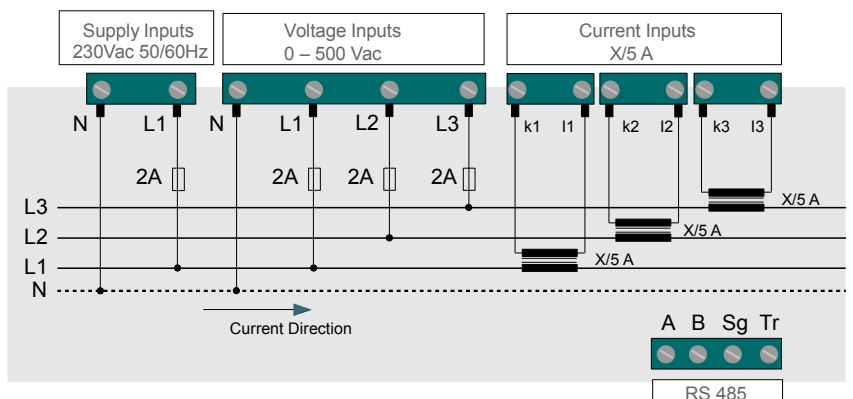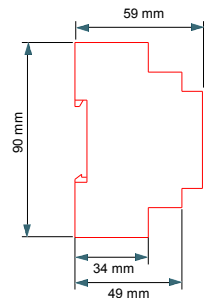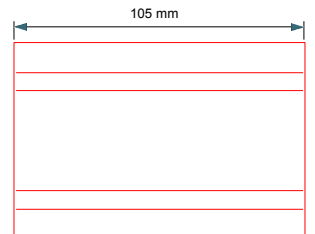**Baud rate :** 2400-4800-9600-19200-28800-38400-57600-115200
Parity : no-odd-even
Stop Bit : 1 – 0.5 – 2 – 1.5
Clear : yes (clear) , no (not clear)
quit : quit from parameter menu

ELECTRICAL CHARACTERISTICS:

Operating Voltage (Un)	: 220Vac
Voltage Range	: (0,8-1,1) x Un
Operating Frequency	: 50/60 Hz
Supply Power Consumption	: < 4VA
Measurement Input Power Con.	: < 1VA
Monitoring	: 9999999.9 kWh and 9999999.9 Mwh
Minimum Measurement Values	: 10 mA , 30 V
Current Measurement Range	: (Seconder Current) 10mA - 6 Amp AC
Voltage Measurement Range	: (Phs-Ntr) 30 - 300 Vac, 45-65 Hz
	: (Phs-Phs) 30 - 600 Vac, 45-65 Hz
Measurement Accuracy	: %1±1 digit
Voltage Transformer Ratio	: 1 1000
Current Transformer Ratio	: 5/5..........10000/5 A
Protection Class	: IP 20
Terminal Protection Class	: IP 00
Operating Temperature	: - 5 °C .... + 50 °C
Humidity Rating	: %15 ...... %95 (non-condensing)
Connection Type	: DIN rail
Dimesions	: 105x90x59 mm

ENERGYMETER-01-DIN RS485 100A

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Hz
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Q_1, Q_2, Q_3
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$Cos\Phi_1, Cos\Phi_2, Cos\Phi_3$
$PF_{D1}, PF_{D2}, PF_{D3} \longrightarrow$
ΣPF
ΣP, ΣQi, ΣQc, ΣQ, ΣS
İmport **kWh**
Import **kVARh**(ind)
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Zero cross angles of three phases

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MODBUS – RTU Functions

03H	REGISTER READ
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ENTER PARAMETER MENU:

Push SET button For 3 seconds

- CUrrEnt → 00005 (Increase / Decrease)
- UOLtAGE → 00010 (Increase / Decrease)
- dEUICEno → 00001 (Increase / Decrease)
- bAUdrAtE → 9600 (Increase / Decrease)
- PArity → no (Increase / Decrease)
- StOP bit → 1 (Increase / Decrease)
- CLEAr → YES (Increase / Decrease)
- 9Uit → EXIT

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Baud rate : 2400-4800-9600-19200-28800-38400-57600-115200
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Supply Power Consumption	: < 4VA
Measurement Input Power Con.	: < 1VA
Monitoring	: 9999999.9 kWh and 9999999.9 Mwh
Minimum Measurement Values	: 10 mA , 30 V
Current Measurement Range	: 0-100 A
Voltage Measurement Range	: (Phs-Ntr) 30 - 300 Vac, 45-65 Hz
	: (Phs-Phs) 30 - 600 Vac, 45-65 Hz
Measurement Accuracy	: %1±1 digit
Voltage Transformer Ratio	: 1 1000
Current Transformer Ratio	: 5/5..........10000/5 A
Protection Class	: IP 20
Terminal Protection Class	: IP 00
Operating Temperature	: - 5 °C .... + 50 °C
Humidity Rating	: %15 ...... %95 (non-condensing)
Connection Type	: DIN rail
Dimesions	: 105x90x59 mm

105 mm
59 mm
90 mm
34 mm
49 mm

Supply Inputs 230Vac 50/60Hz		Voltage Inputs 0 – 500 Vac				Current Inputs 100 A		
N	L1	N	L1	L2	L3	k1 I1	k2 I2	k3 I3

2A | 2A | 2A | 2A

L3 — 100 A
L2 — 100 A
L1 — 100 A
N

Current Direction

A B Sg Tr

RS 485