



LAR Order-No.: **0 1000 0231**

The mains indication panel LAR shows the correct electrical connection of the AC onboard system to the AC shore power: Green light: all correctly connected Red light: reverse polarity. Leakage current 1.4 mA. Cannot be used for AC systems with 2 phases without protective earth PE, otherwise always a fault indication is displayed.

Dimensions W 105 x H 52,5 x D 50 mm

These shore connection units are available to match the 200 series circuit distributors. The electrical connection is made at screw terminals. The rear electrical construction is designed to be backhand-safe to protect against electric shock. The panel must be installed in such a way that the rear side is only accessible and covered with tools.



LAE 233 Order-No.: **0 1000 2332**

3 double pole power circuits with thermal circuit breakers 10A for AC 230V / 50 Hz..

Dimensions W 105 x H 105 x D 70 mm



LAE 235 Order-No.: **0 1000 2350**

Shore power unit with RCBO leakage protector (16A/ 30mA), power indication light and a Schuko socket. Connection with terminal clamps on rear side..

Dimensions W 105 x H 210 x D 100 mm



LAE 232 Order-No.: **0 1000 2320**

Shore power unit with RCBO leakage protector (16A/ 30mA), power indication light and 2 double pole thermal circuit breakers 10 A for 230V / 50 Hz. Connection with terminal clamps on rear side.

Dimensions W 105 x H 210 x D 100 mm



LAE 236 Order-No.: **0 1000 2362**

6 double pole power circuits with thermal circuit breakers 10A for AC 230V / 50 Hz.. A panel with a RCBO leakage protector has to be installed before the input of this panel!

Dimensions W 105 x H 210 x D 70 mm



LAE 234 LG Order-No.: **0 1000 2340**
LAE 234 LGW Order-No.: **0 1000 2341**

Shore power unit with RCBO leakage protector (16A/ 30mA), 3 AC monitor lights and 4 double pole thermal circuit breakers 10 A for AC 230 V / 50 Hz. **Shore - generator (LG) or shore - generator - inverter (LGW)** - switch over and voltmeter 230 V. Connection via terminal clamps on rear side. Stronger versions are available on request.

Dimensions W 210 x H 210 x D 110 mm



LAE 234 LGK Order-No.: **0 1000 2342**

Shore power unit for **inverter/charger-combination** with shore-generator-switch over with switching off of designated consumers while inverter operation. RCBO leakage protector (32 A/30 mA), 3 AC monitor lights and 4 double pole thermal circuit breakers 10 A for AC 230 V/50 Hz. Shore-generator-switch over (25A) and voltmeter 230 V. Connection via terminal clamps on rear side. Generator set max. 6 kW. Stronger versions are available on request.

Dimensions W 210 x H 210 x D 110 mm



LAE 100

Order-No.: 0 1000 1003

Shore power connection unit for 230 V/50 Hz cycles supply. AC control lights show correct shore power connection. Connection at rear side of unit for 230 V via through lead clamps.

RCBO leakage protector	RCBO 16A/0,03A 2-pole
Dimensions	W 150 x H 185 x D 100 mm
Cut-out measurements	W 125 x H 160 mm



LAE 101

Order-No.: 0 1000 1010

Shore power connection unit for 230 V/50 Hz cycles supply and Schuko-Socket. AC control lights show correct shore power connection. Connection at rear side of unit for 230 V via through lead clamps.

RCBO leakage protector	RCBO 16A/0,03A 2-pole
Dimensions	W 185 x H 150 x D 100 mm
Cut-out measurements	W 160 x H 125 mm

Our shore power units are built according to EN ISO 13297 using best components available. Included in the delivery is a manual and a CE - certification in case of need of an acceptance certification. The self-extinguishing plastic housing protects against inadvertent contact with terminals. The controls are fitted on anodized aluminium faced plates with plastic coating.



Encased terminals ensure protection against accidental contacts.

A simple and sure connection via through lead clamps outside of the housing. This means a shure appliance connection without problems.



LAE 113

Order-No.: 0 1000 1130

Shore power connection unit for 230 V/50 Hz with Schuko - Socket. AC control lights show correct shore power connection. 3 double pole circuit breakers 10 A for sockets, charger and heater. Connection at rear side of unit for 230V via through lead clamps.

RCBO Leakage protector	RCBO 16A/0,03A 2-pole
Dimensions	W 260 x H 185 x D 100 mm
Cut-out measurements	W 235 x H 160 mm



LAE 111

Order-No.: 0 1000 1110

Combined shore/genset or shore/inverter power unit for AC-power 230 V/50 Hz. with double pole switch over, current rating max. 25A, AC control lights show available sources, voltmeter 250 V. 4 double pole circuit breakers 10 A. Connection at rear side of unit for 230V via through lead clamps.

RCBO Leakage Protector	RCBO 25A/0,03A 2-pole
Dimensions	W 260 x H 185 x D 100 mm
Cut-out measurements	W 235 x H 160 mm



SHORE POWER CONNECTION UNITS



Type	LAE 220	LAE 211	LAE 230	LAE 205
Order-No.:	0 1000 2201	0 1000 2110	0 1000 2300	0 1000 2050
Ratde voltage	AC 230V/50Hz	AC 230V/50Hz	AC 230V/50Hz	AC 230V/50Hz
Version		incl. Schuko socket		
Type of circuit breaker	RCBO (FI/LS) 16A/0,03A 2-pole	RCBO (FI/LS) 16A/0,03A 2-pole	RCBO (FI/LS) 16A/0,03A 2-pole 2 x MCB 10 A 2-pole	1 x MCB 16A 2-pole
Housing	Plastic with flap cover	Plastic with flap cover	Plastic with flap cover	Plastic with flap cover
Control	AC control-LED	AC control-LED	AC control-LED	AC control-LED
Connection	at RCBO-leakage protector	at RCBO-leakage protector	at RCBO-leakage protector	at MCB-circuit breaker
Dimensions	W 80 x H 150 x D 97 mm	W 80 x H 250 x D 92 mm	W 160 x H 200 x D 115 mm	W 80 x H 150 x D 97 mm
Protection	IP 65	IPX 4	IP 65	IP 65
Application	AC connection unit for shore power	AC connection unit for shore power	AC connection unit for shore power and sub-circuit protection of 2 load circuits	Protection of supply line from the shore power connect. to RCBO-leakage protection if the distance exceeds > 3 m

BOW STERN SWITCH OVER

If there is a shore power connection for each bow and stern a double pole switch must be used for separation of the two provided inputs. The switch keeps the unused connectors free of potential. If no switch is used, dangerous voltage occurs because the pins at the flange plug of the unused shore power connection are also at AC main power voltage. Danger of life!



CAG 20 BH	Order-No.: 6 4120 2111
Switch over to select two feed lines (bow / stern), manual , max. 25 A	
Dimensions	W 82 x H 92 x D 92 mm
LAE 241	Order-No.: 0 1000 2410
Switch over to select two feed lines, automatic , max. 16 A	
Dimensions	W 94 x H 94 x D 81 mm

Model for Switzerland



LAE 220 CH	Order-No.: 0 1000 2205
Shore power connection unit for 230 V/50 Hz supply for Switzerland . AC control -LED shows shore power connection. Circuits are connected inside to the clamps of the 2-pole automatic RCBO leakage protector. Cable lead with grommets. Watertight full plastic housing with flap cover. Protective system IP 65.	
RCBO Leakage protector	13A / 0,03A 2-pole
Dimensions	W 80 x H 150 x D 97 mm
LAE 212 CH	Order-No.: 0 1000 2120
Shore power connection unit for 230 V/50 Hz supply with 2 sockets for Switzerland . AC control -LED shows shore power connection. Circuits are connected inside to the clamps of the 2-pole automatic RCBO leakage protector. Cable lead with grommets. Watertight full plastic housing with flap cover. Protective system IP IPX4.	
RCBO Leakage protector	13A / 0,03A 2-pole
Dimensions	W 80 x H 250 x D 92 mm



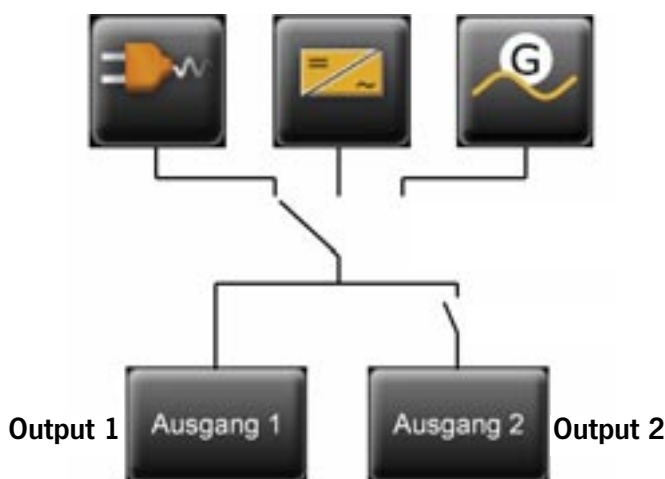
Switch over of several energy sources

If a generator and/or inverter is to be able to feed into the existing AC on-board power supply system in addition to the shore connection, a switchover unit is required to separate and safely switch over the individual energy sources. The switch-over units work with delayed switch-over between the individual sources in order to

prevent the danger of a short circuit caused by phase shift of the sources and inductive load currents. When retrofitting a changeover unit, care must be taken to ensure that the outputs are protected by RCBO (FI/LS) circuit breakers. are connected to a RCBO leakage protector.

Automatic switch-over devices are used for convenient grid switching between the shore grid, on-board generators and/or inverters. The LAU series switch-over units measure the mains input voltage of the respective power sources and only switch them on to the on-board power supply when they meet the requirements on board. This means that AC generators are only switched on when they have started up correctly and have reached their nominal voltage. An additional output circuit ensures that, e.g. during inverter operation, the function of the charger and boiler is excluded in order to protect the batteries from unintentional discharge.

The LAU switch-over units are prepared for connection to the philippi P-BUS via (ACE-T cable required). On the PSM2 and PSL system monitors, the changeover delay time and voltage thresholds can be adjusted to the respective energy sources. The active source and the AC voltage are displayed on the screen.





If an AC interface CAV is installed, the power data of the AC system are recorded and displayed in addition to the voltage

The LAU changeover units are offered as a pure changeover unit for retrofitting in existing systems or with integrated RCBO (FI/LS) circuit breaker and, on request, with space for the integration of additional components such as Interface CAV (page 43) or MCB miniature circuit breaker. The shore power connection units can be adapted to your requirements in terms of the number and capacity of energy sources and consumers.



Type	LAU 216	LAU 216 F	LAU 325	LAU 325 F	LAU 340	LAU 340 F
Order-No.:	0 1100 2160	0 1100 2161	0 1100 3250	0 1100 3251	0 1100 3400	0 1100 3401
Rated voltage	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
AC-input 1	16 A	16 A	16 A	16 A	16 A	16 A
AC-input 2	16 A	16 A	16 A	16 A	16 A	16 A
AC-input 3	-	-	25 A	25 A	40 A	40 A
RCBO	-	16 A / 30 mA	-	25 A / 30 mA	-	40 A / 30 mA
AC-output 1	16 A	16 A	25 A	25 A	40 A	40 A
AC-output 2	16 A	16 A	16 A	16 A	16 A	16 A
Dimensions (WxHxD)	160 x 200 x 115 mm	195 x 200 x 115 mm	266 x 200 x 115 mm	266 x 200 x 115 mm	335 x 270 x 145 mm	335 x 270 x 145 mm
P-BUS connection	yes, ACE-T-adaptor necessary (Order-No.: 5 0411 1161)					

▶ ROTARY SELECTOR SWITCHES FOR AC 230V

 <p>CAG 20 LG</p>	 <p>Leer CA</p>	<p>■ CAG 20 LG Order-No.: 6 4120 2110</p> <p>Manual switch over to select two feed lines (shore/genset), max. 25 A</p> <p>Dimensions W 82 x H 92 x D 92 mm</p>
		<p>■ Leer CA Order-No.: 0 2900 2060</p> <p>Blank plate for easy mounting of a rotary selector switch of the series CH 16 for example in a wooden wall. Delivery without rotary selector switch.</p> <p>Dimensions W 70 x H 70 x D 3 mm</p>

For assembly on front plates with a max. thickness of 5 mm. For bigger thickness please use blank panel CA.

					
Switch	Main switch 0-1	Shore Generator switch over 1-0-2	Shore Inverter switch over 1-0-2	Shore Generator Inverter switch over 1-0-2-3	Shore Generator Inverter switch over 1-0-2-3, with limit on use of charger while inverter op.
■ Type	CH 16 A 291	CH 16 A 211 LG	CH 16 A 211 LW	CH 16 A 251	CH 16 D 926
■ Order-No.:	6 4020 2910	6 4020 2110	6 4020 2111	6 4020 2510	6 4020 7980
Max. load	25 A	25 A	25 A	25 A	25 A
Front/Mounting depth	48 x 48 / 44 mm	48 x 48 / 58 mm	48 x 48 / 58 mm	48 x 48 / 86 mm	48 x 48 / 86 mm
■ Type	CA 63 A 291	CA 63 A 211 LG	CA 63 A 211 LW	CA 63 A 251	CA 63 D 926
■ Order-No.:	6 4042 2910	6 4042 2110	6 4042 2111	6 4042 2510	6 4042 7980
Max. load	63 A	63 A	63 A	63 A	63 A
Front/Mounting depth	64 x 64 / 43 mm	64 x 64 / 56 mm	64 x 64 / 56 mm	64 x 64 / 81 mm	64 x 64 / 81 mm

▶ WATERTIGHT CONNECTOR FOR SHORE POWER 230V/50HZ

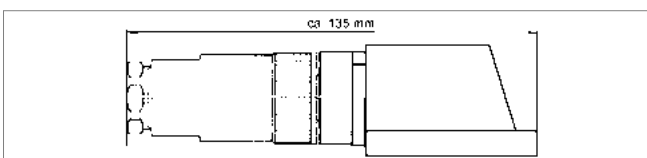



Complete plug connection for shore power connection 230V/50Hz-16A "RS 692 Land" includes: coupling socket and flange plug (2 pole + PE), two protective caps and angular housing with compact dimensions. Ideal for space saving on board. Protective system - IP 67.

To protect against inadvertently damaging of the coupling plug you can use the stainless steel protective clamp 570.

Matching shore power cables you find next page.

	<p>■ RS 692 Land GL/DK Order-No.: 4 0692 3002</p> <p>Complete plug connector for shore power supply 230 V/50 Hz -16 A (2+PE). Includes coupling socket, flange plug, two protection caps and angular housing.</p>
<p>■ RS 692 Land GL Order-No.: 4 0692 3003</p> <p>Identical to RS 692-Land GL/DK, but without angular housing (no picture).</p>	



<p>■ 570 Order-No.: 0 0570 0000</p> <p>Stainless steel protective clamp to prevent damage of angular mounted round plug of the 692 series.</p>	
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Attention: normal CEE-coupling plugs cannot be used in connection with the MP16-10!

Ready made yellow marine cord sets with watertight moulded connectors make these AC connector system the perfect choice! Watertight and rugged.

Integrated in the cord set connector is a LED power indicator light.

The new MP16 shore power system has been designed to hook up your boat quickly and easily. Based on the world standard CEE connectors this system offers a reliable and approved shore power connection. The corrosion resistance stainless steel power inlet adds to the finishing touch of every boat. Easy locking waterproof cap (IP 56) .



MP 16-10 Order-No.: 7 0050 1610

Flange plug with stainless steel housing 16A
Outer- \varnothing 87 mm, hole- \varnothing 48 mm, -depth 52 mm.



MPS 16-10 Order-No.: 7 0050 1611

Coupling plug for self mounting connecting cable.(without indication-LED) 16A.



Finished manufactured cable with moulded CEE coupling plug and socket with protecting cap. Yellow weatherproof PUR cable type H07BQ-F.

MPC 2.5-15 Order-No.: 7 0050 2821

Cable 3x2,5 mm², 15m, for MP16/10

MPC 2.5-25 Order-No.: 7 0050 2822

Cable 3x2,5 mm², 25m, for MP16/10

MPC 4-25 Order-No.: 7 0050 2832

Cable 3x4 mm², 25m, for MP32/16, up to 25A

MPC 6-25 Order-No.: 7 0050 2838

Cable 3x6 mm², 25m, for MP32/16, up to 32A




MP 32-16 Order-No.: 7 0050 3216

Flange plug with stainless steel housing 16A
Outer- \varnothing 107 mm, hole- \varnothing 75 mm, -depth 100 mm.



MPS 32-16 Order-No.: 7 0050 3217

Coupling plug for self mounting connecting cable.(without indication-LED) 32A.




H07BQ-F, 3x2,5 mm² Order-No.: 7 0050 2530
Max. current 16A, tinned lines

H07BQ-F, 3x4 mm² Order-No.: 7 0051 4030
Max. current 25A, tinned lines

H07BQ-F, 3x6 mm² Order-No.: 7 0051 6030
Max. current 32A, tinned lines

Yellow watertight PUR-cable H07BQ-F. Ideal for shore power cables. Details please see page 93.



H07RN-F, 3x2,5 mm² Order-No.: 5 0730 2530
Max. current 16A

H07RN-F, 3x2,5 mm² 50m No.: 5 2730 2530
Max. current 16A, cable 50m

Black weatherproof neopren isolated cable H07RN-F, Details please see page 93.



MPB Order-No.: 7 0050 7021

Shore power organizer bag

CEE-Connection with protective system IPX7

CEE shore power waterproof built on plug 2+PE, 230V/50Hz - 16A is designed to be mounted on deck or at the stern of yachts. The angular build on housing of the plug allows easy handling.



CEE-GS wd Order-No.: 6 0602 3569

Waterproof CEE built-on plug 2+PE, 230V/50Hz - 16A with threaded terminal end, Protective system IPX7.

Dimensions L 150 x W 75 x H 90 mm

CEE-KD-wd Order-No.: 6 0600 0540

Waterproof CEE-coupling socket 2+PE, 230V/50Hz - 16A with screw hold, IPX7.

Dimensions L 160 x \varnothing 79 mm

CEE-KS Order-No.: 6 0003 6504

CEE coupling plug 2+PE, 230V/50Hz - 16A. Threaded terminal end. Protective system IP X4/Splash proof

Dimensions L 150 x W 75 x H 90 mm

CEE-WKD Order-No.: 6 0003 6524

CEE Angular socket 2+PE, 230V/50Hz - 16A Threaded terminal end. Protective system IP X4 - splash proof

Dimensions L 90 x W 100 x H 55 mm

CEE-KD Order-No.: 6 0003 6502

CEE coupling socket 2+PE, 230V/50Hz - 16A. Threaded terminal end

Dimensions L 133 x W 52 x H 72 mm

CEE-GSS Order-No.: 6 0003 6513

CEE built-in unit plug with sliding cover, 2+PE, 230V/50Hz - 16A. Protective system IP X4 - Splash proof

Dimensions W 100 x H 122 x D 130 mm

CEE-GSR Order-No.: 6 0003 8160

CEE built-in unit plug with cover, 2+PE, 230V/50Hz - 16A. Protective system IP 66 - splash proof

Dimensions W 83 x H 75 x D 103 mm

CEE-GSK Order-No.: 6 0003 6511

CEE built-in unit plug with flap cover, 2+PE, 230V/50Hz - 16A. Protective system IP X4 - splash proof

Dimensions W 103 x H 163 x D 80 mm

Watertight CEE connector for installation in external, but protected area.

High quality CEE - coupling plugs & sockets from German manufacturers.



MP-CEE 2.5-15 Order-No.: 7 0050 2834

MP-CEE 2.5-25 Order-No.: 7 0050 2835

Ready made CEE-extension cordset with moulded CEE-coupling plug and coupling socket with protective cap. Yellow weatherproof PUR cable type H07BQ-F. 3x2,5 mm². Length 15 m or 25 m.



SPC Order-No.: 7 0057 0038

Shore Power Clip - Set with 6 pcs. clips for shore power connection cable. Very useful to fix the cable to the guard rail - no more slipping on this cable!