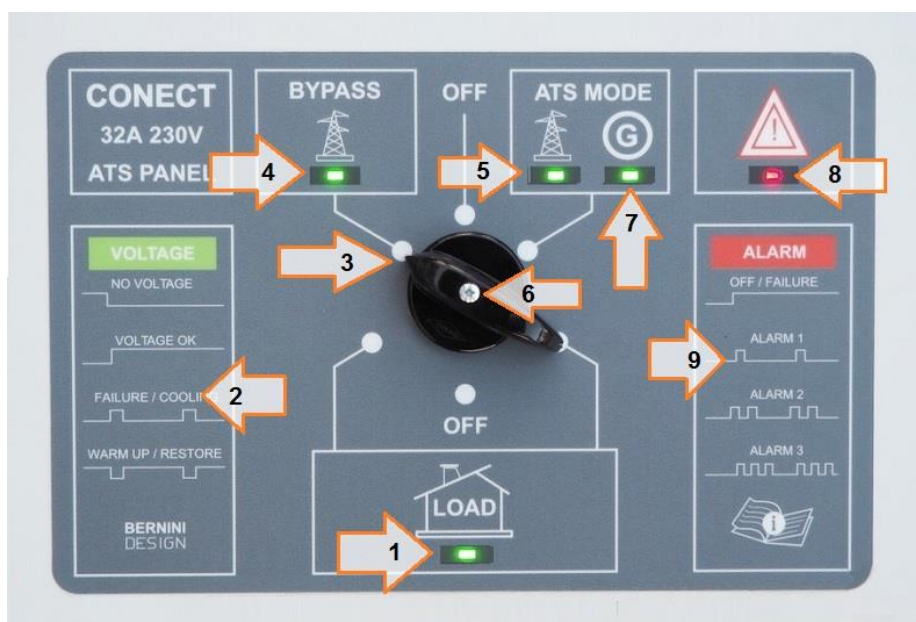


PORTABLE POWER STATION AUTOMATIC TRANSFER SWITCH

(July 2024 second release)



1.0 USER INTERFACE DESCRIPTION

[1] The green light indicates the presence of voltage in your house. It may turn on when the switch is in the BYPASS position or ATS position. It could blink (see [2]) according to the voltage status.

[2] When a green light [1][4][5] or [7] is continuously on, it indicates a constant presence of voltage. A 10% ON / 90% OFF rate indicates an abnormal voltage. A 90% ON / 10% OFF blinking rate indicates that utility power (or **Portable Power Station**) is about to be connected to your house. An Indicator is OFF when the voltage is lower than 120V.

[3] Function selector index. The knob has 3 fixed positions. Before removing the cover it is necessary to loosen the fixing screw [6].

[4] This green indicator informs you about the status of the utility power. It is continuously on when utility power is regular. It starts blinking when the voltage is not stable and, if the switch is in BYPASS mode, your appliances may suffer damage. For this reason, always set the ATS PANEL in ATS mode.

[5] When the switch is in ATS mode, this green indicator works as described above ([2]). In case of utility power failure, the ATS panel disconnects your house and instructs the **Portable Power Station** to connect.

[6] Fixing knob screw. Before removing the cover it is necessary to loosen this fixing screw.

[7] This green indicator, informs you about the status of the **Portable Power Station**. It is continuously on when the **Portable Power Station** works within the specifications. It starts blinking (10% ON / 90% OFF) when the voltage is not stable. It starts blinking with a rate of 90% ON / 10% OFF during warm-up (engine runs offload)

[8] Red lamp indicating a status of alarm (see also section 4.0)

[9] This is the table that helps you decode the alarms (see also section 4.0)

1.0 DESCRIPTION

The **CONNECT PS** Transfer Switch panel connects a **Portable Power Station** to your house. It allows a maximum current of 32 Ampere with 230V single phase. The panel must be placed between the electrical energy meter and the house (figure 1). A qualified electrician must connect the panel up to code to prevent back feeding. We recommend a continuous current of 25A.

You can connect a **Portable Power Station** or a Stationary Power Station. If the **Portable Power Station** has a power greater than 6kVA or the utility power can supply more than 5kW, we recommend inserting a 32A circuit breaker.

The installation of the panel must be vertical. The minimum height from the ground is 150cm. Choose a clean and dry environment. Do not install in humid places with unhealthy outdoor. Do not install closer to a gas-fired boiler or furnace.

2.0 ELECTRICAL PROTECTIONS

The **CONNECT PS** panel disconnects your house if the frequency drops below 45Hz or the voltage drops below 190V. Alarms are described in the section 4.0. The power circuits are protected using a 32A fuse. If it blows, you can continue to use the ATS panel by putting the knob in the BYPASS position at your full risk.

3.0 HOW IT WORKS

The **CONNECT PS** features a 3-position switch; BYPASS - OFF - ATS (see page 1). In the BYPASS position, the switch directly connects your house to the mains. The **CONNECT PS** is therefore totally excluded. If the mains is within limits the green BYPASS light turns on. The red light will also turn on to indicate that the panel is not in ATS mode.

In the OFF position, the switch isolates your house from the mains and the Portable Power Station. This mode can be used to reset alarms.

SAFETY WARNING

THE SWITCH IN POSITION "OFF! DOES NOT GUARANTEE 100% SAFETY. BEFORE WORKING ON THE ELECTRICAL SYSTEM OF YOUR HOUSE REMOVE THE MAINS AND DISCONNECT THE PORTABLE POWER STATION POWER PLUG.

In the ATS position, when a short power cut occurs, the **CONNECT PS** cuts power to your house. The green ATS light indicates the status of the mains. The LOAD light [1] indicates the presence of voltage in the house. After a short power outage, the current will be restored after the programmed time (see the settings of selector T3 Figure 2). If the power outage persists for enough time (see the settings of the selector T2 in Figure 2), the **CONNECT PS** enables the **Portable Power Station**. After a warm-up time (see the settings of T1 in Figure 2), the **CONNECT PS** connects the house to the **Portable Power Station**. When the utility power is stable for the time you set on T3 (Figure 2), the **CONNECT PS** reconnects the utility power and stops the **Portable Power Station** after a cooling down time (selector T1 in Figure 2).

4.0 ALARMS MONITORING

RED LED ALWAYS ON: the switch is in the BYPASS or OFF position. To eliminate the alarm put the switch in ATS mode.

RED LED ONE CONTINUOUS FLASH: irregular **Portable Power Station** voltage or frequency (below 190V, above 260V, below 45Hz, above 56Hz). Another condition could be an instantaneous short circuit. Check the status of the **Portable Power Station** circuit breaker. To eliminate the alarm, place the switch in OFF for a few seconds; then put it back in ATS mode. Restart the **Portable Power Station** if it features a reset button.

RED LED TWO CONTINUOUS FLASHES: battery voltage below 11.8V for at least 2 minutes. The voltages comes low after 30 days of MAINS absence.

RED LED THREE CONTINUOUS FLASHES: excessive load connected to the **CONNECT PS** panel or internal fault in the ATS system. The internal 32A fuse may be blown. Put the knob in OFF mode for a few seconds. If the fault persists, the panel must require after-sales service. Put the knob in the BYPASS position to restore power directly from the utility power source.

RED LED FOUR CONTINUOUS FLASHES: the **Portable Power Station** did not deliver within the 5 minutes required by the ATS panel. To cancel the alarm, set the switch to OFF or retry starting the **Portable Power Station**. The alarm clears automatically.

5.0A DC SUPPLY AND RELAY CONNECTIONS

(JH1) 12V battery plus (max 0,5A output).

(JH2) 12V battery minus (negative common).

(JH3) **CONNECT PS** output max 1Amp: it send requests of **POWER STATION** connection. You may connect a dry-contact relay to enable the **POWER STATION**

(JH4) (JH5) not used

5.0B REMOTE CONTROL CONNECTIONS

Use dry contact only (isolated contacts of relays or switches) to activate the following inputs.

(JI1-2) **REMOTE OFF.** You force the OFF mode of the **CONNECT PS** panel. It overrides the ATS mode of the panel.

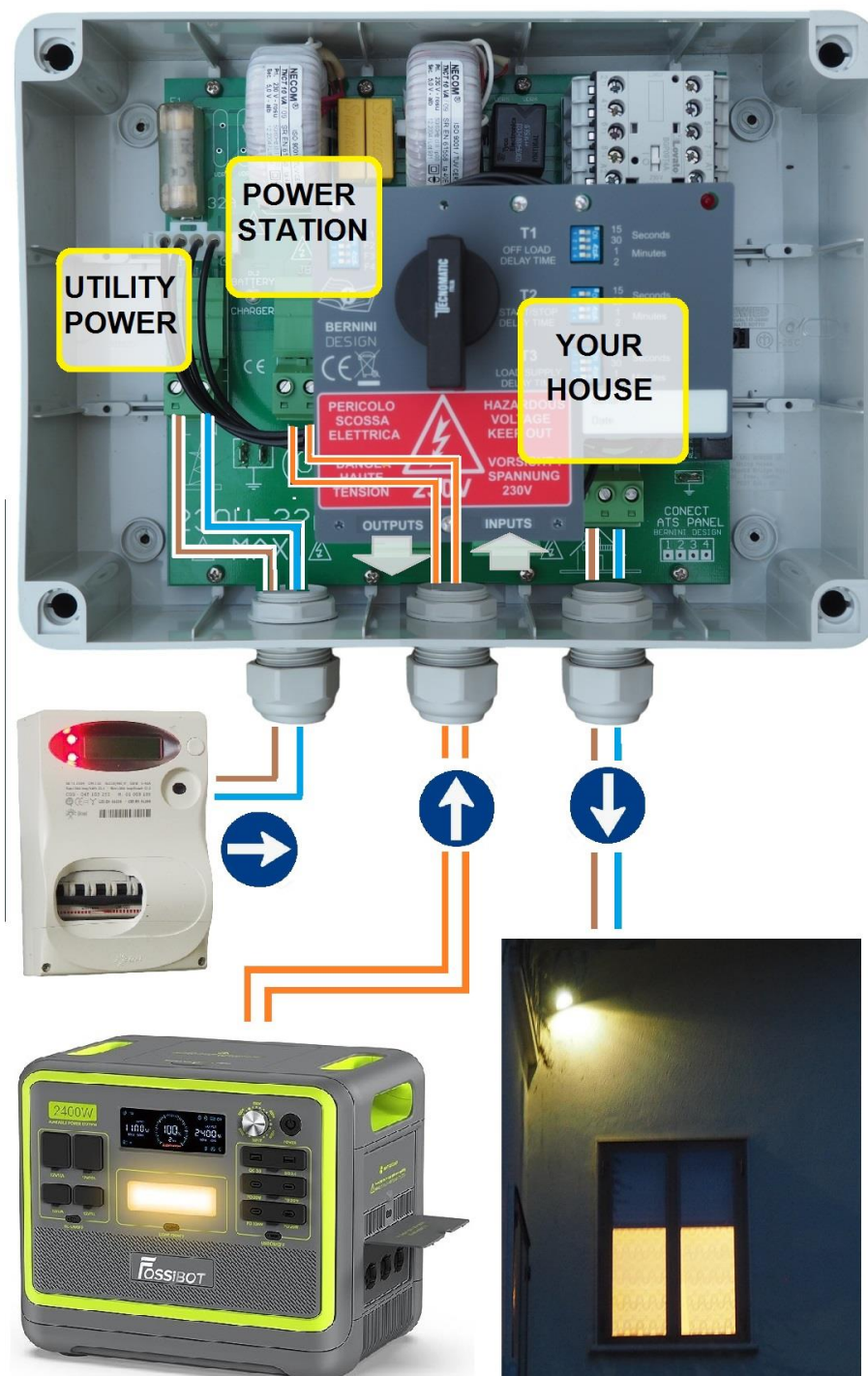
(JI3-4) **REMOTE START.** You can remotely switch to **Portable Power Station** supposing the knob is in ATS mode. It will not transfer the LOAD if the mains is present. If, in the meantime a power outage occurs, the PANEL will override the REMOTE START and will transfer the LOAD.

(JI5-6) **SIMULATED UTILITY POWER.** It inhibits the connection to the **Portable Power Station** in case of mains failure. When you remove the contact, the **CONNECT PS** panel, automatically connect the **Portable Power Station** in case of mains failure.

FIGURE 1 CONNECTIONS OVERVIEW

SAFETY NOTE Before accessing the internal parts of the PANEL set the knob in the OFF position. Disconnect the utility power and the **Portable Power Station**. Remove the four plastic screws that fix the panel cover. Keep the plastic cover in a clean and dry place.

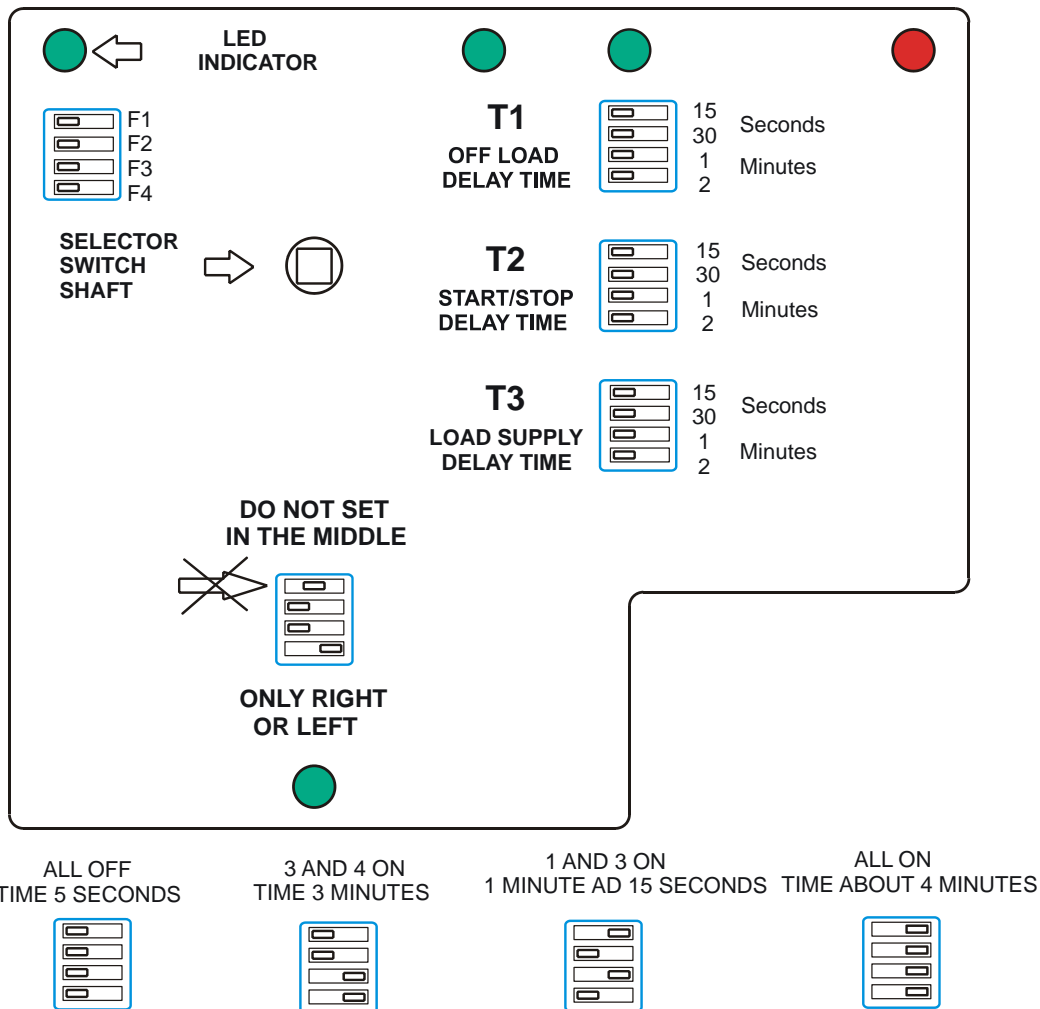
After having carefully tightened the screws of the terminals connected to the electric cables, mate the connectors fully into their sockets.



When the operations are completed, place the plastic cover taking care to fit the gasket exactly. Slightly tighten the 4 plastic screws. Reposition the knob by carefully pressing it. Hold the switch in OFF mode. Connect the utility power and the **Portable Power Station**. If in doubt, contact our technical support at: bernini@bernini-design.com / 0039 335 70 77 148

FIGURE 2 DIP-SWITCH SETTINGS

Remove the plastic cover following the **SAFETY WARNING DESCRIBED ON PAGE 2**. To operate the slide of the micro switches use the tip of your fingernail or the head of a marker or a toothpick. Avoid the use of screwdrivers or sharp metals. Choose the position fully right (active) or left (not active). Do not leave the slide in an intermediate position. For each selection, the processor analyzes the activated contacts and eventually executes the arithmetic sum of the times in case you activate multiple slides. See examples in the figure below.



NOTE 1 Each switch activates and selects a timing. By making multiple selections on the same switch, you will obtain the sum of the settings. For example, if you activate 15 seconds and 2 minutes on the switch T1, you will get a total time of 135 seconds (other examples in the above drawing).

NOTE2 By leaving all position of a switch to OFF, the delay is 5 seconds.

T1 WARM UP/COOLING DOWN time. It allows the **Portable Power Station** to run offload to stabilize the voltage or to cool down the electronics critical parts.

T2 MAINS FAILURE/RESTORE time. It filters out, or bypasses, short power outages avoiding unwanted **Portable Power Station** connections.

T3 LOAD ENABLE DELAY time. In case of power outages, the contactor of the mains opens immediately. But it will energize again after an adjustable delay time. This avoids shocks to your appliances in case of mains instability.

6.0 SPECIFICATIONS

TIPOLOGY	DESCRIPTION
Dimensions / Ingress Protection	320mmx250mmx140mm / IP56
Holes footprint	250mm (base) 170mm (high) 4-hole
Weight	3Kg
Relay Outputs	Positive Voltage (V batt) MAX 1A
Digital Inputs	Dry contacts, no voltage is allowed.
Load Maximum Peak Current (30 minutes)	32A - 230V
Load Maximum Continuous Current	25A - 230V
Recommended external circuit breaker protection rating	25A - 230V
Internal ATS protection	One fuse 32A (10x38mm)
Continuous Internal ATS rating	25A AC1 FUSE 32A 10X38
12V Battery Charger	12.8V 0,5A
Mains nominal voltage	230V (210V-250V)
Portable Power Station nominal voltage	230V (210V-250V)
Frequency Range	45Hz - 56Hz
Utility Power Short-Cuts detections	500ms
Utility Power Transient Filter	T3 5-15-30-45 sec, 1-2-3 mins
Mains Failure - Restore time	T2 5-15-30-45 sec, 1-2-3 mins
Switching time delays	T1 5-15-30-45 sec, 1-2-3 mins
Change-over technology	2x4-pole contactors with mechanical interlock (40amp rating AC1)
Internal battery	2000mAh / 12,8V
Norms compliance	EN61349X, 214/35/UE, CEI121-5, 2014/30/UE
Environmental Conditions	-10/+40 gradi Celsius / 85%
Certification /Warranty	CE/10-year

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