

ELECTRONIC CONTROL UNIT LRX 2205

Single-phase electronic control unit with incorporated radio receiver for the automation of sliding and swinging gates and rolling shutters, at power levels of up to 1500 Watts.

- Mod. **LG 2205** : Without radio receiver
- Mod. (**LR 2205**) : 306 Mhz
- Mod. (**LR 2205 / 330**) : 330 Mhz
- Mod. (**LR 2205 / 418**) : 418 Mhz
- Mod. **LRS 2205** : 433.92 Mhz
- Mod. **LRS 2205 SET** : 433.92 Mhz "narrow band"
- Mod. **LRH 2205** : 868.3 Mhz "narrow band"

() Product intended for those countries where its use is permitted

TECHNICAL DATA:

- Power supply : 230 V a/c 50-60 Hz 2100 W max.
- Flashing beacon output : 230 V a/c 500 W max.
- Motor output : 230 V a/c 1500 W max.
- Photoelectric cells power supply : 24 V a/c 3 W max.
- Low voltage safety features and commands : 24 V c/c
- Operating temperature : -10 +55 °C
- Radio receiver : see model
- Op. transmitters : 12-18 Bit or Rolling Code
- Max stored TX codes : 75
- Box dimensions : 110 x 121 x 47 mm.
- Container : ABS V-0 (IP54).

TERMINAL BOARD CONNECTIONS:

CN1:

- 1 : 230 V a/c line input (Phase).
- 2 : 230 V a/c line input (Neutral).
- 3 : Clean contact output for Flashing Beacon/Courtesy Light.
- 4 : Clean contact output for Flashing Beacon/Courtesy Light.
- 5 : Opening motor output.
- 6 : Shared motor output.
- 7 : Closing motor output.

CN2:

- 1 : Input IN3 = FCAP opening stop limit (NC).
- : Input IN3 = DS2 safety device inverts during closure,
- 2 : Shared GND input.
- 3 : Input IN4 = FCCH closing stop limit (NC).
- : Input IN4 = DS3 safety device inverts during closure,
- Stop during opening (NC).
- 4 : Photoelectric cell control and power supply (24 V a/c).
- 5 : Photoelectric cell control and power supply (GND).
- 6 : Input IN1 = P/P open-close command button (NA).
- Input IN1 = UP open only command button (NA).
- 7 : Shared GND input.
- 8 : Input IN2 = DS1 safety device inverts during closure (NC).
- Input IN2 = DOWN close only command button (NA).
- Input IN2 = BL device. Emergency lock (NC).
- 9 : Earth antenna input.
- 10 : Antenna hot pole input.

OPERATIONAL DATA:

Step-by-Step keypad operation:

The following operation is obtained using the low voltage keypad to control the shutter:

the first press opens the gate until the motor timer reaches zero or until the opening stop limit is reached, the second press closes the gate; if a button is pressed before the opening stop limit is reached, the control unit **stops** motion during both opening and closing. A further command restarts motion in the opposite direction.

Operation using different models of radio control:

Different models of radio control may be programmed: by storing a code (1 button) a cyclic step by step operation (Open - Stop - Close) may be achieved, and by storing two different codes (2 buttons) separate commands are created, one for opening and one for closing. Storing three different codes (3 "BeFree" series buttons) produces three separate commands: the first for Open, the second for Stop and the third for Close.

Operation using a 1-button radio control:

The following type of operation is obtained using a radio control with a single button: the first press controls the opening movement of the shutter until the motor timer stops. The second press controls the closing movement of the shutter. If the button is pressed before the motor stops running, the control unit will stop the shutter from moving and the button will need to be pressed again to reactivate the motor in the opposite direction.

Operation using a 2-button radio control:

The following type of operation is obtained using a radio control with 2 buttons: the first button ("Up", corresponding to the opening movement) controls opening until the motor stops running and the second button ("Down", corresponding to the closing movement) controls the closure of the shutter. If the opening movement is interrupted with another "Up" command, the motor will continue to run in the upward movement direction. If, however, the movement is interrupted with a "Down" command, the control unit will stop the motor. The procedure is the same for the closing movement phase.

Operation using a 3-button radio control (BeFree series):

The following type of operation is obtained using a radio control from the **BeFree** series: the Up button controls the opening movement until the set motor time has elapsed, the Stop button makes the shutter stop and the Down button controls the closure of the shutter. If a stop command is sent during the opening or closing movement, the control unit causes this movement to stop. If a command which is the opposite direction to the current movement is sent during the opening or closing movement, the control unit causes the shutter to change direction.

Automatic closing:

The control unit can close the shutter automatically without sending additional commands.

The selection of this operation mode is described in the Pause Time programming mode.

DS1 safety device operation:

DS1 operation anticipates the connection of a general safety device with contact (NC). If not used, this input must be bridged.

Action is not taken into account during the opening stage but causes inverted motor action during the closing stage. Another safety device operating mode is described in the extended menu when programming DS1 = INV or DS1 = Lock.

DS2 safety device operation:

DS2 operation anticipates the connection of a general safety device with contact (NC). If not used, this input must be bridged.

Action is not taken into account during the opening stage but causes inverted motor action during the closing stage.

DS3 safety device operation:

DS3 operation anticipates the connection of a general safety device with contact (NC). If not used, this input must be bridged.

An intervention during the opening or closing stage causes the movement to stop.

Operation with TIMER:

The control unit may be connected to a timer instead of using the open-close command button (IN1).

Example: at 8:00 a.m. the timer closes the contact and the control unit opens the shutter; at 6:00 p.m. the timer opens the contact and the control unit closes the shutter. Between 8:00 a.m. and 6:00 p.m. at the end of the opening phase, the control unit disables the flashing beacon, the automatic closing stage and the radio controls.

PROGRAMMING:

SEL button: selects the type of function to be stored; selection is indicated by a flashing LED.

The desired function can be selected by pressing the button repeatedly. The selection remains active for 10 seconds (indicated by the flashing LED); after 10 seconds, the control unit returns to its original status.

SET button: programmes the information according to the type of function selected previously using the SEL button.

IMPORTANT: The function of the SET button can be replaced with the radio control, if programmed previously (CODE LED on).

MAIN MENU

The control unit is supplied by the manufacturer with the option of selecting some important functions.

----- MAIN MENU -----		
Reference LED	LED Off	LED On
1) AUT/MANUAL	Step-by-Step	User Present
2) CODE	No code	Code entered
3) INB.CMD.AP	Disabled	Enabled
4) LAMP/CORT	Flashing	Courtesy light
5) T. MOT.	Automatic motor time	Time programmed
6) T. PAUSA.	Without aut. closing	With aut. closing
7) SEL INPUT 1 - 2	IN1 = P/P - IN2 = DS1	IN1 = Up - IN2 = Down

1) AUT/MANUAL (Step-by-Step /Manual operation):

The control unit is supplied by the manufacturer with the manual "User Present" operation mode disabled. To enable the function proceed as follows: use the SEL button to navigate to the AUT/MANUAL LED when flashing and press the SET button: the AUT/MANUAL LED will then remain lit in a fixed manner and programming is complete.

In this mode, using both the radio control and the low voltage keypad to control the gate, the following operation is obtained: the control is constantly enabled so that the gate or shutter can be moved as necessary. The movement stops immediately when the control is released. Repeat the operation to restore the previous configuration.

2) CODE: (Radio control code)

The control unit can store up to 75 radio controls with different fixed or rolling codes.

Programming using a 1- or 2-button radio control:

To programme the transmission codes in the radio control, proceed as follows: press the SEL button and the CODE LED will begin to flash; at the same time send the first code ("Up", corresponding to the opening movement) on the radio control. At this point the CODE LED will begin to flash quickly. Send the second code ("Down", corresponding to the closing movement) to be stored and the CODE LED will remain lit: programming is now complete. If the second code is not sent within 10 seconds the control unit exits the programming stage, selecting operation using one button on the radio control.

Programming using a 3 button radio control in the "BeFree Series":

The control unit allows you to store the whole "BeFree" radio-control by programming only the UP button.

To programme the "BeFree" radio-control codes, follow this procedure: press the SEL button; the CODE LED begins to flash. Press the UP button of the desired radio control at the same time; the CODE LED will remain lit and programming will be complete.

Deleting the codes: To delete all transmission codes stored in the memory, proceed as follows: press the SEL button; the CODE LED starts flashing. Then press the SET button; the CODE LED switches off and the procedure is complete.

Radio control already stored warning:

The control unit can store up to 75 radio controls with different fixed or rolling codes. If the user attempts to perform the programming procedure for a radio control which is already stored in the memory, the CODE LED will begin to flash rapidly for a few moments to indicate that this procedure cannot be performed; the unit then returns to the programming stage once again.

Maximum number of radio controls which can be stored:

The control unit can store up to 75 radio controls with different fixed or rolling codes. If the maximum number of radio controls has been reached, and a programming process started, the control unit will indicate that the programming process has failed by flashing all the LEDs except the CODE LED, which will remain lit in a constant manner. After 10 seconds the control unit exits the programming mode.

3) INB. CMD. AP: (command inhibition during opening and pause time, if entered)

The command inhibition function during opening and pause time, if entered, is used when automation includes the loop detector. During opening or pause time the control unit ignores the commands given by the loop detector, keypad and radio control. During the closing phase a command sent by the loop detector, keypad or 1-button radio control will cause the motor direction to be inverted; if operating with a 2-button radio control the button corresponding to opening movement will cause the motor direction to invert and the closing movement button is ignored; if operating with a radio control in the BeFree series the opening movement button causes inversion, the closing movement button is ignored and the Stop button causes the motor to stop.

The control unit is supplied with the default setting of the command inhibition function during opening and pause time not enabled. To enable the function proceed as follows: use the SEL button to reach the stage when the INB.CMD.AP LED is flashing, then press the SET button: at this moment the INB.CMD.AP LED lights up and remains constant. Repeat the operation to restore the previous configuration.

4) LAMP/CORT: (Selection of flashing beacon or courtesy light)

The control unit has an output of 230 V a/c 500 W for connection to a flashing beacon or courtesy light.

The control unit is supplied by the manufacturer with the flashing beacon function enabled (even when the unit is paused). To enable the flashing beacon function, proceed as follows: use the SEL button to navigate to LAMP/CORT when the corresponding LED is flashing, then press the SET button: the LAMP/CORT. LED lights up and remains constant.

Repeat the operation to restore the default configuration.

To enable the courtesy light, repeat the operation above, by pressing the SEL button twice (LAMP/CORT LED flashes rapidly) instead of once. Repeat the operation to restore the default configuration.

Flashing beacon function while the unit is paused:

The 230 V a/c output will activate every time automation takes place, for the duration of the motor timer. If the Pause Time is stored, the 230 V a/c output will also be active during the Pause.

Flashing Beacon operation: The 230 V a/c output will activate every time automation takes place, for the duration of the motor timer.

Courtesy Light operation: The 230 V a/c output will activate for 3 minutes every time an opening command is given.

5) T. MOT: (Programmed motor operation time: max. 4 minutes)

The control unit is supplied by the manufacturer with the Automatic Motor Timer enabled, this way the control unit removes the power supply from the motor 1 second after it has reached the internal stop limit of the motor. If there is an established motor operation time and an Automatic Motor Timer which is disabled, proceed as follows when the shutter is closed to perform the programming process: use the SEL button to reach the stage where the T. MOT LED flashes, then press the SET button briefly; the Motor will begin the Opening cycle. When the shutter reaches the desired position press the SET button. The motor time is stored and the T. MOT. LED remains lit in a constant manner.

To restore the initial configuration (with the Automatic Motor Timer function enabled) navigate to the stage where the T. MOT. LED is flashing then press the SET button twice within 2 seconds; the LED switches off and the operation is complete.

During programming the radio control button on the control unit can be used instead of the SET button, if stored previously.

6) T. PAUSA: (Programmed aut. closing time: max. 4 min.)

The control unit is supplied by the manufacturer without an automatic closing procedure. To enable the automatic closing function, proceed as follows: use the SEL button to reach the stage where the T. PAUSA LED is flashing, then press the SET button, wait for the desired pause time, then press the SET button again for a moment; the automatic closing time is stored and the T. PAUSA LED remains lit in a constant manner.

To restore the initial configuration (without automatic closing) navigate to T.PAUSA when the corresponding LED is flashing then press the SET button twice within 2 seconds; the LED switches off and the operation is complete.

During programming the radio control button on the control unit can be used instead of the SET button, if stored previously.

7) SEL IN1 - 2: (Selection of IN1 – IN2 operation)

The control unit is supplied by the manufacturer with the following IN1 and IN2 input selection: input IN1 is used for the connection of a cyclical “P/P” command button (NA) and input IN2 for the connection of a general safety device DS1 with contact (NC).

If you wish to select a different operating mode for inputs IN1 and IN2, proceed as follows: use the SEL button to reach a stage where the SEL INPUT 1-2 LED is flashing and press the SET button: the SEL INPUT 1-2 LED lights up in a constant manner and programming is complete. The IN1 input thus

becomes the button connection (NA) solely for the “UP” opening phase and IN2 becomes the button connection (NA) solely for the “DOWN” closing phase. Repeat the operation to restore the previous configuration.

EXTENDED MENU

The control unit is supplied by the manufacturer with the option of selecting only the functions listed in the main menu.

To enable the functions of the extended menu proceed as follows: press and hold the SET button for 5 seconds; the T.PAUSA and SEL INPUT LEDs will flash alternately and the user has 30 seconds within which to select the functions of the extended menu using the SEL and SET buttons. After another 30 seconds the control unit returns to the main menu.

----- EXTENDED MENU -----		
Reference LED	LED Off	LED On
A) AUT/MANUAL	Step-by-Step	Inverting
B) CODE	remote PGM = OFF	remote PGM = ON
C) INB.CMD.AP.	Test DS1 – DS2 = OF	Test DS1 – DS2 = ON
D) LAMP/CORT	DS1 = INV in closure	DS1 = Lock
E) T. MOT	IN3 = FCAP - IN4 = FCCH	IN3 = DS2 - IN4 = DS3
F) T. PAUSA	Flashing beacon ON/OFF	
G) SEL INPUT 1 - 2	Flashing beacon ON/OFF	

A) AUT/MANUAL (Step-by-Step /Inverting operation):

The control unit is supplied by the manufacturer with the Inverting operation mode disabled. To enable the function proceed as follows: check that the extended menu is enabled (T.PAUSA and SEL INPUT 1-2 LEDs start flashing alternately), use the SEL button to navigate to the AUT/MANUAL LED when it is flashing and press the SET button: the AUT/MANUAL LED lights up and programming is completed.

In this mode, using both the radio control and the low voltage keypad to control the gate, the following operation is obtained: the first press opens the gate until the end of the motor time, the second press closes it; if a button is pressed before the end of the motor running time, the control unit **inverts** motion both during opening and closing. Repeat the operation to restore the previous configuration.

B) CODE

(Remote programming of radio control):

The control unit allows the transmission code to be programmed by remote, without using the SEL button.

To programme the transmission code remotely, proceed as follows: send a code, continuously and for a period of longer than 10 seconds, from a radio control stored previously: the control unit enters its programming mode as described previously for the CODE LED in the main menu.

The control unit is supplied by the manufacturer with remote programming of the transmission code not enabled; to enable the function proceed as follows: check that the extended menu is enabled (the T.PAUSA and SEL INPUT 1-2 LEDs flash alternately), using the SEL button navigate to CODE LED when flashing and press the SET button: the CODE LED lights up and programming is completed. Repeat the operation to restore the previous configuration.

C) INB. CMD. AP

(Photoelectric cells DS1 and DS2 operation test):

The control unit is supplied by the manufacturer with the photoelectric cells test disabled; if you wish to enable the function (in compliance with EN 12453), proceed as follows: check that the extended menu is enabled (T.PAUSA and SEL INPUT 1-2 LEDs flash alternately), using the SEL button navigate to INB.CMD.AP LED when flashing and press the SET

button: the INB.CMD.AP LED lights up and programming is completed. This is how the photoelectric cells test for the safety inputs (inversion during closure) defined as DS1 and DS2 is performed. Repeat the operation to restore the previous configuration.

D) LAMP/CORT (Selecting DS1 operation):

The control unit is supplied by the manufacturer with DS1 = INV in the closure phase, or rather with the operating mode for normal photoelectric cells connection enabled (intervention causes the inversion of the motor during closure).

If you wish to define DS1 = Lock, or rather with the operating mode for the normal connection of an emergency command enabled (intervention causes the motor to stop immediately in both directions), proceed as follows: check that the extended menu is enabled (T.PAUSA and SEL INPUT 1-2 LEDs start flashing alternately), use the SEL button to navigate to the LAMP/CORT LED when it is flashing and press the SET button: the LAMP/CORT LED lights up and programming is completed. Repeat the operation to restore the previous configuration.

E) T. MOT (Selecting Input IN3 – IN4 operation):

The control unit is supplied by the manufacturer with inputs IN3 and IN4 = FCAP and FCCH for the normal connection of opening and closing stop limits.

If you wish to define inputs IN3 and IN4 = DS2 and DS3, or rather with the operating mode for the normal connection of photoelectric cells (or other types of safety devices) enabled, proceed as follows: check that the extended menu is enabled (the T.PAUSA and SEL INPUT 1-2 LEDs flash alternately), using the SEL button navigate to T.MOT LED when flashing and press the SET button: the T.MOT LED lights up and programming is completed. Repeat the operation to restore the previous configuration.

RESET:

To restore the default configuration, press the SEL and SET buttons simultaneously, all **RED** LEDs will light up and then switch off.

ERROR INDICATION:

The control unit enables errors or malfunctions to be identified using Software tests. If there are errors or malfunctions on the Input/Output devices, the control unit will indicate the status by alternately activating and deactivating (for 5 seconds at a time, and for a maximum period of 1 minute) the 230 V a/c 500 W output for the connection of the flashing beacon or the courtesy light.

This guarantees the monitoring of breakdowns in compliance with Category 2 of EN 954-1. Whenever one of these malfunctions occurs a qualified professional should be contacted in order to fix it.

Test Driver Motor:

The control unit is fitted with two drivers used to control the motor. If there is a malfunction, the control unit will not enable motion of the shutter and will indicate the test failure visually through the simultaneous flashing of all LEDs except the T. MOT LED; which will remain lit in a constant manner. We recommend that a qualified technician is contacted immediately in order to resolve the problem. Once the correct operating conditions are restored the control unit may be switched on again. The error status is reset and the control unit is ready to operate normally.

DS1 - DS2 safety device test:

The control unit is designed for connection to safety devices (see *Notes for the Installer* section) which comply with point 5.1.1.6 of regulation EN 12453. If there is no connection and/or a malfunction occurs, the control unit does not enable shutter

movement and provides a visual indication of the test failure through the simultaneous flashing of all LEDs except the INB CMD PA LED if the cause is the DS1 operating mode, or the LAMP/CORT LED if the cause is the DS2 operating mode.

After the malfunction has been identified, the control unit makes it possible to monitor only the opening movements when a user is present, either using the keypad or the radio control (when operating via a 2-button radio control the button corresponding to the closing movement is disabled and when operating via a 3-button radio control the closing movement and Stop buttons are disabled). We recommend that a qualified technician is contacted immediately in order to resolve the problem. Once the correct operating conditions are restored the control unit may be switched on again. The error status is reset and the control unit is ready to operate normally.

HARDWARE DIAGNOSTICS:

INPUT IN1 - IN2 - IN3 - IN4 test:

The control unit is fitted with a red LED for every IN 1-2-3-4 low voltage input so that the status may be monitored immediately. Operating principle: LED on = input closed, LED off = input open.

NOTES FOR THE INSTALLER

The control unit was designed for installation with other components (motor, shutter or gate, safety devices) in order to form a finished product (machine) in compliance with the Machines Directive.

The safety of the final installation site and adherence to all current legislation is the responsibility of the individual assembling the various parts to construct a complete closure device.

We advise that you also take note of the following recommendations:

- Before shutter automation, it is necessary to check the product is in good condition and that it complies with EN 12604 and the Machines Directive.
- The wiring of external electrical components must comply with EN 60204-1 as amended in section 5.2.7 of EN 12453. Power supply leads and connection cables must be secured through the use of cable clamps, which are supplied with the product.
- The motor reducer used to move the shutter must comply with section 5.2.7. of EN 12453.
- If present, the keypad for manual control must be mounted in such a way that the user is not placed in a dangerous situation, in compliance with point 5.2.8 of EN 12453.
- The control unit is not equipped with a 230 V a/c electric line sectioning device. The installer is responsible for installing a sectioning device in the system. An omnipolar switch with overheating category III must be installed. The sectioning device must be positioned so that it is protected against accidental closure, in compliance with section 5.2.9 of standard EN 12453.
- In compliance with EN 12453 it is recommended that motor reducers fitted with an electromechanical unlocking device are used, so that the door can be moved manually if necessary.
- In compliance with point 5.4.3 of EN 12453, electromechanical unlocking systems or similar devices should be used as these enable the door to stop safely at its stop limit.
- Power supply and motor connection cables which are suitable for use in conjunction with the pg9 cable clamps provided must have an external diameter with a measurement between 4.5 and 7 mm. The internal conductor wires must have a nominal cross-section of 0.75 mm². If a channel is not used, we recommend that cables in H05RR-F material are used.
- The D.S. Power Supply outlet must be dedicated to the powering of devices connected to DS1 and DS2 (photoelectric cells for example); other applications are not permitted. A test may be performed using the control unit at the beginning of every manoeuvring cycle to make sure operation is taking place correctly. If several of the abovementioned devices are used, they must be connected in series.
We recommend the use of a safety device with NC output, which is capable of monitoring its own correct operation and which conforms to regulation EN 12978.
- Once installation is complete, all the checks listed in EN 12453 – EN 12445 must be performed so as to ensure that closure occurs in compliance with all stipulations.
- For the radio receiver to operate correctly when two or more control units are used, we recommend that you install the devices at least 3 metres away from each other.

FOR THE USER - IMPORTANT

- The device should not be used by children or by individuals with reduced physical or psychological abilities unless supervision is provided or instruction given on how to operate it.
- Do not let children play with the device; keep radio controls out of their reach.
- CAUTION: Keep this instruction manual in a safe place and adhere to the important safety instructions contained within it. Non-adherence to these instructions may lead to property damage and serious accidents.
- Examine the system frequently to check for any signs of damage. Do not use the device if it needs to be repaired.

Warning

All operations which require the casing to be opened (such as wire connection, programming, etc.) must be carried out during installation, by skilled staff only. For any other procedure which requires the casing to be opened again (re-programming, repairs or site modifications), please contact the technical assistance service.

The below products:

Electronic Control Unit:

LG 2205 - LRS 2205 - LRS 2205 SET - LRH 2205

conform to the specifications in the Directives R&TTE 99/5/EC, EMC 2004/108/EC, LVD 2006/95.

