Instruction manual

FB-706

Infrared Manual Remote Control

Item number	WNR	
3224443	CWA-60060874	FB-706
3224333	CWA-60608102	FB-706 TF

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1 General information and safety

1.1 Information about the manual

This manual contains technical information and operating notes about devices of the type:

FB-706	Infrared Manual Remote Control
FB-706 TF	Infrared Manual Remote Control tropicalized

It gives important information about the device.

Please read this manual carefully before using the device!
It will ensure smooth operation and prevention of errors, defects and damage to the system. Moreover, universal safety and accident prevention specifications must be implemented at sites where the devices are in use.

The manual includes important instructions regarding the operation and safety; it is a part of the product and must readily available, close to the device, so that it is accessible to the personnel at all times.

Every person who is assigned to work on or with the device must have read and understood this manual before working with the device. This is mandatory even if the concerned person has already worked with such a device or the like, or has been trained by the manufacturer.

1.2 Symbols in the documentation

There are warning instructions and symbols in this description. It is absolutely mandatory to comply with these and follow them. These are working aids and they will warn you of possible damage to property and personnel. Always follow these instructions. Moreover, always follow the universal safety specifications and accident prevention specifications.

Warning!
This symbol along with the signal word "Warning" refers to a potentially dangerous situation that can lead to serious injuries or fatality if it is not avoided.

Caution!
This symbol along with the signal word "Caution" refers to a potentially dangerous situation that can lead to minor injuries and damage to property if it is not avoided.

Note!
This symbol indicates that there are additional and important information and tips on the relevant topic.

See also!
This symbol indicates that other detailed descriptions on the particular topic are available or provides references to other sections in this documentation.

1.3 Limitation of liability

All data and instructions in this description have been compiled taking into consideration the applicable standards and specifications, the state-of-the-art technology and our knowledge and experience gained over the years.

Conductix-Wampfler Automation GmbH is not liable for any damage or operational disorders arising due to:

- Non-compliance with the description
- Improper use
- Employment of untrained personnel
- Independent remodelling and modification of the device

Moreover, non-compliance with the description absolves Conductix-Wampfler Automation GmbH of the warranty obligation.

1.4 Copyright

The contents of this description should be treated as confidential. It is meant solely for persons working with the device. Handing over this technical document to third parties without written permission of the manufacturer is not allowed.

Note!
The content details, texts, drawings, images and other illustrations of the description are protected by copyright and are subject to the industrial property rights. Any improper utilization is punishable by law.

1.5 Conformity

Devices made by Conductix-Wampfler Automation GmbH have been designed to comply with EU directives.

Please contact Conductix-Wampfler Automation GmbH if you wish to obtain a copy of these EU declarations of conformity.

1.6 Proper use

The infrared manual remote control FB-706 is only used to manually control Conductix/LJU controllers that have the accompanying software and are fitted with a infrared interface.

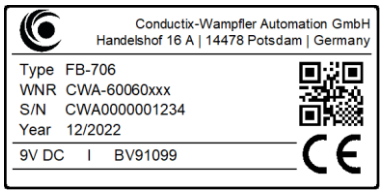
Warning!
Danger due to improper use!
Any improper use and/or different use of the device can lead to dangerous situations.

Therefore:
- *Only use the device in a proper manner.*
- *Under all circumstances, comply with all technical data and permissible conditions at the site of operation.*
- *Do not deploy the device in areas with explosion hazard and in environments with hazardous oils, acids, gases, vapors, dust, radiation, etc.*

1.7 Spare parts and repair

Warning!
Risk of injury due to spurious spare parts and incorrect repair!
Spurious or faulty spare parts and repair can lead to damage, malfunctions or total failure and can impair safety.

Therefore:
- *Use only original spare parts of the manufacturer.*
- *Replace defective devices immediately and send them in for repair.*



When **ordering a spare part**, specify the plant number **WNR** of the component and send it to the address given on the inner side of the covering sheet (page 2). The plant number is given on the type plate of the individual components. (see figure)

Send in the defective device for **repair** with a short description of the error scenario to the address given on the inner side of the covering sheet (page 2).

1.8 Warranty

The warranty covers only manufacturing defects and component defects.

The manufacturer is in no way responsible for damage during transit or unpacking.
In no case and under no circumstances shall the manufacturer be liable under warranty for defects or damage caused by improper use, incorrect installation or impermissible operating conditions, or due to dust or aggressive substances.

Consequential and accidental damage are excluded from the warranty.

The warranty is valid for 12 months from the commencement of operation, however, maximum 24 months after delivery.

Resellers or distributors may negotiate different warranty periods in accordance with their terms and conditions of sale and delivery.

If you have further questions relating to the warranty, please contact your supplier.

1.9 Customer service

Our customer service is available to provide technical information.
Information about the responsible contact persons can be obtained via telephone, fax, e-mail or the Internet; see contacts on the inner side of the covering sheet (page 2).

1.10 Modifications and alterations

To avoid danger and to ensure optimal performance, no modifications, remodelling or add-ons are allowed on the device unless expressly approved by Conductix-Wampfler Automation GmbH.

Warning!
Risk of injury due to design modification!
Unauthorized technical modifications can lead to considerable damage to persons and property.

Therefore:
- *Replace the defective device!*
- *Replace it with a device of the same model.*

1.11 Personnel and qualification

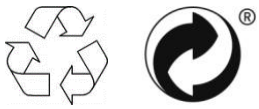
Warning!
Risk due to improper use!
Improper operation can lead to serious damage to persons or property.

Therefore:

- *It may be operated only by qualified technical personnel.*
- *During manual operation, ensure that there is no risk to persons from the manual operation and that there are no persons in the working area of the vehicle.*

1.12 Disposal instructions / environmental specifications

Provided no agreement for take-back or disposal has been made, the individual components of the device must be appropriately dismantled, segregated and disposed of or recycled according to the current stipulations.



Materials marked with the recycling symbol or green dot have to be disposed of using the appropriate recycling method.

1.13 Battery disposal

The device contains batteries.

Dispose of them according to applicable provisions:

- Do not dispose of batteries as domestic waste.
- Dispose of batteries at local collection points or have a professional company dispose of them.
- Do not short circuit batteries.
- Tape battery contacts.

2 Characteristics and design

2.1 Characteristics

The infrared manual remote control FB-706 is used to manually control and remote control controllers that have the accompanying software and are fitted with a infrared interface.

The FB-706 supports two IR transmission speeds. Therefore it is compatible with vehicle controllers of the 5xx, 6xx and 7xx series as well as vehicle controllers of the latest generation 8xx.

The remote control permits the switching of controllers to manual mode (hand mode) so that e.g. a vehicle can be moved manually using various commands.
In this context, it is possible to address vehicles by means of vehicle numbers so that individual vehicles can be selectively activated.

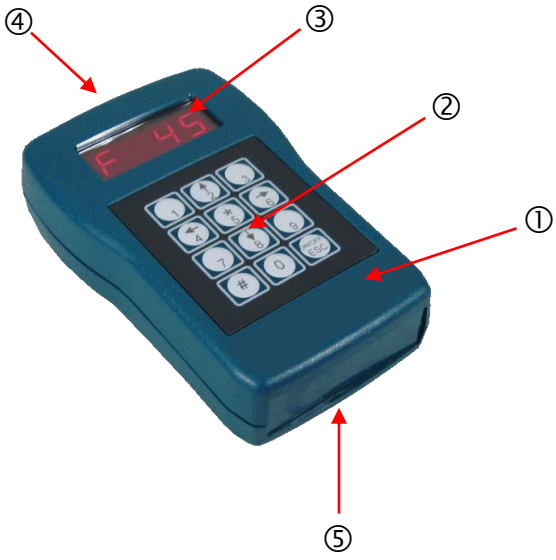
Commands such as “Travel forwards/backwards” and “Hoist/Lower” can be given by pressing the relevant buttons.

It is also possible to acknowledge errors using the manual remote control.

The various commands are transmitted to the controller using coded IR signals. These signals are controller-dependent.

Functions!
The functions of the manual remote control are specific to projects.
The assignment of buttons to your controller is given in the separate descriptions to your controller.

2.2 Design



① The housing of the infrared remote control FB-706 is made of impact-resistant plastic and is handy to carry around using the waist belt clip attached to its back.

② The 12 buttons on the remote control are embossed on the keypad, which helps prevent the buttons from being accidentally pressed with the correct amount of pressure.

③ The FB-706 has an easy-to-read four-digit LED display.
(left segment = mode display; three selection segments)

④ IR transmit diodes for infrared transmission are located at the front of the device.

⑤ The power is supplied by a 9V block battery. The battery can be changed in the battery compartment on the underside of the device.

3 Operation of the FB-706

Warning!
Risk due to improper use!
Improper operation can lead to serious damage to persons or property.

During manual operation, ensure that there is no risk to persons from the manual operation and that there are no persons in the working area of the vehicle.

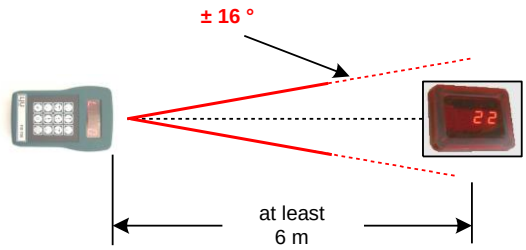
3.1 Functioning

The 12 operating buttons on the remote control are used to remote control controllers and to acknowledge errors.

The commands are transmitted via infrared.

For remote control or acknowledge errors, the IR transmit cone must be directed with a tolerance of +/- 16° towards the display window of the controller.

The range of the remote control to the receiver is at least 6 m.



Note!
The vehicle number of the vehicle to be addressed may be input in the mode vehicle selection (F) so as to prevent the unintended activation of other controllers.

3.2 Switching On/Off

Switch on the remote control by pressing the ON/OFF ESC button.
Switch off the remote control by pressing the ON/OFF ESC button for a few seconds.

3.3 Selection of modes and button functions

3.3.1 Overview

The Infrared Manual Remote Control FB-706 has five modes that can be selected by repeatedly pressing the ON/OFF ESC button on the remote control.

The currently active mode is shown in the left segment of the remote control display.

Mode	Description
S	Fast infrared
L	Slow infrared
F	Vehicle selection
C	Command
d	Dimming the LED display

Note!
The function S, L, F or C only works if it has been implemented in the controller software.

3.3.2 Mode S – Fast infrared

- Mode is used to remote control controllers with fast infrared.
- Transmission rate 62500 bit/s, e.g. controllers of the series 6xx, 7xx and 8xx.
- When F mode is selected, the vehicle number of the vehicle to be operated is displayed in the three segments on the right and only this vehicle receives the command. A zero indicates that the command has been sent to all the vehicles.
- Operation by remote control is done using the #,✶,←,↑,↓,→ buttons.
- A command specified in C mode is sent using button 1.

3.3.3 Mode L – Slow infrared

- Mode is used to remote control controllers with slow infrared.
- Transmission rate 9600 bit/s, e.g. controllers of the series 5xx.
- When F mode is selected, the vehicle number of the vehicle to be operated is displayed in the three segments on the right and only this vehicle receives the command. A zero indicates that the command has been sent to all the vehicles.
- Operation by remote control is done using the #,✶,←,↑,↓,→ buttons.
- A command specified in C mode is sent using button 1.

3.3.4 Mode F – Vehicle selection

- A vehicle number can be input in this mode. Commands are sent only to this vehicle.
- Inputting “000” will cause a reset and all vehicles will again be addressed.

3.3.5 Mode C – Command

- In addition to standard remote control commands, the remote control also allows numerical commands to be given to the vehicle controller.
- The command is transmitted in S/L modes using the button 1.

3.3.6 Mode d – Dimming the LED display

- The brightness of the display in the FB-706 can be set in this mode.

↑	Increase brightness
↓	Decrease brightness

- The brightness level is shown in the display. “0” corresponds to the highest brightness level.

Note!
If no button is pressed for more than 5 seconds, even during a transmission procedure, the display is dimmed automatically. (power saving mode)

3.4 Remote control

Devices with Conductix/LJU controllers can be operated remotely via the infrared interface in the controller display using the remote control. That means functions like driving can be manually controlled using them.

To switch the controller in manual mode (hand mode) press the ✶ button of the remote control.
If the controller is in a manual operating mode, this is displayed by a flashing **"H"** in the controller display.

Button assignment!
The functions of the buttons are specific to projects.
An example is shown in the following table.
The assignment of buttons to your controller is given in the separate descriptions to your controller.

Example button assignment:

Button *	Function
✶	Switching to manual mode resp. error reset
#	Normal mode (automatic mode)
➔	Travel forward slow
✶➔	Travel forward fast
➔	Travel backward slow
➔✶	Travel backward fast
➔	Hoisting slow
➔✶	Hoisting fast
➔	Lowering slow
➔✶	Lowering fast

***** two buttons: press the buttons simultaneously

Note!
Special function ✶-button!
Normally commands are buffered by the controller software.
Release all buttons and press the ✶-button immediately, the last command is breaking (clear buffer memory) and the movement will be stopped immediately.

3.5 Acknowledge errors

By switching the controller in manual mode "H" and back to automatic mode errors can be acknowledged.
Only acknowledge errors after troubleshooting.

4 Technical Information

4.1 Data Sheet

General		
Type	**FB-706**	**FB-706 TF**
Item number	3224443	3224333
WNR	CWA-60060874	CWA-60608102
Housing	impact-resistant plastic	
Colour	green-blue as per RAL 5020	
Dimensions H x W x D	124 mm x 80 mm x 36 mm	
Weight	150 g	
IP protection class	IP 30	
Display	four-digit LED, 7 segments	
Number of operation buttons	12	

Electrical data	
Power supply	9V block battery
Average power consumption transmit	approx. 50 mA

Data transmission	
Principle of operation	Control signal transmission with infrared radiation (identical to the principle of remote control of a television)
Transmission rate	slow infrared: 9600 bit/s fast infrared: 62500 bit/s
Modulation type 1 (slow infrared)	Transmission frequency 125 kHz, bit-coded frequency sampling at 9600 bit/s
Modulation type 2 (fast infrared)	IrDA (worldwide standard of the "Infrared Data Association"), bit-coded infrared single pulses with a pulse width of 1 µs at 62500 bit /s
Wavelength	850 nm
Radiant power	120 mW
Range	typical 6 m
Angle of reflected beam	± 16°

Ambient conditions		
Operating temperature	+ 10 °C to + 50 °C	
Storage temperature	- 10 °C to +50 °C	
Relative humidity	< 80% non-condensing	
tropicalized	-	✓

4.2 Device drawing