<h1 style="text-align:center">1.0 INTRODUCTION</h1>

The BE148 is GSM controlled START-STOP kit. The kit includes the Be148 rail-mount relay and 5-band GSM modem. The kit does include all cables, antenna and removable connectors. It is suitable to start and stop a generator by using a mobile phone. The Be148 can detect if the engine is running and can send the 'STARTING FAILURE' alarm on your mobile. The Be148 is easily configurable using your mobile phone .

<h1 style="text-align:center">2.0 Be148 SETUP</h1>

Follow the instructions.

[1] Unpack the box. The content must include the Be148 (1 rail-mount relay) with 4-pole and 6-pole connectors, the RS232 cable (2), the antenna (3) and the modem power supply cable (4).

[2] Insert the SIM into the modem. Make sure the SIM has the PIN disabled. If not, you are required to disable it by using a mobile phone. Insert the screw-type antenna connector.

[3] Connect the modem F1403 to Be148 relay by using the RS232 cable.

[4] Unplug the 4-pole power supply and 6-pole connectors from the Be148.

[5] Make the connections as indicated in the recommended wiring diagram.

[6] Connect the wires of the power supply or battery to terminal 1 (PLUS) and terminal 2 (MINUS). You can use the battery of the engine (12 or24V) via a 5 Amp fuse. This protects the wires in case of a short circuit. Do not turn on the supply.

[7] Verify that terminal 3 (PLUS-red wire) and terminal 4 (MINUS-black wire) of the 4-pole connector, are firmly connected to the modem supply cable. Plug the jack into the modem and plug the 4-pole connector to Be148.

[8] Carry out a full generator test without using the Be148 relay. You can easily simulate the output contacts of the Be148 (JD3-4). Insert the 6-pole connector and connect the battery or your available DC power supply.

[9] As soon as you connect the DC supply, the Be148 will turn all LED indicators on for a second. After that, the DL2 illuminates to indicate the modem initialization sequence for about 2 minutes.

[10] The green indicators 'Power' and 'Online' on the modem will turn on as well. The green indicator 'Act' will blink from time to time. The green LED and 'Online' will start blinking as soon as the modem is connected to the GSM network. This will take approximately 2 minutes.

[11] When the modem is fully active, the green indicator DL1 turns on. At the same time, the DL2 will turn OFF. If the red indicator DL5 is permanently on, the MODEM fails to work. If DL5 blinks, the power supply is lower than 8Vdc. To clear the low batta alarm, rise the supply above 10Vdc.

3.0 GSM SETUP and SMS SYNTAX

[A] When the green DL1 indicator is on, type on your mobile **BE148** *****PHONE NUMBER#.**Type a blank space after Be148 and before the symbol ***** . The ***** is the asterisk symbol. The **#** is the hash symbol. The **PHONE NUMBER** is your mobile phone number. The system accepts either lower or upper-case letters. Send the SMS to the SIM card of the modem. When Be148 receive or send an SMS, the DL2 turns on for just a second.

[B] After a few seconds you will receive the SMS answer in the form **BE148 PHONE SAVED**. Each time the kit sends or receives an SMS, the DL2 turns on for just a second.

[C] Remove the power supply for about 5 seconds, then reconnect the DC power supply.

[D] After 2 minutes you must receive the SMS **POWER ON, BE148 V1,14, SUPPLY 12.0V NOT RUNNING, OUT OFF**. The **V1,14** may vary depending on the software version, and The **12.0** may differ depending on your power supply voltage.

[E] To start the generator send the SMS **BE148 START**. The Be148 will close the contacts JD3 and JD4 in order to start the engine.

[F] If the engine starts and Be148 detects the 'ENGINE RUNNING' status via the JD6 input, you will get the SMS **BE148 OUT ON! RUNNING!**. If the engine will not start within 120 seconds, the Be148 shuts down the output JD3-4 and turns on the red indicator DL5 (see NOTE 1).

[G] Should the engine fail to run after a successful start sequence, you will receive the message **NOT RUNNING! FAILURE!**. In this case, the Be148 opens the contacts JD3-4 in a way to disable the engine start circuit and turns on the red indicator DL5 (see NOTE 1).

[H] At any given time, you can send the SMS **BE148 STATUS**. If the engine is not running, the system will respond with the following SMS **BE148 STATUS: SUPPLY XX.V, NOT RUNNING, OUT OFF**. If the engine is running normally, the system will respond with the following SMS **BE148 STATUS: SUPPLY XX.XV, RUNNING, OUT ON**
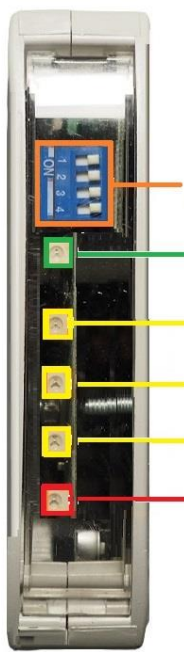
NOTE 1

IN CASE YOU DO NOT MONITOR THE ENGINE RUNNING STATUS, WE RECOMMEND YOU ACTIVATE THE DIP-SWITCH 4. THIS FUNCTION DISABLES THE STARTING FAILURE ALARM. YOU MAY RECEIVE NOTIFICATIONS ABOUT THE 'ENGINE RUNNING' STATUS, BUT BE148 WILL NOT SHUT DOWN THE OUTPUT JD3-4 IN CASE OF STARTING FAILURE.

4.0 GSM SMS COMMANDS OVERVIEW

BE148 STATUS	It sends a request to read the status of the engine and power supply voltage. Type a blank space after Be148. You can use lower or upper case letters.
BE148 START	It sends a request to start the engine. Type a blank space after Be148.You can use lower or upper case letters.
BE148 STOP	It sends a request to stop the engine. Type a blank space after Be148.You can use lower or upper case letters.
BE148 *PHONE NUMBER#	It sends a request to store your mobile phone number. Type a blank space after Be148.You can use lower or upper case letters.

5.0 FRONT VIEW

BE148 FRONT VIEW

DIP SWITCH

DL1
DL2
DL3
DL4
DL5

LED INDICATORS

DIP SW	**FAIL TO START ALARM** To disable the alarm, turn the switch number 4 to on. You still will receive notifications about engine running status.
DL1	**MODEM STATUS** (GREEN). It indicates that the modem is ready. After a power on it may take 2 minutes until it turns permanently on.
DL2	**MODEM SMS TRIGGER** (YELLOW). It turns on for about a secons when the modem is senfing or receiving an sms.
DL3	**OUTPUT JD3-4 STATUS** (YELLOW). It indicates that the contacts JD3-4 are closed. In ths case you may activate the generator circuit in a way to tart the engine.
DL4	**ENGINE RUNNIN STATUS** (YELLOW). It indicates that the engine is running. This happens when the DC voltage on the input JD6 rises above 6Vdc. It turns OFF when volatge falss below 6Vdc.
DL5	**FAILURE OR ALARM** (RED). It blinks when the power supply falls below 8Vdc. The alarm low battery auto-resets if supply voltage rises above 10Vdc. The LED is permanently on when a starting failure occours or when Be148 fails to ativate the MODEM.

BASIC FEATURES

Power Supply: 11-28Vdc. **Consumption:** max 100mA. **Operating temperaure:** -15 up to 50 deg, Celsius. **Dimensions** 110x120x22 mm. **Relay Output:** rated at 1A 30VDC. **Humidity range:** 5% up to 95% Weight: 130 grams

Not mentioned specifications and MODEM: contact
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6.0 RECOMMENDED WIRING DIAGRAM

In this example, the JD3-4 output drives the relay R1. The R1 relay will instruct the ENGINE AUTOSTART MODULE to start the engine after receiving the START SMS. A positive voltage, over 8Vdc, is required to trigger the 'ENGINE RUNNING' status for the Be148. After receiving the STOP SMS, the relay R1 de-energizes. The engine will stop according to the AUTOSTART MODULE internal settings.Terminals #1, #2 and #5 are used for special applications (contact us).