

# AC16 POWER SYSTEM



## AC16 Basic Kit



*User instructions and installation guide*

## INTRODUCTION

We congratulate you on choosing your new marine shore power system. This system is a member of a family of marine products from Ratio Electric.

The AC16 shore power system provides a complete plug & play power system for boats.

Read this manual prior to installing and using the system.

## SAFETY

- **WARNING!** This system has been designed and approved for installation by those who has read and follow the instruction in this installation guide. A qualified electrician is not required for installing the system. For this reason it is prohibited to make any adjustments or modifications to the component parts of the system. Changes could mean life threatening consequences to people in and around the boat.
- **WARNING!** This system must not be used without proper installation of the electrical cabinet according to attached installation instruction.
- **WARNING!** The power feed from the shore may not be connected to the boat before the entire system has been installed in the boat. Connecting the power from an outside source otherwise risks exposing people in and around the boat to life threatening hazards.
- **WARNING!** The shore power system's protective earth must be electrically connected with all the electrically conductive devices in the boat that have a connection to earth, for example, via the water. Failure to do this will result in immediate mortal danger to people in or around the boat in the event of a fault to the electrical equipment connected to the shore power system.
- **WARNING!** In order for the system to be able to provide protection against personal injury in the event of a fault in one of the electrical devices connected to the system, the system's electrical cabinet must be a part of the installation.
- **WARNING!** The electrical cabinet on shore, that the shore power cable is connected to, should be regarded as a part of the installation. This is because the shore power system's protective earth must be able to provide protection against personal injury in the event of a fault in any part of the system.
- **WARNING!** Mains plugs are not the same in all countries and may have a different earth. If the electrical system is connected to the land power supply through an adapter cable then it must be carried out in accordance with the national heavy current regulations.
- **WARNING!** The utmost caution must be observed when using electrical tools in conjunction with work close to or in direct connection to water. Electrical tools that fall into the water represent mortal danger to people who are partially or fully in the water.
- **WARNING!** Installation may mean the need for holes in walls and parts of the boat's hull. As a result of this, the greatest possible caution must be observed to ensure that no form of leakage occurs where peripheral lake or sea water may penetrate your boat.
- **NOTE!** The electrical cabinet must not be mounted more than 3 metres from the power inlet.

## THE FOLLOWING PARTS ARE INCLUDED IN THE SYSTEM

- Shore power cord set p/n 2801
- Stainless steel shore power inlet 16A
- Internal cable 1m
- Electrical cabinet
- Internal cable 2m
- Wall socket

## TECHNICAL DATA

### SHORE POWER CORD SET p/n 2801

Dimension	Ø 8,5mm
Temperature range	-40°C - +80°C
Insulation class	IP56
Conductor area	3 x 1.5mm <sup>2</sup>
Voltage	250V AC
Current	10A AC
Length	15m
Weight	2,10 kg



### STAINLESS STEEL SHORE POWER INLET 16A

Dimension	Ø 90mm
Length of connection cord	40cm
Insulation class	IP56 / IP68 (cord)
Conductor area (connection cord)	3 x 2.5mm <sup>2</sup>
Voltage	250V AC
Current	16A AC
Weight	0,51 kg



### ELECTRICAL CABINET

Dimension (L,W,H)	210x100x100mm
Insulation class	IP55
Voltage	250V AC
Current	16A AC
Weight	0,67 kg



### INTERNAL CABLE

Dimension	Ø 11,30mm
Cable lengths	1m, 2m
Insulation class	IP66/68
Conductor area	3 x 2.5mm <sup>2</sup>
Voltage	250V AC
Current	20A AC
Weight	0,22 kg (1m) 0,43 kg (2m)



### WALL SOCKET

Dimension (L,W,H)	230x75x65mm
Insulation class	IP44
Voltage	250V AC
Current	16A AC
Weight	0,33 kg



## INSTALLATION OF THE SYSTEM IN THE BOAT

### PREPARATIONS

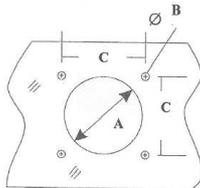
Lay out the system components and cables. Check that the length of the cables is sufficient when taking the placement of the system apparatus into consideration.

### ASSEMBLY OF POWER INLET

1. The electrical installation must be switched off during installation.
2. Install the power inlet according to the stated instruction and directions in the manual.

To install the power inlet, proceed as follows:

1. Make a cut out in ship's hull using the outline drawings.
2. Position the gasket and inlet over the hull opening, align the mounting holes and attach the inlet over the hull with screws. Install the inlet with 4mm stainless steel screws.



A: 55 mm  
B: 4,5 mm  
C: 50 mm

### SURFACE MOUNTING OF ELECTRICAL CABINET

Select a suitable place for fitting the electrical cabinet on a wall. Drill 2 holes of 4.5mm diameter and use 2 stainless steel screws with a flat bottom to mount the electrical cabinet.

### SURFACE MOUNTING OF DOUBLE WALL SOCKET

Select a suitable place for fitting the double wall socket. Drill 2 holes of 4.5mm diameter and use 2 stainless steel screws with a flat bottom to mount the socket.

### ASSEMBLY OF CABLES

Connect the internal cables to the system components, power inlet, electrical cabinet and wall sockets. In order to release the cables connected to the system devices, the accompanying dismantling tools must be used.

**NOTE!** Ensure that the cables are relieved in the entry points to the devices when assembling.

**NOTE!** Connect all live devices in the boat that have a connection to earth, for example via the water, to the earth-connection block (X0) located on the bottom of the electrical cabinet.

## SYSTEM OVERVIEW



## AVAILABLE OPTIONS

### CABLE SPLITTER 1:3

Dimension (L,W)	90x50mm
Voltage	250V AC
Current	20A AC
Weight	0,06 kg



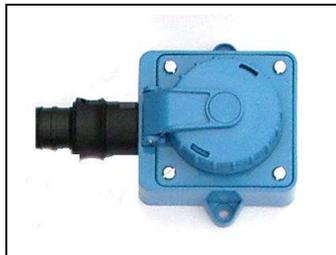
### SOCKET OUTLET 1-WAY IP44

Dimension (L,W,H)	110x75x70mm
Insulation class	IP44
Voltage	250V AC
Current	16A AC
Weight	0,24 kg



### SOCKET OUTLET 1-WAY IP68

Dimension (L,W,H)	110x90x70mm
Insulation class	IP68
Voltage	250V AC
Current	16A AC
Weight	0,35 kg



## SYSTEM DESCRIPTION

Description of the AC16 Shore power system for safe 230V installation in boats.

The shore power cable is connected at one end of the electrical cabinet on shore. The other end is connected to the boat's electrical power inlet. The internal electrical cabinet is fed via an internal cable from the power inlet. The electrical cabinet is fitted with a personal safety module containing earth fault breaker (sensitivity, 30mA) and two-pole miniature circuit breaker (16A, C characteristic).

The lamp indicates the voltage is present at the output connector.

## LIABILITY

Ratio Electric is not liable for any damages to the boat resulting from the installation of the shore power system. Furthermore, Ratio Electric is not liable for any damages to the boat resulting from the careless handling of components in the shore power system. Ratio Electric is not liable for any injuries to persons arising from incorrect installation or caused by damaged system components.

## LIMITED WARRANTY

Ratio Electric issues this limited warranty to the original purchaser of this shore power system. This limited warranty is not transferable. Ratio Electric guarantees this unit for two years from the date of purchase against defect workmanship or material. The customer must return the product together with the receipt of purchase to the point of purchase. This warranty is void if components in the shore power system are handled carelessly, opened or repaired by anyone other than Ratio Electric or its authorized representative. Ratio Electric makes no warranty other than this limited warranty and is not liable for any other costs other than those mentioned above, i.e. no consequential damages. Moreover, Ratio Electric is not obligated to any other warranty other than this warranty.

## DECLARATION OF COMPLIANCE

RATIO ELECTRIC B.V., Ambachtsstraat 12, NL-3861 RH Nijkerk, The Netherlands

Hereby declare under sole responsibility that the component parts of the shore power system that are covered by this declaration, comply with the following standards:

- The shore power system in full: ISO 13297
- Shore power cable and marine inlet: IEC 60309-1
- Electrical cabinet: EN 60439-3
- Wall socket: IEC 60884-1

Nijkerk, 01.07.2010



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