



03146790FE+01+NP00000000

# Electrical network protection Sepam series 20 Sepam series 40 Quick start



PE50465

## **⚠ DANGER**

### **HAZARD OF ELECTRIC SHOCK, BURN OR EXPLOSION**

- turn off all power supplying the Sepam and the equipment in which it is installed before working on it.
- always use a properly rated voltage sensing device to confirm that power is off.
- replace all devices, doors, and covers before turning on power to this equipment.
- before energizing the power equipment, replace all barriers and covers.

**Failure to observe this instruction will result in death, serious injury or equipment damage.**

For more informations, please refer to "**Sepam series 20 Installation and user's manual**" PCRED301005EN or "**Sepam series 40 Installation and user's manual**" PCRED301006EN.

## Storage

Sepam may be stored in its original packaging in a closed sheltered location:

- ambient temperature: -25 °C ... +70 °C (or -13 °F ... +160 °F)
- relative humidity ≤ 90 %.

Periodic checking of the storage environment and of the packaging on a yearly basis is recommended.

## Commissioning

Once installed, the Sepam must be energized as soon as possible, especially in a damp location (humidity ≥ 90 %).

Storing an unenergized and unpackaged Sepam for a long period may damage the unit.

## Identification

Each Sepam comes in a single package that contains the base unit and its connector.

Other optional accessories such as modules, current or voltage input connectors and cables come in separate packages.


To identify a Sepam, check the 2 labels on the right side panel of the base unit that describe the firmware and hardware features of the product:

- hardware equipment label (for instance Sepam series 20)

Serial n° \_\_\_\_\_

Reference n° **59607**      Serial N° **03050002**

Description      Series 20/advanced UMI/24-250V  
Series 20/HM avancee/24-250V

Commercial name      **S10UD**            Origin: France

Final testing:        
date and operator code      **59607+01+1234567+C99**  
Test PASS: 12/14/2006  
Operator: C99

■ firmware equipment label


DE30191

DE30197

Substation / Sous-station      **59620**      ← application type

English/French      **59609**      ← operating language

Modbus 0031412            C04

      ← Sepam code

S10 XX S20 X33 XXX



## Important notes

### Restricted liability

Electrical equipment should be serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this manual. This document is not intended as an instruction manual for untrained persons.

### Device operation

The user is responsible for checking that the rated characteristics of the device are suitable for its application. The user is responsible for reading and following the device's operating and installation instructions before attempting to commission or maintain it. Failure to follow these instructions can affect device operation and constitute a hazard for people and property.

### Protective grounding

The user is responsible for compliance with all the existing international and national electrical codes concerning protective grounding of any device.

## Safety symbols and messages

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

### Risk of electric shock



ANSI symbol.



IEC symbol.

The addition of either symbol to a "Danger" or "Warning" safety label on a device indicates that an electrical hazard exists, which will result in death or personal injury if the instructions are not followed.

### Safety alert



This is the safety alert symbol. It is used to alert you to potential personal injury hazards and prompt you to consult the manual. Obey all safety instructions that follow this symbol in the manual to avoid possible injury or death.

### Safety messages

#### **DANGER**

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death, serious injury or property damage.

#### **CAUTION**

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or property damage.

## Sepam components

- Base unit (1)
- (A) base unit connector:
  - 24-250 V DC, 110-220 V AC power supply
  - output relay
  - input CSH30 / CSH120 / CSH200 / ACE990.
- Screw type connector (CCA620) represented, or ring lug connector (CCA622).
- (B) 1 A/5 A CT input current connector (CCA630 / CCA634), or LPCT input current connector (CCA670), or voltage input connector (CCT640 series 20 only)
- (C) communication module link connection (white)
- (D) remote inter-module link connection (black)
- (E) input voltage connector (series 40 only): screw-type connector (CCA626) represented or ring lug connector (CCA627).
- (2) optional input/output modules (MES114)
- (K) (L) (M) MES114 module connectors

## Connections

### Base unit

The Sepam connections are made to the removable connectors located on the rear of the device.

All the connectors are screw-lockable.

### Wiring of screw connectors:

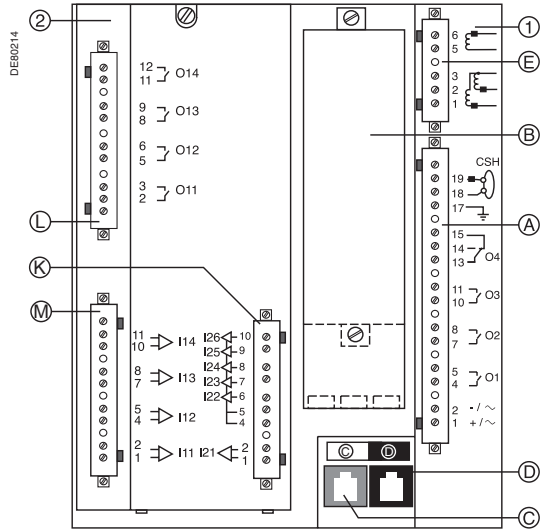
- without fitting:
  - maximum 1 wire cross-section: 0.2 ... 2.5 mm<sup>2</sup> (AWG 24-12) or 2 wires with maximum cross-section: 0.2 ... 1 mm<sup>2</sup> (AWG 24-18)
  - stripped length: 8 to 10 mm (0.31 ... 0.39 in)
- with fitting:
  - wiring recommended with fitting Telemecanique:
  - DZ5-CE015D for 1 wire: 1.5 mm<sup>2</sup> (AWG 16)
  - DZ5-CE025D for 1 wire: 2.5 mm<sup>2</sup> (AWG 12)
  - AZ5-DE010D for 2 wires: 1 mm<sup>2</sup> (2 x AWG 18)
- tube length: 8.2 mm (0.32 in)
- stripped length: 8 mm (0.31 in).

### Wiring of CCA622 and CCA627 connectors

- ring lug or spade lug 1/4" (6.35 mm)
- maximum wire cross-section: 0.2 to 2.5 mm<sup>2</sup> (AWG 24-12)
- stripped length 6 mm (0.236 in)
- using a suitable crimping tool, crimp lugs onto wires
- insert no more than 2 ring lugs or spade lugs under washers
- torque 0.7 to 1 N•m (6 to 9 lb-in).

### Wiring of CCA630 and CCA634 connectors

- ring lug or spade lug 0.16 in (4 mm)
- maximum wire cross-section of 1.5 to 6 mm<sup>2</sup> (AWG 16-10)
- torque 1.2 N•m (11 lb-in).



## ⚠ CAUTION

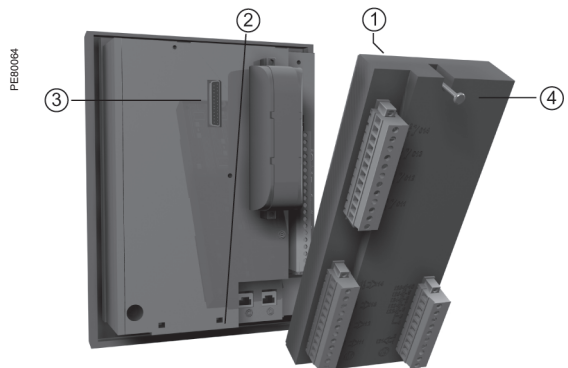
### HAZARD OF IMPROPER OPERATION

Do not use a CCA634 and residual current input I0 on connector A (terminals 18 and 19).

**Failure to follow this instruction can cause equipment damage.**

### Installation of the optional MES114 module




- 1 set MES114E and MES114F selector switch on V DC or V AC
- 2 insert the 2 pins on the MES114 module into the slots of the base unit
- 3 push the module up against the unit to plug it into the connector
- 4 tighten the mounting screw



**Operation**







After a trip on fault (i.e. phase overcurrent):

- trip light is lit up
- I>51 light is lit up
- the graphic interface (optional advanced UMI) displays :

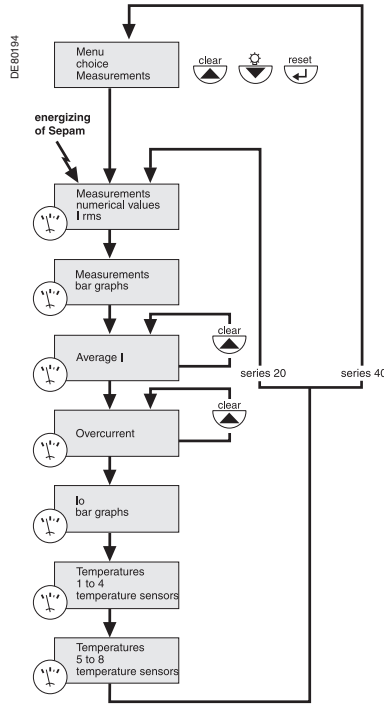
- "Phase fault" message
- tripping current
- date and time of fault occurrence
- pressing the  key displays the 16 most recent unacknowledged alarms
- pressing the  key clears the alarm message
- pressing the  key resets the protection relay.

**Access to measurements and parameters**

The measurements and parameters may be accessed using the metering, diagnosis, status, and protection keys. They are arranged in a series of screens as shown in the diagram on the right:





- The data are split up by category in 4 loops, associated with the following 4 keys:
- key  : measurements
- key  : switchgear diagnosis and additional measurements:
- key  : general settings
- key  : protection settings.
- When the user presses a key, the system moves on to the next screen in the loop. When a screen includes more than 4 lines, the user moves about in the screen via the cursor keys (, ).

**Example: measurement loop.**



**Protection and parameter settings modes**

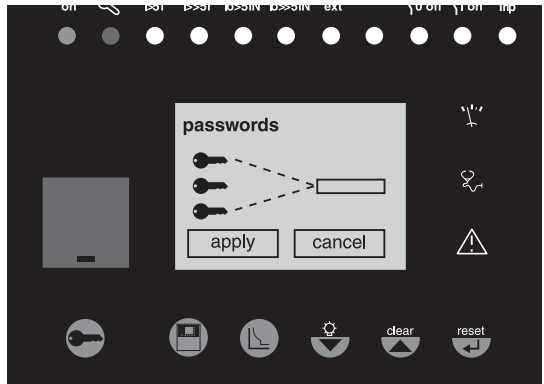
There are 3 levels of use:

- operator level: used to read all the screens and does not require any passwords
- protection setting level: requires the entry of the first password (key ) allows protection setting (key )
- parameter setting level: requires the entry of the second password (key ) allows modification of the general settings as well (key ).

Changing the passwords requires the parameter setting level. The passwords have 4 digits.

All the setting and operating functions are available on the screen of a PC equipped with the SFT2841 software tool and connected to the PC connection port on the front panel of Sepam (run in a Windows 2000, XP or Vista environment).

All the data used for the same task are grouped together in the same screen to facilitate operation. Menus and icons are used for fast, direct access to the required information.




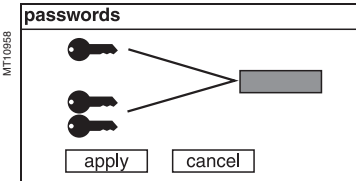
## Use of passwords

**Sepam** has two 4-digit passwords:


- the first password, symbolized by a key, is used to modify protection settings
- the second password, symbolized by 2 keys, is used to modify protection settings and all the general settings.






### Entry of passwords

When the user presses the  key, the following screen appears:



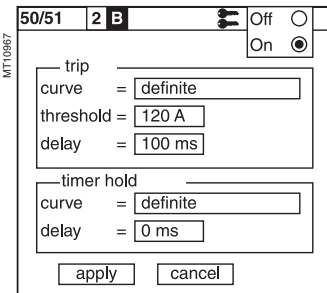
**The 2 factory passwords are: 0000.**

Press the  key to position the cursor on the first digit    .

Scroll the digits using the cursor keys (, ) then confirm to go on to the next digit by pressing the  key. When the password for your qualification level is entered, press the  key to position the cursor on the  box. Press the  key again to confirm.


When the Sepam is in protection setting mode, one key appears at the top of the display.

When the Sepam is in parameter setting mode, two keys appear at the top of the display.




## End of passwords validity

Access to the protection setting and parameter setting modes is disabled:

- by pressing the  key
- automatically if no keys are activated for more than 5 mn.

## Modification of passwords

Only the parameter setting qualification level (2 keys) or the SFT 2841 allows modification of the passwords. Passwords are modified in the general settings screen .









## Loss of passwords

If the factory passwords have been modified and the latest passwords entered have been irretrievably lost by the user, please contact your local after sales department.

## Entry of parameter or setting






**Principle applicable to any screen of Sepam**


(phase overcurrent protection eg)

- enter password
- access to corresponding screen by pressing 
- move cursor by pressing  key to reach the desired box (example: curve)
- press  key to confirm the selection, then select the type of curve by pressing  or  key and confirm by pressing  key
- then press  key to reach the followings boxes, up to the box
- press the  key to apply the settings.

## Entry of numerical values




(e.g. current threshold value).

- position the cursor on the required box using the   keys and confirm the choice by pressing the  key
- the first digit to be set is selected; set the value using the   keys (choice , 0.....9).

Press the  key to confirm the choice and go on to the next digit.

The values are entered with 3 significant digits and a point.

The unit (e.g. A or kA) is chosen using the last digit.

- press the  key to confirm the entry and the  key to access the next field
- all of the values entered will only be effective after the user confirms by selecting the  box at the bottom of the screen and presses the  key.

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