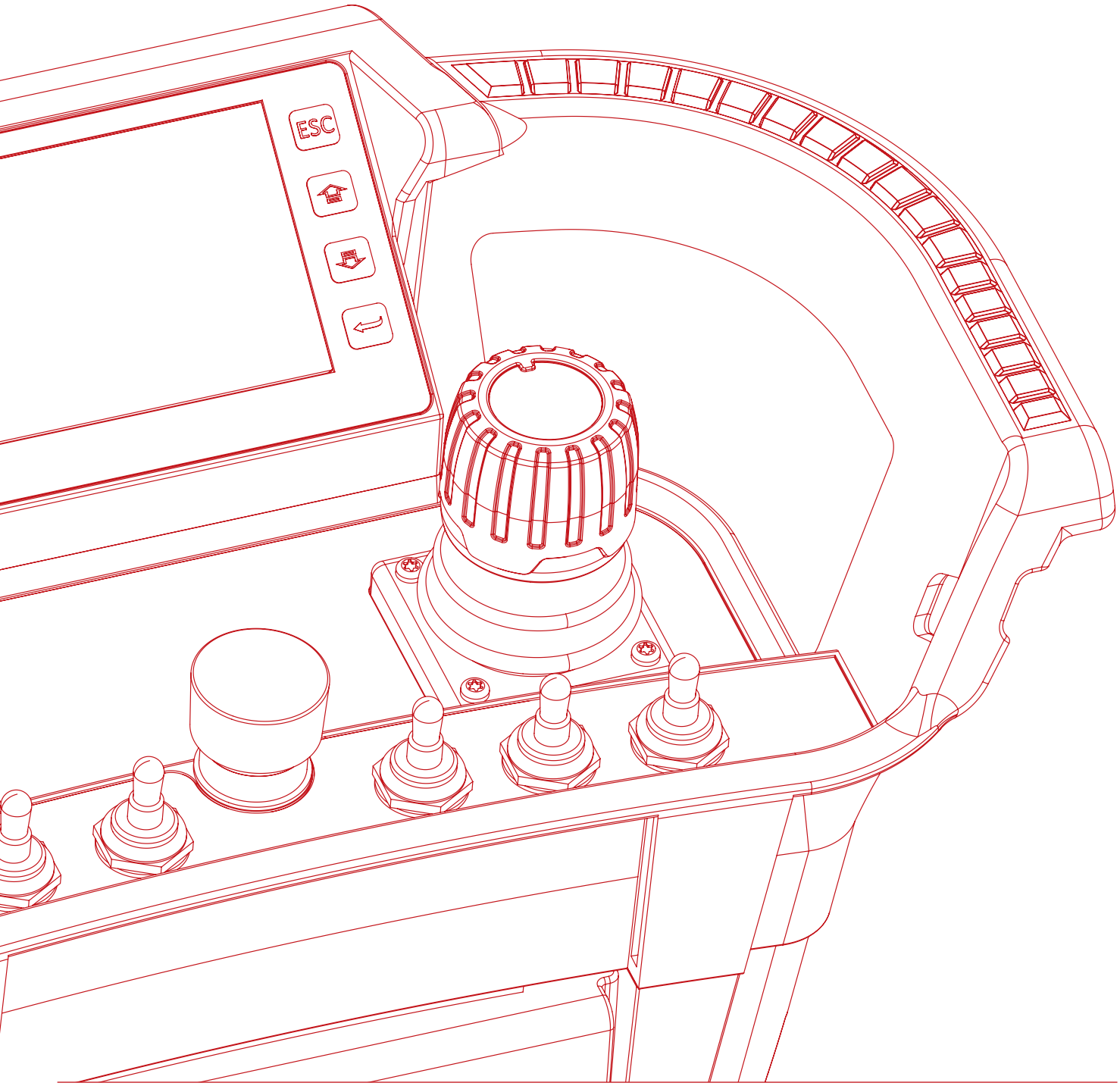
NBB Controls + Components GmbH

Nano-media

Operating instructions



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Standard scope of delivery

– Transmitter including carrying system
– Receiver with integrated mounting holes
– Integrated connection cable or adapter cable for receiver

The order confirmation and/or delivery note is binding for the actual scope of delivery.

Safety information

Even if you have already operated radio control systems, always read these operating instructions before commissioning. Only these operating instructions include the latest information about your NBB radio control system.

Please refer to the enclosed documents for explanations about the operating license. Always observe the relevant work safety and accident prevention regulations. Only trained and authorized persons may operate the NBB radio control system. The safety features installed in the NBB radio control system must be checked regularly.

The NBB radio control system must be shut down immediately in case of failures. The transmitter must be switched off using the EMERGENCY STOP switch or STOP button. The connection cable at the receiver must be disconnected from the connection (terminal) of the controlled system. The radio control system may only be repaired by NBB or specialists authorized by NBB.

Disregarding these recommendations puts you and others in danger!
NBB refuses any warranty and liability in such cases. The radio control system is used to control machines and transmit data. In explosive atmospheres or for the control of machines for the transport of persons it may not be used, unless specifically authorized by the manufacturer for this application. Any different use is prohibited and releases NBB from any responsibility.

Never expose the radio control system to strong jet high pressure cleaning equipment!

In the event of faults

Stop work immediately if a fault event occurs with the NBB radio control system!

Please note that even small faults can lead to extensive defects. Always contact your dealer or NBB in the event of a fault. Do not attempt to repair the NBB radio system.

Nameplates

The nameplates specify transmitter and receiver type, serial number, frequency range and approval for non-EU countries. Please always advise serial number for queries.

Maintenance

The NBB radio control system is maintenance-free. Nevertheless observe the following points:
– Check EMERGENCY STOP and STOP function regularly.
– Remove residues of building material.
– Disconnect receiver from power supply before welding work, to avoid the risk of damage to the receiver electronics.
– Check regularly for worn parts.

Warranty

NBB grants a functional warranty of 12 months from the date of sale on all NBB radio control systems (transmitter, receiver, charger). Working hours and material costs are included in the warranty. Shipping costs shall be at the expense of the buyer. Worn parts, relays, rechargeable batteries and batteries are excluded from the warranty.

The functional warranty does not cover damage, accidental damage, negligence, improper use, non-compliance of the operating conditions, non-observance of the operating, test and service information as well as for repairs or device modifications that are not authorized by NBB.

NBB is not liable for indirect damage and reserves the right to decide on improvements or replacements.

Liability exclusion

The manufacturer (NBB Controls + Components GmbH) assumes no liability for the final product. The buyer is obliged to check the goods after receipt for possible defects and to report these to the manufacturer within 14 days. Furthermore, in terms of product liability, the buyer is obliged to instruct and train the end customer on the proper use and application of the product. The obligation for complete documentation (placing on the market, identification) is transferred to the buyer at the time of delivery.

US-FCC and CANADA IC

> **FCC notes**

Part 15.105 Statement

NOTE: 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.

Part 15.21 Statement

Changes or modifications made to this equipment not expressly approved by NBB Controls + Components GmbH may void the FCC authorization to operate this equipment.

> **IC notes**

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

> **Part 15.19 / RSS-GEN**

This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s).
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.

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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

> **Announcement No. 52, 2019 regulation**

It is not allowed to change the scene or conditions of use, expand the range of transmission frequency, increase the transmission power (including adding additional RF power amplifiers) or change the transmission antenna without authorization;

It shall not cause harmful interference to other legitimate radio stations or stations, nor shall it propose protection against harmful interference

It shall withstand interference from industrial, scientific and medical (ISM) application equipment that radiates radio frequency energy or other legitimate radio (station) interference;

If harmful interference is caused to other legitimate radio stations (stations), the use of such stations shall be stopped immediately, and measures shall be taken to eliminate the interference before they can continue to be used;

The use of micro power equipment in the aircraft and in the electromagnetic environment protection areas of military and civil radio stations (stations) and airports, such as radio observatories, weather radar stations, satellite earth stations (including measurement and control, ranging, receiving and navigation stations) planned in accordance with laws and regulations, relevant regulations and standards of the state, shall comply with the provisions of the electromagnetic environment protection and the competent departments of relevant industries;

Technical data

Nano-media combines the compact design of the Nano-minor with the technical variance of the Nano-magna – for the greatest variety of operating and feedback options in the smallest space.

– Compact, ergonomic design
– Also suitable for complex applications
– Optional: 3-axis joysticks in NBB design
– Optional: 4.3" LCD display with customer-specific design
– Operation with 7.2 V Ni-MH battery
– SMJ technology
– IP65
– Compatible with all NBB receivers

Transmitter	Nano-media
Transmission frequency range	See nameplate
Data security	Addressing each transmitter using a unique Binary bit code combination
Data repetition rate	Approx. 15 ms
LF-modulation	GFSK
Baud rate	9.600 Baud (bit/sec.)
Operating range	100 m
Operating voltage	7,2 V – NBB battery
Current consumption	Approx. 150 mA depending on the configuration
RF output	≤1 mW, ≤10 mW, ≤25 mW (depending on the configuration)
Protection class	IP 65
Operating ambient temperature	–20 to +70 °C
Weight (without battery)	1.900 g
Measurements (L x B x H)	340 x 201 x 151 mm

Accessories optional

(Webshop: https://shop.nbb.de/en-us/)

Universal-Charger with 4 adapter plug
NBB-No.: 2.251.1450

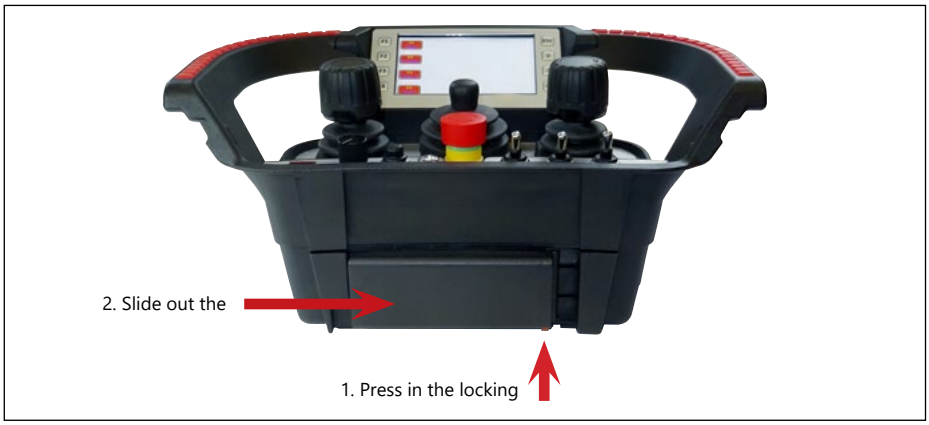
Waistbelt
NBB-No.: 3.320.1016

Neckbelt
NBB-No.: 3.320.1011

Commissioning

> Operating voltage 7.2 V

Insert the battery in the battery compartment for commissioning. For removal, press in the locking pin to unlock and slide out the battery.



Charge the rechargeable battery completely before initial use.

If the NBB radio control system won't be used for a long period of time, it is strongly recommended remove the battery from transmitter and charge the battery approx. every 4 weeks. This prevents deep discharge of the battery and enhances its service life.

Please refer to the technical documents for the exact design.

> Battery life warnings

The quick blinking of the letter "L" in the display shows the end of the battery capacity. From this time the operation of the transmitter is approx. 30 minutes possible. During this time, bring the unit into a safe position, switch off the transmitter and and insert a new battery. Charge discharged batteries only in the charger.

> Energy saving function

If no buttons are pressed within a specified time*, the transmitter switches off automatically. The display turns off. A transmitter can also be manufactured without a standby function for continuous operation as an option.

**The standby time can be set as desired.*

Safety equipment

> Safety equipment in the NBB radio control system

– EMERGENCY STOP or STOP function
– Zero position interlock
– Addressing each transmitter using a unique Binary bit code combination
– Rubber sleeves to protect the switch

Please check the sleeves and the housing for breaks and cracks each time before commissioning the transmitter. Contact your service team if necessary. Non-observance can cause malfunctions and water damage.

Operation of the system

Operation:
The red dot flashes.

Information symbols:

On/Horn

Frequency change

> Switching the transmitter on and off

– Unlock the emergency stop pushbutton by turning clockwise to switch on the transmitter.
– Two acoustic signal sounds.
– A red dot flashes in the LED display.
– Switch off the transmitter by pressing the emergency stop pushbutton once.

After pressing the emergency stop pushbutton, the transmitter sends stop telegrams for 2 seconds to switch off the system. This shut-off time is displayed on the LED display by the external segments rotating clockwise.

To ensure faultless free operation, please observe the following rules:
The system to be controlled – provided the transmitter is ready for operation – can only be switched on if no command is activated. To start the system to be controlled and to activate the functions press the "**On/Horn**" button, which also triggers a horn signal. Due to work specifications, the same button is used for triggering repeated horn signals.

> Frequency change

To change the frequency, press and hold the "**On/Horn**" button. Now press the "**Frequency change**" button. Each press advances one channel. If the receiver locks on a new frequency, a horn signal is triggered and the system is ready for operation. Please observe the country-specific regulations.

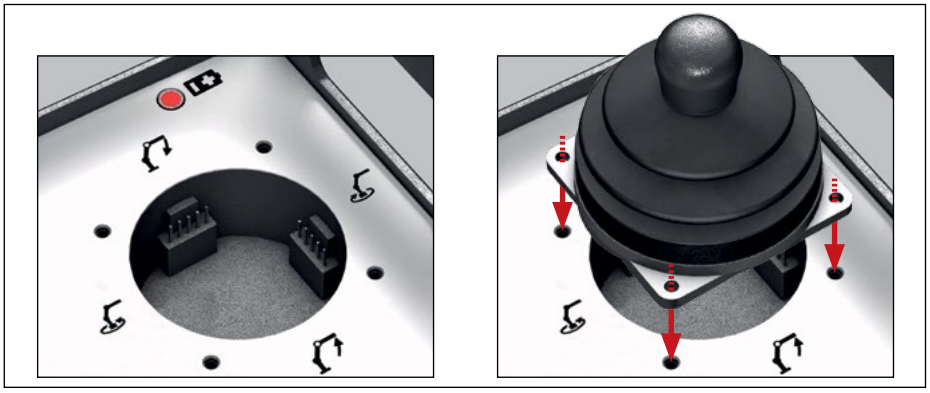
> Channel number

During operation the set channel can be displayed by pressing the "**Frequency switching**" key.

> Surface Mounted Joystick

– Switch off the transmitter and remove the battery.
– Loosen all 4 screws of the Surface Mounted Joystick with a Torx 10 screwdriver and remove the screws.
– Remove the Surface Mounted Joystick from the top. Insert the new Surface Mounted Joystick and make sure that the plugs and sockets are above each other when mounting. Screw down the Surface Mounted Joystick with the 4 screws previously removed and re-inset the batteries.

Start teach mode after changing the Surface Mounted Joystick (see below).



> Teach mode activation

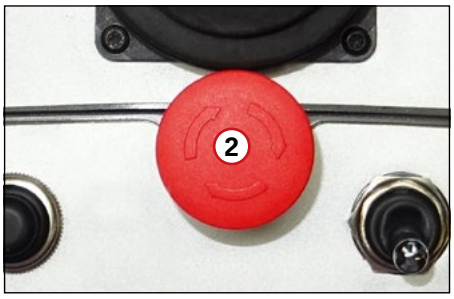
To activate teach mode, the transmitter must be switched off.
1. Press and hold the **"Frequency switching"** key.
2. Switch the transmitter on.
3. Version 7-segment functional display (LED): The letters "JT" appear in the display after 2 seconds.
   Version LCD display: "Joy Teach" and graphical display appear after 2 seconds.
4. Release the **"Frequency switching"** key.
5. Move the joystick in one direction completely and return to the 0-position. Repeat this for all directions. Repeat point 5 for all other joysticks (also applies to 3-axis joysticks). It is not necessary to activate the teach mode again.
6. To exit the teach mode press the **"On/Horn"** key once. All joystick activations are available to its full extent.
7. Attention! The transmitter is now in working mode!

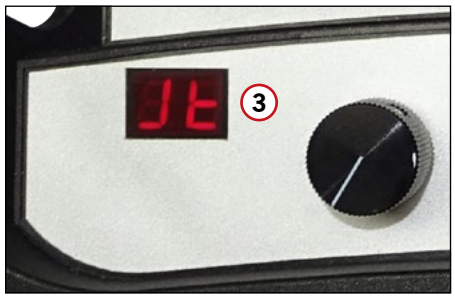
The Teach mode for setting and saving the max. and min. values of the valves with proportional control is activated by a separate key combination. Please note the instruction „Teach mode" which is described separately in the technical documentation.

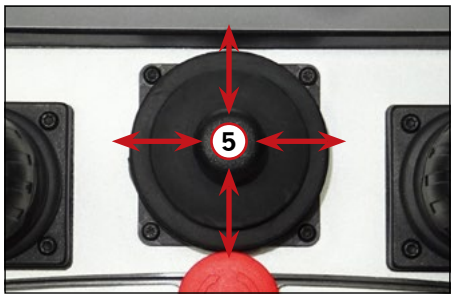
If "JT" does not appear in the display, please switch off the transmitter and start teach mode activation from the beginning!

(1) (4) Frequency change

(6) On/Horn







Technical data

The nickel-metal hydride (Ni-MH) batteries from NBB have a high energy density and self-cleaning contacts. With an NBB charger, the battery packs are charged at a high charge current. This rapid charge is thermally controlled to optimise recharging and prevent overcharging.

Technology	Ni-MH
Voltage	7.2 V
Capacity	1,500 m Ah
Maximum charging current	1.0 A (with monitoring)
Operating temperature (discharge)	–20 C° to + 60 C°
Operating temperature (charge)	+ 10 C° to + 35 C°
Weight	Approx. 200 g
Measurements (L x B x H)	Approx. 126 mm x 52 mm x 22 mm

Battery 7.2 V

Completely charge the battery before initial use.
The battery only has its maximum capacity after five complete charging and discharging procedures!

Completely discharge the battery in the control unit before charging again.
The charging time depends on the type of battery. It is normal for the battery to heat up during charging or over long periods of use. Charge batteries at an ambient temperature of 10° C to 35° C. To prevent deep discharge, the battery should be recharged once a month if not used. If the battery temperature is too high or too low, no charging takes place. Deep discharge and extreme temperatures damage the battery. Heat in particular reduces performance. To extend the service life of the battery, store the charged battery in a cool and dry location. We are not liable for subsequent damage due to incorrect use.

Only completely discharged batteries should be charged. Therefore operate your controller until the capacity of the battery is completely depleted.

Safety information

A charged battery is a concentrated energy source! Never store the battery in toolboxes, or similar, where there is a risk of short circuiting due to metal parts (short circuit due to keys in trouser pockets is also possible.).

Do not open, modify or burn the battery. Do not drop it or subject it to strong impact. Protect the battery from rain, moisture and extreme temperatures. Keep the contacts clean and make sure the battery does not come into contact with metal objects (e. g. aluminium foil). Do not short circuit the battery.

Disposal

Do not throw away used batteries in household waste but hand them in to a collection point.

Warranty

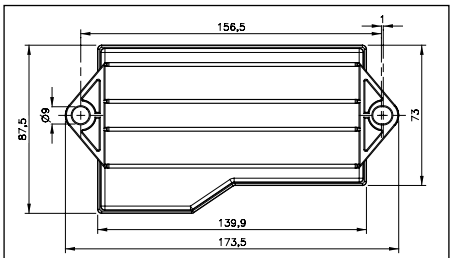
Any warranty claims for damage or premature wear due to non-observance of the above operating and safety information shall become null and void.

Technical data

Power supply	9 V – 32 V DC (e. g. by 12 V/24 V on-board electrical system) (Note: the charging procedure is lengthened below 10 V)
Supply voltage	via coaxial power connector (ø external = 5.5 mm, ø internal = 2.1 mm) or via cigarette lighter plug
Measurements (L x W x H)	173,5 x 73 x 43,7 mm

Configurable specific to battery (Delta Peak, dT/dt, charging current, timeout)

Display of the charging procedure via a DUO-LED	
LED – continuously lights up green	STANDBY. Charger is ready for operation. Insert the battery in the battery compartment.
LED – continuously lights up orange	CHARGING. The battery is being charged.
LED – rapidly flashing orange	Charging complete.
LED – slowly flashing orange	Battery is deeply discharged or ambient temperature for quick charging is too low. There is a regeneration or warm-up phase with reduced charging current before changing over to actual quick charging.



Measurements in mm

Leaving the battery in the charger beyond the charging time is not a hazard. Only use the charger when it is dry!

Detection and evaluation of the following start states	
Undervoltage	Pre-charging with reduced charging current
Insufficient temperature	Pre-charging with reduced charging current (warm up)
Excessive voltage	No start of charging procedure

Shutdown when permitted maximum temperature is reached.

Optional integrated charger (in receiver)

Integrated charger (in receiver) for charging NiCd and NiMH rechargeable batteries (7.2 V).
Alternatively the receiver (DC supply) can be equipped with an integrated charger.
Quick charging (approx. 1 h): R16, R-CAN, Compact-M, Compact-V
Normal charging (approx. 3 h): PNN-BUS-3

(Webshop: https://shop.nbb.de/en-us/)

Universal charger

NBB-No.	
2.250.1449	Basic Universal-Charger (12 V/24 V DC) (without connecting cable)
2.250.1450	Universal-Charger (2.250.1449) (12 V/24 V DC) set with power supply Glob Tek Inc. (3.971.1455) (100/240 V AC / 12 V DC), 2 m cable, euro plug
2.251.1450	Universal-Charger (2.250.1449) (12 V/24 V DC) set with power supply Glob Tek Inc. (3.970.1455) (100/240 V AC / 12 V DC), 2 m cable, 4 adapter plug (3.970.1456)
2.250.1452	Universal-Charger (2.250.1449) (12 V/24 V DC) set with cigarette lighter plug (3.400.1451), 2 m cable, cable connected to charger
2.250.1453	Universal-Charger (2.250.1449) (12 V/24 V DC) set with power supply Glob Tek Inc. (3.970.1455) (100/240 V AC / 12 V DC), 2 m cable, 4 adapter plug (3.970.1456), cigarette lighter plug (3.400.1451)

Easy Movement

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