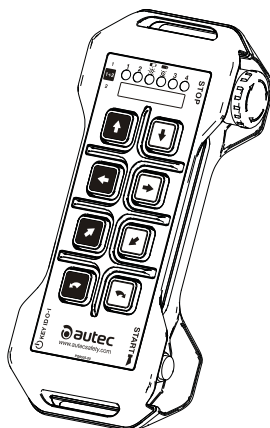


AIR SERIES

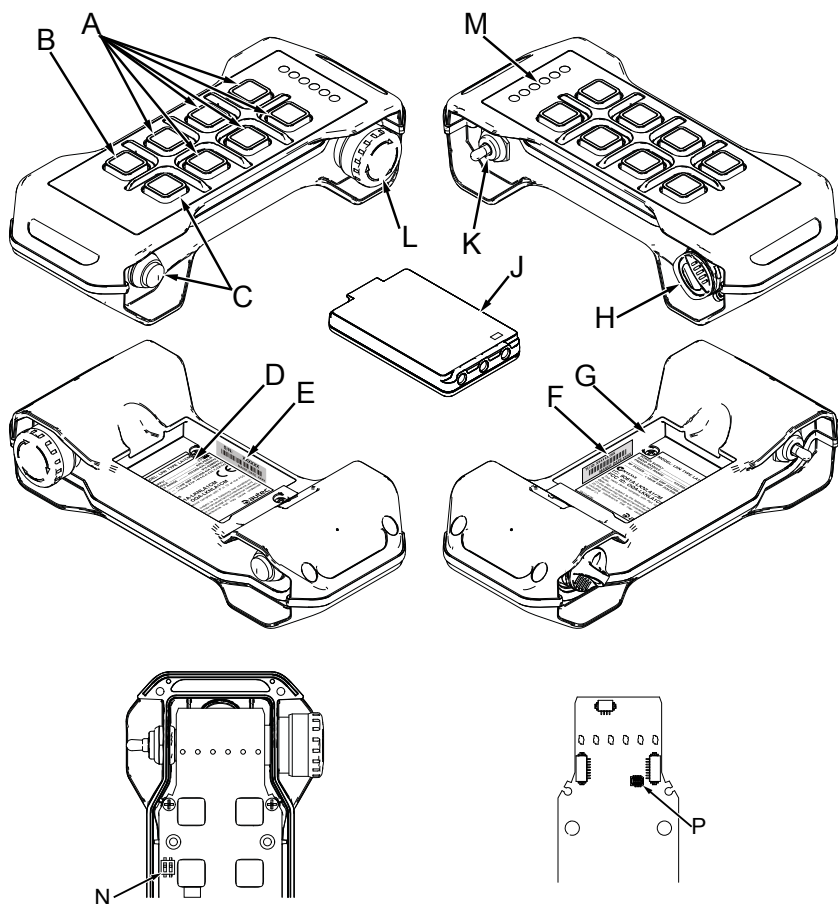
Part C: LK6 and LK8 transmitting units



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1 Description



A	Command pushbuttons
B	FUNCTION pushbutton
C	START pushbutton
D	Technical data plate
E	Radio remote control identification plate
F	Transmitting unit identification plate
G	Battery housing

H	Power keyswitch (if present)
J	Battery
K	Actuator (selector, pushbutton) (if present)
L	STOP pushbutton
M	LED
N	DIP switches
P	Connector for "ID internal tx memory"

2 **Technical data**

Power supply (battery MHM03)	3.6V $\overline{=}$
Power supply (battery LPM01)	3.7V $\overline{=}$
Antenna	internal
Housing material	PA 6 (20%fg)
Protection degree	IP65 (NEMA 4)
Dimensions	201x85x49mm (7.91x3.35x1.92In)
Weight	380g (0.837Lb)
Run time at 20°C (68°F):	
- with battery MHM03	>8h
- with battery LPM01	>16h

3 **Technical data sheet**

The technical data sheet contains the transmitting unit configuration and shows the matching between commands sent and machine functions/movements. It also contains the wiring diagram showing the connection between the receiving unit and the machine.
Each technical data sheet must be filled in, checked and signed by the installer, who is responsible for a correct wiring.
A technical data sheet must always be kept together with this manual (always keep a copy of the technical data sheet when it is used for administrative purposes).

 WARNING	The wiring of the receiving unit outputs must always reflect the wiring indicated in the technical data sheet.
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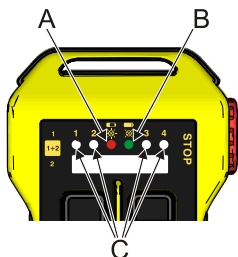
4 Plates

4.1 Plates on LK6 and LK8 units in a radio remote control

Plate	Position	Content
radio remote control identification plate	Key ID 0-1 (if present).	Radio remote control serial number (S/N).
	Battery housing (if the "ID internal tx memory" is present).	
transmitting unit identification plate	Battery housing.	Manufacturing year, bar code and transmitting unit identification number (TU ID).
technical data plate	Battery housing.	MODEL, TYPE and main transmitting unit technical data, marking and possible radio remote control marks.

5 Light signals

In LK6 and LK8 transmitting units, a green LED [B] and a red LED [A] are always available, and they provide information regarding the radio remote control.



A	Red LED
B	Green LED
C	LEDs for Data Feedback function

The green LED [B] ...	Meaning
...is off.	The transmitting unit is switched off.
... is steady on.	The transmitting and receiving unit do not communicate.
... blinks fast.	The transmitting and receiving unit communicate. It is only possible to send commands after pressing the START pushbutton.
... blinks slowly (one blink per second).	It is possible to send commands.

The red LED [A]...	Meaning
...is off.	The transmitting unit works correctly.
... is steady on.	At start-up, the STOP pushbutton is pressed or damaged.
... blinks twice per second.	At least one of the commands that were checked at start-up is enabled or damaged (see technical data sheet).
... blinks three times per second.	At start-up, the battery is flat.
... is steady on for 2s.	The transmitting unit does not work correctly.
... blinks slowly (one blink per second).	The battery has less than 1h run time.
... blinks fast.	The battery has a 10min run time.

LEDs ...	Meaning
... the green [B] and red [A] LEDs are steady on	A wrong "Key ID 0-1" or "ID internal tx memory" has been inserted in the transmitting unit, or this is a "BACK-UP UNIT".
...the green [B] and red [A] LEDs blink 3 times per second during start up...	The "Key ID 0-1" is damaged or the "ID internal tx memory" is damaged or not present.
... the green [B] and red [A] LEDs blink alternately.	30 s left before the transmitting unit automatically switches off.
The green LED [B] blinks and the red LED [A] is steady during start up.	The UNPAIR procedure has been performed.

See paragraph 6.3 to check the meaning of LEDs for Data Feedback function [C].

6 General operating instructions

6.1 Starting up the radio remote control

Starting up the radio remote control consists in establishing a radio link between the transmitting unit and the receiving unit.

	As required by standards IEC 60204-1 and IEC 60204-32, non authorised use of the machine must be prevented. The power keyswitch and/or the PIN CODE used for start up, make the radio remote control compliant with such requirement.
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If the transmitting unit does not have a power keyswitch, the radio remote control start up is protected by PIN CODE.

On the contrary, when the transmitting unit needs a power keyswitch, radio remote control start up is protected by the power keyswitch itself. If the risk assessment requires further protection of the radio remote control start up, the PIN CODE may be activated.

The PIN CODE consists of a sequence of commands to be carried out by activating the corresponding actuators during start up. The radio remote control will start up only with the correct sequence.

	Commands activated while typing the PIN CODE are not sent to the machine.
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The procedure to enable and modify a PIN CODE is provided in the document "Menu of Transmitting Unit (MTU)"; you can also find this document in the dedicated section on Autec's website.

6.1.1 Power keyswitch start up (no PIN CODE)

When the receiving unit is powered on, perform the following procedure:

1. Insert a charged battery in the transmitting unit (see paragraph 7.1.1)
2. insert the power keyswitch in the transmitting unit (see paragraph 7.3.3)
3. press the START pushbutton until the green LED blinks slowly.

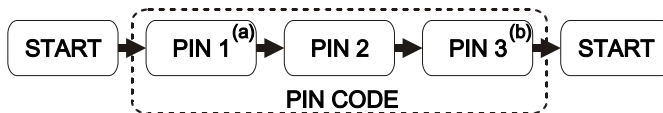
6.1.2 PIN CODE start up (no power keyswitch)



Consider that the transmitting unit will switch off 3 seconds after last activation of an actuator.

When the receiving unit is powered on, perform the following procedure:

1. press the START pushbutton until the green LED illuminates
2. activate the commands corresponding to PIN CODE in the correct sequence (PIN 1, PIN 2 and PIN 3 given in the technical data sheet).
 - a. PIN 1 shall not be included in the start up procedure if it coincides with the START command.
 - b. PIN 3 shall not be included in the start up procedure if it coincides with the START command.
3. press the START pushbutton until the green LED blinks slowly.



Note: default PIN CODE set by AUTECH is:

- PIN 1=START pushbutton
- PIN 2=FUNCTION pushbutton
- PIN 3=START pushbutton.

Custom PIN CODE is set by Autec upon request by the machine's manufacturer or by those who decided to install the radio remote control.

6.1.3 Power keyswitch and PIN CODE start up

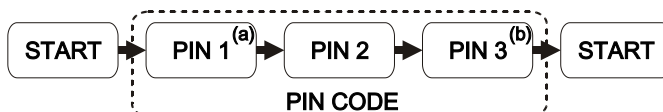
When the receiving unit is powered on, perform the following procedure:

1. Insert a charged battery in the transmitting unit (see paragraph 7.1.1)
2. insert the power keyswitch in the transmitting unit (see paragraph 7.3.3).



Consider that the transmitting unit will switch off 3 seconds after last activation of an actuator.

3. press the START pushbutton until the green LED illuminates
4. activate the commands corresponding to PIN CODE in the correct sequence (PIN 1, PIN 2 and PIN 3 given in the technical data sheet).
 - a. PIN 1 shall not be included in the start up procedure if it coincides with the START command.
 - b. PIN 3 shall not be included in the start up procedure if it coincides with the START command.
5. press the START pushbutton until the green LED blinks slowly.



6.2 Command activation

When the radio remote control is started, it is possible to move the pushbuttons and switches corresponding to the command you want to perform.

The user must be properly trained about the symbols on the transmitting unit panel, to be aware of the matching between actuators and movements on the machine (symbols used are defined by the machine manufacturer according to the functions of the machine).

6.3 Data Feedback Function

The user receives information and/or signals concerning the controlled machine by means of the Data Feedback function.

Pay particular attention to LED indications during normal radio remote control operation: they can be helpful to evaluate the machine's working status.

	Any information signalled by LEDs for the Data Feedback function can never be considered or used as a safety signal or for legal metrology. When operating and moving the machine, remember that the radio remote control does not intervene autonomously when potential hazardous situations are signalled.
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Specific machine conditions (i.e. load limits, limit switch, ...) are signalled through the illumination of the LEDs for the Data Feedback function. The signalled conditions depend on the settings chosen by the machine manufacturer.

6.4 Radio link interruption

When the radio link is incorrect or interrupted, the receiving unit autonomously stops the radio remote control.

The green LED on the transmitting unit switches from blinking slowly to fast blinking or steady on.

Press the START pushbutton to start the radio remote control.

6.5 Transmitting unit automatic switch off

The transmitting unit automatically switches off when:

- the battery is flat (see paragraph 6.5.1)
- the radio remote control is not used for a certain time (see paragraph 6.5.2)

Press the START pushbutton to start the radio remote control.

6.5.1 Low battery

The transmitting unit indicates if the battery is not sufficiently charged (the red LED blinks fast):

- the red LED blinks slowly (one blink per second): the battery has less than 1h run time.
- the red LED blinks fast: the battery has a 10 minute run time from the first signal, after which the transmitting unit automatically switches off.

The battery needs to be replaced with a charged one (see paragraph 7.1).

6.5.2 When the transmitting unit is not used

If the transmitting unit remains started with no enabled commands, it will automatically switch off after a predetermined time frame. This time frame is specified in the technical data sheet (SWITCH-OFF).

Before the transmitting unit switches off automatically, the green and red LEDs blink alternating for 30 seconds.

Activating any actuator corresponding to a movement command reduces the predetermined automatic switch-off time (SWITCH-OFF) to zero.

6.6 Switching off the transmitting unit



The transmitting unit shall be switched off each time work is stopped

Voluntary transmitting unit's switch off occurs:

- when the power keyswitch (if present) is turned anti-clockwise
- when battery is removed (see paragraph 7.1.2)
- when the STOP pushbutton is pressed.

7 Operation

7.1 Battery



The Air series' transmitting units can only be powered by Autec rechargeable batteries.

See the battery charger manual enclosed in the packaging with the battery charger for any warnings and instructions regarding the batteries.

7.1.1 Battery insertion

Push the battery towards the contacts on the transmitting unit and insert it inside the housing.

7.1.2 Battery removal

Push the battery towards the contacts on the transmitting unit and remove it from the housing.

7.1.3 Battery run time indicator

Perform the following procedure to check the run time of the battery in the transmitting unit:

1. switch off the transmitting unit and unlock the STOP pushbutton
2. activate command S1 (check in the technical data sheet which actuator it corresponds to) and press the START pushbutton until LED 1, LED 2 and LED 3 (indicating battery level) illuminate:
 - 1 LED on: low level
 - 2 LEDs on: medium level
 - 3 LEDs on: maximum level.

Run time indication disappears after some seconds.

7.2 ID internal tx memory

The transmitting unit may require the "ID internal tx memory", where the radio remote control's address is stored. The technical data sheet indicates if the "ID internal tx memory" is required.

7.3 Power keyswitch

The transmitting unit may have a power keyswitch. It can either be:

- mechanical key (see paragraph 7.3.1)
- Key ID 0-1 (see paragraph 7.3.2).

7.3.1 Mechanical key

The mechanical key makes it possible to power the transmitting unit. When the mechanical key is required to be used in a transmitting unit, the radio remote control cannot work if it is not inserted.

7.3.2 Key ID 0-1

The "Key ID 0-1" makes it possible to power the transmitting unit.

It stores the radio remote control's address. Therefore, the "Key ID 0-1" can only be used in the transmitting unit belonging to its related radio remote control: when the transmitting unit requires the "Key ID 0-1", the radio remote control cannot work if it is not inserted. The technical data sheet indicates if the "Key ID 0-1" is required.

As the radio remote control address is stored in the "Key ID 0-1", use it with utmost care to reduce risks that may result from incorrect handling.

7.3.3 power keyswitch insertion

Perform the following operations to insert the power keyswitch:

1. push the power keyswitch inside the corresponding housing
2. rotate the power keyswitch clockwise.

7.3.4 power keyswitch removal

Perform the following operations to remove the power keyswitch:

3. rotate the power keyswitch anticlockwise
4. pull the power keyswitch to remove it from the corresponding housing.

7.3.5 BACK-UP UNIT

If the main transmitting unit cannot be used because it has been lost or damaged, it can be replaced with a transmitting unit called "BACK-UP UNIT".

It is identical to the unit that cannot be used anymore; the only difference is the presence of the plate "BACK-UP UNIT" on the battery housing.

 WARNING	Set DIP switch 2 in the "BACK-UP UNIT" as shown in the technical data sheet. If the transmitting unit that can no more be used requires either a "Key ID 0-1" or an "ID internal tx memory" (see technical data sheet), move it to the "BACK-UP UNIT" and perform the address saving procedure described below. If the transmitting unit that can no more be used does not require either a "Key ID 0-1" or an "ID internal tx memory" (see technical data sheet), perform the PAIR procedure to pair the "BACK-UP UNIT" with a receiving unit (the technical data sheet shows which PAIR procedure to use).
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Address storage

With fully charged battery and power keyswitch in the "BACK-UP UNIT", perform this procedure:

1. press the START pushbutton until the green and red LEDs light up.
2. wait until the green LED blinks slowly
3. within 3 seconds, activate in sequence the commands corresponding to PIN 1, PIN 2 and PIN 3 that compose the PIN code given in the technical data sheet.

If the PIN code is incorrect, the red LED illuminates and the transmitting unit switches off. In this case, the storage procedure shall be repeated.

If the PIN code is correct, the green LED turns steady on and the transmitting units switches off: this indicates that the address has been stored in the "BACK-UP UNIT". It is now possible to start the radio remote control and control the machine with the "BACK-UP UNIT" transmitting unit.

7.4 START pushbutton

The START pushbutton is used to:

- start the radio remote control (see paragraph 6.1)
- activate the horn when the radio remote control is started.

7.5 FUNCTION pushbutton

The FUNCTION pushbutton can be matched with different relay functions on the receiving unit (see technical data sheet).

7.6 STOP pushbutton

	The STOP pushbutton should be pressed when it is necessary to immediately stop the machine when a dangerous condition occurs.
---	---

When the STOP pushbutton is pressed, the machine stops and the transmitting unit switches off.

To start working again after the STOP pushbutton has been pressed, do the following:

- make sure that the working and usage conditions are safe
- pull or turn the STOP pushbutton in the arrow direction to unlock it
- start up the radio remote control.

8 Malfunction signalled by the transmitting unit

Use the light signals on the transmitting unit to identify the radio remote control malfunction. If the problem persists after the suggested solution has been carried out, contact the support service of the machine manufacturer.

Signals	Possible reason	Solutions
The green LED is steady on.	The transmitting and receiving unit do not communicate.	Start up the radio remote control. If the radio remote control does not start up, check that the receiving unit is powered on.
The green LED blinks fast.	Temporary loss of radio link.	Bring the actuators corresponding to movement commands to the rest position and press the START pushbutton until the green LED blinks slowly.
The green LED blinks slowly (one blink per second).	The receiving unit may not work correctly.	See "Receiving unit signals" in Part D of the manual.
The red LED is steady on during start up	The STOP pushbutton is pressed or damaged.	Unlock the STOP pushbutton or contact the support service.
The red LED blinks twice per second during start up.	At least one of the commands that were checked at start-up is enabled or damaged (see technical data sheet).	Bring the actuators corresponding to the commands checked during start up to the rest position or contact the support service.
The red LED blinks three times per second during start up.	The battery is flat.	Replace the battery with a charged one.
The red LED is steady on for two seconds.	The transmitting unit does not work correctly.	Contact the support service.
The green and red LEDs are steady on.	A wrong "Key ID 0-1" or "ID internal tx memory" has been inserted in the transmitting unit.	Use the correct "Key ID 0-1" or "ID internal tx memory".
	You're using a "BACK-UP UNIT" with the "Key ID 0-1" or "ID internal tx memory" of the transmitting unit that has been replaced.	Store the address in the "BACK-UP UNIT" (see paragraph 7.3.5).

Signals	Possible reason	Solutions
The green and red LEDs blink three times per second during start up.	The "Key ID 0-1" is damaged or the "ID internal tx memory" is damaged or not present.	Contact the support service.
The green LED blinks and the red LED is steady on during start up.	The procedure corresponding to the UNPAIR submenu and given in the document "Menu of Transmitting Unit (MTU)" has been carried out.	Contact the support service.

