

MULTISER-01-PC Network Analyser (RS-485)



SPECIFICATIONS

- Microprocessor based
- Measurement of 3 phase electrical quantities (VL-N, A, CosΦ, VL-L, Hz, W, VAR, VA, ΣW, ΣVAR, ΣVA, ΣWh, ΣVArh, ΣVAh)
- 1-60 min. adjustable demand values (VL-N, A, CosΦ, VL-L, W, VAR, VA)
- Correct learning of current transformer polarity (even if (k,I) is connecte in reverse direction)
- Setting of current and vltage transformer ratios
- Separate or all together clearance of stored demand, peak and energy values
- Easy access to menus
- Reduces both number of measurement equipment used in the panel and connection time
- Lowers electrical panel costs

Foreword

All information and warnings about NetworkAnalyser MULTISER are given in this User's Manual. Please for your power networks and your own safety, read this manual carefully before commissioning the system. Please contact us for unclear points.
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Warnings:



- 1- The connection, operation and parameter settings of device must be done by authorised technical service staff. Also, system checks must be done by this person when necessary.
- 2- Please do not open or do not let others open the device. There are no user serviceable parts inside.
- 3- Before making the connections to device's terminals, please be sure that there is no voltage across the cables or terminals. Also be sure that the panel is de-energised.
- 4- Please fix the device to electric panel with apparatuses supplied.
- 5- Please press the buttons only by your fingers, do not contact anyother object with them.
- 6- Before cleaning the device, please be sure that it is de-energised and use only dry tissue-paper to clean it. Water or any other chemicals used for cleaning may harm the device.
- 7- Before commissioning the device, please be sure that the terminal connections are made exactly the same as in the connection diagram and avoid any connection problems, such as loose connections or contact of different cables.

General

Multiser gives the ability of tracking electrical parameters for 3 phase systems such as, phase currents, phase-neutral & phase-phase voltages, frequency, power factor, active powers, reactive powers and apparent powers. It also stores consumed energies. It also gives the opportunity of tracking total, max. demand and peak values for stated quantities. Current and voltage transformer ratios can be set by the user.
 Using the directions buttons, desired parameters can be accessed easily. On the other hand, its displays make it possible to track values from long distance.

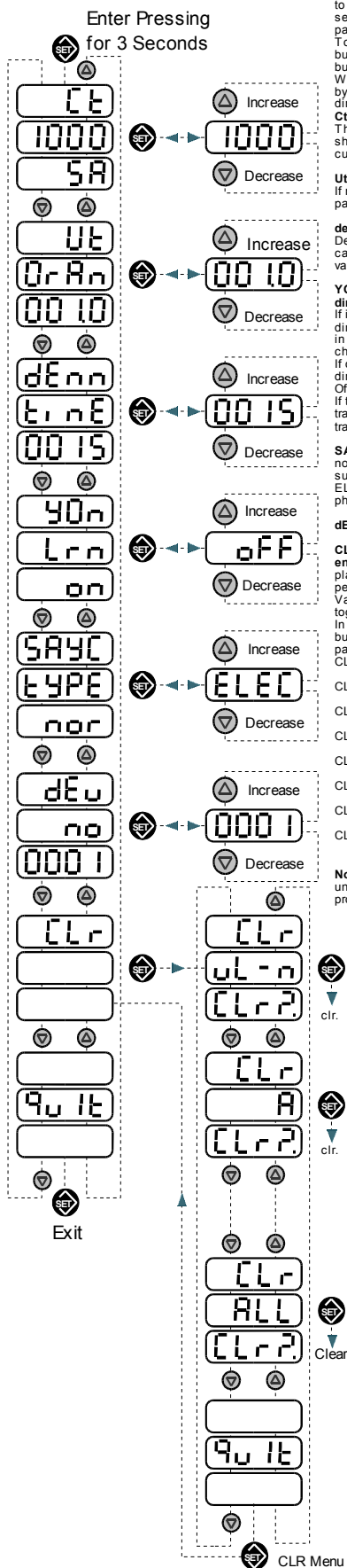
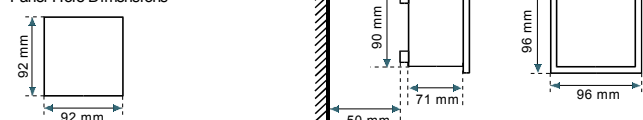
Installation Instructions :

1. A hole with 92mm x 92 mm must is needed on the panel for device installation
2. Remove the fixing apparatus before installing the device
3. Place the device in the prepared hole from the front side.
4. Use the fixing apparatus to fix the device from the back side to the panel.

CAUTION:

Leave at least 50mm space between the back side of the device and the internal wall of the panel for the airing purpose

Panel Hole Dimensions



ACCESSING PARAMETERS:
 Using the direction buttons, it is possible to move up and down in the menu. When set button is pressed down for 3 seconds, parameter setting menu is accessed and To set any of the parameters, first set button is pressed, then using the directions buttons, value is increased/decreased. When desired value is reached, it is stored by pressing the set button. Using the direction buttons.

Ct: Current transformer value : (5...10000)
 The current transformer's primary value should be entered. For example if 500/5A current is used then 500 must be entered.

Ut: Voltage transformer value : (1...1000)
 If no voltage transformer is used, this parameter must be left as 1.

denn tme: Demand time : (5-60 min)
 Demand time parameter; determines the calculation period of demand and peak values.

YOn Lrn: Current transformer polarity direction learning: (on – off)
 If it is "on" then the device would learn the direction automatically. If the device monted in new panel or the polarity somehow changed then it learns the new direction. If off then the device would learn the direction once and never learn it again. Off position is required for some loads. If there would be a problem in the current transformer direction then the current transformer inputs should be switched.

SAYC TYPE : Counter type : (nor-ELEC)
 nor: Energies are calculated due the vectorial sum of the phases.
 ELEC: Energies are calculated for each phase separately.

dEv no : device number (1 - 255)

CLR: To clear demand, peak and energy values:
 placed where the stored values like demand, peak values and energies are cleared. Values can be cleared either separately or all together, from ALL section, under this menu. In order to clear the stored values SET button must be pressed. The following parameters can be set:
 CLR uL-n :Clears the demand and the peak values of the phase-neutral voltages
 CLR A :Clears the demand and the peak values of the currents
 CLR uL-L :Clears the demand and the peak values of the phase-phase voltages
 CLR P :Clears the demand and the peak values of the active energies
 CLR q :Clears the demand and the peak values of the reactive energies
 CLR S :Clears the demand and the peak values of the apparent energies
 CLR hr- :Clears the stored active, reactive and apparent energy sums
 CLR ALL : Clears all mentioned values above

Note: If no button is pressed for 4 minutes under this menu, device automatically quits programming menu.

Measured Electrical Parameters

(VL-N, A, CosΦ, VL-L, Hz, W, VAR, VA, ΣW, ΣVAR, ΣVA, ΣWh, ΣVAh, ΣVAh)

These parameters can be reached using the direction buttons, with the related led on and with the measured values for the three phases shown simultaneously.

Voltage (V_{L-N}) **Peak (V_{L-N})** **Max.Demand (V_{L-N})**

Current (A) **Peak (A)** **Max.Demand (A)**

Power Factor (CosΦ) **Resultant (CosΦ)** **Ind.Peak (CosΦ)** **Cap.Peak (CosΦ)** **Ind.Demand (CosΦ)**

Voltage (V_{L-L}) **Peak (V_{L-L})** **Max.Demand (V_{L-L})** **Cap.Demand (CosΦ)**

Frequency (Hz)

Active Power **Σ Active Power** **Peak (Active Power)** **Max.Demand (Active Power)**

Reactive Power **Σ Reactive Power** **Ind.Peak(Reactive Power)** **Cap.Peak(Reactive Power)** **Ind.Demand(Reactive Power)**

Apparent Power **Σ Apparent Power** **Peak (Apparent Power)** **Max.Demand (Apparent Power)** **Cap.Demand (Reactive Power)**

Σ Active Energy

Σ Ind.Reactive Energy **Σ Cap.Reactive Energy** **Σ Reactive Energy**

Σ Apparent Energy

TECHNICAL DATA:

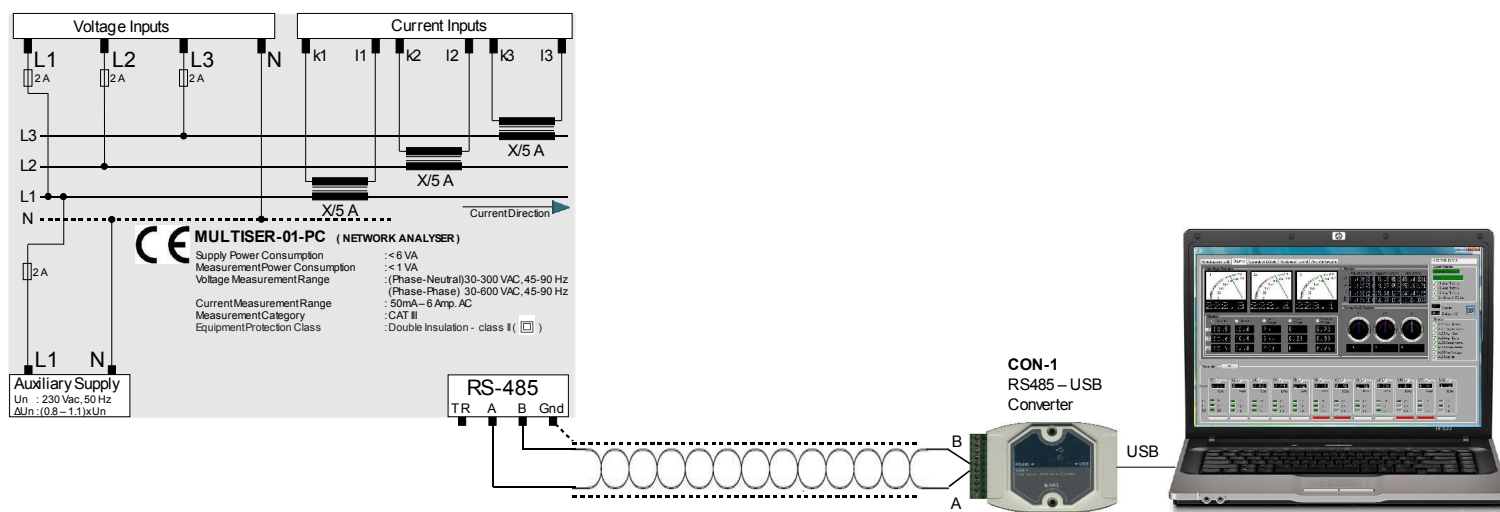
Rated Voltage (Un)	: 230 VAC
Operating Range	: (0.8 – 1.1)xUn
Frequency	: 50 Hz
Supply Power Consumption	: < 6 VA
Measurement Power Consumption	: < 1 VA
Voltage Measurement Range	: (Phase-Neutral) 30-300 VAC, 45-90 Hz (Phase-Phase) 30-600 VAC, 45-90 Hz
Current Measurement Range	: (Secondary current) 50mA – 6 Amp. AC
Display Range	: 0 – 999.9 kV 0 – 999.9 M (W, VAR, VA) (Cosφ) 0.00 – 1.00 ind. & cap.
Minimum Measurement Values	: 50 mA, 30V
Measurement Sensitivity	: 1% ± digit
Voltage Transformer Ratio	: 1 1000
Current Transformer Ratio	: 5/5 1000/5 A
Display	: 4 Digits LED display
RS-485 (MODBUS-RTU)	
Baud Rate	: 9600 Kbps
Parity	: no parity
Device Number	: 1 - 255
Measurement Category	: CAT III
Equipment Protection Class	: Double Insulation - class II ()
Device Protection Class	: IP20
Connector Protection Class	: IP00
Ambient Temperature	: -5°C.....+50°C
Humidity	: 15% 95% (without condensation)
Connection Type	: To front panel tap
Dimensions	: 96x96x80 mm

NO	ADRES1 (HEX)	ADRES2 (HEX)	(R)read (W)write	PARAMETER	FORMAT	MULTIPLIER	UNIT	INSTRUCTION
1	0000	----	R	COUNTRY CODE (TURKEY)	unsigned int	1		869
2	0001	----	R	COMPANY CODE	unsigned int	1		7436
3	0002	----	R	PRODUCT CODE	HW unsigned int	1		0x0001
4	0003	----	R		LW unsigned int	1		0x59B2
5	0004	----	R	BARCODE CONTROL	unsigned int	1		8
6	0005	----	R	SOFTWARE VERSION	unsigned int	1		0x0220
7	0006	----	R/W	DEVICE NUMBER	HW unsigned int	1		0xFFFF - 0x0000
8	0007	----	R/W		LW unsigned int	1		0xFFFF - 0x0000
INSTANTANEOUS VALUES								
1	1000	E000	R	CURRENT TRANSFORMER RATIO (ATRF)	unsigned int	1	ATRF	1 - 2000
2	1001	E001	R	VOLTAGE TRANSFORMER RATIO (GTRF)	unsigned int	0,1	GTRF	10 - 10000
3	1002	E002	R	PHASE 1 VOLTAGE Phase-Neutral (VL1N)	unsigned int	0,1 x (GTRF)	VOLT	(VL1N) x GTRF x 0,1); example:if GTRF=1 ; 2200 x(1 x 0,1) = 220 Volt
4	1003	E003	R	PHASE 2 VOLTAGE Phase-Neutral (VL2N)	unsigned int	0,1 x (GTRF)	VOLT	
5	1004	E004	R	PHASE 3 VOLTAGE Phase-Neutral (VL3N)	unsigned int	0,1 x (GTRF)	VOLT	
6	1005	E005	R	PHASES 1-2 VOLTAGE Phase-phase (VL12)	unsigned int	0,1 x (GTRF)	VOLT	
7	1006	E006	R	PHASES 1-3 VOLTAGE Phase-phase (VL13)	unsigned int	0,1 x (GTRF)	VOLT	
8	1007	E007	R	PHASES 2-3 VOLTAGE Phase-phase (VL23)	unsigned int	0,1 x (GTRF)	VOLT	
9	1008	E008	R	PHASE 1 CURRENT (I1)	unsigned int	(ATRF) x 0,001	AMPER	(I1 x ATRF x 0,001); Example:if 100/5A ; 5000 x(20 x 0,001) = 100 A
10	1009	E009	R	PHASE 2 CURRENT (I2)	unsigned int	(ATRF) x 0,001	AMPER	(I2 x ATRF x 0,001)
11	100A	E00A	R	PHASE 3 CURRENT (I3)	unsigned int	(ATRF) x 0,001	AMPER	(I3 x ATRF x 0,001)
12	100B	E00B	R	PHASE 1 ACTIVE POWER (P1)	unsigned int	(ATRF) x (GTRF)	WATT	(P1 x (ATRF) x (GTRF))
13	100C	E00C	R	PHASE 2 ACTIVE POWER (P2)	unsigned int	(ATRF) x (GTRF)	WATT	(P2 x (ATRF) x (GTRF))
14	100D	E00D	R	PHASE 3 ACTIVE POWER (P3)	unsigned int	(ATRF) x (GTRF)	WATT	(P2 x (ATRF) x (GTRF))
15	100E	E00E	R	PHASE 1 REACTIVE POWER (Q1)	signed int	(ATRF) x (GTRF)	VAR	(Q1 x (ATRF) x (GTRF))
16	100F	E00F	R	PHASE 2 REACTIVE POWER (Q2)	signed int	(ATRF) x (GTRF)	VAR	(Q2 x (ATRF) x (GTRF))
17	1010	E010	R	PHASE 3 REACTIVE POWER (Q3)	signed int	(ATRF) x (GTRF)	VAR	(Q3 x (ATRF) x (GTRF))
18	1011	E011	R	PHASE 1 APPARENT POWER (S1)	unsigned int	(ATRF) x (GTRF)	VA	(S1 x (ATRF) x (GTRF))
19	1012	E012	R	PHASE 2 APPARENT POWER (S2)	unsigned int	(ATRF) x (GTRF)	VA	(S2 x (ATRF) x (GTRF))
20	1013	E013	R	PHASE 3 APPARENT POWER (S3)	unsigned int	(ATRF) x (GTRF)	VA	(S3 x (ATRF) x (GTRF))
21	1014	E014	R	PHASE 1 COSØ (COSØ1)	signed int	0,01	-	(COSØ1 x 0,01)
22	1015	E015	R	PHASE 2 COSØ (COSØ2)	signed int	0,01	-	(COSØ2 x 0,01)
23	1016	E016	R	PHASE 3 COSØ (COSØ3)	signed int	0,01	-	(COSØ3 x 0,01)
24	1017	E017	R	TOTAL COSØ (COSØ)	signed int	0,01	-	(COSØ x 0,01)
25	1018	E018	R	TOTAL ACTIVE POWER (ΣP)	unsigned int	(ATRF) x (GTRF)	WATT	((ΣP) x (ATRF) x (GTRF))
26	1019	E019	R	TOTAL REACTIVE POWER VECTOR (ΣQ)	signed int	(ATRF) x (GTRF)	VAR	
27	101A	E01A	R	FREQUENCY (f)	unsigned int	0,1	Hz	(f x 0,1)
28	101B	E01B	R	TOTAL APPARENT POWER (ΣS)	unsigned int	(ATRF) x (GTRF)	VA	((ΣS) x (ATRF) x (GTRF))
29	101C	E01C	R	REACTIVE POWER DIRECTION BITS	unsigned int	1	-	Bit 0: Direction of phase 1 ("1" = capacitive , "0" = inductive) Bit 1: Direction of phase 2 ("1" = capacitive , "0" = inductive) Bit 2: Direction of phase 3 ("1" = capacitive , "0" = inductive) Bit 3: Direction of total reactive power ("1" = capacitive , "0" = inductive) NOT: Bit4,.....Bit15 reserve READ "0"
30	101D	E01D	R	CURRENT TRANSFORMERS DIRECTION BITS	unsigned int	1	-	Bit 0: Current direction of phase 1 (if it is "1", reverse) Bit 1: Current direction of phase 2 (if it is "1", reverse) Bit 2: Current direction of phase 3 (if it is "1", reverse) Bit 3: determination of current direction phase 1 (if it is "1", determined) Bit 4: determination of current direction phase 2 (if it is "1", determined) Bit 5: determination of current direction phase 3 (if it is "1", determined) NOT: Bit6,.....Bit15 reserve READ "0"
31	101E	E01E	R	TOTAL INDUCTIVE POWER (ΣQind)	signed int	(ATRF) x (GTRF)	VAR	
32	101F	E01F	R	TOTAL CAPACITIVE POWER (ΣQkap)	signed int	(ATRF) x (GTRF)	VAR	
33	1020	E020	R	TOTAL REACTIVE POWER (ΣQ)	unsigned int	(ATRF) x (GTRF)	VAR	

NO	ADRES 1 (HEX)	ADRES 2 (HEX)	(R)read (W)write	PARAMETER	FORMAT	MULTIPLIER	UNIT	INSTRUCTION
DEMANDS								
1	2000	-----	R	CURRENT TRANSFORMER RATIO (ATRF)	unsigned int	1	ATRF	1 - 2000
2	2001	-----	R	VOLTAGE TRANSFORMER RATIO (GTRF)	unsigned int	0,1	GTRF	10 - 10000
3	2002	E021	R	PHASE 1 VOLTAGE Phase-Neutral (VL1N)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
4	2003	E022	R	PHASE 2 VOLTAGE Phase-Neutral (VL2N)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
5	2004	E023	R	PHASE 3 VOLTAGE Phase-Neutral (VL3N)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
6	2005	E024	R	PHASES 1-2 VOLTAGE Phase-phase (VL12)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
7	2006	E025	R	PHASES 1-3 VOLTAGE Phase-phase (VL13)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
8	2007	E026	R	PHASES 2-3 VOLTAGE Phase-phase (VL23)	unsigned int	0,1 x (GTRF)	VOLT	Demand Value
9	2008	E027	R	PHASE 1 CURRENT (I1) demand	unsigned int	(ATRF) x 0,001	AMPER	Demand Value
10	2009	E028	R	PHASE 2 CURRENT (I2) demand	unsigned int	(ATRF) x 0,001	AMPER	Demand Value
11	200A	E029	R	PHASE 3 CURRENT (I3) demand	unsigned int	(ATRF) x 0,001	AMPER	Demand Value
12	200B	E02A	R	PHASE 1 ACTIVE POWER (P1) demand	unsigned int	(ATRF) x (GTRF)	WATT	Demand Value
13	200C	E02B	R	PHASE 2 ACTIVE POWER (P2) demand	unsigned int	(ATRF) x (GTRF)	WATT	Demand Value
14	200D	E02C	R	PHASE 3 ACTIVE POWER (P3) demand	unsigned int	(ATRF) x (GTRF)	WATT	Demand Value
15	200E	E02D	R	PHASE 1 REACTIVE POWER (Q1) ind	signed int	(ATRF) x (GTRF)	VAR	Demand Value
16	200F	E02E	R	PHASE 2 REACTIVE POWER (Q2) ind	signed int	(ATRF) x (GTRF)	VAR	Demand Value
17	2010	E02F	R	PHASE 3 REACTIVE POWER (Q3) ind	signed int	(ATRF) x (GTRF)	VAR	Demand Value
18	2011	E030	R	PHASE 1 REACTIVE POWER (Q1) cap	signed int	(ATRF) x (GTRF)	VAR	Demand Value
19	2012	E031	R	PHASE 2 REACTIVE POWER (Q2) cap	signed int	(ATRF) x (GTRF)	VAR	Demand Value
20	2013	E032	R	PHASE 3 REACTIVE POWER (Q3) cap	signed int	(ATRF) x (GTRF)	VAR	Demand Value
21	2014	E033	R	PHASE 1 APPARENT POWER (S1)	unsigned int	(ATRF) x (GTRF)	VA	Demand Value
22	2015	E034	R	PHASE 2 APPARENT POWER (S2)	unsigned int	(ATRF) x (GTRF)	VA	Demand Value
23	2016	E035	R	PHASE 3 APPARENT POWER (S3)	unsigned int	(ATRF) x (GTRF)	VA	Demand Value
24	2017	E036	R	PHASE 1 COSØ (COSØ1) ind	signed int	0,01	-	Demand Value
25	2018	E037	R	PHASE 2 COSØ (COSØ2) ind	signed int	0,01	-	Demand Value
26	2019	E038	R	PHASE 3 COSØ (COSØ3) ind	signed int	0,01	-	Demand Value
27	201A	E039	R	PHASE 1 COSØ (COSØ1) cap	signed int	0,01	-	Demand Value
28	201B	E03A	R	PHASE 2 COSØ (COSØ2) cap	signed int	0,01	-	Demand Value
29	201C	E03B	R	PHASE 3 COSØ (COSØ3) cap	signed int	0,01	-	Demand Value

NO	ADRES 1 (HEX)	ADRES 2 (HEX)	(R)read (W)write	PARAMETER	FORMAT	MULTIPLIER	UNIT	INSTRUCTION
PEAK VALUES								
1	3000	----	R	CURRENT TRANSFORMER RATIO (ATRF)	unsigned int	1	ATRF	1 - 2000
2	3001	----	R	VOLTAGE TRANSFORMER RATIO (GTRF)	unsigned int	0,1	GTRF	10 - 10000
3	3002	E03C	R	PHASE 1 VOLTAGE Phase-Neutral (VL1N)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
4	3003	E03D	R	PHASE 2 VOLTAGE Phase-Neutral (VL2N)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
5	3004	E03E	R	PHASE 3 VOLTAGE Phase-Neutral (VL3N)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
6	3005	E03F	R	PHASES 1-2 VOLTAGE Phase-phase (VL12)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
7	3006	E040	R	PHASES 1-3 VOLTAGE Phase-phase (VL13)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
8	3007	E041	R	PHASES 2-3 VOLTAGE Phase-phase (VL23)	unsigned int	0,1 x (GTRF)	VOLT	Peak value
9	3008	E042	R	PHASE 1 CURRENT (I1) peak	unsigned int	(ATRF) x 0,001	AMPER	Peak value
10	3009	E043	R	PHASE 2 CURRENT (I2) peak	unsigned int	(ATRF) x 0,001	AMPER	Peak value
11	300A	E044	R	PHASE 3 CURRENT (I3) peak	unsigned int	(ATRF) x 0,001	AMPER	Peak value
12	300B	E045	R	PHASE 1 ACTIVE POWER (P1) peak	unsigned int	(ATRF) x (GTRF)	WATT	Peak value
13	300C	E046	R	PHASE 2 ACTIVE POWER (P2) peak	unsigned int	(ATRF) x (GTRF)	WATT	Peak value
14	300D	E047	R	PHASE 3 ACTIVE POWER (P3) peak	unsigned int	(ATRF) x (GTRF)	WATT	Peak value
15	300E	E048	R	PHASE 1 REACTIVE POWER (Q1) ind	signed int	(ATRF) x (GTRF)	VAR	Peak value
16	300F	E049	R	PHASE 2 REACTIVE POWER (Q2) ind	signed int	(ATRF) x (GTRF)	VAR	Peak value
17	3010	E04A	R	PHASE 3 REACTIVE POWER (Q3) ind	signed int	(ATRF) x (GTRF)	VAR	Peak value
18	3011	E04B	R	PHASE 1 REACTIVE POWER (Q1) cap	signed int	(ATRF) x (GTRF)	VAR	Peak value
19	3012	E04C	R	PHASE 2 REACTIVE POWER (Q2) cap	signed int	(ATRF) x (GTRF)	VAR	Peak value
20	3013	E04D	R	PHASE 3 REACTIVE POWER (Q3) cap	signed int	(ATRF) x (GTRF)	VAR	Peak value
21	3014	E04E	R	PHASE 1 APPARENT POWER (S1)	unsigned int	(ATRF) x (GTRF)	VA	Peak value
22	3015	E04F	R	PHASE 2 APPARENT POWER (S2)	unsigned int	(ATRF) x (GTRF)	VA	Peak value
23	3016	E050	R	PHASE 3 APPARENT POWER (S3)	unsigned int	(ATRF) x (GTRF)	VA	Peak value
24	3017	E051	R	PHASE 1 COSØ (COSØ1) ind	signed int	0,01	-	Peak value
25	3018	E052	R	PHASE 2 COSØ (COSØ2) ind	signed int	0,01	-	Peak value
26	3019	E053	R	PHASE 3 COSØ (COSØ3) ind	signed int	0,01	-	Peak value
27	301A	E054	R	PHASE 1 COSØ (COSØ1) cap	signed int	0,01	-	Peak value
28	301B	E055	R	PHASE 2 COSØ (COSØ2) cap	signed int	0,01	-	Peak value
29	301C	E056	R	PHASE 3 COSØ (COSØ3) cap	signed int	0,01	-	Peak value

Connection :



NO	ADRES 1 (HEX)	ADRES 2 (HEX)	(R)read (W)write	PARAMETER	FORMAT	MULTIPLIER	UNIT	INSTRUCTION
ENERGY COUNTERS								
1	4000	E057	R	TIMER	unsigned int	1	sec	HIGH WORD
2	4001	E058	R	TIMER	unsigned int	1	sec	LOW WORD
3	4002	E059	R	ACTIVE ENERGY COUNTER	unsigned int	1	GW/h	GIGA WATT hour digits
4	4003	E05A	R	ACTIVE ENERGY COUNTER	unsigned int	1	MW/h	MEGA WATT hour digits
5	4004	E05B	R	ACTIVE ENERGY COUNTER	unsigned int	1	KW/h	KILO WATT hour digits
6	4005	E05C	R	ACTIVE ENERGY COUNTER	unsigned int	1	W/h	WATT hour digits
7	4006	E05D	R	ACTIVE ENERGY COUNTER	unsigned int	1	mW/h	mili WATT hour digits
8	4007	E05E	R	ACTIVE ENERGY COUNTER	unsigned int	1	W/s	WATT second digits
9	4008	E05F	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	GVAR/h	GIGA VAR hour digits
10	4009	E060	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	MVAR/h	MEGA VAR hour digits
11	400A	E061	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	KVAR/h	KILO VAR hour digits
12	400B	E062	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	VAR/h	VAR hour digits
13	400C	E063	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	mVAR/h	mili VAR hour digits
14	400D	E064	R	REACTIVE (INDUCTIVE) ENERGY COUNTER	unsigned int	1	VAR/s	VAR second digits
15	400E	E065	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	GVAR/h	GIGA VAR hour digits
16	400F	E066	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	MVAR/h	MEGA VAR hour digits
17	4010	E067	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	KVAR/h	KILO VAR hour digits
18	4011	E068	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	VAR/h	VAR hour digits
19	4012	E069	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	mVAR/h	mili VAR hour digits
20	4013	E06A	R	REACTIVE (CAPACITIVE) ENERGY COUNTER	unsigned int	1	VAR/s	VAR second digits
21	4014	E06B	R	REACTIVE ENERGY COUNTER	unsigned int	1	GVAR/h	GIGA VAR hour digits
22	4015	E06C	R	REACTIVE ENERGY COUNTER	unsigned int	1	MVAR/h	MEGA VAR hour digits
23	4016	E06D	R	REACTIVE ENERGY COUNTER	unsigned int	1	KVAR/h	KILO VAR hour digits
24	4017	E06E	R	REACTIVE ENERGY COUNTER	unsigned int	1	VAR/h	VAR hour digits
25	4018	E06F	R	REACTIVE ENERGY COUNTER	unsigned int	1	mVAR/h	mili VAR hour digits
26	4019	E070	R	REACTIVE ENERGY COUNTER	unsigned int	1	VAR/sn	VAR second digits
27	401A	E071	R	APPARENT ENERGY COUNTER	unsigned int	1	GVA/h	GIGA VA hour digits
28	401B	E072	R	APPARENT ENERGY COUNTER	unsigned int	1	MVA/h	MEGA VA hour digits
29	401C	E073	R	APPARENT ENERGY COUNTER	unsigned int	1	KVA/h	KILO VA hour digits
30	401D	E074	R	APPARENT ENERGY COUNTER	unsigned int	1	VA/h	VA hour digits
31	401E	E075	R	APPARENT ENERGY COUNTER	unsigned int	1	mVA/h	mili VA hour digits
32	401F	E076	R	APPARENT ENERGY COUNTER	unsigned int	1	VA/s	VA second digits
PARAMETERS								
1	5000	----	R/W	CURRENT TRANSFORMER RATIO (ATRF)	unsigned int	1	ATRF	1 - 2000
2	5001	----	R/W	VOLTAGE TRANSFORMER RATIO (GTRF)	unsigned int	0,1	GTRF	10 - 10000
3	5002	----	R/W	ENERGY COUNTER TYPE	unsigned int	1	-	1 = seperately , 0 =Vector sum
4	5003	----	R/W	DEMAND TIME	unsigned int	1	minute	5 – 60 minutes
5	5004	----	R/W	AUTOMATIC CURRENT DIRECTION FUNCTION	unsigned int	1	-	If this bit is "0" function is enable . If this bit is "1" function is disable.
6	5005	----	R/W	DEVICE ADDRESS	unsigned int	1	-	1 – 255
7	5006	----	R/W	ERASING FUNCTION BITS relating to bit if set "1" ,erase If bit set "1" which is related values will be erase	unsigned int	1	-	Bit 0: If bit set then It erases phase-neutral voltage demand and peak values. Bit 1: If bit set then It erases current demand and peak values. Bit 2: If bit set then It erases CosØ demand and peak values. Bit 3: If bit set then It erases phase-phase voltage demand and peak values Bit 4: If bit set then It erases active power demand and peak values. Bit 5: If bit set then It erases reactive power demand and peak values. Bit 6: If bit set then It erases apparent power demand and peak values. Bit 7: All energy counters will be erase. Bit 8: All values which is given above will be erase. NOT: Bit9,.....Bit15 reserve READ "0"