

rECEPTOR

Universal radio
frequency and
infrared receiver

Thank you for the confidence you have placed in us by purchasing our product. It is an incredibly versatile device of high quality and reliability. However, in order to benefit from its capabilities and failure-free maintenance we strongly recommend following the instruction included in the manual.

Use this device exclusively with its particular applications. It should be installed by qualified personnel only. The manufacturer is not liable for improper handling, connecting or operating the unit in any way that does not comply with the manual or technical and safety regulations.

This unit is designed mainly for stage applications. If used otherwise comply with the technical and safety regulations applicable in the country where the product is used.

IMPORTANT SAFETY INSTRUCTIONS

- No user serviceable parts inside; refer servicing to qualified personnel
- To reduce the risk of fire or damage this device must not be exposed to rain and moisture.
- Installation and connections can only be made with power off
- Cleaning only with compressed air or chemical dry cleaners after power supply has been disconnected.
- This unit is to be powered from constant voltage supply equipped with short circuit, over load and over voltage protection.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- This device may generate heat during operation thus requires proper ventilation. Do not install near any heat sources (radiators, stoves or other heat generating devices).
- Observe polarity and output current load specified in the manual.

Technical specifications and appearance subject to change without notice. The information contained herein is correct at the time of printing. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose without written permission of Enterius.

Latest manuals and declarations of conformity for all our products are available for download on our webpage:

<http://enterius.pl>



Electrical equipment marked with this symbol may not be disposed of in European public disposal systems. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of-life equipment to the manufacturer for disposal at no charge to the user.

Note: For return for recycling, please contact the equipment manufacturer or supplier for instructions on how to return end-of-life equipment for proper disposal.

Operation

The universal radio frequency (RF) and infrared (IR) receiver is intended to be used mainly with LED light controllers, which are manufactured by Enterius. Its uses, however, are much wider and the device can be used in all systems requiring remote radio or infrared control, such as automatics, security and access control systems, etc. The device for radio transmission co-operates with all the radio remote controls that use the KEELOQ® coding system and the 434 MHz band. In order to receive signals from every KEELOQ® remote the radio transmission is not fully encrypted and therefore it is not recommended to use rEceptor in security applications.

Note! We also offer customised version of this unit, which is fully KEELOQ® encrypted but in that configuration it will only work with remote controls which are specially programmed by Enterius. Original remote controls from different manufacturers will not work correctly with this version of the device!

The rEceptor co-operates with all the infrared remote controls using the RC5 code for transmission. It is the most widely used format developed by Phillips and utilised by the audio and video device remote controls. The receipt of a correct code of the remote control (one which is not even entered into the receiver) is always signalled with a red SIG diode flashing. The diode is lit for as long as the correct signal is being received with no interference. It applies to both RF and IR signals.

The device has 4 outputs (A-D) of the open collector type with load capacity of 400 mA, with 5 programmable operation modes. The additional terminal block enables the connection of an external infrared receiver (for example rEC-ir, manufactured by Enterius), making the device even more versatile. As an option an adaptor (rEC-35) is offered, which allows the connection of popular IR receivers, often used in the audiovisual equipment, by means of a 3.5 mm mini jack. The connected receiver needs to operate with frequency of 36 kHz and supply voltage of 5 V.

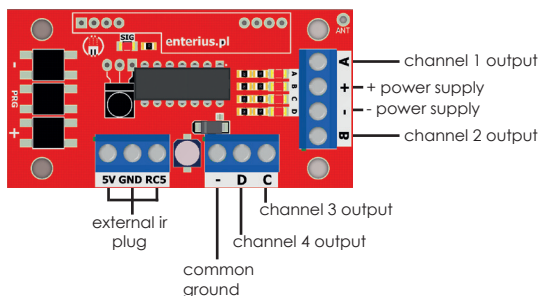
The memory of the rEceptor receiver supports up to 16 radio remote controls and 25 RC5 commands. As the RC5 infrared transmission is not coded in any way, there is no possibility to differentiate any of the IR remote controls. Only the RC5 commands can be distinguished, which can be sent from any remote control. Because of that, only radio transmission should be used to control circuits or systems of high importance, as it is partially coded and as a result the possibility of use any remote control which has not been registered into the receiver is almost completely eliminated.

Any radio remote control buttons or any RC5 commands from an IR remote control can be assigned to any output of the receiver. The same button and the same RC5 command can also be assigned to more than one output. As a result, a single button can control a group of devices connected to a few outputs. The device allows a single button or an RC5 command to be selectively removed from any output so the memory does not need to be completely erased and the other buttons or commands do not need to be entered again.

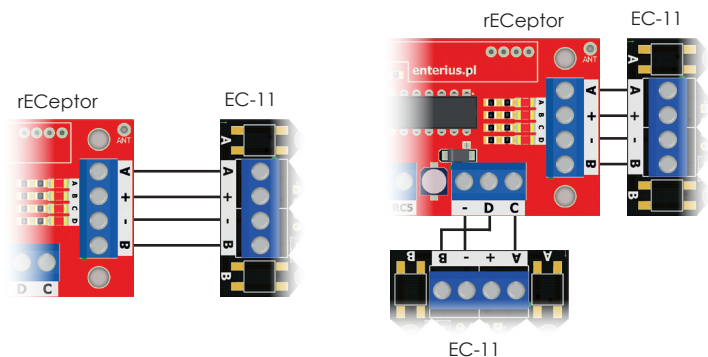
Installation

The device is equipped to be mechanically installed by means of four apertures with a diameter of 4.2 mm, which allow the use of the provided snap-action pins. The device can also be mounted with the use of screws; however, it is important to use spacing sleeves preventing the contact of the electrical elements with the surface. We also offer special P-13 assembly ties for the bus bar TH-35 (often referred to as TS-35), which allow the device to be installed in switchboards and electrical switching stations. The device is intended to operate in temperatures between -15

and +55 °C and should be installed indoors, but if it is required to be installed outside or in conditions of increased humidity, there should be additional casing used with a protection level of at least IP54. The receiver should not be installed near electrical equipment and large metal surfaces which form a screen for radio waves. The operating range is dependent on many factors (including location, radio waves interference, materials found near the receiver, how full the batteries are in the remote controls, etc.) and before commencing installation, a range and working test should be carried out. As an option, a wire can be soldered to the PCB pad marked ANT, to act as an additional antenna. The length and the run of the cable need to be adapted to the best reception, while moving it away from metal elements, walls and other large surfaces.



CONNECTION EXAMPLES



Programming

The device has two programming modes. Mode I is used to programme operating modes of the outputs and reactions to the additional IR receiver. Mode II is used to register (or remove) remote controls into the receiver and to assign them to demanded outputs..

Entering/exiting mode I – PRG button needs to be pressed for longer than 2 seconds but for shorter than 5 seconds. After 2 seconds, a red SIG diode will light up gently, signalling that the device is ready to enter the programming mode. If the PRG button is released within 5 seconds, the device will enter programming mode I, which will be signalled by 1 quick flash of the blue LED diodes. During mode I programming, the SIG diode lights up gently with short individual gaps every 2 seconds. Exiting from the programming mode happens automatically after 30 seconds of inactivity or if the PRG button is pressed and held for 3 seconds – it is signalled by 3 flashes of the blue LED diodes.

Entering/exiting mode II – PRG button needs to be pressed for 5 seconds. After 2 seconds, an SIG diode will light up gently, signalling that the device is ready to enter the programming mode I. After 5 seconds of pressing the button the device will enter programming mode II, which will be signalled by 2 quick flashes of the blue LED diodes. During programming mode 2, the SIG diode lights up gently with short individual gaps every 2 seconds. Exiting from the programming mode happens automatically after 30 seconds of inactivity or if the PRG button is pressed and held for 3 seconds – it is signalled by 3 flashes of the blue LED diodes.

Selection of the set of options – after entering one of the programming mode, a quick press of the PRG button changes the number of the set of options which is currently set in sequence (combination of blue LEDs points to the current number of the set of options, in accordance with the table below).

Selection of the options – quick press of buttons – or + appropriately reduces or increases the number of the option (signalling the current number of the option by means of quick flashes of the LED set).

Programming time – some options allow for time programming. The actions are as follows: first short and simultaneous press on the buttons + and – starts counting of time, next press stops it and programmes the selected time. When programming time, the SIG diode gets maximally bright and flashes every second. Pressing only + or only – cancels the time programming procedure and the previous value is kept.

Programming table I

| Set No. | Set name LED signalling | Option No. | Option name | Detailed description of the option's functioning |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Output A – operating mode <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> In order to choose the type of output (NC/NO) the adequate button should be held for 2 s: - for NO + for NC | 1 | Momentary | Operates for as long as the remote control button, assigned to output A, is pressed. |
| | | 2 | Bistable | Every subsequent press on the buttons of the remote control alternately turns the output on and off. |
| | | 3 | Monostable possible time programming (1 s to 300 s) | After each press on the buttons of the remote control the output is turned on for a programmed amount of time. The next press on the button, when the output is on, starts counting down the time from the beginning. |
| | | 4 | Monostable with switching off; possible time programming (1 s to 300 s) | After each press on the buttons of the remote control the output is turned on for a programmed amount of time. However, the next press on the button, when the output is on, turns it off. |
| | | 5 | Bistable with hold option possible time programming (1 s to 300 s) | Operates as bistable (like option 2) but pressing the button for more than 2 s when the output is on, turns it for the programmed amount of time or until the button is shortly pressed again what turns the output off. |
| 2 | Output B – operating mode <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> In order to choose the type of output (NC/NO) the adequate button should be held for 2 s: - for NO + for NC | 1 | Momentary | Identical as for set 1, but applies to output B. |
| | | 2 | Bistable | Identical as for set 1, but applies to output B. |
| | | 3 | Monostable possible time programming (1 s to 300 s) | Identical as for set 1, but applies to output B. |
| | | 4 | Monostable with switching off; possible time programming (1 s to 300 s) | Identical as for set 1, but applies to output B. |
| | | 5 | Bistable with hold time possible time programming (1 s to 300 s) | Identical as for set 1, but applies to output B. |

| | | | | |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | Output C – operating mode <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> In order to choose the type of output (NC/NO) the adequate button should be held for 2 s: - for NO + for NC | <input type="checkbox"/> 1 | Momentary | Identical as for set I, but applies to output C. |
| | | 2 | Bistable | Identical as for set I, but applies to output C. |
| | | 3 | Monostable possible time programming (1 s to 300 s) | Identical as for set I, but applies to output C. |
| | | 4 | Monostable with switching off; possible time programming (1 s to 300 s) | Identical as for set I, but applies to output C. |
| | | 5 | Bistable with hold time possible time programming (1 s to 300 s) | Identical as for set I, but applies to output C. |
| 4 | Wyjście D – tryb pracy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Aby wybrać rodzaj wyjścia (NC/NO) należy przytrzymać przez 2 sek. klawisz - dla NO lub + dla NC | 1 | Momentary | Identical as for set I, but applies to output D. |
| | | 2 | Bistable | Identical as for set I, but applies to output D. |
| | | 3 | Monostable possible time programming (1 s to 300 s) | Identical as for set I, but applies to output D. |
| | | <input type="checkbox"/> 4 | Monostable with switching off; possible time programming (1 s to 300 s) | Identical as for set I, but applies to output D. |
| | | 5 | Bistable with hold time possible time programming (1 s to 300 s) | Identical as for set I, but applies to output D. |
| 5 | Odbiornik IR <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> 1 | Any | The device reacts to the RC5 commands received by the built-in IR sensor and the optional external one which can be connected. NOTE: if both sensors are within a range of the same remote control then all the commands will be received twice! |
| | | 2 | External only | The device reacts only to the commands received by the external IR device. NOTE: if the additional sensor is not connected, the rE-Ceptor will not react to the commands of the IR remote controls! |

Programming table II

| Set No. | Set name LED signalling | Option No. | Option name | Detailed description of the option's functioning |
|---------|----------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Output A <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 1 | Assignments of the buttons | In order to assign a remote control button to output A, the button should be pressed for a short time (the IR remote control needs to be "seen" by the built-in sensor), the SIG diode will flash brightly to notify that the signal was received. Next, the same button needs to be pressed again within 10 seconds. The receipt of the signal and the assignment of the button to output A will be signalled by 2 bright flashes of the SIG diode. 4 flashes signify insufficient memory or another error (if for example the button is already assigned). It is possible to assign the same button to more than one output! |
| | | 2 | Removal of the buttons | Operates in a similar way as during the assignment, however, it removes the given button from the memory of the specific output! NOTE! In order to remove all the buttons assigned to output A, the buttons + and - need to be pressed simultaneously for at least 2 seconds. Removal of all the buttons from a specific output will be signalled with 3 flashes of the SIG diode. |
| 2 | Output B <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 1 | Programming of the buttons | Identical as for set 1, but applies to output B |
| | | 2 | Removal of the buttons | Identical as for set 1, but applies to output B |
| 3 | Output C <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | 1 | Programming of the buttons | Identical as for set 1, but applies to output C |
| | | 2 | Removal of the buttons | Identical as for set 1, but applies to output C |
| 4 | Output D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | 1 | Programming of the buttons | Identical as for set 1, but applies to output D |
| | | 2 | Removal of the buttons | Identical as for set 1, but applies to output D |

In order to erase the whole memory of the receiver (removal of all the recorded remote controls), the buttons + and - need to be simultaneously pressed and held for at least 5 seconds, in the normal operating mode.

Deleting of the memory will be signalled by six flashes of the blue diodes.

Technical specification:

| | |
|------------------------------------|---------------------------|
| Supply voltage: | 8-24 VDC |
| Power consumption in standby mode: | <10 mA |
| The amount and type of outputs: | 4 x OC |
| Output Current capacity: | 400 mA |
| Standard IR | RC5 |
| RF Frequency: | 433.92 MHz |
| Maximum number of pilots: | 16 x RF + 25 commands RC5 |
| RF transmission Encoding: | KEELOQ® |
| Operating temperature range: | -15 ° C to 55 ° C |
| Dimensions (LxWxH): | 70 x 36 x 17 mm |

Firmware version:

2.3



WARRANTY

1. ENTERIUS warrants the mechanical and electronic components of this product to be free of defects in material and workmanship if used under normal operating conditions for a period of 5 (five) years from the original date of retail purchase. If the product shows any defects within the specified warranty period and that defect is not excluded under further clauses, ENTERIUS or its Resellers shall, at its discretion, either replace or repair the product using suitable new or reconditioned product or parts. In case manufacturer decides to replace the entire product, this warranty shall apply to the replacement product for the remaining initial warranty period of 5 (five) years from the date of purchase of the original product.

2. This warranty is valid only if you purchased the product from ENTERIUS authorized Reseller in the country of purchase. Please retain your proof of purchase as this warranty is void without such proof (invoice, receipt, etc.)

3. This warranty does not cover the product if it has been electronically or mechanically modified in any way. Such modification/adaptation void warranty, regardless of whether it was carried out properly or not. Under the terms of this warranty, ENTERIUS shall not be held responsible for any cost resulting from such a modification/adaptation.

4. This warranty is invalid if the factory-applied serial number has been altered or removed from the product.

5. Damage/defects caused by the following conditions are not covered by this warranty:

- improper handling, neglect or failure to operate the unit in compliance with the instructions given in ENTERIUS service manuals
- connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used
- damage/defects caused by acts of God/Nature (accident, fire, flood, etc) or any other condition that is beyond the control ENTERIUS

6. Any repair of the unit carried out by unauthorized personnel (user included) will void the warranty.

7. ENTERIUS shall have no liability to the buyer under this warranty for any consequential or indirect loss or damage of any kind. In no event shall the liability of ENTERIUS under this limited warranty exceed the invoiced value of the product.

8. The defective product shall be delivered to ENTERIUS or its Reseller at the expense of the product owner.

Unit model/type

Date of purchase

Serial number

Dealer stamp

Purchase document number



Purchaser signature: