

Radio Fingerprint Scanner NB649N

Installation and operation instructions



These instructions are to be passed on by the fitter to the user.

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Caption

LED display example:



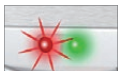
LED's do not light up.



Green LED flashes.



Red LED flashes.



Green LED lights up,
red LED flashes.



Green LED lights up
for 2 sec.



When the master-finger is used,
the master-finger symbol is always
depicted.

M
aster



**Important information;
please note.**



For this manual in other languages
see www.fuhr.de

1 Applications

The communication between the radio fingerprint scanner and the motor lock's control is wireless. Alternatively, a radio receiver module can be fitted directly to the motor of the **multitronic**/**autotronic**. If desired the radio fingerprint scanner can be used to control e.g. garage doors. We offer a mains-operated plug socket radio receiver and a universal radio receiver for this purpose.



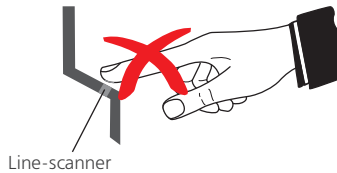
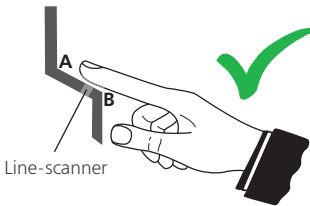
2 Important advice

2.1 The course of movement when swiping your finger over the line-scanner

Correct operation is compulsory so that the line-scanner can detect your fingerprint correctly. The following course of movement is to be carried out with continuous movement:



Slightly press and swipe the surface of your finger parallel to the sloped contact face at the very top at point „A“. Move your finger completely over the line-scanner in a consistent manner with slight pressure in the direction of the arrow towards point „B“.



2.2 General advice on the reading capability of human fingerprints

Humans' fingerprints have by nature different distinct characteristic-curves. Despite the fact that the FUHR radio fingerprint scanner has been equipped with the most modern and safest detection methods, it cannot be ruled out, that some peoples' fingerprints cannot be tuned in. In particular indistinct characteristic curves (e.g. in the case of children) or characteristic curves that have been damaged by means of mechanical or chemical abrasion, may not be able to be read. This is not a device defect!

For this reason we generally recommend to check the tune-in capability of the fingerprints in question before installing the system. To do so the scanner is simply connected up to the 12 V DC supply while not fitted. Afterwards the fingerprints in question are tuned in as per the described tuning in steps.

Fingerprints can change as the air temperature changes from season to season. To ensure that fingerprints are reliably recognised at all times, it is advisable to enroll each fingerprint twice, once in warm conditions and once in cold.

Tip: Despite the fact that childrens' fingers are generally difficult or perhaps even not at all possible to tune in, their thumbs can often be read relatively well. **By the same token, every person authorised to open the door should have a minimum of 3 different user-fingers tuned in to the system, so that also in the case of injuries or damage to the characteristic curves of a particular finger, an alternative finger can be used.**

2.3 Maximum number of tuned in fingerprints

The memory has been designed for a total number of max. 200 user-fingers. As soon as the 201st fingerprint is being tuned in, the red and green LED each flash three times as an indication that the memory is full. This fingerprint is then no longer stored and the tuning-in procedure is aborted!

2.4 Power failure

A power failure has no effect on the stored master- or user-fingers; they remain stored. Opening the door automatically cannot be effected.

We generally recommend the installation of a mechanical cylinder in the main-lock casing in order to warrant the possibility of mechanical access at all times.

2.5 Technical specifications

Operating voltage:	12 V DC
Current consumption:	Approx. 70 mA
Opening impulse:	868.3 MHz radio signal, encrypted as rolling-code
Transmitting channels:	2 pieces
Transmitter range:	Approx. 100 m (free field)
Amount of fingerprints:	Max. 200 pieces (100 per channel)
Housing dimensions:	55 x 36 x 42 mm (H x W x D)
Cover dimensions:	91 x 40 x 2.5 mm (H x W x D)
12 V DC cable length:	1600 mm

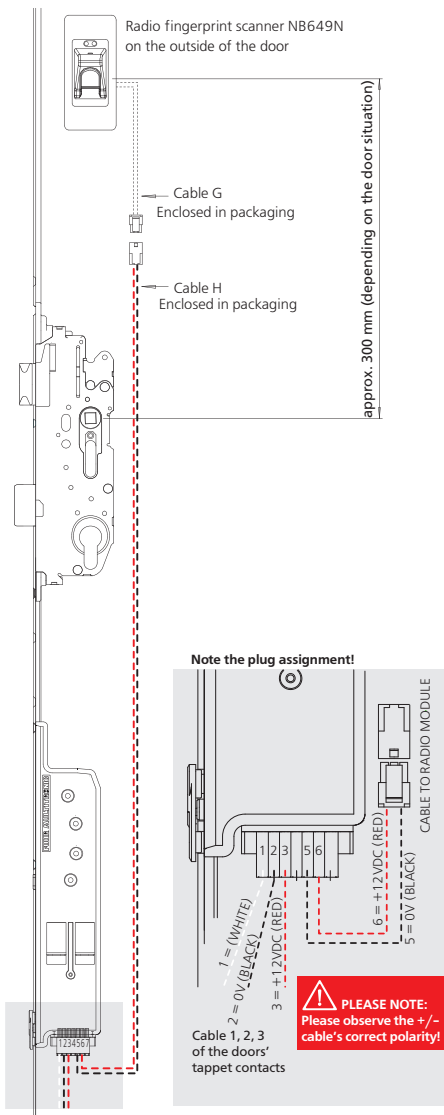
3 Installation advice

3.1 Delivery scope

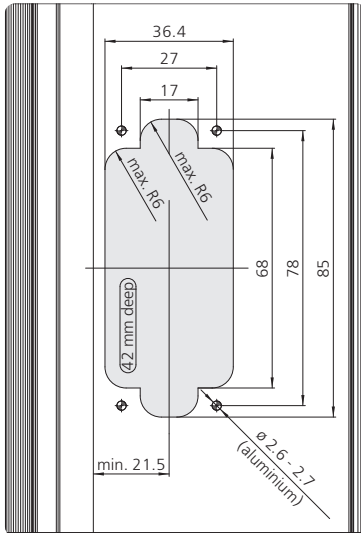
- Radio fingerprint scanner with flat stainless steel cover and connection cable (1600 mm)
- 4 fixing screws M3 x 8 mm for aluminium + steel
- 4 fixing screws 3 x 20 mm for timber + PVC
- Installation and operating instructions



3.2 Terminal connection diagrams



3.3 Routing dimensions/drilling jig



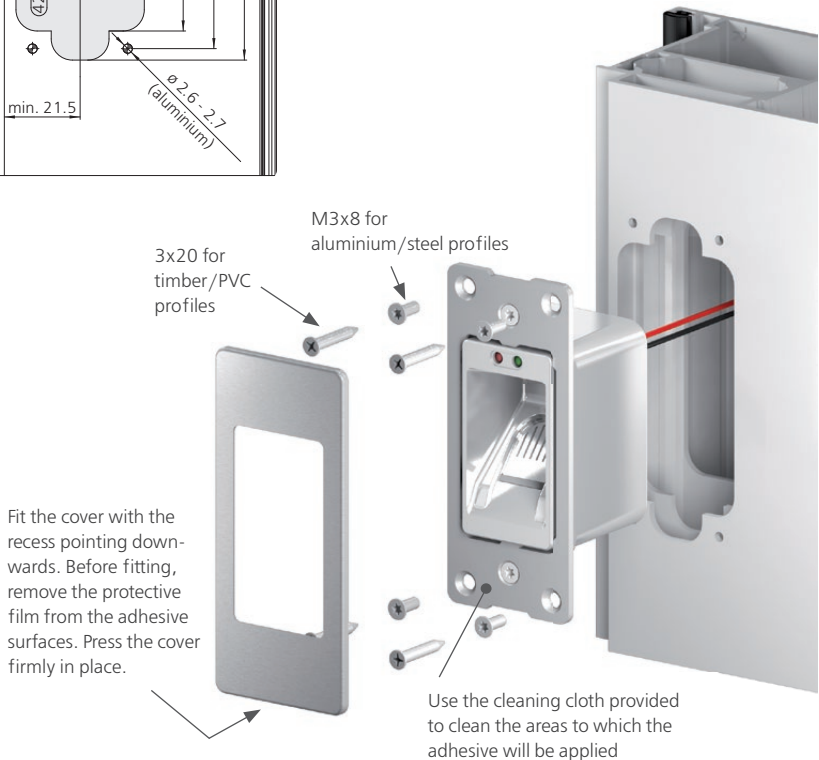
3.4 Mounting the cover

Important – read the following before fitting the cover:

The radio fingerprint scanner must be supplied to the customer in pairing mode = red and green LED's are lit. If necessary, reset the radio fingerprint scanner – refer to pages 13/14, chapter 7.

Do not affix the cover until all other installation steps are complete and the fingerprint scanner has been successfully paired with the radio receiver. Once the cover is in place, it may not be possible to remove without damaging it.

Replacement cover: Article No. NB28052N



4 Commissioning

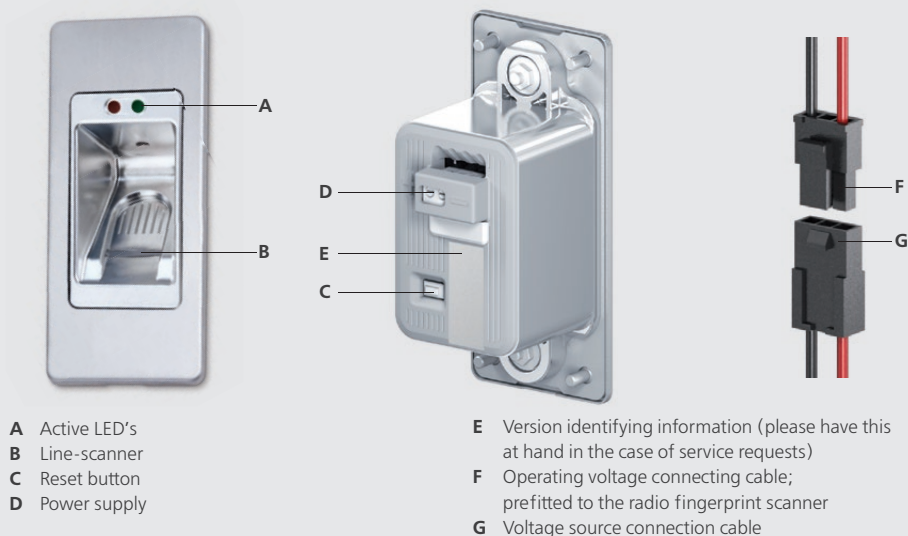
4.1 Power supply connection

The radio fingerprint scanner requires 12 V DC (direct current) operating voltage, collected directly from the **multitronic/autotronic**-motor lock's drive unit.
For more on this, refer also to page 6, chapter 3.2.



Please note!

Please observe the correct polarity (+/-) to the power source!



4.2 Delivery status

Upon connecting it up to the 12 V direct current, both LED's (red and green) light up permanently when in its ex-works condition, that is to say; no master- or user-fingers have been stored in the memory. In this state the device anticipates that three master-fingers for channel 1 and three master-fingers for channel 2 shall be tuned in (for more on this, refer to page 9, chapter 5.1).

4.3 Different radio channels

The transmitter module transmits two different rolling-code encrypted telegrams/channels on 868.3 MHz. As a result you have the possibility of controlling two different devices:

Channel 1 for the **multitronic/autotronic**-main entrance door

Channel 2 for another **multitronic/autotronic** door or, in conjunction with the FUHR radio receiver for a motorised garage door drive unit or e.g. an electrical yard gate.

5 Tuning in and deleting

5.1 Tuning in the master-finger for channel 1 and channel 2

When connecting up the radio fingerprint scanner in the ex-works condition or after completely deleting all user-fingers from the memory (reset), the module anticipates tuning in three master-fingers per channel. If for example only the middle finger is to be tuned in as the master finger for channel 1, it must be swiped three times over the line-scanner's surface. Two or also three people can be tuned in as masters for the one channel. In the case of tuning in two people, it makes sense to tune in one person with the same fingerprint twice and the other person with the one fingerprint once. In the following example we explain the procedure of tuning in the same master-finger three times.



1. If **both LED's light up**, you may commence with tuning in the master fingerprint.
2. In order to tune in the **first master-finger**, the **right-handed middle finger** is swiped over the line-scanner from the top to the bottom **within 60 seconds**. As an indication that the master-finger has been detected, both LED's go out briefly and then light up again.
3. The first master-finger was tuned in in step 2. In order to store both of the other master-fingers, **repeat step 2 another 2 times**. We recommend using **the same fingerprint for this**. Now the master-fingerprints for channel 1 are stored. The LED's flash twice and then light up permanently.



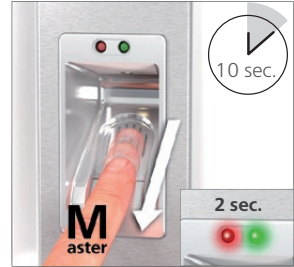
4. Subsequently the three master-fingers are tuned in to channel 2, keeping in mind that none of the tuned in fingerprints for channel 1 are used. We recommend the left-hand middle finger for channel 2. After the master-finger for channel 2 has also been tuned in, the green LED lights up at the end for 3 seconds and then goes out. Both LED's now go out and the master-finger's tuning in procedure has been completed.



Advice:

The master-fingers cannot be used to open doors; they serve only as programming fingerprints to tune in or delete user-fingers. Should you select other fingerprints as master-fingers, please make a note of this as a reminder on page 15, chapter 8 of the operating instructions.

5.2 Tuning in user-fingers to open the motor-lock door



1. In order to tune in the user-fingers, first the master-finger of the desired channel (channel 1 or channel 2) is swiped 1x over the line-scanner. To indicate that the master-finger has been successfully detected, the red and green LED light up at the same time for 2 seconds.
2. Now swipe the desired new user-finger **within 10 seconds** across the line-scanner. If the new user-finger has been successfully read, the green LED lights up for 2 seconds and then goes out. If the red LED lights up, the fingerprint has not been detected and could not be read. Try again **within 10 seconds**.
3. End the tuning in procedure by swiping the master-finger over the line-scanner again **within 10 seconds**. If this was carried out successfully, both LED's light up for 2 seconds and then go out again.



Advice:

If the confirmation time of 10 sec. is exceeded, the previously read user-fingers are not stored in the memory, but rather deleted and the device independently returns again to the normal operation mode. Please make a note of the user-finger as a reminder on page 15, chapter 8 of these operating instructions.

Master-fingers cannot be tuned in as user-fingers!

Maximum 200 user-fingers (100 per channel) can be tuned in!

You can also tune in the same user-finger several times to increase the detection rate. (We recommend tuning in every user-finger 3 times consecutively! To do so, simply repeat the described steps.)

5.3 Tuning in the radio fingerprint scanner to a multitronic/autotronic control with radio receiver

The radio fingerprint scanner is tuned in to the **multitronic/autotronic** control after the user-finger has been stored. The radio fingerprint scanner is tuned in in exactly the same manner as a new radio key (refer to the **multitronic/autotronic** 834 installation and operating instructions).

An abridged version of the tuning in procedure:

1. Hold the master radio key (with the red buttons) in your hand.
2. Press the tune-in button **(A)** briefly (for approx. 1 second) between the LED's on the **multitronic/autotronic** control positioned on the inside of the building. The green LED **(B)** on the **multitronic/autotronic** control begins to flash! Ensure that the doors' tappet contacts touch the surface-contact in the door frame during this procedure.
Step 3 and 4 must each be carried out within 20 seconds.
3. Now go to the outside radio fingerprint scanner and activate the master radio key's (with the red buttons) previously tuned in button. (If the control accepts the master radio key, the **multitronic/autotronic** control's green LED **(B)** lights up initially for 2 seconds and then continues to flash.)
4. Now swipe any of the previously tuned in **user-fingers** of the desired channel **immediately** over the fingerprint scanner. In doing so, the radio fingerprint scanner's green LED must light up briefly. As soon as the LED goes out, swipe the **same finger again** over the fingerprint scanner. Here again, the green LED light up briefly.

Analogously, the tuning in procedure applies by using the radio receiver module NBFP490.



Advice:

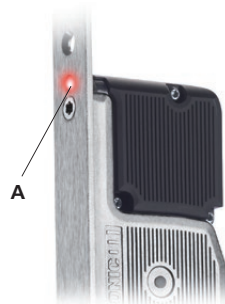
If you need more than 20 seconds each for both step 3 and step 4, the tuning in procedure is aborted and you must start again at step 1. If the tuning in procedure has been carried out correctly, the motor-lock door can now be opened with the tuned in channels' user-fingers.

multitronic/autotronic-control with radio receiver and visual locking display

- A Tune-in button
- B Green LED
- C Red LED
- D Master radio key



Radio receiver modul
NBFP490



5.4 Deleting individual user-fingers

Previously tuned-in user-fingers can be deleted with the aid of your master-finger. To do so, proceed as follows:



1. Swipe the channel's master-finger over the line-scanner for whatever user-finger you wish to delete. The red and green LED light up at the same time for 2 seconds.
2. Swipe the same master-finger again **within 10 seconds** over the line-scanner. The red LED begins to flash, the green LED lights up for 2 seconds.
3. Now swipe the user-finger to be deleted over the line-scanner **within 10 seconds**. The red LED continues to flash, the green LED lights up for 4 seconds.



1. In order to complete the delete process, swipe the master-finger again across the line-scanner. The red and green LED light up at the same time for 2 seconds.
2. Final test: In order to make sure that the user-finger has been deleted, swipe it properly across the scanner once again.
3. If the red LED lights up, the delete process has been carried out successfully, otherwise please repeat the delete process.



In the case of the user-finger having been tuned in several times, this also must be deleted again several times.

Due to the fact that there is always a residual risk when deleting individual fingerprints that the user doesn't carry out the delete process properly, we generally recommend deleting all fingerprints via the software reset with the aid of the master-finger in compliance with the instructions on page 14, chapter 7.3!

After this new master- and user-fingers are tuned in.

6 Tamper protection

6.1 Blocking times as tamper protection

If five non tuned in fingerprints from unauthorised people are read by the line-scanner consecutively, the radio fingerprint scanner is blocked for one minute (the red LED flashes for the duration of the blocking time). In the case of five further non tuned in fingerprints, the blocking times are increased to 5, then 30, and then 60 minutes; and after all of this the radio fingerprint scanner remains permanently blocked.

6.2 Disabling the blocking times

While the radio fingerprint scanner is still locked in this blocking time, you nevertheless have the possibility of disabling the blocking time ahead of schedule by swiping an authorised/tuned in fingerprint **twice consecutively** over the line-scanner. It's no matter whether it's a master- or user-finger.

7 Resetting the radio fingerprint scanner

By means of either the reset button on the housing rear side or the master-fingers, there is the possibility of resetting the entire finger memory incl. master-fingers back to its ex-works condition.



7.1 Reaction when the reset button is pushed for > 3 and < 30 seconds:

Radio link deleted

In this case only new serial numbers/telegrams for radio communication are generated, i.e. the radio fingerprint scanner must be tuned in again to the respective receiver. The user-fingers remain stored.

7.2 Reaction when the reset button is pushed for > 30 seconds:

Radio link and all fingers deleted

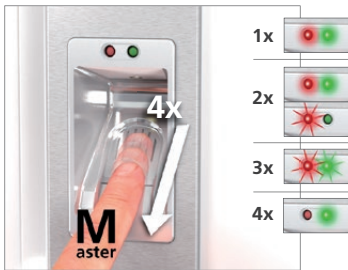
All users and master-fingers shall be deleted. In the same way new serial numbers/telegrams for radio communication are generated, i.e. the radio fingerprint scanner must be tuned in again to the respective receiver. During the 30 seconds while the reset button is depressed, the red and green LED flashes.

After the expiration of the required 30 seconds, the green LED lights up for 10 seconds. Now release the button, if both LED's light up permanently this indicates that the device is now back in its ex-works condition.

7.3 Resetting the radio fingerprint scanner with a master-finger:

Delete all fingers

If one of the master-fingers is swiped four times consecutively over the line-scanner, all fingers (incl. master-fingers) are deleted from both channels. **No** new serial numbers/telegrams for radio communication are generated, i.e. the radio fingerprint scanner does not have to be tuned in again to the receiver used previously. When in the reset-/ex-works condition, the red and green LED's light up permanently. Please proceed as follows:



1. Swipe one of the master-fingers **four times** over the line-scanner. Once the master finger has been recognised, the red and green LED's will light up and flash in sequence.



2. If the delete process has been successfully completed, both LED's light up permanently.











If one waits for **more than 10 seconds** between the single steps, the reset procedure is aborted!



Please be sure to note that in this restored status everybody is capable of tuning in new master- and user-fingers and to transmit an opening-authorised radio signal to the previously tuned in recipient control of the motor lock or the universal radio adapter. That is to say that you should tune in the master-fingers immediately after the installation and the electrical connection of the radio fingerprint scanner. If this is not possible, use the reset button's delete function (page 13, chapter 7.2).

8 Fingerprint allocation for master- and user-fingers

We recommend to tune in the right-hand middle finger three times as the master-finger for channel 1, and to tune in the left-hand middle finger three times as the master-finger for channel 2 (for more on this, refer to page 9, chapter 5). Please record your fingerprint allocations here.

User name	Master/User	Channel	Finger
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	
	Master <input type="checkbox"/> User <input type="checkbox"/>	Channel 1 <input type="checkbox"/> Channel 2 <input type="checkbox"/>	

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