

X3M 96 and Flash 96

Installation Manual

This instructions manual is common to both the instruments type X3M and Flash.

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WARRANTY

This product is covered by a warranty against material and manufacturing defects for a period of 24 months period from the manufacturing date
The warranty does not cover the defects that are due to:

- Negligent and improper use
- Failures caused by atmospheric hazards
- Acts of vandalism
- Wear out of materials

Akse S.r.l. reserves the right, at its discretion, to repair or substitute the faulty products
The warranty is not applicable to the products that will result defective in consequence of a negligent and improper use or an operating procedure not contemplated in this manual.

RETURN AND REPAIR FORMALITIES

Akse S.r.l. accepts the return of instruments for repair **only** when authorized in advance. For instrument purchased directly, the repair authorization must be requested to Akse S.r.l. directly by using the RMA form.

RE-SHIPING OF REPAIRED PRODUCT

The terms for re-shipment of repaired products are ex-works, i.e. the transport costs are at customer charge.

Products returned as defective but found to be perfectly working by our laboratories, will be charged a fixed fee to account for checking and testing time independently of the warranty terms.

Safety

This instrument was manufactured and tested in compliance with IEC 61010 class 2 standards and insulation normative VDE 0110, group B, for operating voltages up to 250 VAC rms phase to neutral.

In order to maintain this condition and to ensure safe operation, the user must comply with the indications and markings contained in the following instructions:

- When the instrument is received, before starting its installation, check that it is intact and no damage occurred during transport.
- Before mounting, ensure that the instrument operating voltages and the mains voltage are compatible then proceed with the installation.
- The instrument power supply needs no earth connection.
- The instrument is not equipped with a power supply fuse; a suitable external protection fuse must be foreseen by the contractor.
- Maintenance and/or repair must be carried out only by qualified, authorized personnel
- If there is ever the suspicion that safe operation is no longer possible, the instrument must be taken out of service and precautions taken against its accidental use.
- Operation is no longer safe when:
 - 1) There is clearly visible damage.
 - 2) The instrument no longer functions.
 - 3) After lengthy storage in unfavorable conditions.
 - 4) After serious damage occurred during transport

The instruments X3M and Flash must be installed in respect of all the local regulations.

Operator safety

Warning: Failure to observe the following instructions may lead to a serious danger of death.

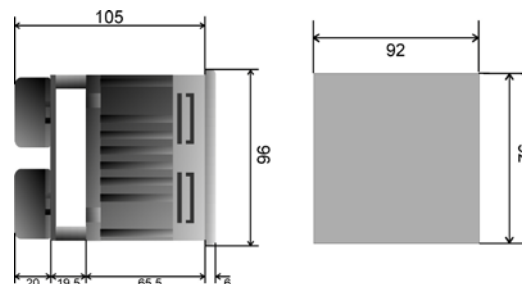
- During normal operation dangerous voltages can occur on instrument terminals and on voltage and current transformers. Energized voltage and current transformers may generate lethal voltages. Follow carefully the standard safety precautions while carrying out any installation or service operation.
- The terminals of the instrument **must** not be accessible by the user after the installation. The user should only be allowed to access the instrument front panel where the display is located.
- Do not use the digital outputs for protection functions nor for power limitation functions. The instrument is suitable only for secondary protection functions.
- The instrument must be protected by a breaking device capable of interrupting both the power supply and the measurement terminals. It must be easily reachable by the operator and well identified as instrument cut-off device.
- The instrument and its connections must be carefully protected against short-circuit.

Precautions: Failure to respect the following instructions may irreversibly damage to the instrument.

- The outputs and the options operate at low voltage level; they cannot be powered by any unspecified external voltage.
- The application of currents not compatible with the current inputs levels will damage the instrument

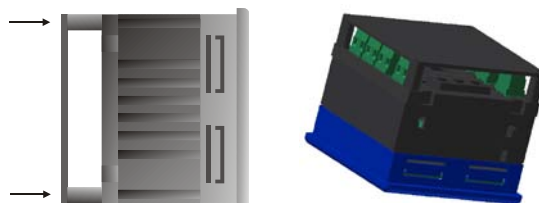
Mounting

Instruments size (mm)

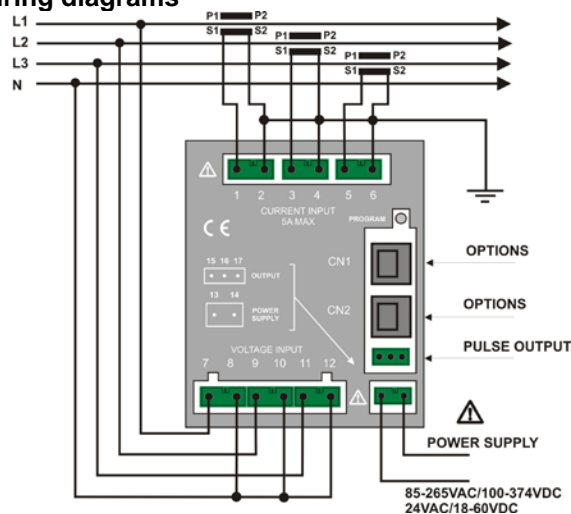


Fixing and blocking

The instrument is equipped with a plastic plate that serves to block the connection terminals. The plate is secured by 4 screws. This avoids the disconnection of the amperometric terminals.

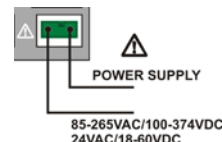


Wiring diagrams



Power supply

The instrument is equipped with a separate power supply with extended operating range. The power supply terminals are numbered (13) and (14). Use cables with max cross-section of 4 mm².



Voltage and current connections

Voltage connections. Use cables with max cross-section of 4 mm² and connect them to the terminals marked VOLTAGE INPUT on the instrument according to the applicable diagrams that follow.

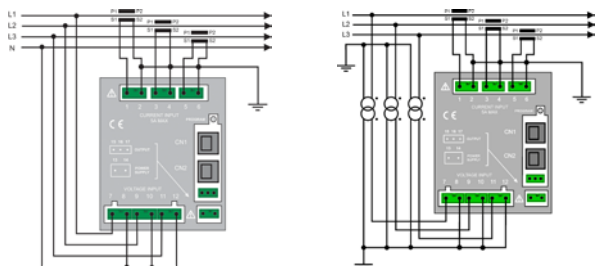
Current connections. It is necessary to use external CTs with a primary rating adequate to the load to be metered and with a 5A secondary rating. The number of CTs to be used (1, 2 or 3) depends upon the type of network. Connect the CT output(s) to the terminals marked CURRENT INPUT of the instrument according to the applicable diagrams that follow.

Use cables with cross-section adequate to the VA rating of the CT and to the distance to be covered. The max cross-section for the terminals is 4 mm².

NOTE: The CT secondary must always be in short circuit when not connected to the instrument in order to avoid damages and risks for the operator.

Warning: THE PHASE PAIRING AMONG VOLTAGE AND CURRENT SIGNALS MUST BE CAREFULLY RESPECTED. FAILURE TO COMPLY WITH THIS RULE OR WITH THE WIRING DIAGRAM LEADS TO SEVERE MEASUREMENT ERRORS.

4W Star connection (4 wires)

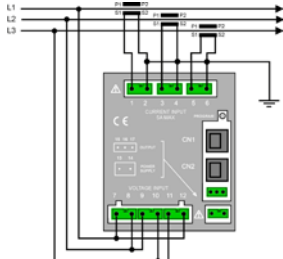


Low voltage 3 CTs
Configuration 3Ph/4W

High voltage 3 PTs 3 CTs
Configuration 3Ph/4W

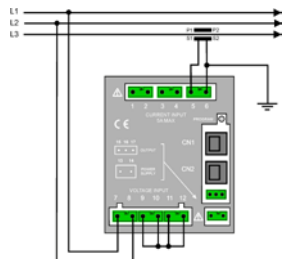
3W Delta connection (3 wires)

Connection with 3 CTs



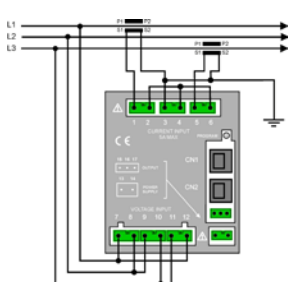
Low Voltage 3 CTs (unbalanced load)
Configuration 3Ph/3W

Connection with 1 CT

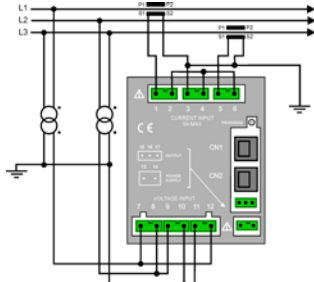


Low Voltage 1 CT (sym.I and balanced load)
Configuration 3Ph/3W-Bal

Connection with 2 CTs on L1 and L3

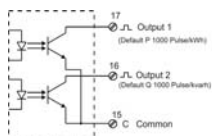


Low Voltage 3 CTs (unbalanced load)
Configuration 3Ph/3W

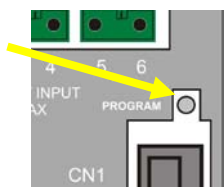


Low Voltage 1 CT (sym. and balanced load)
Configuration 3Ph/3W-Bal

Outputs connection



Instrument set up



The set up procedure allows to program the instrument operating parameters. Entry in the programming procedure is obtained by pressing the PROGRAM button that is located on the upper right side of the instrument.

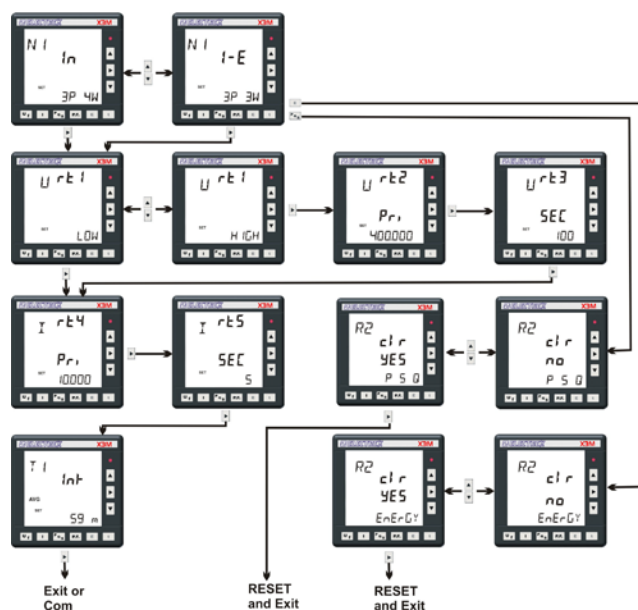
The key allows to scroll the various entry fields within a set up page as well as to pass to the next page upon scrolling all the fields of one page. The and keys allow the modification of the flashing field being currently

selected.

The content of a field can be either numeric or a parameter controlling the device behavior. The key advances to the next page, the key returns to the previous page.

PROGRAMMING MENU PRESSING THE PROGRAM BUTTON ON THE BACK OF THE INSTRUMENT.

Configuring Network Parameters



Configuring communication parameters

This menu will appear only if an RS-485 or an RS-232 optional module is connected to the device. For the configuration of the RS485 communication it is required to navigate the programming pages with two keys. The key

advances to the next page (from A1 to E2), the key returns to the previous page (from E2 to A1). The first screen that appears is the following:



On this screen you can set different parameters. The Slave Address is the first flashing value appearing. The transmission delay is the second parameter and it is expressed in seconds (the value in the picture beside would be 50 ms). The third parameter is the type of

MODBUS communication protocol used RTU or ASC (ASCII). Through the second screen (here on the right), you can set the number of data bits, parity, stop bits, and the communication speed. All these data are correlated depending on the value of the stop bit.



Readings

The selection of the readings and of the reading pages is made using the following keys: Voltage and frequency key, Currents key, Powers key, Power factor key, Energies key, Life time, indicator key, Move the selection up and down in the readings pages,

this key is not used in the readings pages, it displays instruments information (loader version, application version, serial number, available options).

A more complete instruction manual with also the mapping of Modbus registers can be downloaded from our website www.electrex.it.

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DECLARATION OF CONFORMITY

Akse S.r.l. hereby declares that its range of products complies with the following directives EMC 89/336/EEC 73/23CE 93/68 CE and complies with the following product's standards CEI EN 61326 – IEC 61326 CEI EN 61010 – IEC 61010

Edition 2015 04 24 ENG0095. Subject to modification without prior notice