

Operating instructions

DRC-DR radio receiver

Manufacturer

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Accompanying documents:

DRC -10 operating instructions	214 920 44	720 IS 975
DRC-J operating instructions	214 975 44	720 IS 975

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1 Foreword

You have purchased a Demag product/system.

These operating instructions are designed to provide the owner with appropriate instructions for safe and correct operation and to facilitate maintenance.

Every individual given the task of transporting, installing, commissioning, operating, maintaining and repairing our products and systems must have read and understood

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

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

1.1 Copyright

These operating instructions must be treated confidentially. They should only be used by authorized personnel. They may only be entrusted or made available to third parties with the prior written consent of Demag.

All documents are protected within the sense of copyright law.

No part of this documentation may be reproduced, utilized or transmitted without specific prior consent. Infringements are an offence resulting in obligatory compensatory damages.

All industrial rights reserved.

1.2 Customer service

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

Should you have any questions regarding our products, please refer to one of our after-sales service stations, the relevant representative or the manufacturer.

Kindly quote the serial or order number (see test and inspection booklet, load capacity plate on the crane) in any correspondence or for spare part orders.

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

1.3 Liability for Defects

These operating instructions must be read carefully before installing and putting the system into operation.

We assume no liability for any damage and malfunctions resulting from failure to comply with the operating instructions.

Any liability claims for defects must be made by quoting the order number immediately on detecting the defect.

Any liability claims for defects are void in the event of:

- inappropriate use,
- faulty devices or equipment connected or attached to the system which are not part of our scope of supplies and services,
- use of non-genuine spare parts and accessories,
- refurbishment or modification of the product unless approved in writing by Demag.

Wearing parts are not subject to liability for defects.

1.4 Limitations of liability

All technical information, data and instructions for operation contained in these operating instructions were up-to-date on going to print and are compiled on the basis of our experience and to the best of our knowledge.

We reserve the right to incorporate technical modifications within the scope of further development of the system which is the subject of these operating instructions.

Therefore, no claims can be derived from the information, illustrations and descriptions contained in these operating instructions.

The descriptions and illustrations contained in this documentation do not necessarily correspond to the scope of delivery or any subsequent spare part delivery, either; the drawings and illustrations are not to scale.

Only documentation belonging to the actual order is valid.

We assume no liability for damage and malfunctions caused as a result of operating errors, non-compliance with these operating instructions or inappropriate repairs and maintenance.

We expressly point out that only genuine Demag spare parts and accessories approved by us may be used. Accordingly, this also applies to other manufacturers' parts supplied by us.

For safety reasons, the fitting and use of spare parts or accessories which have not been approved and unauthorized modification and conversion of the product are not permitted and exempt us from any liability for damages resulting therefrom. With the exclusion of any further claims, we are liable for any defects or omissions on our part in the products or documentation supplied within the scope of the liability obligations entered into in the original contract. Any further claims, in particular any and all claims for damages, are excluded with the exception of legal claims in accordance with product liability legislation.

1.5 Definitions

Owner

Owners (employer, company) are defined as a person who owns such a system and who uses it appropriately or allows it to be operated by suitable and instructed persons.

Operating personnel/operator

Operating personnel or operators are defined as persons entrusted by the owner of the system with the operation of the system.

Specialist personnel

Specialist personnel are defined as persons assigned by the owner of the 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 electrical installations 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 these 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 such systems.

2 Safety instructions

2.1 Symbol description

These symbols are used to warn against potential safety hazards or causes of damage or provide useful information.



Hazard warning

This symbol appears in the operating instructions next to all instructions relating to safety at work wherever a potential danger to life and limb exists.

Follow these instructions at all times and be particularly vigilant and cautious.

Pass on safety instructions to all persons entrusted with working on the product including the power supply.

In addition, observe all general safety regulations at all times.



Warning against dangerous electrical voltage

Contact with live parts can result in immediate death. Protective covers (e.g. covers and enclosures) marked with this sign may only be opened by qualified electricians. Before opening, all relevant operating, control, feed or other voltages must be disconnected.



Operating hazard for the installation

This symbol in the operating instructions indicates all warnings which, if not complied with, may result in damage to the product.

2.2 Appropriate 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.

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

DRC-DR radio receivers are exclusively intended for single-transmitter operation; i.e. there is always a clear assignment to a specific radio transmitter (DRC-10 or DRC-J).

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

The state-of-the-art transmission method is provided with technical features (e.g. automatic frequency management, adaptive behaviour) which are intended to ensure a minimum of conflicts for radio operation together with other transmitter and receiver devices which use the same frequency range.

Despite all of the technical precautions taken by Demag, 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 Demag are negatively affected. In such cases, interference or radio connection interruptions may occur, which disrupt the communication and function of a system supplied by Demag or other manufacturers. Such impairment or interference does not constitute a defect on the part of DRC transmitters and receivers. Demag will only accept liability for wilful or grossly negligent behaviour on its part.

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. Demag is not responsible for such additional technical measures.

Radio remote control systems of the DRC range are exclusively intended for single-transmitter operation; i.e. there is always a clear assignment between a specific transmitter and the corresponding receiver.

Radio remote control systems of the DRC range 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 operating and maintenance conditions specified in the operating instructions.

In Germany, the owner of a crane installation with radio control system is responsible for compliance with accident prevention regulations BGV D6.

For appropriate use, the information in the operating instructions for the receiver used (DRC-DR/DRC-MP) and the machine/crane installation to be controlled must be complied with in addition to the information contained in these operating instructions (see accompanying documents, page 2).

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

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

2.3 Inappropriate use

Certain work and practices are prohibited when using the product as they may involve danger to life and limb and result in lasting damage to the product, e.g.:

- Manipulating electrical equipment
- Connecting the unit to power supply with voltage or frequency other than those specified on the type plate
- Non-compliance with specified mounting positions
- Non-compliance with the max. permissible operating temperature.

Other inappropriate applications may be caused by non-compliance with the information in the operating instructions for the receiver and for the crane installation to be controlled.

2.4 Basic information on safety

Persons under the influence of drugs, alcohol or medicines which affect reactions must not install, operate, put into service, maintain, repair or disassemble the product. Any conversions and modifications to the installation must comply with the safety requirements. Work on electrical equipment may only be carried out by specialists in accordance with electrical regulations. In the event of malfunctions, the product must be shutdown, switched off and the relevant main switches locked immediately.

Malfunctions must be eliminated immediately.

National accident prevention regulations and codes of practice and general safety regulations must be observed when operating our products. Important information and instructions are marked by corresponding symbols. Follow these operating and safety instructions to avoid personal injury and damage to machinery.

The operating instructions must be kept available at the place where the product is in use at all times.

They include significant aspects and appropriate excerpts from the relevant guidelines, standards and regulations. The owner must instruct his personnel appropriately. If the safety instructions given are not observed in any way, personal injury or even death can result.

Observe general statutory and other obligatory regulations relating to accident prevention and environmental protection and basic health and safety requirements in addition to those included in these operating instructions.

Such requirements may also relate, for example, to the handling of hazardous materials or the provision/wearing of personal protection equipment.

Comply with these regulations and general accident regulations relevant for the place at which the product is used and follow the instructions therein when working with the product.

The product may still constitute a danger to life and limb if it is not installed, operated, maintained or used appropriately by personnel which have not been trained or specially instructed.

The safety instructions must, if required, be supplemented by the owner with instructions and information (e.g. factory regulations) relating to organization of work, working procedures, operating personnel, etc. Supervising and reporting obligations as well as special operating conditions must also be taken into consideration. Supervising and reporting obligations as well as special operating conditions must also be taken into consideration.

Personnel assigned to working with the product must have read the operating instructions and the safety instructions.

All activities relating to the product which are not described in the operating instructions may only be carried out by specifically trained specialist personnel.

The owner must ensure that personnel work in a safety and hazard-conscious manner in compliance with the operating instructions.

The owner must ensure that product is only operated when in proper working order and that all relevant safety requirements and regulations are complied with.

The product must be taken out of service immediately if functional defects or irregularities are detected.

In the event of a stoppage (e.g. if defects regarding safe and reliable operation are detected, in emergency situations, in the event of operating malfunctions, for maintenance purposes, if damage is detected or after finishing work), the operator/experienced technician must carry out all prescribed safety measures or observe that they are automatically carried out.

Personal protective clothing must be worn as necessary or as required by regulations. Personnel must not wear loose clothing, jewellery including rings or long hair loose. Injury may occur, for example, by being caught or drawn into the mechanism.

All safety and hazard warnings on the product, its access routes and mains connection switches must be preserved completely and in legible condition.

Modifications, additions to and conversions of the product which might impair safety in any way must not be carried out without the approval of Demag.

Safety devices must not be rendered inoperative.

Only genuine Demag spare parts may be used. Observe prescribed deadlines or those specified in the operating instructions for routine checks/inspections.

2.5 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 assembly zone must be made safe.
- The installation must be isolated in accordance with the relevant electrical regulations.
- Customer-specific regulations must be observed.
- Only appropriate, tested and calibrated tools may be used.

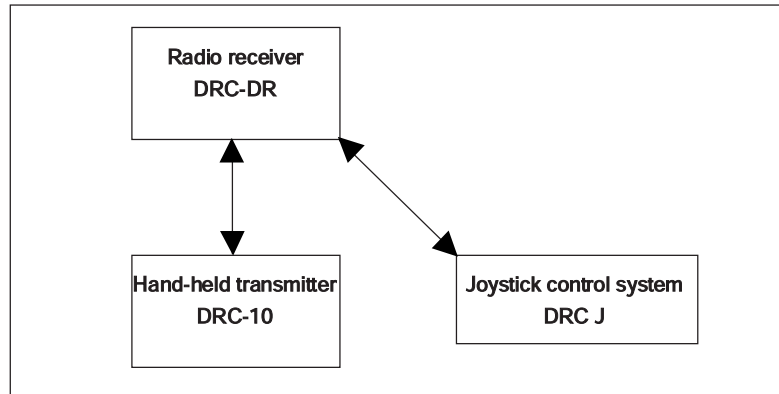
2.6 Safety instructions when first putting the unit into service after completing installation

- The working and/or danger zone must be made safe.
- The commands for controlling the motion drives are disabled in the DRC-DR radio receiver until a radio transmitter has been clearly assigned and specified by means of the relevant initialisation dialogues and the crane ID. See radio transmitter operating instructions (DRC-10 or DRC-J).
- In the course of putting the product into service, it may be necessary to render safety devices or features inoperative when carrying out adjustments or function checks.
- When putting the machine into service, it may be necessary to perform work in the danger zone, therefore, it must be ensured that only appropriately trained personnel are employed for this work.

3 General description

3.1 Transmitter/receiver interface

The DRC-DR radio receiver can either be used with a DRC-10 hand-held transmitter or with a DRC-J joystick control system.



The DRC-DR radio receiver is designed as plug-in PCB that can be fitted in the electrical equipment cover of the DR rope hoist. The radio receiver communicates with the electrical equipment of the rope hoist via a CAN interface. For use of the DRC-DR radio receiver, the DR rope hoist must be provided with a Demag rope hoist control system.

Radio remote control systems of the DRC range are exclusively intended for single-transmitter operation; i.e. there is always a clear assignment between a specific transmitter and its corresponding radio receiver.

3.2 Transmission method

The so-called ISM band (433 MHz) is used for transmitting the radio signals between transmitter and receiver. Within the ISM band 30 frequencies are used alternately in a defined sequence (so-called frequency hopping). A random-check generator determines the sequence of the frequencies when radio transmission is started. In order to increase transmission reliability, the information is transmitted several times. This method in connection with frequency hopping provides for a very high immunity to interference.

Frequency hopping is used for the first time with Demag DRC radio control system types D1-FH and D2. In the case of the D1 type, the frequency of the radio signal is not changed during a transmission cycle.

A decisive advantage of the frequency hopping transmission is that existing information contents are transmitted on several physical channels. This redundant radio transmission 1) provides for an exceptionally high insensitivity of radio transmission against other transmitters or electromagnetic interference.

1) Certain information contents are transmitted on up to 5 different frequencies. Only if (theoretically) all frequencies used were occupied or disturbed by other radio systems, communication would be interrupted.

3.2.1 Downwards compatibility of DRC-10 D2 transmitters

For combining DRC-10 D2 transmitters with D1 type receivers

DRC-DR, part no. 719,441 45

DRC-MP, part no. 773 432 44

these transmitters must be programmed for operation at a fixed frequency (chapter „Programming parameters of the DRC-10 handheld transmitter“, section 1.6).

The table below shows an overview of the possible combinations

3.2.2 Compatibility D1, D1 FH and D2

Design	Product Part no.:	Receiver				
		D1 DRC-MP 773 432 44	D1 DRC-DR 719 441 45	D1 FH DRC-Mp 773 584 44	D1 FH DRC-DR 719 436 45	D2 DRC-DR 719 439 45
D1	DRC-10 773 431 44	OK	OK	not compatible	not compatible	not compatible
D1	DRC-J 773 460 44	OK	OK	not compatible	not compatible	not compatible
D1 FH	DRC-10 773 581 44	Fixed frequency	Fixed frequency	OK	OK	OK
D1 FH	DRC-J 773 583 44	Fixed frequency	Fixed frequency	OK	OK	OK
D2	DRC-10 773 591 44	Fixed frequency	Fixed frequency	OK	OK	OK

Explanation:

D1 without frequency hopping

D1 FH with frequency hopping

D2 with frequency hopping and, if required, with extended functions

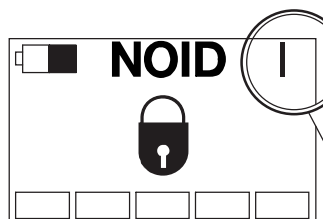
3.2.3 Frequency hopping feature

Transmitters and receiver with frequency hopping can be identified by the part no. on the rating plate.

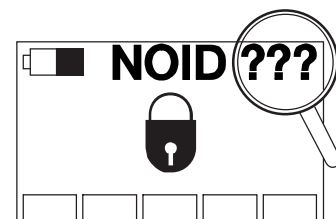
Additionally transmitters with frequency hopping have a different symbol for the signal strength in the display.

Transmitter without frequency hopping

Transmitter with frequency hopping



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4 Technical data

DRC-DR radio receiver/PCB

Output

LED indicators for

Type of enclosure

Ambient temperature

Weight of radio receiver

Supply voltage

CAN bus

Power on

Radio transmitter/receiver (HF) available

Data telegrams decoded without error

IP 55 integrated in rope hoist controls

– 20° to + 70° C.

60 g

+5 V DC (from the rope hoist controls)

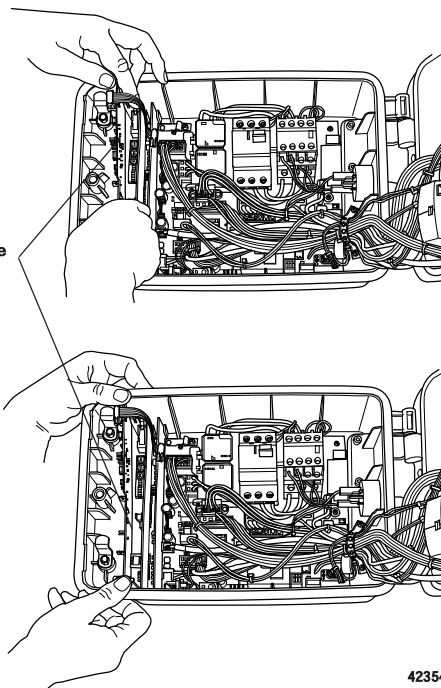
5 Fitting the radio receiver card



To install the radio receiver card, proceed as follows:

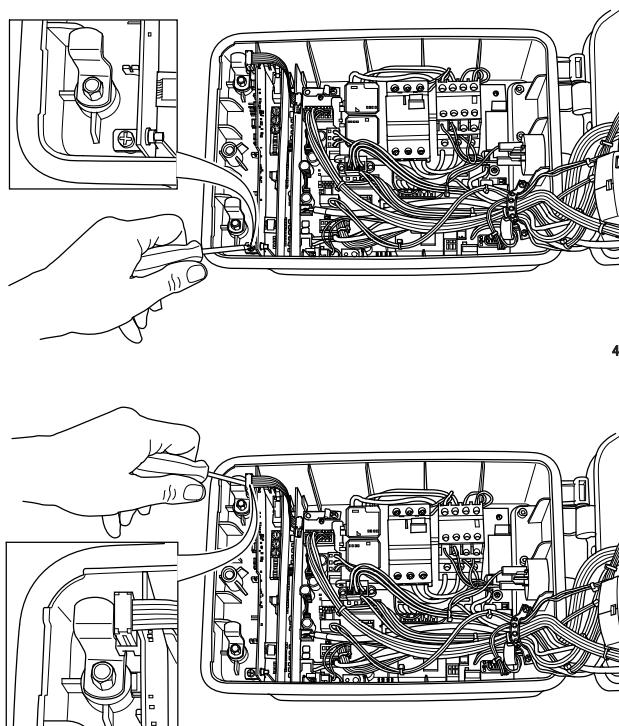
- Before starting any installation work, disconnect system from the power supply.
- Install the radio receiver card in the appropriate slot

Slide the radio receiver card into the appropriate slot



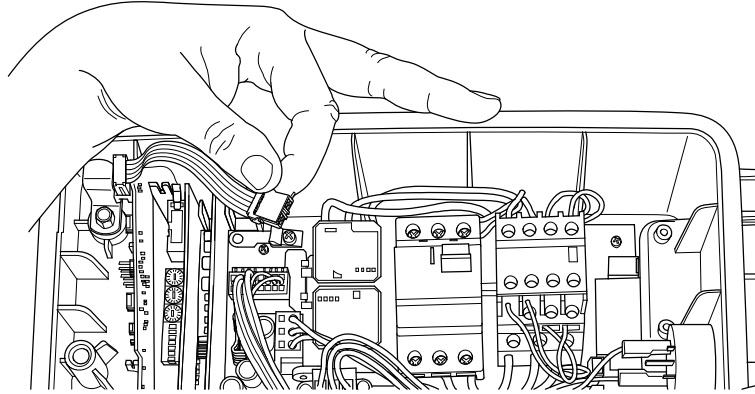
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- Fix the radio receiver card in the electrical equipment cover by means of the two screws

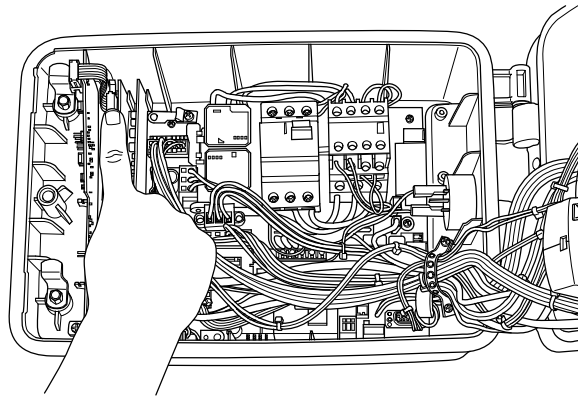


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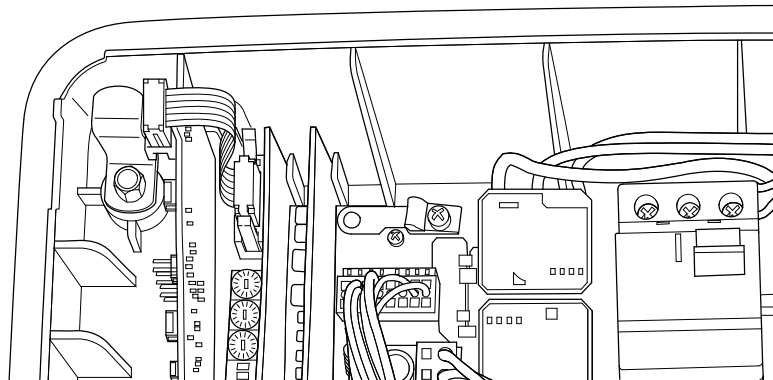
- Connecting the flat cable from the radio receiver to the controller card of the rope hoist control system



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- With the above steps, installation of the radio receiver card has been completed. Before the system is put into operation again, make sure that other control components such as, for example, the DSE-8R or DSE-10R control pendant with cable, have been disconnected from the system. Otherwise, no clear assignment of the control units is possible.

6 Function check after installation

A general function check of the radio receiver is possible by means of the light diodes on the radio receiver card.

- The yellow LED flashes, when the receiver is supplied with current and no DRC-10 hand-held transmitter or DRC-J joystick control system has been assigned yet. In addition, a red LED flashes, when radio telegrams of DRC-10 or DRC-J radio transmitters that have not been assigned are received.
- The green LED flashes, when the receiver is supplied with current and radio telegrams of an assigned DRC-10 or DRC-J radio transmitter are received. When the DRC-10 or DRC-J radio transmitter is in Stop mode, the flashing sequence is approx. 5/sec.

When the DRC-10 or DRC-J radio transmitter is in Run mode, the flashing sequence changes to rapid 10/sec. Further function checks are only possible by operation of a corresponding radio transmitter (DRC -10 or DRC J). For this purpose, please use the relevant operating instructions of the respective DRC-10 or DRC-J radio transmitter and of the crane installation (see accompanying documents, page 2).

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

6.1 Putting the receiver into operation for the first time

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

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

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

Operating instructions required in addition:

<u>Radio transmitter</u>	<u>Part no.</u>
DRC-10 hand-held transmitter	214 920 44
DRC-J transmitter operating instructions	214 975 44.

7 International postal registration


In the following countries, transmitters and radio receivers of the DRC-10 D2 range in the standard delivery form (part no.: 773 591 44) can be operated without any registration or operating fee:

Countries	Frequency range
Australia	433-MHz ISM band
Belgium	433-MHz ISM band
Denmark	433-MHz ISM band
UK	433-MHz ISM band
Estonia	433-MHz ISM band
Finland	433-MHz ISM band
France	433-MHz ISM band
Greece	433-MHz ISM band
Holland	433-MHz ISM band
Ireland	433-MHz ISM band
Iceland	433-MHz ISM band
Italy	433-MHz ISM band
Croatia	433-MHz ISM band
Norway	433-MHz ISM band
New Zealand	433-MHz ISM band
Poland	433-MHz ISM band
Portugal	433-MHz ISM band
Switzerland	433-MHz ISM band
Slovakia	433-MHz ISM band
Slovenia	433-MHz ISM band
Spain	433-MHz ISM band
Sweden	433-MHz ISM band
Czech Republic	433-MHz ISM band
Germany	433-MHz ISM band
Hungary	433-MHz ISM band
Austria	433-MHz ISM band

On request, the relevant approvals and/or certificates are available.

Operation in the following countries requires special approvals (e.g. import license)
Russia, Singapore, South Africa, Korea

Please contact the manufacturer, if use of the product is planned in the countries mentioned above.

	EC conformity declaration Demag radio control system in accordance with EC directive 89/336/EEC, Appendix I, 73/23/EEC, Appendix III and 99/5/EC #	1 page(s) Page 1
		Ident. no. 205 330 44
		Issue 0107 EN

Hereby we,



Demag Cranes & Components GmbH

declare that the product

**Demag radio control system RC-10, RC-J,
DRC-10, DRC-J,
DRC-MP, DRC-DR, DRC-DC 1) #**

of serial design is in conformity with the provisions of following relevant regulations:

EC EMC directive	89/336/EEC
amended by	92/31/EEC and 93/68/EEC
EC Low voltage Directive	2006/95/EC
EC radio and TTE directive	99/ 5/EG

#

Applied harmonised standards:

EN 954-1	Safety related parts of control systems
EN 13557	Control elements and control positions
EN 50178	Electronic equipment for use in electrical power installations and their assembly into electrical power installations
EN 60204-32	Electrical equipment, requirements for hoists
EN 60529	Types of enclosure (IP code)
EN 61000-6-2	Electromagnetic compatibility – Immunity for industrial environments
EN 61000-6-4	Electromagnetic compatibility – Emission standard for industrial environments
EN 300220-3	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD)

Wetter, 16 January 2007

Place and date of issue



ppa. Gersemsky
Technik Handling Technology



ppa. Hoffmann
BU Handling Technology

1) 1) Application of CE symbol in accordance with EC Low Voltage Directive 2006/95/EC:
RC-10 1998; RC-J 2000; DRC-10 2004; DRC-J 2004; DRC MP 2005; DRC-DR 2005; DRC-DC 2006.

#

# = Modifications compared to previous issue	Normung DCC	Class. no. 715 IS 975
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(For authorized personnel only)

Operating instructions

Programming parameters of DRC-DR radio receiver

1 Menu for programming parameters of the radio receiver

The radio receiver parameter programming menu is used by specially trained personnel for programming parameters of the radio control system. The following information of the radio control system can be displayed and four of the settings can be changed using this menu:

Code	Information
001	Transmission speed (Baud rate) of the radio receiver on the CAN bus
002	Node-ID of the radio receiver
003	Switching on and off the CAN heartbeat function
004	Entry of the crane identification
005	Display of the serial number of the radio receiver
006	Display of the software version of the radio receiver
007	Display of the hardware version of the radio receiver

Note:

Parameters 001 to 003 only refer to radio receivers with CAN interface and are only effective for these. Parameters 001 to 003 are set in the factory and must not be changed without prior agreement.

Attention: Changes to the parameters of the radio receiver may impair functioning of the hoist unit.

1.1 Activating the menu

DRC-10:

- Actuate and hold down the Stop key
- Actuate the Lower key
- Actuate the Right key twice
- Actuate the Lower key again and hold it down for approx. 5 seconds
- Release the Lower key again
- Release the Stop key

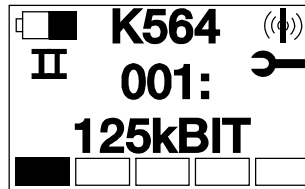
DRC-J:

- Lock the Stop key
- Actuate display key ↓
- Actuate display key ↓ twice
- Actuate display key ↓ again and hold it down for approx. 5 seconds
- Release display key ↓ again

Every change to the „Radio control parameter programming“ menu is signalled to the crane control system.

1.2 Displaying the current parameters

Only parameters are first displayed after activation of the menu. The display starts with parameter 001, i.e. the Baud rate used by the radio receiver on the CAN bus. The colon following the parameter code 001 indicates the display mode:



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Selection of the displayed parameter:

- DRC-10: Left and right keys
- DRC-J: Display keys ← and →

The radio receiver parameter programming menu can be exited at any time:

- DRC-10: Lift keys
- DRC-J: Display keys ↑

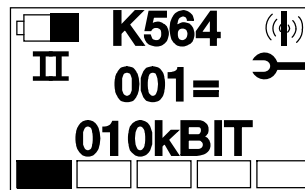
1.3 Changing between display and entry mode

The displayed parameter can only be modified after changing from display mode to entry mode by actuating the F1 key. It is possible to exit entry mode at any time and to return to display mode:

- DRC-10: Lift keys
- DRC-J: Display keys ↑

1.4 Entry mode

In entry mode, the colon following the parameter code is replaced by an equals symbol. Instead of the current value of a parameter, one of the possible values is now displayed:



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Scrolling through possible values:

- DRC-10: Left and right keys
- DRC-J: Display keys ← and →

Actuate the F2 key to accept the displayed value.

The parameter will remain unchanged, if entry mode is exited without accepting the value with F2.

1.5 CAN Baud rate

1.5.1 Default setting

Precondition: Parameter code 001 activated

The default setting set in the factory is a transmission speed of 125 kbit.

1.5.2 Display mode

The current Baud rate is shown in the display. To navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Change to display of parameter 002
Left	Display key ←	Change to display of parameter 007
Lift	Display key ↑	Exit parameter programming menu
F1	F1	Change to entry mode

1.5.3 Entry mode

After changing to entry mode, the first of the possible Baud rates appears in the display.

The following settings are possible

- 10 kbit
- 20 kbit
- 50 kbit
- 125 kbit
- 250 kbit
- 500 kbit
- 1 Mbit

To select and to navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Display the next possible value
Left	Display key ←	Display the previous possible value
Lift	Display key ↑	Exit entry mode
F2	F2	Accept the displayed Baud rate

1.6 Setting the node-ID of the radio receiver

1.6.1 Default setting

Precondition: Parameter code 002 activated

The default setting set in the factory is node-ID 1.

1.6.2 Display mode

In the display, the current node-ID of the radio receiver is shown. To navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Change to display of parameter 003
Left	Display key ←	Change to display of parameter 001
Lift	Display key ↑	Exit parameter programming menu
F1	F1	Change to entry mode

1.6.3 Entry mode

After changing to entry mode, the first possible node-ID appears in the display. Values 1 – 8 are permissible.

To select and to navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Display the next possible value
Left	Display key ←	Display the previous possible value
Lift	Display key ↑	Exit entry mode
F2	F2	Accept the displayed node-ID

1.7 Switching on and off the CAN heartbeat function

1.7.1 Default setting

Precondition: Parameter code 003 activated

The default setting set in the factory is "Heartbeat off".

1.7.2 Display mode

The current setting for the CAN function heartbeat is shown in the display. To navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Change to display of parameter 004
Left	Display key ←	Change to display of parameter 002
Lift	Display key ↑	Exit parameter programming menu
F1	F1	Change to entry mode

1.7.3 Entry mode

After changing to entry mode, the number sequence 000 for the "Heartbeat off" status appears in the display. The "Heartbeat on" status is represented by number sequence 001.

To select and to navigate, use the following keys:

DRC-10	DRC J	Funktion
Right	Display key →	Display the next possible value
Left	Display key ←	Display the previous possible value
Lift	Display key ↑	Exit entry mode
F2	F2	Accept the displayed setting

1.8 Changing the crane identification

Precondition: Parameter code 004 activated

This sub-menu is used for entering the crane identification. When a radio receiver is put into operation, it must be entered once via the radio transmitter.

1.8.1 Display mode

Since the radio control permanently displays the crane identification in the upper main row of the display, only number sequence 000 is shown in the second main row.

To navigate, use the following keys:

1.8.2 Entry mode

DRC-10	DRC J	Funktion
Right	Display key →	Change to display of parameter 005
Left	Display key ←	Change to display of parameter 003
Lift	Display key ↑	Exit parameter programming menu
F1	F1	Change to entry mode

1.8.3 Selection of characters

After changing to entry mode, the "—" character sequence is shown in the display. Entry starts with the first character on the left.

In entry mode, the character required for the crane identification can be selected from the available set of characters by scrolling. To scroll, use the following keys:

- DRC-10: Left and right keys
- DRC-J: Display keys ← and →

In addition to figures and letters, many special characters may also be used.

Attention:

If the same crane identification is entered for two radio receivers, the operator can no longer distinguish the two cranes by the crane identification shown in the display.



1.8.4 Changing to the next position Press the F1 key to accept the selected character and to change to the next position of the crane identification.

1.8.5 Confirming the new crane identification Actuate the F2 key when the crane identification has been entered completely to transmit the new crane identification to the assigned radio receiver.

1.8.6 Exiting the menu It is possible to exit entry mode at any time and to return to display mode:

- DRC-10: Lift keys
- DRC-J: Display keys ↑

Note: Unlike in the other parameter menus, not only entry mode is exited but also the radio receiver parameter programming menu.

1.8.7 Repeating the assignment If entry of the crane identification is exited without accepting the entered crane identification with F2, the crane identification will remain unchanged (entry is aborted).



When the crane identification has been changed, it may be necessary to log an older DRC-10 or DRC-J radio transmitter on again for the radio receiver, in order to transfer the modified crane identification also to the DRC-10 or DRC-J radio transmitter and to enable this unique assignment of the DRC-10 or DRC-J radio transmitter to the crane.

The "Logging on the hand-held radio transmitter" steps are described in section 6.2 of the respective operating instructions for the DRC-10 or DRC-J radio transmitter (see accompanying documents, page 2).

1.9 Displaying the serial number of the radio receiver, Parameter code 005

The serial number of the radio receiver is shown in the display. This display is only provided for information and the displayed value cannot be changed. To navigate, use the following keys:

DRC-10	DRC J	Function
Right	Display key →	Change to display of parameter 006
Left	Display key ←	Change to display of parameter 004
Lift	Display key ↑	Exit menu

1.10 Displaying the software version of the radio receiver, Parameter code 006

The software version number of the radio receiver is displayed with parameter 006. It is only provided for information and cannot be changed. To navigate, use the following keys:

DRC-10	DRC J	Function
Right	Display key →	Change to display of parameter 007
Left	Display key ←	Change to display of parameter 005
Lift	Display key ↑	Exit menu

1.11 Displaying the hardware version of the radio receiver, Parameter code 007

The hardware version number of the radio receiver is displayed with parameter 007. It is only provided for information and cannot be changed. To navigate, use the following keys:

DRC-10	DRC J	Function
Right	Display key →	Change to display of parameter 001
Left	Display key ←	Change to display of parameter 006
Lift	Display key ↑	Exit menu

1.12 Frequency hopping
1.12.1 Downward compatibility with older receivers

DRC-10 or DRC-J radio transmitters operated with the frequency hopping method can also be combined with older receivers not featuring the frequency hopping method.

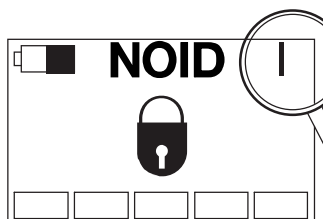
In this case, the DRC-10 or DRC-J radio transmitter must be set to "Locked frequency operation". See operating instructions Parameter programming, section 1.6: „Displaying and entering a fixed frequency channel“, in the relevant operating instructions of the DRC-10 or DRC-J radio transmitter.

The display of the DRC-10 or DRC-J radio transmitter shows whether it is a frequency hopping transmitter or not, see figure below.

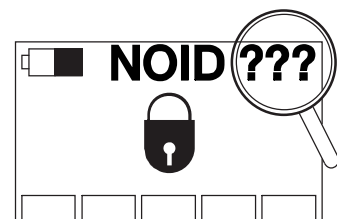
Example in Standby mode

Transmitter without frequency hopping

Transmitter with frequency hopping

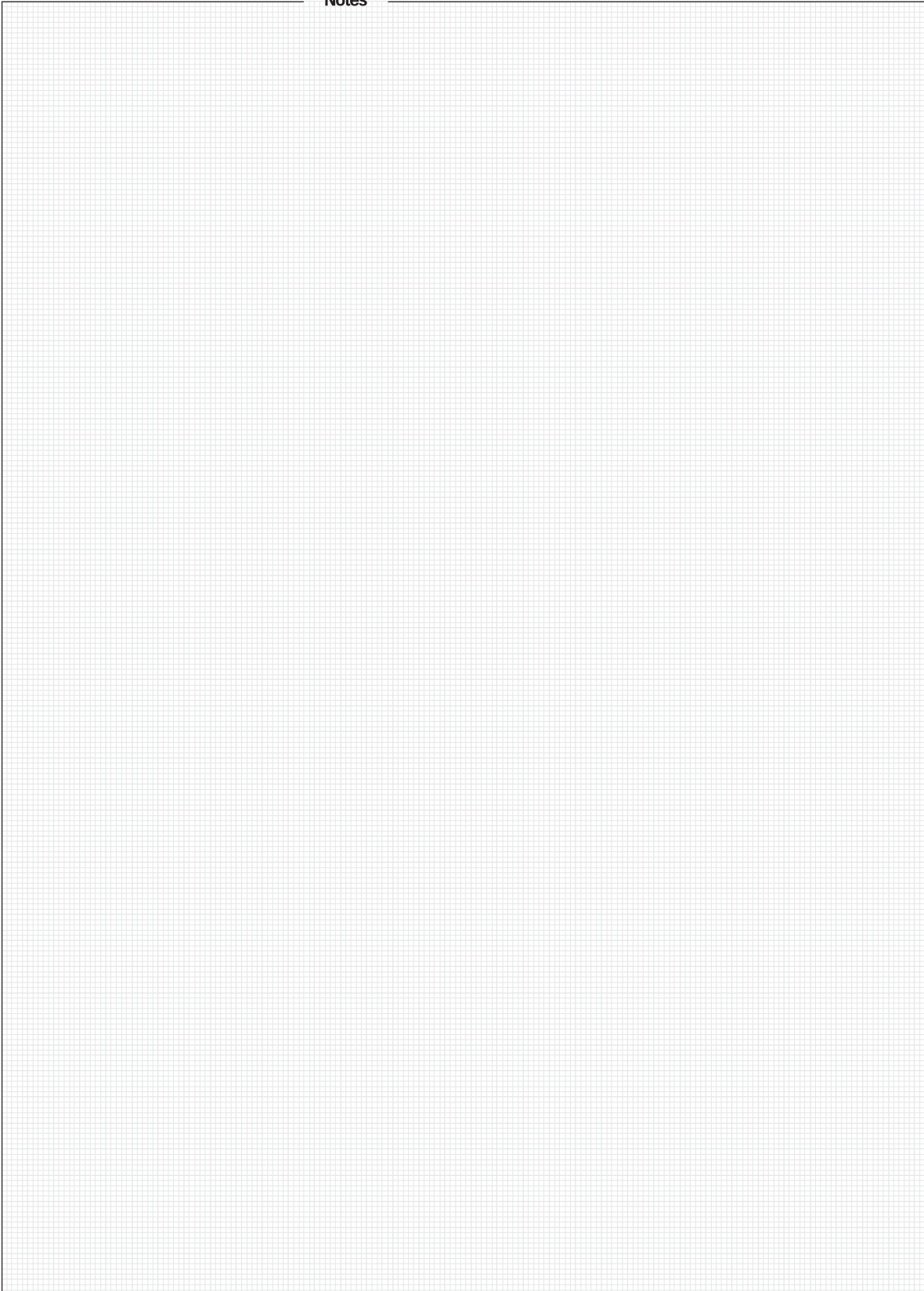


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Notes



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Notes

Notices and Warnings

This equipment complies with part 15 of the FCC Rules and RSS-210 of IC 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. Changes or modifications not expressly approved by Scanreco Industrietechnik AB will void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**