Manual

Automatic Mains-Generator-Inverter- Switch over for 3 AC sources LAU 325F / 340F with built-in RCBo protector

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1. GENERAL INFORMATION

1.1 PURPOSE

If an AC generator or inverter is installed on a boat or a vehicle, it is necessary to switch double pole between the shore connection and the generator / inverter.
The AC-switch over units **LAU 325F/ 340 F** are designed for the automatical switch over between 3 AC – sources with 16A / 16A / 25A (LAU325F) or 16A / 16A / 40A (LAU340F).

ATTENTION!

Please note that when installing a generator according to EN ISO 13297, a voltmeter must be available for the 230 V / 50 Hz electrical system voltage!
The system monitor PSM is provided for this purpose. This also provides information on the operational readiness of the individual sources and the status of the on-board network.
The inputs of the switch over unit must be protected by external power circuit breakers (MCB) directly at the energy sources (generator, inverter, shore connection) in accordance with the installed line cross section and the load capacity of the switch over unit!

1.2 WARRANTY

philippi elektrische systeme gmbh grants a two year limited and non-transferable warranty for the first buyer of this equipment, commencing on the date of purchase and covers defects in manufacturing, parts and materials.
Production or material defects will be corrected without costs if:
- the equipment is sent to us at the expense of the sender
- an Invoice or proof of purchase (copy) is included
- the equipment was used for its intended purpose
- no unauthorized parts were added, and the equipment was not exposed to extreme conditions

Not included in the warranty are damages from:
- overvoltage on the inputs or reverse polarity
- ingress of liquids, vapors, condensation, etc.
- lightning

Follow-up costs and normal wear and tear are not covered under warranty.

In case of warranty the defect must be clearly specified. A detailed description of the defect will help to speed up the repair.
Please note that we cannot accept carriage forward deliveries.

1.3 EXCLUSION OF LIABILITY

Both adherence to the operating instructions, and the conditions and methods used during installation, use and maintenance of the switch over unit, cannot be supervised by philippi electrical systems gmbh. Therefore we do not take any responsibility for loss, damage or costs, which develop due to incorrect installation and/or inappropriate use.

1.4 QUALITY MANAGEMENT

During the process of manufacturing, all devices pass several checks, controls and tests. Production, controls and tests are all performed to strict protocols. Each switch over unit has its own serial number. Please do not remove this label.
The assembly and testing of all switch over units devices is carried out completely in our company at Remseck am Neckar, Germany.

2. SAFETY REFERENCES

- unauthorized changes to the equipment will invalidate the CE sign
- the installation of the switch over unit may be made only by electrical specialists.

The assembly and operating instruction is a component of the switch over unit package. It must be kept (for reference). Importantly: - for later maintenance work - and for the use of subsequent owners of the equipment.

3. PRINCIPLE

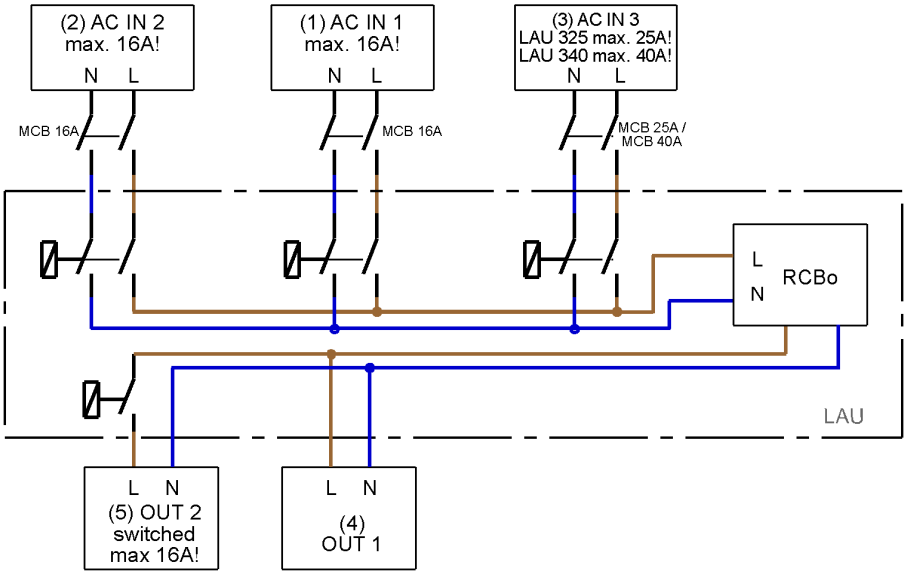
The switching units LAU 325F / 340F automatically switch between three AC sources according to a defined priority. The AC voltage must be within a valid range (factory setting 180-250 V AC) in order to switch to the respective AC source.
The priority is factory-set as follows: Input 3 has priority over input 2 and input 1. This can be changed at any time via the system monitor PSM. The switchover time between the individual AC sources is factory-set to 3 seconds and can be changed at any time via the system monitor PSM.
There are 2 outputs available. Output 1 is the general output and is active for all AC sources. Output 2 is only active for certain AC input sources. For example, a charger is connected to output 2 in order to prevent the charger from operating when the inverter is active, or to allow the air conditioning system to be operated only when the generator is active.
Output 2 is only active for sources 2 and 3 at the factory. This can be adapted at any time via the system monitor PSM.

The switching unit LAU is designed for connection to a PBUS-Network. For this, an optional M12 connection cable (order no. 504111161) is available.
The system monitor PSM shows the current AC voltages of the individual inputs and the frequency of the currently active AC source. If an additional transducer ACW is used additional data such as AC current (A) and kilowatt hours (kWh) of the AC on-board system is available.
All settings can be adjusted to the needs.
See also chapter 6 and the System Monitor PSM Instruction Manual.

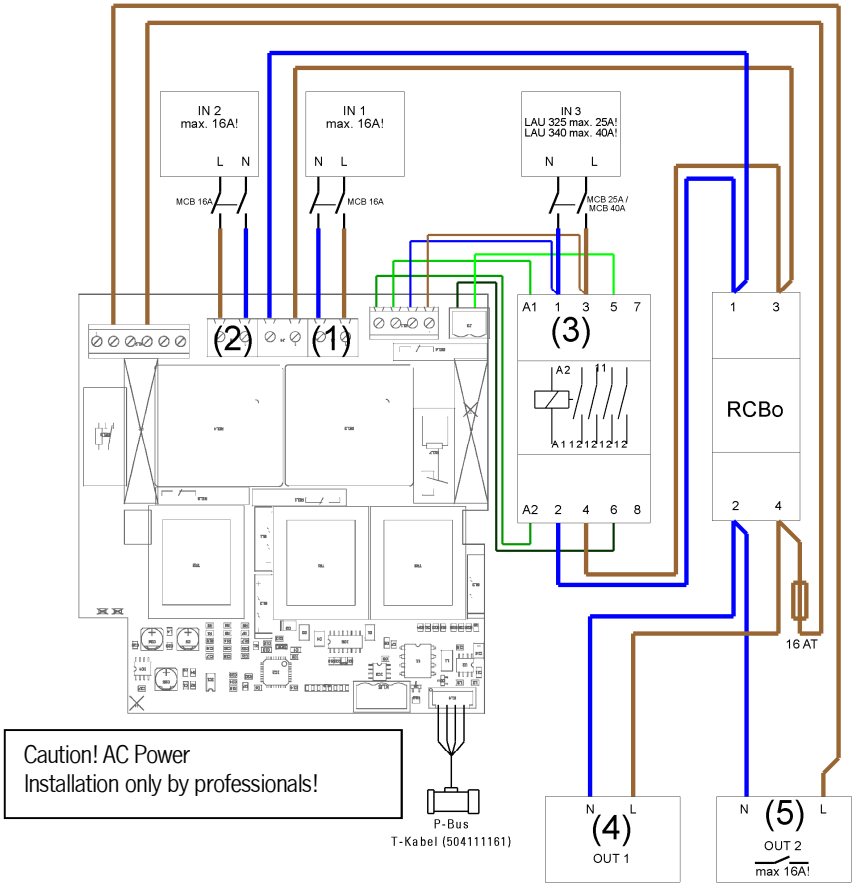
We recommend the following input configuration:

LAU 325/340:
(3) Generator
(2) Mains (max. 16 A)
(1) Inverter (max. 3,6 kW)

Connection diagram:

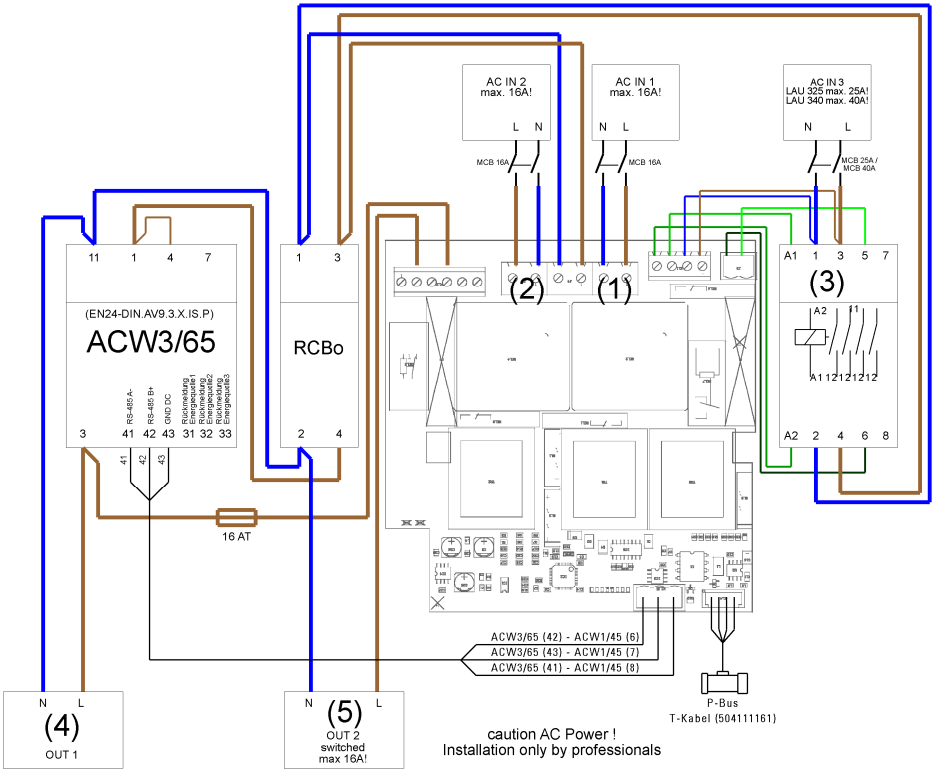


4. CONNECTION LAU 325F / 340F



The circuit diagram shows the connection of the switching unit LAU to 3 AC sources. The inputs 1, 2 and 3 of the switching unit LAU must be protected with external RCBo circuit breakers.
The loads, which are always active, are connected at output 1 (terminal 4), and at output 2 (terminal 5) those loads are connected, which may only be active at certain sources. Please note that this output can only be loaded up to 16 Amps. If this load-bearing capacity is not sufficient, then a power contactor can be controlled with this output.
Wiring:
Terminal 1: Input 1
Terminal 2: Input 2
Terminal 4: Output 1
Terminal 5: Output 2 (switched)

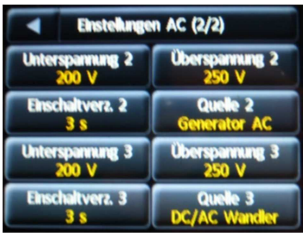
5. CONNECTION LAU 325F / 340F WITH ACW



The circuit diagram shows the connection of the switching unit to 3 AC sources. The inputs 1 and 2 of the switch over unit LAU must be protected with external line circuit breakers MCB 16A. The third AC source is connected via an external contactor not mounted on the circuit board and is connected according to the circuit diagram.
The output 1 is available for the loads, which are always active, and the output 2 is routed via the internal load exclusion. Output 2 is therefore only active for certain sources. Please note that this output can only be loaded up to 16 Amps. If this load-bearing capacity is not sufficient, then a power contactor can be controlled with this output.

Wiring:
Terminal 1: Input 1
Terminal 2: Input 2
Terminal 3: Input 3
Terminal 4: Output 1
Terminal 5: Output 2 (switched)

6. ADJUSTMENTS BY USING THE SYSTEM MONITOR PSM



- Priority of inputs
- Output 2 active at which source
- Name of the AC source
- Valid voltage range of the AC source
- Switchover delay
- Hysteresis undervoltage (switch-off threshold is lower by xx volts than switch-on threshold)

7. TECHNICAL DATA

Nominal voltage	230Volt / 50 Hz AC
AC input 1 & 2	16A
AC input 3	LAU 325F: 25A, LAU 340F: 40A
AC output 1	LAU 325F: 25A, LAU 340F: 40A
AC output 2	16A
Dimensions (WxHxD)	266 x 200 x 115 mm (LAU 325F), 335 x 270 x 145 mm (LAU 340F)

8. DECLARATION OF CONFORMITY

This device fulfills the requirements of the European regulation:

CE

2004/108/EG "ElectroMagnetic Compatibility"
Immunity EN 61000-6-1
Emission EN 61000-6-3
2006/95/EG „Low Voltage Directive"

The conformity to this regulation is certified by the CE - sign.

9. DISPOSAL NOTE

Please take care of your local directives on waste electrical and electronic equipment.
Please use collection points for waste electrical and electronic equipment.