Merya RTLS ®

RFID tags

Merya RTLS - RFID ®

presentation

0.0.2018

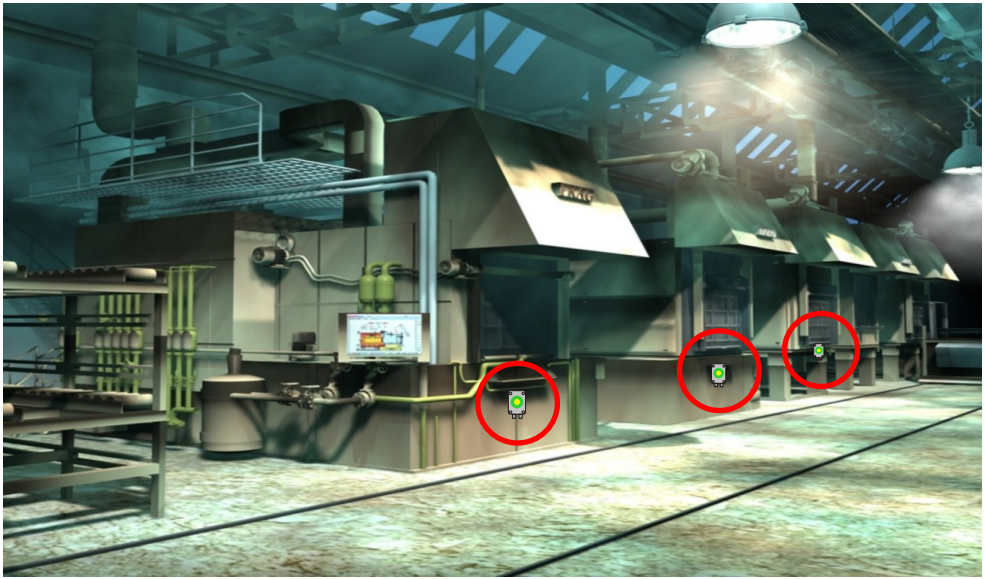
new

business presentation

review: 24.5. 2019

About...

- System for help calling certified to the highest fourth category level according to EN
- RTLS monitoring of people in given object



Personal safety tags

RLK-07ns

RLK-07ps

RLK-07ps

tag RLH-06b

tag RLH-06b

0.0.2018
new

Personal safety tag RLK-07

- to monitor the position of the person (where he / she is)
- immobile person sensor
- IP 66, water resistant
- battery life approx. 1 year (with motor very low)
- the batteries are customizable
- variant embodiment

RLK-07ns

15.3.2018
new

Variant product desig RLK-07n

typ	Variant product	tag equipment	note
RLK-07n	wrist bracelet		IP66, material: ASA + TPE + Silikon
RLK-07ns	wrist bracelet	SOS button, LED	IP66, material: ASA + TPE + Silikon
RLK-07nsr	wrist bracelet	SOS button, LED, vibratory motor	IP66, material: ASA + TPE + Silikon
RLK-07p	hanging or (1) clip		IP66, material: ASA + TPE
RLK-07ps	hanging or (1) clip	SOS button,LED	IP66, material: ASA + TPE
RLK-07x	only PCBs		IP66, material: ASA + TPE

(1) ... The product contains both options. The user chooses to use.

RLK-07ns

RLK-07ps

RLK-07ps

15.3.2018

new

Variant product desig RLK-07n

RLK-07n

RLK-07p (ps)

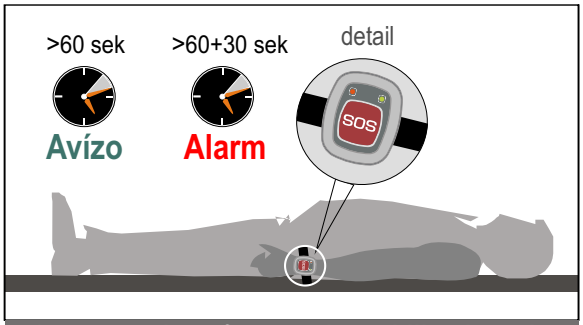
RLK-07p

15.3.2018

new

Personal safety tag RLK-06n

The example of the alarm situations



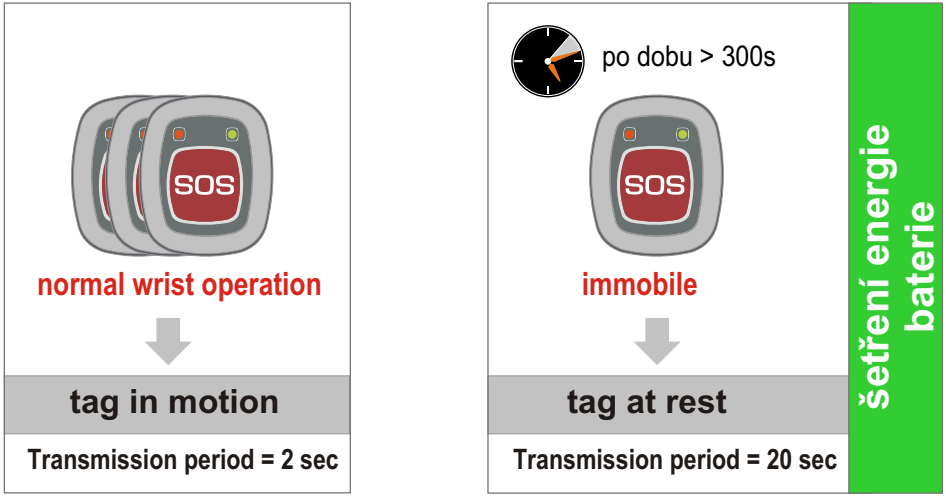
demonstration of person immobility detection

sample SOS call

15.3.2018
new

Use battery saving eco mode to conserve battery power

The biggest impact on battery life has a tag transmission period. Due to the fact that, at the time the tag is not in use, it can be automatically switched to standby mode when it broadcasts up to less frequent, saving energy and extending battery life.



15.3.2018
new

Personal safety tag RLH-06b

- for monitoring of position of wearer
- detection of lying person
- detection of immobility (man down)
- detection of free fall from height
- SOS button for calling help
- pre-alarm indication by vibration engine
- robust design for attaching to working clothes
- battery lifetime according to configuration and usage

fig. 5 - tag RLH-06b

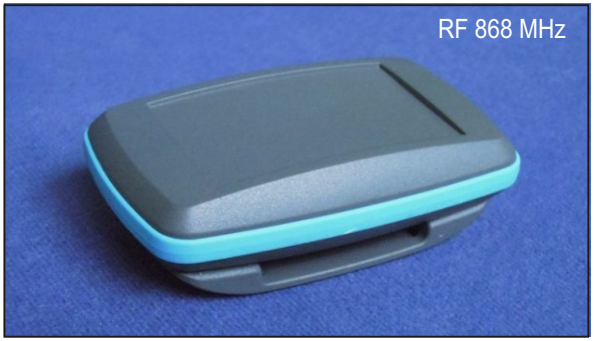
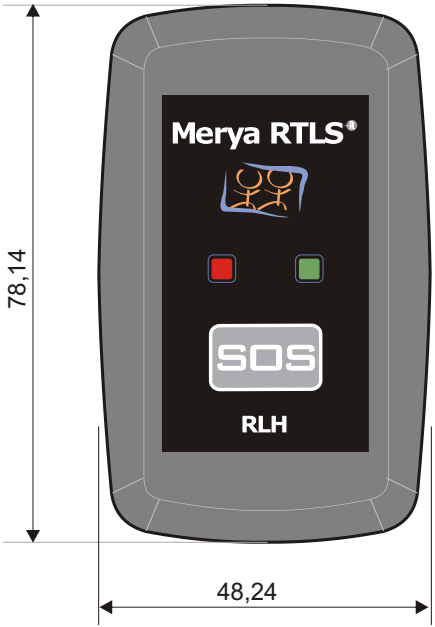


fig. 6 - tag RLH-06

Personal safety RLH tag - placement at working clothes

fig. 7 - RLH tag at arm

fig. 8 - RLH tag at belt



Detection and indication of main alarm scenarios

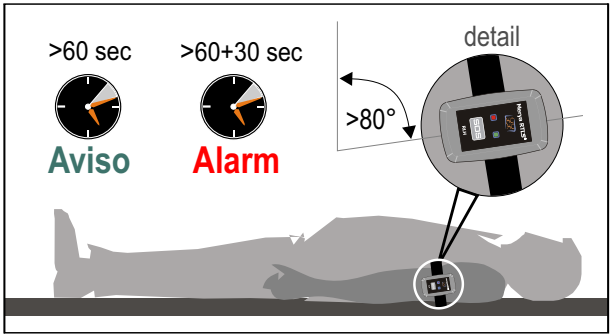


fig. 9 - detection of lying person with use of RLH

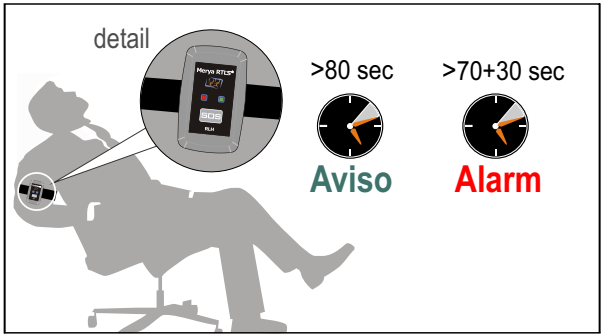


fig. 10 - detection of immobile person with use of RLH

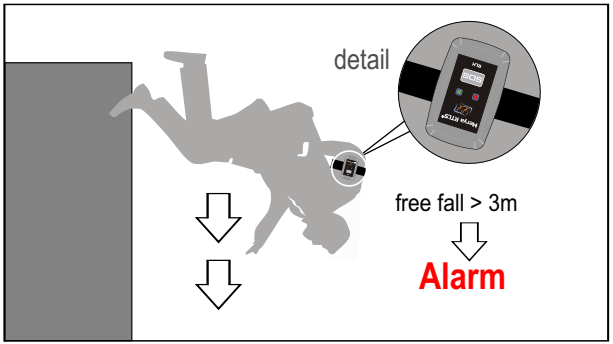


fig. 11 - detection of free fall with use of RLH

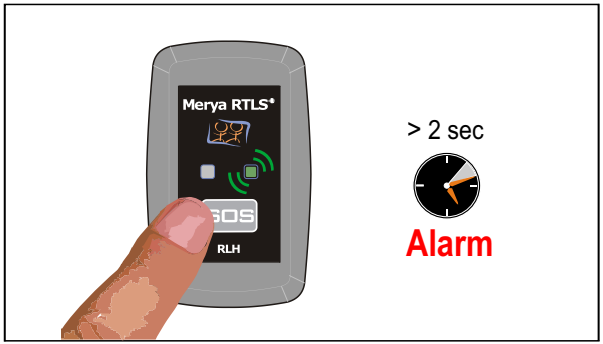


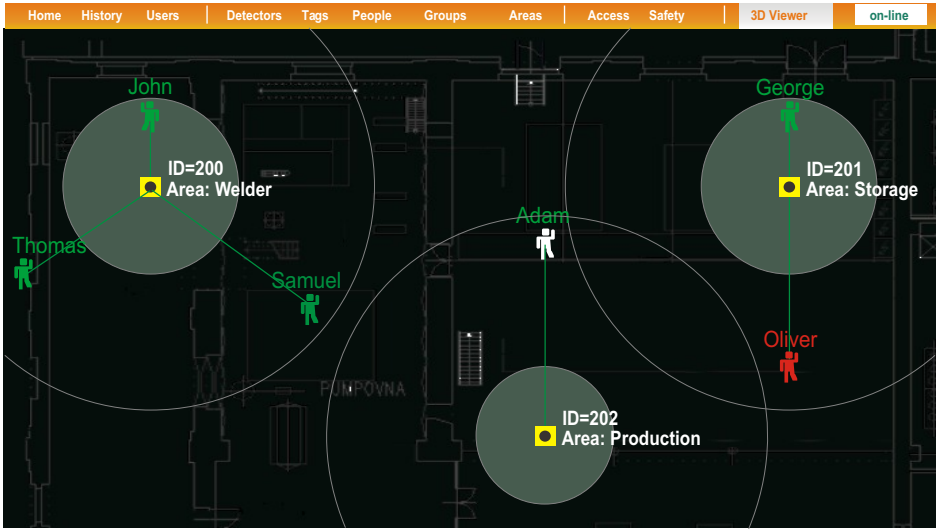
fig. 12 - detection of SOS call

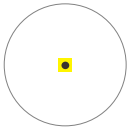
Graphical visualization (3D): with use of detectors

Monitoring of people (items) inside buildings (or outside buildings and on roofs) can be visualized with use of information from radio detectors RLS. Localization inside buildings is done with use of RLS-05 detectors, which are equipped by radio communicator.

Graphical visualization of position of person in area of RLS detector

In case, that person is in radio range of RLS detector, system will show it at the detector, which hears it best (at closest detector). In case, that there is only one person at detector, it is shown at “the twelfth hour”. If there are more people at detector, they are regularly spread at perimeter of bubble. Line segments between icons are shorter for people, who are closer to detector (detector gets their RF signal stronger) and vice versa. People, who are in the defined range (inside bubble), are displayed by green or red color depending on their authorization. People, who are outside bubble, are displayed by white color.





radio range of detector
given by antenna type

Bubble - user defined range of detector
given by parameter “Range” in agenda Detectors / Edit

Indication of state of person in 3D Viewer (above ground plans of object)

3D

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name of wearer

event indication


standard state

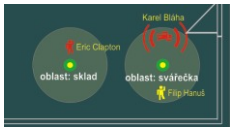

immobility


lean


immobility + lean


free fall

SOS call



background is PNG image

mode indication


standard state


bypass of safety guarding


Aviso


Alarm

position indication


person outside of areas


person in area is authorized


person in area is unauthorized

owner's type

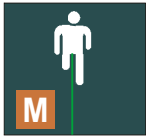

man


woman


car

communication indication

Mobil nemá déle než 1 min aktualizovanou GPS souřadnici



Tag není fyzicky v bublině tohoto detektoru, ovšem je v této oblasti zapamatován

Tag nebyl fyzicky (1) již 50 minut v jakékoliv bublině

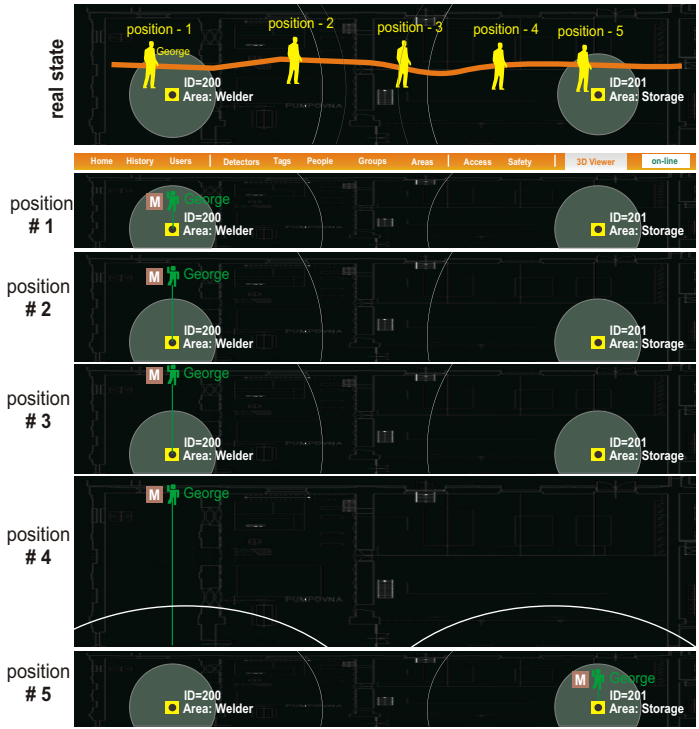
note: icon is in right bottom corner of screen


Tag není v rádiovém dosahu žádného detektoru nebo nevysílá

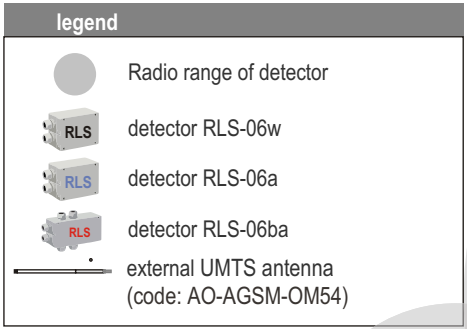
(1)... přesto, že může být v bublině zapamatovaný !

Graphical visualization of memorized position of person in area of RLS detector

System can achieve high stability and information function by “memorizing” presence of tag in defined range of detectors. Bubbles are usually quite small in this case and detectors are placed at key spots in building. System remembers last detector, where the person was and this person virtually stays in this area until it gets to area of another detector.

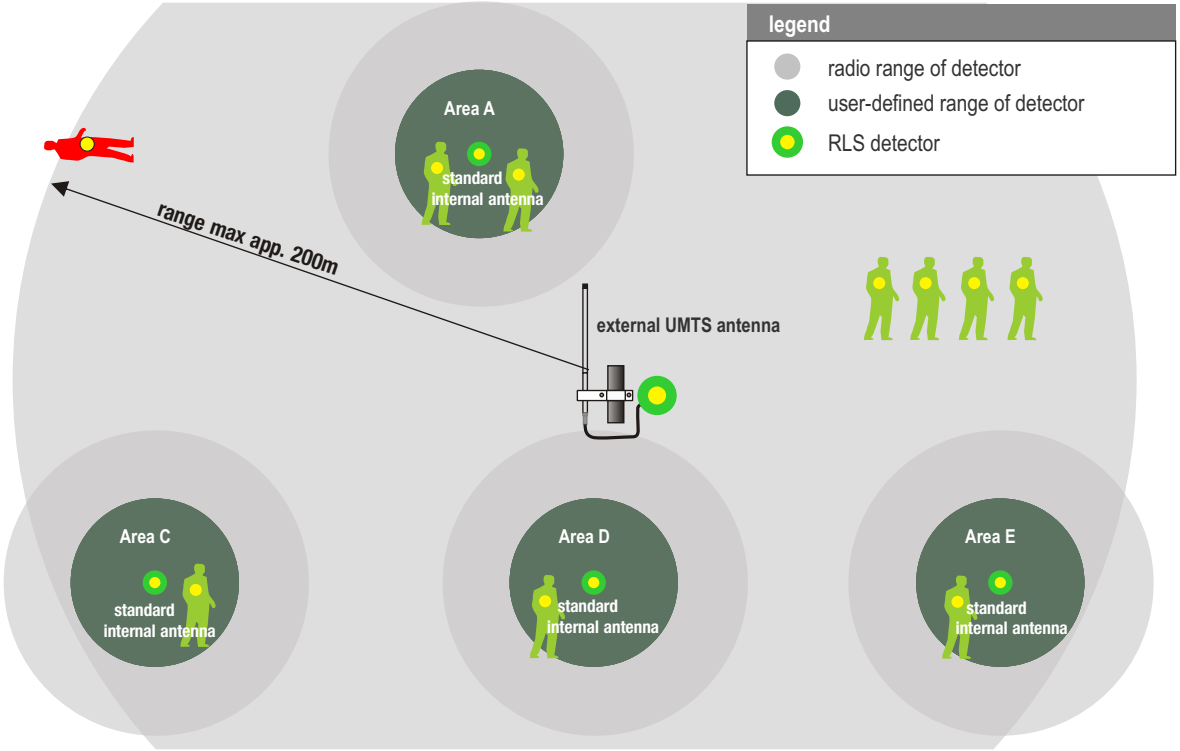


Radio range of RLS detectors



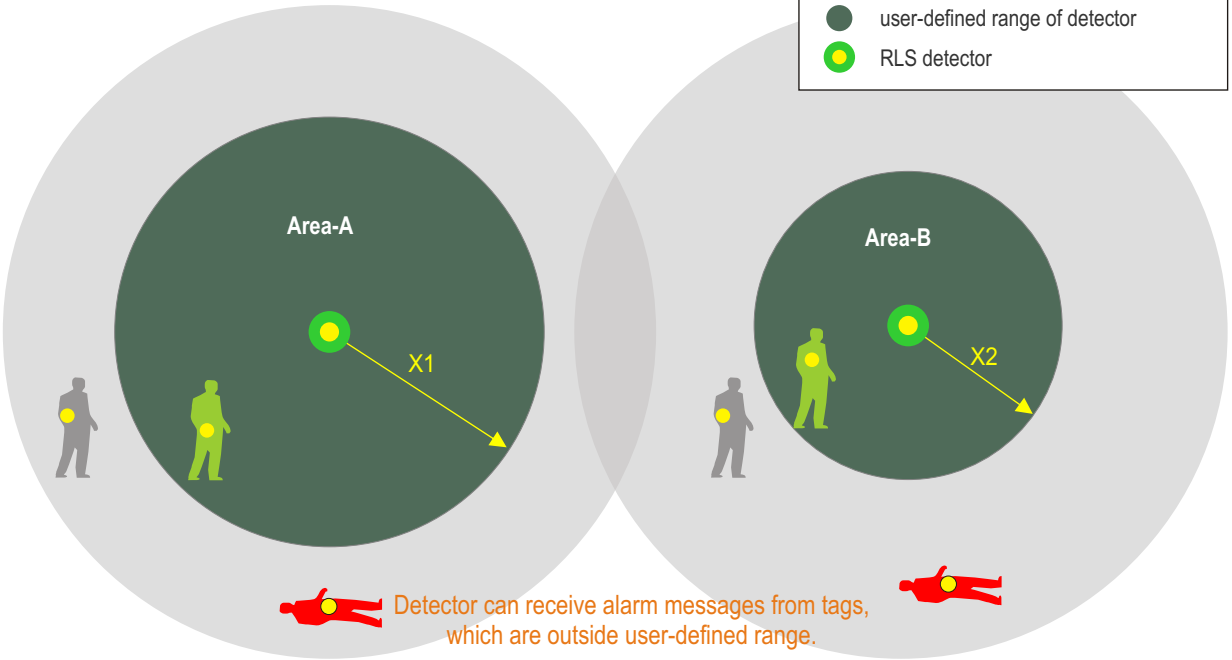
External high gain UMTS OMNI antenna is powerful **all directional** antenna. It is used for receiving safety alarm messages from personal tags at long distance. This antenna can be attached to RLS-06a detector or to monitoring unit FLM.

Radio range of RLS detectors



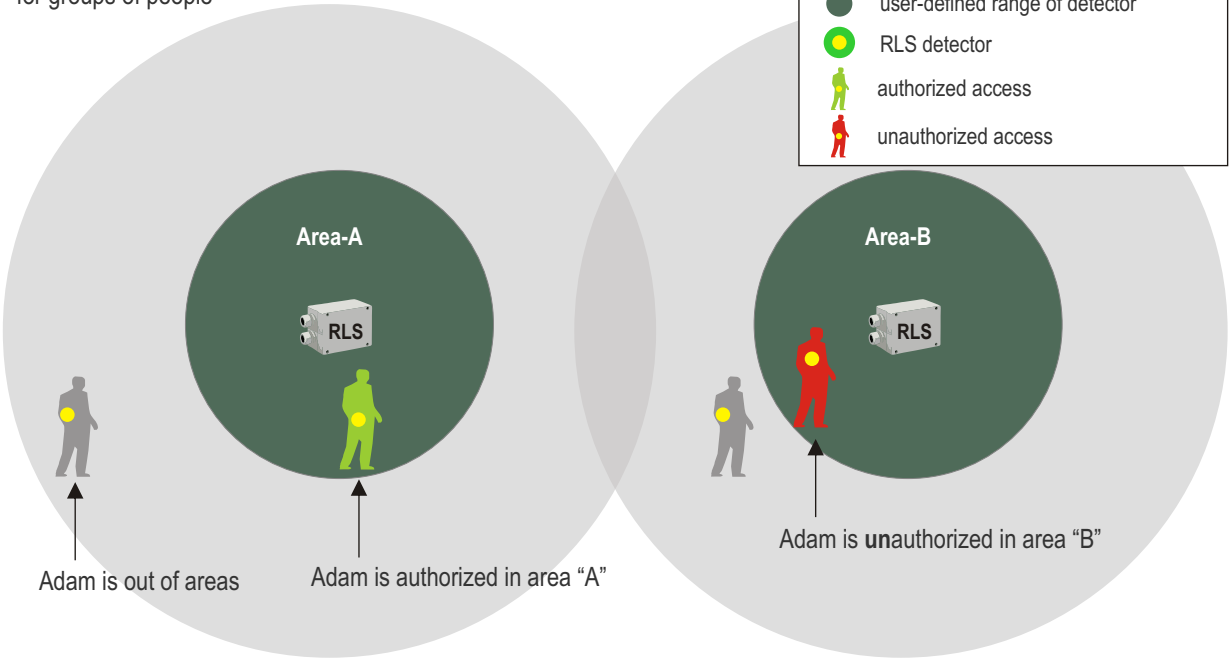
Definition of size of area (user-defined range)

Size of areas (X1, X2) can be defined by user.



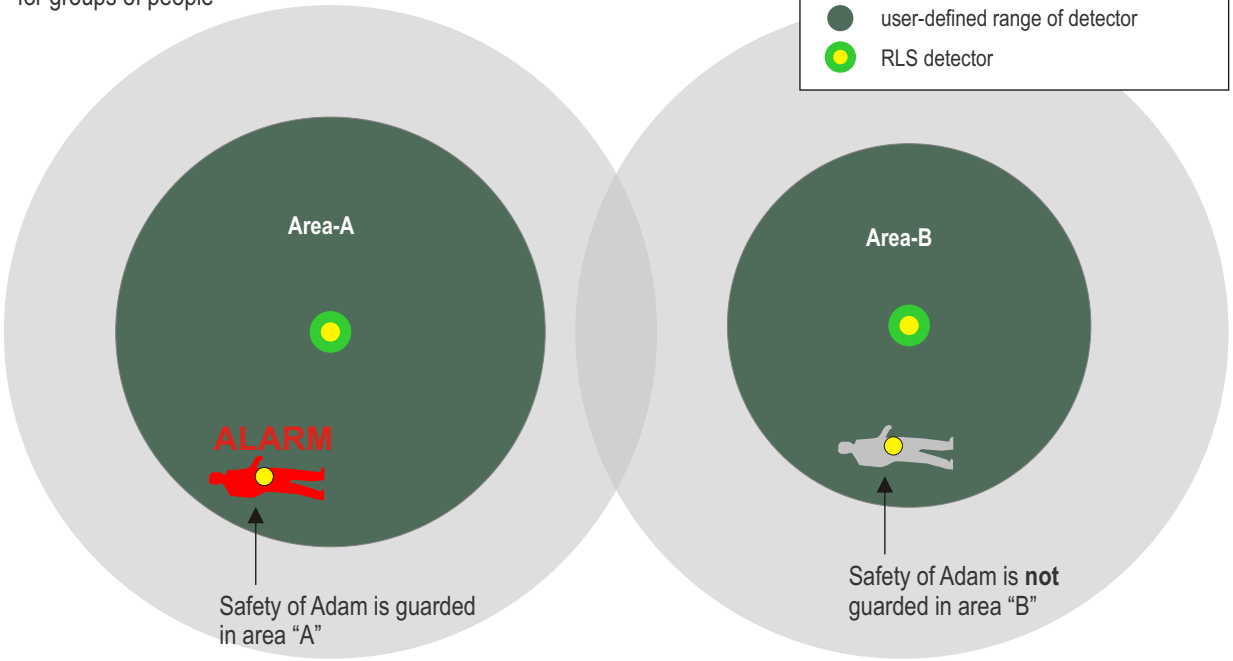
Definition of authorization of access to areas

Authorization of access can be defined by user
- for each person individually
- for groups of people

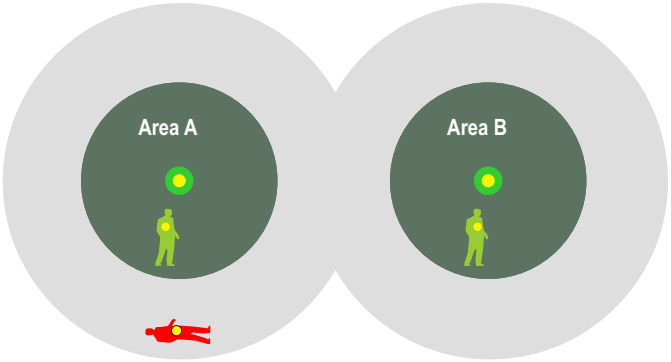


Definition of safety guarding

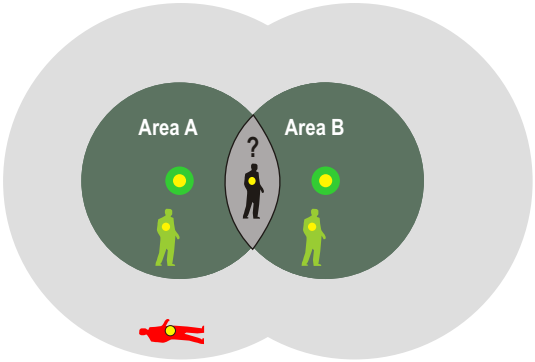
User can choose, in which areas safety is guarded and in which areas not.
- for each person individually
- for groups of people



Correct design



Wrong design!!



legend
radio range of detector
user-defined range of detector

review: 24.5. 2019

1. option: global monitoring

Installation - placement of RLS detectors

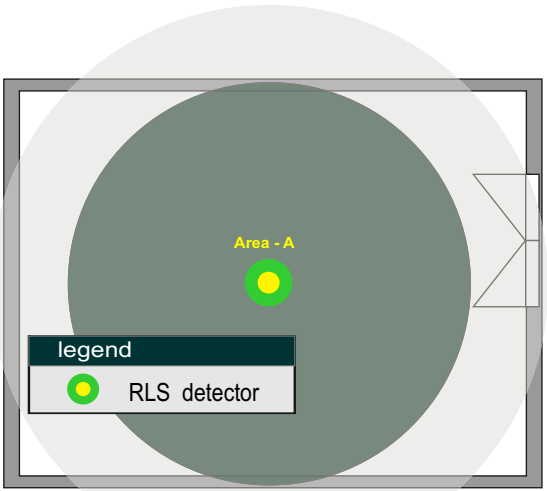


fig. 17 - ground plan - one room

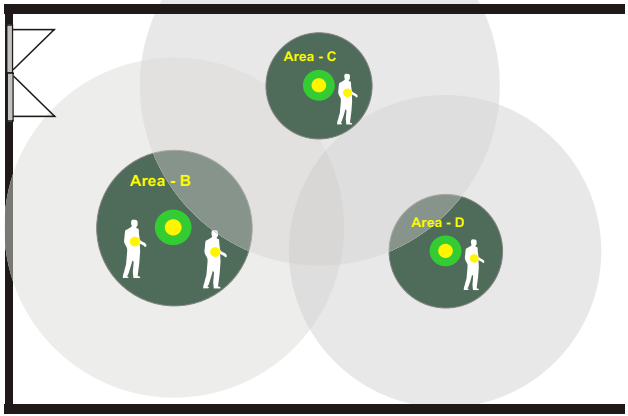
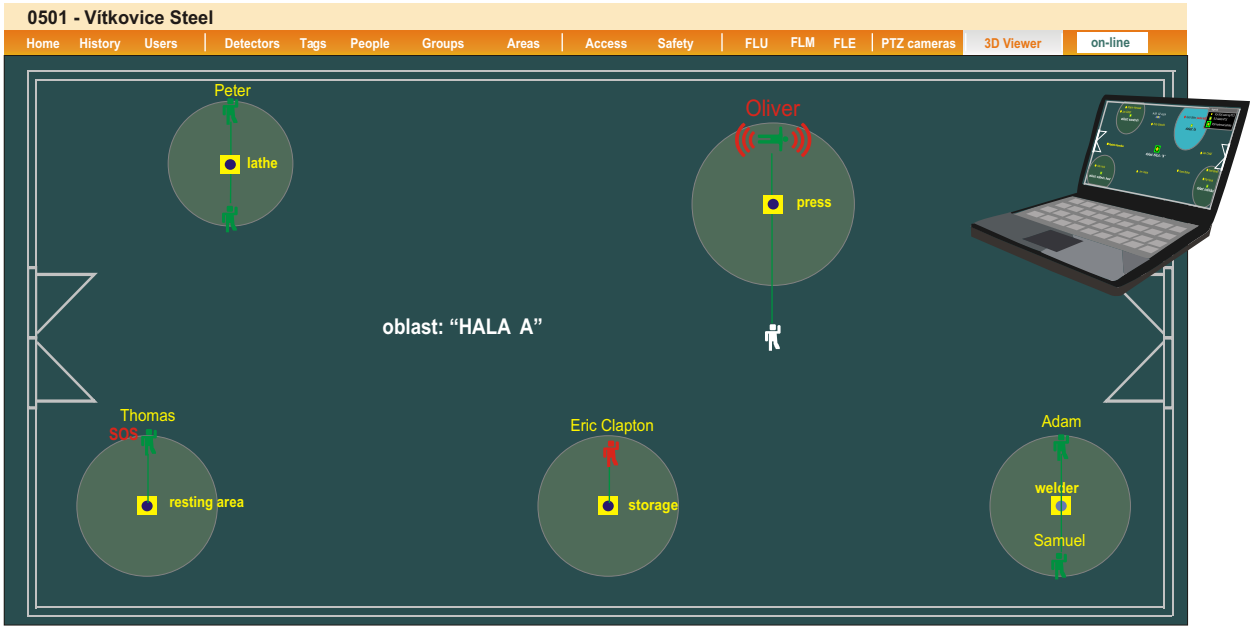


fig. 18 - ground plan - three workplaces in hall

RLS detectors are installed in rooms, in place of required detection (directly at working place, desk) or at ceiling to height less than 4m! In this option Merya RTLS system localizes on-line presence of people **only in areas, which are covered by the bubbles of RLS detectors (green circles)**.

1. option: global monitoring

Display at screen



2. option: monitoring of passes with direction detection

Installation - placement of RLS detectors

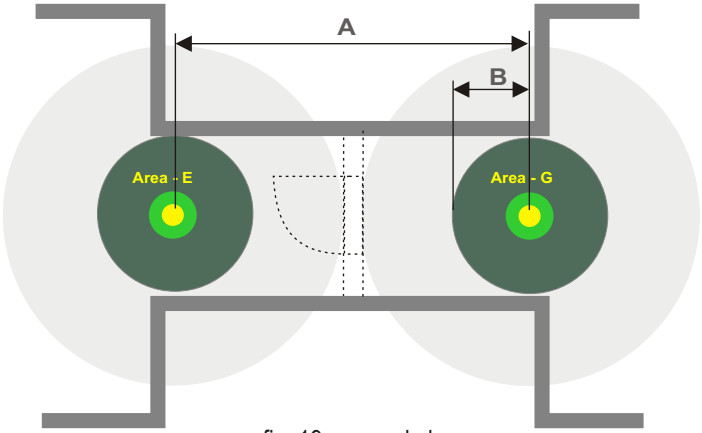


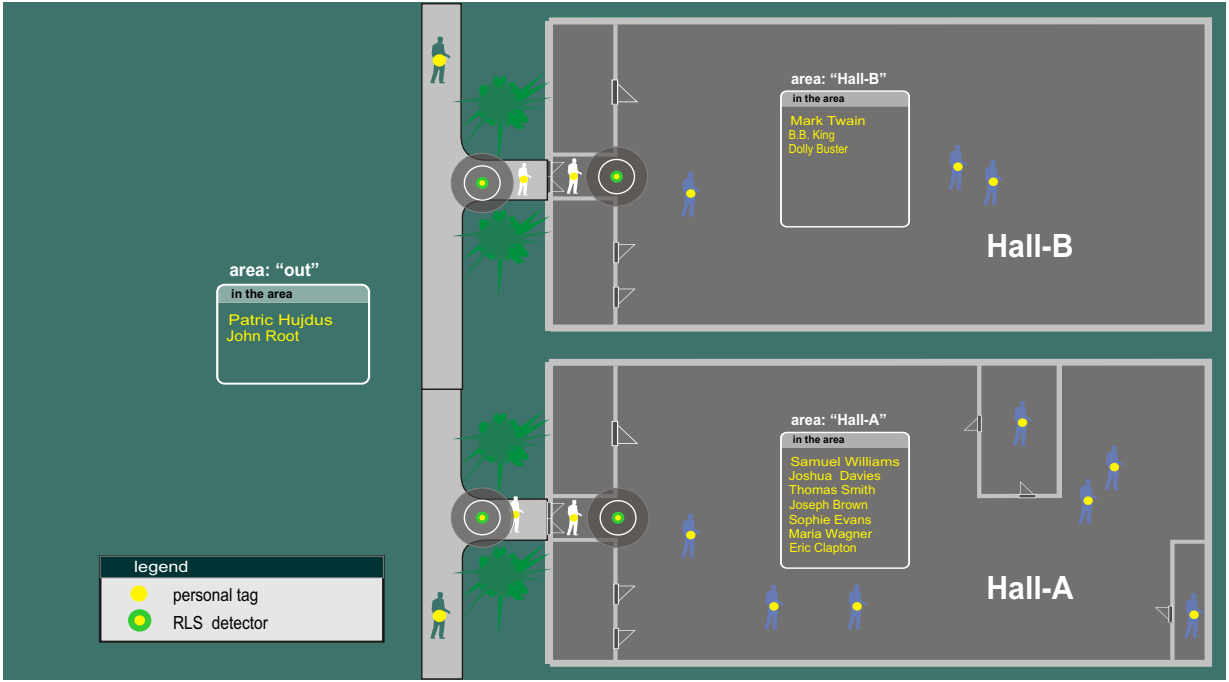
fig. 19 - ground plan

condition
a) distance: A > 5xB b) period of tags: 1 s

Detectors are installed before and after door in narrow passing area, where we want check passing and detect direction of passing. Detectors have to be enough far away from each other and installed directly at wall near gate or at ceiling to height less than 4m!
In this option Merya RTLS system localizes on-line presence of people **in areas, which do not need to be covered by the bubbles of detectors, but which have all entrances and exits monitored by detectors with mode "Remember presence in areas" turned on.**

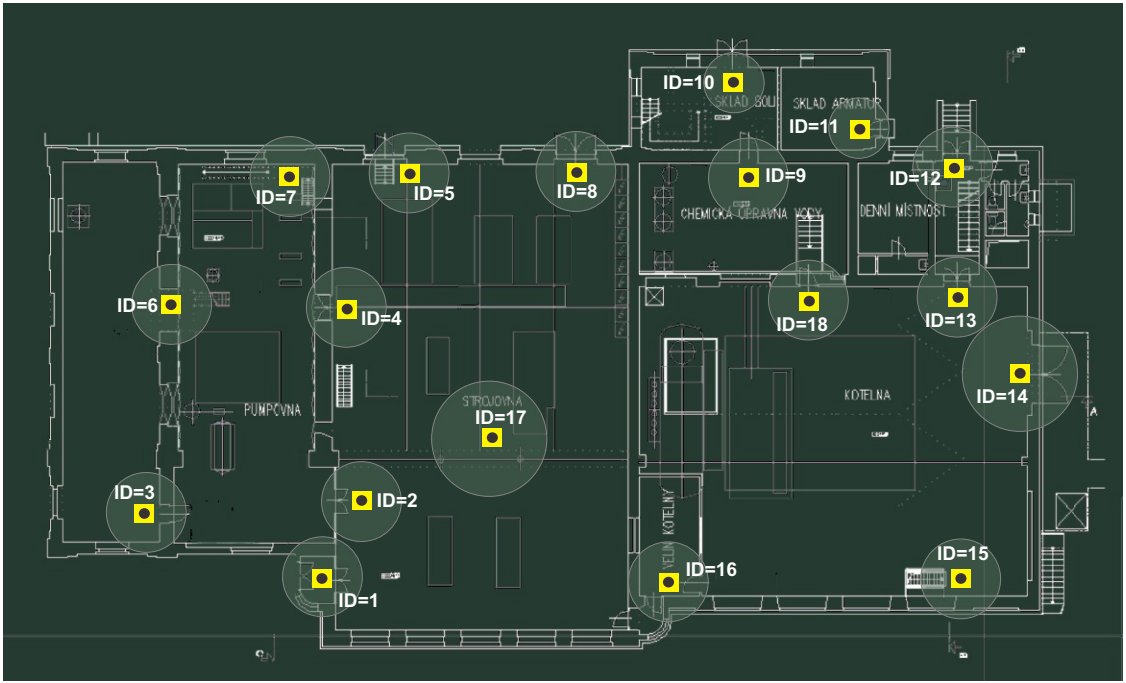
2. option: monitoring of passes with direction detection

Installation - placement of RLS detectors



3. option: monitoring of passes with memory

Installation - placement of RLS detectors



System limit

This information applies to one FLU central unit:
The maximum number of tags + detectors is **250 pcs**.
The maximum number of RLS detectors connected to one RLU unit is **20 pcs.**
The maximum number of RLS detectors connected to one FLM unit is **20 pcs.**
The maximum number of FLM units is **6 pcs**. (we are working on expansion)
The maximum number of FLQs is **8 pcs.**
The maximum number of FLE units is **8 pcs.**
The maximum number of areas is **80 pcs**. (we are working on extension)
The maximum number of SNMP communications declarations is **80 pcs**.
The maximum number of SNMP clients is **3 pcs**.
The maximum of Ronyo-Server clients is **3 pcs.**
"FLA battery low" event for RLK-07 **<2.2V**

RLS-07a detector

fig. 20 - RLSa detector

- detector of personal and industrial RFID tags
- range of detection can be defined by user
- communication and power supply through RS485 bus
- optionally wireless communication with system
- sensor of vibrations and tilt of detector, tamper
- 4x logical input (safety button, infra-red barriers, etc...)
- 2x logical output (speaker, el. lock, etc...)
- 1x analog input (0-12V)

RLS-07b, RLS-07ab detector

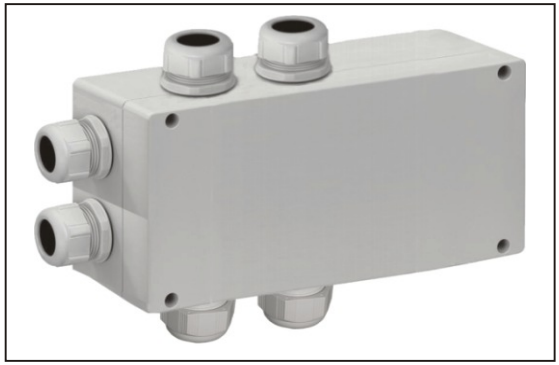


fig. 21 - RLS-06ab detector

- possibility of connection of Wiegand input device
- autonomous access system for one door
- power supply 8-28V, cov. IP66, -25°C / +70°C
- possibility of connection external UMTS antenna for very high radio range
  (only for RLS-05ba option)
- 6 grommets for cables
  (only for RLS-05b or RLS-05ba options)

16.4.2018
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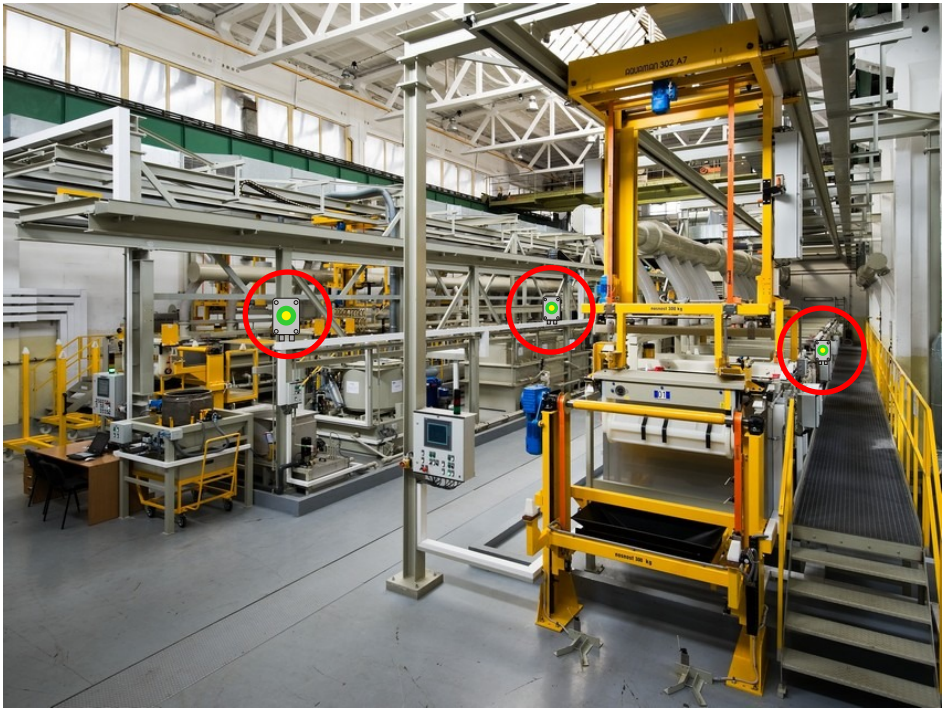
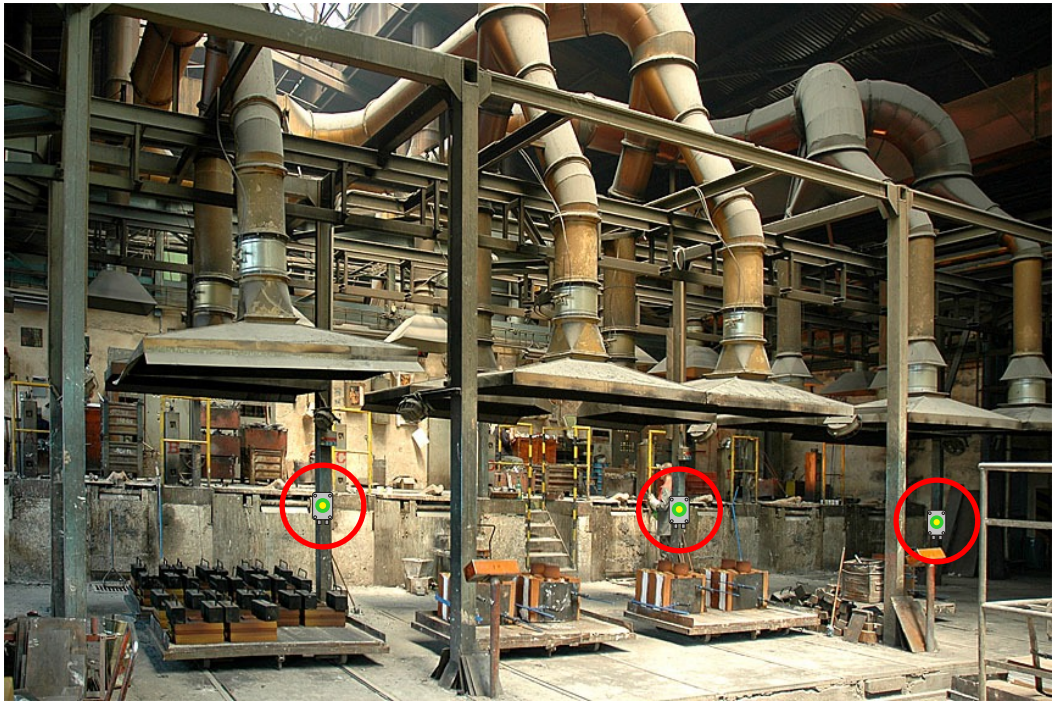
Installation of RLS detectors

working place in industrial environment



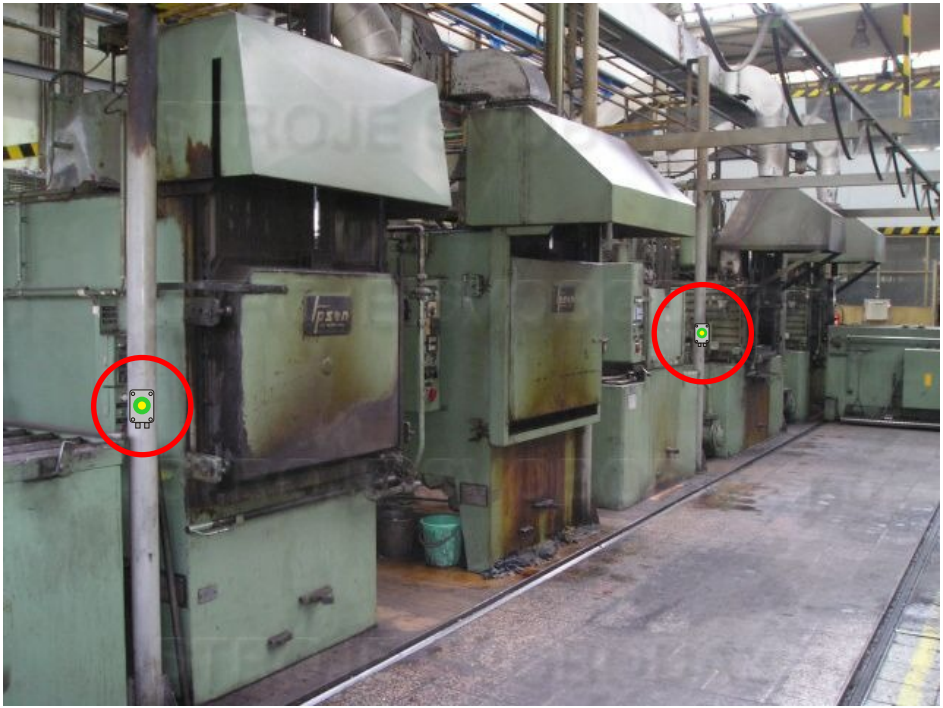
Installation of RLS detectors

working place in industrial environment



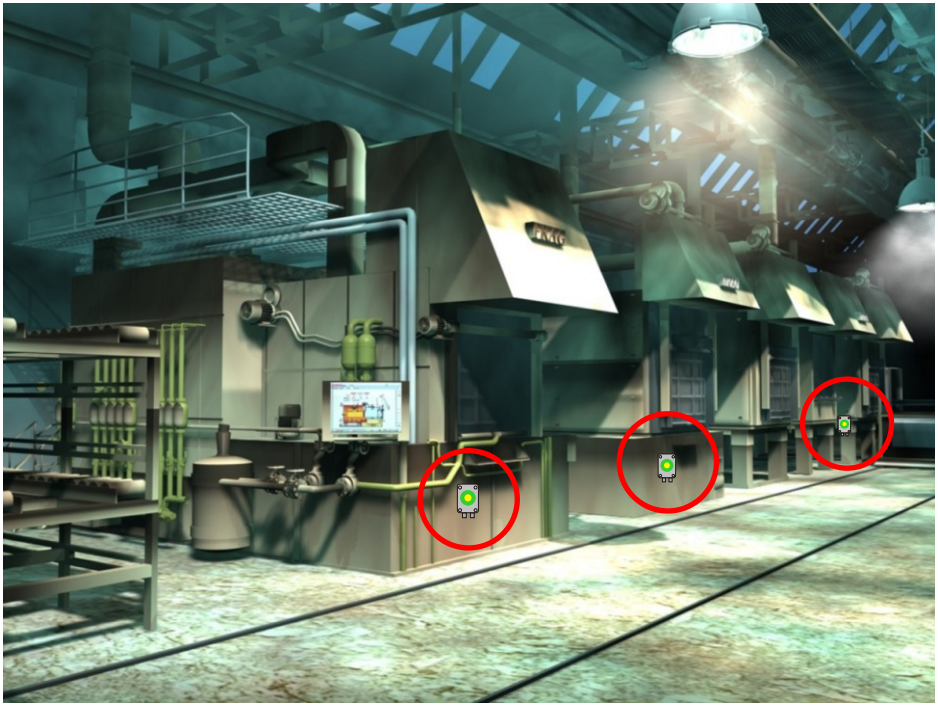
Installation of RLS detectors

working place in industrial environment



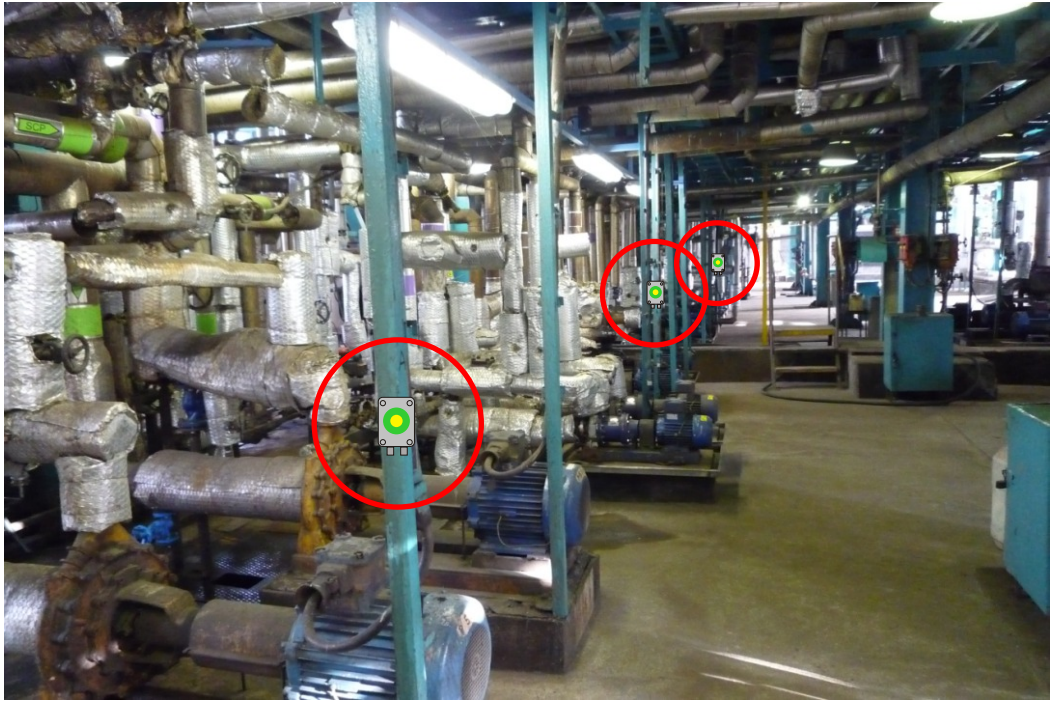
Installation of RLS detectors

working place in industrial environment

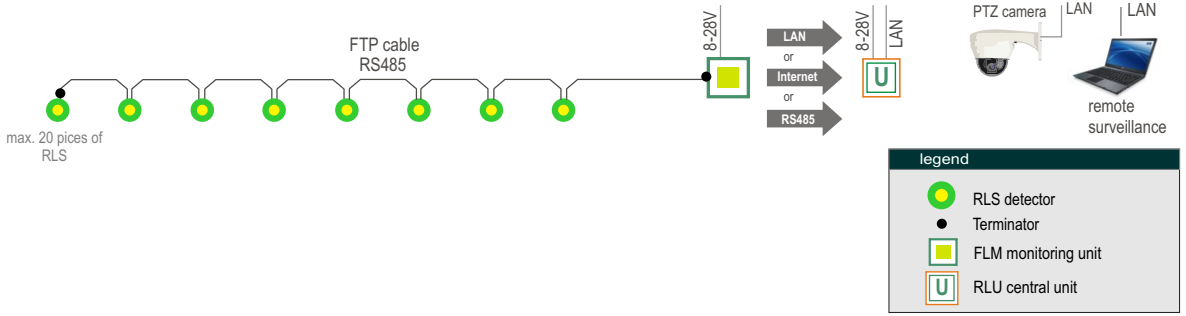


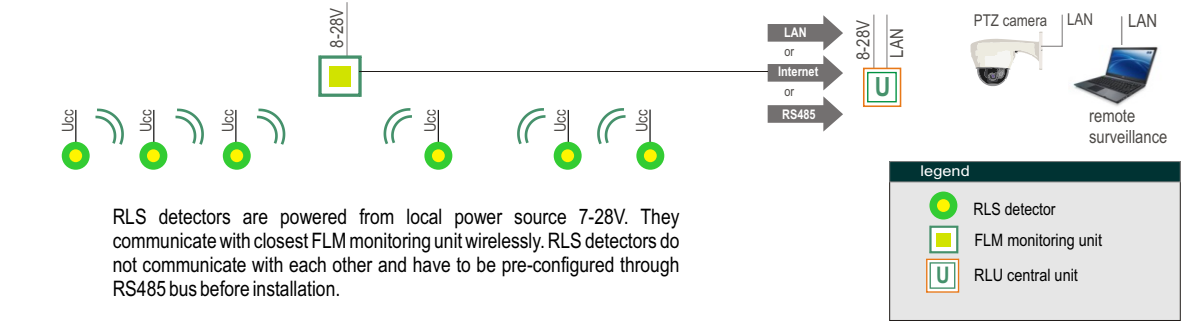
Installation of RLS detectors

working place in industrial environment



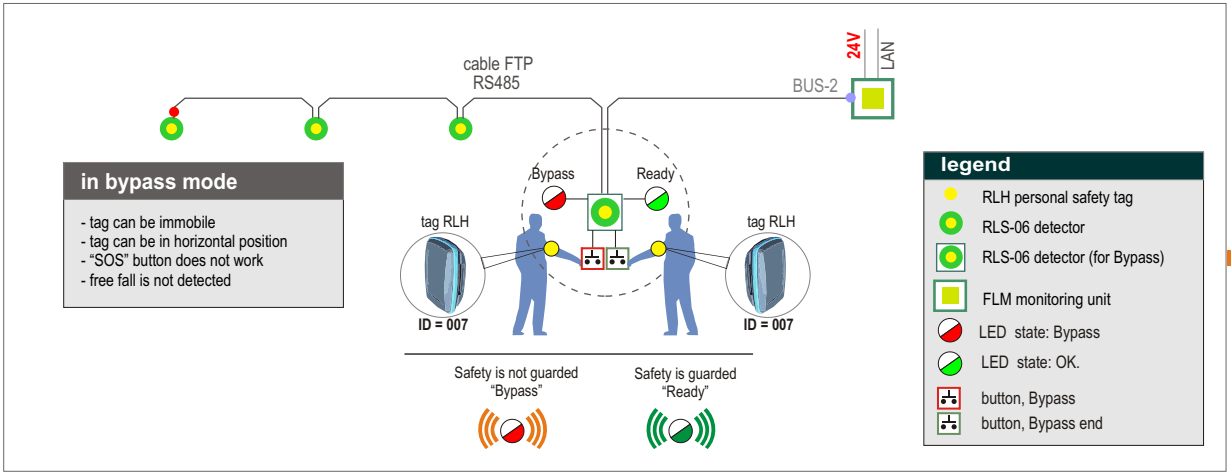
Architecture - RFID technology





RLS detectors are powered from local power source 7-28V. They communicate with closest FLM monitoring unit wirelessly. RLS detectors do not communicate with each other and have to be pre-configured through RS485 bus before installation.

Modules for bypass of safety guarding RLS-06w



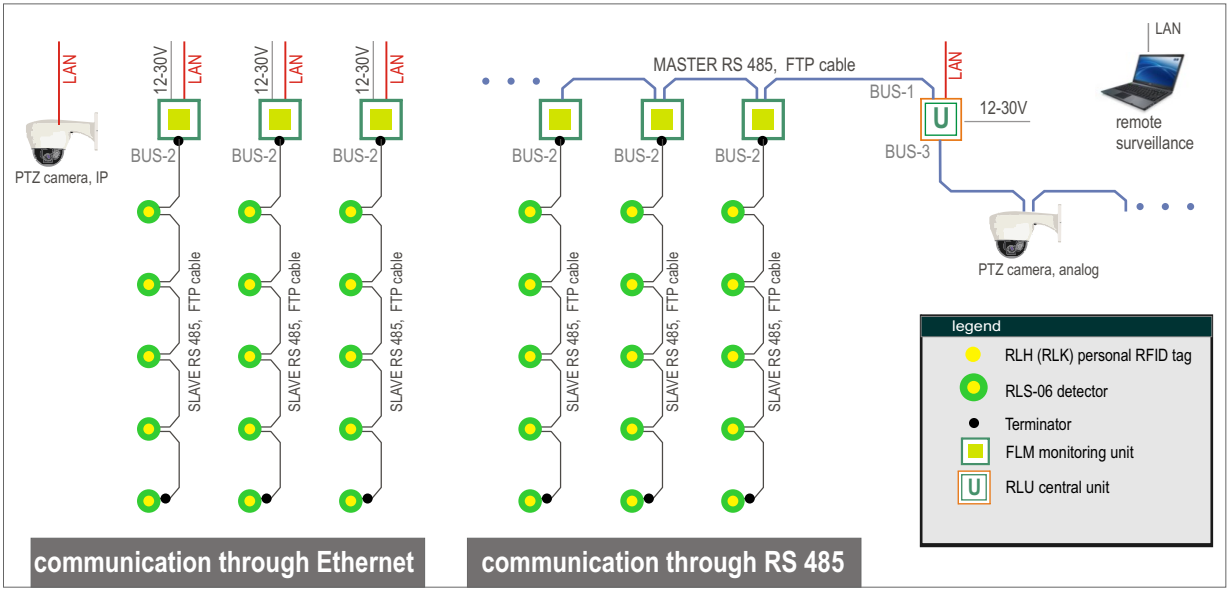
new

Guarded workers sometimes need to tell system request for bypass of safety guarding. Bypass of guarding is performed typically in dressing rooms, where people leave their tags after working hours. Bypass is performed by **RLS-06** detector, which is configured for bypass function with two buttons and two light indicators. If worker wants to bypass his tag, he places it close to bypass detector (0-30cm) and he presses red button as request for bypass. Red light will indicate successful operation (BYPASS). Tag will continue with its regular radio communication, but will not send alarm messages. Bypassed tag will remain in this mode until it is switched back to normal mode. If worker wants to switch tag back to normal mode, he places it close to bypass detector and he presses green button as request for guarding. Green light will indicate successful operation (READY).

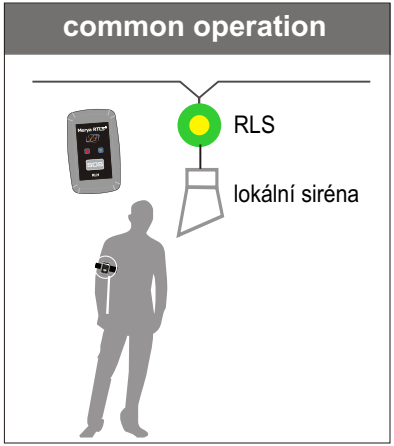
30.3.2018
new

Interconnection of monitoring units FLM + RLS detectors

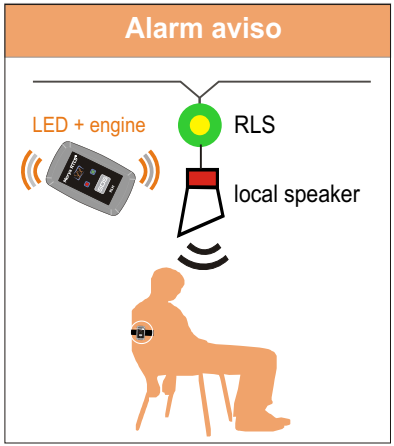
Monitoring units FLM can communicate with central unit either through Ethernet (LAN) or through RS485 bus, which serves also for power distribution to all modules. For each project one central unit RLU is required. Merya RTLS system does not require any computer or software at the installation site - all modules work like embedded devices. This feature also guarantees very high stability and reliability of whole system!



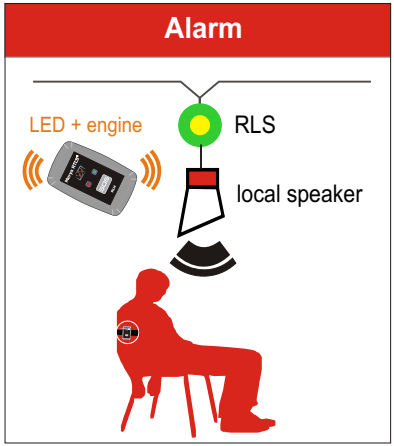
Local indication of pre-alarm (Aviso)



Common mode
In normal mode RLH tag has to be moving all the time (depending on set time) and has to be in correct (vertical) position.

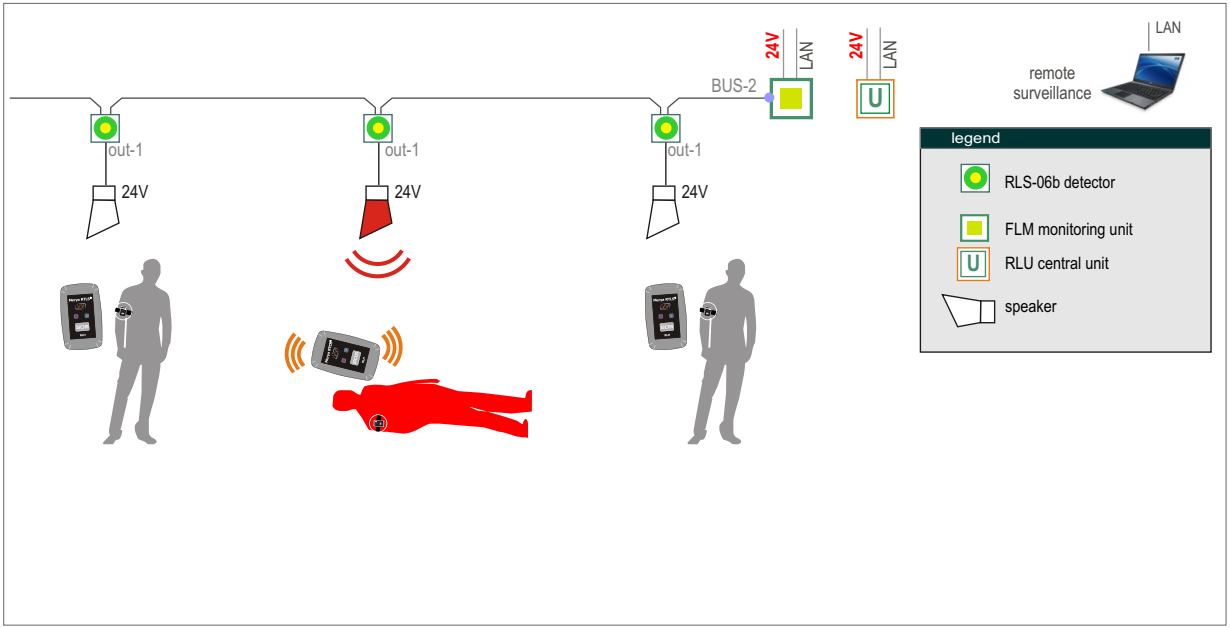


Alarm aviso
Aviso should warn person, who created such event. If person removes the reason of such aviso (for example it will start moving again), system terminates "Aviso" indication and does not switch to alarm state.



Alarm
All alarm scenarios are set, if real alarm appears. System can distinguish the alarm and aviso states and handle speaker differently.

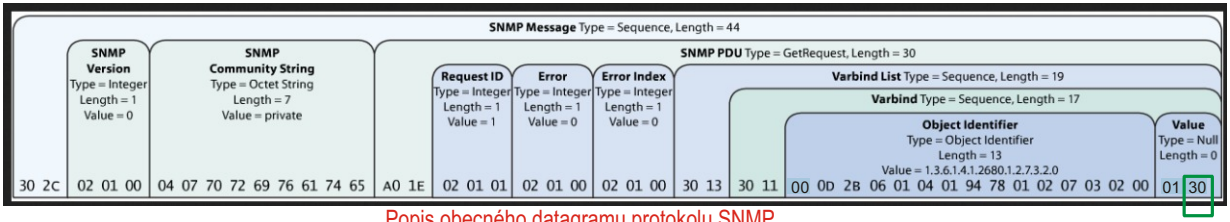
Local indication of pre-alarm (Aviso)



Integration of Merya RTLS to other overview SW systems

SNMP

Centrální jednotka umí v rámci sítě LAN - Internet (bez požadavku přijímací strany) posílat na udanou IP adresu **SNMP** datové zprávy v okamžiku, kdy nastane (ev. přestane) jakákoliv událost, kterou nakonfigurujeme v agendě I/O Zařízení. Max. možný počet SNMP výstupů (zpráv) je 80.



Popis obecného datagramu protokolu SNMP

Merya RTLS software allows integration to other overview SW systems. Communication with these overview systems is handled directly by central unit RLU. Central unit RLU sends realtime detailed messages about alarm events - for example: person is lying, immobility, free fall, SOS call, person in area, unauthorized persn in area, door passage, anonymous passage, etc...

On-line position of people in object

Merya RTLS: 0330 - Vitkovice Steel

Home | History | Users | Detectors | Tags | People | Groups | Areas | Access | Safety | RLU | FLM | FLE | PTZ cameras | 3D Viewer | Close | on-line

Configuration:
Surname: Dvořák
Name: Filip
Personal ID: PE 0042
Tag ID: 12 502

show following form:
○ Edit tags
◉ ON-LINE state of tags

on-line state of people

Operating states | Technical states

Number of shown records: 10

ID	Type	Person	WorkGroup	In the area	Authorization	Time	Movement	Lean	Alarm	Ucc bat.
12 501	RLH-06	Joshua Davies	Hardeners	Storage A	ok	25 min	ok	ok	ok	3.55 V
12 502	RLH-06	Thomas Smith	Hardeners	Foundry	ok	85 min	ok	ok	ok	3.54 V
12 503	RLH-06	Eric Clapton	Hardeners	Office	unauthorized	5 min	ok	ok	ok	3.55 V
12 504	RLH-06	Pelan	Hardeners	-	-	24 hours	ok	ok	ok	3.51 V
12 505	RLH-06	Kalandra	Founders	-	-	2 hours	ok	ok	ok	3.38 V
12 506	RLH-06	Joseph Brown	Founders	Storage B4	ok	25 min	ok	ok	SOS	3.02 V
12 507	RLH-06	Sam Williams	Founders	outside	ok	85 min	immobile	lying	ok	3.75 V
12 508	RLH-06	Sophie Evans	Founders	Storage B7	ok	12 min	ok	ok	ok	3.76 V
12 509	RLH-06	Maria Wagner	Founders	Foundry	ok	61 min	ok	ok	ok	3.52 V
12 510	RLH-06	Kubista	Founders	-	-	-	-	-	-	3.40 V

fig. 22 - User part - on-line screen

On-line position of things in object

Merya RTLS: 0330 - Vitkovice Steel

Home | History | Users | Detectors | Tags | People | Groups | Areas | Access | Safety | RLU | FLM | FLE | PTZ cameras | 3D Viewer | Close | on-line

Operating states | Technical states

Number of shown records: 10

ID	Type	Name	Group	In the area	Authorization	Time	Movement	Lean	Alarm	Ucc bat.
12 501	RLK	scanner A50		Hall A place 7	ok	25 min	immobile	ok	ok	3.55 V
12 502	RLK	scanner A54		Hall A place 4	ok	85 min	immobile	ok	ok	3.54 V
12 503	RLK	scanner A20		Hall A place 1	unauthorized	5 min	ok	ok	ok	3.55 V
12 504	RLK	scanner A1		Hall C place 7	-	24 hours				3.51 V
12 505	RLK	scanner A82		Hall C place 2	-	26 hours				3.38 V
12 506	RLK	printer T20		Hall A place 5	ok	25 min	ok	ok		3.02 V
12 507	RLK	printer T30		outside	ok	85 min	ok	ok		3.75 V
12 508	RLK	printer T33		outside	ok	12 min	ok	ok	ok	3.76 V
12 509	RLK	printer T34		Hall A place 7	ok	61 min	ok	ok	ok	3.52 V
12 510	RLK	printer T35		Hall B place 20	ok	5 min	ok	ok	ok	3.40 V

User can assign name or catalog number to tag, which is attached to valuable item. System monitors in which area item currently is, if it is authorized in given area, if it moves or if it is postponed, state of its battery, etc...

History listing

Merya RTLS: 0330 - Vitkovice Steel

Home | History | Users | Detectors | Tags | People | Groups | Areas | Access | Safety | RLU | FLM | FLE | PTZ cameras | 3D Viewer | Close | on-line

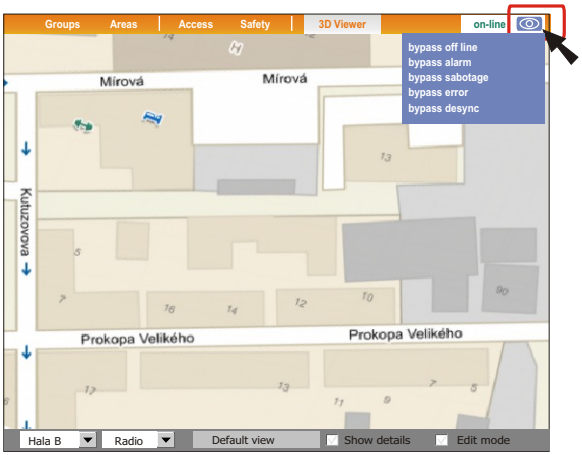
Filter
from: 2011-03-15 5:00
to: 2011-03-15 15:00
Category: history H1
Read from module to database
Read from database

Date	Time	Category	Status	Event	Person	Area	Detector	Authorization	Note
2011-03-15			#		Daniel Walker				
2011-03-15	6:00	detection	#	presence in area	Daniel Walker	entrance “A”	10 205	yes	by RSSI
2011-03-15	6:01	detection	#	presence in area	Daniel Walker	hall “A”	10 209	yes	by RSSI
2011-03-15	6:10	detection	#	presence in area	Daniel Walker	working area - “welder”	10 220	yes	by RSSI
2011-03-15	7:35	detection	#	lying person	Daniel Walker	working area - “welder”	10 280	yes	by RSSI
2011-03-15	7:40	detection	#	immobility	Daniel Walker	working area - “welder”	10 214	yes	by RSSI
2011-03-15	12:01	detection	#	presence in area	Daniel Walker	hall “C”	10 216	yes	by RSSI

fig. 23 - History listing of movement and states of Daniel Walker on 15.3.2011

Suppression of alarm display in 3D Viewer agenda

3D Viewer agenda allows turning off local indication (both visual and acoustic from PC) of several types of alarms. This option does not have influence on triggering logical alarm outputs or any other indication and communication properties of system. All disables are forgotten, if project is closed in RonyoServer software. All disables are effective only at the computer, where they were made.



Options

bypass off-line ..... if connection to RLU is not possible, the message is not shown
bypass alarm ..... safety alarms are not shown
bypass sabotage ..... sabotage events are not shown
bypass error ..... error events are not shown
bypass desync ..... desynchronization of perimeter in Varya Perimeter system is not shown

Example of possible settings:

Alarm system outputs

MERYA RTLS provides great variability of alarm outputs and alarm scenarios.

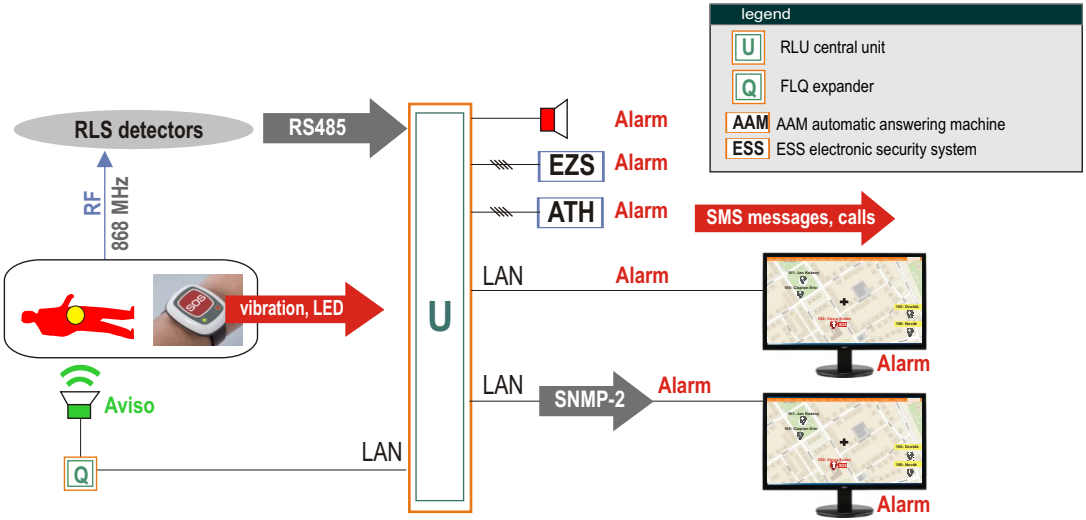
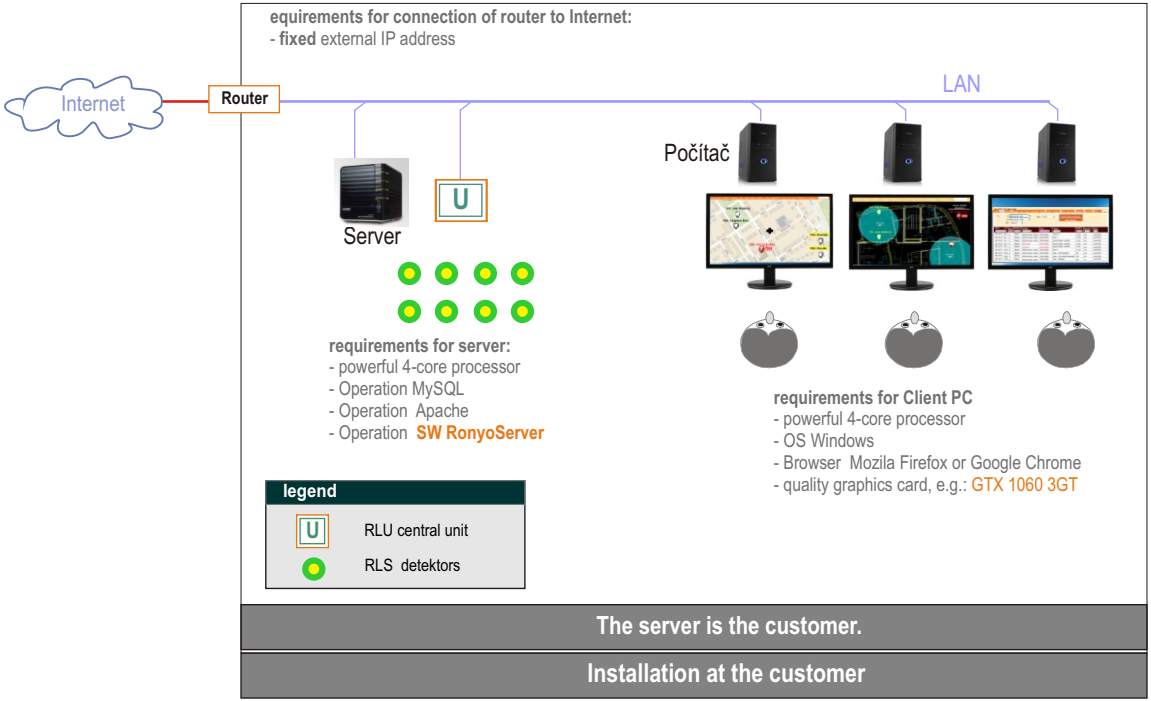


Fig. - Architecture of alarm outputs

15.5. 2018
new

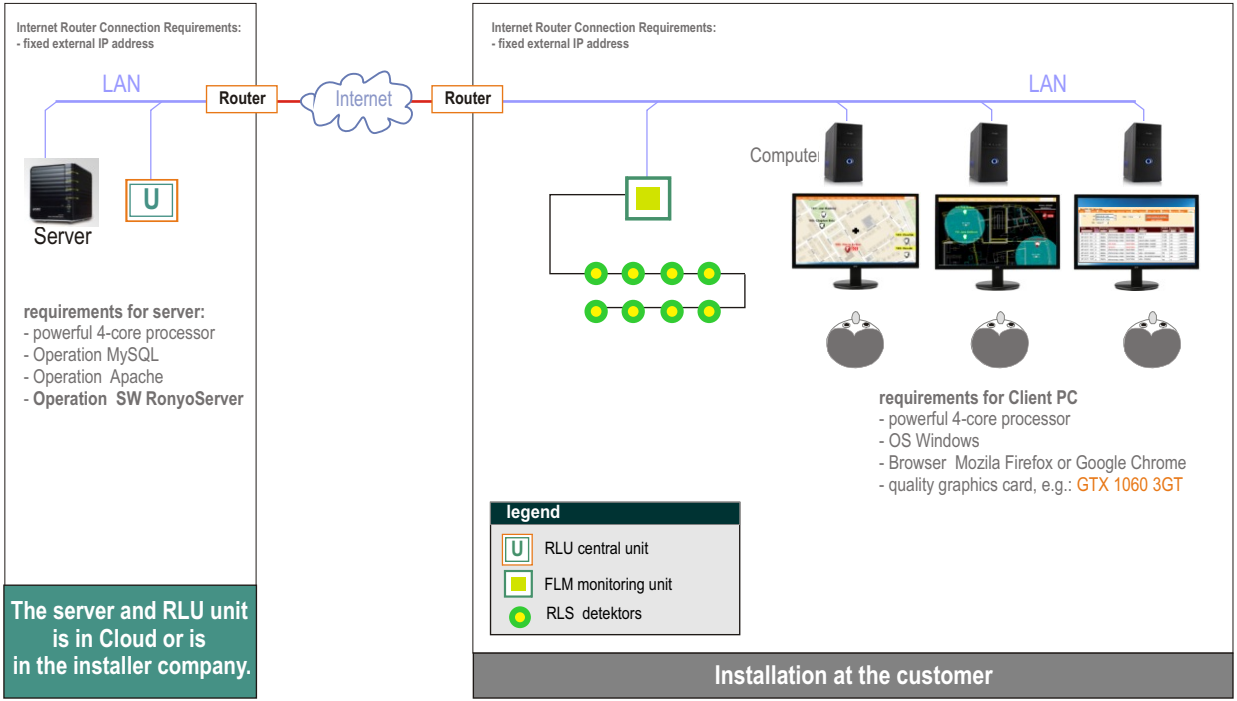
Architecture - Server at Customer



24.5. 2019

new

Architecture - Cloud solution



24.5. 2019

new

Merya RTLS®

business presentation

review: 24.5. 2019

Hand search of tag with use of smartphone

MERYA RSSI apk (for Android OS) serves for physical searching of RFID tags. This apk in smartphone can communicate by radio with given tag with use of FLR module. It shows its signal strength and states (if it moves or is still). The shortest distance between tag and mobile phone is approximately 20 cm. The longest distance is approximately 40 m at clear line of sight. Searched tag can be switched (if it is heard) to fast mode, in which it transmits its identification every 500ms. Standardly this period is set to 3 seconds.

fig. 24 - software settings

fig. 25 - tag search example

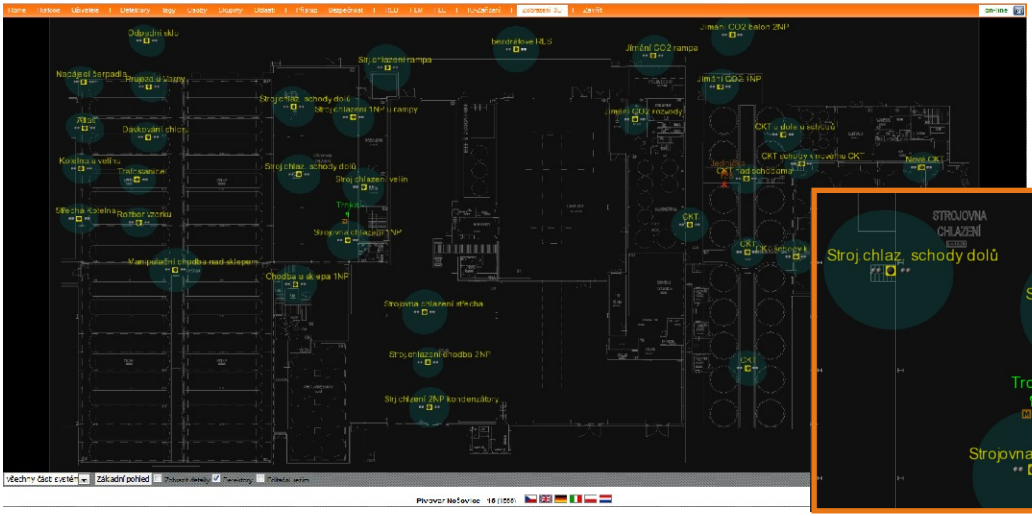
fig. 26 - cell phone with FLR receiver

Brewery Radegast Nošovice, Czech Republic

reference

Required functions from customer:

- on-line monitoring of technician, who walks alone through whole area, size of area 220 000 square meters
- monitoring of people inside buildings with RLS detectors
- detection of immobility, free fall, SOS call
- **RLS-05** detectors inside buildings (37 pieces)
- personal tags **RLH-06b** (3 pieces)
- bypass of safety guarding: with use of RLS-Bypass
- system call phone number in case of alarm
- screen with 3D Viewer + electronic security system

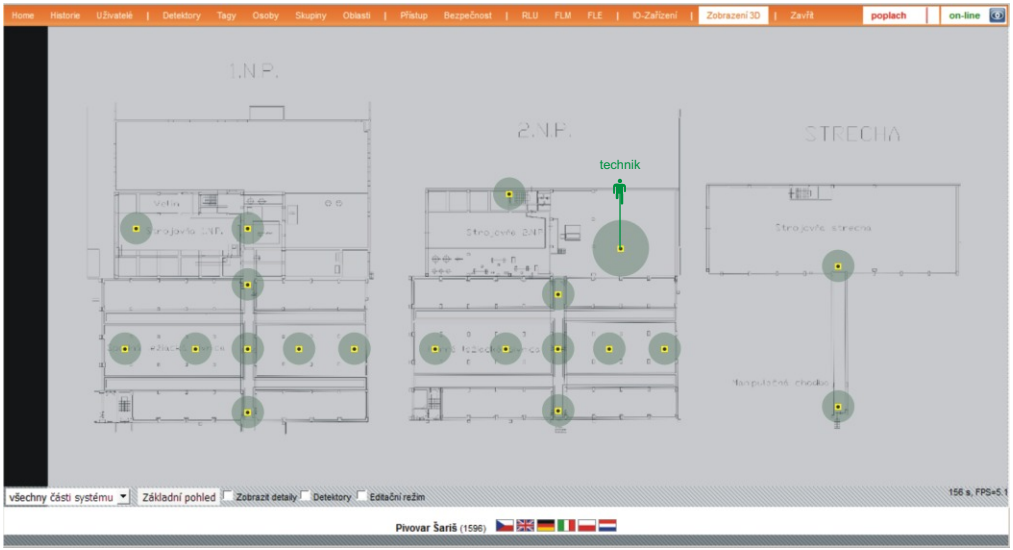


Brewery Šariš, Slovak Republic

reference

Required functions from customer:

- on-line monitoring of technician, who walks alone through whole area, size of area 240 000 square meters
- monitoring of people inside buildings with RLS detectors
- detection of immobility, free fall, SOS call
- **RLS-05** detectors inside buildings (37 pieces)
- personal tag **RLH-06b** (1 piece)
- bypass of safety guarding: with use of RLS-Bypass
- system call phone number in case of alarm
- screen with 3D Viewer + electronic security system

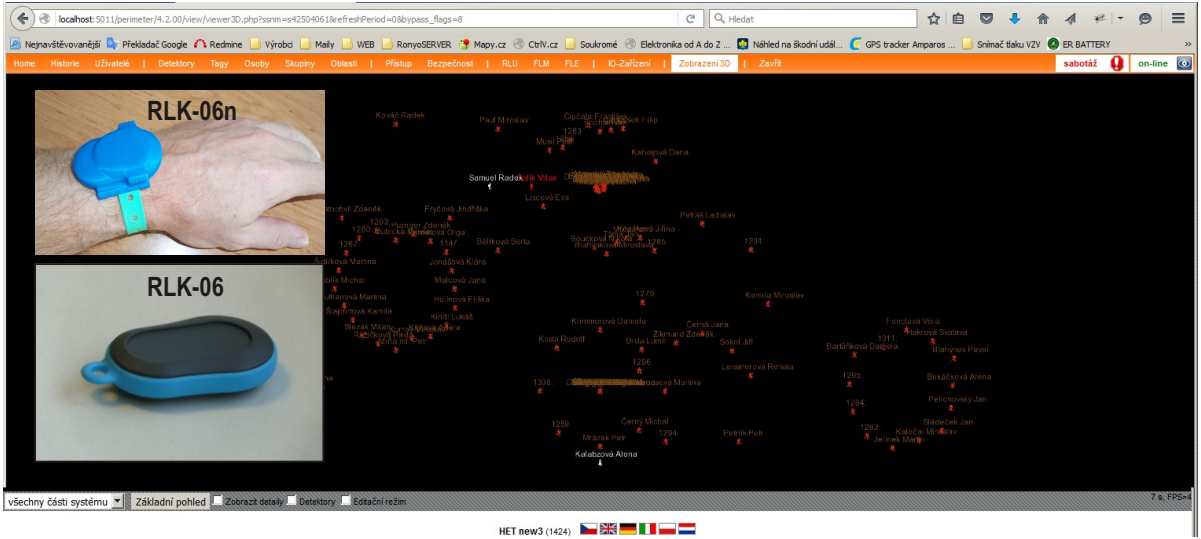


WPA, factory with CNC machines, Czech Republic

reference

Required functions from customer:

- on-line monitoring of all employees in manufacting halls, three halls in different parts of town
- monitoring of people inside buildings with RLS detectors
- usage of RLK tags for attendance system
- **RLS-05** detectors inside buildings (20 pieces)
- personal tags 100x **RLK-06** + 20x **RLK-06n**
- safety guarding - not requested
- system gives overview, where emloyees are
- one screen with 3D Viewer overview



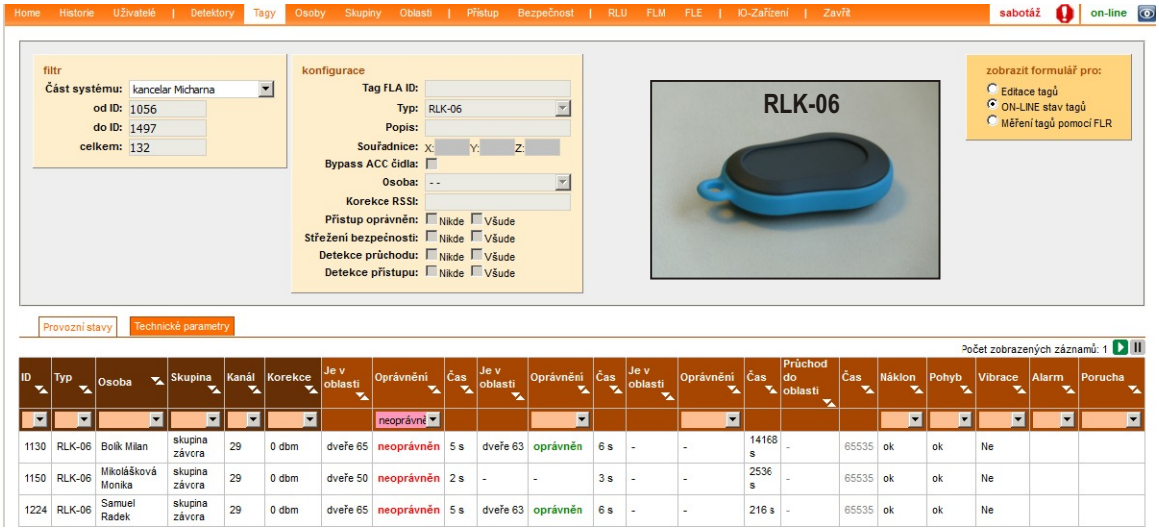
HET, factory for colors manufacturing, Czech Republic

reference

Required functions from customer

- on-line monitoring of all employees in manufacting halls, size of area 60 000 square meters
- monitoring of people inside buildings with RLS detectors
- usage of RLK tags for attendance system
- usage of RLK tags for door opening

- personal tags **RLK-06** (230 pieces)
- detectors **RLS-05** inside buildings (23 pieces)
- safety guarding - not requested
- system detects passages through doors, alarm output with speaker at chosen doors



Thank you for attention

Ronyo Technologies

Hi-Tech manufacturer of RFID technology

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www.ronyo.eu

review: 24.5. 2019