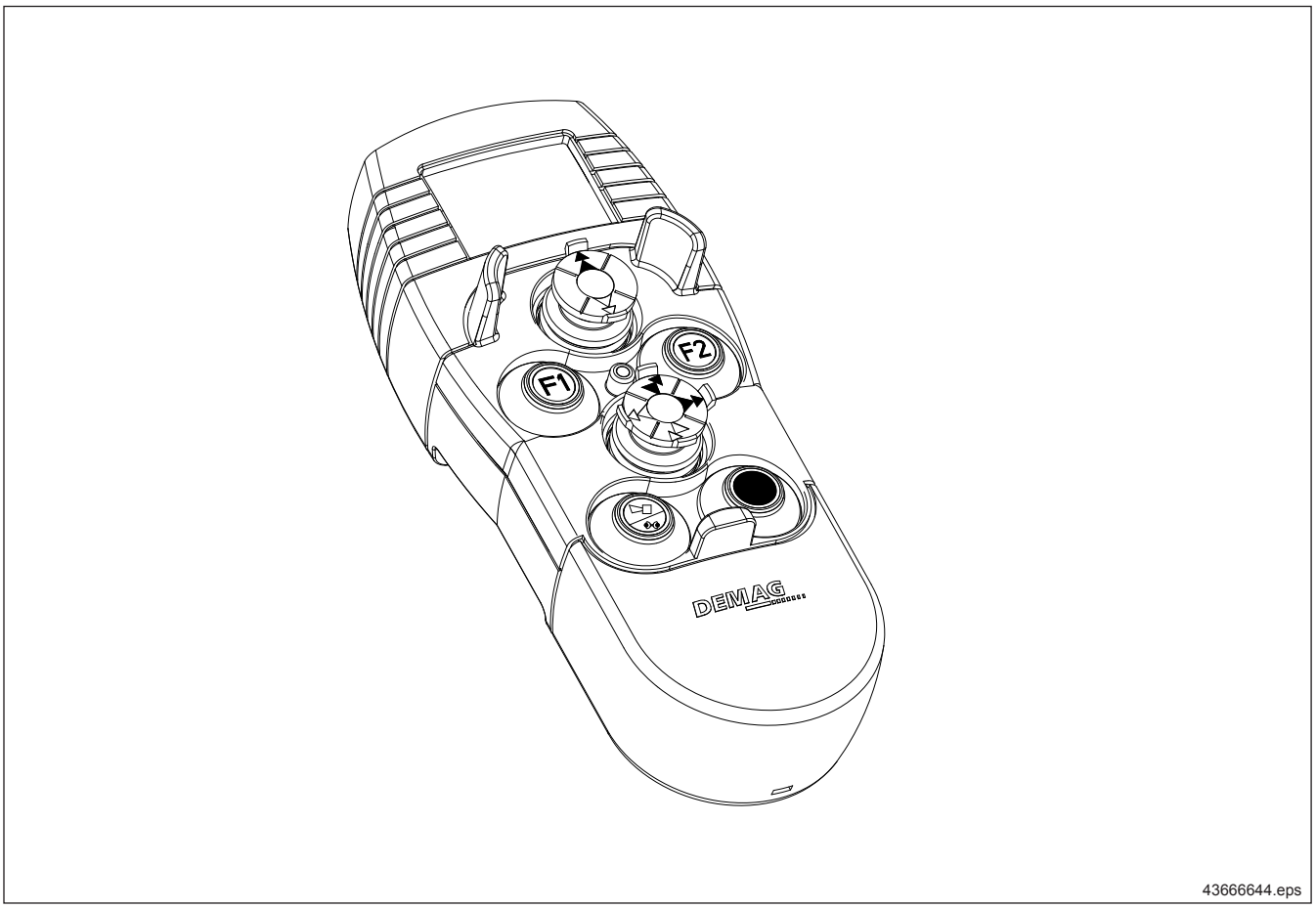
User manual/assembly instructions

DRC-MJ D3 hand-held transmitter



Original user manual/assembly instructions

Manufacturer's address:

Demag Cranes & Components GmbH
Forststrasse 16
40597 Düsseldorf, Germany
www.demagcranes.com
info@demagcranes.com

Contents

1	**General**	**4**
1.1	Information on DRC-MJ hand-held transmitters	4
1.2	Information on the user manual/assembly instructions	4
1.3	Copyright	4
2	**Safety**	**5**
2.1	General	5
2.2	Information on the control system	5
2.3	Intended use	6
2.4	Operating personnel requirements	7
2.5	Personal protection equipment	8
2.6	Spare parts	9
2.7	Regular inspections	9
3	**Device selection**	**10**
3.1	DRC-MJ scope of delivery	10
3.2	Available radio receivers	10
3.3	Accessories for DRC-MJ hand-held transmitters	10
3.4	Accessories for crane identification	10
3.5	Casing seal/seal breakage	10
4	**Technical data**	**12**
4.1	Dimensions	12
4.2	International postal approval	13
5	**Transport, packing, storage**	**14**
5.1	Transport inspection	14
5.2	Packing	14
5.3	Storage	14
6	**Design and function**	**15**
6.1	Transmitter/receiver interface	15
6.2	Transmission method	15
6.3	Power supply for DRC-MJ hand-held transmitters	16
6.4	Identification and screen functions	19
7	**Putting DRC radio controls into operation for the first time**	**26**
7.1	Safety warnings	26
7.2	Safety instructions for operation	26
7.3	Personnel requirements	27
7.4	Putting into operation	27
7.5	Putting a radio control system into operation with a DRC-MJ D3 hand-held transmitter	28
7.6	Single-transmitter operation	29
7.7	Configuration of a radio control system for DRC-DR	33
7.8	Releasing a receiver	34
7.9	Multiple transmitter operation	36

211 338 44.indd / 081019

8	**Using DRC radio controls**	**42**
8.1	Safety warning	42
8.2	Personnel requirements	42
8.3	Check before starting work	43
8.4	Crane operation/Run	44
8.5	Taking the equipment out of service at the end of the shift (standby or switching off)	48
8.6	Radio control system operating statuses	49
9	**Information menu in connection with DRC-DR**	**51**
9.1	Activating the information menu	51
9.2	Selecting the information source	51
9.3	Activating the crab selection screen	51
9.4	Start screen	51
9.5	Navigating in the information menu	51
9.6	Information menu data	52
10	**Fault elimination**	**53**
11	**Disposal**	**56**
11.1	Personnel requirements	56
11.2	Disposal of the radio control system	56
12	**Information**	**57**
12.1	After-sales service	57
P1	**Menu for programming the DRC-MJ D3 hand-held transmitter parameters**	**60**
P1.1	Activating the menu	60
P1.2	Further information on the parameters	61
P1.3	Displaying and entering reversal of the direction of the lifting/lowering motion, parameter code 507	63
P1.4	Activating the electronic gate for the left joystick, parameter code 508	64
P2	**FCC and Industry Canadian information**	**60**
P2.1	FCC information	60
P2.2	Industry Canadian information	61

Further documents:

DRC-MP D3 operating instructions	211 270 44	719 **IS** 975
DRC-DR D3 operating instructions	211 267 44	719 **IS** 975

211 338 44.indd / 081019

1 General

1.1 Information on DRC-MJ hand-held transmitters

You have purchased a Demag product.

This user manual/assembly instructions is designed to provide the owner and operating personnel with appropriate instructions for safe and correct operation and for commissioning.

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

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

The user manual/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.

1.2 Information on the user manual/assembly instructions

This user manual/assembly instructions is an integral part of the DRC-MJ D3 hand-held transmitter.

They must be kept available in the immediate vicinity at all times.

DRC-MJ D3 hand-held transmitters may only be operated by personnel who are fully familiar with the user manual/assembly instructions.

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.

1.3 Copyright

211 338 44.indd / 081019

2 Safety

2.1 General

The “Safety” section provides you with an overview of all important safety aspects which are necessary for you and for the protection of individuals who work with and on the product as well as for safe and smooth operation with the product.

Further task-related safety warnings can be found in the descriptive sections on the individual life-cycle phases of the product.

2.2 Structure and meaning of the instructions

2.2.1 Safety warnings

Important safety information and instructions are marked by corresponding symbols and signal words in this user manual/assembly instructions.

The following symbols and signal words are used for safety warnings to express the nature of the hazard.

DANGER

This warning in combination with a symbol and signal word indicates an immediate danger that will result in severe injuries or death if it is not avoided.

– Follow these instructions at all times and be particularly careful and cautious.

WARNING

This warning in combination with a symbol and signal word indicates a potentially dangerous situation that can result in severe injuries or death if it is not avoided.

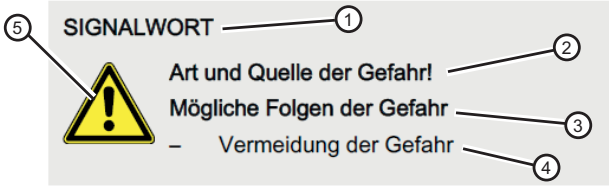
– Follow these instructions at all times and be particularly careful and cautious.

CAUTION

This warning in combination with a symbol and signal word indicates a potentially dangerous situation that can result in medium or slight injuries if it is not avoided.

– Follow these instructions at all times and be particularly careful and cautious.

2.2.2 Structure of safety warnings



43654344.eps

Every safety warning consists of five elements:

1 Signal word
2 Type and source of hazard
3 Possible consequences and causes
4 How to avoid the hazard
5 Safety signs

2.2.3 Further information

IMPORTANT.

Operating hazard for the product.

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

NOTE

- This symbol indicates useful information and tips on smooth and efficient use of the product.

2.3 Intended use

DRC-MJ D3 hand-held transmitter are intended to be used as control units and transmitter stations for DRC-DR and DRC-MP radio receivers. The radio receiver is only referred to as DRC in the description below and, therefore, stands for both DRC-DR and DRC-MP receivers. The scope of functions is designed preferably for wireless control of crane installations, travelling hoist units, chain and rope hoists, transfer carriages and similar applications.

The operator can position himself as required. He can control loads and movements from a safe distance. He must always select a location to ensure that all movements of the load and the crane can be monitored and any hazardous movement can be switched off in good time. Before starting any crane movement by actuating the control element, the operator must determine which crane is being controlled. The DRC-MJ D3 hand-held transmitter screen shows the ID/crane number of the crane under control. The radio-controlled crane must be identified by means of the ID/crane number in a way that is clearly visible to the operator.

If required, a signal must be actuated prior to a crane movement for acoustic control.

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 user manual/assembly instructions.

DRC transmitters and receivers do not require any registration or operating fees, see section 4.2 “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. Consequently, the relevant approved frequency ranges may be used by many transmitters at the same time, depending on the time and location.

The state-of-the-art transmission method is provided with technical features (frequency hopping) which are designed 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 the manufacturer, 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 are negatively affected by the transmission characteristics of the system supplied by the manufacturer.

In such cases, interference or radio connection interruptions may occur, which disrupt the communication and function of a system supplied by the manufacturer or other manufacturers. Such impairment or interference does not constitute a defect on the part of DRC D3 transmitters and receivers.

The manufacturer accepts no liability for wilful or grossly negligent behaviour.

2.4 Operating personnel requirements

2.4.1 Responsibility of the owner

Owner

The owner is the person who operates the product for commercial purposes or lends it to third parties for use/operation. While it is use, the owner bears legal product responsibility for the protection of individuals who work on or with the product or any third parties.

The owner is obliged to ensure that the specified health and safety measures comply with the latest rules and regulations and to observe new regulations over the entire service life of the product.

Special local conditions or applications can lead to situations which are not considered in this user manual/assembly instructions. In such cases, the required safety measures must be defined and implemented by the owner. Necessary measures may also relate, for example, to the handling of dangerous tools and the provision/wearing of personal protection equipment. The user manual/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.

Owner's obligations

The product is used for commercial purposes. Therefore, the owner is subject to the legal obligations for health and safety at the place of work.

General safety, accident prevention and environmental protection regulations that apply where the product is in operation must be observed and complied with in addition to the safety warnings contained in this user manual/assembly instructions.

The owner must ensure that

- any further working and safety instructions resulting from the risk assessment of the control system workplaces are specified in operating procedures.
- the user manual/assembly instructions are always kept available in the immediate vicinity of the product for installation, operating, maintenance and cleaning personnel.
- personnel are trained in accordance with the work to be performed.
- the product is only operated when in safe and proper working order.
- safety devices are always kept freely accessible and are checked regularly.
- national regulations for use of the product are observed.
- any specified regular checks and inspections are carried out on time and are documented.

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.

2.4.2 Qualification of personnel

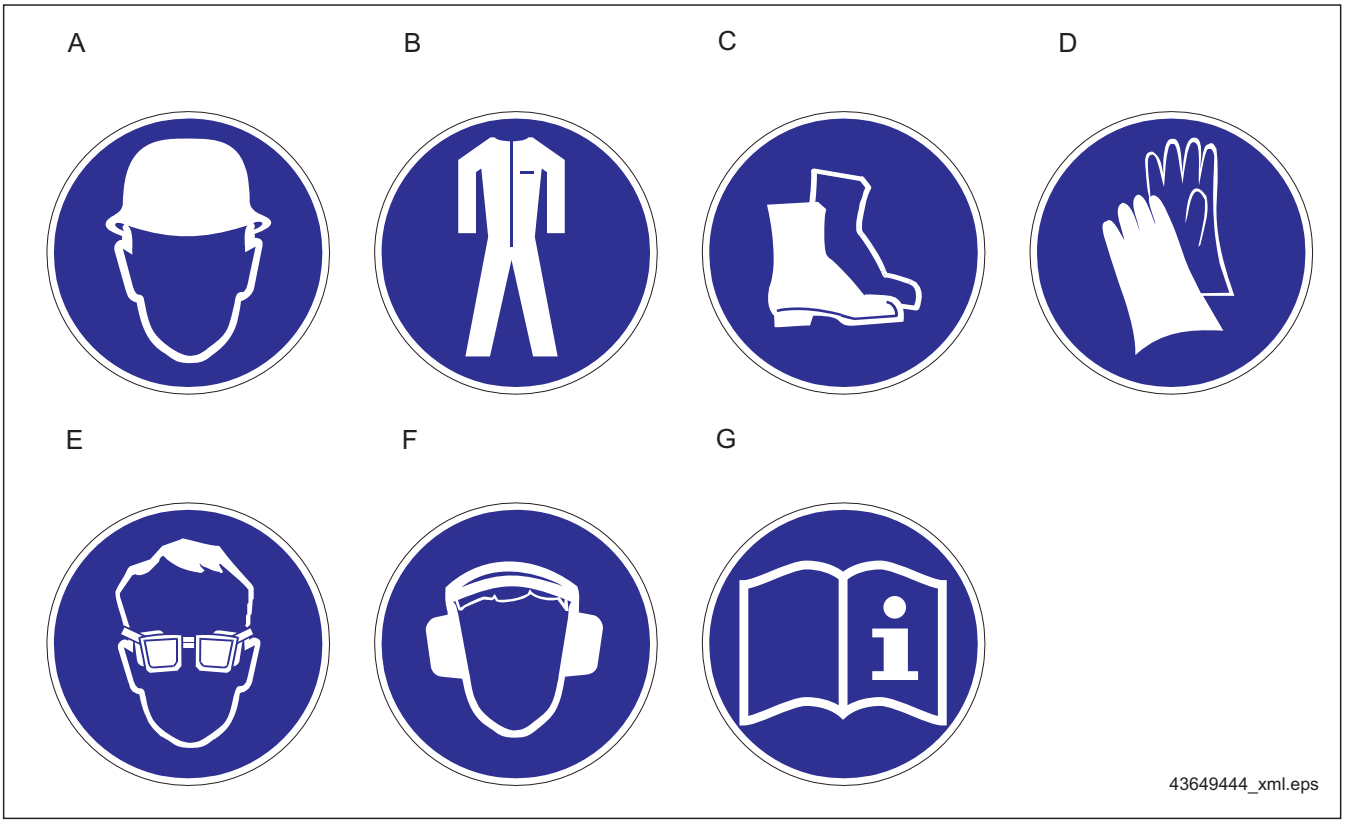
A specialist must have the following qualifications:

- Specialist training as well as knowledge and experience
- Must have knowledge of the relevant specialist terms and regulations
- Can assess the tasks given to him or her, identify potential hazards and take suitable safety measures

2.4.3 Target groups

Designation	Activities	Qualification
Operator	• Checks correct operation of the safety devices • Operates the product	• Has been trained to operate the product • Has been informed about possible hazards resulting from inappropriate conduct
Repair personnel	• Repairs malfunctions and defects • Takes the product out of operation • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained in the repair of the product by the manufacturer or by a company authorised by the manufacturer
Service personnel	• Performs safety-related modifications or repairs to the product • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained to service hoists and cranes by the manufacturer
Experienced technician	• Can judge the safe operating condition of the product	• Technical training and experience as well as sufficient knowledge in the field of the product • Training relating to 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 the product.

2.5 Personal protective equipment



A	Wear a helmet.
B	Wear protective clothing.
C	Wear safety shoes.
D	Wear gloves.
E	Wear safety glasses.
F	Wear hearing protection.
G	Read the documentation.

When work is carried out on or with the product, the following protective equipment must be worn according to the owner's risk assessment:

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

211 338 44.indd / 081019

2.6 Spare parts

Only genuine Demag spare parts may be used.

CAUTION.
Defective spare parts

Incorrect or defective spare parts can cause damage, malfunctions or complete failure of DRC-MJ D3 hand-held transmitters.

Only use genuine spare parts or parts approved by the manufacturer.

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.

2.7 Regular inspections

The owner of DRC-MJ D3 hand-held transmitters 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

- DRC-MJ D3 hand-held transmitters must be inspected before they are put into operation and
- DRC-MJ D3 hand-held transmitters must be inspected regularly.

The owner is obliged to ensure that DRC-MJ D3 hand-held transmitters comply 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 DRC-MJ D3 hand-held transmitters are operated, we recommend compliance with the above-mentioned regulations.

3 Device selection

3.1 DRC-MJ scope of delivery

		Part no.
DRC-MJ D3 hand-held transmitter		**773 760 44**
Contents of the complete delivery:		
• 1 DRC-MJ D3 hand-held transmitter		
• 1 rechargeable battery pack	2,4 V/ReCyKo/2050 mAh	773 499 44
• 1 plug-in charger (rechargeable battery)	110 – 230 V 50/60 Hz	773 438 44
• 1 DRC-MJ D3 hand-held transmitter user manual/assy. instructions		211 338 44
• 1 set of button symbols for DRC-MJ D3 hand-held transmitter		773 465 44

3.2 Available radio receivers

DRC-DR D3 radio receiver	711 333 45
Aerial for DRC-DR D3 receiver for (DR/DMR)	711 445 45
DRC-MP D3 radio receiver 24 V AC/DC – 240 V AC 90/60 Hz	773 794 44

3.3 Accessories for DRC-MJ hand-held transmitters

Spare carrying strap, length approx. 22 cm	773 425 33
External charger To charge a battery pack (773 499 44) Connection to 230 V supply by multi-norm connector 2,5 hours for full charge, automatic trickle charging	773 501 44
Spare parts set for DRC-MJ D3 hand-held transmitter Contents: 1 x upper housing cap, 1 x lower housing cap 5 x bridge contacts	773 415 33
Wall bracket Fixed storage position for DRC hand-held transmitters. Rugged metal design. A hand-held transmitter can be placed in it with a plug-in charger connected to it.	773 688 44

3.4 Accessories for crane identification

Coding labels	Black background foil	895 639 44
Coding labels	7 segments (yellow)	895 640 44
Large cross-travel direction foil (dimensions: 500 x 200 mm)		895 635 44
Large long-travel direction foil (dimensions: 500 x 200 mm)		895 637 44
Small cross-travel direction foil (dimensions: 100 x 250 mm)		851 525 44
Small long-travel direction foil (dimensions: 100 x 250 mm)		851 526 44

3.5 Casing seal/seal breakage

DRC-MJ D3 hand-held transmitters are sealed in the factory.

DRC-MJ D3 hand-held transmitters may only be opened for repair purposes by authorised parties.

NOTE

Breaking a casing seal such as this will result in the loss of all warranty rights.

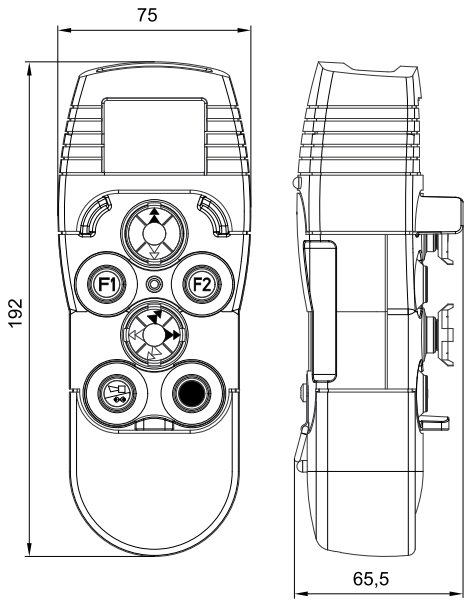
211 338 44.indd / 081019

4 Technical data

Control elements	• Mini joystick	1x variable 1 axis variable control element, mechanical latch at slow speed 1x variable 2 axes variable control element, mechanical latch at slow speed, control for diagonal travel motions possible. Can be optionally switched off via electronic gate.
	• STOP button	1-stage
	• Signal/check button	2-stage
	• Button for special functions	1-stage
Screens	• LCD, 2-colour, illuminated	Graphical, 35 x 25 mm
	• LCD, operating temperature	-20 °C to 55 °C
Radio transmission	Transmitter output (ERP)	Max. 20 dBm (100 mW)
	Typical range	Approx. 100 m
	Frequency range	2,4 GHz ISM band (2405 - 2480 MHz)
Enclosure	Type of enclosure	IP 55
	Weight	
	DRC-MJ D3 hand-held transmitter with battery	450 g
	DRC-MJ D3 hand-held transmitter without battery	395 g
Battery charger	Supply voltage	110 - 230 V, 50/60 Hz
NiMH rechargeable battery	Type	AA (LR6), IEC 60086
	Capacity	2050 mAh
	Service life of battery	Approx. 1000 charging cycles
	Temperature range	
	– Quick charging	10 °C to +25 °C
	– Charging	0 °C to +45 °C
	– Discharging	-20 °C to +50 °C
	Charging time	Approx. 2,5 hours
	Weight	55 g
	Operation with one battery charge	Approx. 60 hours

4.1 Dimensions

DRC-MJ D3 hand-held transmitter



43666544.eps

211 338 44.indd / 081019

4.2 International postal approval

DRC D3 transmitters and radio 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	
China	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Iceland	
India	
Ireland	
Italy	
Latvia	
Liechtenstein	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Norway	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	
United Kingdom (England, Scotland, Wales, Northern Ireland)	
United States of America (USA)	

211 338 44.indd / 081019

5 Transport, packing, storage

5.1 Transport inspection

- Check that the delivery is complete and check it for any transport damage immediately on receipt.
- If any transport damage is visible from the outside, only accept the delivery on condition. Note the scope of damage in the shipping documents/delivery note of the forwarding company and lodge a claim.
- Lodge a claim for any defects that are not immediately detected as soon as they are discovered, since claims for damages may only be asserted within the relevant claim notification periods.

5.2 Packing

If no agreement has been made on the return of the packing material, separate the materials according to type and size and make them available for further use or recycling.

Environmental protection:

- Always dispose of packing materials in an environmentally compatible way and according to locally applicable disposal regulations.
- If required, utilise the services of a recycling company.

5.3 Storage

Until they are installed, DRC radio controls and their accessories must be kept closed and may only be stored under the following conditions:

- Do not store outdoors.
- Store in dry and dust-free places, relative air humidity: max. 80%.
- Do not expose to aggressive media.
- Protect against direct sunlight.
- Avoid mechanical vibrations.
- Storage temperature: -25 to +55 °C.
- Avoid strong temperature fluctuations (condensation).
- Check the general condition of all parts of the packing at regular intervals. If required, refresh or renew rust protection.
- If stored in a damp location, the DRC radio control system must be packed tight and protected against corrosion (use desiccant).

6 Design and function

6.1 Transmitter/receiver interface

Demag DRC D3 radio control systems are designed for the 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 more receivers.

This user manual/assembly instructions refers to DRC-MJ D3 hand-held transmitters in combination with matching DRC radio receivers.

- The Demag **DRC-DR radio receiver** is a PCB that is designed to be installed in the electric equipment cover of a DR or DMR hoist unit. The interface of this receiver component to the crane control system is the CAN safety bus and the power supply via the DR/DMR electric equipment.
  The DRC-DR radio receiver is only suitable for operation with a DR/DMR hoist unit.
- The Demag **DRC-MP radio receiver** is a complete unit with its own enclosure and power supply from the control voltage network of the crane installation. Relay contacts for the individual control commands and the emergency-stop circuit form the interface of this unit to the crane control system. An additional semiconductor output with pulse width modulation is provided for variable-speed crane drives.
  DRC-MP radio receivers can be used for a wide range of applications.

Demag DRC radio receivers are equipped for bi-directional radio transmission and transmit information to the DRC-MJ D3 hand-held transmitter. This increases the safety and reliability of the radio system. Status information for the crane control system and the receiver is shown on the screen of the DRC-MJ D3 hand-held transmitter.

6.2 Transmission method

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

The proprietary radio transmission method used 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 characteristic (LBT) combined with this enables interference with neighbouring radio applications to be effectively eliminated.

211 338 44.indd / 081019

6.3 Power supply for DRC-MJ hand-held transmitters

DRC-MJ D3 hand-held transmitters are supplied with power by the rechargeable battery pack included in the scope of delivery or by two size AA (LR6) NiMh rechargeable batteries. The batteries must be charged in good time with the appropriate plug-in charger. The ambient temperature must be between +10° C and +45° C for the charging process.

6.3.1 Display of available battery capacity

The battery capacity is shown on the screen of the DRC-MJ D3 hand-held transmitter. The charging status of the battery corresponds to the dark surface of the battery icon.

For a new battery, the full battery icon represents a useful operating period of approx. 60 hours for DRC-MJ D3 hand-held transmitters when they are switched on.

If only a residual charge is shown, connect the DRC-MJ D3 hand-held transmitter to the charger at the next opportunity. If the battery icon is empty, the DRC-MJ D3 hand-held transmitter must be immediately connected to the charger.

The operating time that can be achieved by a DRC-MJ D3 hand-held transmitter with one battery charge depends on the operating mode of the DRC-MJ D3 hand-held transmitter, the ambient temperature and the age of the batteries.

Approx. 60 hours of operation can be achieved with one battery charge if a DRC-MJ D3 hand-held transmitter is continuously switched on.

The following measures reduce power consumption:

- Change to Standby during breaks in operation (see section 8.5 on page 47).
- Switch the transmitter off (see section 8.5 on page 47).

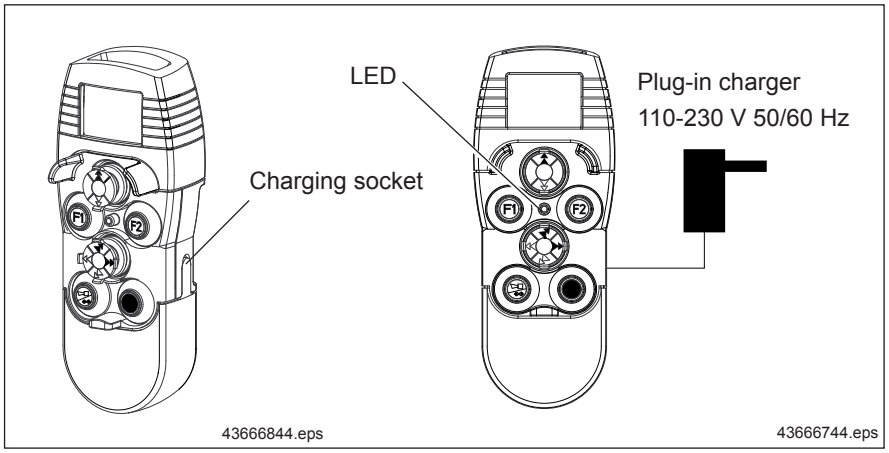
Further measures to reduce power consumption include switching off the background illumination and the vibration alarm (see section P1.2 on page 60).

6.3.2 Charging the batteries

DEMAG When this battery icon is displayed, charge the batteries immediately using the plug-in charger included in the supply.

If the batteries are not charged immediately, the battery icon will start to flash and the DRC-MJ D3 hand-held transmitter will switch off after a few seconds. A low battery capacity is also indicated by the vibration alarm.

Quick charging of the batteries with the DRC-MJ D3 hand-held transmitter is only possible at ambient temperatures from +10 °C to +45 °C. If the temperature is higher or lower than this range, the charging process is aborted and the system automatically switches over to trickle charging.



IMPORTANT

The rechargeable batteries integrated in the DRC-MJ D3 hand-held transmitter must only be charged with the original plug-in charger unit. The use of other charger units can result in permanent damage to the DRC-MJ D3 hand-held transmitter.

The charging process is monitored and controlled by the electronics in the DRC-MJ D3 hand-held transmitter. Partly discharged batteries can also be charged.

To charge the batteries, proceed as follows:

– Plug the charger unit into a power socket.
– Plug the connecting cable into the charger socket of the DRC-MJ D3 hand-held transmitter.

  The  icon will appear on the screen.

  The red LED flashes at 2 Hz.

  The DRC-MJ D3 hand-held transmitter generates an acoustic signal.

  The hand-held transmitter will be charged.

  The DRC-MJ D3 hand-held transmitter changes to standby mode. The crane cannot be operated.

The charging process comprises quick charging and trickle charging modes.

Quick charging: This process takes approx. 2 hours if the battery is empty, it charges the battery to a charge level of approx. 100%.

Trickle charging: At the end of the quick-charging phase, the system switches over to trickle charging mode with a lower charging current so that the DRC-MJ D3 hand-held transmitter can remain connected to the charger for any period of time. This also indicated by an acoustic signal.

Icon when the charging process has been completed. The red LED goes out.

Icon to show there is no battery fitted.

Icon for battery errors.

This icon appears if a battery problem occurs, e.g.:

- batteries are defective,
- batteries are too old,
- attempt to charge non-rechargeable batteries.

Defective batteries must be replaced by new ones (see section 6.3.3)

Important

To ensure sufficient charging of empty batteries, the DRC-MJ D3 hand-held transmitter must be connected to the charger for at least 2 hours. The full battery icon is not sufficient after the charger plug is disconnected, as this icon already appears after a only brief period of charging.

211 338 44.indd / 081019

6.3.3 Replacing the batteries

The rechargeable batteries in the DRC-MJ D3 hand-held transmitter age as a result of charging/discharging cycles and continuously lose their charge capacity. We recommend that the rechargeable batteries be replaced after a year, at the latest. Rechargeable batteries must be immediately replaced if the relevant icon for a battery failure is displayed.

The NiMh rechargeable batteries supplied with the DRC-MJ D3 hand-held transmitter have been specifically selected for the requirements of this radio control system. The electric and mechanical features of the DRC-MJ D3 hand-held transmitter and rechargeable batteries have been matched to fulfil all requirements for smooth, safe and reliable operation.

For replacement, use rechargeable battery pack, part no. 773 499 44.

The use of non-approved rechargeable batteries can result in DRC-MJ D3 hand-held transmitter operating malfunctions or lasting damage to the charger and the DRC-MJ D3 hand-held transmitter.

When replacing the rechargeable batteries, check the contacts in the battery compartment for sufficient contact pressure. New rechargeable batteries must fit tightly between the contact surfaces.

NOTE

If primary cells are used in the DRC-MJ D3 hand-held transmitter, it must not be connected to the charger to avoid any damage caused by overheating during the attempt to charge them.

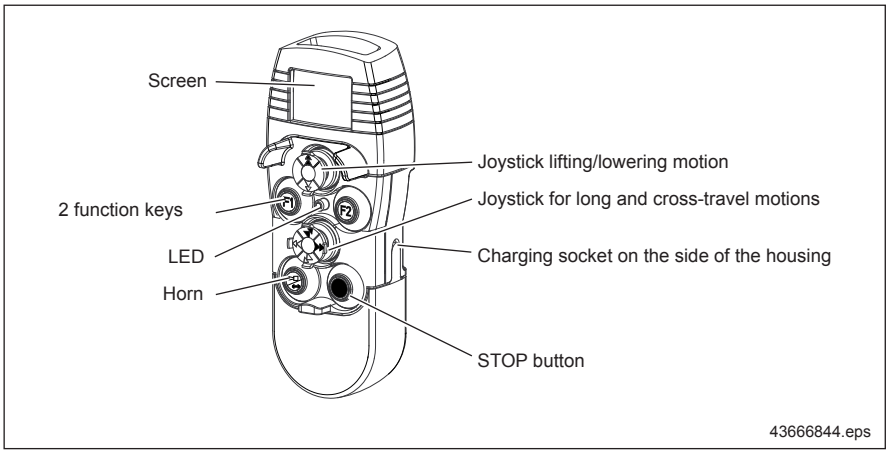
In exceptional situations, if no charged batteries are available, the DRC-MJ D3 hand-held transmitter can be operated with two size AA (LR6) 1,5 V primary cells to EN/IEC 60086. We recommend the use of Duracell and Varta brand alkaline batteries. Primary cells cannot be recharged.

Observe local legal regulations for the correct disposal of old batteries and rechargeable batteries.

Old batteries and rechargeable batteries must be given to regional recycling systems or can be returned to us at no cost. They must never be disposed of with domestic refuse.

6.4 Identification and screen functions

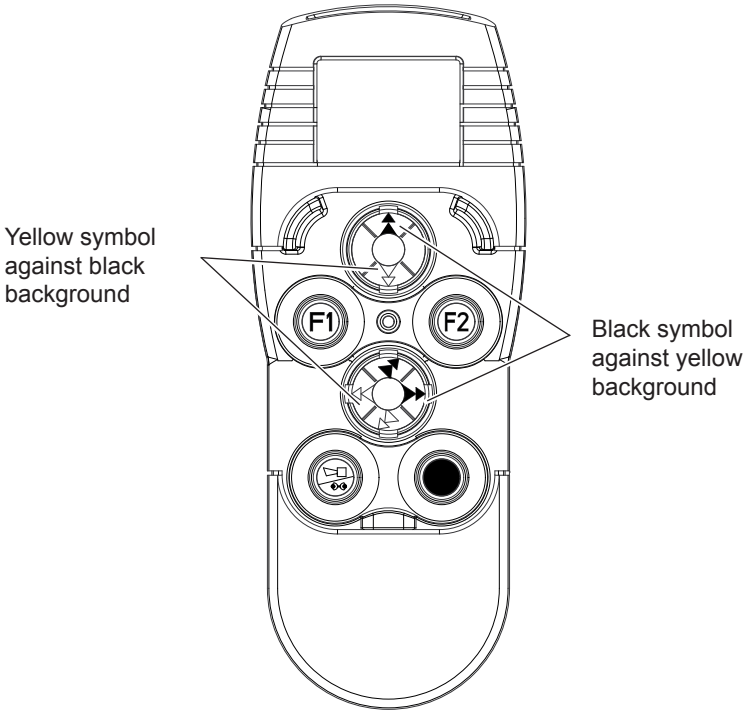
6.4.1 DRC-MJ D3 hand-held transmitter



The LED in the DRC-MJ D3 hand-held transmitter indicates the operating status of the hand-held transmitter:

LED	Operating status
Off	Hand-held transmitter is switched off or in Standby mode
Red continuously on	Hand-held transmitter is in Stop mode
Flashing green	Hand-held transmitter is in Run mode
Flashing red	Hand-held transmitter is in quick charging mode

Button symbols



211 338 44.indd / 081019

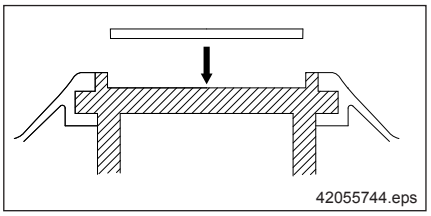
All buttons on the DRC-MJ D3 hand-held transmitter are provided with the corresponding foil symbols as standard.

If requested by the owner, other symbols can be applied to the radio control system.

The owner then has to remove the existing symbols and apply the required symbols. Note that the functions of the individual buttons are pre-defined when the radio control system is used in connection with a DR/DMR hoist unit.

To replace the symbols, proceed as follows:

- The buttons must be free of adhesive, dust and grease. Clean, as required, with spirit or alcohol.



NOTE

Solvents, benzene, degreaser, etc. can damage the button material.

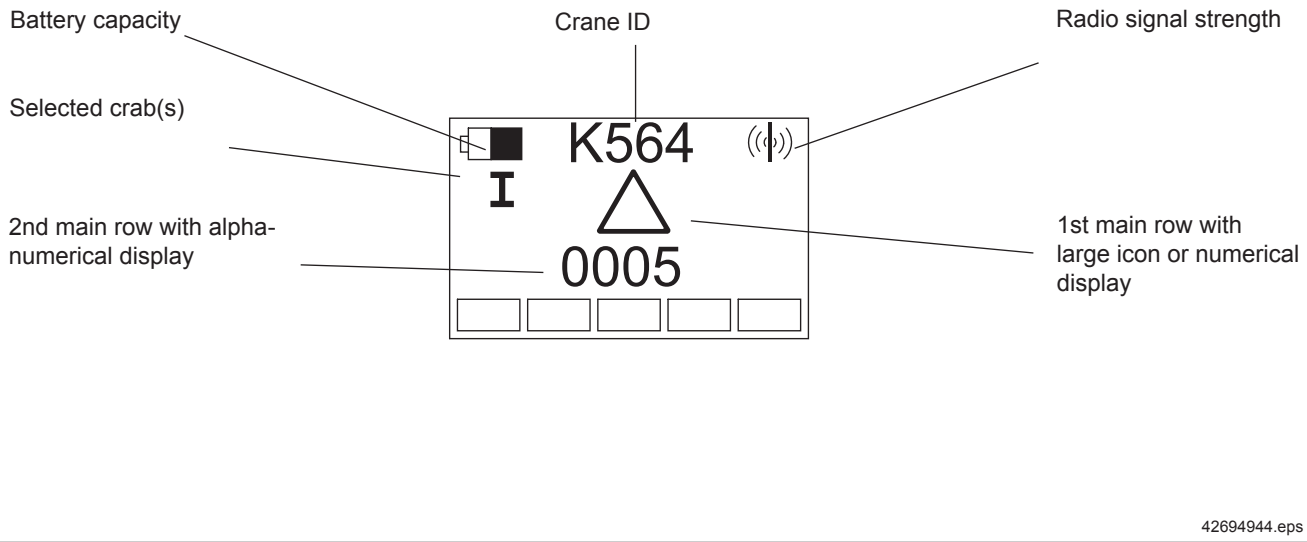
– Remove the symbol required for the relevant function from the symbol sheet. Attach the adhesive symbols to the relevant function key. (See the button designation diagram on page 19 for hoist unit functions)

6.4.2 with LED screen

The DRC-MJ D3 hand-held transmitter has a screen. All important data that are needed for operation of the crane to be controlled are shown on the screen.

The number of information items displayed varies depending on the type of radio receiver. The scope of display functions includes the general displays which are available for both DRC radio receiver types. Additional information can only be used with DRC-DR radio receivers.

DRC-MP radio receiver screen



At temperatures below 0 °C, the contrast of the LCD screen is reduced and it takes longer for the characters to change.

6.4.2.1 General display

Crane ID K564

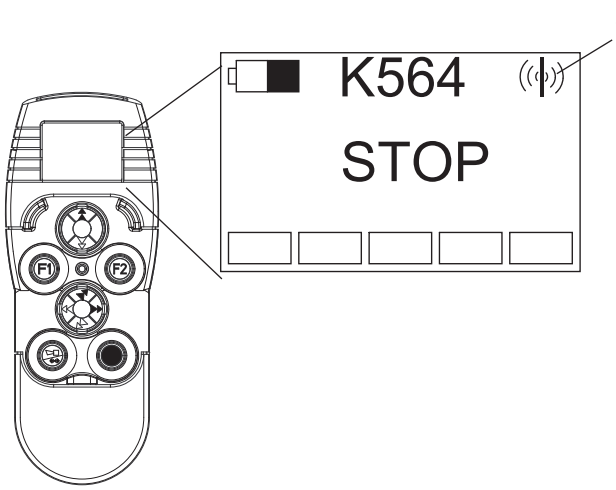
The crane ID shows the crane to which the DRC-MJ D3 hand-held transmitter has been assigned. The crane ID is saved in the DRC radio receiver and can only be entered via the DRC-MJ D3 hand-held transmitter.

Display of selected crab(s)

The screen to show the selected crabs is only active if there are two crabs and both can be operated with **one** radio control system.

Symbol	Meaning
I	Crab 1 is selected
II	Crab 2 is selected
I+II	Crabs 1 and 2 are selected

Display of radio signal strength



Symbol	Meaning
	Full signal strength
	50% of the maximum range between DRC-MJ D3 hand-held transmitter and DRC radio receiver reached
	Weak signal: if the distance between the DRC-MJ D3 hand-held transmitter and the DRC radio receiver increases any further, the radio signal could be interrupted

211 338 44.indd / 081019

Battery icon

The battery icon indicates the status of the rechargeable batteries.

The following icon is displayed during the charging process.

Icons in the first main row

All icons important for operation are shown in the first main row.

Lock icon

The lock icon indicates Standby mode.

The electronic On key must be entered to switch into Run mode.

Press the STOP button to enter Stop mode.

STOP

STOP icon

STOP indicates STOP mode. The system can be switched into Run mode with the electronic key. See section 8.4.1

???

“No radio signal” icon

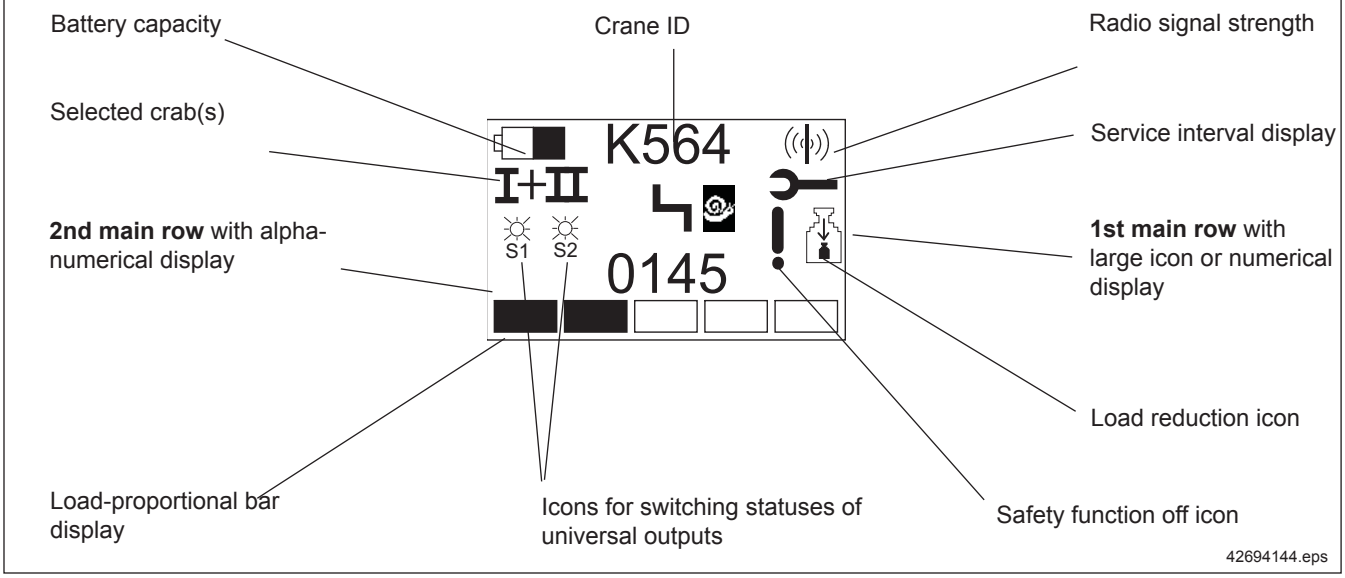
The “No radio signal” icon is displayed if the DRC-MJ D3 hand-held transmitter fails to establish a connection to the assigned DRC radio receiver.

Warning icon

The warning icon is displayed if there is a warning. The warning code is displayed in the row below.

6.4.2.2 Additional display information

DRC-DR radio receiver screen



Service interval display

This icon indicates that our after-sales service or an after-sales service company authorised by us must be called in for service work.

Icons in the first main row

Fault icon

The fault icon is displayed if there is a fault.

The fault code is displayed in the row below. If there are several faults at the same time, the code displayed changes in cycles.

Overload icon

The overload icon is displayed if there is an overload. The load of the selected crab(s) is also displayed in the row below if the hoist unit is equipped with an overload protection device (e.g. ZMS, EOD).

Brake icon

The brake icon is displayed if the additional brake has been applied.

“Universal output 1 switching status” icon

This icon is displayed when universal output 1 is active. The function of this output can be programmed.

“Universal output 2 switching status” icon

This icon is displayed when universal output 2 is active. The function of this output can be programmed.

“Universal output 3 switching status” icon

This icon is displayed when universal output 3 is active. The function of this output can be programmed.

“Important. Safety function de-activated” icon

This icon indicates that a function relevant for safety such as a reduced load or by-pass control has been de-activated by the operator.

“Load reduction active” icon

The icon indicates that load reduction is active. Only a reduced load (specified by a parameter) can be lifted when load reduction is active.

“Transfer” icon

The icon indicates that the transmitter is being connected to the selected crane.

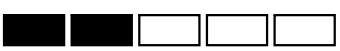
“Hourglass” icon

This icon is displayed during the log-off process.

“Snail” icon

This icon indicates that the crane is travelling at reduced maximum speed (speed limit function).

Load-proportional bar display



The load-dependent bar display shows the load on the crane in five increments of approx. 20%. This display is independent of the crab selection and always refers to the maximum possible load.

211 338 44.indd / 081019

6.4.3 Compatibility

DRC D3 generation units are not technically compatible with units from the previous DRC D2 or DRC D1 generation. This means that D3 generation transmitters and receivers cannot be combined with D2 or D1 generation units.

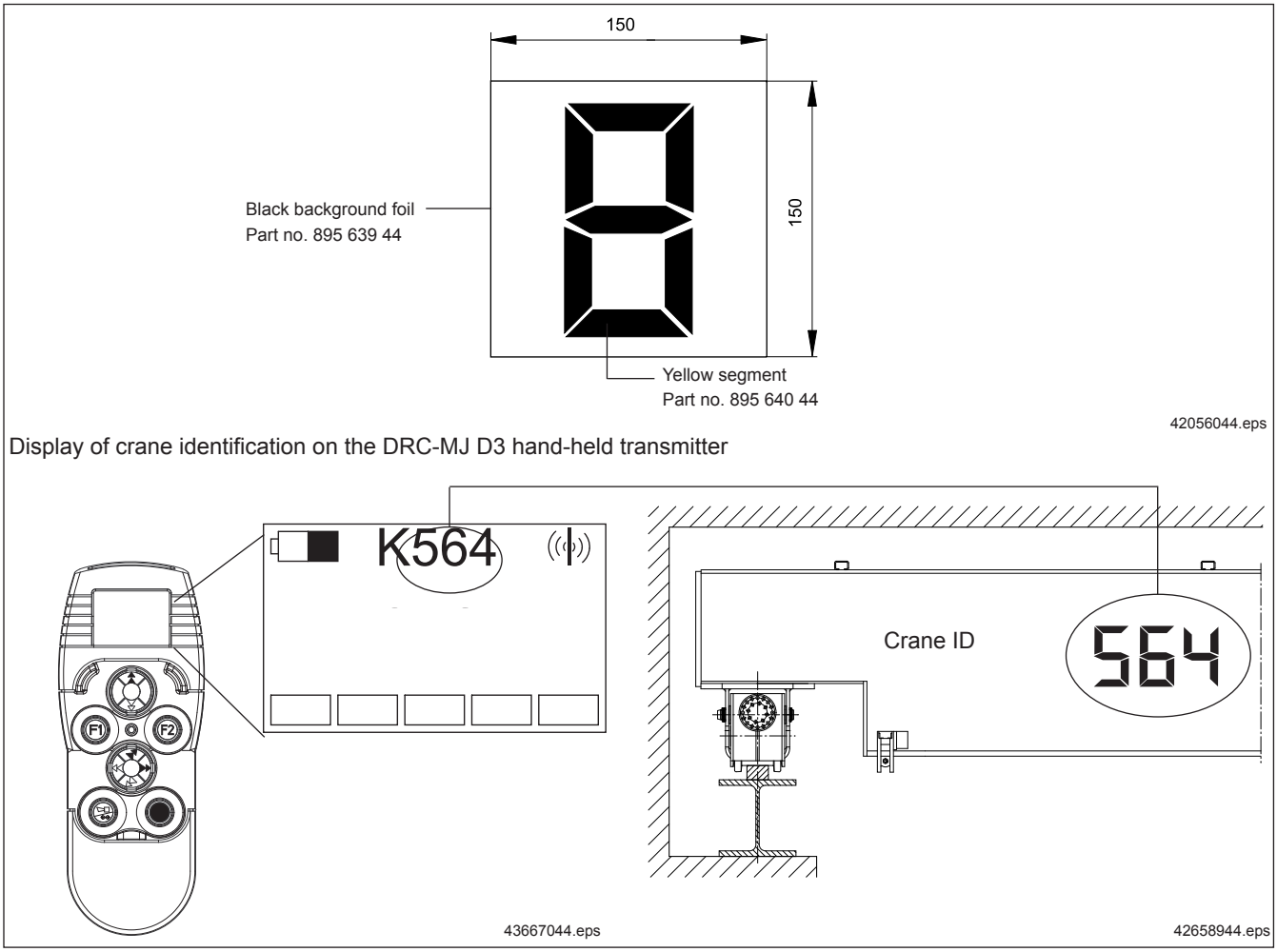
		Can be combined with	
		DRC-DR D3 CAN bus receiver	DRC-MP D3
Transmitter	**Part no.:**	**711 333 45**	**773 794 44**
DRC-MJ D3	**773 760 44**	OK	OK

6.4.4 Identification labels for the crane installation

Every crane that is operated with wireless control must be identified by means of an easily visible crane ID/number. Travel direction symbols on the crane and the crab must match the directions of movement for the travel motions shown by the buttons on the hand-held control unit.

6.4.4.1 Coding labels

The coding labels are used to show the crane ID on the crab or the crane. The crane identification shown by the coding labels must be identical to the crane identification shown on the screen of the DRC-MJ D3 hand-held transmitter.

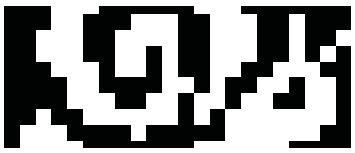


The coding labels (150 x 150 mm) (black background foil + foil with numbers) must be attached to the hoist unit in such a way that they are easily visible.

The required numbers 1 to 9 are created by removing the yellow segments.

6.4.4.2 Travel direction symbols

Cross-travel speed
Part no.: 895 636 44



Long-travel speed
Part no.: 895 638 44

The travel direction foils must be attached to the hoist unit so that they are easily visible to match the relevant travel directions and the direction of movement symbols on the DRC-MJ D3 hand-held transmitter.

211 338 44.indd / 081019

7 Putting DRC radio controls into operation for the first time

7.1 Safety warnings

DANGER.
Electric current.

Electric energy can cause very severe injuries.

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

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

NOTE

This user manual/assembly instructions must be read carefully before starting any work on and with the DRC-MJ D3 hand-held transmitter, 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 user manual/assembly instructions
- inappropriate use
- untrained personnel
- unauthorised conversions
- technical modifications

7.2 Safety instructions for operation

Before putting the equipment into operation, operating personnel must be satisfied that the radio control system is in safe and correct operating condition.

In addition, the safety instructions must be followed and measures described in the crane user manual/assembly instructions must be applied.

Safe wireless remote control of a crane requires clear assignment of the DRC-MJ D3 hand-held transmitter to a DRC radio receiver. This unique assignment is created by sharing the address between the DRC-MJ D3 hand-held transmitter and radio receiver when the equipment is put into operation. The operator can recognise which receiver is being controlled by means of the crane identification shown on the screen of the DRC-MJ D3 hand-held transmitter.

Ensure that nobody can be endangered by operation of the crane before the crane/machine controlled by the radio control system is switched on or put into operation.

If the operator notices persons who may be exposed to a risk to health or personal safety by operation of the equipment, he must stop operation immediately and may not resume operation again until the persons are outside the danger zone.

STOP button function

Actuation of the red STOP button activates the emergency-stop function in the radio receiver on the crane. The emergency-stop function stops any potentially dangerous movement of the crane. In particular the instructions contained in the user manual/assembly instructions of the crane must be complied with for use of the emergency-stop function. The radio system enters “STOP” mode when the STOP button is pressed. No movement commands are transmitted. The emergency-stop can be unlocked again by entering an electronic key (see section 8.4.1). This may only be done after the operator has checked that the hazardous situation which resulted in actuation of the STOP button has been eliminated.

Warning device function

Radio-controlled cranes must be provided with a warning device (acoustic or optical). The operator can activate this warning device by means of the signal button on the button panel of the DRC-MJ D3 hand-held transmitter to warn individuals in the vicinity of the crane and/or load before starting any crane movements.

The warning device must also be used if the operator intends to check the assignment between the hand-held transmitter and the DRC radio receiver on the crane by means of a command on the DRC-MJ D3 hand-held transmitter.

Radio control system range

The crane operator may only use the range of the radio control system to the extent that he can freely monitor the danger zone of the crane movements.

The range of the DRC-MJ D3 hand-held transmitter is limited and can be additionally reduced by ambient conditions. The range may also be limited if the available frequency range is being used by other radio transmitters. The quality of the radio signal is shown on the screen of the DRC-MJ D3 hand-held transmitter. If poor connection quality is displayed, unintended interruptions of the controlled movements can occur.

7.3 Personnel requirements

7.3.1 Target group

Designation	Activities	Qualification
Service personnel	• Performs safety-related modifications or repairs to the product • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained to service hoists and cranes by the manufacturer

7.4 Putting into operation

The following measures are required to put the DRC-MJ D3 hand-held transmitter into operation:

7.4.1 Charging the batteries before putting the unit into operation for the first time

A separate rechargeable battery is included in the scope of delivery for the DRC-MJ D3 hand-held transmitter. It has to be placed into the battery compartment of the hand-held transmitter with the correct polarity (see also diagram in section 8.6.5).

Since new rechargeable batteries are only partially charged when they are delivered, they must be charged before they are put into operation for the first time by connecting them to the plug-in charger (see section 6.3.2).

7.4.2 Assembly and connection of the radio receiver

DRC radio receivers must be installed in accordance with the relevant user manual/assembly instructions and connected according to the circuit diagram for the installation. Comply with the instructions and measures described in the user manual/assembly instructions to put the DRC radio receiver into operation.

7.4.3 Applying the crane ID to the crane

A unique crane ID/number must be selected (a 3-figure number is recommended) and applied to the crane according to section 6.4.4 for cranes that are equipped with the radio control system.

211 338 44.indd / 081019

7.5 Putting a radio control system into operation with a DRC-MJ D3 hand-held transmitter

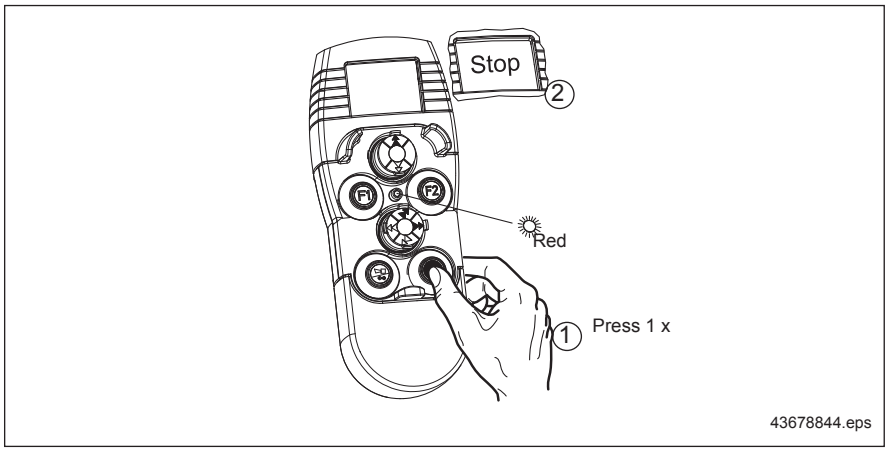
When the specified preparation steps have been completed, put the radio control system into operation by logging the DRC-MJ D3 hand-held transmitter onto the DRC radio receiver of the crane to be controlled. Following this procedure, the radio control system must be configured for the specific application.

The DRC radio receiver on the crane must be supplied with power, ready for operation and within range of the DRC-MJ D3 hand-held transmitter.

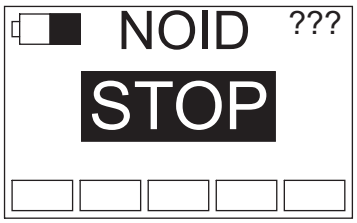
7.5.1 Switching the hand-held transmitter on

When the unit is switched off, no icons appear on the screen, the LED is off.

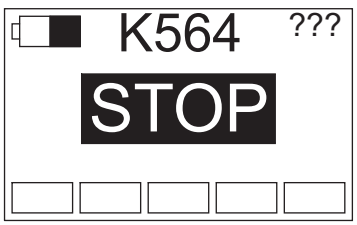
1. Press the STOP button to switch the DRC-MJ D3 hand-held transmitter on.
2. STOP appears on the display.



The screen first shows the DEMAG logo. The DRC-MJ D3 hand-held transmitter searches for an assigned DRC radio receiver. Before a DRC-MJ D3 hand-held transmitter is put into operation for the first time, it has no DRC radio receiver assigned to it. Therefore, the following is shown on the screen:



If the transmitter has already been assigned to a DRC radio receiver in the log-on steps as described in section 7.6.2, the following will appear on the display:



In this case, continue commissioning with assignment of the crane ID, see section 7.6.3.

NOTE

Additional information can also be shown on the screen of the DRC-MJ D3 hand-held transmitter depending on the type of DRC radio receiver.

7.6 Single-transmitter operation

7.6.1 Hand-held transmitter log-on

WARNING.
Incorrect log-on of the transmitter.

Incorrect transmitter assignment can cause unintended crane movements by other transmitters. These crane movements can result in damage or injuries that might be fatal.

After the transmitter is logged on, check to ensure that the crane ID is correctly assigned between the radio transmitter and radio receiver.

IMPORTANT

Logging-on a DRC-MJ D3 hand-held transmitter, as described in the following, is a safety-relevant process that must only be performed by authorised and instructed specialist personnel.

A special technical feature of DRC radio controls is the “wireless log-on procedure”. This log-on procedure enables a DRC radio transmitter to log onto or log off from a specific DRC radio receiver.

A new transmitter can only log onto a DRC radio receiver that was previously connected to a DRC radio transmitter if the previously used DRC radio transmitter is logged off and, in this way, the DRC radio receiver has been enabled.

There are different ways that the DRC radio receiver can be wirelessly released from the DRC radio transmitter:

- Via the previously logged-on DRC radio transmitter: select ‘????’ in the log-on menu.
- Via any DRC D3 radio transmitter: enter the crane ID or serial no. of the radio receiver to be released through a special input menu and send it to the radio receiver.

NOTE

The transmitter currently logged onto the receiver must be completely switched off or in Standby mode.

Required steps, see section “7.9.3 Logging-off all radio transmitters” on page 38.

Only released DRC radio receiver are displayed during the transmitter log-on search process.

A globally unique assignment of the hand-held transmitter to the radio receiver to be controlled on the crane can be created by logging the DRC-MJ D3 hand-held transmitter to a DRC radio receiver.

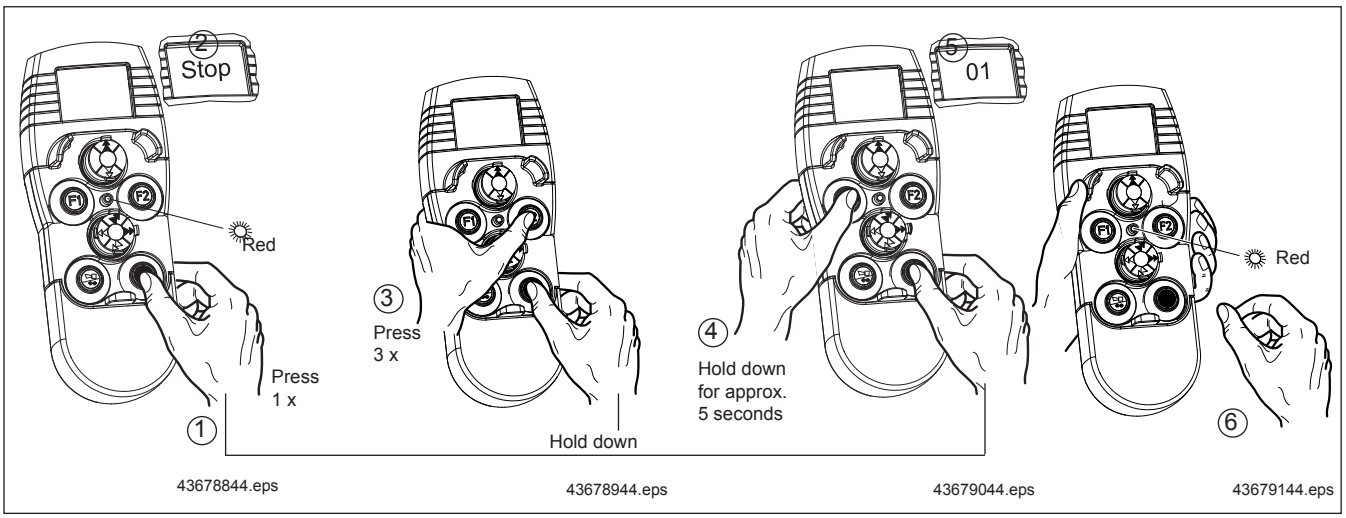
Both DRC-MJ D3 hand-held transmitters as well as DRC radio receivers are provided with unique address features that are shared during the log-on process to ensure distinct and unique assignment. During the log-on process, the crane ID (see sections 6.4.4 and 7.6.3) is also transmitted from the DRC radio receiver to the DRC-MJ D3 hand-held transmitter and is saved.

DRC-MJ D3 hand-held transmitters display this crane identification/number so that the operator can identify the controlled crane.

Log-on can be activated in Run mode, STOP mode or Standby mode.

211 338 44.indd / 081019

7.6.2 Activating log-on:



Transmitter is in STOP mode

1. Hold the STOP button down during the log-on process.
2. Transmitter is in STOP mode
3. Press the F2 key 3 times.
4. Hold the F1 key down for approx. 5 seconds until
   the screen changes.
5. Following activation, a two-digit number is shown in the 1st main row which indicates the number of free radio receivers that can be controlled and are within range (the example shows 01 available receivers).
6. Release the STOP button

Select radio receiver based on crane ID

NOTE

A DRC-MJ D3 hand-held transmitter only needs to be logged onto to a DRC radio receiver with code NOID when the unit is put into operation for the first time in order, subsequently, to assign the crane ID specified in section 7.6.3 to the DRC radio receiver.

If there are several new DRC radio receivers that have NOID, the code after the colon can be used to identify the corresponding DRC radio receiver.

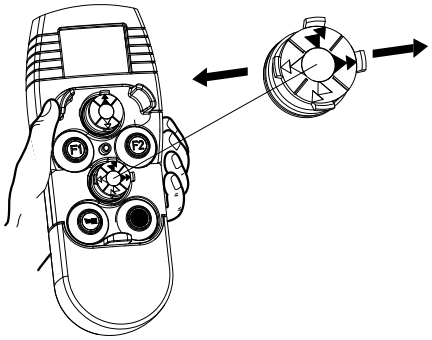
Definition:

M: DRC-MP

D: DRC-DR

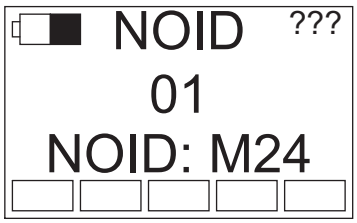
The two digits after the letter are the last digits of the DRC radio receiver serial no.

Select



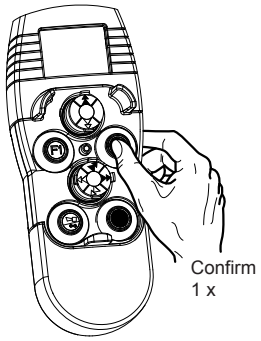
43679244.eps

– Push the RIGHT and LEFT joystick to select the crane identification of an available DRC radio receiver on the second main row.



43613844.eps

Confirm



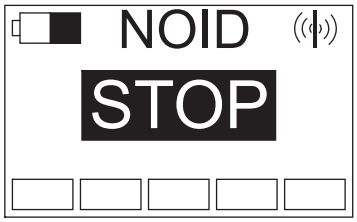
43679344.eps

– Press the F2 key to confirm the selection.

  The DRC-MJ D3 hand-held transmitter is assigned to the DRC radio receiver whose crane ID is shown in the 2nd main row of the screen (NOID: M24 in the example). At the same time, the crane ID on the DRC-MJ D3 hand-held transmitter is also changed to the new value and displayed next to the battery icon.

  The log-on process is then finished.

  The screen shows:



43613944.eps

211 338 44.indd / 081019

7.6.3 Assignment of crane ID/ number for the radio receiver

Important Assignment of the crane ID described in the following for putting the DRC radio receiver into operation is a safety-relevant process that must only be performed by authorised specialist personnel.

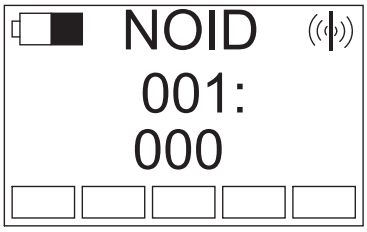
After successful establishment of a radio connection between the DRC-MJ D3 hand-held transmitter and the DRC radio receiver, the crane identification specified according to section 6.4.4 must be assigned to the radio receiver. As long as the DRC radio receiver operates with code “NOID”, no movement commands or special functions are output to the crane control system. (To check radio transmission in this status, use the signal button.)

Activating the assignment

Assignment can be activated in STOP mode, Run mode or Standby mode.

– Hold the STOP button down.
– Push the LOWER joystick.
– Push the RIGHT joystick twice.
– Push the LOWER joystick for approx. 5 seconds until the screen changes.
– Release the LOWER joystick.
– Release the STOP button.

The following screen appears:



42694544.eps

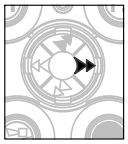
Note: Additional information can also be shown on the screen depending on the type of crane control system.

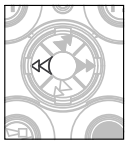
The code no. of the displayed parameter is shown in the first main row.

For DRC-DR units, the first digit of the three-digit parameter number is always 0, for DRC-MP units it is always 1.

The value of the parameter is shown in the second main row.

Selection of parameter 004 for the crane ID/number

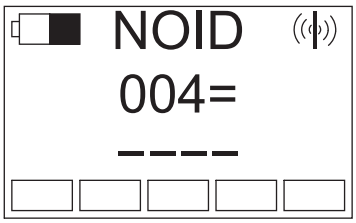
• Right joystick  increases the displayed code no.

• Left joystick  decreases the displayed code no.

43679444.eps

Entry of the crane ID/number

First select parameter 004, then press the F1 key to start entry. The following screen appears:



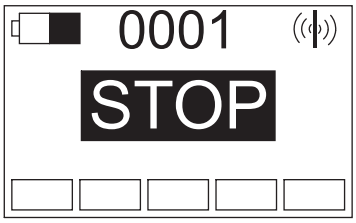
43614044.eps

4 free digits for entry of the crane ID/number are highlighted in the second main row. The first digit is preselected. Use the RIGHT and LEFT buttons to select a number/character from the available set of characters.

Press the F1 key to accept the selected character and to change to the next position.

Transmitting the assigned crane ID

When the appropriate crane identification has been entered, press the F2 key to confirm and to transmit it to the DRC radio receiver. This crane identification is then saved in the DRC radio receiver. It is shown on the upper row of the screen (for example, 0001).



43614144.eps

Cancelling/ending assignment of the crane ID

The entry can be cancelled at any time without changing the crane identification by pressing the LIFT button.

7.7 Configuration of a radio control system for DRC-DR

DR/DMR cranes that are equipped with a DRC-DR radio receiver use an extended scope of functions on DRC-MJ D3 hand-held transmitters. They are used to configure the crane control system and to display information.

Additional instructions and information are described in the DRC-DR radio receiver user manual/assembly instructions (ident. no. 211 267 44) for putting a crane into operation if it is equipped with a DRC-DR radio receiver.

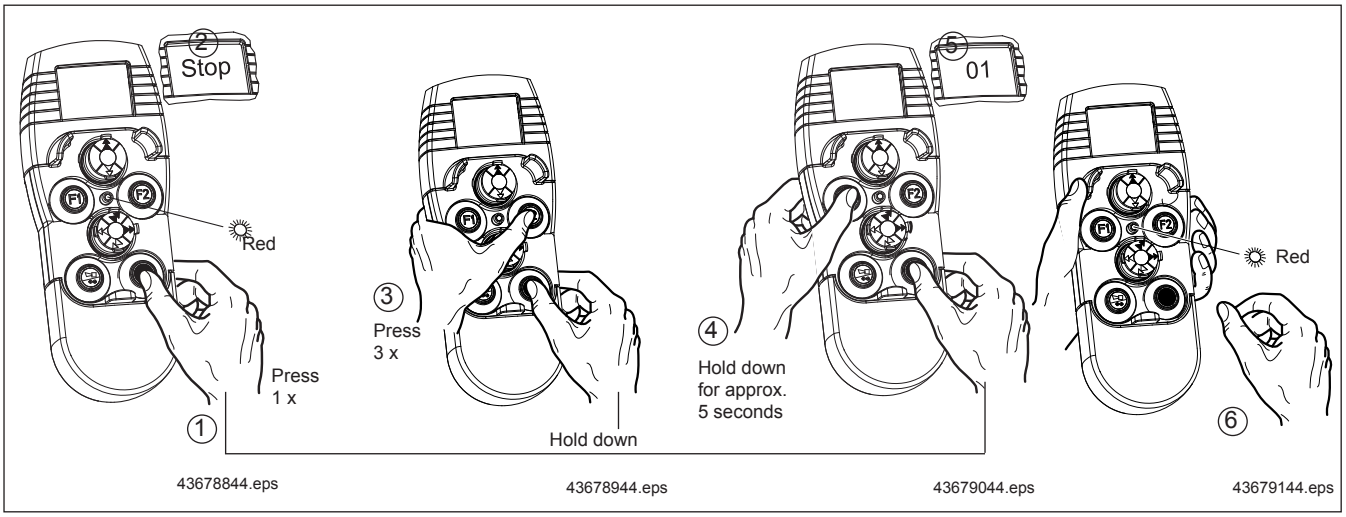
211 338 44.indd / 081019

7.8 Releasing a receiver

When a new transmitter is logged on with the wireless log-on procedure used for DRC D3 radio systems, the previously used DRC radio receiver must be enabled.

In the simplest case, the DRC radio receiver can be released by the previously logged-on transmitter (for other ways to enable the DRC radio receiver, see section 7.9.3 on page 38):

– Access the log-on menu:

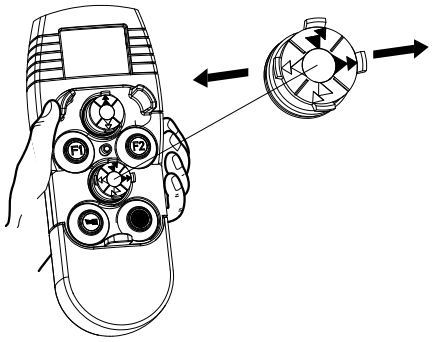


Transmitter is in STOP mode

1. Hold the STOP button down during the log-on process.
2. Transmitter is in STOP mode
3. Press the F2 key 3 times.
4. Hold the F1 key down for approx. 5 seconds until
   the screen changes.
5. Following activation, a two-digit number is shown in the 1st main row which indicates the number of free radio receivers that can be controlled and are within range (the example shows 01 available receivers).
6. Release the STOP button

– The 2nd main row reads “????”.

Select

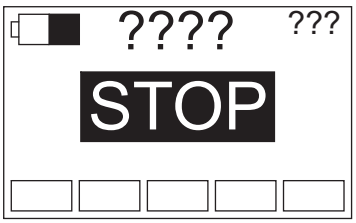


43679544.eps

– Press the F2 key to confirm selection of “????”.

Release of the receiver is initiated. The receiver outputs a short horn signal to indicate the successful log-off or release of the receiver.

The screen shows the following:



43603844.eps

NOTE

Wait until you hear a horn signal. The system will fail to enable if the menu is quit before the horn signal sounds.

If the radio transmitter that was originally logged onto the crane is defective or has been lost, the radio receiver can be enabled using another DRC D3 radio transmitter by means of the crane ID or serial no. See section 7.9.1

211 338 44.indd / 081019

7.9 Multiple transmitter operation

7.9.1 Logging on a second or third radio transmitter

Up to three radio transmitters can be logged onto one DRC radio receiver. The system ensures that travel commands can only ever be sent by one radio transmitter.

If the currently active radio transmitter fails, e.g. because the rechargeable battery is flat, the radio transmitter has been lost or due to a technical defect, another radio transmitter that had already been logged on can quickly take over without the need to log off the old defective or lost radio transmitter.

For multi-shift applications, this enables control to be transferred quickly to another radio transmitter, e.g. if the battery charge of the previously used radio transmitter is too low.

This technology also enables several workers to be assigned their “own personal radio transmitters”. In practice, this means that the DRC radio receiver can be controlled by one of the assigned radio transmitters “at the press of a button”.

If no radio transmitter has been assigned to the DRC radio receiver yet, this must first be done, as described in section 7.6 “Single-transmitter operation”.

If the DRC radio receiver has not been assigned an ID (NOID), a crane ID other than NOID must first be assigned to it. See section 7.6.3 on page 31.

You can now log on up to two further radio transmitters.

Activating log-on:

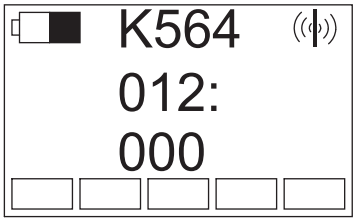
Transmitter is in STOP mode

– Hold the STOP button down.
– Push the LOWER joystick.
– Push the RIGHT joystick twice.
– Push the LOWER joystick for approx. 5 seconds until the screen changes.
– Release the LOWER joystick.
– Release the STOP button.

1. The parameter must now be selected using the currently connected radio transmitter:

   Parameter 012 = DRC-DR

   Parameter 112 = DRC-MP

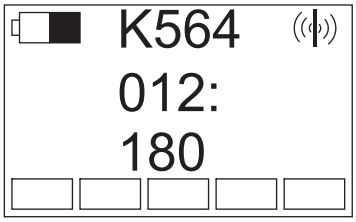


43603544.eps

– Press the F1 key to start the log-on timer.

  A 180-second log-on timer is launched. Further transmitters can be pre-assigned to the DRC radio receiver during this period.

  The screen shows:

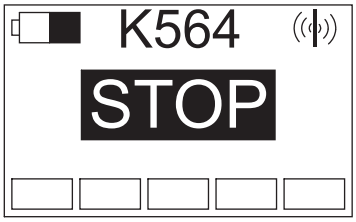


43603644.eps

211 338 44.indd / 081019

– Quit the parameter menu with the LIFT joystick.

  The screen shows:



43603744.eps

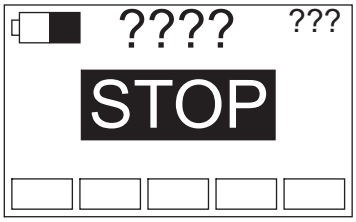
2. To log on a further radio transmitter, the previously logged-on radio transmitter must be switched off or changed to Standby mode

– Hold the STOP button down and push the LOWER joystick 6 times to switch the radio transmitter off

  or

– Hold the STOP button down and push the LOWER joystick 3 times to put the radio transmitter into Standby mode.
– Switch the next radio transmitter on.

  The screen shows, for example:



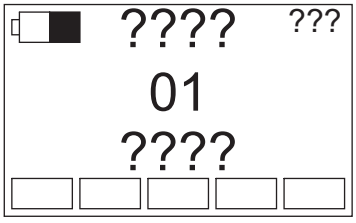
43603844.eps

3. Log on the next radio transmitter in a similar way as for the first transmitter:

  Radio transmitter is in STOP mode

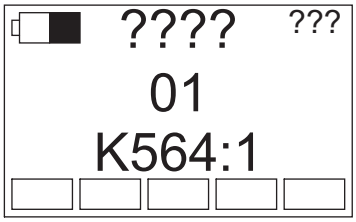
– Hold the STOP button down.
– Press the F1 key 3 times.
– Hold the F2 key down for approx. 5 seconds until the screen changes.
– Release the STOP button.

  The radio transmitter will now search for a DRC radio receiver that has a running pre-log-on timer. When a corresponding DRC radio receiver is found, the screen shows:



43603944.eps

– Select the DRC radio receiver with the RIGHT or LEFT joystick.

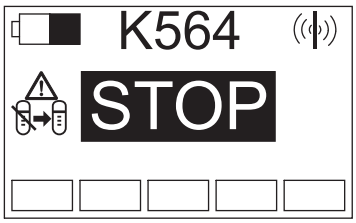


43604044.eps

The digit after the crane ID indicates the number of radio transmitters that are pre-paired with the DRC radio receiver.

– Press the F2 key to confirm the required DRC radio receiver.

After a few seconds, the screen shows:



43604144.eps

You can now take over control of the DRC radio receiver.

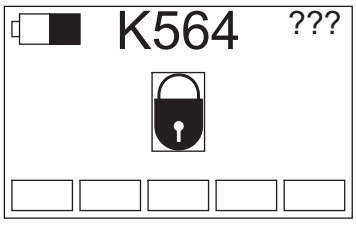
– Press the HORN pushbutton to confirm that the new radio transmitter has taken over control. The radio transmitter is actively connected to the DRC radio receiver.

4. The procedure must be repeated if a further radio transmitter needs to be logged on.

If the log-on timer period has not elapsed, you can switch the current radio transmitter off and pre-assign the next radio transmitter (see item 2), or you can re-start the log-on timer with the currently logged-on radio transmitter (see item 1).

7.9.2 Transfer to other pre-assigned radio transmitters

The currently logged-on radio transmitter cannot surrender control until it is either completely switched off or on Standby.

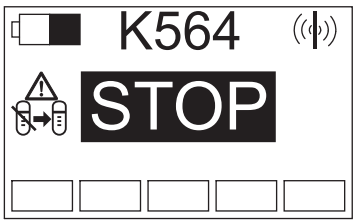


42695644.eps

Another pre-paired radio transmitter can now be actively logged onto the DRC radio receiver.

– Press the STOP button if the current radio transmitter is on Standby or switched off.

The transfer icon will appear on the screen within approx. 3 seconds:



43604144.eps

– Press the HORN pushbutton to confirm that the new radio transmitter has taken over control. The radio transmitter is actively connected to the DRC radio receiver.

  The transfer icon disappears.

The radio control system can now be switched into Crane operation/Run mode by entering the electronic On key (see section 8.4 on page 43):

– Hold the STOP button down.
– Push the LIFT joystick 3 times.
– Release the STOP button.

NOTE

If one or two of the pre-paired, inactive radio transmitters are in STOP mode, the log-on status is enabled when the currently active radio transmitter is switched off (either completely or put on Standby).

For this reason, all pre-paired radio transmitters that are not currently in use should be completely switched off or they should be in charging mode.

For safety reasons, control can only be transferred to another pre-assigned radio transmitter if it is in STOP mode.

The transfer icon is shown on the radio transmitter screen when the STOP button is pressed following a power failure and after the DRC radio receiver is re-started.

This must be acknowledged with the HORN pushbutton. Normal work can then resume.

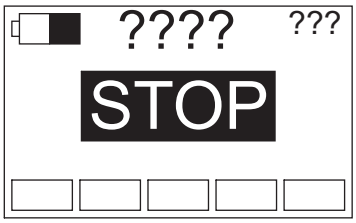
7.9.3 Logging-off all radio transmitters

All radio transmitters can be deleted from the DRC radio receiver:

– Hold the STOP button down.
– Press the F2 key 3 times.
– Hold the F1 key down until the screen changes.
– Release the STOP button.
– Press the F2 key.

An hourglass appears on the screen during the log-off process.

Following successful log-off, the screen shows:



43603844.eps

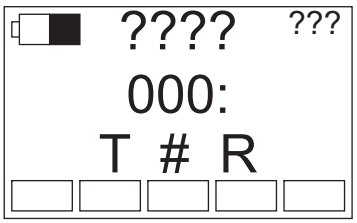
Pre-paired radio transmitters can also be deleted by means of another non-assigned radio transmitter. To do this, there must be no radio connection between the DRC radio receiver to be disconnected and any other radio transmitter. This can be done via parameter 000 in the radio transmitter parameter menu.

where you can either enter the crane ID or the DRC radio receiver serial no.

– Hold the STOP button down.
– Push the LIFT joystick.
– Push the LEFT joystick twice.
– Hold the LIFT button down for approx. 5 seconds.
– Release the LIFT joystick.
– Release the STOP button.

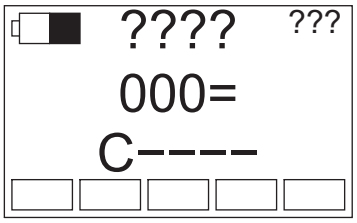
211 338 44.indd / 081019

– Push the RIGHT or LEFT joystick until parameter 000 appears on the screen:



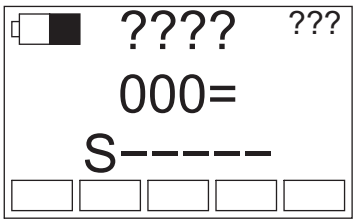
43604244.eps

– Press the F1 key.



43604644.eps

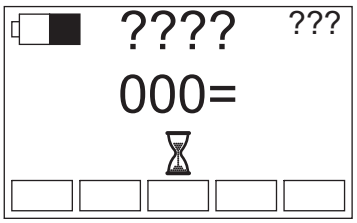
– If you prefer to enter the crane serial no. instead of the crane ID, push the RIGHT or LEFT joystick and confirm your choice with the F1 key.



43604744.eps

To enter the digits, proceed as follows:

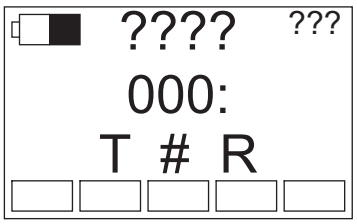
– Use the RIGHT and LEFT joystick to change the selected digit.
– Confirm the selected digit with the F1 key.
  The unit adopts the relevant digit and switches to the next digit.
– When the entire crane ID or serial no. has been entered, complete the process with the F2 key.
– An hourglass appears on the screen during the log-off process.



43604844.eps

The horn briefly sounds following successful log-off.

The screen shows:



43604244.eps

7.9.4 Logging-off individual radio transmitters

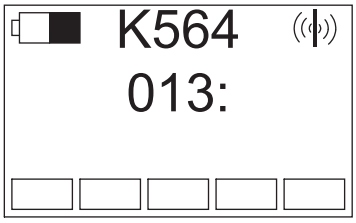
If one of the paired radio transmitters is lost or has to be replaced, individual radio transmitters can be deleted from the DRC radio receiver's list of pre-paired transmitters.

Call up the DRC radio receiver's parameter menu as follows:

– Hold the STOP button down.
– Push the LOWER joystick.
– Push the RIGHT joystick twice.
– Hold the LOWER joystick down until the screen changes.
– Release the STOP button.
– Select the parameter with the LEFT joystick.

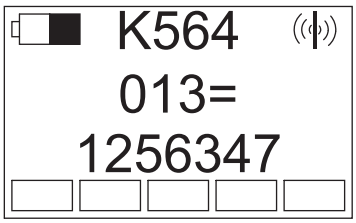
Parameter 013 = DRC-DR

Parameter 113 = DRC-MP



43605244.eps

– Press the F1 key to obtain the serial no. of the first radio transmitter (1256347 shown in the example).

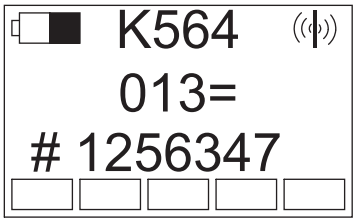


43604944.eps

– Select the required radio transmitter with the RIGHT or LEFT joystick.

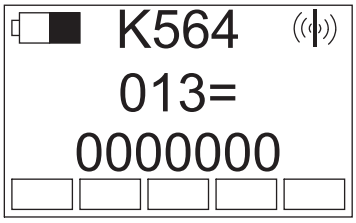
  The number 0000000 is displayed for free memory slots to which radio transmitters can still be assigned.

– Press the F1 key to mark the radio transmitter. You can also mark two radio transmitters. Press the F1 key again to remove a marker.



43605044.eps

– Press the F2 key to delete the marked radio transmitter.



43605144.eps

– Push the LIFT joystick to return to the main menu.

211 338 44.indd / 081019

8 Using DRC radio controls

8.1 Safety warning

Warning.
Incorrect operation

Incorrect operation can result in severe injuries and/or damage to property.

The DRC radio control system may only be operated by authorised and trained personnel in compliance with all accident-prevention and safety regulations.

- Comply with national regulations for the use of radio controls.

8.2 Personnel requirements

8.2.1 Target groups

Designation	Activities	Qualification
Operator	• Checks correct operation of the safety devices • Operates the product	• Has been trained to operate the product • Has been informed about possible hazards resulting from inappropriate conduct
Repair personnel	• Repairs malfunctions and defects • Takes the product out of operation • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained in the repair of the product by the manufacturer or by a company authorised by the manufacturer
Service personnel	• Performs safety-related modifications or repairs to the product • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained to service hoists and cranes by the manufacturer
Experienced technician	• Can judge the safe operating condition of the product	• Technical training and experience as well as sufficient knowledge in the field of the product • Training relating to 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 the product.

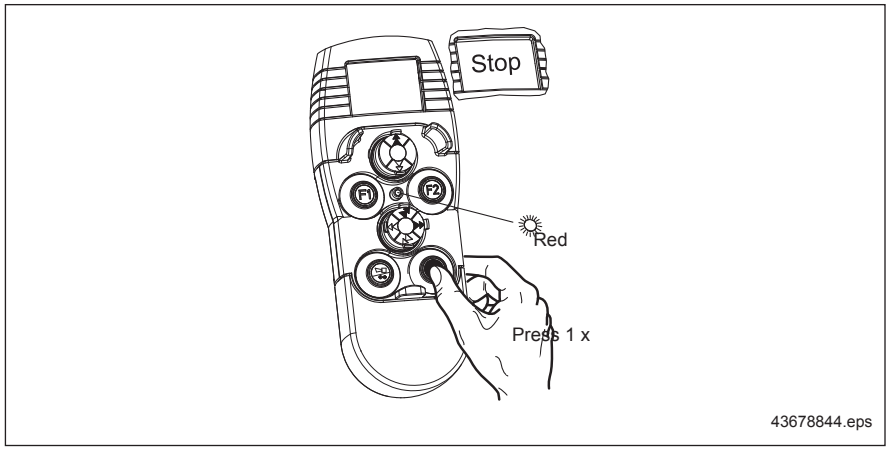
8.3 Check before starting work

The operator controls the radio-controlled crane with the DRC-MJ D3 hand-held transmitter.

Before starting work, the operator must carry out the inspections and function checks listed in the crane user manual/assembly instructions and must be satisfied that the installation is in safe operating condition.

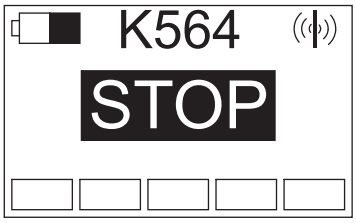
8.3.1 Switching the hand-held transmitter on when starting work

When the unit is switched off, no icons appear on the screen, the LED is off. Press the STOP button to switch the DRC-MJ D3 hand-held transmitter on.



The “DEMAG” logo first appears on the display. When a connection to the DRC radio receiver has been established, the following must be displayed:

- Crane identification of the assigned DRC radio receiver
- Icon to display the radio signal quality
- Icon to display the battery capacity
- Bar display
- STOP



43603744.eps

8.3.2 Checking the radio system

The radio system performs a self-test when it is switched on. The installation is then ready for operation if no error statuses are displayed.

Fault elimination is described in section 10.

In addition, the operator must check the following before starting work:

- Battery capacity 6.3.1
- Radio signal strength 6.4.2.1
- Displayed crane ID and relevant crane 6.4.2.1
- Horn function 6.4.1
- STOP button function 7.2

Crane operation must be switched on to check the STOP function.

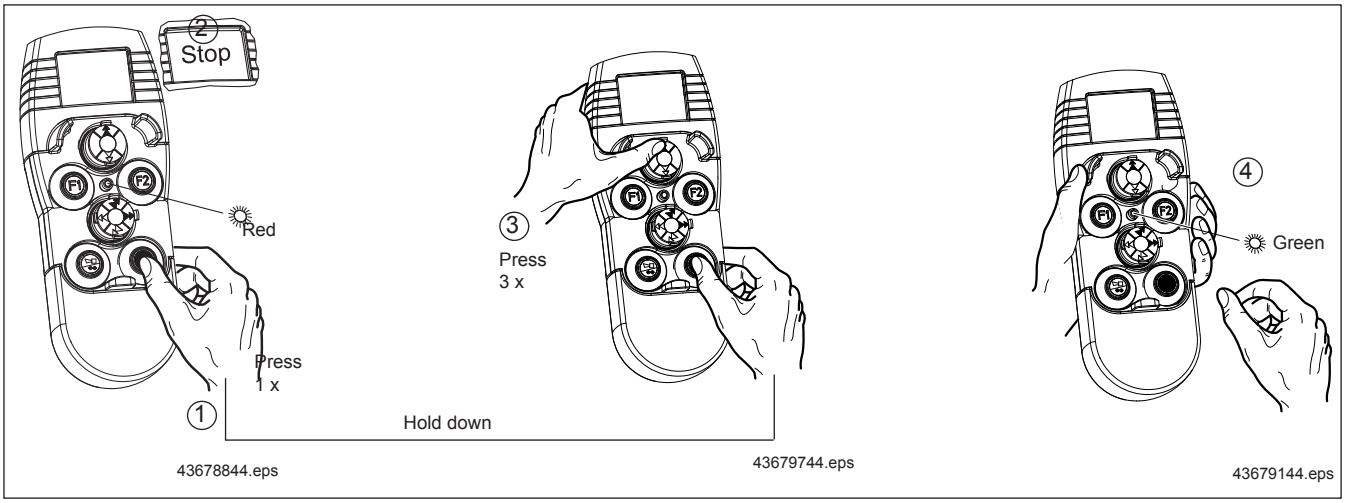
8.4 Crane operation/Run

Run mode of the radio control system must be started for crane operation. To do this, the electronic On key must be entered.

The On key is used to

- switch from Standby (lock icon) to Run mode,
- switch from STOP to Run/crane operation mode.

8.4.1 On key



1. Hold the STOP button down during the log-on process.
2. Transmitter is in STOP mode
3. Push the LIFT joystick 3 times.
4. Release all buttons.

   The radio transmitter is in RUN mode.

   The LED in the display field flashes green if Run mode is switched on after entry.

8.4.2 Functions in crane operation

DRC-MJ D3 hand-held transmitters use so-called mini-joystick control elements to control the three motion axes.

Thanks to these control elements, a DRC-MJ hand-held transmitter has the same the scope of functions as those of classic hand-held transmitters that have 10 buttons (such as a DRC-10 D3), despite the fact that it has considerably smaller dimensions.

The upper mini-joystick control element is only designed for vertical control movements and can be used for the proportional control of one motion axis (typically lifting and lowering).

The lower mini-joystick control element enables two motion axes to be controlled usually for the control of long-travel and cross-travel axes for hoist and crane applications.

Both mini-joystick control elements have a mechanical detent, which enable an operator to feel clearly when a slow speed has been reached.

The lower mini-joystick control element also enables diagonal travel motions to be performed. This diagonal travel motion function can also be de-activated. See hand-held transmitter parameter programming: section P1, parameter 508 (electronic gate).

8.4.3 STOP function

The STOP button marked in red triggers a STOP command, which stops the lifting, cross-travel and long-travel motions at the same time and triggers an emergency-stop in the crane control system.

The crane operator can immediately stop all motions with the STOP button to avoid dangerous situations. The braking process caused by an EMERGENCY stop can result in load sway.

The STOP button is also intended to be used for switching the radio-controlled crane into a safe status. This method must be used when work is interrupted and to initiate additional DRC-MJ D3 hand-held transmitter functions for information display and service purposes.

When STOP has been actuated, crane operation can only be re-activated by entering the electronic On key.

The STOP button is a two-stage button: both switching stages of the STOP button are evaluated when it is pressed.

Both switching stages are checked when the electronic On key is entered: the system only switches into RUN mode if both switching stages function as intended.

The STOP function fulfils safety category 3 and PL ‘d’ to EN 13849-1.

8.4.4 Signal button (horn)

The signal button is a 2-stage self-resetting button. The 1st stage activates the acoustic signal in the crane DRC radio receiver. The 2nd stage activates an additional signal for the crane control system to carry out the lifting limit switch test.

Follow the instructions contained in the operating instructions for the crane installation to check the limit switches.

8.4.5 F1 and F2 function keys

The function keys are single-stage self-resetting buttons. Various additional functions can be controlled depending on the design of the DRC radio receiver and the crane control system. These functions are described in the user manual/ assembly instructions for the DRC radio receiver or the operating instructions for the crane installation.

8.4.6 Speed-limit function

The speed-limit function enables the maximum speed of the lifting and travel motions to be limited.

This function can be useful if any excessively fast load movements need to be avoided. When the speed-limit function is activated, the maximum speed is limited to the specified value – regardless of how far the corresponding control element is actuated on the transmitter.

The speed-limit function can be set to 30, 50 or 70% of the maximum speed (by programming parameters).

On DRC-MJ D3 hand-held transmitters that have a variable joystick, the speed limit is set according to the programmed speed threshold (30%, 50% or 70% of the maximum speed).

If the speed-limit function is switched on, the reduced speed applies over the entire motion path of variable buttons. The results in a “zoom function” for very fine control of the slow speed.

The speed-limit function can be activated or, if necessary, switched off again by pressing a button on the DRC-MJ D3 hand-held transmitter. When the speed-limit function is activated, the  icon is shown on the screen of the DRC-MJ D3 hand-held transmitter.

Programming the speed-limit parameters

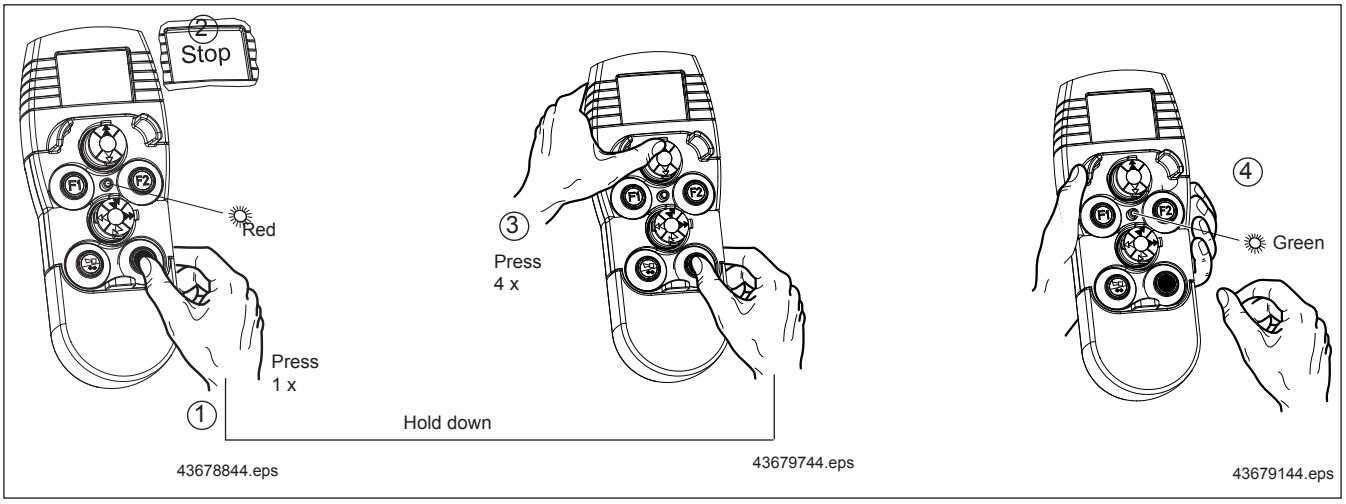
The corresponding parameters can be adjusted for each individual motion axis by programming the DRC-DR radio receiver parameters.

Please refer to the “Further information on the parameters” section in the corresponding user manual/assembly instructions for the DRC-DR receiver, ident. no. 211 267 44.

211 338 44.indd / 081019

Activating the speed-limit function

If the parameters have been programmed for at least one speed threshold (<100%), activate the speed-limit function as follows:



1. Hold the STOP button down during the log-on process.
2. Transmitter is in STOP mode
3. Push the LIFT joystick 4 times.
4. Release all buttons.

   The speed-limit function is activated.

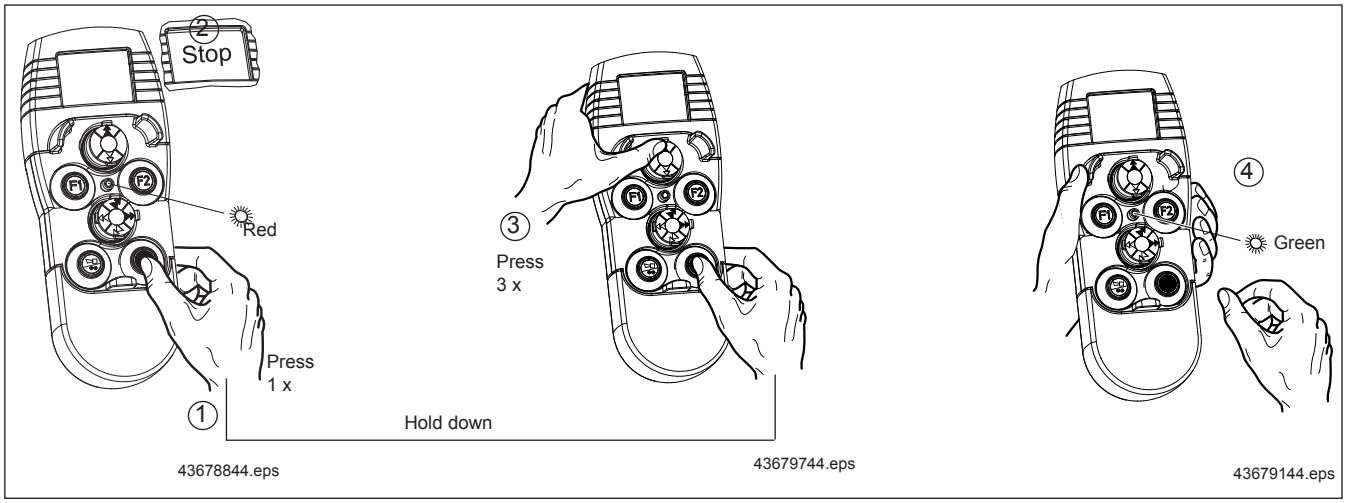
   The icon will appear on the screen.

NOTE

When the speed-limit function is activated for drives that have speed stages, the maximum speed is always the low speed (v1).

Deactivating the speed-limit function

If you want to deactivate the speed-limit function again, proceed as follows:



1. Hold the STOP button down during the log-on process.
2. Transmitter is in STOP mode
3. Push the LIFT joystick 3 times.
4. Release all buttons.

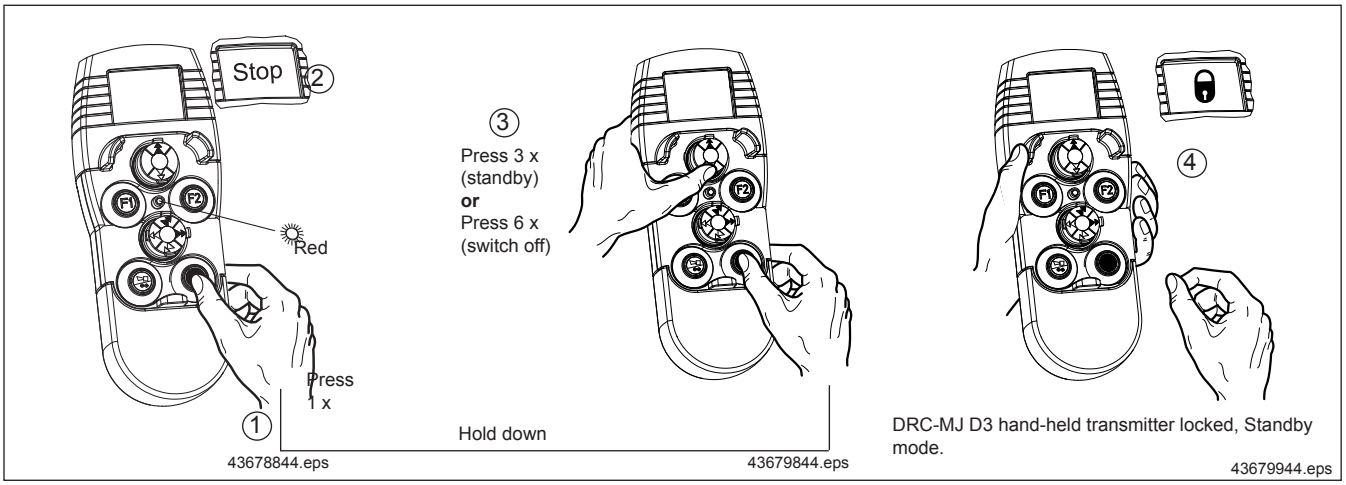
   The speed-limit function is de-activated.

   The icon disappears on the screen.

211 338 44.indd / 081019

8.5 Taking the equipment out of service at the end of the shift (stand-by or switching off)

At the end of a shift and during longer breaks, DRC-MJ D3 hand-held transmitters must be switched to Standby mode or switched off completely by the key sequence as shown to protect the installation against unauthorised use and to reduce power consumption of the DRC-MJ D3 hand-held transmitter. The time after the end of the shift or longer breaks should be used to re-charge the batteries by connecting them to the charger unit.



1. Hold the STOP button down while taking the equipment out of service.
2. Transmitter is in STOP mode

3a. Standby: push the LOWER joystick 3 times.

or

3b. Switch off: push the LOWER joystick 6 times.

4. Release all buttons.

   Hand-held transmitter locked, Standby mode

8.5.1 Storing hand-held transmitters that are not in use

If a DRC-MJ D3 hand-held transmitter is not used for some time (several weeks), the batteries should first be fully charged and then removed from the DRC-MJ D3 hand-held transmitter (see section 8.6.5). The batteries can be stored for several months when they are charged. If required, the charging process should be repeated after some time.

8.6 Radio control system operating statuses

The operating functions and display of the radio control system are determined by the operating status of the DRC-MJ D3 hand-held transmitter. The operating status of the DRC-MJ D3 hand-held transmitter is transmitted to the crane control system.

8.6.1 Hand-held transmitter switched off

Screen and radio connection are de-activated. Power consumption of a DRC-MJ D3 hand-held transmitter in this state is very low.

Press the STOP button to switch the DRC-MJ D3 hand-held transmitter on.

8.6.2 STOP mode

After a DRC-MJ D3 hand-held transmitter is switched on, the hand-held transmitter is in Stop mode.

The LED on the DRC-MJ D3 hand-held transmitter is continuously red.

The screen shows STOP. No travel commands are transmitted in STOP mode. The emergency-stop contact in the DRC radio receiver is open.

The radio connection to the DRC radio receiver is maintained. A DRC-MJ D3 hand-held transmitter will automatically switch to Standby mode if no button is actuated following a timeout period of 5 minutes.

8.6.3 Run mode

The LED on the DRC-MJ D3 hand-held transmitter flashes green. The crane ID of the assigned crane and the icon for the radio connection are shown on the screen. In Run mode, a DRC-MJ D3 hand-held transmitter is fully functional for crane operation, provided a crane ID ≠ NOID has been assigned.

Crane operation can be initiated with the ON key in “STOP” and “Standby” modes, see section 8.4.1.

A DRC-MJ D3 hand-held transmitter will automatically switch to Standby mode if no button is actuated following a timeout period of 30 minutes.

8.6.4 Standby mode

The screen shows the lock icon. No radio signal is displayed (“???” radio icon). In Standby mode, power consumption of a DRC-MJ D3 hand-held transmitter is reduced by 50% and the radio connection is de-activated.

The operator can switch Standby mode on by using the switch-off procedure, section 8.5, and by plugging the charger in.

Standby mode is automatically achieved by the timeout function. See section 8.6.2 and 8.6.3

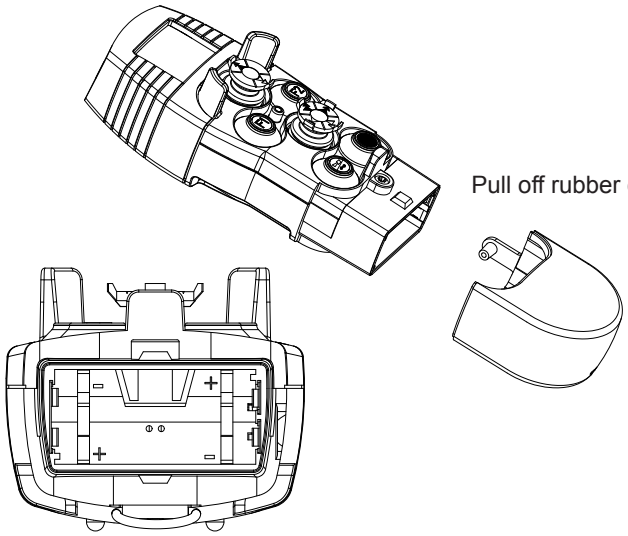
The operator can only end Standby mode by entering the electronic On key (see section 8.4.1) and switching to Run mode.

211 338 44.indd / 081019

8.6.5 Hand-held transmitter reset

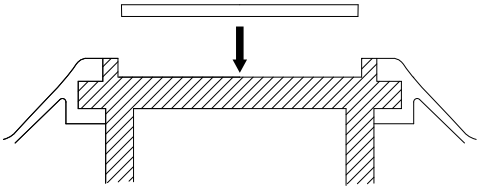
A DRC-MJ D3 hand-held transmitter can be reset by removing the battery pack for a short time.

The battery pack can be reached by carefully pulling off the lower rubber cap:



NOTE

Pay attention to the polarity of DRC-MJ D3 hand-held transmitters when changing batteries.



9 Information menu in connection with DRC-DR

This additional function of the DRC-MJ D3 hand-held transmitter can only be used in connection with a DR/DMR rope hoist equipped with processor control and a matching DRC-DR D3 radio receiver (part no. 711 333 45).

The Information menu makes it possible to display information about the crane or the travelling hoist(s). This information is stored in the form of a list by each DR/DMR control system. One element of this list is requested by the DRC-MJ D3 hand-held transmitter and made available by the selected control system via the CAN bus.

9.1 Activating the information menu

– Hold the STOP button down.
– Press stage 1 of the HORN button twice.
– Hold stage 1 of the HORN button down for approx. 5 seconds.
– Release the HORN button.
– Release the STOP button.

9.2 Selecting the information source

The polled control system can be selected in the same way as for the travelling hoist. Since the F1 key has no function in the information menu, the crab must first be selected in Run mode:

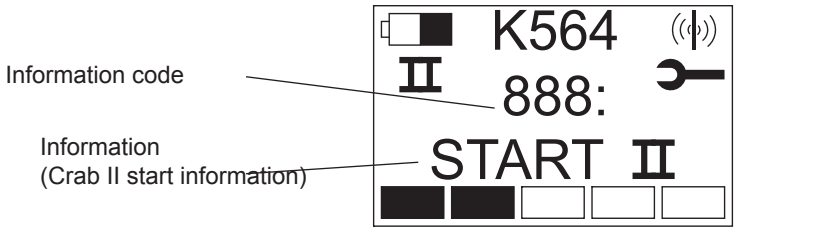
Crab selection	Information from
I	Crab 1 control system
II	Crab 2 control system
I+II	Crane control system

9.3 Activating the crab selection screen

If only one crab is available on the crane, no crab needs to be selected; therefore, no crab selection is shown on the control unit screen. However, if crab selection still needs to be activated, this can be achieved by holding the F1 key down on the DRC-MJ D3 hand-held transmitter for 5 seconds.

9.4 Start screen

After changing to the Information menu, the start screen of the Information menu is shown on the display of the DRC-MJ D3 hand-held transmitter. This start screen shows START II (since crab 2 has been selected) and code 888:



42660744.eps

9.5 Navigating in the information menu

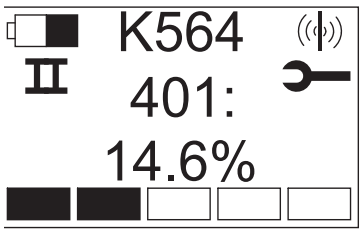
Use the following buttons to navigate in the information list:

Button	Function
RIGHT	Continue to the next value in the list
LEFT	Return to the previous value in the list
LIFT	Exit the Information menu

211 338 44.indd / 081019

9.6 Information menu data

Example:
Display for remaining service life



42660844.eps

The following data can be displayed via the Information menu:

Code	Information
401	Remaining duration of service in % (determined from load spectrum), not available for DR-Com rope hoists.
400	Operating hours
000	Basic value for full load hours (with reference to rated load for size)
001	Gearbox transmission ratio
002	Drum diameter in mm
003	Reeving factor
004	Control type (crab or crane control)
005	Solo crab (with/without crane control)
146	Customer number
147	Order number
148	Serial number
149	Year of manufacture
150	Lifting speed V1 in m/min
151	Lifting speed V2 in m/min
152	Lifting height in m
153	Reeving
155	Rope diameter in mm
171	Country code
216	Control system serial number
217	Hardware version
520	Software version of main controller
529	Software version of monitoring controller
550	Serial number of ZMR module (as of V3.40)
551	Hardware version of ZMR module (as of V3.40)

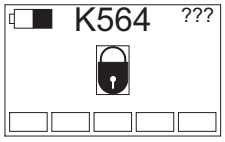
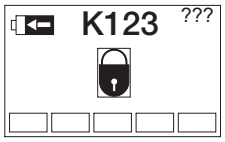
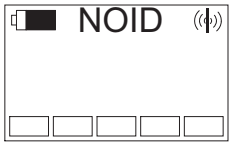
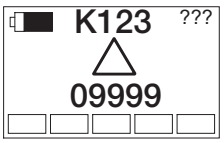
The following additional information is available with the “Status analysis” option:

Code	Information
402	K1 switching operations
403	Hoist brake switching operations
404	Travel path in m
405	K2 switching operations
406	K3 switching operations
416	Number of times slip limit is exceeded
417	Number of times maximum speed is exceeded
418	Number of hoist brake errors
419	Number of times overspeed brake is tripped
420	Number of overloads
421	Number of times emergency stop is actuated during motion of at least one axis
422	Hoist unit elapsed operating time counter (as of V3.40)
423	Travel axis elapsed operating time counter (as of V3.40)
448	Last error
449	Penultimate error

The order and quantity of information depend on the software and can change.

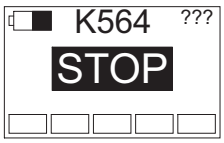
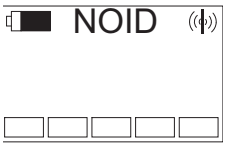
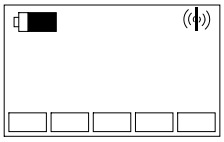
10 Fault elimination

Before taking any fault elimination measures on the radio control system, first check that the crane installation is supplied with power and is ready for operation and has not been switched off by any safety devices (mains connection switch, crane isolating switch, emergency-stop switch, travel and lifting path limitation devices, overload protection device, motor circuit-breakers, etc.).

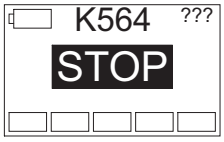
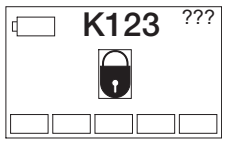
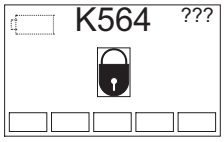
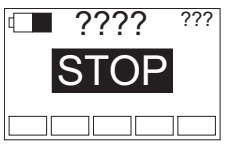
No.	Problem	Screens	Possible causes	Information, document section
01	DRC-MJ hand-held transmitter cannot be switched on with the STOP button	 **LED ☼ off**	Power supply of the DRC-MJ hand-held transmitter has failed	Check batteries, see 6.3. Polarity of batteries? Replace completely discharged batteries.
02	DRC-MJ hand-held transmitter cannot be switched on with the STOP button	 **LED ☼ off**	DRC-MJ hand-held transmitter has failed	Replace DRC-MJ hand-held transmitter
03	DRC-MJ hand-held transmitter cannot be switched on with the STOP button	 **LED ☼ off**	Standby mode	Switch on with electronic key, see 8.4
04	DRC-MJ hand-held transmitter does not respond when button is pressed	 **LED ☼ flashing**	Battery is being charged	Stop charging process, 6.3.2. Switch on with electronic key, 8.4
05	Crane does not respond to button command	 **LED ☼ green, flashing**	Assignment of crane ID is missing	Horn is working; assign crane ID, 7.6.3
06	Crane does not respond to button command	 **LED ☼ green, flashing**	Assigned radio receiver has no power supply	Switch crane on; check radio receiver acc. to user manual/ assembly instructions
07	Warning during start of crane operation	 **LED ☼ green, flashing**	Re-establishing radio connection after: - Malfunction in DRC-MP receiver - Timeout of hand-held transmitter - Range limits exceeded or Auto-power-off - Power down: temporary under-voltage or voltage failure on the receiver side. - After log-on of a new transmitter	Press button to acknowledge warning.

1) Additional symbols may also be shown in the display field

211 338 44.indd / 081019

No.	Problem	Screens	Possible causes	Information, document section
08	The displayed crane does not respond	 **LED ☼ green, flashing**	Another DRC-MJ hand-held transmitter has been logged on for the crane	Take the other DRC-10 hand-held transmitter out of service, 8.5. Log DRC-MJ hand-held transmitter on again, 7.6.2.
09	The displayed crane does not respond	 **LED ☼ red**	Power supply to radio receiver interrupted	Press STOP button, then enter On key, 8.4.1. No. 06 or 10 is then possible
10	The displayed crane does not respond	 **LED ☼ green, flashing**	Radio receiver beyond range of DRC-MJ hand-held transmitter	Reduce distance to crane, 7.2 and 6.4.2.1 Check radio reception by means of log-on procedure 7.6.2. Check aerial connector on the radio receiver.
11	Crane does not respond to button commands	 **LED ☼ red**	STOP mode	Enter On key, 8.4.1.
12	The crane identification displayed on the DRC-MJ hand-held transmitter is incorrect	 **LED ☼ green, flashing**	The crane identification of the radio receiver has been changed with the DRC-MJ hand-held transmitter	Safety problem. A crane that is not displayed is being controlled. Actuate signal to identify the crane. Log DRC-MJ hand-held transmitter on, 7.6.2
13	The crane ID is missing on the screen	 **LED ☼ green, flashing**	The crane identification of the radio receiver has been changed with the DRC-MJ hand-held transmitter	Safety problem. A crane that is not displayed is being controlled. Actuate signal to identify the crane. Log DRC-MJ hand-held transmitter on, 7.6.2
14	DRC-MJ hand-held transmitter does not respond when button is pressed	Any malfunctioning display	Software crash	Reset the DRC-MJ hand-held transmitter, 8.6.5. Then switch on with STOP.

1) Additional symbols may also be shown in the display field

No.	Problem	Screens	Possible causes	Information, document section
15	The batteries are not being charged	 LED ☼ off	No power from charger	Check connection to charger and mains connector. Replace defective plug-in charger, if necessary.
16	The batteries are not being charged	 1) LED ☼ red	No power from charger	Check connection to charger and mains connector. Replace defective plug-in charger, if necessary.
17	The batteries are not being charged	 1) LED ☼ off	No power from charger	Check connection to charger and mains connector. Replace defective plug-in charger, if necessary.
18	No rechargeable battery detected	 1) LED ☼ off	No rechargeable battery fitted or contact lost.	Replace rechargeable batteries, 6.3.2 and 6.3.3.
19	Receiver does not respond	 1) LED ☼ red	No receiver assigned. Repeat log-on procedure	See section 7.6.2
20	Operating time with charged batteries too short	Battery icon changes to uncharged within a short time	Charging process aborted. The batteries are worn out/too old.	Repeat charging process, 6.3.1 and 6.3.2

1) Additional symbols may also be shown in the display field

Please contact our after-sales service if the measures above do not eliminate the fault.

211 338 44.indd / 081019

11 Disposal

11.1 Personnel requirements

11.1.1 Target group

Designation	Activities	Qualification
Repair personnel	• Repairs malfunctions and defects • Takes the product out of operation • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained in the repair of the product by the manufacturer or by a company authorised by the manufacturer
Service personnel	• Performs safety-related modifications or repairs to the product • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained to service hoists and cranes by the manufacturer

11.2 Disposal of the radio control system

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.

Observe local legal regulations for the correct disposal of old batteries and rechargeable batteries.

Old batteries and rechargeable batteries must be given to regional recycling systems or can be returned to us at no cost.

They must never be disposed of with domestic refuse.

12 Information

12.1 After-sales service

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

If you have any questions regarding our products, please refer to one of our after-sales service centres, the relevant representative or our head office in Wetter.

Please quote the serial or order number 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:

Demag Cranes & Components GmbH

Forststrasse 16

40597 Düsseldorf, Germany

www.demagcranes.com

info@demagcranes.com

Addresses and contacts

The current addresses of the sales offices and the subsidiaries and agencies worldwide can be found on the Demag Cranes & Components GmbH homepage at

www.demagcranes.com

211 338 44.indd / 081019

EC conformity declaration

DEMAG

(For authorised personnel only)

User manual/assembly instructions

DRC-MJ D3 hand-held transmitter parameter programming

Target groups

Designation	Activities	Qualification
Service personnel	• Performs safety-related modifications or repairs to the product • Is authorised to be present in the entire surroundings of the machine	• Trained specialist personnel with mechanical or electrical training • Has been trained to service hoists and cranes by the manufacturer

211 338 44.indd / 081019

P1 Menu for programming the DRC-MJ D3 hand-held transmitter parameters

The “Hand-held transmitter parameter programming” menu can be used by specially trained personnel for displaying and also partly changing the following settings of the DRC-MJ D3 hand-held transmitter:

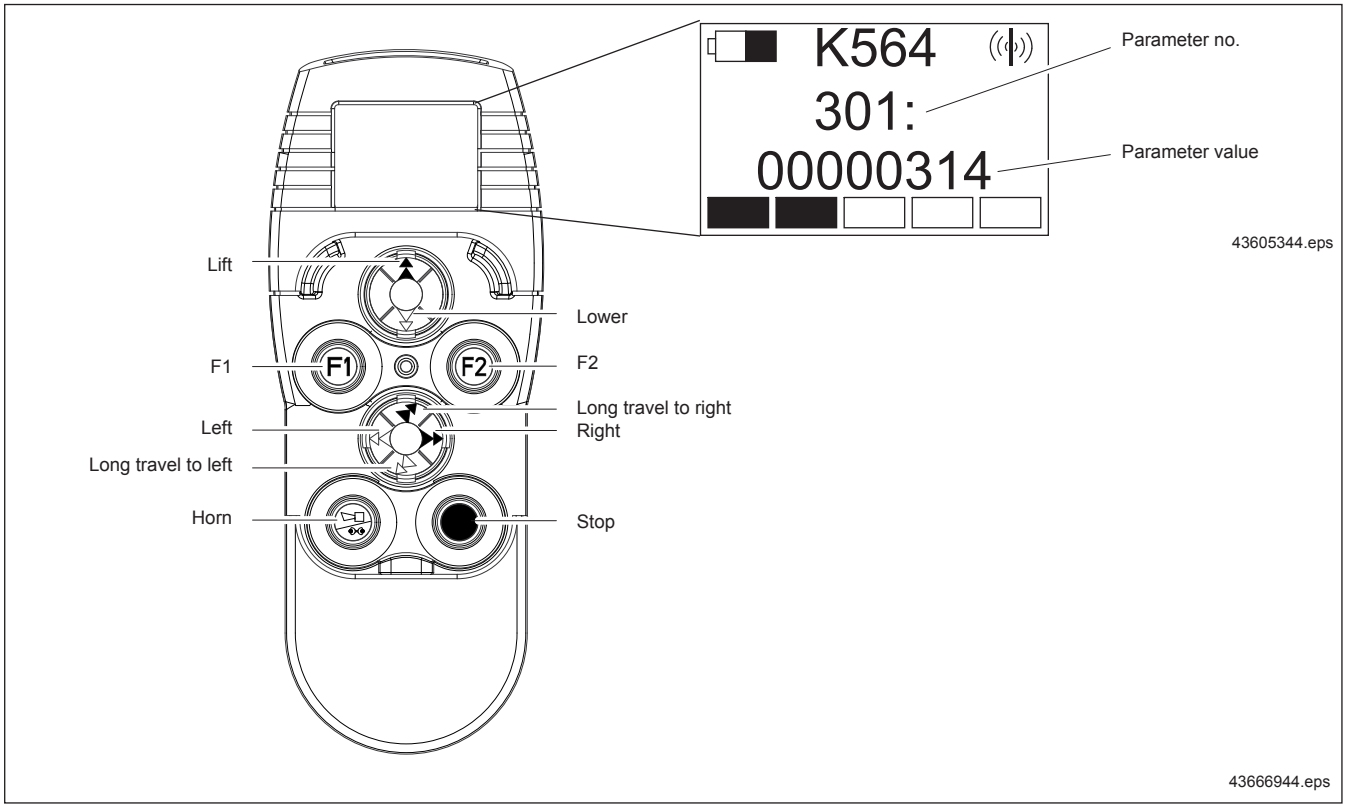
Parameter no.	Description	Edit
501	S/N	No
502	SW version	No
503	HW version	No
504	-	
505	Timeout in STOP mode	Yes
506	Timeout in RUN mode	Yes
507	Invert lifting/lowering	Yes
508	Electronic gate	Yes
509	Transmitter power output	Yes
510	Transmitter duty cycle	Yes
511	Information feedback rate	Yes
512	Listen before talk (LBT)	Yes
513	Vibration alarm	Yes
514	White background illumination	Yes
515	Activate WCB function	Yes
516	Adjust display contrast	Yes
000	Log off receiver	Yes

P1.1 Activating the menu

The menu can be activated in Run mode or STOP mode.

– Hold the STOP button down.
– Push the LIFT joystick.
– Push the LEFT joystick twice.
– Push the LIFT joystick and hold it down for approx. 5 seconds.
– Release the LIFT joystick.
– Release the STOP button.

Only the parameter number and the current parameter value are displayed when the menu is first activated. The screen starts with parameter 301, i.e. the serial no. of the DRC-MJ D3 hand-held transmitter:



Use the RIGHT and LEFT joystick to select the parameter to be displayed. The LIFT joystick can be used to exit the menu at any time.

The F1 key can be used to change to entry and selection mode for certain parameters that can be edited (Edit column = Yes). An Equals symbol (=) is shown after the parameter number in entry and selection mode.

Use the RIGHT and LEFT joystick to select a new parameter value.

Use the F2 key to accept a newly selected parameter.

Use the LIFT joystick to exit the parameter programming menu.

P1.2 Further information on the parameters

501 Serial no.

Cannot be changed (read only)

Describes the hand-held transmitter serial number

502 SW version

Cannot be changed (read only)

Describes the software version of the hand-held transmitter

503 HW version

Cannot be changed (read only)

Describes the hardware version of the hand-held transmitter

504

Parameter not assigned

505 Stop -> Standby timeout

Parameter can be changed

This parameter defines the time after which the unit switches from Stop mode into power-saving Standby mode.

Adjustment in seconds

Default: 300 (300 seconds = 5 minutes)

Adjustable values between 00010 (min.) and 65535 (max.)

506 RUN –> Standby timeout

Parameter can be changed

This parameter defines the time after which the unit switches from RUN mode into power-saving Standby mode.

Adjustment in seconds

Default: 1800 (1800 seconds = 30 minutes)

Adjustable values between 00000 (min.) and 65535 (max.)

Note: Value of 00000 means the function is deactivated

507

See section P1.3

508

See section P1.4

211 338 44.indd / 081019

509 Transmitter power output

Parameter can be changed

Sets the power output of the DRC-MJ D3 hand-held transmitter

Can be set at three levels: 1 = low, 2 = medium, 3 = maximum

Default: 3 = maximum

Note: Lower transmission power output reduces the range, but also any possible interference by the transmitter on other 2,4 GHz radio systems. Only change this parameter in agreement with the manufacturer.

510 Transmission frequency

Parameter can be changed

Sets how often the equipment transmits at a certain transmission frequency (media assignment).

Can be set at two levels: 1 = 20 Hz, 2 = 10 Hz

Default: 2

Note: Only change this parameter in agreement with the manufacturer.

511 Receiver response frequency

Parameter can be changed

Can be set at ten levels

Default: 5

Note: Only change this parameter in agreement with the manufacturer.

512 Listen before talk (LBT)

Parameter can be changed

Adjust the adaptive behaviour of radio transmission

Can be set at three levels

Default: 0

Note: Only change this parameter in agreement with the manufacturer.

513 Vibration alarm on

Parameter can be changed

Activates or de-activates the vibration alarm integrated in the hand-held transmitter

Can be set at 2 levels: 0 = off, 1 = on

Default: 1

Note:

The vibration alarm drains the rechargeable battery capacity of DRC-MJ D3 hand-held transmitters: de-activating the vibration alarm can, therefore, extend the operating period for a battery charge.

514 White background illumination

Parameter can be changed

Controls the white background illumination

Can be set at 3 levels:

0 = off, 1 = on for 3 seconds when a button is pressed, 2 = continuously on

Default: 1

Note:

The background illumination drains the rechargeable battery capacity of DRC-MJ D3 hand-held transmitters: de-activating the background illumination can, therefore, extend the operating period for a battery charge. Leaving the background illumination continuously switched on may drastically increase power consumption.

P1.3 Displaying and entering reversal of the direction of the lifting/lowering motion, parameter code 507

This parameter makes it possible to reverse the direction of movement of the upper mini joystick for the lifting/lowering motion.

The default setting is 0, i.e. the mini joystick must be pulled towards the operator for lifting.

The current setting is shown on the screen. Use the following buttons to navigate:

P1.3.1 Display mode

Button	Function
→	Change to display of parameter 508
←	Change to display of parameter 506
↑	Exit parameter programming menu
F1	Change to entry and selection mode

When the system has been switched to entry and selection mode, the lifting/lowering direction of motion of the upper joystick can be reversed:

P1.3.2 Entry and selection mode

Selection	Meaning
Parameter 0	Lift = mini joystick must be pulled towards the operator (default)
Parameter 1	Lift = mini joystick must be pushed up and away from the operator.

Use the following joysticks/buttons to select and navigate:

Button	Function
→	Display the next possible value
←	Display the previous possible value
↑	Exit parameter programming menu
F2	Accept the displayed setting

211 338 44.indd / 081019

P1.4 Activating the electronic gate for the left joystick, parameter code 508

Parameter 508 is used to set whether both axes of the left joystick can be controlled at the same time (e.g. diagonal travel) or only separately (cross template function).

This function represents the electronic simulation of a mechanical gate. The axis which is first selected by movement of the joystick is enabled for operation, while the second axis is disabled.

The default standard setting is 0, i.e. the electronic gate is de-activated (default).

The current setting is shown on the screen. Use the following buttons to navigate:

P1.4.1 Display mode

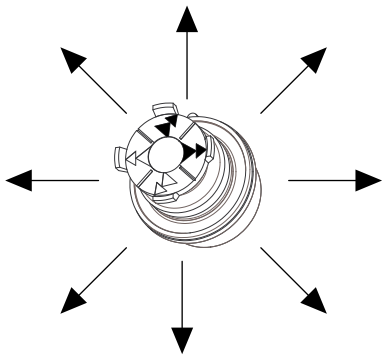
Button	Function
→	Change to display of parameter 501
←	Change to display of parameter 507
↑	Exit parameter programming menu
F1	Change to entry and selection mode

When the system has been switched to entry and selection mode, you can select between a non-activate or active electronic gate:

P1.4.2 Entry and selection mode

Selection	Meaning
Parameter 0	The electronic gate is de-activated (default). Both axes can be controlled at the same time (diagonal travel)
Parameter 1	The electronic gate is activated: only the axis which is actuated first by movement of the joystick is enabled. The second axis is disabled during this time.

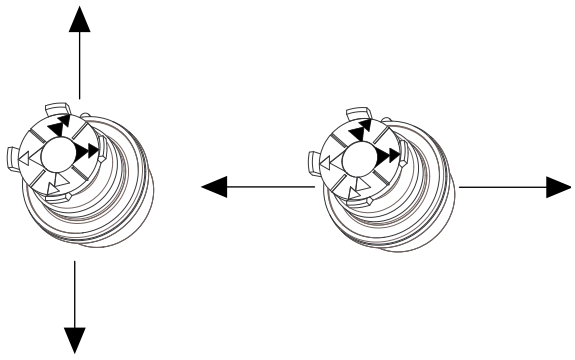
Function with parameter setting = 0



The joystick can be moved in all directions.

43680744.eps

Function with parameter setting = 1



The joystick can only be moved in one direction.

43680844.eps

Use the following buttons to select and navigate:

Button	Function
→	Display the next possible value
←	Display the previous possible value
↑	Exit parameter programming menu
F2	Accept the displayed setting

P2 FCC and Industry Canada information

P2.1 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.

CAUTION.

Loss of user's authority to operate the equipment!

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

P2.2 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.

Francais

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.

When the device is stored on the operators belt it must be shut off. Pressing the buttons and operating the machine while the device is hanging from the belt or any other place is not allowed. It must be held in the hand.

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 Heath Canada's website www.hc-sc.gc.ca/rpb.

Francais

L'antenne (s) utiliseé 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.

Lorsque l'appareil est stocké sur la bande des opérateurs, il doit être arrêté. Appuyant sur les boutons et faire fonctionner la machine alors que l'appareil est accroché à la ceinture ou tout autre lieu il pas permis. Il doit être tenu à la main.

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 de Santé Canada.

211 338 44.indd / 081019

Notizen

Notizen

Notizen

The current addresses of our sales offices in Germany and our subsidiaries and agencies worldwide can be found on our homepage at www.demagcranes.com

Demag Cranes & Components GmbH
PO Box 67 · 58286 Wetter, Germany
Phone +49 (0)2335 92-0
Fax +49 (0)2335 92-7676
www.demagcranes.com