KACO new energy.

Emergency power box 63A for

blueplanet hybrid 6.0 NH3 M2 WM OD IIG0

blueplanet hybrid 8.0 NH3 M3 WM OD IIG0

blueplanet hybrid 10.0 NH3 M3 WM OD IIG0

blueplanet hybrid 12.0 NH3 M3 WM OD IIG0

Installation Instructions

Emergency Power Box 63 A

■ English Version

Manual blueplanet
hybrid 6.0 – 12.0 NH3

Content

1 Requirements

NOTE

You must have read and understood the installation instructions so that you can install and use the emergency power box safely!

1.1 Application

The box is specified:

- for an emergency power solution with the KACO blueplanet hybrid 6.0-12.0 NH3
- for home installations up to a maximum of 63 A
- as automatic emergency power supply for selected consumers, or manual connection of additional consumers for emergency power supply.

1.2 Features and Equipment

Product features of the box:

- Loads on the emergency power rail up to the rated output of the hybrid system (6-12kVA) are automatically supplied with backup power in the event of a power failure.
- Other loads are directly connected to the grid in normal operation and can be supplied with emergency power through manual switching in the event of a power failure.
- Manual switching allows the user to consciously adjust consumption to the emergency power situation.
- Prescribed RCD Type B is already pre-installed.

2 System

2.1 Structure

NOTE

Independent electrical motor loads are not supported. The starting power of an electric motor, which is a multiple of its rated power, exceeds the load capacity of the backup box and can lead to a starting failure. The grid-dependent load connection must not be directly connected to the power grid. Otherwise, the grid-independent function is not available, leading to shutdown in case of overload. The power of the grid-dependent loads must not exceed the maximum grid-connected output power of the inverter.

The system setup requires specialized knowledge of interface communication, which is addressed here.

- blueplanet hybrid + EPS Box -> Integration into home installation (see the operating instructions of the hybrid inverter)

Connection conditions of the EPS Box -> cable cross-section, current carrying capacity, rigid input sub-distribution -> flexible output hybrid sheathed cable, etc. (see Technical Data in Chapter 4)

↻ When retrofitting, the main load of the floor distribution is located at the house connection box. The associated cables must first be separated by a qualified electrician to integrate the Emergency box. For new installations, choose a short power routing.

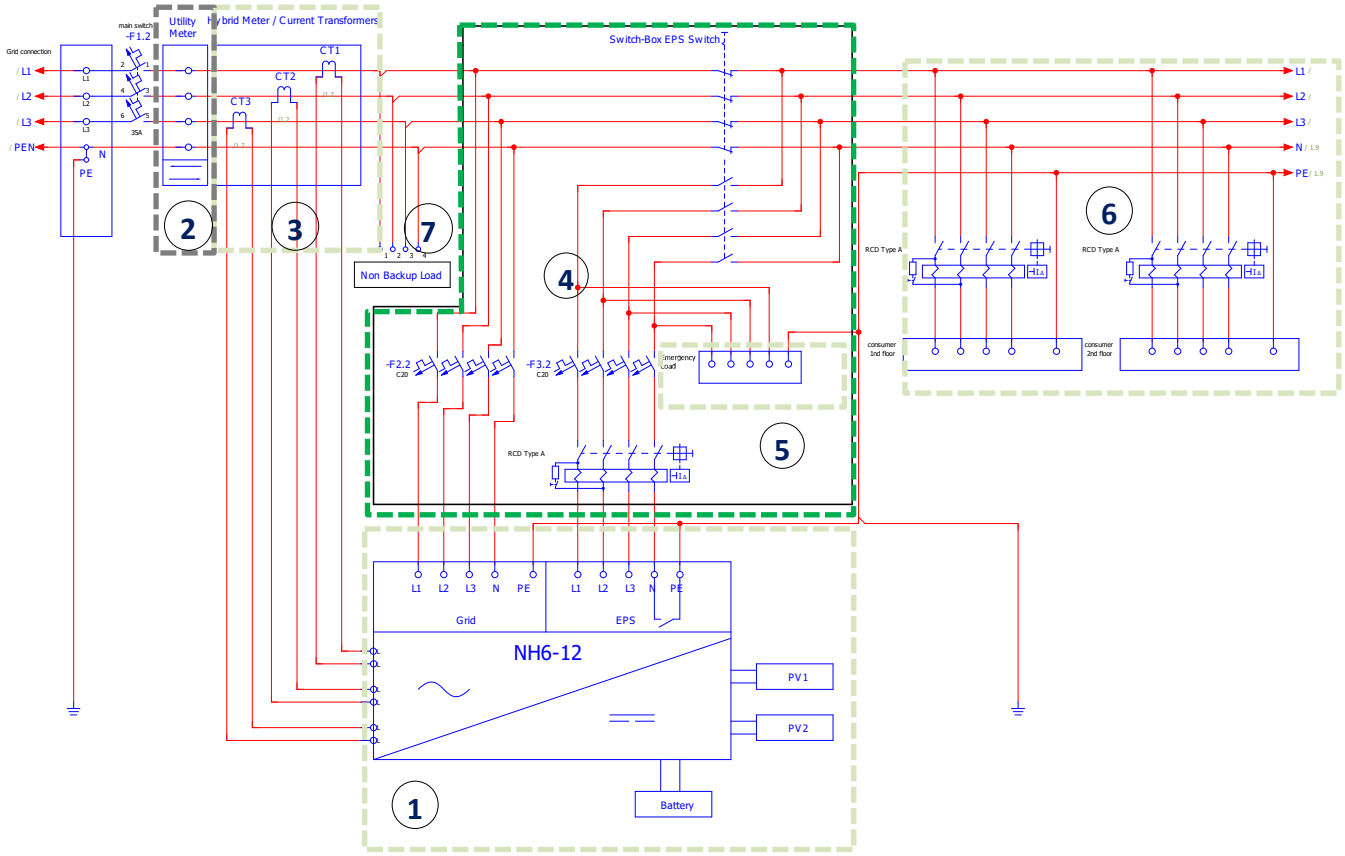
1. Install the hybrid inverter according to the guidelines in the user manual.
2. Securely mount the emergency power box near the inverter.
3. Choose which load should not be included in the emergency power supply (consumers >6-12kVA).
4. Connect the selected load directly after the SmartMeter.
5. Configure the grid and EPS-port connection cables according to the operating instructions of the hybrid inverter.
6. Lead the connection cables through the inputs of the backup box and connect them professionally (see setup and connection plan).

Note: At the EPS-port, all loads are automatically supplied with power (but not in parallel). It also specifies the power limitation per phase (32 A) or 22kW.

Note: In emergency power supply, the nominal power of the inverter or 2 x the nominal power for a maximum of 10 seconds applies. After an overload, island operation can only resume once the load has been reduced.

» The Emergency box is successfully integrated into the system.

The following graphic shows how the EPS Box can be integrated into the system:



Legend			
1	Hybrid inverter with grid disconnect [EPS]	5	Load (emergency rail with automatic switching)
2	Main connection box	6	Load (emergency operation only after manual switching)
3	SmartMeter	7	Load (6-12 kVA or non-emergency relevant consumers (e.g., wallbox, sauna...))
4	Emergency power box		

Special Features:	**Restrictions:**
Loads are directly connected to the grid. Suitable for house connections >63A Through **manual** switching, the plant operator knows that their system is running on backup power and only the rated power of the hybrid system and the battery capacity are available.	Only **automatic** switching for selected consumers such as freezers, heating, and internet routers. Other consumers are manually switched to the EPS output.

2.2 Switching conditions

Load Management Before Switching: All major loads should be turned off before switching.

Use of Backup Power: The backup power system should be started first. Then, the loads can be reconnected gradually and under controlled conditions.

Malfunction in the Hybrid System: In the event of a defect in the hybrid system, the fuses F... and F... must be removed. After that, the hybrid system can be safely dismantled or replaced. Note the bypass wiring in the chapter 4.3.4.

Switching with Existing Network: If the switch is turned on despite the presence of the grid, it disconnects the house network from the supply network. It then operates with a reduced power of 22 kVA.

3 Technical Data

3.1 Electrical Data

Notstrombox	
Dimensions (WxHxD):	448 x 610 x220 mm
Weight: x kg	approx. 5 kg
Contents:	5x terminal blocks, 1 RCD Type A*
Inputs	
Max. cable diameter	17,5 mm
Min. cable diameter	12,5 mm
Stripping length	40 mm (L1, L2, L3, N) 43 mm (PE)
Wire cross-section	16 mm² (copper)
Stripping length	10 mm
Tightening torque	1.2 ± 0.1 Nm
Connection type	HDC-35i5m1
Environment	
Ambient temperature	- 25 °C – + 60 °C
Ambient temperature (storage)	- 40 °C – + 60 °C
Protection class (KACO installation location)	IP65

) Your energy provider may require a Type B RCD based on the network operator's specifications. In this case, your electrician must replace the integrated Type A RCD with a Type B RCD.

*) The Type A RCD must be technically evaluated by the electrician to determine if it is suitable for the home installation.

4 Connection

4.1 Functionality

With the emergency power box, emergency power solutions can be implemented with a connection capacity of up to 63 A in grid operation. The output power of the hybrid inverter in emergency power operation can be found in the technical data sheet of the hybrid inverter.

Loads that should be automatically supplied with emergency power in the event of a power failure (e.g., refrigerator and freezer, heating control, router...) can be directly placed on the automatic emergency power busbar of the emergency power box.

All other loads that are to be supplied with emergency power through manual switching must be placed on the manual emergency power busbar.

4.2 Structure & Connection Diagram

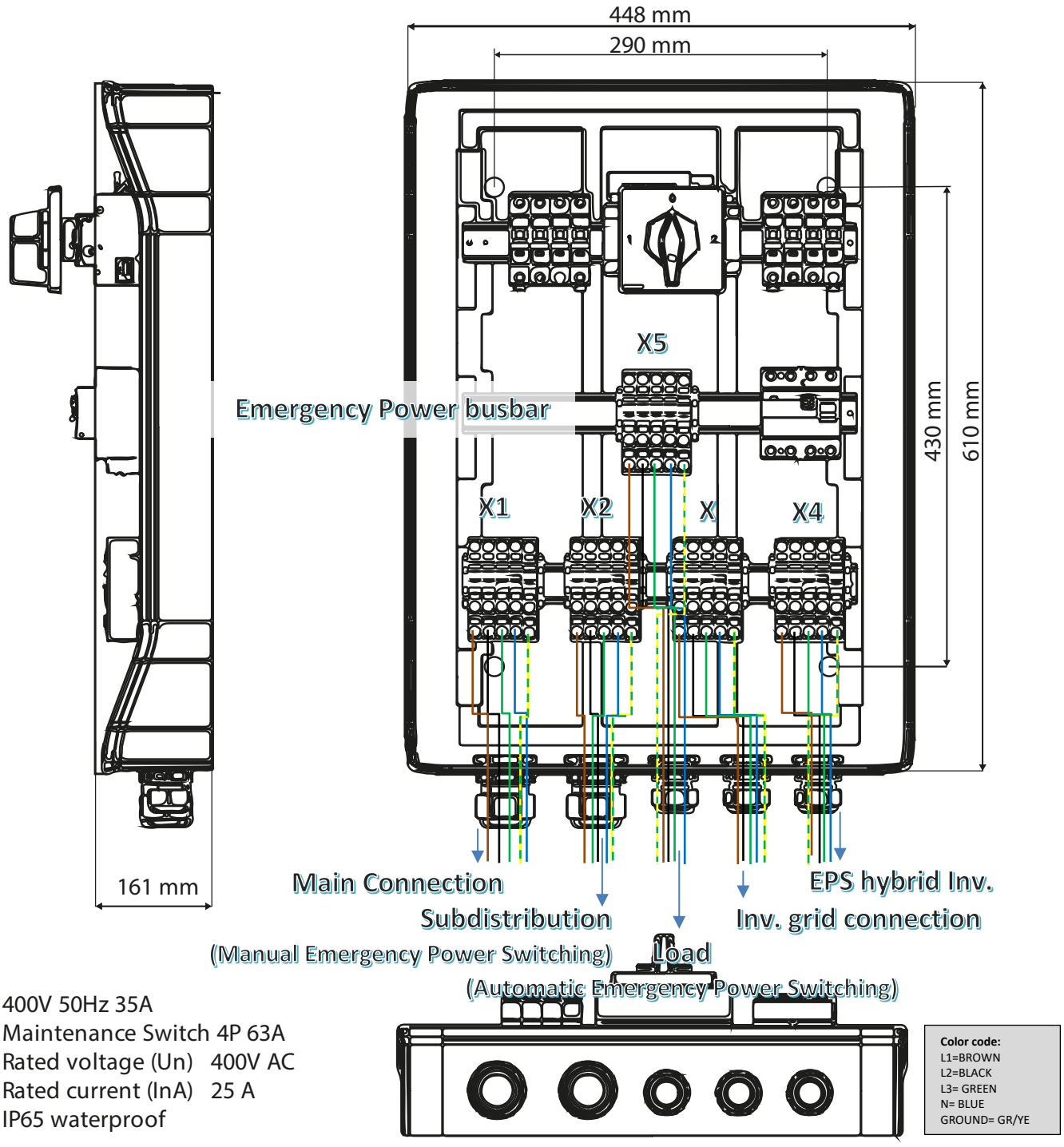


Fig. 1. Overview of connection at Emergency-box

4.3 Installation conditions

4.3.1 Mount the emergency power box

↻ The emergency power box is removed from the packaging.

1. Open the emergency power box and mark it on a suitable mounting surface according to the drilling pattern on the back.

2. Use suitable dowels with fastening screws to secure the emergency power box.

» Emergency power box is professionally mounted.

4.3.2 Configure conductors

↻ All connection lines are properly stripped.

1. Cut N, L 3 mm shorter than the protective conductor and strip N, L, PE to 10 mm.

2. Flexible conductors must be equipped with ferrules according to DIN 46228.

3. Route the conductor through the appropriate cable gland

3. Insert the conductors into the contacts according to the markings on the terminal block

» Conductors properly configured

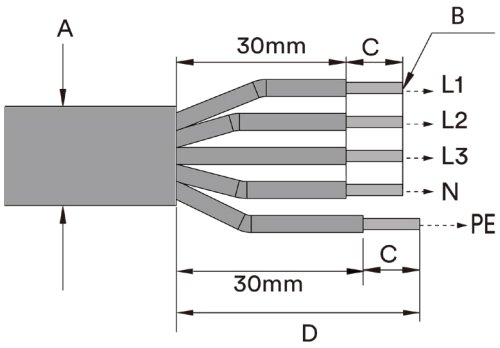


Fig. 2. Strip the wires

4.3.3 Tighten cable glands

1 Route each cable through the cable glands as per the overview (Section 4.2.)

2 Tighten the cable glands with the subsequent required torque..

3 Unused cable glands or improper cable installation can reduce the IP protection class and consequently lead to leaks in the housing.

» Observe the following torques:

Size	Clamping range [mm]	Torque [Nm]	Blind plug (optional)
M32	15-21	15 / 6,0	BS21
M40	16-28	20 / 20	BS28

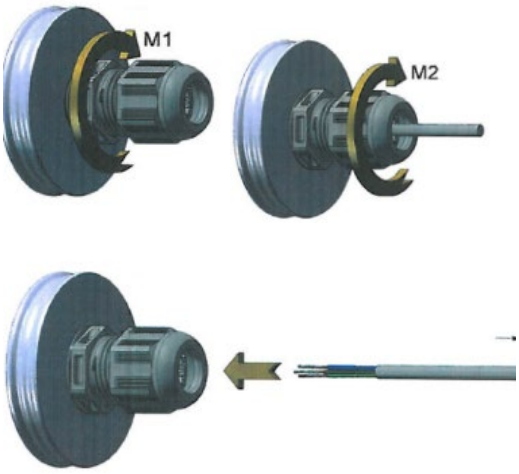


Fig. 3. Feed the cable through the cable gland

4.3.4 Configuration as a bypass box

Note: The emergency power box can be reconfigured as a bypass box to ensure grid power supply to consumers even during maintenance of the device.

1. Install the cables as a bridge as shown in the adjacent illustration on X2 or X5 for L1-L3 / N and PE.
Note: Strip the wires properly and insert them into the free terminal block.

2. Ensure the connection and close the emergency power box.

» The hybrid inverter can be maintained/replaced.

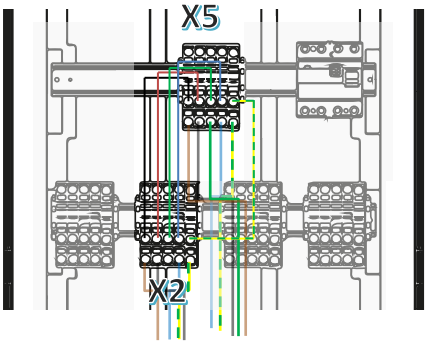


Fig. 4. Configuration for bypass operation

4.4 Wiring Diagram

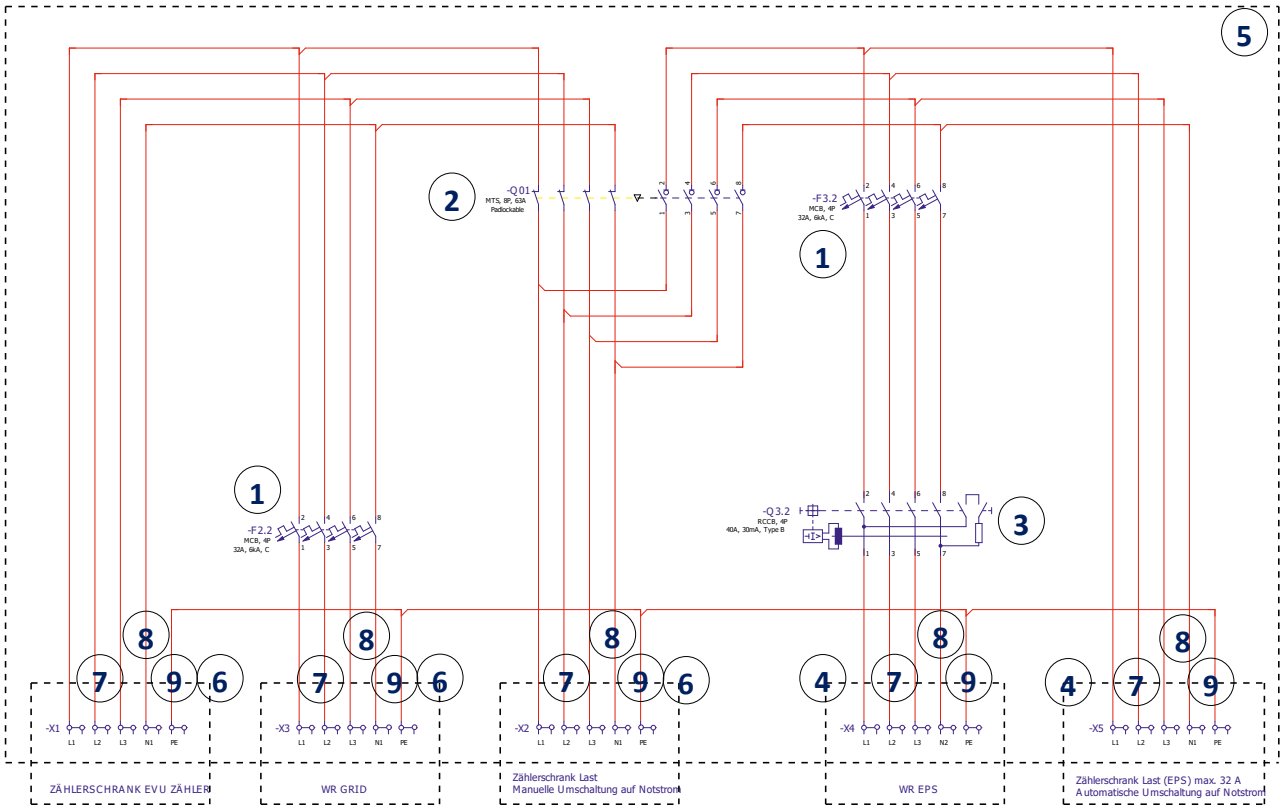


Fig. 5. Wiring Diagram

Bill of Materials				
Pos.	Description	Technical Description	Type	Quantity
1.	Circuit breaker, C curve, 32A, 4-pole, 6kA	-	=+=F2.2=+=F3.2	2
2.	Emergency stop switch 1-0-2, 4-pole, rail mounting, 63A, lockable	-	=+=Q01	1
3.	RCD (Residual Current Device), 40/4-pole, 30mA, Type A(f), G	-	=+=Q3.2	1
4.	Cable gland M32	Ø 13 - 21 mm, Color: Black	+=U1.2+=U3	3
5.	Plastic enclosure BA48xH62xT161 3x18TE	-	+=U5	1
6.	Cable gland M40	Ø 16 - 28 mm, Color: Black	+=U6	2
7.	3-terminal block	1000 V, 76 A, 16 mm²	+=X1L1...+=X1L3;+=X2L1...+=X2L3;+=X3L1...+=X3L3;+=X5L1...+=X5L3	15
8.	3-terminal block, 16.0 mm², 76.0 A, blue	1000 V, 76 A, 16 mm²	+=X1.N1;+=X2.N1;+=X3.N1;+=X4.N1;+=X5.N1	5
9.	3-terminal ground block, 16.0 mm², green-yellow	16 mm²	+=X1.PE;+=X2.PE;+=X3.PE;+=X4.PE;+=X5.PE	5

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KACO new energy.

Werner-von-Siemens-Allee 1 · 74172 Neckarsulm · Deutschland · Tel. +49 7132 896-0 · info@kaco-newenergy.de · www.kaco-newenergy.com