

KENO

SH-HWM1-SZR

USER MANUAL

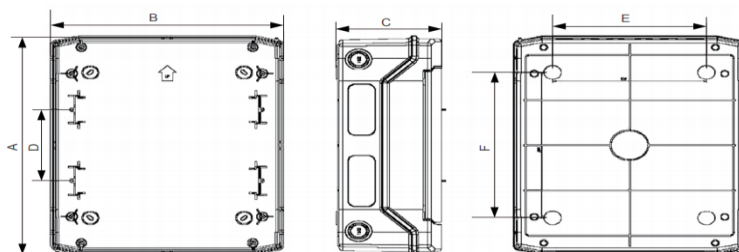


1. Introduction

The operating instructions described below are used to assemble the SH-HWM1-SZR connection box. After connecting the network and the inverter, the switchgear allows for supplying the receivers of the single-phase emergency power supply circuit during a network failure as well as during the normal state of network operation/ The installation of the switchgear must be carried out in accordance with the content of this manual and the recommendations of the inverter manufacturer. Before sale, each switchgear is tested with an inverter and marked with a serial number, any modifications inside the switchgear as well as its incorrect assembly will result in the loss of warranty.

2. Housing assembly

The connection board is designed for surface mounting. The board case provides IP65 protection to the component inside the electrical switchboard. For installation, open the connection board case, then attach it to the wall by screwing it with screws, using the wall plugs in the wall



Img.1. Case dimensions

Tab. 1 Case dimensions

	A	B	C	D	E	F
Case 24T	384mm	319mm	144mm	125mm	210mm	255mm

Tab. 2 Case parameters

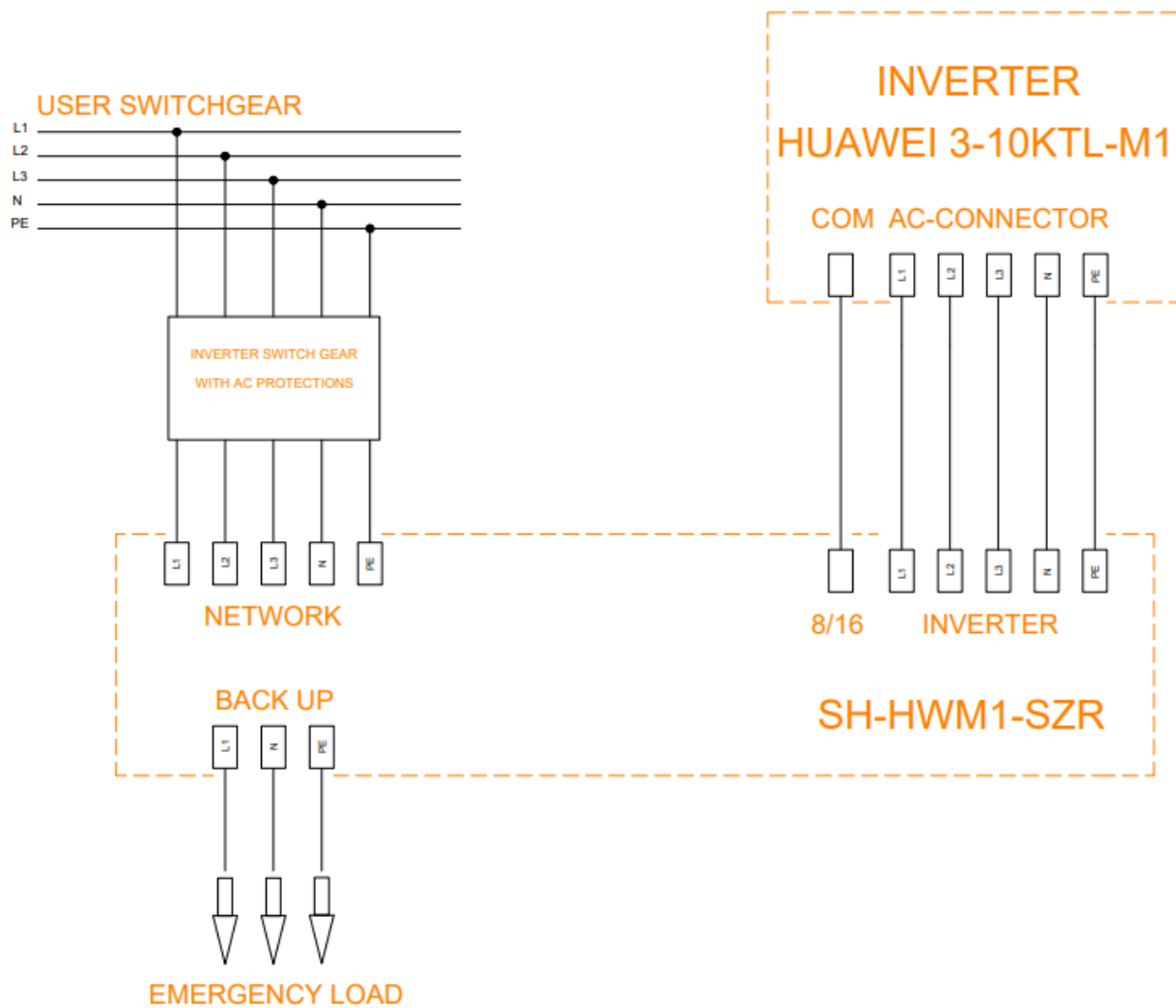
Numbers of rows	2
Case material	Plastic
Expandable	No
Type of lid	Close
Lock	No
Installation type	Surface mounting
Built-in depth	0
Protection class (IP)	65

3. Technical parameters

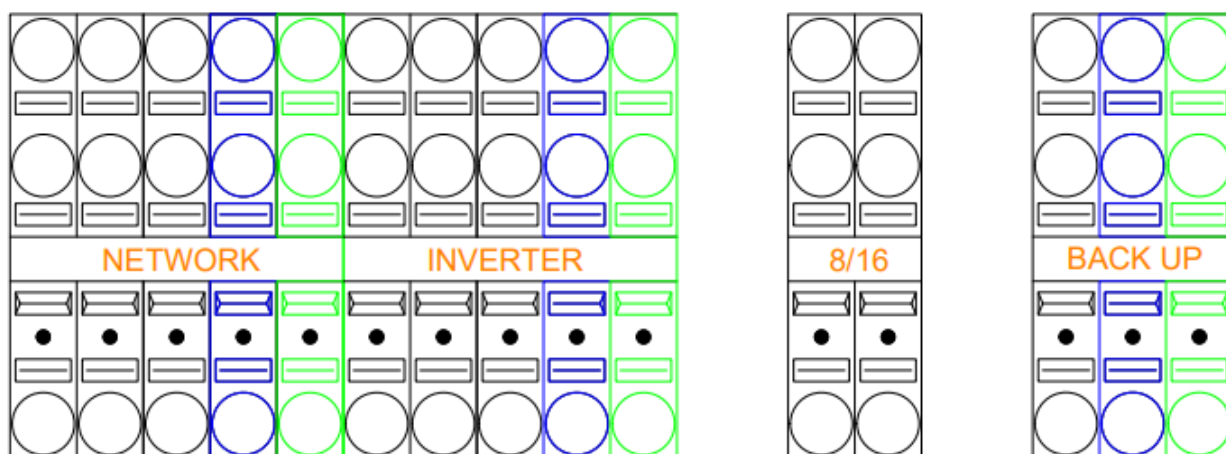
Tab. 3 Switchgear technical parameters

SH-HWM1-SZR	
Compatibility	SUN2000 3-10 KTL M1
Grid type	TN-S / TNC-S
Source of backup power	Energy storage / PV generator
Grid parameter, V	230/400
Rated frequency, Hz	50
Max output current of backup source, A	15
Max output current, A	16,9
Type of connection	3F + N
Switching time, s	≈ 2
Circuit breaker	K1/K2 25A
Residual current breaker with overload protection	RCBO B16 30mA
Operating temperature, °C	-20÷40
Protection class IP	65
Dimensions height/width/depth, mm	384 / 319 / 144
Weight, kg	3,8
Cable glands	2 x M25 1 x M20 1 x M16
Inverter input	Terminal block 6 mm ²
Network connector	Terminal block 6 mm ²
Emergency connector	Terminal block 6 mm ²
Communication connector	Terminal block 6 mm ²

4. Connection



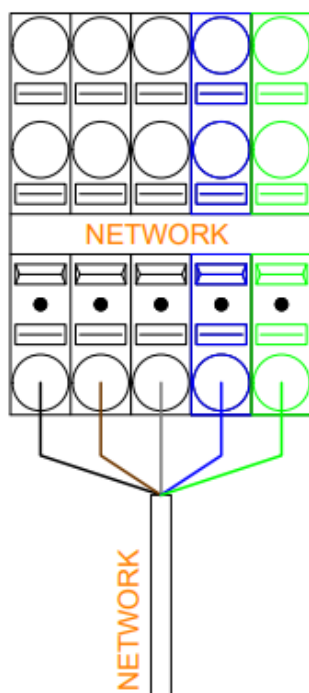
Img.2 Connection diagram.



Img.3 Terminal block of power and control circuits.

Connection of power to the switchboard: takes place at the input marked as Network (img. 4), the power connection should be preceded by AC protection devices (img. 2). The power supply connected to the mains connector is double disconnected while the inverter is operating in emergency mode. When connecting the switchboard, it is important to maintain the phase sequence, all gray connection cubes on the busbar are prepared in the phase sequence L1, L2, L3. Use the M25 gland to lead the cables inside the switchgear.

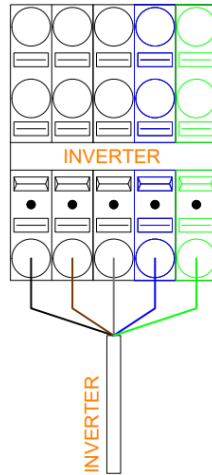
- gray connectors - phase wires in the order L1, L2, L3,
- blue connector - neutral wire,
- greenish/yellow connector- neutral-protecting wire



Img.4 The network terminal block with the connected power supply of the switchgear.

Connectors connected to the inverter: all cables from the inverter's AC connector should be plugged into the dedicated connectors marked in the Connection Switchboard with the name "INVERTER" (IMG.4). Use an M25 gland to lead the cables to the inside of the housing.

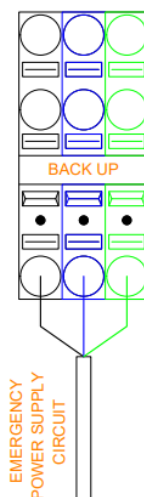
- gray connectors - phase wires in the order L1, L2, L3,
- blue connector - neutral wire,
- greenish/yellow connector- neutral-protecting wire



Img.5 Inverter terminal block with connected inverter cable.

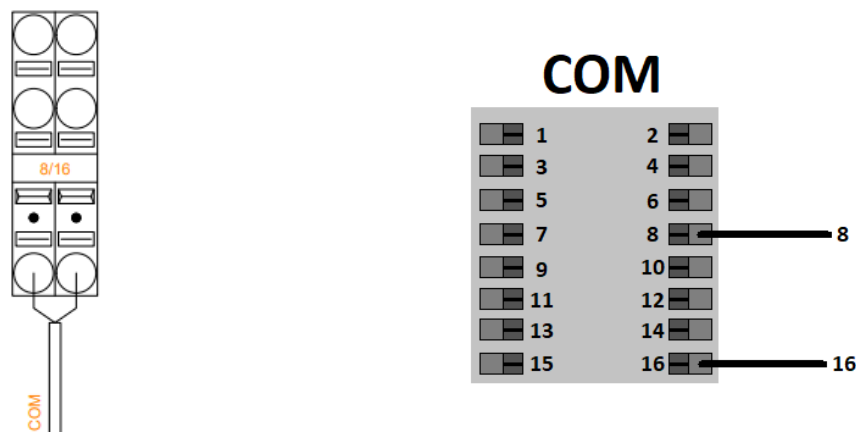
Emergency power supply circuit: it is connected directly to a designated place signed in the switchgear as "BACK UP" (img 6). It is important that the power of the connected emergency circuits is adequate to the inverter's output power. Use an M20 cable gland to lead the cable inside the housing.

- gray connectors - phase wires in the order L1, L2, L3,
- blue connector - neutral wire,
- greenish/yellow connector- neutral-protecting wire



Img.6 Terminal block for connecting the emergency power supply with the connected emergency power supply circuit.

Communication connection: make a communication connection between the switchgear and the inverter.).The communication cable should have at least two cores, in order to lead the cable to the inside of the housing, use M16 glands. In the switchgear as well as in the inverter's COM connector, use the connectors marked as 8 and 16 (IMG. 7).



Img.7 Terminal block for communication with the method of connecting the COM connector in the inverter.

After complete assembly, before putting the switchgear into operation, the assembler is obliged to carry out electrical measurement tests and check the phase sequence, he is also obliged to verify the tightening torque of all electrical devices before starting up.

Commissioning of the emergency power function in the inverter: after connecting the switchboard, the inverter must be configured. First, connect to the inverter via the FusionSolar application and go to the settings sequentially:

Settings -> Function parameters -> Off-network mode (on) -> Connection / no connection mode switch with network (Automatic switching)

5. General informations

- The connection switchboard is fully protected by the receivers connected to the emergency socket in the form of a combined 30mA residual current circuit breaker with a B16 over-current switch.
- The switchover time from grid to inverter to grid is approximately two seconds.
- Disabling the RBCO protection causes the emergency circuits to be disabled, but the control system is not disconnected.
- To use the inverter's emergency power supply, the off-grid function must be enabled in the inverter settings.
- In the emergency power mode, the system maintains network compatibility and operates in the TN-S network system.
- The system makes it possible to load the emergency connection with up to 3.68 kW.
- To operate the system in emergency mode, the energy supplied to the inverter is required, it can be energy from a PV generator and / or energy storage
- The system provides double disconnection from the network in the system when it is operating in emergency mode.
- When designing the installation, it should be ensured that all connected components are usable only within the permissible operating range of the connection switchboard.