

TERA Radon Program

**TRR2 Wireless Repeater**  
**Technical Specifications & Operation Manual**



v.2 – 2016

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Instruction also available on [www.tesla.cz](http://www.tesla.cz)

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Users should be familiar with operation basis of used product. If you experience any problems with your product, please contact us at:

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[www.tesla.cz](http://www.tesla.cz)

## 1 Introduction

This document describes technical specifications and user operation of TRR2 Wireless Repeater.

Product was developed and manufactured in the Czech Republic. All rights reserved TESLA. Offer or delivery of products or services related to the product does not include transfer of ownership rights.

Before using the product, please read this manual carefully and understand all operating and safety precautions. Compliance with operational and safety precaution can prevent from damage to equipment or injuries to personnel. Operating and safety instructions in the document are marked as follows:

***Attention! This formatted text indicates the operating and safety instructions.***

The product may only be used in the specified manner and for its intended purpose. The product may be provided to third persons along with this documentation only.

## 2 Description and Utilization

Repeater is an autonomous element designed to increase the system range. It provides connection between the central unit and other elements of wireless net where signal is too weak for direct connection. This may happen in an empty space at a long distance. The range in buildings is dependent particularly on building material (walls, partitions, floors, etc.). For example, in case of reinforced concrete skeleton, which represents efficient shielding, problem can occur even at very short distances. Repeater contains radio module which only repeats (retransmits) received data in both directions. It is also supplied from non-rechargeable replaceable lithium battery which is sufficient for approximately 1 to 2 years of operation.

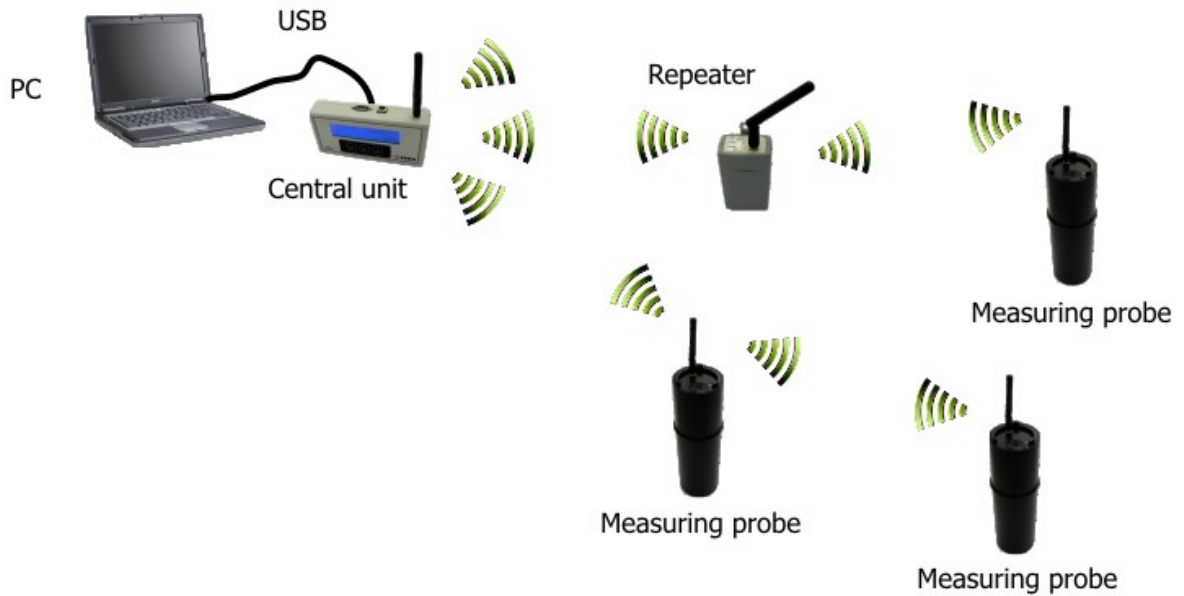
***Attention! For setting and controlling of Repeater it is essential to have wireless Central Unit in system, see <http://www.tesla.cz/>. Central Unit is not included with package of TRR2 and it is sold and delivered extra.***

Setting and configuration of TRR2 Wireless Repeater and whole system is also managed by connected computer to Central Unit and TERAvie application on PC.

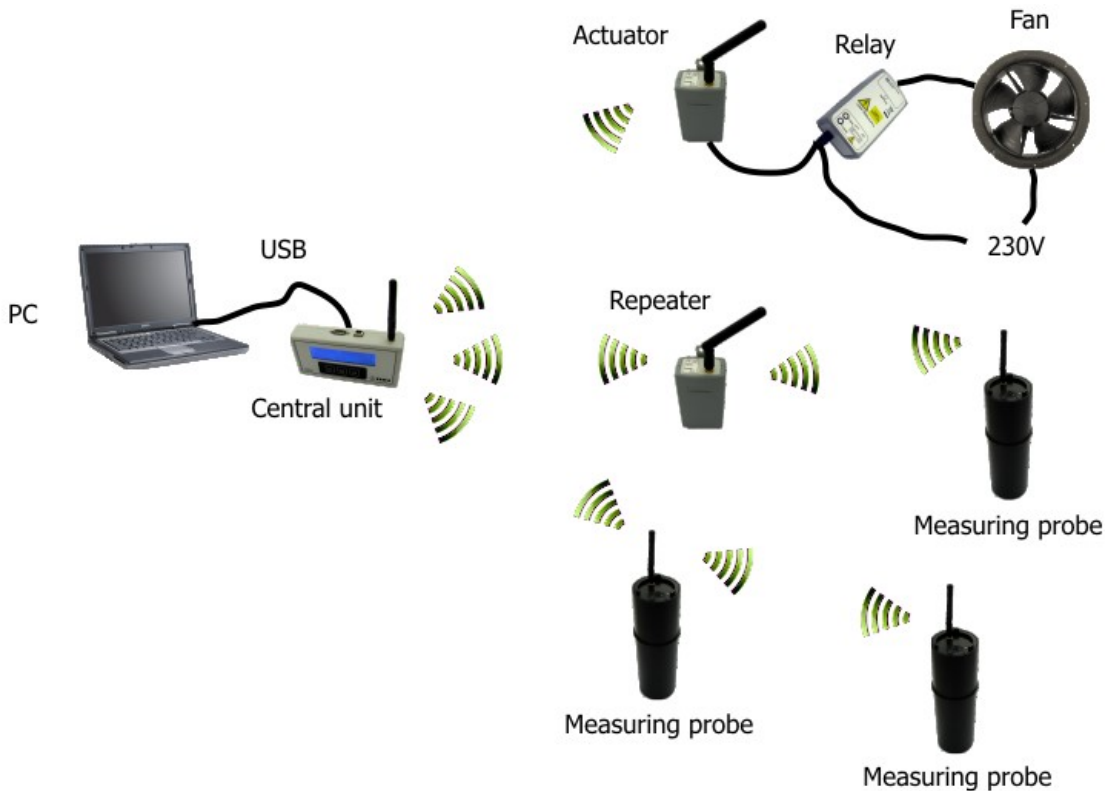
TERAvie application, drivers and user manual with detail configuration description is free downloaded on website: <http://www.tesla.cz/>.

TRR2 Wireless Repeater can be used in these systems:

- A) TERA System for Radon Concentration Measurement (Figure 1)
- B) TERA System for Regulating Radon Concentrations (Figure 2)



**Figure 1 - TRR2 Wireless Repeater in TERA System for Radon Concentration Measurement**



**Figure 2 - TRR2 Wireless Repeater in TERA System for Regulating Radon Concentrations**

Regulating system diagram description - Radon measuring probes located in building transmit their current radon concentration values to central unit wirelessly. Central unit analyzes this information and on the basis of measured (set) concentration level value it sends wireless command to actuator which is hardwired with power relay. Power relay switches on a fan which decreases radon concentration within an area. After decreasing of radon concentration, actuator receives a command to switch off the fan. This cycle repeats depending on increasing or decreasing volume activity of radon in building.

Repeater is random for location in measured property so that longer radio range is reached in wireless net. In case of time continuous radon concentration measurement or in case of setting in regulation system Repeater must be placed in optimal distance from Central Unit. Distance (radio range) between TRR2 and central unit is up to 600 m in open space. In buildings it depends on number of walls, building material, etc. Strength of radio signals (RSSI) is monitored by Central Unit.

### 3 Scope of Delivery

- The TRR2 Wireless Repeater
- 3.6 V Li-Ion battery
- Antenna
- Operation Manual

### 4 Product Specification

Product	The TRR2 Wireless Repeater
Type symbol	042 127 169 000
Radio interface	868MHz
Power supply	Li-Ion battery 3.6 V, 2.6Ah
Battery life	>2 year

TRR2 has distance (radio range) up to 600 m in open space. In buildings it depends on number of walls, building material, etc.

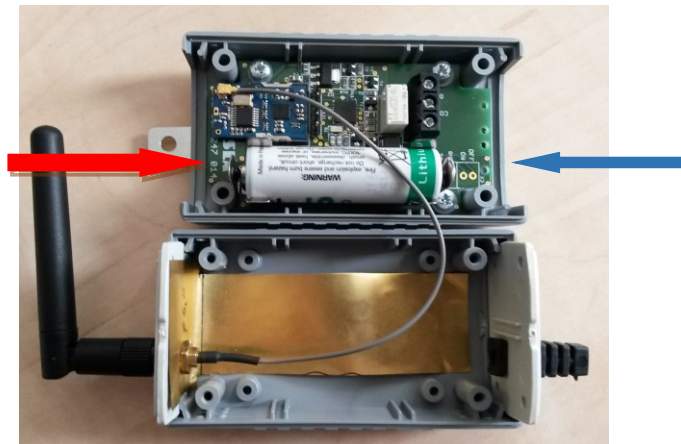
Battery: SAFT LS 14500 3.6V, 2.600Ah (or equivalent)

### 5 Operating Instruction

#### Switching on:

Remove screws and housing and insert battery (see figure below, red arrow indicates positive pole, blue arrow indicates negative pole). Inserted battery switches Repeater on. Reinstall housing and screw in the screws. Reverse the procedure to switch the device off or for battery replacement.

When installing antenna, hold antenna by knurled end.



#### Configuration:

Setting and configuration of Repeater and whole measuring system is realized by Central Unit connected to PC and TERAvie application. Central Unit is not included with package of TRR2 and it is sold and delivered extra; see <http://www.tesla.cz/>.

TERAvie application, drivers and user manual with detail configuration description is free downloaded on website: <http://www.tesla.cz/>.

For successful retranslator configuration in measuring system it is necessary to know retranslator radio channel number (communication wireless channel) and P2P address (identification in wireless net). Both parameters are printed out on retranslator serial number plate. Retranslator radio channel number is possible to change by TERAvie application and it must be identical to central unit radio channel number. P2P address is permanent and it occur in one big wireless net only once. P2P address of Central Unit can be identical to P2P address of other elements in network.

## 6 Basic Maintenance

### Battery replacement:

Current battery charge status of Actuator can be monitored wirelessly by Central Unit (see 'Operating instruction/Configuration'). In case of low battery capacity Central Unit displays warning message.

To replace discharged battery see paragraphs 'Operating Instructions / Switching on'. Replace it with appropriate battery type (see 'Product Specification'). Batteries can be ordered from TESLA manufacturer or distributor (see 'Accessories').

## 7 Repairs

Any repairs and non basic maintenance must be performed exclusively by Tesla manufacturer.

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## 8 Warranty

This product is covered by warranty of 24 months from purchase date.

In case of warranty claim, please contact our Service Department.

Warranty covers any defects in materials or workmanship and excludes any damage resulting from or caused by transport or handling or by any misuse.

Warranty ceases if product has been used improperly or its seal is broken.

In case of warranty claim, warranty period is prolonged by number of days the product was undergoing warranty repairs.

After the end of its life, product must be handled as e-waste.

## 9 EC Declaration of Conformity

EC Declaration of Conformity will be delivered by Tesla producer on request. If interested, please use contacts on web sites [www.tesla.cz](http://www.tesla.cz).

## 10 Accessories

TRR2 Wireless Repeater accessories is available at producer [www.tesla.cz](http://www.tesla.cz) or distributor.

**Reserve antenna**



**Reserve battery**



## 11 Revision History

Revision	Date	Comments
Rev.1:	22. 7. 2015	Initial release
Rev.2:	30. 4. 2016	Extended release