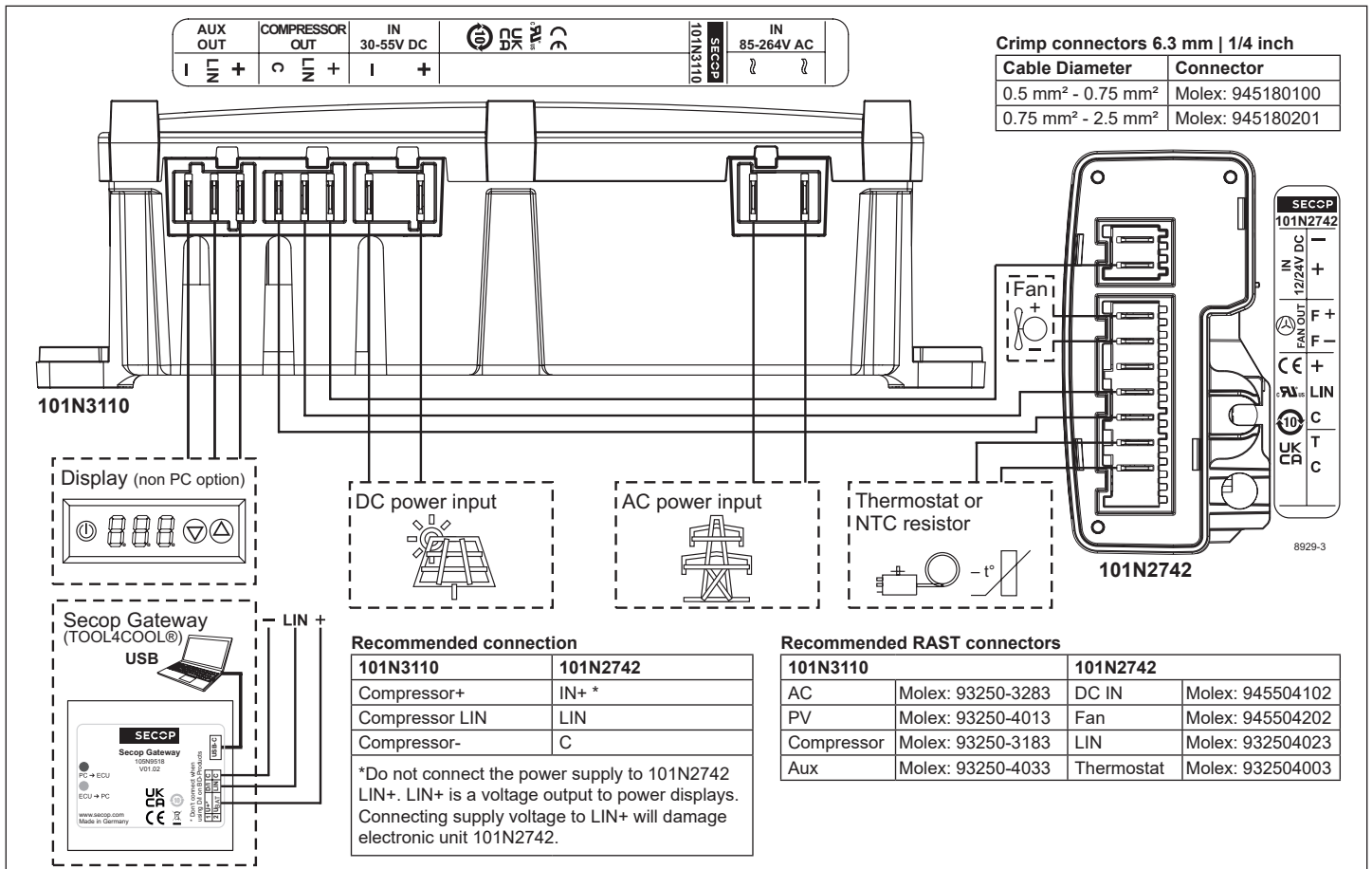


Instructions

SDD Power Management Module 101N3110 30-55V DC for Electronic Unit 101N2742

SECOOP



ENGLISH

The SDD Power Management Module (SDD PMM) is a specialized add-on power supply for off- and weak-grid appliances using the BD Nano compressor. The SDD PMM offers a wide range AC Input, a DC Input for direct PV panel connection with MPPT algorithm, a control and power output for a BD Nano compressor, as well as a DC Output (24V, 30W max.) and a AUX I/O. The AUX I/O is LIN compliant and offers a modbus interface which is compatible to the Secop Gateway (109N9518) and is configurable via the free TOOL4COOL® software.

The SDD PMM can be controlled by a master controller, attached to the AUX I/O port to allow customers developed algorithms for MPPT, speed and temperature control.

Installation

The SDD PMM can be mounted using 4 screws. The interconnection between the compressor's electronic unit and SDD PMM shall be executed as stated in this document.

AC power input

The AC input is capable to supply the compressor and aux. output unit from 85V to 264V AC input between 40Hz and 65Hz. The unit itself is enclosed in plastic and has no protective earth. It can withstand voltages up to 510V AC without damaging the power supply.

The AC supply has no internal fuse and shall be fused with a standard 10A household circuit breaker.

PV input

The PV Input is designed to be used with up to 72 cell panels, combinations of different panels are possible. The input is optimized for an input voltage of 34V, the lowest (configurable) cut in is 25V, the highest (configurable) cut-out is 57V. The unit can withstand voltages up to 58V without getting damaged and is protected against reverse polarity.

The PV input has no input protection and requires a 15A automotive fuse

MPPT

The SDD PMM is equipped with a tailor-made maximum power point tracking algorithm to control the compressor's rpm based on the available power of the PV panels. The MPPT algorithm is fully configurable to fit the SDD PMM to the needs of the region and product. The SDD PMM is supplied with a configuration preset for universal market needs, editable via TOOL4COOL®.

Compressor output

The compressor output is designed to be used with the BD Nano-Series controller 101N2742.

Its voltage and power output is tailored to be used with the BD Nano and not approved to use with different compressors. The compressor LIN I/O is a standard LIN interface to connect to the communication interface of the BD Nano. The SDD PMM acts as master controller to the 101N2742, and relays all configurable thermostat registers to its own communication interface. Any configurations directly to the Motor controller will be overwritten on boot of the SDD PMM.

The SDD PMM influences the compressor motor controllers rpm depending on the available solar energy (MPPT).

AUX output

The AUX Output is capable of delivering stabilized 24V and up to 30W continuous, on either PV or AC supply voltage. The AUX Connector is never disabled while the compressor output is enabled, therefore it can be used for a heater to control the cooling loop. The AUX output is disabled on powerloss or if not enough power can be supplied to operate the output (i.e. on bad sun conditions or no available AC).

AUX LIN

The AUX LIN communication interface can be used to connect a master controller, the Secop Gateway or a datalogger. It is possible to configure the SDD control operation using the free TOOL4COOL® Software and the Secop Gateway. For more details on Modbus coils accessible via the LIN interface refer to the Operating Instructions.

Error handling

If the SDD PMM or the compressor controller (electronic unit) detect an operational error, it reports the error to the LIN interface via a Modbus register. This register can be accessed using either the Secop Gateway and TOOL4COOL® or a master controller. All detected and reported errors are available in the SDD's error log and actual error register. The SDD PMM contains an internal LED which will blink the error code.

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