

EN

Installation and operating instructions

Last updated: 11.2022

# Control unit for dock levellers RS 200 L



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# About this document

- Original operating manual.
- Part of the product.
- Reading and subsequent storage mandatory.
- Protected by copyright.
- No part of this manual may be reproduced without our prior consent.
- Subject to changes which are in the interest of technical improvements.
- All dimensions in millimetres.
- Figures are not to scale.


## Safety instructions

 **WARNING!**

Safety information regarding a danger that can lead to death or serious injuries.



 **CAUTION!**

Safety information regarding a danger that can lead to minor or moderate injuries.

 **ATTENTION!**

Safety information regarding a danger that can lead to damage or destruction of the product.

## Meaning of symbols

- Action prompt
- ✓ Check
- List, itemisation
- Reference to other parts of this document
-  Reference to separate documents that must be observed
-  Factory settings

# 1. Safety information

## **WARNING!**

### **Risk of death due to a failure to observe the operating manual!**

This manual contains important information for handling the product safely. Particular reference is made to possible dangers.

- Read this manual through carefully.
- Follow the safety instructions in this manual.
- Store the manual in an accessible location.

## 1.1 Correct use

The RS 200 L control unit is intended exclusively for controlling dock levellers with a hinged lip.

Use is only permissible:

- In technically faultless condition.
- Following correct installation.
- In compliance with the data in the technical specifications.

→ "2.4 Technical data RS 200 L"

Any other use is deemed to be improper use.

## 1.2 Target groups

### 1.2.1 Operator

The operator is responsible for the building in which the product is used. The operator has the following tasks:

- Knowledge and safekeeping of the instruction manual.
- Instruct all persons who use the system.
- Ensure that the system is inspected regularly by qualified specialist personnel in accordance with the manufacturer's instructions.
- Make sure that the inspection is documented in the logbook.
- Safe and proper keeping of the inspection logbook.

### 1.2.2 Specialist personnel

Qualified specialist personnel are responsible for assembly, commissioning, maintenance, repair, disassembly and disposal.

Requirements applicable to qualified specialist personnel:

- Knowledge of the general and specific safety and accident-prevention regulations.
- Knowledge of the relevant electrical regulations.
- Training in the use and care of appropriate safety equipment.
- Ensure knowledge of the relevant standards.

Electrical work by qualified electricians exclusively, in accordance with DIN VDE 0100.

Requirements applicable to qualified electricians:

- Knowledge of the basics of electrical engineering.
- Knowledge of national regulations and standards.
- Knowledge of the relevant safety regulations.
- Knowledge of this operating manual.

### 1.2.3 Users

Instructed users operate and care for the product.

Requirements applicable to instructed users:

- Users are instructed in relation to their work by the operator.
- Users must have been instructed on how to use the product safely.
- Knowledge of this operating manual.

Special requirements apply to the following users:

- Children aged 8 and above.
- Persons with reduced physical, sensory or mental capabilities.
- Persons with a lack of experience and knowledge.

These users are only authorised to operate the product.

Special requirements:

- The users must be supervised.
- Users must have been instructed on how to use the product safely.
- The users must understand the dangers involved in handling the product.
- Children are not allowed to play with the product.

## 1.3 General safety advice

Persons or objects must never be moved with the aid of the system.

In the following cases, the manufacturer accepts no liability for damages. The guarantee on the product and accessory parts is voided with:

- A failure to observe these operating instructions.
- Misuse and improper handling.
- The assignment of unqualified personnel.
- Modifications or changes to the product.
- The use of spare parts that have not been produced or approved by the manufacturer.

The product is manufactured according to the directives and standards mentioned in the Declaration of Incorporation. The product has left the factory in perfect condition with regard to safety.

Batteries, accumulators, fuses and bulbs are excluded from warranty.

**Further safety information can be found in the relevant respective sections of the document.**

→ "3.1 Safety instructions for installation"

## 2. Product information

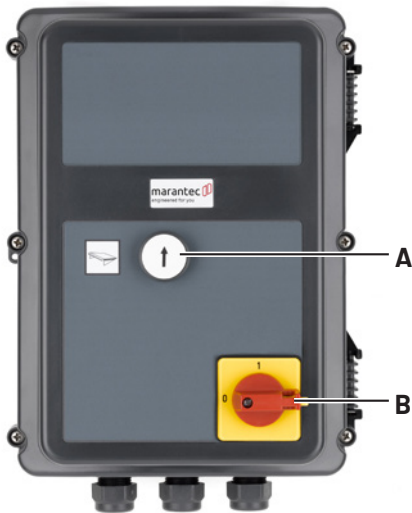
### 2.1 Description

The RS 200 L control unit can be used on a dock leveller with hinged lip and hydraulic power unit. The control unit is installed in the Marantec standard housing and generally has an integrated main switch.

The operating instructions describe the connection options and variants of the RS 200 L controller with the standard software from software version 1.0.

### 2.2 Housing overview

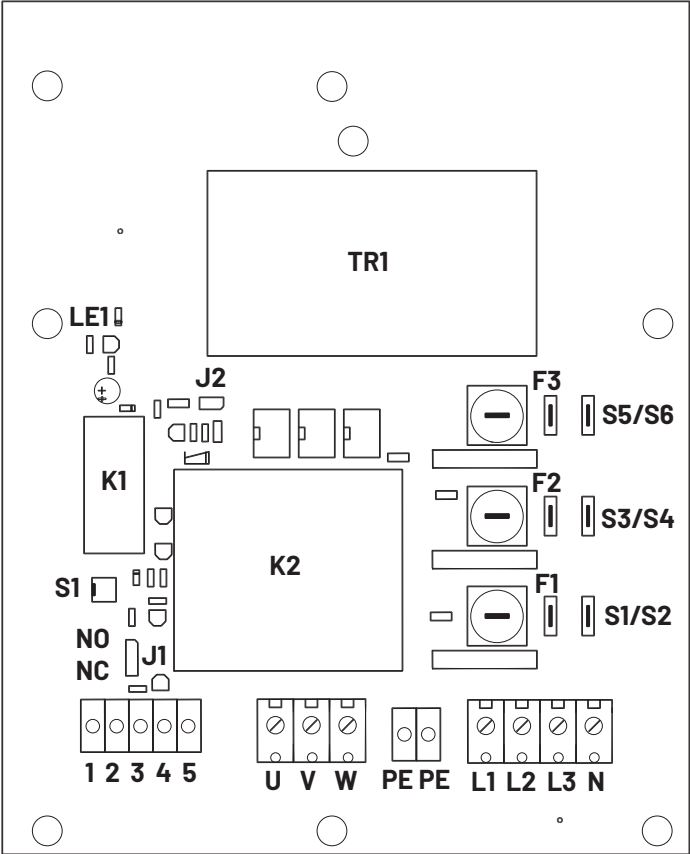
2.2 / 1



- Legend:**
- A RAISE button
  - B Main switch 3-pole

### 2.3 Circuit board overview

2.3 / 1



- Legend:**
- |                    |  |
|--------------------|--|
| S1 ... S6:         | connection mains switch                          |
| L1, L2, L3, N, PE: | terminal block mains connection                  |
| U, V, W, PE:       | terminal block hydraulic unit                    |
| 3, 4, 5:           | terminal block interlock door - leveller         |
| 1, 2:              | terminal block valve                             |
| S1:                | socket for push button leveller up               |
| K1:                | Relay valve                                      |
| K2:                | Contacteur hydraulic unit                        |
| F1-F3:             | overload protection                              |
| F4:                | Resettable PTC                                   |
| TR1:               | Transformer                                      |
| J1:                | Jumper NO/NC                                     |
|                    | Gate release                                     |
| J2:                | Jumper overload protection plugged in = inactive |

## 2.4 Technical data RS 200 L

Mechanical and electrical data	
Housing dimensions	215 x 275 x 190 mm
Mounting	Vertically, on the wall; Min. height of 1,100 mm
Supply via L1, L2, L3, N, PE :	400V/3~, 50/60 Hz 230V/3~, 50/60 Hz 100 – 270 V/1~, 50/60 Hz
Customer-provided fuse/ breaker	max. 10 A K-characteristic
Fuse control voltage (F4)	1A self-resetting
Hydraulic power unit connected load	max. 2.2 kW / 6 A Factory fuse protection 6.3 A T must be aligned with the respective hydraulic power unit.
Controller internal consumption	24 V DC, max. 0.3 A
Control voltage	24 V DC, max. 0.9 A
Valves	24 V DC, max. 0.6 A / 100 % ED
Temperature range	Operation: -10 °C to +55 °C Storage: -25 °C to +85 °C
Humidity	Up to 80% non-condensing
Vibrations	Low-vibration mounting, e.g. on a masonry wall
Protection grade	IP 44
Weight	ca. 3.5 kg

## 3. Installation

### 3.1 Safety instructions for installation



#### WARNING!

##### **Danger due to a failure to observe the installation instructions!**

This chapter contains important information for the safe assembly of the product.

- Read this chapter through carefully before assembly.
- Follow the safety instructions.
- Perform the assembly as described.

Assembly by qualified specialist personnel only.

→ "1.2.2 Specialist personnel"



#### WARNING!

##### **Risk of fatal injury due to electric shock!**

Contact with live parts can lead to electric shock, burns and death.

- It is vital that the system is disconnected from the power supply before any wiring work.
- Ensure that the electricity supply remains disconnected throughout any wiring work.



#### ATTENTION!

##### **Danger of property damage due to unprofessional assembly of the control unit!**

To avoid damaging the control unit, the following points must be observed:

- The mains supply cables and control cables must be laid separately.
- Select the cable types and cross-sections in accordance with the applicable regulations.
- It is essential to adhere to the local protection regulations.
- Observe the applicable provisions and standards.
- Pay attention to any parts of the system that could cause crushing or shearing damage.
- An all-pole main switch must be used for fixed connections.

The following points must be correct to guarantee fault-free functioning:

- The loading bridge is fitted and functional.
- The command and safety devices are fitted and functional.
- The control housing with the RS 200 L controller is fitted.



When installing the dock leveller, observe the instructions provided by the respective manufacturer of the command and safety devices.

## 3.2 Mains connection

### Prerequisites

The following points must be correct to guarantee the function of the controller:

- The mains voltage must correspond with the information on the type plate.
- The mains voltage must correspond with the voltage of the hydraulic power unit.
- In the case of three-phase power, this must have a clockwise rotating field.
- With three-phase power connection, only triple block circuit breakers (10 A) shall be used.
- The neutral conductor must be connected.

### **ATTENTION!**

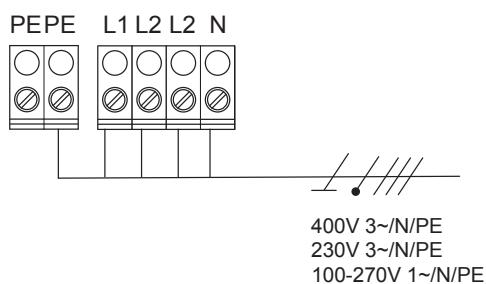
#### Malfunctions due to improper installation of the controller!

Incorrect installation or incorrect wiring can lead to faults in the control unit.

- Before switching on the controller for the first time but after all of the wiring has been completed, it is necessary to check that all motor connections on the motor and controller sides are tight.
- All control voltage inputs are galvanically separated from the supply.
- The control and load lines of the connected hydraulic unit must be double-insulated along their entire length.

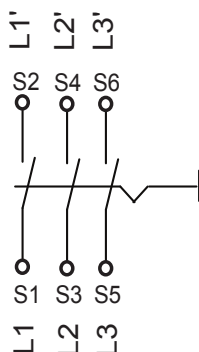
### Mains supply

#### 3.2 / 1



### Mains switch (pre-wired)

#### 3.2 / 2



## 3.3 Connection dock leveller

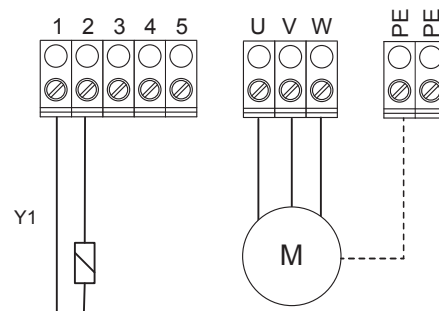
### **ATTENTION!**

#### Danger of property damage due to incorrect rotating field!

If an incorrect rotating field is selected, this can result in a defective motor unit.

- Make sure the correct rotating field applies.

#### 3.3 / 1



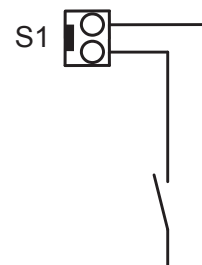
#### Legend:

Y1 Lift/lower valve

M Pump 400V/3~/N/PE \n 230V/3~/N/PE

## 3.4 Push button leveller up

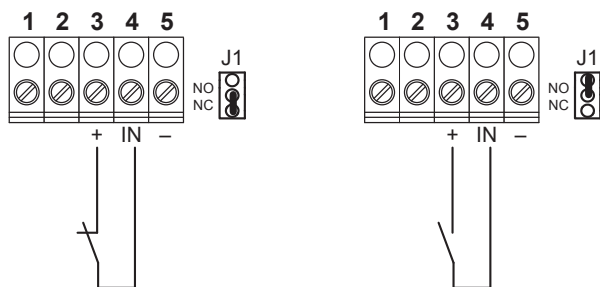
#### 3.4 / 1



### 3.5 Interlock door – leveller: potential-free switch

NO or NC switches can be used alternatively.  
With operation J1 = NC a jumper must be inserted on 3+4.

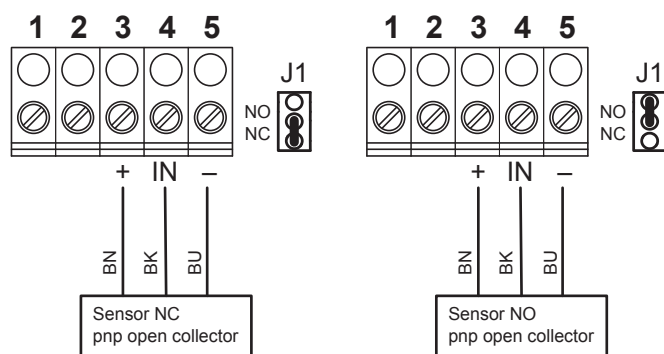
3.5 / 1



### 3.6 Interlock door – leveller: Sensor PNP open collector

NO or NC sensors can be used alternatively.  
With operation J1 = NC a jumper must be inserted on 3+4.

3.6 / 1



#### Legend:

BN Brown  
BK Black  
BU Blue

### 3.7 Completing the installation

After system installation, the persons responsible for operating the system or their representatives must be familiarised with operating the system.

## 4. Operation

### 4.1 Safety instructions for operation



#### WARNING!

##### **Danger due to a failure to observe the operating instructions!**

This chapter contains important information for the safe operation of the product.

- Read this chapter through carefully before operation.
- Follow the safety instructions.
- Perform operation as described.

Operation only by an instructed user.

→ "1.2.3 Users"

Instructions on use of the system:

- Children must not play with the control unit or command devices.
- No persons or objects are permitted inside the operating range of the dock leveller.
- All available emergency command devices must be tested.
- Never insert your hands into a running dock leveller or moving parts.

### 4.2 Operating the dock leveller

When the LIFT cover button is pressed, the dock leveller is lifted in dead man's mode. The lip folds out automatically into the top end position. As soon as the lip is fully extended, the button can be released. The dock leveller then automatically lowers into the loading position (floating position).

### 4.3 Start-up interlock

The RS 200 L control unit is equipped with an integrated start-up interlock. If the power supply is interrupted while the dock leveller is being operated, the stop relay is switched off and the dock leveller is interlocked after being enabled again or after the power is switched on.

Only after pressing the lift button can the leveller be moved again or set to the floating position.

### 4.4 Overload protection

The RS 200 L control unit is equipped with phase failure detection for the hydraulic power unit.

Each phase is checked for a failure. To prevent 2-phase running and resulting damage to the unit.

If a failure of at least one phase is detected, the contactor switches off automatically.

Detection can be bypassed by means of jumper J2.

## 5. Fault message

Fault / fault message	Cause	Rectification
System does not react.	<ul style="list-style-type: none"> <li>- No voltage present.</li> </ul>	<ul style="list-style-type: none"> <li>- Check power supply.</li> </ul>
Loading bridge does not lift when RAISE button is actuated.	<ul style="list-style-type: none"> <li>- Interlock door – leveller is activated.</li> </ul>	<ul style="list-style-type: none"> <li>- Check interlock contact.</li> </ul>
Leveller is not raising when the RAISE button is operated, although motor is running.	<ul style="list-style-type: none"> <li>- Field rotation is wrong.</li> </ul>	<ul style="list-style-type: none"> <li>- Swap two phase wires of the hydraulic unit.</li> </ul>
Red LED ON.	<ul style="list-style-type: none"> <li>- At least one fuse is defective or at least one is phase missing.</li> </ul>	<ul style="list-style-type: none"> <li>- Check hydraulic unit, cabling and fuses.</li> </ul>



## 6. Care

### WARNING!

#### **Risk of fatal injury due to electric shock!**

Contact with live parts can lead to electric shock, burns and death.

- It is vital that you disconnect the control unit from the power supply before cleaning.
- Take measures to ensure that the power supply remains disconnected for the duration of the cleaning operation.

### ATTENTION!

#### **Danger of damage due to improper handling!**

When cleaning the control unit, never use direct water jets, high pressure cleaners, acids or alkaline solutions.

- Use a soft, non-linting cloth for cleaning.

If particularly dirty, the housing can be cleaned using a mild detergent.

- Clean the outside of the housing using a damp cloth.

## 7. Servicing

### 7.1 Maintenance

The control unit is maintenance-free.

### 7.2 Testing

The control unit must be tested once-yearly.

Testing must be performed by qualified specialist personnel.

→ "1.2.2 Specialist personnel"

### WARNING!

#### **Risk of fatal injury due to electric shock!**

Contact with live parts can lead to electric shock, burns and death.

- Before testing, be sure to disconnect the control unit from the power supply.
- Ensure that the electricity supply remains disconnected during testing.

### ATTENTION!

#### **Danger of damage due to improper testing!**

To avoid damaging the control unit or the dock levellers, the following points must apply:

- Worn or defective parts must be replaced.
- Only install approved parts.
- Testing must be documented.
- Check all electrical cables and the housing for any damage. Replace any defective cables immediately.

Replaced defective parts must be disposed of correctly.

## 8. Disassembly

Disassembly by qualified specialist personnel only.

→ "1.2.2 Specialist personnel"

### WARNING!

#### **Risk of fatal injury due to electric shock!**

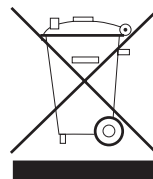
Contact with live parts can lead to electric shock, burns and death.

- Before disassembly, be sure to disconnect the control unit from the power supply.
- Take measures to ensure that the power supply remains disconnected during dismantling.

## 9. Disposal

Disposal by qualified specialist personnel only.

→ "1.2.2 Specialist personnel"



Do not dispose of old equipment or batteries with normal household waste!

- Dispose of old equipment at a collection centre for electronic scrap or via your specialist dealer.
- Dispose of used batteries in a recyclables collection container for used batteries or via your specialist dealer.
- Dispose of the packaging materials in a collection container for paper, cardboard and plastic.

## 10. Manufacturer's declaration

Marantec Legden GmbH & Co.KG,  
Neue Mühle 4,  
D - 48739 Legden

### Declaration of incorporation

within the context of EC Directive 2006/42/EC (Machinery) for  
integration of an incomplete machine in accordance with Annex II,  
Part 1B.

### Declaration of conformity

in accordance with the Directive 2014/30/EU (EMC)  
in accordance with the Directive 2011/65/EU (RoHS)

We hereby declare that the following listed product

Product designation: **Control unit for dock levellers**  
Type designation: **RS 200 L, RS 200 D**

is exclusively intended for installation in a dock leveller system and  
has been developed, constructed, and manufactured in harmony  
with the following directives:

Machinery Directive 2006/42/EC  
Annex 1: 1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.4.2, 1.2.5, 1.2.6, 1.3.1,  
1.3.2, 1.3.3, 1.3.4, 1.3.9, 1.5.1, 1.5.2, 1.5.4, 1.5.5, 1.5.6, 1.5.7,  
1.5.8, 1.5.9, 1.5.10, 1.5.11, 1.5.13, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1.1,  
1.7.1.2, 1.7.2, 1.7.3, 1.7.4.3.

EMC Directive 2014/30/EU - Electromagnetic Compatibility  
RoHS Directive 2011/65/EU - Hazardous substances in electrical  
and electronic equipment  
LVD Directive 2014/35/EU - Low voltage in accordance with  
Annex I part 1.5.1 of 2006/42/EC

Applied and referenced standards:

EN 60204-1:2019	Safety of machinery - Electrical equipment of machinery - Part 1: General requirements
EN IEC 61000-6-2:2019	Electromagnetic Compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
EN IEC 61000-6-4:2020	Electromagnetic Compatibility (EMC) - Part 6-4: Generic standards - Emission for industrial environments

The special technical documentation has been prepared in  
accordance with Annex VII Part B of the Machinery Directive  
(2006/42/EC).

We undertake to transmit these to the market surveillance  
authorities in electronic form within a reasonable period of time  
upon justified request.

The authorised representative for the compilation of the technical  
documentation is the undersigned.

Incomplete machines within the scope of Directive 2006/42/EC  
are only specified for integration with other machines or other  
incomplete machines or plants or connection with them to  
form a machine together with them within the context of the  
Directive indicated above. For this reason, this product may only  
be commissioned if it has been confirmed that the complete  
machine/system that it has been integrated with complies with the  
requirements of the above EC directives.

This declaration is void if changes are made to the product without  
our approval.

Legden, 01.11.2022



Dirk Wesseling, Managing Director





