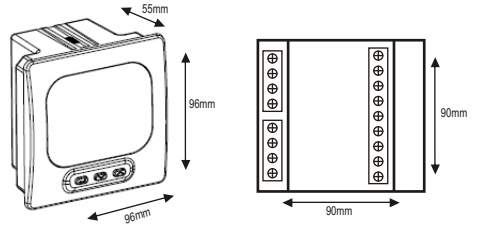
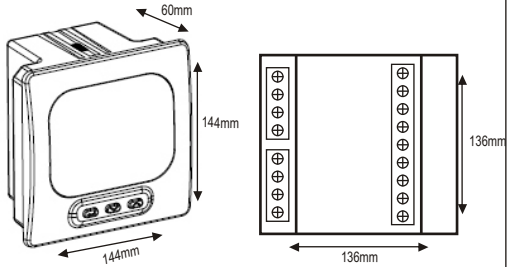
DIMENSION:

EA50S



EA200S



KRK®

ISO 9001 9001:2008

ENERGY ANALYZER

EA 50S / EA 200S

2 YEARS WARRANTY

True RMS

USER GUIDE

General:

EA 50S Energy analyzers has been designed to measure energy in three phases systems.Device shows 8 electrical Values at the same time.

Usage:

EA 50S shows the values in three different mode. Normally display is two part. Voltages are on the left side, Current are on the right side.The bottom line shows cosj and frequency

When you press ENTER button , on the left side ,in order of Respectively, you can see phase-neutral voltage, Phase-Phase voltage and cosφ values for each phase. When you press DOWN button you can see,total powers in first three lines.(Kwh, kVArLh, kVArCh). The bottom line shows total Cosφ and frequency values.

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When you press UP button you can see , respectively, current Of three phases, kVA, kW, kVArl and kVArc values.The bottom line shows total values.

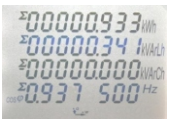

figure 1

Harmonics:

The voltage and current harmonics are shown as pages in the display of the harmonics. Press UP and DOWN button at the same time to display harmonic screen. There is an “H” letter in the lower right part of the harmonic Display page.with UP and DOWN buttons you can see three phase current, three phase voltage harmonic values (H00), 3(H03), 5(H05)...31(H31) seperatly or totally. To return beginning press ENTER.

You can see graphical harmonic values on the computer with Computer connection.

Entering Fixed Values:

The values to be entered you must press ENTER and UP button at the same time. LCD screen is as shown figure 2.

figure 2

On the right bottom you see the MENU Number S:01.When you enter the values device pass the other menu.

First line shows upper level , 3. Line shows lower level for the values. You can enter the values to the second line. You will see second line is flashing. Use UP and Down Buttons to choose the values and press ENTER button.

Fixed values

100-Voltage Transformer Ratio : (vt)
200-Current Transformer Ratio : (ct)
If you use 600/5 current transformer , you should enter value 120
300-Device Network Number :1-249 (single use of 1 must entered)
210-Relay Operation mode : (0..4)
0 : General mode : All general purposes relays are for remote intervention. Be used with the device remotely through the computer program interventions can be made.

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1 : Voltage Limiting Mode :

Relay 1 :1. Phase low voltage
Relay 2 :1. Phase high voltage
Relay 3 : 2.Phase low voltage
Relay 4 : 2.Phase high voltage
Relay 5 : 3.Phase low voltage
Relay 6 : 3.Phase high voltage
Relay 7 : for general purpose remote use
Relay 8 : for general purpose remote use

2 : Current Limiting Mode
Relay 1 : 1 phase low current
Relay 2 : 1.phase high current
Relay 3 : 2.phase low current
Relay 4 : 2.phase high current
Relay 5 : 3.phase low current
Relay 6 : 3.phase high current
Relay 7 : for general purpose remote use
Relay 8 : for general purpose remote use

3: Current/Voltage limiting Mode
Relay 1 : 1.phase low current
Relay 2 : 1.phase high current
Relay 3 : 2.phase low current
Relay 4 : 2.phase high current
Relay 5 : 3.phase low current
Relay 6 : 3. Phase high current
Relay 7 : low voltage for one of three phases
Relay 8 : high voltage for one of three phases

4 : Energy Counter Mode
Relay 1 : in every increase of kWh value by 1 unit.
Relay 2 : in every increase of kRLh value by 1 unit.
Relay 3 : in every increase of kRCh value by 1 unit.
Relay 4 : pulled when the voltage value exceeds the limits.
Relay 5 : pulled when the current value exceeds the limits.
Relay 6 : pulled when Cosφ value exceeds the limits.
Relay 7 : for general purpose remote use .
Relay 8 : for general purpose remote use .

22.0 - Relay Pulse Setting (ms) : Pull and relese time for relay

23.0- Relay start setting (sec) : Elapsed time for the start of the relay to operate.

24.0- Relay waiting time (sec) : Howmany seconds of the specified conditions persists relays will attract will be determined. For example , 5 is entered low voltage relays pulls when the device reads low value for 5 seconds.

25.0-Relay Zero Setting (0/1) :
0 : Zero value, low value is not considered..
1 : Zero value, low value is considered.
26.0-Relay stamping Setting (0/1) :
0 : After pulling a relay, if the value returns to normal limits, relay returns to its normal position. Sampling is not allowed
1 : After pulling a relay, if the value returns to normal limits, relay doesn't returns to its normal position.Sampling is allowed.

27.0- Voltage low limit (V)
28.0-Voltaj high limit (V)
29.0-Current low limit (I)
30.0-Current high limit (I)
31.0-Cosφ low limit (Cosφ)
32.0-Cosφ high limit (Cosφ)

Computer Connection Protocol :

Device has 44 register on the standard mode.
The inquery is from the computer to the deviceis related with device number (1) +information request code (3)+ how money registers (2 bytes should be entered)+ control codes (2 bytes)
The answer is from the devices;
Related with device number (1)+information sending code(3)+ how many bytes information are sent (2 bytes) + the information sent (.. Units) +control codes (2 bytes)
The information received are 4 byte and according to IEEE754 standad has the information 8 bytes X over 10. 23 byte real value and 1 byte mark(+-)

Connection :

You have to make sure current of phases and polarities of transformers are right.You should control current , voltage , energy , cosj values.If there is no export energy so KW should be positive.İf it's not , change the polarity of current transformer.

Options.

1 : 60A Direct current input: There are three sensor behind of the anlyzer for direct 60A connection.

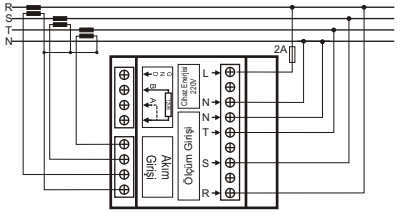
2: Fiber optic connection option : It allows comunication for 20km
3 : GPRS communication module : Embedded GPRS connection software and optional GPRS module

Technical details:

Power supply	: 220v ± %20 , 50Hz
Voltage measurement input	: 3x300V. Faz , nötr , 50Hz
Current measurement input	: 3x5 Amper , 50Hz
Power consumption	: < 10VA
Class	: < %1

CONNECTION DIAGRAM

EA50S



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