Instructions for connecting the
AC•THOR / AC•THOR 9s to Studer Xtender

Combining the AC•THOR with a Studer Xtender inverter allows the use of excess photovoltaic power, which cannot be stored in the battery, to generate hot water. When the battery is fully charged, the Studer Xtender inverter increases the AC output frequency. The AC•THOR detects the rise in frequency and increases the heating power accordingly.

⚠ my-PV cannot be relied on to prevent battery damage at all times, since although the AC•THOR acts as a "dump load", it is still not always possible to guarantee overcharge protection (e.g. when the target hot water temperature is reached).
The overload protection must be guaranteed by the charge controller or the PV inverter! Deep discharge protection via the inverter is similarly imperative.

1. Basic settings on the AC•THOR

Please read the installation and operating instructions supplied with the device before starting it up.

⚠ The AC•THOR must always be taken into account when planning loads!

2. Settings on Studer Xtender

⚠ The Studer Xtender is not set to frequency control at the factory!

In the RCC 2, the following parameters under Xtender Settings must be configured:

1. Mains frequency set
   Set parameter {1112} to 50 Hz

2. Frequency parameter control
   Set parameter {1549} to "Ja / Yes"
   When this parameter is activated, the output frequency will change in proportion to the battery voltage.

3. Maximum increase in output frequency
   Define {1546} parameter
   This parameter determines the extent to which the output frequency can be increased.

   ⚠ To facilitate the operation of the AC•THOR it is essential that this value is at least 1 Hz as the device performs the power adjustment in the range of +0.5 Hz to +1.0 Hz. The extent to which this value can exceed 1 Hz depends on the PV inverter.

4. Control speed
    Set parameter {1534} to -4 (corresponds to 1/16 of the factory setting)
    Determines the speed at which the output frequency varies. The slowest available speed
    is usually the preferred choice.

5. Ground relay
    Set parameter {1485} to «No»

3. Properties of the off-grid system

Since the AC input and output are separate at the Xtender, the power of the battery inverter matters
for the AC•THOR, not the power of the PV inverter. Like all consumption devices, the AC•THOR is
connected to the AC output of the Xtender via the off-grid net.

4. Circuit plan
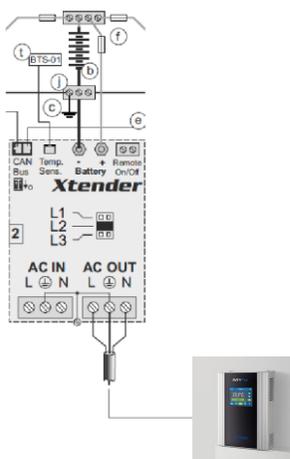
Subject to change.

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