

USER MANUAL
FOR
SUNSAVER

KEEP THIS MANUAL FOR FURTHER USE

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1. INTRODUCTION

The SunSaver unit contains a "energy saving unit", which reduces the copper and iron losses along the transmission lines and in the electrical equipment. It also minimises energy consumption by reducing the outgoing voltage and current by recuperation of the current from the source. Unlike electronic devices, the unit does not give rise to harmonic distortions, but filters them. It also increases the power factor and reduces the reactive power.

The extent of these effects depends on the situation before the installation, but it is generally of great importance when the starting point is poor.

The product can be used for the power range from 7.5 kVA to 1000 kVA. Installation is easy and a 22.5 kVA installation takes approximately 3-4 hours. Earlier experience with the unit indicates that little maintenance work is needed. A positive secondary effect is that the lifetime of fluorescent luminaries' increases.

This product is not designed for use on sensitive equipment or other important light in hospitals, this product must not be installed in explosive risk areas.

Features

- Energy reducing rates - up to 25%, depending on type of application.
- Easy to install - Connect only IN/Out cable.
- Size - From 7.5 kVA to 1000kVA.
- Total service support - Quality guaranteed for 10 years.(ATR)
(ATR = energy saving transformer)
- Approvals - CE / TUV / GS

2. SAFETY

Responsibility.

Owner/user shall provide that the installers have knowledge of the safety requirement.

- Electrical contractor or other specialist shall perform installation
- the person who do the installation, should have knowledge of the safety regulation

Security steps.

- Equipment and tools for use must be correct for the actual work. Equipment and tool shall be in good condition. The following rules are mandatory:
 - disconnect power supply
 - check that power supply is free of voltage
 - guaranty that unintentional switch on is prevented (by lock)
- Before the work start, every involved person shall insure that they have the correct information regarding the installation.

Main Switch/Power breaker.

To switch on/off the power, there is equipped a handle outside the panel door.

To open the panel door, switch off the power breaker first. The panel is now without power, except for the primary side of the power breaker.

Max rated current for each power breaker installed in the panel is pre-set and sealed off by the manufacture. (see technical data)

In case of short circuit or overload on consumer side the power breaker will cut off the circuit. After the repair of circuit (by authorised personal) the power breaker can be set to ON position.

3. INSTALLATION

Authorised personnel shall install SunSaver.

3.0 On the panel backside you will find 4 holes with a diameter at 10-12 mm. To these 4 holes the enclosed brackets to be fasted. The brackets to be used for fastening the panel to the wall. Installation of SunSaver panel must be done on robust walls, like brick wall. Installation of SunSaver panel on free-standing walls is not allowed. For the installation of SunSaver we recommend expansion bolt with great load carrying capacity. Before installation of SunSaver panel check the free space when open door to the walkway, this space should be 900 mm.

We recommend the installation high from the bottom of panel to be approximately 1200 mm. The installation high will depend on the size of the panel.

Be sure that air vent on both side of the panel have free access of min. 300 mm.

3.1 Connect power cable from point (1) in existing switchboard to SunSaver main switch (2).

3.2 Connect cable from terminal block (3) to outgoing load (4)

3.3 Switch on main switch in existing distribution board.

3.4 Switch on fuse for control voltage (F1).

3.5 Switch on main switch (Q1) outside SunSaver.

**3.6 The lamp (H1) on panel door will now light up. (green)
Indicating that SunSaver is operational.**

3.7 Inside SunSaver panel there is switch for save/no save mode (S1).

3.8 To make SunSaver save energy, switch (S1) to ON.

2.9 To switch SunSaver to no saving switch (S1) to OFF.

2.10 After installation and before power is supplied to the system, it must be assured that the panel is in clean and dry condition to avoid possible damage or short circuit. If cleaning is found necessary this can be done by careful use of vacuum cleaner, cloth of fine brushes.

NOTE: Do not use pressurised air to remove dust or dirt!

Note. For item 4 and 5 see page 11

4. CABLE SIZE

This chapter involves the cable size for incoming and outgoing cable for SunSaver. There is not taken in consideration the correction factor for the cable size. The cable sizes are calculated with single open cable installation like wall or cable tray.

It is the electrical contractor responsibility to check out that the cable sizes are correct in accordance to DIN ????????

The cable is PVC mantle with copper core.

| SUNSAVER SIZE | AMP. (A) | CABLE SIZE |
|---------------|----------|------------|
| 7,5 kVA | 12 | 2,5 mm" |
| 15 kVA | 23 | 4,0 mm" |
| 22,5 kVA | 35 | 6,0 mm" |
| 30 kVA | 46 | 10,0 mm" |
| 37,5 kVA | 57 | 16,0mm" |
| 45 kVA | 68 | 16,0 mm" |
| 60 kVA | 91 | 25,0 mm" |
| 75 kVA | 115 | 35,0 mm" |
| 100 kVA | 152 | 70,0 mm" |
| 125 kVA | 190 | 95,0 mm" |
| 150 kVA | 230 | 120 mm" |

5. TECHNICAL DATA

Standard Specifications

| | |
|--------------------------------|---|
| Rated Voltage | 220V ~ 240V 50-60Hz and 380V - 440V 50-60 Hz |
| Dielectric withstanding | AC 1500V/Min |
| Ambient temperature | 0 °C ~ 35 °C |
| Over current | 10 kV 0,3/sec 200% normal current |
| TR, Insulation type | Type H |

Standard Rating 380V - 400V 50Hz 3 phase 4 wire

| Model | Capacity | Current | Model | Capacity | Current |
|----------------|-----------------|--------------|---------------|----------------|--------------|
| TF 7,5 | 7,5 kVA | 12 A | TF 150 | 150 kVA | 230 A |
| TF 15 | 15 kVA | 23 A | | | |
| TF 22,5 | 22,5 kVA | 35 A | | | |
| TF 30 | 30 kVA | 46 A | | | |
| TF 37,5 | 37,5 kVA | 57 A | | | |
| TF 45 | 45 kVA | 68 A | | | |
| TF 60 | 60 kVA | 91 A | | | |
| TF 75 | 75 kVA | 115 A | | | |
| TF 100 | 100 kVA | 152 A | | | |
| TF 125 | 125 kVA | 190 A | | | |

| SIZE kVA | PANEL SIZE in mm. h x w x d | TOTAL WEIGHT KG. |
|-----------------|------------------------------------|-------------------------|
| 7,5 | 500 x 500 x 300 | 25 |
| 15 | 500 x 500 x 300 | 33 |
| 22,5 | 500 x 500 x 300 | 35 |
| 30 | 600 x 500 x 300 | 45 |
| 37,5 | 600 x 500 x 300 | 50 |
| 45 | 600 x 500 x 300 | 55 |
| 60 | 800 x 600 x 400 | 72 |
| 75 | 800 x 600 x 400 | 81 |
| 100 | 1000 x 800 x 400 | 110 |
| 125 | 1000 x 800 x 400 | 120 |
| 150 | 1000 x 800 x 400 | 140 |
| | | |

6. MAINTENANCE.

GENERAL MAINTENANCE

Authorised personnel shall do the maintenance of SunSaver.

Routine Inspection

1. SunSaver panel must be regularly visually inspected at least once a year, to see if any damage, any loose parts, loose connection or dust inside the panel.
Follow safety rules (chapter 2 point 2)
2. **After 3 months in operation:**
Tightening all electrical connections.
 1. **After 3 years operation:**
Do the megger test in accordance to record below.

NOTE: CHECK FOR NO VOLTAGE AND THAT THE FEEDER IS ISOLATED.

For megger test use 500VDC.

Check primary winding insulation resistance to earth _____MegOhms

Check secondary winding insulation resistance to earth_____MegOhms

Check primary to secondary winding insulation resistance _____MegOhms

7. PRESERVATION.

1. Packing.

1.1 Packing of SunSaver panel for transportation is protected against humidity and dust. Each panel is equipped with corrosion inhibitors.

2. Storage.

2.1 Recommended storage temperature for SunSaver panel is from 10 to 30°C.

3.1 **It is recommended to do megger test after installation, before first use.**

For megger-test use 500VDC.

| | | |
|--|--------------|--------------------------|
| Check primary winding insulation resistance | _____MegOhms | Required 1 MV |
| Check secondary winding insulation resistance | _____MegOhms | 1 MV |
| Check earth continuity | _____Ohm | 0,1 V |

8. RECYCLING OF UNIT AND PACKING MATERIAL

The equipment can be deposit on waste plant for electrical equipment.

Packing materials like plastic and wood must be deposits on waste plant for such materials.

9. Typical Cable Connection.

