

Remote Control SH-12 LEFFER

User Manual

Handheld transmitter SHT12LEFFER / 01240.98
Receiver SHR12LEFFER / 01272.98

This device complies with part 15 of the FCC Rules and with Industry Canada's licence-exempt RSSs.

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;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1. General

The remote control is able to drive up to 6 DC motors in order to lock or unlock drill heads. With push buttons of the handheld transmitter the lock- or unlock function may be started. The activated function is normally stopped by limit switches.

The state of each limit switch and also the completed function in general is displayed at the handheld transmitter by LEDs.

An activated lock- or unlock function may be stopped at any time with the Stop function.

2.0 Handheld Transmitter SHT12_LEFFER

2.1 Normal Operation

Immediately after insertion of the batteries the transmitter is in its normal operation mode (No push button may be pressed while insertion of batteries).

Push button 3 „LOCK“ will start immediately the lock function at receivers side.

The function unlock (push button 2) will only be started if before push button 1 „ENABLE“ is pressed twice within 0.5 seconds. This enable function will be active only within 2 seconds.

When the unlock function is started, the red LED (2) will flash for each data transmission to the receiver. The state of each limit switch is displayed by the 6 blue LEDs (1 to 6). If the unlock function at the receiver's side is completed (all limit switches are closed) then the red LED (2) stops flashing and keeps on state within 10 seconds. Then the transmitter goes into stand by mode without any display or transmission.

The lock function is analogous to the unlock function.

The green LED (3) flashes after starting this function. The state of each limit switch is displayed by the 6 blue LEDs and the green LED stops flashing if the lock function is completed.

If lock or unlock function is activated but not yet completed, both of them may be interrupted at any time by pressing push button 4 „STOP“. This results in stopping all motor outputs at receiver's side.

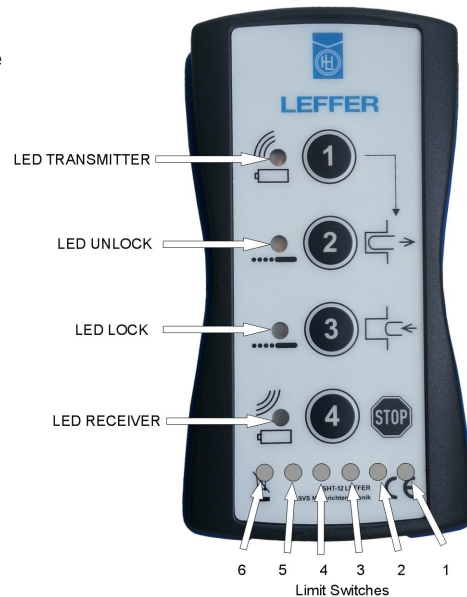
While the stop command is transmitted to the receiver the red and the green LED will flash as long as the signal is transmitted correctly to the receiver.

The yellow „LED transmitter“ keeps on state as long as the remote control is activated and the internal battery voltage is ok. If this LED flashes, the batteries of the transmitter are empty and have to be replaced. If the batteries do not assure proper function, the transmitter will be switched off.

The yellow „LED receiver“ flashes in case of low battery state of the receiver's side. This LED is off in normal operation.

If the radio communication between transmitter and receiver has broken, the transmitter tries automatically to re-establish the communication within 10 seconds. Without successful trials the command will be erased.

If a lock or unlock process is not terminated within a preprogrammed time the red and the green LED flashes alternatively within 5 seconds. This malfunction also is signalled acoustically before the transmitter goes off.



2.2 Change of Frequency

The system works by factory setting at frequency channel 1 (910.00MHz). In rare cases it may be useful to change the frequency channel because the actual one is occupied by other radio devices.

This can be done by pressing simultaneously at least 3 seconds push button 1 "ENABLE" and push button 4 "STOP". If this setting mode is enabled the red LED (2) turns on. The green LED and the buzzer are signaling the chosen frequency channel according the following table:

Flash / Beep	Parameter	Frequency
1 x	Frequency channel 1	910.000 MHz
2 x	Frequency channel 2	910.300 MHz
3 x	Frequency channel 3	910.600 MHz
4 x	Frequency channel 4	910.900 MHz

Each time the push button 1 „ENABLE“ is pressed the setting will change to the next frequency channel. The push buttons 2 "UNLOCK" and 3 "LOCK" do not have any function in this mode.

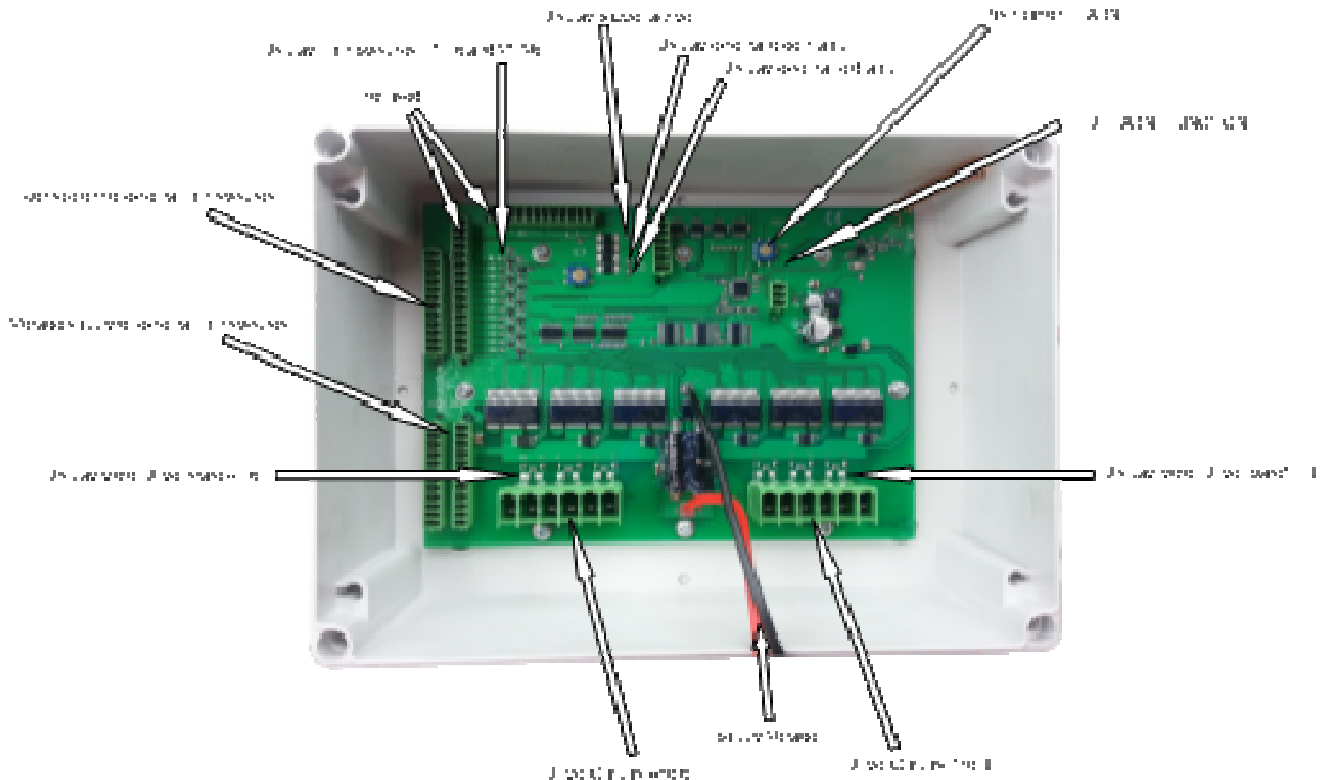
By pressing the push button 4 „STOP" this configuration mode will be left or automatically after 15 seconds of no manipulation and the selected frequency channel is stored.

The receiver needs not to be changed. It will automatically synchronize to the selected transmitter frequency.

2.3 Technical Details

Frequency:	channel 1: 910.000 MHz (factory setting) channel 2: 910.300 MHz channel 3: 910.600 MHz channel 4: 910.900 MHz
Supply:	4,5 V DC / 3 alkaline batteries, type AAA
Dimension:	120x70x30mm
Manipulation:	4 push buttons - 2 x ENABLE within 0.5 s enables UNLOCK for 2 seconds - LOCK is at any time usable - UNLOCK within 2 seconds after enabling possible - STOP cancels any active lock or unlock function
Display:	10 LEDs - green flashing: lock function is active - green 10s on: all limit switches of lock function are closed - red flashing: unlock function is active - red 10s on: all limit switches for unlock function are closed - green and red are flashing alternatively: error signalized - yellow transmitter on: handheld transmitter is active and battery state is ok - yellow transmitter flashes: handheld transmitter is active and - yellow receiver off (while transmitter is active): receiver supply voltage ok - yellow receiver flashes: receiver supply voltage is low - blue 1-6 limit switch: show state of each limit switch during lock- or unlock function

3.0 Receiver



3.1 Normal Operation

Immediately after connection of the supply voltage the receiver is in its normal operation mode (No push button may be pressed while starting this mode). In order to save battery capacity, the supply voltage should be taken off, when the receiver is not used.

The activated functions are displayed by the dedicated LEDs on the PCB.

If the function unlock was started from the handheld transmitter, the motor driver outputs "E" will stay active as long as the appropriated limit switch signalises to be closed by the display limit switch LEDs (E1 to E6). The number of usable motor driver outputs and limit switch inputs is factory predefined.

The lock function is analogous to the unlock function. Only LEDs and outputs are labeled "V"

Motor driver outputs giving the positive voltage are displayed by the LEDs placed above (display motor driver)

All start up features for motor driver and the reaction when motors are blocked are factory settings and may not be changed.

The reception of correctly received radio signal packet is displayed by a short flash of the LED „LEARN/FUNCTION" in case of good battery voltage of the receiver.

If ever this battery voltage drops below an allowed level, the above LED will flash two times for each radio reception. In this case there are another 5 function cycles (lock/unlock) that remain, before the system will stop all further manipulations.

3.2 Teach transmitter

If a new or supplementary handheld transmitter shall be used, it has to be taught into the receivers memory.

By pressing the push button "LEARN" while the receiver is in its normal operation mode, the device will change into a learn mode. This is displayed by an on state of the LED "LEARN/FUNCTION".

Now the lock function may be activated at the handheld transmitter which one shall work together with the receiver. After having learned the transmitters address, the receivers LED "LEARN/FUNCTION" switches off.

A maximum of 8 different transmitter addresses may be learned by each receiver. So, if you try to teach in the 9th transmitter address, the LED "LEARN/FUNCTION" flashes slowly 3 times to signalise the non accepted transmitter.

In this case all learned transmitter addresses must be erased. Therefore press the push button "LEARN" once, as you do for entering into the learn mode and then press again and hold the same pushbutton for at least 5 seconds. The learn mode will then be left automatically.

If the learn mode has been activated accidentally without teaching in a transmitter, it will be left automatically after 30 seconds.

3.3 Technical details

Frequency:	one of the frequency channels is automatically selected, depending on the transmitters frequency channel 1: 910.000 MHz channel 2: 910.300 MHz channel 3: 910.600 MHz channel 4: 910.900 MHz
Dimension:	255mm x 180mm x 95mm
Supply:	24V DC, without reverse polarity protection!
Limit switch inputs:	18,5V to 28V (high active) with LED display at each input