

# Operating/assembly instructions

DRC-DR D3 and DRC-BM D3 radio receivers

## Original operating/assembly instructions

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### Further documents:

DRC-10 D3 operating/assembly instructions

211 266 44

719 **IS** 975

DRC-J D3 operating/assembly instructions

211 271 44

719 **IS** 975

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# 1 General

## 1.1 Information on the DRC-DR radio receiver

You have purchased a Demag product.

If special designs or additional options are ordered or the latest technical modifications are incorporated, the actual scope of supply may differ from the data and information as well as from the illustrations described here. If you have any questions, please contact the manufacturer.

DRC-DR radio receivers may only be operated by personnel who are fully familiar with the operating/assembly instructions.

## 1.2 General information

DRC D3 (3rd generation) transmitters and receivers are successors to the D2 generation of DRC units.

D3 units are to replace D2 generation radio systems wherever D3 units are allowed to be operated without the need for any registration or fees. In this context, see section 7 „International postal approval“.

DRC D3 generation units are not technically compatible with units from the previous DRC D2 generation. This means that D3 generation transmitters and receivers cannot be combined with D2 units.

## 1.3 Information on the operating/assembly instructions

These operating/assembly instructions are designed to provide the owner with appropriate instructions for safe and correct operation and for maintenance. These operating/assembly instructions are an integral part of the DRC-DR radio receiver.

Every individual given the task of transporting, installing, commissioning, operating, maintaining and repairing DRC-DR radio receivers and their additional equipment must have read and understood the items listed in the following:

- the operating/assembly instructions
- the safety regulations
- the safety instructions in the individual chapters and sections.

The operating/assembly instructions must be available to operating personnel at all times in order to prevent operating errors and to ensure smooth and trouble-free operation of our products. They must be kept available in the immediate vicinity at all times.

## 1.4 Symbols/signal words

Important safety information and instructions are marked by corresponding symbols and signal words in these operating/assembly instructions.

Safety instructions and information must be followed. Follow these instructions with care to avoid any accidents, injuries or damage.

Any locally applicable accident prevention regulations and general safety regulations must also be followed.

The following symbols and instructions warn against possible injuries or damage and are intended to assist you in your work.



### **DANGER.**

This symbol indicates an immediate hazard which can result in serious injury or death.



### **WARNING.**

This symbol indicates a possibly hazardous situation which might result in serious injury or death.



### **CAUTION.**

This symbol indicates a possibly hazardous situation which might result in medium to light injury.



### **NOTE**

Operating hazard for the DRC-DR radio receiver

- This symbol indicates information on the appropriate use of DRC-DR receivers.
- Failure to follow these instructions may result in malfunctions, damage or pollution of the environment.

## 1.5 Liability and warranty

All information included in these operating/assembly instructions has been compiled on the basis of the relevant regulations, state-of-the-art engineering principles and our many years of experience.



### NOTE

These operating/assembly instructions must be read carefully before starting any work on and with the DRC-DR receiver, especially before the unit is put into operation for the first time. The manufacturer assumes no liability for any damage which results from the following:

- Non-compliance with the operating/assembly instructions
- Inappropriate use of the DRC-DR radio receiver
- Operation by insufficiently trained personnel
- Unauthorised conversions
- Any technical modifications

Wearing parts are not subject to liability for defects.

We reserve the right to incorporate technical modifications within the scope of improving the operating characteristics and further development of the DRC-DR radio receiver.

## 1.6 Copyright

These operating/assembly instructions must be treated confidentially. They are only intended to be used by people who work with or on the DRC-DR radio receiver.

Any and all content, texts, drawings, images and any other information are protected within the sense of copyright law and are subject to further industrial rights. Any misuse is an offence.

No part of this documentation, in whole or in part, may be reproduced, distributed, shown in public or used in any other way without specific prior consent. Infringements are an offence resulting in obligatory compensatory damages. Further rights reserved.

All industrial rights reserved.

## 1.7 Spare parts

Only genuine Terex MH spare parts may be used.



### CAUTION. Defective spare parts

**Incorrect or defective spare parts may cause damage, malfunctions or complete failure of DRC DR receivers.**

Only use genuine spare parts or parts approved by Terex MH.

For safety-relevant wear parts, genuine Demag spare parts must always be used.

Safety-relevant wear parts are, for example, brake linings, ropes, etc.

The use of unauthorised spare parts renders null and void any claims for warranty, service, damages or liability against the manufacturer or his appointed personnel, dealers and representatives.

## 1.8 Definitions

### **Owner**

Owners (employer, company) are defined as persons who own a radio control system and who use it as intended or allow it to be operated by suitable and instructed persons.

### **Operating personnel/operator**

Operating personnel are defined as persons entrusted by the owner of a radio control system with operation of the radio control system.

### **Specialist personnel**

Specialist personnel are defined as persons assigned by the owner of the radio control system to carry out special tasks such as installation, setting-up, maintenance and fault elimination.

### **Qualified electrician**

Qualified electricians are defined as persons who, owing to their technical training, knowledge and experience of electric equipment as well as knowledge of the relevant standards, codes of practice and regulations, are able to assess the tasks given to them and to identify and eliminate potential hazards.

### **Trained person**

Trained persons are defined as persons who have been instructed and trained for the tasks assigned to them and on the possible hazards resulting from incorrect handling and who have been informed about the required protective devices, protective measures, relevant regulations, codes of practice, accident prevention regulations and operating conditions and who have proven their qualifications.

### **Experienced technician**

Experienced technicians are defined as persons, who, owing to their technical training and experience, have sufficient knowledge of radio control systems and are familiar with the relevant national industrial safety regulations, codes of practice, accident prevention regulations, directives and generally accepted engineering standards enabling them to judge the safe operating condition of radio control systems.

### **Assigned expert engineer (where the rules and regulations of the German Social Accident Insurance (DGUV) apply in the Federal Republic of Germany, for determining the S.W.P.)**

An assigned expert engineer is defined as an experienced technician specifically assigned by the manufacturer to determine the remaining duration of service (service life) of rope hoists (S.W.P. = safe working period) and to carry out a general overhaul of rope hoists.

### **Authorised expert engineer (where the rules and regulations of the German Social Accident Insurance (DGUV) apply in the Federal Republic of Germany)**

In addition to the expert engineers of the Technical Supervisory and Inspection Board, an authorized expert engineer for the inspection of radio control systems is defined as an expert engineer authorized by the Industrial Employers' Mutual Insurance Association.

### **Radio control system**

Radio control systems are systems used for wirelessly controlling the lifting, lowering and travel motions of loads on cranes, crabs, machinery and installations.

## 1.9 After-sales service

Our after-sales service will provide you with all technical information on Terex MH products and their systematic application.

Should you have any questions regarding our products, please refer to one of our after-sales service centres, the relevant representative or the head office in Wetter. Please quote the serial or order no. in any correspondence or for spare part orders.

Specifying this data ensures that you receive the correct information or the required spare parts.

### **Manufacturer's address:**

#### **Terex MHPS GmbH**

Forststrasse 16  
40597 Düsseldorf, Germany  
[www.demagcranes.com](http://www.demagcranes.com)  
[mhps-info@terex.com](mailto:mhps-info@terex.com)

### **Addresses and contacts**

The current addresses of the sales offices in Germany and the subsidiaries and agencies worldwide can be found on the Terex MHPS GmbH homepage at [www.demagcranes.com/Contact](http://www.demagcranes.com/Contact)

## 1.10 Disposal of machine parts

Unless a return or disposal agreement has been concluded, recycle separated components after proper removal:

- Scrap any remaining metallic material
- Dispose of plastic elements for recycling
- Separate and dispose of any other components by material type



### **NOTE**

Electric scrap, electronic components, lubricants and other auxiliary materials are subject to special disposal regulations and may only be disposed of by certified companies.

National disposal regulations must be considered regarding environmentally friendly disposal of the electric components and machine parts. Further information can be obtained from corresponding local authorities.



## 2 Safety

### 2.1 General

The Safety chapter provides an overview of all important safety aspects for optimum protection of personnel as well as safe and trouble-free operation of the DRC-DR radio receiver.

At the time of its development and manufacture, the DRC-DR radio receiver was built according to generally accepted engineering standards and is considered to be safe to operate. The DRC-DR radio receiver may still be a cause of danger if it is not used correctly or as intended by suitably trained personnel.

Knowledge of the contents of the operating/assembly instructions is one of the requirements necessary to protect personnel from hazards and to avoid malfunctions and, therefore, to operate the DRC-DR radio receiver safely and reliably.

Any conversions, modifications or additions to the DRC-DR radio receiver are prohibited unless approved in writing by Terex MH.

### 2.2 Intended use

The DRC-DR radio receiver is intended to be used as a receiver unit for DRC-10 and DRC-J radio transmitters. The scope of functions is exclusively designed for wireless remote control of crane installations with Demag DR rope hoists.

For these applications, therefore, cable-connected control equipment (control pendants) can be dispensed with. The operator can position himself as required. He can freely move loads from a safe distance in line with local conditions.

DRC transmitters and receivers meet the requirements of the standards and regulations listed in the EC conformity declaration. The specified EC conformity declaration is an integral part of the relevant operating/assembly instructions.

DRC transmitters and receivers do not require any registration or operating fees, see section 7 "International postal approval". The benefits that this provides for the user are also utilised by some other manufacturers of devices for communications and telemetry applications. The consequence of this is that the relevant approved frequency ranges may be used by many transmitters at the same time, depending on the time and location.

The transmission method used by Terex MH is designed for the most robust and interference-resistant radio transmission between the transmitters and receivers of the DRC range.

Frequencies in the so-called 2,4 Ghz ISM band are used for transmission of radio signals between transmitters and receivers.

Despite all of the technical precautions taken by Terex MH, it cannot be entirely excluded that the transmission characteristics of other radio systems are impaired, in particular devices supplied by other manufacturers that use the same frequency range, or that the transmission characteristics of the system supplied by Terex MH are negatively affected.

In such cases, interference or radio connection interruptions may occur, which disrupt the communication and function of a system supplied by Terex MH or other manufacturers. Such impairment or interference does not constitute a defect on the part of DRC transmitters/receivers.

Terex MH accepts no liability for wilful or grossly negligent behaviour. The number of transmitters that operate without any interference in a given area depends on the relevant radio solution design of all systems and the selectivity of each individual system.

If this limit is exceeded continuously or for certain periods, additional technical measures may be necessary in order to ensure simultaneous and interference-free operation of the radio systems. Whether and to which extent such measures are required can only be determined by means of suitable measurements on site or when the system is put into operation. Terex MH is not responsible for such additional technical measures.

DRC D3 transmitters and receivers can be used for multiple transmitter operation as well as multiple receiver operation. Refer to the corresponding operating/assembly instructions for details.

DRC radio control systems may only be operated when in perfect working order by trained personnel in accordance with the relevant safety and accident prevention regulations. This also includes compliance with the operating and maintenance conditions specified in the operating/assembly instructions.

National occupational safety and health regulations must be observed and followed.

For intended use, the information in the operating/assembly instructions for the radio transmitter used (DRC-10/DRC-J) and the machine/crane installation to be controlled must be complied with in addition to the information contained in these operating/assembly instructions (see accompanying documents, page 2).

Serious personal injury or damage to property may occur in the event of:

- unauthorised removal of covers,
- inappropriate use of the product/system,
- incorrect operation,
- insufficient maintenance,
- working on live parts.

## 2.3 Responsibility of the owner

Information on safety at work refers to the regulations of the European Union that apply when the DRC-DR radio receiver is manufactured. The owner is obliged to ensure that the specified industrial safety measures comply with the latest rules and regulations and to observe new regulations during the entire service life of the DRC-DR radio receiver. Local industrial safety legislation and regional regulations and codes of practice applicable at the site of operation of the DRC-DR radio receiver must be observed outside the European Union.

General safety, accident prevention and environmental protection regulations that apply where the DRC-DR radio receiver is in operation must be observed and complied with in addition to the safety instructions contained in these operating/assembly instructions.

The owner and any personnel authorised by him are responsible for correct operation of the DRC-DR radio receiver and for clearly defining responsibilities for installation, operation, maintenance and cleaning.

The operating/assembly instructions must be followed in full and without any limitations.

The operating/assembly instructions must, if required, be supplemented by the owner with instructions relating to organisation of work, working procedures, authorised personnel, supervising and reporting obligations, etc.

Furthermore, the owner must ensure that

- any further working and safety instructions resulting from the risk assessment of the DRC-DR radio receiver workplaces are specified in operating procedures.
- the operating/assembly instructions are always kept available in the immediate vicinity of the DRC-DR radio receiver for installation, operating, maintenance and cleaning personnel.
- personnel are trained in accordance with the work to be performed.
- the DRC-DR radio receiver is only operated when in safe and proper working order.
- the safety devices are always kept freely accessible and are checked regularly.
- the national regulations for use of the DRC-DR radio receiver are observed.

The owner is urged to develop procedures and guidelines for any malfunctions, to instruct users and to affix these instructions at a suitable place where they can be easily seen.

## 2.4 Operating personnel requirements

Only authorised and trained personnel may work on the DRC-DR radio receiver. Personnel must have received instruction on the DRC-DR radio receiver functions and any hazards that may occur.

Every individual given the task of working on or with the DRC-DR radio receiver must have read and understood the operating/assembly instructions before any work starts.

Persons under the influence of drugs, alcohol or medicines which affect their reactions must not work on or with the DRC-DR radio receiver.

Age and job-specific regulations relevant at the place where the DRC-DR radio receiver is operated must be observed for the selection of any personnel.

Personnel are obliged to report to the owner without delay any changes to the DRC-DR radio receiver that impair safety.

For maintenance work on the DRC-DR radio receiver, the owner may only employ persons (specialist personnel)

- who are at least 18 years of age,
- who are mentally and physically suitable,
- who have been instructed in maintenance of the DRC-DR radio receiver and who have proven their qualification to the owner in this respect.

## 2.5 Personal protection equipment

When work is carried out on or with the DRC-DR radio receiver, the following must always be worn:

- Protective clothing, closely fitting working clothes (low tear strength, no loose sleeves, no rings or any other jewellery, etc.).
- Safety shoes to protect against falling parts and against slipping.
- Safety helmet to be worn by everybody in the danger zone.

## 2.6 Regular inspections

The owner of the DRC-DR radio receiver may be obliged to carry out regular inspections by national industrial safety legislation and regional regulations. This is regulated by the rules and regulations of the German Social Accident Insurance (DGUV) in the Federal Republic of Germany, for example. These specify that

- the DRC-DR radio receiver must be inspected before it is put into operation,
- the DRC-DR radio receiver must be inspected regularly.

The owner is obliged to ensure that the DRC-DR radio receiver complies with the latest rules and regulations and to observe new regulations at all times.

If no comparable inspection regulations or requirements apply at the place where the DRC-DR radio receiver is operated, we recommend compliance with the above-mentioned regulations.

## 2.7 Safety instructions for installation and disassembly

- Installation and disassembly work may only be performed by experienced technicians.
- Installation and disassembly work must be co-ordinated by the person carrying out the work and the owner within the scope of their responsibility.
- The working and danger zone must be made safe.
- The installation must be isolated in accordance with the relevant electric regulations.
- Customer-specific regulations must be observed.
- Only appropriate, tested and calibrated tools may be used.
- If equipment is disassembled, any waste material must be disposed of by the owner in an environmentally compatible way in compliance with relevant regulations.

## **2.8 Safety instructions when first putting the unit into service after completing installation**

- The working and danger zone must be made safe.
- First check that the voltage and frequency specified on the type plate match the control voltage of the installation/machine.
- The commands for controlling the motion drives are disabled in the DRC-DR radio receiver until a transmitter has been clearly assigned and specified by means of the relevant initialisation dialogues and the crane ID. See transmitter operating/assembly instructions (DRC-10 or DRC-J).
- In the course of putting the equipment into service, it may be necessary to render safety devices or features inoperative while adjustment work or function checks are carried out.
- Work may need to be carried out in the danger zone when the product is put into service. Therefore, it must be ensured that only appropriately trained personnel are employed for this work.

## 3 General description

### 3.1 Transmitter/receiver interface

Demag DRC radio control systems are designed for wireless control of hoist units and cranes. They are the man/machine interface for manually controlled crane installations. The relevant EU directives and standards are complied with for this application.

A DRC D3 radio control system consists of one or more transmitters as well as at least one or, if required, more receivers.

These operating/assembly instructions refer to DRC DR D3 receivers in combination with their matching DRC-10 D3 or DRC-J D3 transmitters.

The DRC-DR radio receiver is a PCB that is designed to be installed in the electric equipment cover of a DR hoist unit. The interface of this receiver component to the crane control system is the Can bus with the CANopen safety protocol and the power supply via the DR electric equipment. The DRC-DR radio receiver is exclusively suitable for operation with a DR hoist unit with processor control.

Demag DRC-DR radio receivers are equipped for bi-directional radio transmission and transmit information to DRC-10 hand-held transmitters or DRC-J joystick controls. This increases the safety and reliability of the radio system. Status information for the crane control system and the receiver is shown on the display of the DRC-10 or DRC-J transmitter.

### 3.2 Transmission method

Frequencies in the so-called 2,4 Ghz ISM band are used for transmission of radio signals between transmitters and receivers.

The new proprietary radio transmission method used for DRC D3 meets the most demanding requirements in terms of transmitter density and co-existence with other equipment that operates in the 2,4 GHz ISM band. The radio transmission method combines various transmission mechanisms: A frequency-hopping system ensures that radio transmission is robust and highly resistant to interference – an adaptive behaviour (Listen Before Talk) combined with this enables interference with neighbouring radio applications to be effectively eliminated.

## 4 Technical data

### DRC-DR radio receiver PCB

CAN bus  
LED indicators for

output  
radio connection (yellow LED)  
Line voltage (green LED)  
Internal error (red LED)

Enclosure  
Temperature range  
Weight of radio receiver  
Supply voltage

IP 55 integrated in rope hoist controls  
- 20° to + 70° C  
94 g  
+5 V DC (from the rope hoist controls)

### Radio transmission

Typical range  
Frequency range

approx. 100 m  
2,4 GHz ISM band, 2405 - 2480 MHz

## 5 Putting the DRC-DR radio receiver into operation for the first time

### 5.1 Safety instructions



**DANGER.**  
Electric current.

**Electric energy may cause very severe injuries.**

Work on the electric equipment may only be carried out by specialists or by trained personnel.

**Before starting work, switch off the electric power supply and secure it against switching on again.**



**WARNING.**  
Risk of injury if incorrectly assembled

**Incorrect installation may result in severe injury and/or damage to property.**

Therefore, this work may only be carried out by authorised, instructed personnel who are familiar with the principle of operation of the DRC-DR radio receiver in compliance with all safety regulations:

- Ensure sufficient working clearance before starting assembly work.
- Secure and fence off the working and danger zone.
- Wear protective clothing.
- Be careful when working on open components that have sharp edges. Risk of injury.
- Keep the working area clean and tidy. Store any machine parts or fittings and tools that are not needed in such a way that there is no risk of them falling.
- Fit components correctly and as intended. Comply with specified bolt tightening torques. Incorrectly fitted components may fall and cause severe injuries.



**NOTE**

These operating/assembly instructions must be read carefully before starting any work on and with the DRC-DR receiver, especially before the unit is put into operation for the first time.

The manufacturer assumes no liability for any damage which results from the following.

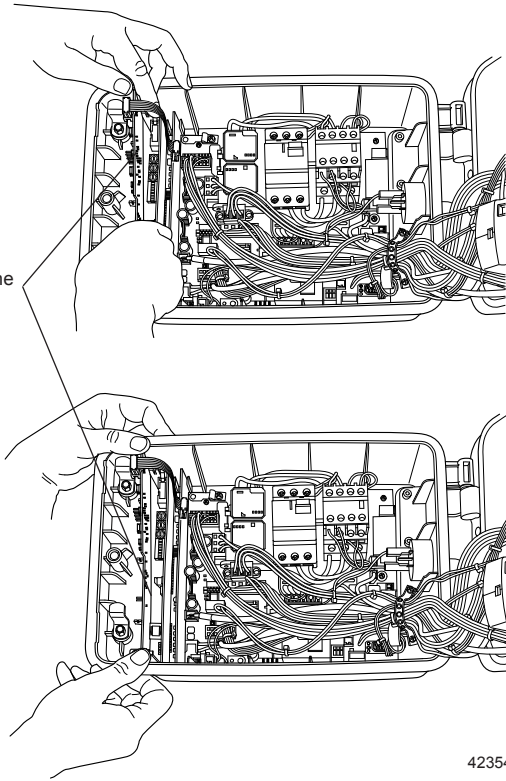
- non-compliance with the operating/assembly instructions
- inappropriate use
- untrained personnel
- unauthorised conversions
- technical modifications

## 5.2 Installing the radio receiver card

To install the radio receiver card, proceed as follows:

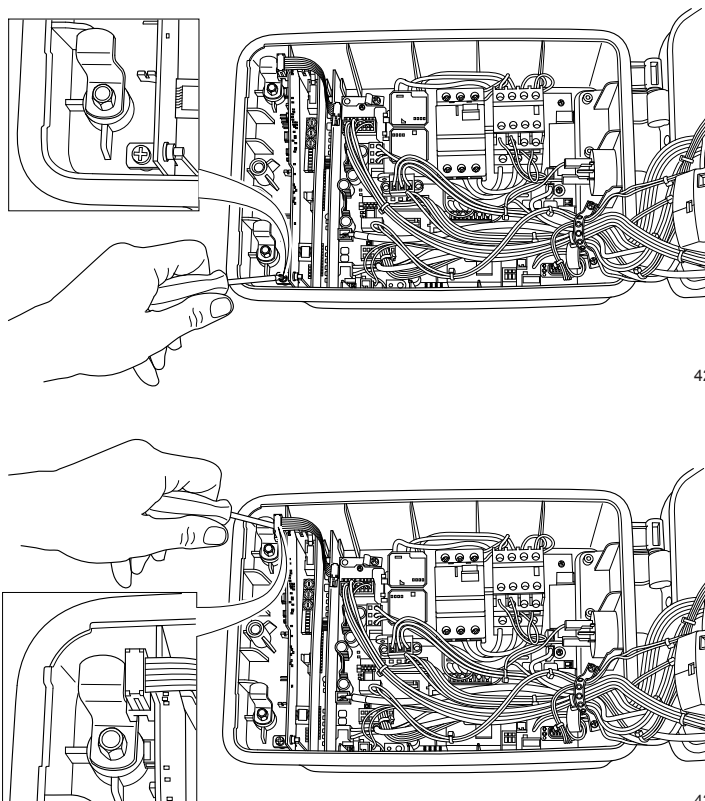
- Before starting any installation work, disconnect the system from the power supply.
- Install the radio receiver card in the appropriate slot

Insert the radio receiver card into the appropriate slot



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- Fix the radio receiver card in the electric equipment cover by means of the two screws



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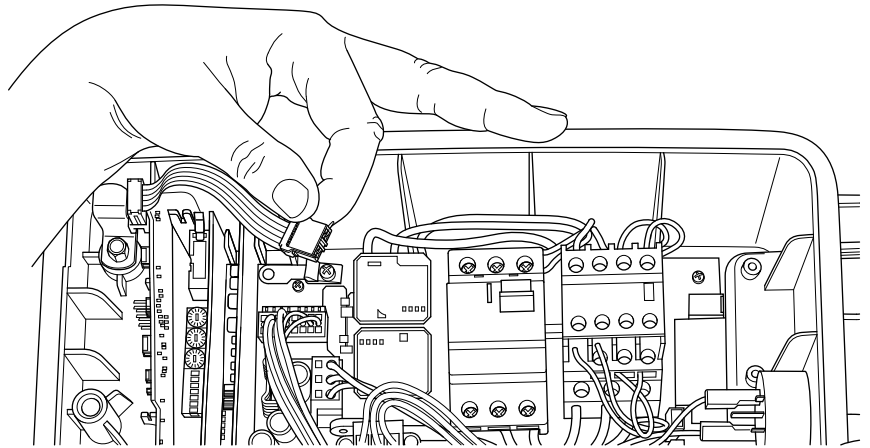
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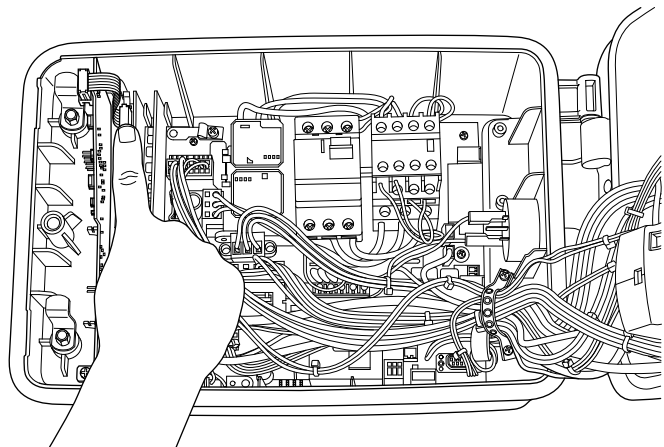
211\_267\_44.indd/15/10/14



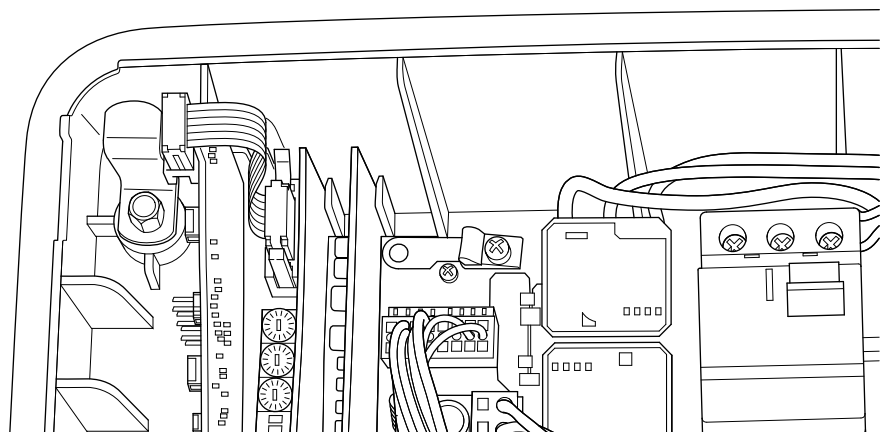
- Connecting the flat cable from the radio receiver to the controller card of the rope hoist control system



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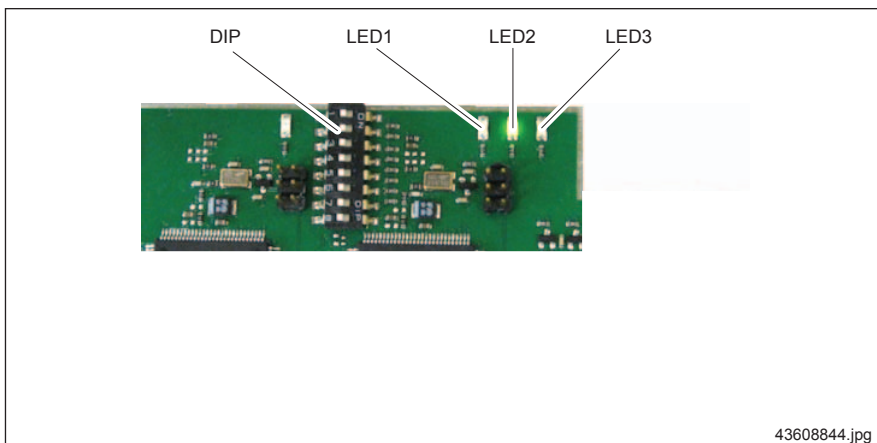


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- Installation of the radio receiver card is finished when the above steps been completed. Before the system is put into operation again, make sure that other control components such as, for example, the DSE-10R control pendant with cable, have been disconnected from the system. Otherwise, no clear assignment of the control units is possible.

### 5.3 Function following installation

A general function check of the radio receiver card can be carried out by means of the light emitting diodes.



LED	Colour	Meaning
LED1	Yellow	Radio connection, flashing steadily
LED2	Green	Power on, no error (continuously lit or flashing)
LED3	Red	Error(s) occurred

LED1	LED2	LED3	Meaning
Off	Flashing	Off	Receiver power on, no transmitter logged on
Off	On	Off	Receiver power on. Transmitter logged on, but no radio connection (transmitter off or on standby)
Flashing	On	Off	Receiver has a radio connection <ul style="list-style-type: none"> <li>• Steady flashing indicates good radio connection</li> <li>• Irregular flashing indicates radio interference</li> </ul> Radio connection exists in STOP, Run and parameter-programming modes
Off	Off	On	An internal error has occurred, shown on the transmitter display

Further function checks are only possible by operation of the corresponding DRC-10 or DRC-J radio transmitters. For this purpose, please refer to the operating/assembly instructions for the relevant DRC-10 or DRC-J radio transmitter and for the crane installation (see accompanying documents, page 2).

You will also find corresponding instructions for eliminating possible faults in a radio control system in the operating/assembly instructions for the DRC-10 or DRC-J radio transmitter and the crane installation.

### 5.4 Putting the receiver into operation for the first time

When delivered, the DRC-DR radio receiver has crane ID "NOID".

All crane movements are blocked. This block is removed when the unit is put into operation by the assignment of a valid crane ID (other than NOID) to the receiver.

The radio receiver can be put into operation by means of the relevant radio transmitter (DRC-10 or DRC-J). The procedure for putting the radio control system into operation is described in detail in the operating/assembly instructions for the transmitter.

Operating/assembly instructions required in addition:

<u>Radio transmitter</u>	<u>Ident. no.:</u>
DRC-10 D3 hand-held transmitter	211 266 44
DRC-J D3 joystick transmitter	211 271 44

## 6 Using DRC radio controls

### 6.1 DRC-DR receiver operating functions in connection with a transmitter

#### 6.1.1 F1 function key

Example: tandem operation

The functions that can be called up with the F1, F2 or horn keys on DRC-10 and DRC-J transmitters in connection with a DRC-DR receiver are described in the following:

Actuate the F1 key to change the crab selection if there are several crabs.

The selection is incremented one step further every time the key is actuated:

I => II => I+II => I

The modified crab selection is shown on the display of the transmitter.

If there is only one crab, the F1 key has no function.



#### NOTE

After the transmitter is fully switched off:

or after the rechargeable battery is replaced, the crab selection always starts with crane crab 1 when the system is restarted; this means that hoist unit 1 always starts first when the system is restarted.



#### DANGER

If the selection settings on the transmitter are ignored, e.g. for tandem operation.

**Failure to comply with the selection settings on the transmitter represents an immediate hazard which can result in serious injury or death.**

You must always set the crab selection on the transmitter when it is switched on again after it has been fully switched off.

#### 6.1.2 F2 function key

If the parameters are programmed as follows, the current load value of the selected crab(s) is saved as a tare value when the F2 key is actuated for 5 seconds.

#### 6.1.3 F1/F2 function keys – additional functions

The F1 and F2 keys can also be assigned optional additional functions (e.g. switch between tandem units, etc.).

#### 6.1.4 Horn key, 1st stage

When the 1st stage of the Horn key is actuated, the horn in the crab control system is activated.

#### 6.1.5 Horn key, 2nd stage

When the 2nd stage of the Horn key is actuated and held down for more than 5 seconds, the limit switch test is activated for hoist units that are equipped with operating limit switches.

## 7 International postal approval

DRC D3 transmitters and receivers **in the standard delivery form** can be operated without any registration or operating fee in the following countries:

Countries	Frequency range
Austria	2,4-GHz ISM band
Belgium	
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Iceland	
Ireland	
Italy	
Latvia	
Liechtenstein	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Norway	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	
United Kingdom	

Hereby we,

**Terex MHPS GmbH**

Forststrasse 16, 40597 Düsseldorf, Germany

declare that the radio control system for cranes and hoists

**Demag DRC**, consisting of:

<b>DRC -10 transmitter</b>	Ident. no. 773 591 44
<b>DRC-J transmitter</b>	Ident. no. 773 593 44
<b>DRC-DR receiver</b>	Ident. no. 719 439 44
<b>DRC-MP receiver</b>	Ident. no. 773 594 44

of serial design are in conformity with the provisions of the following relevant regulation:

**EC Low Voltage Directive 2006/95/EC**

The product additionally complies with the following relevant directives/provisions:

<b>EC EMC Directive</b>	<b>2004/108/EC</b>
<b>EC RTTE Directive</b>	<b>1999/5/EC</b>

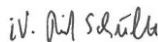
Applied harmonised standards and/or C standard drafts, in particular:

<b>EN 13557</b>	<b>Cranes - Control elements and control positions</b>
<b>EN ISO 13849-1</b>	<b>Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design</b>
	<b>Stop function: Category 3, PL d</b>
<b>EN 14492-2</b>	<b>Cranes - Power driven winches and hoists - Part 2: Power driven hoists</b>
<b>EN 60204-32</b>	<b>Safety of machinery - Electrical equipment of machines - Part 32: Requirements for hoisting machines</b>

Wetter, 21.11.2014



**i.V. Dr. Thomas Bönker**  
**Business Line**  
**Components**



**i.V. Dirk Schulte**  
**Handling Technology & Drives**  
**Engineering & Development**

**FCC information**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Warning**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Industry Canada Information**

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (A)/NMB-3(A)

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb).

L'antenne (s) utilisé pour cet émetteur doit être installé pour fournir une distance de séparation d'au moins 20 cm de toute personne et ne doit pas être co-localisées ou opérant en conjonction avec une autre antenne ou émetteur.

L'installateur de cet équipement radio doit veiller à ce que l'antenne est située ou orientée de façon qu'il ne dégage pas de champ RF dépassant les limites de Santé Canada pour la population générale; Consultez le Code de sécurité 6, disponible sur le site web de [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb) de Santé Canada.

**The current addresses of our sales offices, subsidiaries and agencies worldwide can be found on the Terex MHPS GmbH homepage at [www.demagcranes.com/Contact](http://www.demagcranes.com/Contact)**

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