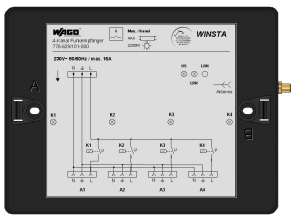
Mounting and Installation Instructions

770-629/101-000
4 Channel WINSTA® - Radio-Receiver (Lighting-Control)



Features
- Radio Receiver for Lighting-Control with EnOcean PTM Radio-Push-Buttons
- 4 Outputs with NO Contacs, 230V~ / 16A
- Status Indication via LED
- 868 MHz Frequency band
- Transmitter / Receiver assignment via Learn-Mode
- External Antenna for optimized Transmission Range (required)
- Presetable status of outputs after mains failure
- Pluggable WINSTA® -Connectors

1. General Description

The WINSTA® Radio Receivers for switching of 4 individual loads (e.g. lamps) via radio sensors and push-buttons are based on Enocean Radio Technology. Transmission is on a european-wide harmonized transmission range of 868,3 MHz. The system is specially dedicated for flexible, pluggable building automation because the expenditure for new or reconfiguring of installations is minimized.
The 4 channel Radio Receiver enables easy integration of 868MHz Radio Technology into fast and easy to use WINSTA® Connector Wiring Systems.

Compatibility: Outputs are operated by switching commands from radio receivers based on EnOcean PTM-Modules (Piezo Transmitters) which are available from different manufacturers. Push buttons must be based on PTM 100 or PTM200 Modules.

Transmitter / Receiver Assignment: The assignment between sensor and output has to be teached (Learn-Mode) once during commissioning, the assignments are stored mains-failure protected in the NV-Ram of the Receiver. Multiple assignments between sensors and outputs are possible, e.g. one push-button could be assigned to multiple outputs (1:n); multiple push-buttons could be assigned to one output channel (n:1). One receiver could be operated from up to 30 transmitters at all.

Outputs: Loads are operated via 4 relays with normally-open contacts. Outputs are supplied via mains connector of the WINSTA® -Box. Max load of individual contacts as well as sum of load is 16A.

2. Restrictions and Regulations

2.1 Legal Regulations

The following topics should be observed:

- the valid laws, norms and regulations
- the applicable local codes in respect to wiring practices
- the state of the technology at time of installation
- the operating manual from sensors and receiver
- the general rules of the technique
- the fact, that instructions manuals could only inform about general regulations and these have to correspond with plant or local regulations.

2.1 Restrictions for the Operation of Radio Transmitters or Receivers

The use of the devices does not need to be registered and is free in the European Union, Switzerland, Cyprus, the Czech Republic, Poland and in Slovenia.

The use in other countries requires explicit clarification!

3. Advice for Safety

! Danger for Life existing in case of open unit by electrical power !

Electrical connection, mounting and dismounting is only allowed by qualified electrical personal.
Switch Off mains- / power-connectors before opening the receiver.
Assignment of the connectors must be observed because wrong wiring may destroy the device or lead to short circuits.
Before commissioning it must be assured, there is no danger for bodily injury or loss of life by subsequent wiring or connected loads.
For workings under voltage the national regulations have to be observed.
Failure to observe these precautions could result in severe bodily injury or loss of life.

4. Commissioning

Before commissioning the receiver should be proofed for mechanical- or transport-damages. In case of probable damages the commissioning of the unit is not allowed.
Read the instruction manual carefully and observe the technical advices and applying legal regulations.

4.1 Handling Advices / ESD (Electrostatic Discharge)

The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching of conductive components.

4.2 Advices for Installation

Avoid installing the module, the antenna and the antenna line close to sources of transient interferences, such as fluorescent tubes with defective starter, frequency converters and power cables. As a result, communication failures may occur leading to faulty status of outputs.

4.3 Advices for Antenna Installation

Use only appropriate antenna (WAGO 758-910 incl. 3 m RG174-cable and SMA-connector; see accessories).
Antenna must be mounted on metal footer with min dimensions of 25 cm x 25 cm.
Antenna including cable must have min 30cm distance to interference sources and Antenna should have free space to walls of min. 35 cm.
The cable must not be buckled because the cable may be damaged (RG174-curve radius > 15 mm).
The cable must be separated from mains supplies.

4.4 Preconditions for Commissioning

Before commissioning the supply voltage must be applied and the external antenna must be connected.

Switches (Transmitters) should be „learned“ before mounting, because of reduced transmission range (appr. 5 m) in Learn-Mode.

4.5 Please observe the following Advices before activating the Learn-Mode!

The sensitivity of the receiver is reduced to appr. 5m during Learn-Mode is active to avoid unintentional teaching/deleting of transmitters. In Learn-Mode the relay outputs are triggered cyclically in parallel to the indication of the status LEDs. If this behavior is not allowed in the application, the loads must be set into powerless state , e.g. by disconnecting output connectors, to assure no risk for health. When activating the Learn-Mode the former state of outputs is not stored.

4.6 Teaching of Transmitters / Learn (LRN) Button

Operating-state:
⇨ Receive-Mode; LED Us ON
1. Switch receiver into LRN-Mode
⇨ Press LRN at the receiver
⇨ LRN activ - LED „LRN“ ON
⇨ 1. Channel-LED flashes
2. Select channel for teaching
⇨ Press LRN at the receiver
⇨ Next / selected channel LED flashes
3. Operate Radio Transmitter / Switch
(create telegram)
⇨ Channel LED for 4 seconds ON
⇨ Selected channel LED flashes again;
further transmitters could be teached on this channel
⇨ Exit LRN-Mode: see 4.7

4.7 Exit LRN-Mode

Learn-Mode is deactivated after 30 s automatically; no operation required.
⇨ Receiver switches off LRN-Mode
LED „LRN“ OFF
Alternative: Leaving via LRN-Button
⇨ multiple operation of LRN-button
⇨ Receiver leaves LRN-Mode (behind channel 4)
LED „LRN“ OFF

4.8 Selective deleting of single Transmitter / LRN Button

Please observe, the transmission range is reduced to appr. 5 mtrs, even if transmitters should be deleted!
1. Switch Receiver into LRN-Mode
⇨ Press LRN-Button
⇨ LRN-Mode active - LED „LRN“ ON
⇨ LED of 1. Channel flashes
2. Select channel to be „unlearned“
⇨ Press LRN-Button again
⇨ LED of next channel flashes
3. Operate button / switch on transmitter
(submit telegramm)
⇨ LED of sel. Channel is 4s OFF
⇨ Exit LRN-Mode see 4.7

4.9 Set predefined State of Outputs

Danger for Life
Because presetting is only possible while opening the device, please observe safety advices!

4.9.1 Predefind setting of Outputs after Mains Failiure

DIP switches 1-4 allow predefining of output status after power-down. The presetting of outputs could be selected individually for each channel by 4 DIP switches inside the WINSTA-Box after opening (see Fig.1). Assignment of DIP-switches to outputs is similar to the numbering of the outputs. With DIP switch ON the output will be active after mains-failure; the behavior of the output is inverted.

Attention. Danger for Life
This adjustment is to be done only in powerless state. Please remove all connectors before opening the housing!

DIP-Switches 1-4 are assigned to outputs 1-4.

DIP 1..4 ON:
Output ON after mains return

DIP 1..4 OFF:
Output OFF after mains return

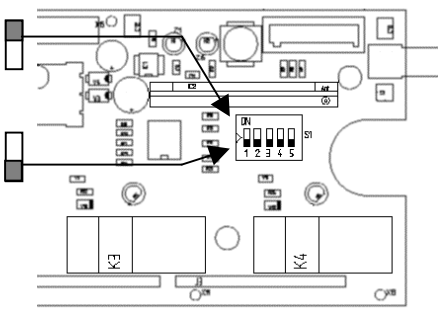


Fig. 1: DIP-switches

4.9.2 Clearing of all learned Transmitters

Attention. Danger for Life
This adjustment could be done only under power. For qualified personnel only under observation of all valid rules for safety.

Switching DIP 5 to position ON for 2s activates the DELETING of **all** learned transmitters **!**

5. Technical Data

Designation	Data
Mains supply	
Input voltage	230V ~, 50..60Hz, max 16A
Connector	Pluggable WINSTA connector 1 x male connector 3-pole; (female connectors see accessories)
Current consumption (internal)	max. 21mA
Outputs	
No. of channels	4 (normally open)
Type of load	resistiv, lamp loads
Cont. current per channel	max. 16A ; typ. Load see ch. 6.1
Sum of load	max 16A
Max. switching cycle	< 5 Hz
Connector	Pluggable WINSTA connector 4 x female connector 3-pole (male connectors see accessories)
Potential isolation Antenne / Mains Mains/Output Channel / Channel	 safe isolation none none
General Data	
Ambient temperatur	0 ... 55°C
Storage temperatur	-25 ... + 85°C
Relative humidity	85%; no condensation
Degree of pollution	2
Degree of protection	IP20
Mounting position	optional
Material of housing	PA 6.6
Dimensions (WxHxD) mm	ca. 200 x 145 x 30 mm
Approvals	KEMA, CB acc. EN 60669-2-1

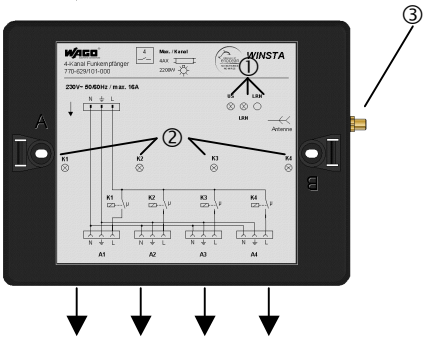
5.1 Max permissible Load per Contact acc. to EN 60669-2-1

	Product Type	
Type of load	789-601	789-602
halogen lamps	1400W	1400W
incandescent lamps	2200W	1840W
iron-core transformer	120VA	120VA
fluorescent lamps	4AX	-
capazitive loads	60µF	-
motorload	2A	2A

6. Terminal Designation for Supply and Output Connectors

Input / Supply: 3 pole WINSTA- male connector

Pin design.	Electr. determ.
N	Neutral
PE	Protective Earth
L	Phase (Line)



① Indicators / Button
Us = Operating voltage
LRN = Learn-mode / Learn-button
② Status indicators
K1...4 = Output 1..4
③ Antenna jack

Output / Loads: 3 pole WINSTA-female connectors

Pin design.	Electr. Determ.
N	Neutral
PE	Protective Earth
L	Phase (Line)

7. Accessories

7.1 Cables

Supply

e.g. connecting lead, female – open end of line, black

Order-No.: 771-9993/106-x01

1 = length 1m
...8 = length 8m

other length on request

Outputs

e.g. connecting lead, female – open end of line, black

Order-No.: 771-9993/206-x01

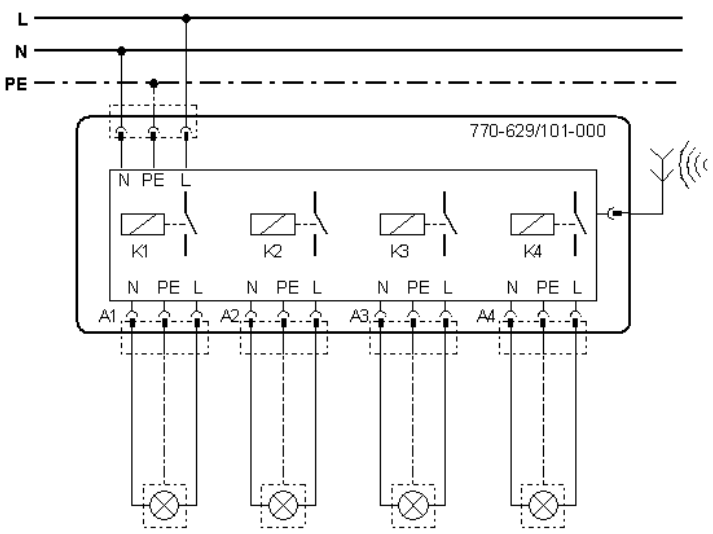
1 = length 1m
...8 = length 8m

other length on request

7.2 Antenna

WAGO 758-910 incl. 3m RG174-cable and SMA-Connector.

8. Wiring Diagram



9. General Advices for EnOcean Radio Technology

9.1 Safety Advices conc. R&TTE: Danger

The radio receiver modules must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

This results from the classification of the radio receiver module in “Class 2 Equipment” according to ETSI EN 301 489-3 V1.4.1 (2202-08) "Specific conditions for short-range devices (SRD)".

9.2 Details for Transmission Range

The transmission ranges are mainly depending on mounting and positioning as well as type of material which is used in buildings. The type of used materials and thickness of walls have a main influence to the quality and the strength of radio data. It is recommended to make tests of data transmission at desired mounting positions before installation.

9.3 Typical max. Transmission Ranges

1) Visual contacts: typ. 30 m in passages, up to 100 m in halls

2) Rigypsum walls/ wood: typ. 30 m range through max. 5 walls

3) Brick wall / Gas concrete: typ. 20 m range through max. 3 walls

4) reinforceds concrete /-ceiling: typ. 10 m range through max. 1 wall

Supply blocks and lift shafts should be seen as a compartmentalisation.

9.2 Reduction of Transmission Range

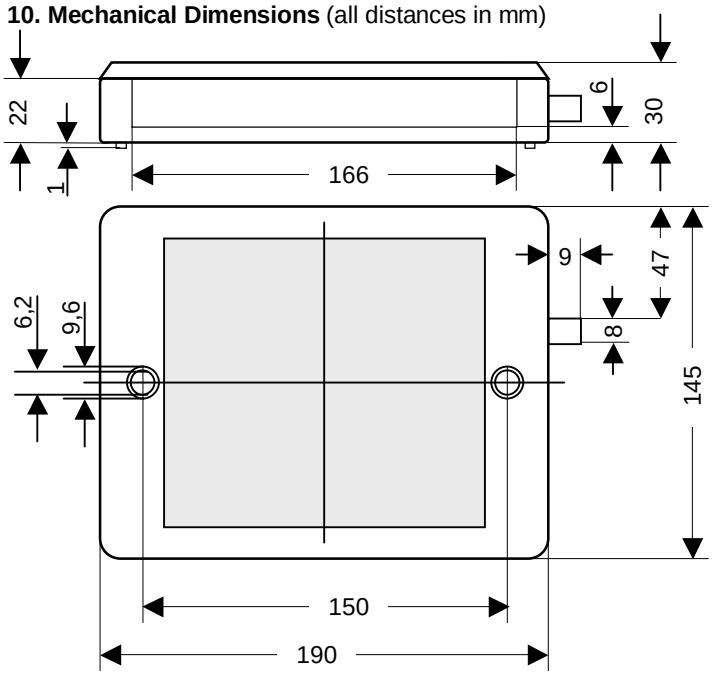
Restriction of the transmission range can also be due to:

- Hollow lightweight walls with insulating wool on metal foil
- suspend ceilings with panels made of metal
- carbon fiber, lead glass or glass with metal coating, metal furniture
- metal wall mounting of the switch.

In addition, the angle with which the signal arrives at the wall is of great importance. Depending on the angle, the effective wall strength and thus the damping attenuation of the signal changes. If possible, the signals should run vertically through the walling. Walling recesses should be avoided.

For mounting and installation of transmitters please observe additionally the advices provided by the manufacturer!

10. Mechanical Dimensions (all distances in mm)



EC Certificate of Conformity

Document No.: 77062910100001
Month/Year: 06/05

This is to certify that the product designated hereunder conforms to the requirements, which are defined in the directive of the council for adaptation of the member states' legal prescriptions on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (1999/5/EG).

770-629/101-000

The following standards have been applied to check the electromagnetic compatibility of the product:

EN61000-6-2 (01/99)
ETSI EN 301 489-1 (09/01)
ETSI EN 301 489-3 (11/01)
ETSI EN 300 220-3 (09/00)

This declaration is valid for the manufacturer/authorized representative

(Name) WAGO Kontakttechnik GmbH
(Address) Hansastr.27
32423 Minden

made by

(Surname, name) Dr. Thomas Albers
(Position in the firm of the manufacturer) Technical director electronics

Minden, 15th of June 2005
(Place) (Date) (Legally binding signature)

This declaration certifies compliance with the indicated directives but implies no warranty of properties.

The safety instructions of the accompanying product documentation shall be observed.