

AEM31-E

SUPPLEMENTARY

INSTRUCTIONS



The AEM31-E is an ethernet enabled kWh meter based on the AEM31 DIN. Please refer to the AEM31-DIN instruction sheet for information. The following additional items should also be noted:

CONNECTIONS

All power supply, voltage connections and current (CT) input connections are identical to the AEM31 DIN. There is no pulse output fitted to the AEM31-E

INSTRUMENT PROGRAMMING

The CT ratio set up is also identical to the AEM31 DIN. However additional setting up of the network and IP address is also required. This is carried out via the ethernet connection after installation is complete.

INSTRUMENT PROGRAMMING

The instrument requires a standard RJ45 Cat 5 or equivalent cable connection to an ethernet system. See the relevant documentation for MeterRing 2000 sub-metering software for further information. The ACT and LINK leds on the right hand side of the front panel follow standard ethernet conventions. LINK is illuminated when the unit is correctly connected to an ethernet hub, ACT is illuminated to indicate communication is taking place.

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AEM31 DIN

INSTRUCTIONS

1 SAFETY

This instrument was manufactured and tested in compliance with class 2 IEC 1010 and VDE 411 standards, in accordance with group B VDE 0110 standards for operating voltages up to 250 VACrms phase to neutral. It is suitable for use on 3 phase 4 wire (star) systems and single phase supplies. To maintain this condition and to ensure safe operation, the user must comply with the following instructions:

- Ensure that the operating voltage is correct for the supply.
- The power supply does not require an earth connection.
- A 50 mA T Type fuse should be installed in the power supply circuit to the instrument i.e. phase 1.
- Maintenance and/or repairs must be carried out only by qualified, authorised personnel.
- If there is ever the suspicion that safe use is no longer possible, the instrument must be disconnected and precautions must be taken against accidental use;
- Operation is no longer safe when;
 - 1) there is clearly visible damage
 - 2) the instrument no longer functions
 - 3) after prolonged storage in unsuitable conditions;

1.1 OPERATOR SAFETY

Read these instructions carefully before installing and utilising the instrument.

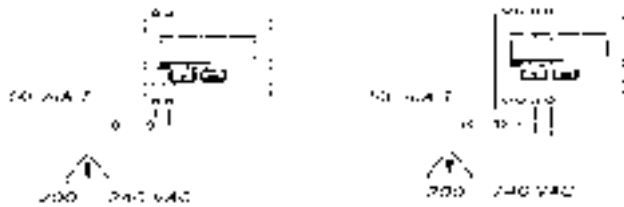
The instrument described in this user manual is intended for use by properly trained staff only. Maintenance and/or repairs must be carried out by authorised personnel only. For proper, safe use of the instrument and for maintenance and/or repair, it is essential that the persons instructed to carry out these procedures follow normal safety precautions.

1.2 SYMBOLS

This symbol means "Read the Instructions"

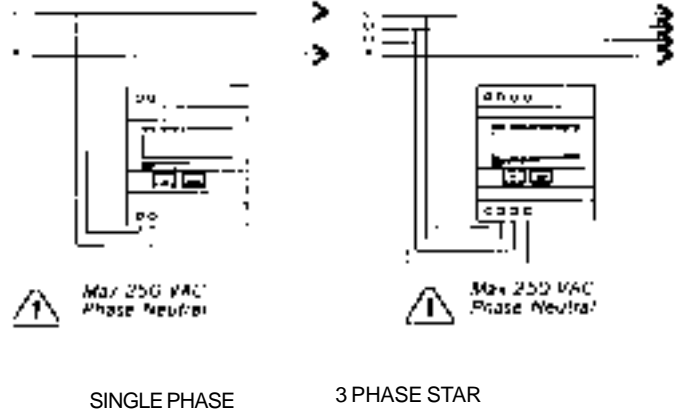
2 POWER SUPPLY

The instrument must have power supply with voltage ranging from 200-240VAC 50/60 Hz using max. cable gauge 2.5 mm² and attached to the power supply terminals (see Fig below). The instrument power supply does not need an earth connection. The instrument requires the installation of an external 50mA T type fuse in the power supply circuit.



2.1 CONNECTION OF THE VOLTAGE INPUT

Cables should be of 2.5mm² max diameter, connected as shown in the following diagrams.

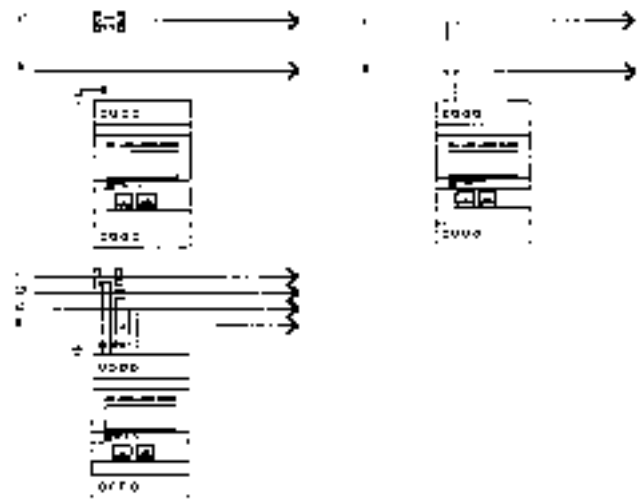


2.2 CONNECTION OF THE CURRENT (CT) INPUT

The AEM31D is suitable for use with current transformers (CTs) with 5A secondary output. Metering quality CTs of Class 1 accuracy with a minimum rating of 2.5VA are recommended. See over for the table of CT ratios which can be utilised with this instrument.

Connection should be made according to the following diagrams. For 3 phase supplies one side of the CT secondaries (S1) should be connected to the relevant input terminal (Red phase to L1, Yellow to L2 and Blue to L3). The remaining CT Terminals (S2) are commoned to the COM terminal which should also be earthed as shown.

Single phase connection is to L1 and COM only.




NB: The AEM31D is an advanced design which automatically compensates for reversed CTs and incorrect phase rotation. However the relationship between current and voltage inputs must be respected (ie if red phase volts is connected to L1, the red phase CT must be connected to L1 etc).

2.3 CONNECTION OF THE PULSE OUTPUT



CAUTION: The pulse output contacts are rated at 27VAC 20mA/ 27VDC 20 mA. Under no circumstances should this rating be exceeded.

The pulse output connection is made via the two terminals marked 'pulse' (see wiring diagram). The contacts are volt-free and therefore an external power source must be provided. Contacts are normally open, and provide an output of 1 pulse per kWh. Pulse duration (contacts closed) is 400/500 msec.

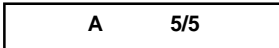
3 INSTRUMENT PROGRAMMING



"WAIT" appears when the instrument is first powered up. After a few seconds the power measurement will be displayed (the LED on the  key is lit).

The programming key "O" is located at the bottom left corner of the front panel.



To enter into programming mode, simultaneously press the  key and the  key

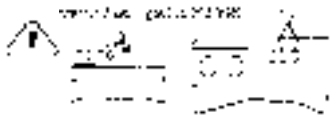
On the display the CT selection will appear.



Pressing the  key will scroll through the available CT ratios. (See table.) When the desired selection is displayed, press the programming key  to confirm, and exit setup mode.

NOTE: Unless the CT ratio is programmed the default value will be 5/5 (no multiplier).

To reset the kWh value to zero press the  key and the  key simultaneously



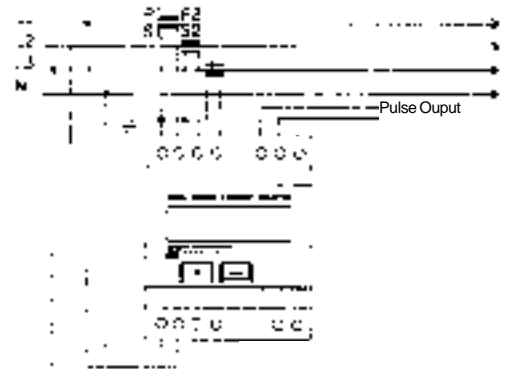
Once programmed, the setup and reset capability can be disabled by cutting the jumper wire located under the CT input terminal cover. The cover may be levered off with a small screwdriver to reveal the jumper to the right of the CT input terminals. Once the jumper is cut, the reset and setup is permanently disabled unless the jumper connection is remade.

4 TECHNICAL CHARACTERISTICS

Connection:	3 phase star or single phase
Inputs:	Voltage: 250V from 20 to 800 Hz Current: 5A from 20 to 800 Hz
Input Overload:	Voltage: Max 264 Vrms phase to neutral Current; Max 20 Arms
Pulse Output:	Opto isolated volt free contact Rating - 100mA 250 VAC Value - 1 pulse per kWh Duration - 400-500 msec
Number of Scales:	2 current scales 1 current voltage
Weight:	270g.
IP rating:	Instrument = IP20 Front Panel = IP40
Temp Range:	From -10°C to +40°C
Relative Humidity:	RH Max 90%
Condensation:	Not permitted.
Isolation	In accordance with group B VDE 0110 standards for 250 VACrms operating voltages.
Dims:	70w x 57.5d x 90h (mm)

N.B: Do not expose the instrument display to direct sunlight.

5 WIRING DIAGRAM



SELECTABLE CT RATIOS	
5/5	500/5
25/5	600/5
40/5	750/5
50/5	800/5
60/5	1000/5
75/5	1200/5
80/5	1250/5
100/5	1500/5
120/5	1600/5
150/5	1800/5
200/5	2000/5
250/5	2500/5
300/5	3200/5
320/5	4000/5
400/5	

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