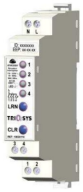

EnOcean 10020110 Modular 4 Channels Switch Receiver for LED Lighting User Manual

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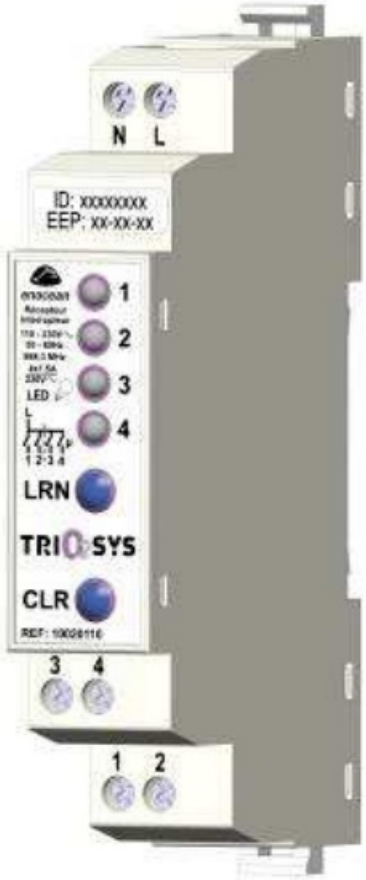


Operating manual

Use

The modular 4 channels switch receiver 02LINE 10020110 is used to receive radio signals from switch transmitters or 02LINE sensors (see compatibility table §6.1). Designed for switching LED and compact fluorescent lighting loads, it can also switch resistive loads (halogen), fluorescent tubes, TBT halogen lamps with ferromagnetic and electronic transformer, power contactors or small motors. The 4 channels switch receiver is equipped with the « repeater » function as well as the « consumption indicator » function (see §6.6 and §6.3). Before use, the transmitters must be assigned to a receiver. Each sensor or transmitter can control an unlimited number of receivers.

Note: Read the user manual carefully before commissioning. To consult the consumption indications, it is recommended to connect the 4 channels switch receiver 10020110 with a suitable software.

Guarantee terms

This operating manual is an integral part of the device and our guarantee terms. It must always be delivered to the user. We reserve the right to modify the technical design of these devices without warning. TRI02SYS products are manufactured and their quality checked by making use of the latest technologies and taking into account the applicable national and international directives. If nevertheless a fault arises, TRI02SYS undertakes to remedy the default as follows, without prejudicing the rights of the end customer that arise from the sales contract with his reseller: If the event of exercising of a legitimate and regular right, TRI02SYS, may at its sole discretion, rectify the device fault or supply a fault-free device. Any claim beyond this and all claims for consequential damages are excluded. A legitimate fault exists if the device cannot be used at the time of delivery to the end customer because of a design or manufacturing defect or if its practical use is severely limited. The guarantee is void in cases of natural wear and tear, incorrect use, incorrect connection, where the device has been repaired or external influence. The guarantee period is 24 months (from the date of invoicing). French law applies to the regulation of guarantee rights.

Safety

WARNING! Risk of electric shocks! (See UTE C18-150) The device contains live internal components. Risk of wounds or injuries if contact occurs! All work on the mains supply network and the device must only be carried out by authorised professional technicians.

- Before carrying out any work, switch-off and isolate the device.
- Secure the device to prevent it being switched back on.
- Check the device is in a zero-volts state.
- Carefully reclose the casing before reconnecting to mains power

Observe the following points:

- The laws, standards and directives in force.
- The device operating manual and best practice at the time of installation.
- An operating manual can only give general instructions. They must be interpreted in the context of a specific installation.
- The device is intended solely for use conforming to its purpose. Any repairs or modifications by the user are forbidden! Do not use with other devices the operation of which could endanger people, animals or property.

Technical characteristics

General characteristics	
Transmission frequency band	From 868,0 MHz to 868,6 MHz
Transmit power	+10 dBm
Power supply	110 - 230V ~ -1- / 50 Hz
Terminal capacity	1x1,5² à 2,5² max rigid 
Output -2- 4 contacts micro distance (µ) opening contacts, I_{min}=100mA	max µ4x1.5A/4x345VA resistive (cos φ=1) LED: 4x130W Compact fluorescent: 4x130W Halogen: 4x345W Inductive: 4x300W (cos φ= 0,4 à 0,6)
Receiver EEP profile	D2-01-00
Receiver category	2
Power measurement accuracy	2% +/- 1 digit -3-
Number of modules	1 module of 17.5 mm
Mounting type	DIN rail mounting
Consumed power	< 0.35 W -4-
Ambient temperature	From -10°C to +45°C
Storage temperature	From -20°C to +80°C
Ambient humidity	From 0 to 75%hr (without condensation)
Degree of protection	IP20 with plastron
Installation altitude	2000m max.

Range in buildings

Note: The signal strength between the transmitter and the receiver decreases as the distance increases. Where there is a line of sight connection, the range is approximately 30m in corridors and 100 m in large workshops or halls. The range can be increased with an 02LINE repeater. Respect a minimum range of 10 cm between transmitter and receiver.

Range in buildings	
Masonry	20m, through 3 walls at most
Reinforced concrete	10m, through 1 wall/ceiling at most
Plasterboard / **wood**	30m, through 5 walls at most

Installation and initial use

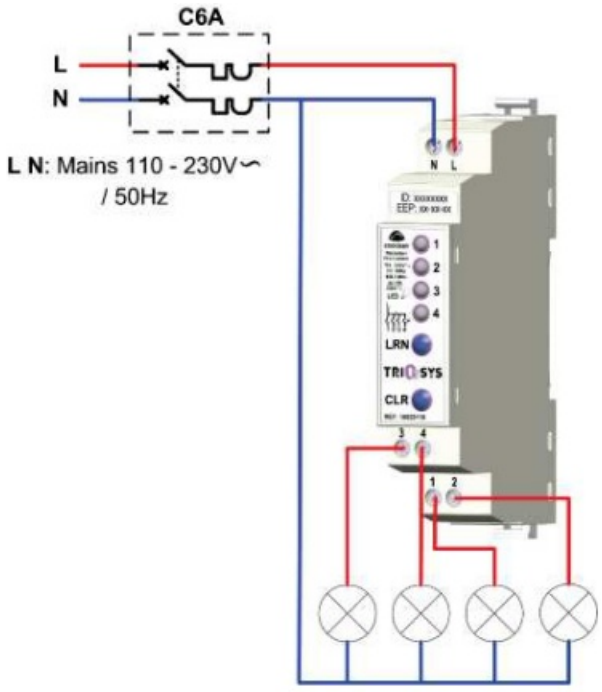
Safety instructions

The installation and initial use must only be performed by authorised qualified electricians. The electrical installation must be placed off-load before connection it to the mains. Conform to the legislation and standards in force in the country of use.

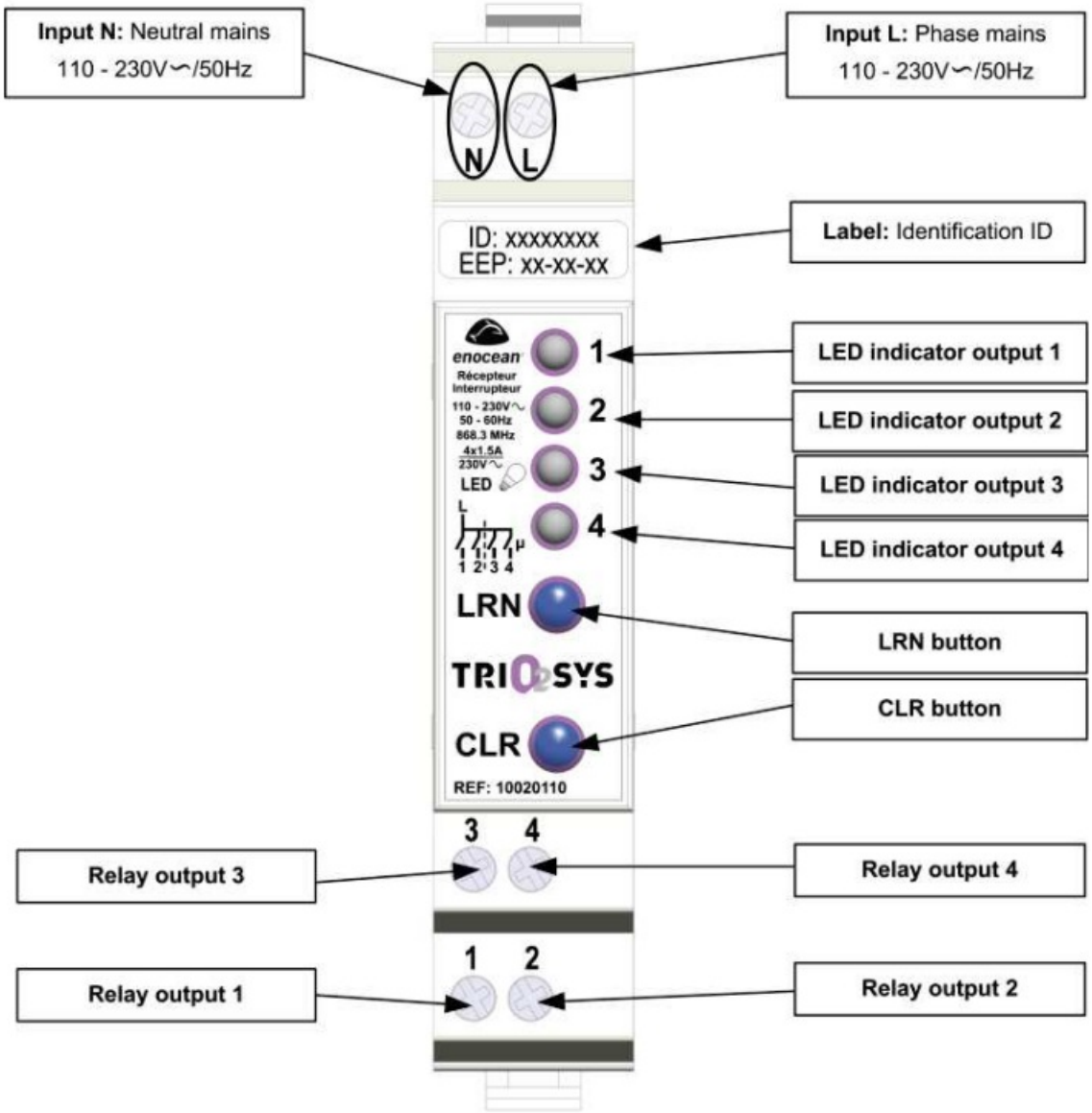
Installation

- This product is designed for indoor use. It is maintenance free.
- This product is intended for installation only on horizontal DIN rail, in an electrical panel (mounted on a vertical wall) with compulsory installation of a plastron which will be connected to the ground of the installation if it is metallic.
- For compliance with the standard reference, height of the plastron (compared to the above DIN rail) must not exceed 48 mm with a minimum thickness of 1 mm.
- NEVER install the receiver in a metal casing or in the immediate vicinity of large metallic objects.
- Installation on the ground or close to the ground is not recommended. Thank you to refer to the installation standards of each country.
- Protect the supply line with a circuit breaker 6A curve C adapted to the installation.

Connection principle diagram



Description of the connection



Initial use

- Connect power to the electrical installation after it has been installed.
- Program the transmitter on the receiver (see § 5).

Programming

For programming the receiver must be connected to the mains. The programming is conserved during a power failure.

Programming mode or transmitter deletion mode

N.B.! A transmitter must not be further away than 2 m from receiver in learn mode. The receiver has a limited range!

- To enter the programming mode, short press (approximately 0,5s) the LRN button. This mode is confirmed by the regular flashing of LED 1.
- In programming mode, pressing the LRN button again selects the relay output to be associated with a transmitter (example: if DEL 1 flash, press LRN, switch to channel 2, LED 2 flash and LED 1 off).

- Once the relay output has been chosen, to associate a transmitter, simply press on one of the switches or press the LRN button (see §6.2). The receiver will acknowledge its recording in memory by maintaining the LED corresponding to the selected output on for 4 seconds. As soon as flashing LED starts again, another transmitter can be associated or cleared.
- To clear a transmitter simply press on one of the switches or press the LRN button of the desired sensor (see §6.2). The receiver will acknowledge its clearing off the memory by maintaining the LED corresponding to the selected output off for 4 seconds. As soon as flashing starts again, another transmitter can be associated or cleared.
- The association or deletion of transmitters can also be carried out using the EnOcean UTE1 (Universal TEach-in) protocol: once the relay output has been chosen, send a UTE Query1 type
  frame. The association or deletion is confirmed by keeping the LED on or off for 4 seconds and by sending a UTE Response1 type frame.
- To exit programming mode, short press the LRN button. The output is confirmed by the stopping of regular flashing of the LEDs.
- Multiple association programming mode:
- This mode is used to associate the 4 relay outputs with a transmitter in a single step.
- To enter the multiple association programming mode, make 3 successive short presses (<0.5s) on the LRN button. This mode is confirmed by the regular flashing of the 4 LEDs.

Notes:

- No transmitter is programmed in the receiver as supplied state.
- When using BMS products, mono or multi-channel, programming must be performed alone and channel by channel: you must exit the programming mode between each channel or select another output, by short press the LRN button and within 5 seconds after the start of visual acknowledge.
- Up to 32 switch, transmitters and sensors can be allocated to each channel.
- If the memory is full, the receiver exits programming mode upon an additional association attempt.
- The transmitters are alternatively programmed or cleared in the event of several activations!
- If no button is pressed, learn mode stop automatically after 30 s.

Sensor mode

- The 02LINE 10020110 receiver, once associated with a BMS product, transmits an acknowledgement for each change of status on its output. In addition, advanced functions such as remote polling and remote status change become available, in accordance with the EEP profile D2-01-001
- Activate the programming mode on the BMS product (refer to its user manual).
- Enter the programming mode (see §5.1) on the 10020110 receiver, for the transmission of UTE Query1 type association frames. These transmissions, one every 3 seconds, are indicated by the regular flashing of the LED until the mode is exited.
- The association with this BMS product is validated as soon as a positive response of type UTE Response1 is received. This is confirmed on the receiver by the LED remaining lit for 4 seconds and by the sending of a VLD CMD 4 – Actuator Status Response1 type frame.

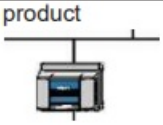
Clearing off all the programmed transmitters

Press the CLR button for approximately 2s. Clearing is confirmed by the simultaneous lighting of the 4 LEDs then the regular flashing of LED 1 alone. The receiver returns automatically to programming mode. To exit programming mode, short press the LRN button. The output is confirmed by the stopping of regular flashing of the LEDs. Each receiver can receive up to a maximum of 32 transmitters, switches or sensors. Upon allocating on the selected output the first transmitter or sensor, the operating mode is defined. The operating mode cannot be changed until all the transmitters have been cleared(see §5.3). Switch mode: For switches (default mode), each press reverses the state of the receiver: if it is ON it goes OFF and vice versa. Window contact mode (D5-00-01): If at least one of the window contacts is open, this activates ON the associated output of the receiver. If all possible window contacts are closed, the associated output of the receiver is OFF. The window contacts transmit a signal approximately every 15 minutes. 60 minutes after receipt of the last signal received, the receiver considers this contact closed

Compatible transmitters

Designation	**02LINE reference***	**EEP Profile**[1]
Switch	10020001, 10020019, 10020022	F6-02-01
Bistable Switch	10040023, 10040024, 10040025	F6-02-XX (PTM202)
Key card	10020067	F6-04-01
Windows Handle	10020011	F6-10-00
Windows contact	10020032, 10020042,10020075	D5-00-01
Dry contact sensor	10020047, 10020057	D5-00-01
Occupancy Sensor	10020051,10020078	A5-07-01 A5-07-03
Gateway	10020040	A5-38-08

Transmitter associated functions (switch mode)
The functions associated with different sensors are determined during learning. The learning process (see § 5.1) is to do before activating the transmitter.

Désignation	Apprentissage	Fonction obtenue*
Switch   The switches (single and double) work per channel. Keys 1 and 2 form channel A, keys 3 and 4 form channel B.	Button 1 (2, 3 or 4): pressed and released before visual acknowledge**	Button 1 (2, 3 or 4): Transition from ON to OFF and vice Versa
	Button 1 (2, 3 or 4): pressed then released after visual acknowledge**	Button 1 (or 3): ON
		Button 2 (or 4): OFF
	Button 1 (2, 3 or 4): pressed and released before visual acknowledge** followed by, pressed then released after visual acknowledge**	Button 1 (2, 3 or 4): pressed : ON released : OFF
Bi-stable switch (PTM202)  	Press button 1 then 2 before the visual acknowledgement** (or vice versa).	Button 1 : OFF
		Button 2 : ON
	Press button 1 then 2 after visual acknowledgement** (or vice versa).	Button 1 (or 2): Transition from ON to OFF and vice Versa
Key card 	Card inserted before the entry into learning mode, removed (in learning mode) then reinserted	Card inserted: ON
		Card removed: OFF
Window handle 	Closed to opened or opened to closed	Tilt to opened: no change
		Opened to tilt: no change
		Closed to opened: OFF
		Opened to closed: ON
Window contact 	Press the LEARN button	Magnet away: ON
		Magnet near: OFF
Dry contact sensor 	Press the LEARN button	Contact closed: OFF
		Contact open: ON
Occupancy sensor 	Press the LEARN button	Detection (PIR = On): ON
		Detection (PIR = OFF): OFF
Gateway 	UTE Protocol (see §5.1) EEP A5-38-08[1], command 01 switching only	SW=0 : OFF
		SW=1 : ON
		Immediate or delayed with or without (0s) delay from 1 second to 1h45
BMS product 	UTE protocol (see §5.2 sensor mode) EEP D2-01-00[1], command 01 switching, command 03 status request (acknowledged), command 06 measurement consultation (acknowledged)	See EEP §D2-01-00[1] CMD 06: Query = Query energy

Consumption indicator

The consumption data is an accumulation of the loads measured at the outputs of the 4-channel receiver.

Consultation

The consumption data can be consulted, after association in sensor mode (see §5.2), in accordance with the EEP D2-01-001 profile:

- a) The device sends a VLD CMD 6 – Actuator Measurement Query frame (parameters: Query energy and Output chanel 0x00).
- b) The receiver replies with a CMD 7 – Actuator Measurement Response frame containing the consumption data.

Resetting the consumption data

- a) Switch off the device.
- b) Press and hold the CLR button, then power up the device,
- c) Once LED 1 is orange, wait for LED 1 to turn red (5s) then release the CLR button.
- d) Press the LRN button for about 1s to reset the stored values of the receiver, the red LED goes out to confirm the deletion of the data.

Current safety function

When an overcurrent is detected on one or more receiver outputs, a flashing red LED fault informs the user of the concerned output(s). The receiver then deactivates the accused outputs and the red LED(s) flashes until the user has cleared the fault. To clear the fault, press (approximately 0.5s) the CLR button. No reprogramming is necessary for restarting. Checking the electrical connection and the connected loads is essential.

Radio function test (slave)

- This RLT function (Radio Link Test, EEP §A5-3F-001) master slave allows, through a diagnostic product (master), to perform a radio test range (slave):
- On the diagnostic product, activate the master RLT mode (refer to its manual instruction)
- On this receiver, activate the slave RLT mode by a short press (approximately 0,5s) on LRN and
- CLR simultaneously. This mode is confirmed by the regular flashing (orange) of the 4 LEDs.
- To exit this function, short press (approximately 0,5s) on the LRN button. the output is confirmed by the stopping of regular flashing of the 4 LEDs. In the absence of test activity, this function stops automatically after 30 seconds.

Repeater 2 levels function

The repeater function of the 4 channels receiver is used to increase the range between 02LINE transmitters and receivers. When the radio signal from a transmitter is received, it is retransmitted to the associated receiver via a maximum of two repeaters. Radio signals are received and transmitted automatically.

- On the receiver, activate the slave RTL mode by a short press (approximately 0,5s) on LRN and CLR simultaneously. This mode is confirmed by the regular flashing (orange) of the 4 LEDs; then short press (approximately 0,5s) CLR. This mode is confirmed by the red LED 1 flashing.
- The current configuration is displayed by the number of LED 1 flashing: 1 – repeater off 2 – activated repeater, level 1 3 – activated repeater, levels 2
- To change the mode of operation of the repeater, short press CLR the number of times corresponding to the desired mode (b). Each press is acknowledged by maintaining LED 1 on for the time of the press. The new configuration is stored and enabled, after 1,5s without any press. As soon as the flashing restarts, the new configuration is displayed and editable again (back to b).
- To exit this function, short press (approximately 0.5s) on the LRN button. The output is confirmed by stopping the flashing of LED 1. In the absence of activity, this function stops automatically after 30 seconds.

Note: This function is disabled on delivery of the receiver.

Factory configuration
With this function, the receiver can be reset to the factory configuration as it was when the product was delivered:

- Switch off the device.
- Hold down the CLR button, then switch on the device,
- Once the LED 1 is orange, wait for LED 1 to turn red (5s) then release the CLR button.
- Press the CLR button again for about 1s, the red LED 1 goes out.
- The product is in factory configuration.

Note:
In the delivery state of the receiver, no transmitter is programmed, the repeater is disactivated and the consumption data is zero.

Troubleshooting

New or existing installation

- Check the circuit breaker, the electrical supply and the load connected to the receiver associated with this sensor (qualified electricians).
- Check the connected load and the connecting cables (qualified electricians).
- If the receiver functions at a shorter distance relative to the sensor, it is subject to interference or used outside the transmission range.
- Search the system environment for changes that could cause the interference (for example movement of metallic cabinets, furniture or partitions).
- Use the sensor or receiver in a more suitable location.
- Clear the receiver and perform a new learn process.

Automatic activation of the receiver

- The cause may be the activation of a sensor external to the system which has by chance been programmed on the receiver.

- Clear the receiver and perform a new learn process.
- Limitation of the range of the radio signals
- Transmitter/receiver used close to metallic objects or close to materials containing metallic elements.

Observe a distance of at least 10 cm.

- Humidity in the materials.
- Device emitting high frequency signals such as: audio and video systems, computers, electronic ballasts or fluorescent tubes. Observe a distance of at least 0.5 m.

Contacts
E-mail: ..... contact@trio2sys.fr

Recycling of the device

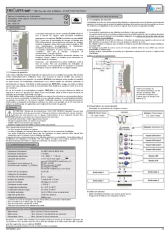
In accordance with European Directive 2012/19 / EU on waste electrical and electronic equipment and its implementation in accordance with national laws, this logo means that devices must not be thrown away with household waste. The hazardous substances they are likely to contain can harm health and the environment. Have these devices taken back by your distributor or use the selective collection means made available by your municipality

Declaration of conformity

This product can be marketed and distributed in the countries of the European Union. Hereby TRI02SYS declares that radio equipment 10020110 is in compliance with directive 2014/53/EU, known as the RED

Directive.
The full text of the EU declaration of conformity is available at the following internet address: www.trio2sys.fr .For more details, see Communication Profiles – EEP available at: www.enocean-alliance.org/what-is-enocean/specifications/

Documents / Resources

	EnOcean 10020110 Modular 4 Channels Switch Receiver for LED Lighting [pdf] User Manual TOC2001NU, 10020110 Modular 4 Channels Switch Receiver for LED Lighting, 10020110, Modular 4 Channels Switch Receiver for LED Lighting, Modular 4 Channels Switch Receiver, 4 Channels Switch Receiver, Switch Receiver, Receiver

References

- Technical Specifications
- trio2sys - Trio2sys