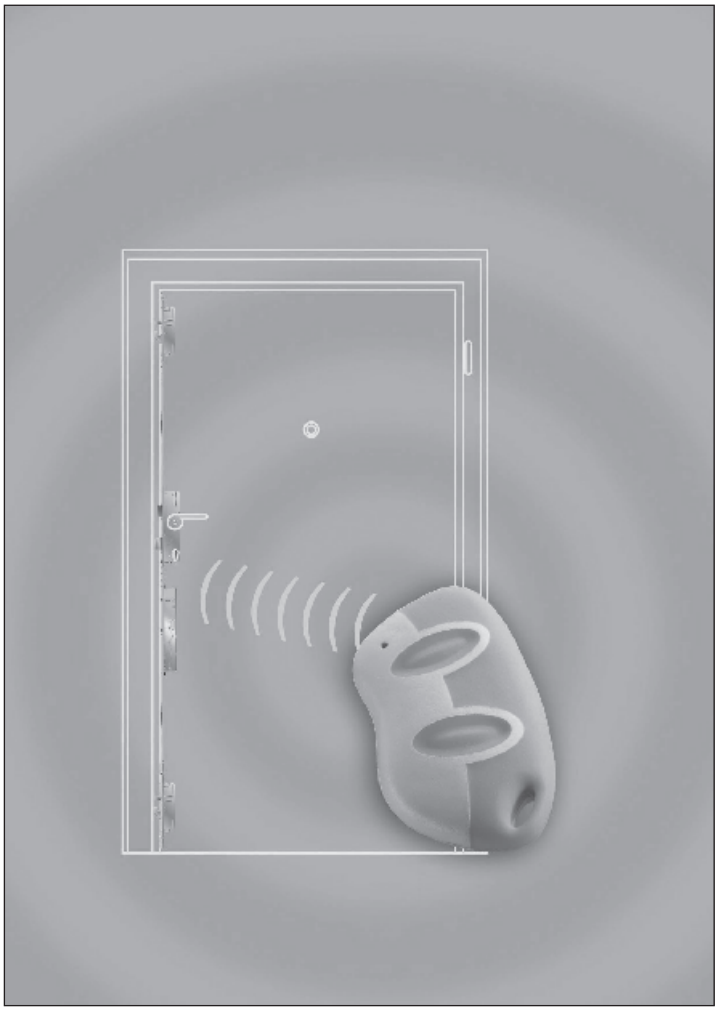
KFV The Protection Company

Genius Type A & B
The Automatic Door Lock



Installation Instructions

Please note:

All article descriptions and technical specifications correspond to our time of the manual publication.

We reserve the right to make modifications.

We cannot assume liability for errors caused in printing or otherwise.

Installation instructions (issue 01/04.2003)

Table of Contents

1. Basic information

Congratulations on your purchase of this innovative product from KFV.
Genius and the associated functions are patent protected. Genius® is a registered trademark.
The Genius door lock complies with the low voltage and EMT directive.

The Genius door lock can be installed and assembled without difficulty by observing these instructions. Installation and/or assembly may only be performed by an authorised company. This shall be verified in the case of complaints.

Arbitrary modifications and changes to the Genius or its accessories are not permitted. Installation of products that are not original KFV products and the use of parts that have not been approved by KFV may negatively affect the given design characteristics of the locking device. All repairs must be conducted by authorised specialists and with original spare parts. The manufacturer will not accept liability for damages caused by failure to observe these instructions. This will also void warranty claims in any form.

Genius technical data:

Relative humidity 20 to 80 %; ambient temperature –5 to 40 °C
Dimensions: width = 16 mm; length approx. = 252 mm; depth = 49 mm + face plate thickness;

The Genius must be protected against moisture. It is unsuitable for areas with condensing humidity or an aggressive atmosphere (e.g. galvanising shops).

Guarantee: The pertaining statutory provisions apply for the guarantee.

2. General description

The Genius is an electronic multiple locking device (door lock). This door lock ensures that the door is securely locked by electrical means and alternatively, manually via the cylinder. For example, it can be installed in private houses, flats, public and commercial buildings.

The Genius is suitable for all types of door materials. The Genius must be put into use with a **free-running cylinder**. A knob cylinder is also possible, although this causes a loss of force on the round pin. Cylinders with fixed lugs when the key is withdrawn cause the main lock to be blocked and must not be used.

The electromechanical drive itself requires no maintenance. It is only necessary to change the batteries of any existing handheld transmitters at certain intervals. All other parts of the locking device require maintenance in the same way as purely mechanical locking devices. The door can be opened mechanically at all times during a power failure. Combinations with other access control systems are also possible.

Security note:

In some access control systems available on the market, a brief opening impulse is issued when the supply voltage has been switched on. This can lead to an opening operation with the Genius after a power failure. In cases of doubt, please consult the manufacturers of these systems.

2.1 Versions

- Genius type A & B	Electromechanical locking device, combinable with external access control systems, e.g. KFV radio receiver.
- Genius type B	External day/night mode possible. Combination with other external components (e.g. revolving door drive, alarm system etc). With integrated access control system on the basis of infrared.
with 1-channel access key	IR operation from outside the door. Remote controlled unlocking.
with 2-channel access key	IR operation from outside the door. Remote controlled locking and unlocking.

3. Technical description

3.1 Mechanical fitting dimensions

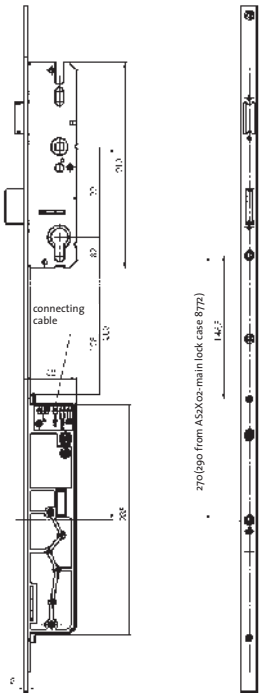


Fig. 2

An additional preparation must be cut into the door leaf beneath the main lock mortice. For wooden doors, we recommend the extension of the preparation by approx. 15 mm upwards in the vicinity of the connecting cable to allow connection without difficulty. The additional lock preparation must be sufficiently large to allow the Genius to be inserted without rubbing or permanent pressure. **When working on the door, please observe that metal filings falling from above onto the terminals of the Genius can cause short-circuits and destroy the electronic circuitry in the Genius.**

The function of the locking device must be verified in the same manner as a normal mechanical lock. Locking devices with a latch and deadbolt must be attached such that the deadbolt can slide when the latch is engaged without rubbing against the deadbolt recess in the frame. The handle and the cylinder key must not be operated with a force exceeding normal operating forces. The recess in the vicinity of the striking plate must be sufficiently deep to prevent the bolt from bottoming out. Any possible longitudinal expansion of the door must be taken into account.

The smooth operation with the cylinder must be ensured.

The Genius must only be put into operation with a free-running cylinder.

Please note: The Genius with Comfort Function (fast opening with the internal door handle, only for types CA/CB) does not have the facilty to use seperate cylinder escutcheon plates. There are no provisions in the lock case for the fasteners used with this type of furniture.

3.2 Connections of the Genius door lock

Connections	Type A	Type B	Function
A; B; C; D		✔	Connection for the infrared eye which conveys the IR signals from the outside to the Genius (see Item 3.6)
0; 1		✔	Mode switch (see Item 3.3)
2; 3	✔	✔	24VDC supply voltage from the power pack NG-55 Terminal 2 = + Terminal 3 = –
4	✔	✔	External unlocking signal. If +24VDC is applied to this terminal for approx. 1 sec, an opening operation occurs in both modes
7		✔	Locking device status display. The desired status is set with the selection switch (see Item 3.5) Open collector = - (max. 20mA)

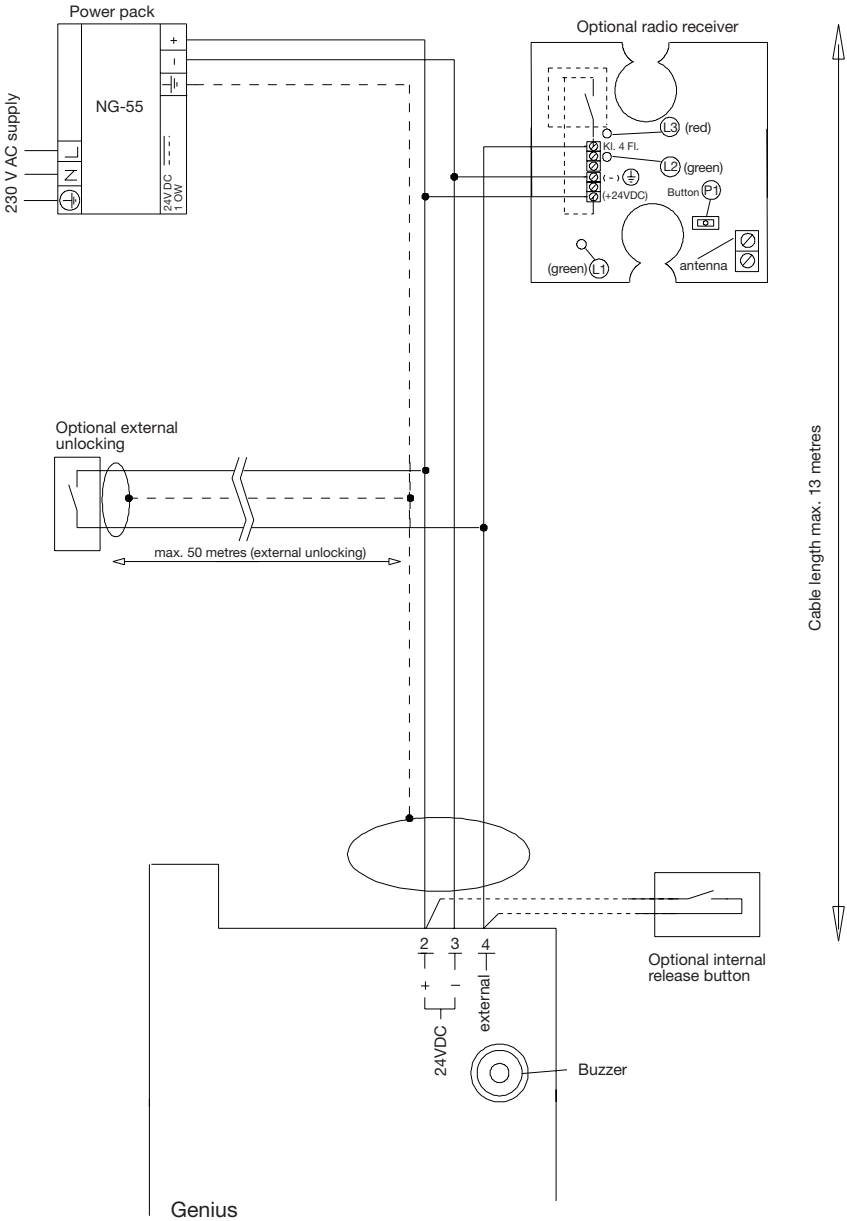


Fig. 3A (Genius type A)

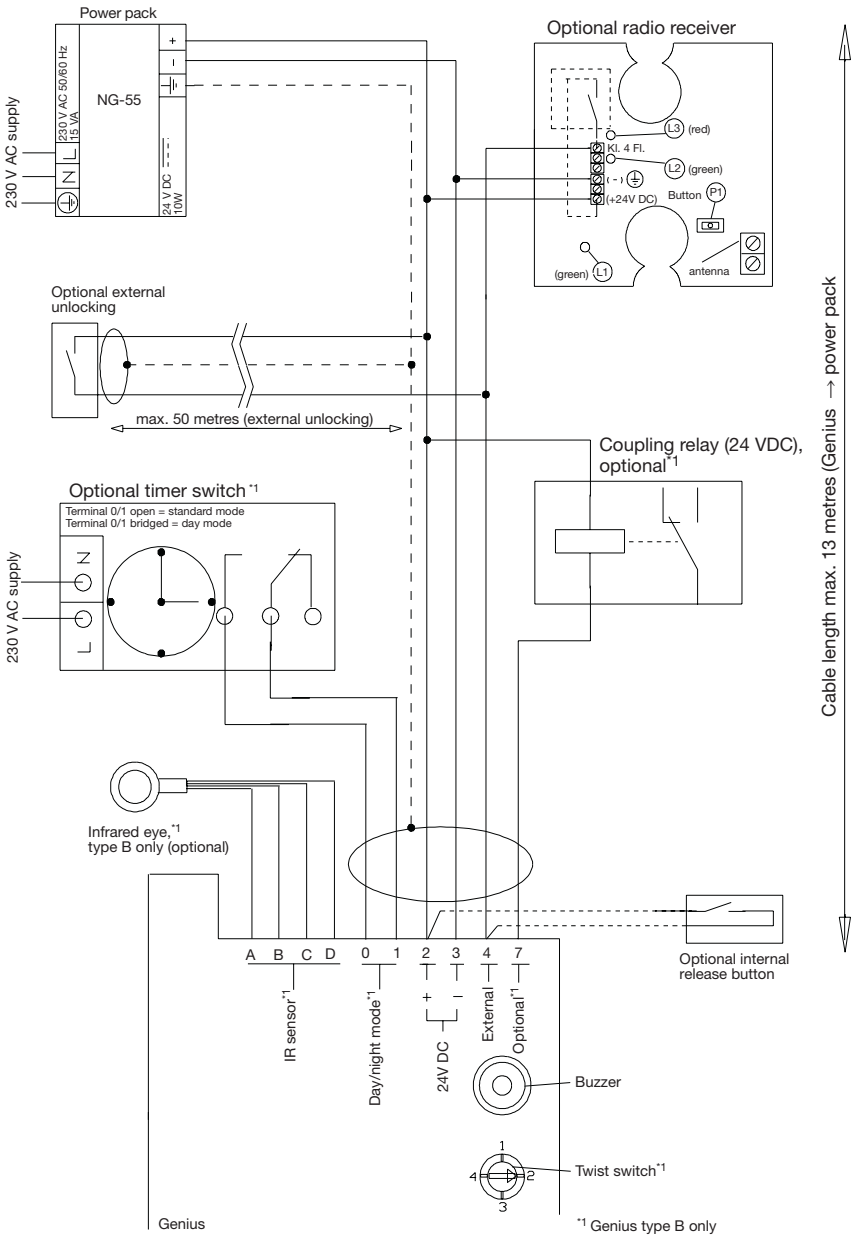


Fig. 3B (Genius type B)

3.3 Toggle switch

The Genius has a facility to operate the locking device in two different modes. The toggle switch located on the face plate is used for this purpose (Fig. 4 Toggle switch).

Fig. 4

1) Night mode Switch position down. The locking device locks automatically after every opening operation. An opening operation initiates the unlocking of the lock. The latch remains in the changeover function for approx. 7 sec. if the door has not been opened. The locking device is then re-locked.

2) Day mode Switch position up. The door is locked by the latch. The latch is set to the changeover function during opening. This mode is advisable for doors with frequent passage.

When the door is to be locked (e.g. at night; during absence; ...) the device must be switched to night mode.

With the Genius type B, the mode can also be selected at the terminals (terminals o/1). For example, if these terminals are connected together by the closed contact of a timer switch, day mode is set.

In contrast with switching over with the switch on the face plate, an opening operation occurs automatically when the device is switched from night to day mode at terminals o/1. During this, all bolts are retracted. However, the latch is not set to the changeover function. For control of the mode at the terminals, the changeover switch on the front of the face plate **must** be set down to night mode.

See also: KFV accessories → timer switch with special gold contacts

3.4 Reed sensor

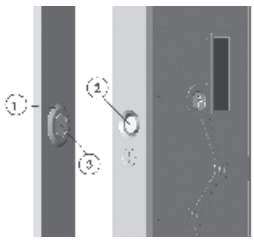


Fig. 5

The reed sensor is located beneath the toggle switch,Fig. 5/2. The Genius uses this to detect whether the door is open or closed. The reed sensor is operated by an opposing piece (magnet, Fig. 5/3 with magnet sleeve Fig. 5/1), which must be located on the frame. The magnet must be located centrally to the reed sensor- (vertical tolerance max. 3 mm). When striking plates are used with wooden doors, the magnet and holder can be recessed into the frame. If striking plates are used for PVC or aluminium doors, a single striking plate AS23xx (without backing) must be installed in the vicinity of the reed sensor with a plastic part with magnet which fits this hole.

The distance (rebate clearance) between the lock plate and the face plate must be 4 mm (tolerance ± 3 mm).

For a combination of the Genius with a face plate leaf fitting, magnets 1 mm thick must be glued at exact positions opposite the reed sensor. Remove grease from the plate of the face plate leaf fitting in this area. Determine and verify the position and the number of magnets (several magnets one above the other may be necessary). Mark the chosen position and attach the magnet(s) after removing the backing film.

If no automatic locking is employed, the magnet can be pressed further out of the magnet sleeve (max. 2 mm). The magnet can be pushed forwards through a hole in the rear of the sleeve. A plastic spacer 2 mm thick is then installed behind the magnet.

For face plate leaf fittings, it may be necessary to glue on a further magnet.

3.5 Selection switch (optional signal output) -Genius type B-

When the Genius type B is dismounted, various status signals of the locking device or the door can be issued at terminal 7. This is used to connect the Genius via an external relay (24 VDC coupling relay, KFV accessories) connected to terminal 7 to other systems, e.g. alarm systems, revolving door drives etc. The status to be signalled can be determined using the selection switch (Fig. 3B).

Position	Status	Comments
1	Locked	When the locking device is fully locked (manually or electrically), ground potential is applied to terminal 7 "opt." ground potential (day mode).
2	Door closed	When the door is closed, ground potential is applied to terminal 7 “opt”.
3	Catch in - changeover function	When the latch is set to the changeover function by the motor, ground potential is applied to terminal 7 “opt”. This function can be used to control a revolving door drive via a relay.
4	Alarm armed / disarmed	If the lock button of the 2-channel IR handheld transmitter is pressed when the door is locked, the device is in the alarm armed mode. This mode can be seen by the flashing of the red LED in the infrared eye at the outside of the door. Switching from day to night mode at terminals 0/1 is then ignored and does not cause the locking device to unlock. If terminal 7 “opt” is connected to a relay, this can be used to switch an alarm system to armed or disarmed. To disarm the system, the open button of the IR handheld transmitter must be pressed once. Pressing the button again initiates the opening operation. To retain the armed status when the power fails, ground potential is applied to the output when the alarm is disarmed. Alarm disarmed = "opt" 7 = ground → relay on Alarm armed = "opt" 7 = high impedance → relay off The opening contact of the relay must therefore be employed to switch on the alarm system.

The output (open collector) must not be loaded by over 20 mA.

3.6 Infrared eye -Genius type B-

Fig. 6

The infrared eye (Fig. 6) can be connected to the Genius type B. This is used as a receiver for the infrared code transmitted by the access or programming key. The required hole diameter is 20 mm (tolerance ±0,2 mm). Push the receiving eye with the cable (length: 750 mm) first into the peg. The peg is suitable for all door material types. Run the cable of the infrared eye to the Genius and connect it to terminals A/B/C/D of the Genius plug (4-pole). The plug can be pulled off upwards to simplify attachment to the Genius. The designations for the infrared eye are on the cable ends, on the top of the housing of the Genius and on the plug above the cable connection.

A red LED is also installed in the infrared eye, which indicates the various states of the locking device (Fig. 7).

Steady light: the door is open

Flashing: opening, closing
error (at double speed)

Off: the door is locked

Fig. 7

3.7 Internal release button

To open the Genius conveniently from the inside of the door without a mechanical key, a button can be installed on the door leaf above the inner fitting (Fig. 8 – matt stainless steel-, KFV accessories). The cable (length 750 mm) attached to this button must be connected to the Genius at terminals 2 and 4. Two core end bushings must therefore be fixed into these terminals (supply cable and button).
A plug for snap-in installation is enclosed.
Hole 18 mm without plug or 20 mm with plug.

Fig. 8

Security note
To prevent access from the outside to the button, suitable anti-intruder glazing and panels (aluminium) must be installed in the door to make it more difficult to open the door with this button.

3.8 Power pack

The NG 55 type power pack provides the voltage supply for the Genius locking device. One power pack can supply a maximum of one Genius and one radio receiver.
The housing is intended for installation on a standard (DIN EN 50022/35) installation rail (35 mm supporting rail) and consists of flame-retardant plastic (polycarbonate VL 94 V - 2).
Please observe Item 3.1 before connecting the power pack to the Genius.

Fig. 9

Power pack technical data:

Primary:
Input voltage: 230 V (or 115 V) 50/60 Hz
Protection: Fuse link 5 x 20

Secondary:
Output: 24 VDC (unstabilised)
Power: 10 W

Ambient temperature: - 20 to + 40°C
Standards: **CE**, VDE 0551 (only transformer)

Installation and servicing of the power pack may only be performed by specialised electrical engineering companies. Handling of 230 V (or 115 V) mains voltage can lead to loss of life. Work may only be performed with the equipment disconnected. Since the power pack is equipped with a permanent connection, an easily accessible disconnecting device must be available in the supply system circuit.

3.9 Supply line

The supply line from the power pack to the Genius is implemented with cables type:

F and B → 6-core, prefabricated and equipped with plug and socket
or C → 6-core, **not** prefabricated (one cable from the power pack to the Genius)
or E → 3-core, prefabricated (one cable from the power pack to the Genius)

The cable screen must be connected to earth at the power pack end. It is unnecessary to connect the screen at the Genius end.

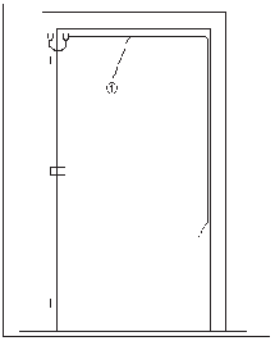


Fig. 10

Technical data: LIYCY 6 x 0.14 mm² screened
Ambient temperature: agitated – 5 to + 50°C
calm – 20 to + 70°C

The laying of the cable (type F, C, E) through the door should be conducted as shown in Fig.10/1. **Important!** When laying the cable behind the face plate, ensure that the connecting bar or other moving parts cannot damage the cable.

If a visible cable transition is used for the transition from the door leaf to the frame, this should be attached as shown in Fig. 10 at the inside hinge side of the door. For a concealed cable transition, it is advisable to fit this as shown in Fig. 11.

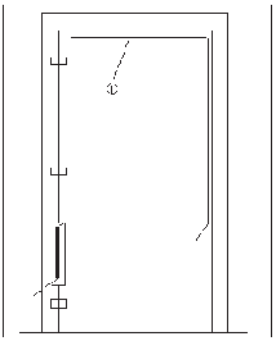


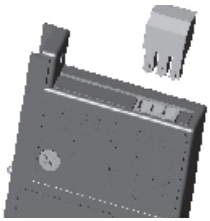
Fig. 11

To simplify unhinging the door at a later date, it is advisable to use prefabricated cables (see Genius accessories, cable types F, B). With these, the plug of cable type F must be installed in a flush mount installation box at the visible cable transition before entering the cable transition. The socket of cable type B is connected to the plug of cable type F in this box. If a concealed cable transition is used, the plug connection between cable type F and cable type B must be made behind the spring box of the transition. The cable (type B) must then be laid to the power pack.

If a cable type C (6-core) is used, this must be laid directly from the power pack through the cable transition to the Genius. The plugs and sockets must then be attached to the cable at both ends. A great deal of work is necessary to unhinge the door with this cable.

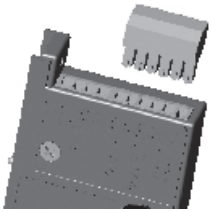
If a cable type E (3-core) is used, this must be laid directly from the power pack to the Genius. The cable is ready-equipped with core end bushings at both ends. The cable end to be connected to the power pack can be determined by the four cores with core end bushings (+, –, 4, earth). The cable end for the Genius has three cores with core end bushings (+, –, 4). A great deal of work is necessary to unhinge the door with this cable.

The cable must be screwed as shown in the wiring diagram (Fig. 3A/B) to the + – terminals of the power pack. The screen should be connected to earth at the power pack end. It is unnecessary to connect the screen at the Genius end. The other cores of the cable are connected to the Genius plug as shown in the wiring diagram to terminals.



2; 3 and 4 → Genius type A (Fig. 12)

Fig. 12



0, 1, 2, 3, 4 and 7 → Genius type B (Fig. 13)

Fig. 13

The plug can be pulled off upwards at the Genius for easier installation. The designations for cable type F and type E are at the cable ends, on the top of the housing of the Genius and on the plug above the cable connection. Only 3 cores must be connected for Genius type A. The other 3 cores of cable type F are not required for this version and cannot be connected.

The cable length between the power pack and the Genius must not exceed 13 m. Incorrect wiring can cause the destruction of the electronic circuitry in the Genius.

4 Operation of Genius type A & B

4.1 Locking from the inside and the outside

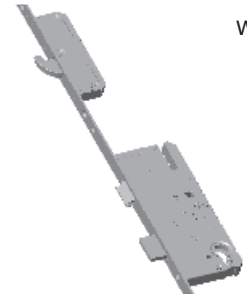


Fig. 14

When the door is closed in night mode, it is locked automatically by the motor (approx. 3 sec). All existing locking elements are extended. Incomplete extension of a bolt is indicated acoustically.

If the power fails, manual locking with a cylinder key is possible (Fig. 15/1).

4.2 Unlocking from the inside and the outside

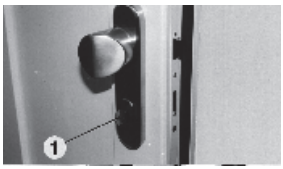


Fig. 15

The door can be unlocked manually with a cylinder key (Fig.15) or automatically by an external access control system (galvanically isolated contact). If the latch is in the changeover function after automatic opening, an acoustic warning is issued for approx. 7 sec. when the door is closed, regardless of the operating mode. The Genius then re-locks the door in night mode if it is not released (by the frame seal) or is opened.

Genius with convenience function -quick opening with the handle- Genius CA / CB only:

When the door is completely locked, it is possible with this specific version to retract the locking elements from the inside with the handle and thereby to quickly open the door. This procedure is equivalent with the normal action of opening the door. Only the operating force on the handle is slightly higher when the Genius is in night mode.

When the motor of the Genius locks or unlocks the locking device, it must **not** be operated from the inside with the handle, as this can cause a mechanical overload of the locking device and thereby damage the main lock box or the Genius.

4.3 Faults

If something doesn't work

Fault	Possible causes	Measures
Radio receiver receives no signal	Battery in the handheld transmitter too low. Other systems (e.g. cordless headset) transmit at the same frequency, 433.92 MHz. Range too short.	Change batteries, see Item 4.4.3. Switch off other systems. Attach extension arial to the radio receiver.
Door does not lock	Door not fully closed. Reed sensor misadjusted or day mode.	Close door. Check reed sensor, Item 3.4, check toggle switch, Item 3.3.
Genius locks with door ajar	Face plate of the locking device magnetised.	Turn magnet at frame side round (exchange north/south poles).
No function	Fuse in the main box "blown".	Seek fault, call an electrician if necessary.
Buzzer sounds briefly	Fault when locking *1 (mechanical seizing or no free-running cylinder)	The fault can be reset by manual opening (cylinder key), pressing an external open switch or opening the door.

*1 If locking does not occur correctly after several attempts, seizing must be checked by hand. For this purpose, lock and unlock the closed door with a cylinder key. It must be possible to execute two full turns to lock the door **without** pushing or pulling the door or the door handle (see also Item 3.1). If **no** free-running cylinder is inserted, the fixed lug causes a fault in the Genius when the key is withdrawn.

4.4 Genius type A & B with radio receiver: operation

Apart from all functions described in Item 4.1 + 4.2, the radio receiver and the associated handheld transmitter with "rolling code" (Fig. 5) are used to open the door from the inside and the outside.

The radio receiver must be mounted separately near the power pack. The connection can be made with a cable type E.

Range handheld transmitter → receiver:

Medium	Range without arial	Range with arial
Steel	approx. 2 m	approx. 5 m
Concrete	approx. 10 m	approx.. 20 m
Wood, aluminium, PVC	approx. 20 m	approx. 30 m
Air	approx. 30 m	approx. 50 m

4.4.1 Training a handheld transmitter

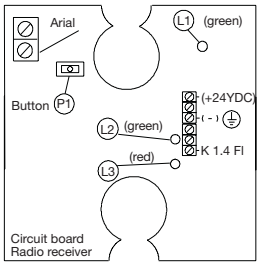


Fig. 16

A total of 85 buttons of different handheld transmitters can be trained or programmed in the radio receiver (Fig. 17). For programming, the plastic cover must first be unscrewed to gain access to the circuit board of the receiver.

– Green LED (L1) on.
– Press button P1 on the receiver for approx. 2 sec. until LED (L2) on.
– Press the button on the handheld transmitter (Fig. 17).
– The green LED (L2) must flash briefly, the relay must switch audibly.

Note: If the red LED (L3) lights together with the green LED (L2), the button of the handheld transmitter was already programmed and has not been deleted.

– Check: -Wait until green LED (L2) off.
-Press the handheld transmitter button again → opening operation.

The second button of the handheld transmitter can be assigned to the same or another radio receiver.

4.4.2 Handheld transmitter lost (delete all handheld transmitters)

Fig. 17

– Press button P1 (Fig. 16) for 2 sec. and hold down until green LED (L2) on.
– Release button P1 briefly and press again for 2 sec. until red LED (L3) and the green LED (L2) flash three times.
– All programmed handheld transmitters are now deleted.

All remaining handheld transmitters must then be re-programmed as described in Item 4.4.1.

4.4.3 Battery change in the handheld transmitter

There is an LED on the top of the handheld transmitter. When one of the two buttons is pressed, this lights if the two batteries (type CR 2016, Fig. 18) have a sufficient capacity.

– Fold the battery flap on the rear (coloured lug) sideways.
– The flap remains attached to the case of the handheld transmitter.
– Push out both batteries towards the positive pole.

When inserting the new batteries, place both batteries on top of each other first with the positive pole upwards and push these together into the battery compartment.

Send used batteries for recycling

Fig. 18

Safety note:

- ▲ The battery must never be recharged, dismantled, heated above 80° or burnt, as this can cause it to explode!
- ▲ Do not hold the battery with tweezers or a similar tool, as this can cause a short-circuit.
- ▲ Wipe the battery with a clean, dry cloth to ensure a good contact.
- ▲ Batteries should be kept away from children. If they are inadvertently swallowed, contact a doctor immediately. The outer mantle can dissolve and the chemicals inside the battery can cause severe damage to the stomach and intestines.

4.5 Genius type B with 1-channel access key: operation

Apart from all functions described in Items 4.1 and 4.2, this version of the Genius has the following additional functions. The so-called access key is used to open the door from the outside. The distance between the access key and the IR eye is approx. 4 to 7m and depends heavily on the capacity of the batteries in the IR handheld transmitter and the ambient brightness. The distance to the IR eye is shorter in bright sunlight.

4.5.1 Infrared handheld transmitter (access key / programming key)

Access key

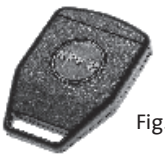


Fig. 19

The opening operation with this key is executed in both the day and night modes of the Genius. An access key can be trained into any number of Genius units. Each Genius can manage up to 256 access keys.

Programming key

Fig. 20

With this key (red button cap), various programming functions can be executed for the Genius. Each Genius can manage up to 1 programming key. A programming key can be trained into any number of Genius units. The programming key **cannot** be used to execute an opening operation.

For security reasons, the infrared keys supplied separately in the accessories box must be authorised as described in Item 4.7.
The transmission of the IR code is conducted to the latest standards of technology, "Hopping Code".

Important!!! The opening operations and the integrated access control system on the basis of infrared are not stored by the Genius and can therefore not be retrieved.

Please inform the end customer that the programming key must always be locked away to prevent unauthorised use. It is only required for programming purposes.

4.6 Genius type B with 2-channel access key: operation

Apart from all functions described in Items 4.1 and 4.2, this version of the Genius has the following additional functions.

The 2-channel access key is used to lock and unlock the door from the outside.
– Left button (disengaged lock) → opening operation (day and night mode)
– Right button (engaged lock) → locking operation (in day mode only)

4.6.1 Infrared handheld transmitter (2-channel access key)

With this key, an opening or locking operation can be initiated. An access key can be trained into any number of Genius units. Each Genius can manage up to 256 2-channel access keys.

Fig. 21

4.7 Programming/deleting infrared keys -Genius type B

The programming or deleting of IR access keys is only possible with the Genius type B with infrared eye, as this is equipped with an integrated access control system. Before executing one of the programming or deleting operations described below, please execute an opening operation with the Genius. Open the door and keep it open. All bolts are retracted.

4.7.1 Training an access key

1. 1. Retract all locking elements.
2. Open the door and keep it open.
3. Hold the programming key in front of the IR eye and press the button several times.
4. The red LED in the IR eye flashes.
5. Hold the access key in front of the IR eye and press the button.
6. Successful programming is indicated by the success tone (fluctuating tone sequence).
7. To verify, press the button of the access key again. The Genius sets the latch to the changeover function and releases it.

4.7.2 Access key lost (deleting all access keys)

1. Retract all locking elements.
2. Open the door and keep it open.
3. Switch off the supply voltage.
4. Switch on the supply voltage.
5. Red LED in the IR eye flashes.
6. Hold the programming key in front of the IR eye and press the button several times.
7. Red LED is on.
8. Successful programming is indicated by a success tone.
9. All existing access keys must be re-trained.

4.7.3 Programming key lost (training a programming key)

If the programming key has been lost or stolen, the supply voltage of the Genius should remain switched off as soon as this is noticed for security reasons until a new programming key has been purchased from a dealer and has been programmed.

1. Retract all locking elements.
2. Open the door and keep it open.
3. Switch off the supply voltage.
4. Switch on the supply voltage.
5. Red LED in the IR eye flashes.
6. Hold the programming key in front of the IR eye and press the button several times.
7. Red LED is on.
8. Successful programming is indicated by a success tone.
9. All existing access keys must be re-trained.

4.8 Battery change in the infrared handheld transmitter

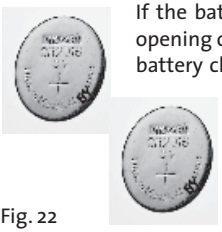


Fig. 22

If the batteries have only approx. 40% of their capacity, three short beeps sound after an opening operation or at the beginning of a programming operation. This signal warns that a battery change is necessary. However, all functions can be executed as normal for a longer period. After the batteries have been changed, all programmed functions of the IR handheld transmitter are retained.

To change the batteries (2 x CR 2016), push the smooth side of the handheld transmitter case backwards, simultaneously pushing upwards. Grip the batteries at the sides and push them one after the other towards the screw. When inserting the new batteries, observe the correct polarity. The batteries must both be inserted with the (+) side upwards. Sent the used batteries for recycling.

Safety note:

- ▲ The battery must never be recharged, dismantled, heated above 80° or burnt, as this can cause it to explode!
- ▲ Do not hold the battery with tweezers or a similar tool, as this can cause a short-circuit.
- ▲ Wipe the battery with a clean, dry cloth to ensure a good contact.
- ▲ Batteries should be kept away from children. If they are inadvertently swallowed, contact a doctor immediately. The outer mantle can dissolve and the chemicals inside the battery can cause severe damage to the stomach and intestines.