

DOOR AND GATE CONTROLLERS

Configuration

1. USE

The Ri-Co controller is intended for wireless operation of doors and gates (including garage doors, sliding gates and leaf gates) and access control systems supporting control pulse inputs and smartphones, tablets and other online devices compatible with the Ri-Co controller.

The Ri-Co Basic version operates a single door/gate function based on the strategy Open – Stop – Close – Stop. The Ri-Co **Pro** version is extended with the door/gate status output (Closed, Open, Intermediate position) and can operate an additional function of the door/gate drive unit, depending on its configuration (e.g. emergency stop, pedestrian entry, etc.). The control commands can be input and executed in direct vicinity of the operable door/gate or over an Internet connection provided to the Ri-Co controller via a WiFi router.

2. SAFETY REQUIREMENTS

When using the Ri-Co controller, the door or the gate must be fitted with safety systems so that at least the minimum safety levels required by PN-EN 13241 are met. The minimum safety levels regarding the closing edge required by the PN-EN 13241 standard are provided in the table below.

| Door activation method | Usage | | |
|--|---|--|--|
| | Trained door operators (private premises) | Trained door operators (public premises) | Not trained door operators (public premises) |
| Deadman control with the view of the door | Push-button control without electrical latching | Key-switch control without electrical latching | Unacceptable |
| Pulse control with the view of the door | | | |
| Pulse control without the view of the door | | | |
| Automatic control (automatic closing) | | | |

– main closing edge protection - required

– photocells barrier - obligatory

– photocells barrier - optional

CAUTION! When connecting the Ri-Co controller with double-leaf garage doors and gates, clear passage must be secured with photocells.

CAUTION! When connecting the Ri-Co controller with sliding gates, photocells must be used to secure clear passage, but also the entire range of motion of the door leaf.

4. INSTALLATION INSTRUCTIONS

Read this Operating Manual and the door/gate drive unit manuals before attempting to install the product. The installer of this product must be competent in electrical equipment installation. In the case of any doubts, contact the dealer or a trained installer.

NOTE: Never attempt to connect the product with the drive unit connected to electrical mains; the product might be irreparably damaged with loss of warranty, damage to the drive unit and/or property nearby, and/or severe injury or death.

4.1. BASIC CONNECTIONS

1. Install the Ri-Co in a location sheltered from adverse weather, e.g. the drive unit box (of outdoor gates). Note that all metallic parts (of the drive unit, the gate/door, the outer enclosure/box, etc.) and wiring will significantly affect the wireless communication range of the Ri-Co and the convenience of its operation. Install the Ri-Co in the vertical orientation, i.e. with the long connection downward. When installing the Ri-Co in a drive unit enclosure made of plastic, it is recommended to bond the Ri-Co (with the self-adhesive film strips) to the enclosure interior.
2. Verify the drive unit controller specifications. Connect the drive unit controller's 12–24 V power output to the Ri-Co's power input.
3. Mind the control output polarity. Connect Output O1 to the drive unit control input intended for external control sources and operated with the signals Open – Stop – Close – Stop.

3. TECHNICAL SPECIFICATIONS

| Electrical parameters | | | |
|------------------------|---|------------------------|--|
| supply voltage | 12–24 V AC / DC | current load, mean | 50 mA |
| power consumption | < 2 W | max. power consumption | 250 mA |
| control outputs | | command inputs | |
| no. of control outputs | 2 | no. of inputs | 2 |
| control output type | pulse, open collector | input type | digital |
| max. voltage | 24 V | voltage range | 12–24 V AC / DC |
| max. load | 20 mA | input polarity | auto detect |
| galvanic separation | yes | galvanic separation | yes |
| physical | | | |
| dimensions | 55 x 42 x 20 mm | ingress protection | IP20 |
| enclosure | halogen-free plastic compound, self-extinguishing in thermal class B (130°C) | installation method | self-adhesive backing (film) or within an outer enclosure |
| communication | | | |
| communication standard | µWiFi, WiFi compatible | radio frequency | 2.4 GHz |
| transmission mode | two-way, encrypted | API | open |
| operating mode | ad-hoc connection (Access Point mode), over a standard WiFi router, free access connection (requires Internet connectivity) | compatible devices | Apple iPhone, Apple iPad, iPad Mini, Android, PC computers and mobile devices with full HTML5 compatibility; future compatibility: Apple Watch and Windows Phone |

4.2. FIRST START-UP

- Verify that the Ri-Co has been properly connected and that no obstacles or persons are within the door/gate range of motion or near the drive unit. Turn on the drive unit power on.
- If you want to operate the Ri-Co with Apple or Android mobile devices, download the wBox app.
- Connect the mobile device to the WiFi network of the Ri-Co. Open the WiFi network settings of the device and find the network named "WiControl- xxxxxxxx", where xxxxxxxx is the serial number of the Ri-Co. Connect your device to that network.
- Launch the wBox app on the device, find the Ri-Co (Edit > Search) and add it to the device list (+ > OK).
- Select the Ri-Co from the app's list by tapping the Ri-Co name. When the Ri-Co screen appears, touch the gate/door icon in the circle. The door/gate should start to move.

⚠ Proper configuration of the Ri-Co requires disabling the automatic connection to the home WiFi network on the mobile device intended to be configured. The Ri-Co will reset the WiFi connection during the configuration, which may interrupt the process.

4.3. RI-CO CONFIGURATION

- Having started the Ri-Co for the first time, you may now configure it. Open Settings in the control pane. You may change the Ri-Co name (in General Settings) and select the drive type the Ri-Co will control. In Access Point, you can change the name of the WiFi network to be established (note that modifying the network name or password will disconnect you from the Ri-Co and may require reselecting a new network in your mobile device settings) and the password of that WiFi network.
- In Remote Access, you can grant access credentials to a maximum of 10 users. Note the names and passwords granted to the users; if these are lost, the access to the Ri-Co may only be restored by resetting it.
- You can connect the Ri-Co to your home WiFi network to operate it via wireless LAN or over the Internet. To do this, select the network from the list and tap Connect. Enter the network password if required.
- Update the Ri-Co firmware.

⚠ You need to update the Ri-Co controller firmware during the first start-up and configuration of the Ri-Co.

4.4. FIRMWARE UPDATE

- Connect the Ri-Co to a local WiFi network with Internet access to enable the update.
Update by opening the Ri-Co settings (tap the top right corner of the screen) and tapping Download New Firmware. If the update has been successful, the device will display the message "OK! Update finished".

4.5. RESETTING THE RI-CO SETTINGS

- Resetting the Ri-Co settings:
 - Disconnect the Ri-Co from power.
 - Install a jumper (e.g. a wire bridge) between pins 1 and 2 (as seen from the top) of the expansion slot (a small black connector next to the LED).
 - Connect the Ri-Co to power. The LED will flash 2 times a second for 5 seconds.
 - Next, the LED will flash faster (8 times a second); this is when the jumper must be removed within 5 seconds.
 - If the reset is successful, the LED will be on for 3 seconds.

4.6. ADDITIONAL DOOR/GATE FUNCTION

- Output O2 can be used to control the additional function of your door/gate (e.g. emergency stop or pedestrian access), if supported. Mind the control output polarity and connect O2 to the respective function input.

4.7. LIMIT SENSORS

- Door/gate limit sensors (mechanical, magnetic, etc.) can be installed to enable the door/gate position readout (Open, Closed, Intermediate position) with your mobile device. Connect the limit/position sensors by following the diagram below.
- The Ri-Co will detect the door/gate status with the voltage output form from the limit sensors. If the drive unit is compatible with limit switches rated at more than 24 V, connecting the limit switches to the Ri-Co will cause incorrect operation of the drive unit. If outer limit switches are installed, feed them with the Ri-Co output voltage.
- The door/gate status icon and the sensor type can be modified in the Settings pane.

5. WIRING DIAGRAM

Having read the door/gate, the drive unit and the RiCo operating manuals, connect the Ri-Co to the drive unit as shown in the diagram below, depending on the number of control inputs and position/limit sensors. This is an indicative diagram only. The Ri-Co detects the door/gate position with voltage signal forms.

⚠ Verify that the power supply is isolated from the drive unit before attempting to install the connections. Moving parts are a hazard of severe injury.

| Problem | Solution |
|--|---|
| WiControl cannot be discovered in the network. | <ul style="list-style-type: none"> Verify that the Ri-Co is connected to power and that its LED is flashing. The network name might have been changed during the configuration process from "WiControl-xxxxxxx" to e.g. "My Gate". You may try to connect with each of the discovered networks to find the Ri-Co, or contact the installer. |
| My device does not support the wBox app. | <ul style="list-style-type: none"> The wBox app is available for Apple devices (iOS 6 or later) and Android devices (3.0 or later). If your mobile device has the latest version of a web browser, you can still operate the Ri-Co. If you are using an ad-hoc connection with the Ri-Co, enter http://192.168.4.1 in the browser address field. If you are using a local WiFi network the Ri-Co is in, enter the Ri-Co's address in the network. |
| The door/gate icon on the control pane is unresponsive. | <ul style="list-style-type: none"> Verify Output O1 for proper polarity. The minus pin must be connected to the drive unit controller common (which is usually labelled COM or GND). Verify that the drive unit controller configuration supports external control signals. Verify that your mobile device is connected to the Ri-Co network. Update the Ri-Co firmware. |
| The door/gate icon does not read the current door/gate status. | <ul style="list-style-type: none"> Verify that the limit switches have been properly connected to the Ri-Co. Verify the limit switch voltage (3–24 V). If the voltage is below the range, connect them to a power supply source. If the voltage is above the range (remember to measure the limit switch voltage BEFORE connecting the Ri-Co), these limit switches must not be connected to the Ri-Co. |
| The mobile device does not discover my home network. | <ul style="list-style-type: none"> Verify that the Ri-Co is within the access point wireless range, e.g. by moving your mobile device to where the Ri-Co has been installed. Note that metallic parts, concrete structures and glass may significantly reduce the range of the WiFi service. If the WiFi range is insufficient, consider moving the access point closer to the Ri-Co or installing a commercially available WiFi repeater. Verify that SSID hide is disabled. |
| I forgot my Ri-Co access password. | <ul style="list-style-type: none"> Reset the Ri-Co settings. |