autarco

Hybrid Inverter/Battery instruction

When installing a hybrid inverter with a battery, more parts are used and it is therefore important to read the manual carefully in advance and check whether all parts are present.

It is also important to carefully check in advance where the installation should be located: what cable lengths are required between inverter and battery and meter and it must be ensured that the battery is properly secured.

1. Check whether the contents of the box are complete: the hybrid inverter comes with all plugs and the meter. Remove all parts from the box so that they are not accidentally thrown away.

2. The necessary cables for the battery are supplied with the battery: they have a limited length. If the cable needs to be extended you can do so with an additional in-line fuse. In general, keep the cable as short as possible: longer cables mean more losses.

This short instruction consists of 3 parts:

- Installation of the inverter

- Installation of the battery

- Installation of the meter

If no battery is installed yet, you will be done after part 1. Make sure that all supplied parts (plugs, cables, meters, etc.) are kept for later use. If a complete installation is done with battery, all steps must be followed.

1. Installation of the inverter

Follow the instructions in the manual.

Ensure that there is sufficient ventilation and the mounting distances are maintained. For the LH/MH this should be approximately 50 cm.

Check the voltage and polarity of the DC/solar strings. It may never be more than 1000 Volt (LH) or 600 V (MH). Viewed from the front, the + plug is at the bottom of the inverter. Now mount the strings for the DC solar connections. Do not turn on the DC switch until everything has been checked.

Connect battery

The LH/MH inverter has special MC-4 plugs for connecting the battery. These are included.

Check that the battery is turned off. If there is no switch on the battery, we recommend using a separate switch. If the battery has the same plugs, they can be plugged in immediately. If other plugs are supplied, cut them off and install the supplied plugs. These are click plugs that can be mounted without tools.

Connect the communication cable to the battery. This is a 2-core cable with signals CAN-H and CAN-L. In the hybrid inverter these are located on pins 4 and 5 of the RJ45 plug of the CAN bus. Check in the battery manual which pins are used on the battery side.

Below is a list of the most commonly used batteries:

Inverter	**Battery**
Pin 4 & 5	Weco 1&2
Pin 4 & 5	ByD 1&2
Pin 4 & 5	Pylontech 4 & 5

Example: at Weco a custom cable must be made: pin 4 (CAN-H) on the inverter side must go to pin 1 on the battery and from pin 5 to pin 2 of the battery.

Connect communication module

The hybrid inverter only works with communication sticks with a D in the name: LAN stick D, WiFi stick D or GPRS stick D.

Carefully slide the stick with the LEDs forward onto the green 4-pin COMM connector.

Always use 2 hands: hold the stick in one position with one hand and tighten the black nut with the other hand. Hand-tight is sufficient. Never turn the stick housing if it is already in the inverter. The cabling in the inverter will then be damaged.

The WiFi antenna in the box that is included is only required for software updates. Install it for later use.

Connect consumption meter

The meter must be connected to the rear port labeled RS485 or meter. This is a 2-wire connection to the supplied consumption meter.

This meter itself must be placed in the meter cupboard (see instructions later).

Connect the mains cable

Connect the cable to the mains according to the instructions. Pay close attention to the location of the phases and neutral in the plug.

Plug the plug into the inverter.

Connect AC backup (optional)

You can connect critical devices to the AC backup output, for example a refrigerator or emergency lighting. This output normally receives its voltage from the grid connection of the inverter. If the mains voltage fails, it will automatically supply from the battery or from the panels. These devices must therefore be placed on a separate circuit (with the correct protection (group/ALS)).

This makes the inverter ready for use.

If no battery or meter is connected and the inverter is used as a standard on-grid inverter, it can be switched on immediately.

After starting, you must set in the Advanced Settings menu that there is no meter and no battery.

Otherwise the orange alarm LED will continue to flash with a MET_COM_fail or CAN_COM_fail message.

Go to Adv. Settings > Energy Storage Set > Battery Control > Battery Select and choose “NoBattery”

Go to Adv. Settings > Energy Storage Set > Meter Select and choose "NoMeter".

2. Install battery

Make sure the battery is placed or hung on a sturdy surface according to the instructions.

Follow all supplier safety warnings (weight, installation and electrical safety).

Follow the battery supplier's manual to connect it. The type of connector for connecting the + and – of the battery may be different from that of the inverter. Then cut these off and replace them with the plugs supplied in the inverter box.

After starting, you must set which battery is connected on the inverter in the Advanced Settings menu.

Otherwise the orange alarm LED will continue to flash with a CAN_COM_fail message.

Go to Advanced Settings > Battery Control > Battery Select and choose the correct battery.

Note: After a CAN bus error, we recommend switching off the entire battery and inverter and switching it on again.

3. Install consumption meter

The meter is best installed in or near the meter cupboard.

The meter must be connected to the 3 voltage measuring points and with 3 current coils for measuring the current.

The 3 current coils must be mounted FOR all connected consumers. If this does not happen, the inverter will register an incorrect yield and the yield control of the inverter will not work or will not work sufficiently.

The 2-wire RS485 must be connected to the inverter.

Two brands of meters are included: Accrel or Eastron. Please note: the connection of the phases runs from left to right for the Accrell and vice versa for the Eastron!

Also ensure that the current coil of a phase is on the same phase where the voltage is measured. In other words phase 1 is brown and connected to L1 of the meter, the current coil of L1 must also be around the brown wire and connected to I1.

If necessary, also check that the current ratio has been selected correctly in the meter (see Eastron/Accrel meter manual). For example, if the supplied current coils do not fit or the measuring range is not good, you can use other current coils. You must also set the current ratio in the meter to the correct value.

After starting, you must then set which meter is connected in the Advanced Settings menu.

Otherwise the orange alarm LED will continue to flash with a MET_COM_fail message.

Go to Advanced Settings > Meter Select and choose the correct meter.

Finally, the working mode of the inverter must be set. Usually it is sufficient to set the inverter to SelfUse. This is the default mode.

(Advanced Settings > Stg Energy Set > Storage Mode Set > SelfUse ON > Save > Esc)

and then exit the menu. The inverter then determines the best charging and discharging process itself.

4. General

- In Advanced Settings > Select Gridcode you must select the right country.

- The cable from the current coil (CT) to the meter must remain short: if it is lengthened, the measurement accuracy decreases. The RS485 cable between meter and inverter may be up to 100 meters long.