Teledif Italia srl

Lift Monitoring & Diagnostics System

INTERCOM UNIT ver. 7.2

OPERATION MANUAL

465213.270.500 OM

(rev. 9)

Torino 2022

CONTENT

This manual is intended to learn the Intercom Unit ver. 7.2 of Lift Monitoring and Diagnostics System (LMDS), its performance and operating rules (use, transportation, storage and maintenance) for the purpose of correct handling.

Installation, operation, maintenance, repairing, modernization and replacement of LMDS must be performed by service contractor using appropriate technical equipment and qualified personnel.

The manual covers Intercom units ver. 7.2 of the following options: 465213.270.500; 465213.270.500-01; 465213.270.500-02.

When using Intercom Unit 7.2, while complying with the requirements of the manual, it is also necessary to follow:

- National regulatory acts, mandatory regulatory and technical documentation;
- Manuals and Guides from manufacturer.

The following terms and abbreviations are used in the manual:

- LMDS: Lift Monitoring & Diagnostics System;
- IU 7.2: Intercom Unit ver. 7.2;
- LU: Lift Unit ver. 7.2;

DESCRIPTION AND FUNCTIONING OF THE LIFT UNIT

Purpose

1. IU 7.2 is designed to be used in conjunction with LU.
2. IU 7.2 generates requests on establishing voice communication with dispatch and makes the connection available using CAN bus/Wi-Fi.
3. IU 7.2 supports voice negotiation with LU via CAN bus/Wi-Fi.

Terms of Use

Environmental parameters:

- Air temperature working value is from +1 to +35°C;

- Relative humidity at +25°C does not exceed 80%;

- Atmospheric pressure upper limit is 106,7kPa (800 Hg mm).

Specification

1. CAN bus type – 4 wiring.
2. Physical implementation of CAN bus – twisted pair, Cat.5.
3. Operation mode — continuous, 24 hours.
4. Supply voltage range — 9 … 24V.
5. Power consumption, not more than — 1W.
6. Overall dimension, no more (including holder) – 104x68x24mm.
7. Weight, no more — 0,2Kg.
8. Max quantity of devices in CAN bus – 2pcs.
9. Max distance to Landing Intercom and indicator should not exceed 5m.

Content of delivery

The content of delivery of option 465213.270.500-02 includes:
- Intercom unit 7.2 465213.270.500 — 1 pc.;
- Wiring harness 465213.270.060 — 1pc.;
- Holder 465213.270.002-01 – 1pc.;
- Terminal block 465213.270.550 — 1pc.

Main functions

1. IU 7.2 provides the following:
- Data exchange with LU using CANbus/Wi-Fi;
- Generating request on establishing intercommunication (CALL) either with dispatch or LU;
- Support voice negotiation with dispatch or LU.
2. CAN bus physical level is a 4 wire line. Two wires (CAN-P и CAN-G) are intended for power supply, while the other two (CAN-L и CAN-H) represent 2wire differential line, using ISO-11898 transceiver. Overall length of the CAN bus is 250m.

IU 7.2 design

1. IU 7.2 designed as a plactic box (see. Fig. 1). There are several controls could be found on the front panel:
   - LED indicator "MODE";
   - LED indicator "Wi-Fi";
   - LED indicator "CAN";
   - Backhighlited “CALL” button;
   - Microphone;
   - Loudspeaker.

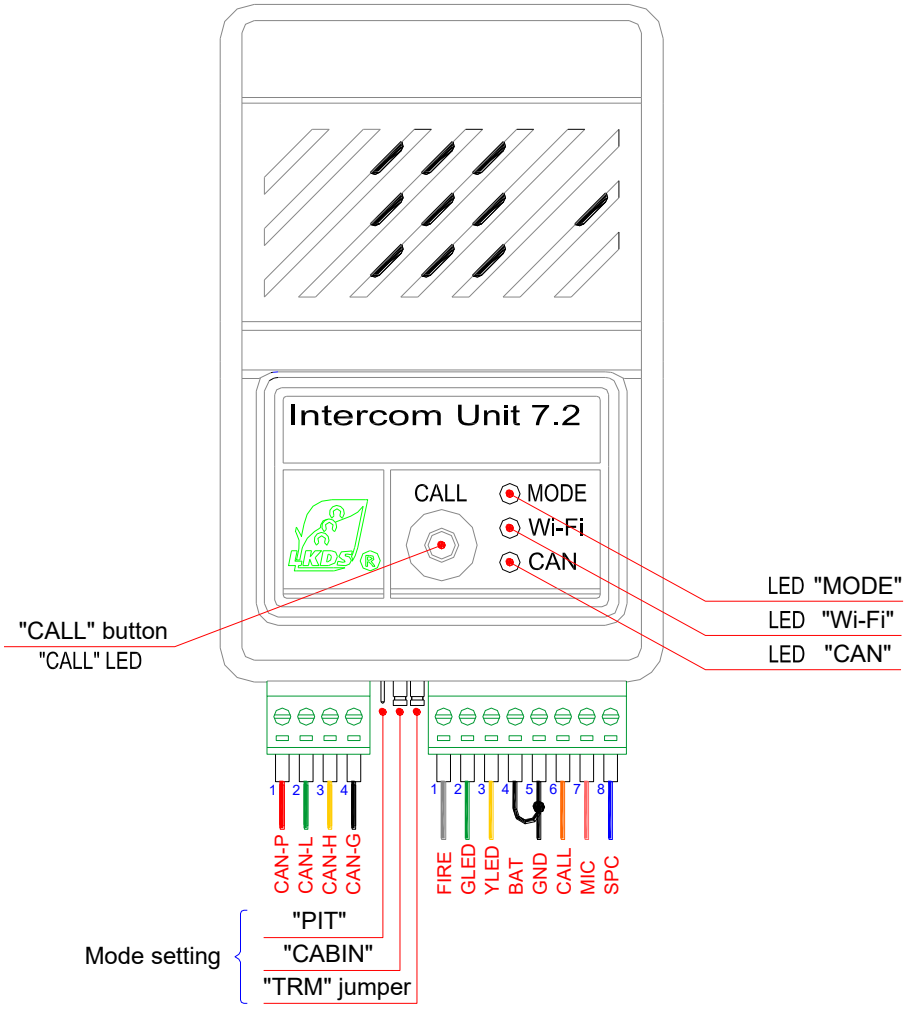


Fig. 1. Appearance of IU 7.2, sockets, controls and indicators

Table 1. Meaning of indicators

Name	Status	Colour	Meaning
"MODE"	blinking	red	Mode "PIT". IU is on battery power
	blinking	green	Mode "CABIN". IU is on battery power

	blinking (series of 2 flashes)	red	Mode "PIT". IU is on CAN bus power
	lit	green	Mode "CABIN". IU is on CAN bus power
"Wi-Fi"	lit	red	Wi-Fi data transmission
	lit	green	Wi-Fi connection established
	not lit	-	No Wi-Fi connection established
"CAN"	lit	red	CAN bus data transmission
	lit	Green	CAN bus connection established
	not lit	-	No CAN bus connection established
"CALL"	lit	white	Voice connection to dispatch is available
	blinking	white	Voice connection to LU is available
	blinking (series of 2 flashes)	white	Dispatch “CALL”
	not lit	-	No intercom connection, no dispatch calls
	flickering	white	Internal battery is not connected or fault
"Wi-Fi", "CAN"	Blinking together	yellow	CAN bus device with the same address found

2. There are several sockets on the basis of the case:
   - XP1 – to put the device into “Firemen dept. Transportation” mode; outputs GLED and YLED, to connect external microphone, loudspeaker and call button; internal battery wiring;
   - XP3 - CAN bus to connect additional devices;
   - Jumpers to select mode (“PIT”, “CABIN” and “TRM”-termination).

Socket details are as shown in Table 2.

Table 2. Socket details

Socket #	**Pin #**	**Label**	**Description**
XP1	1	FIRE	Input used for switching into “Firemen Dept. Transportation” mode*
	2	GLED	Output for pictogram with green LED
	3	YLED	Output for pictogram of yellow LED
	4	BAT	Internal accumulator battery wiring
	5	GND	Common (Ground)
	6	CALL	CALL*

	7	MIC	Microphone input
	8	SPC	Loudspeaker output
XP3	1	CAN-P	Power supply +9…24V
	2	CAN-L	CAN Low
	3	CAN-H	CAN High
	4	CAN-G	Ground
Wiring to LU7.2 – «INV» (465213.270-53)*			
XP1	1	FIRE	USER1 input
	2	GLED	USER2 input
	3	YLED	USER3 input

* - Normally closed type of contact can be installed for “CALL” button and “FIRE” input (see 2.1.2.).

** - Wiring IU 7.2 to LU 7.2-«INV» can be used as USER inputs acting in parallel with LU inputs. At the same time, regular features (pictogram LEDS control) are not blocked by software.

3. ***!!!IU 7.2 in CABIN Mode ONLY!!!.***

If connection of IU 7.2 and LU (or with dispatch/control center) is lost, signals for GLED and YLED are alternately appear with a period of 2 seconds.

4. To balance the load of CAN bus terminators are to be connected on both ends of the bus. This performed by using “TRM” jumper on the ending device, in other cases the jumper should be left open.
5. IU 7.2 states are received by polling devices.
6. IU 7.2 can be powered from CAN bus or from an independent power supply.

IU 7.2 operation

1. Voice negotiation with dispatch.
   1.1. Connecting with IU 7.2.
   Pressing and holding the “CALL” button for at least 1.5sec causes sending the request on establishing connection with dispatch. The voice confirmation “Your call has been registered, wait for an answer” is heard. Changing the direction of call can be made by pressing “CALL” button on IU 7.2.

2. Using intercom
   2.1. Voice negotiation with PIT.
   To make a call press “CALL” button on IU 7.2 and release (holding less than 1.5 sec), or press “PIT” button on the LU. When connection established backhighlighted “CALL” button lits and indicator “PIT” on LU starts flashing. To change the direction, press “CALL” button on IU 7.2 or press “PIT” button on LU. MAX intercom duration time is set to 3 minutes.
   2.2. Voice negotiation with cabin top.
   To make a call press “CALL” button on IU 7.2 and release (holding less than 1.5 sec), or press “CABIN” button on the LU. When connection established backhighlighted “CALL” button lits and indicator “CABIN” on LU starts flashing. To change the direction, press “CALL” button on IU 7.2 or press “CABIN” button on LU. MAX intercom duration time is set to 3 minutes.
   2.3. To finalize intercom connection press “RST” button on LU.

3. Having negotiation with the use of external intercom devices no need to press “CALL” button for direction change.

4. Voice station and landing intercom can be used as external intercom devices.

Safety precautions

1. To work with IU 7.2 can be admitted to persons who have been instructed in safety, as well as having studied the manual.
2. Using the IU 7.2 with cover removed is prohibited.

SETTING UP

Setting up the device

1. Prior to using the address of the IU 7.2 on CAN bus should be assigned.
   IU 7.2 using addresses in range from 254 (CABIN) to 253 (PIT).
   The address is assigned with the help of jumpers.
   Green light of the “Mode” LED means the “CABIN” mode is used whereas Red light is assigned to “PIT” mode.
2. Setting contact type of “CALL” button and “FIRE” input.
   Upon delivery, a normally open contact type is set. To change the contact type to normally closed it is necessary:
   - press and hold “CALL” button on IU;
   - close pins 6 and 5 of XP1 of IU to set normally closed type of contact for “CALL” button;
   close pins 1 and 5 of XP1 Of IU to set normally closed type of contact for “FIRE” input;
   - connect terminal block with jumper installed to IU to power the device from battery;
   - wait (more than 10 sec) blinking of LEDs «MODE», «WI-FI», «CAN» with red-green colour, then release the “CALL” button.
3. Installing and connecting IU
   Connection IUs can be made via CAN bus and/or Wi-Fi.
   Perform wiring IU and LU using 4 wires (CAN-P, CAN-L, CAN-H и CAN-G) to enable CAN bus connection.
   Prior to making a connection via Wi-Fi, the IU should be connected via CAN bus to properly configured LU for binding and learning by the LU.
   Connection can be made using cable shown on Fig.2.

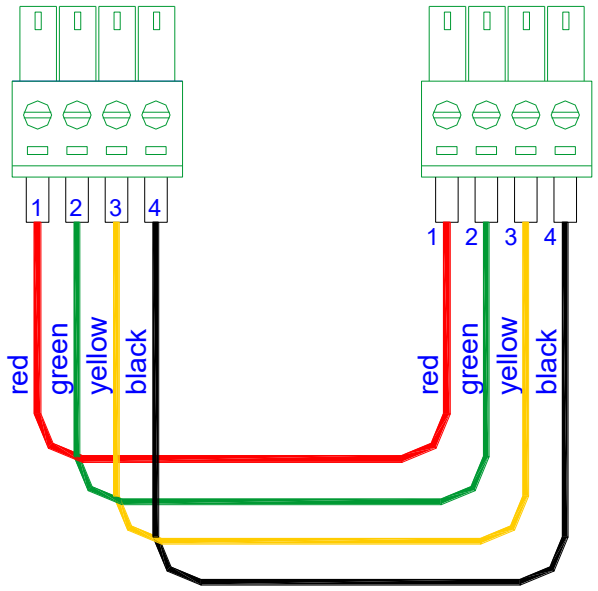


Fig. 2 . CAN cable for connecting IU via CAN bus

After receiving network settings from LU, the Wi-Fi LED on IU starts lighting green. That means the Wi-Fi connection successfully installed.

NOTE !

Changing Wi-Fi password as well as network settings is a need to repeat the procedure above.

Making internal network

1. Possible internal network architecture are shown on Fig.3

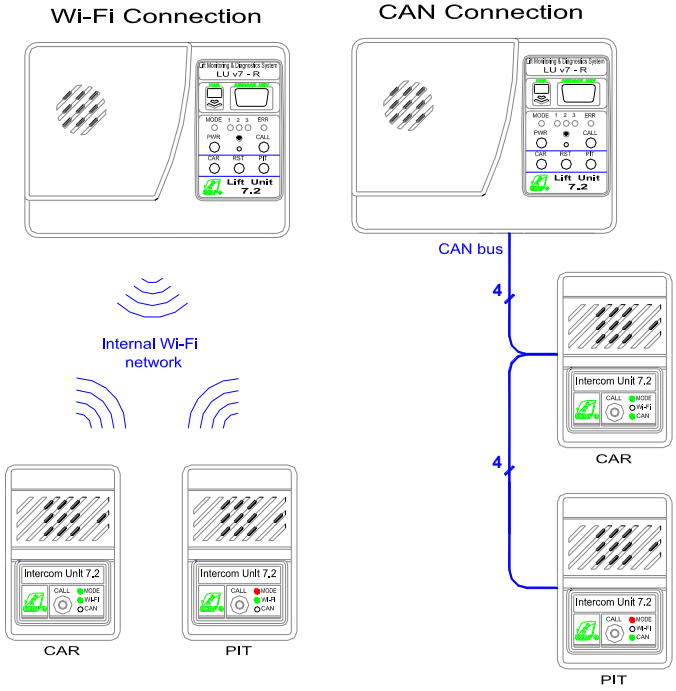


Fig 3.Internal network architecture

Connecting internal battery

IU 7.2 has built in accumulator battery (Type 14500, 700mA/H). To connect the battery to IU circuit, close pins 4 and 5 of XP1as shown on Fig.4.

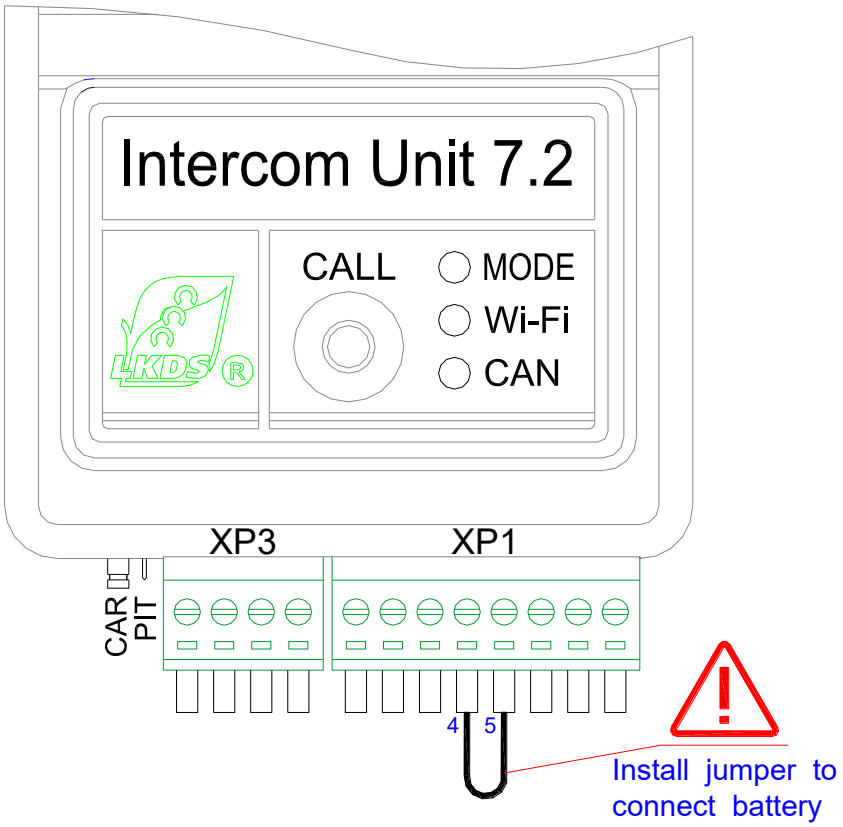


Fig.4. Connecting acc.battery to IU's internal circuit

Wiring IU 7.2

1. Make wiring as prescribed in 468223.270.500 E5 (see APPENDIX 3).
2. Overall and connecting dimensions are shown in APPENDIX 2.

MAINTENANCE

General instructions

1. Maintenance is carried out according to a preventive scheme, which provides quarterly maintenance.
2. The battery installed in IU 7.2 has a limited lifetime (2-3 years). After the specified period or when a message “Battery fault” is received, it is recommended to replace the battery (battery fault or absence of the battery is indicated by “CALL” LED flickering on IU 7.2 and “CABIN” and “PIT” LEDs flickering on LU).

Quarterly maintenance

Quarterly maintenance includes:

- visual inspection of the product;
- cleaning IU 7.2 from dust and dirt;
- checking wires, harnesses and connectors;
- checking the reliability of threaded connections tightening.

PERMANENT REPAIR

The product is repaired by manufacturer during the warranty period. Service after warranty period is provided by a separate contract.

INSTALLATION

IU 7.2 is a complex technical product, its use requires sufficient qualification of personnel for proper installation and start-up.
Read the manual thoroughly before installing.
Installation should be carried out by a company certified for such activities.

Organizational and technical activities

1. Having received a notice from the customer to connect the product to LU, the installer sends its employee on site for inspecting and verification of both lift and infrastructure readiness.
2. An employee, being on site, performs the following:

- Together with maintenance service provider, checks infrastructure, lift equipment and its condition;
- On necessity, issues recommendations for troubleshooting;
- Draw up and approve the schedule of performing installation;
- Solves other issues as prescribed by a contract.

3. Troubleshooting must be finished before starting installation.

Safety regulations

When carrying out installation, the following rules should be taken into account:

- National legislation rules, mandatory regulatory and technical documentation requirements;
- This manual.

DO NOT make installation on lift and its components under mains power!

Before installing

1. IU 7.2 is transported in manufacturer's packing.
2. After receiving package ensure the integrity of it. In case the packing is damaged, it is necessary to draw up a complaint, then forward it to transport company.
3. Unpack the packing in the following order:

- Open the top of the packing;
- Free the product from packing;
- Check the completeness;
- Perform visual inspection and make sure there are no damages/defects.

4. Any damages/defects found should be reflected in a complaint.

Installing IU 7.2

Technologically the sequence of installation depends on the ordered set of the product, status of the equipment and infrastructure on site as well as the component location on site. The recommended sequence of the product coming from manufacturer is given below.

1. Perform settings according to section 2.
2. Perform wiring according to wiring diagram (Appendix 3).
3. IU 7.2 should be located in a place convenient for having talks, having vandal resistance requirements in mind.

TESTING

1. Verify the following is completed prior to testing:
- Manufacturer's recommendations;
- This manual rules and regulations.

Before testing IU 7.2 it is necessary to ensure the installation and electrical wiring is performed in accordance with wiring diagram and drawings.

2. IU 7.2 connection procedure:
- Plug CAN bus to XP3 socket;
- Connect devices to XP1 socket.
3. Test IU 7.2 in complex with LMDS should be performed as of below:
- Download monitoring software onto PC;
- Configure software according to instructions;
- Make sure the request on voice communication is generated and voice negotiation is available.

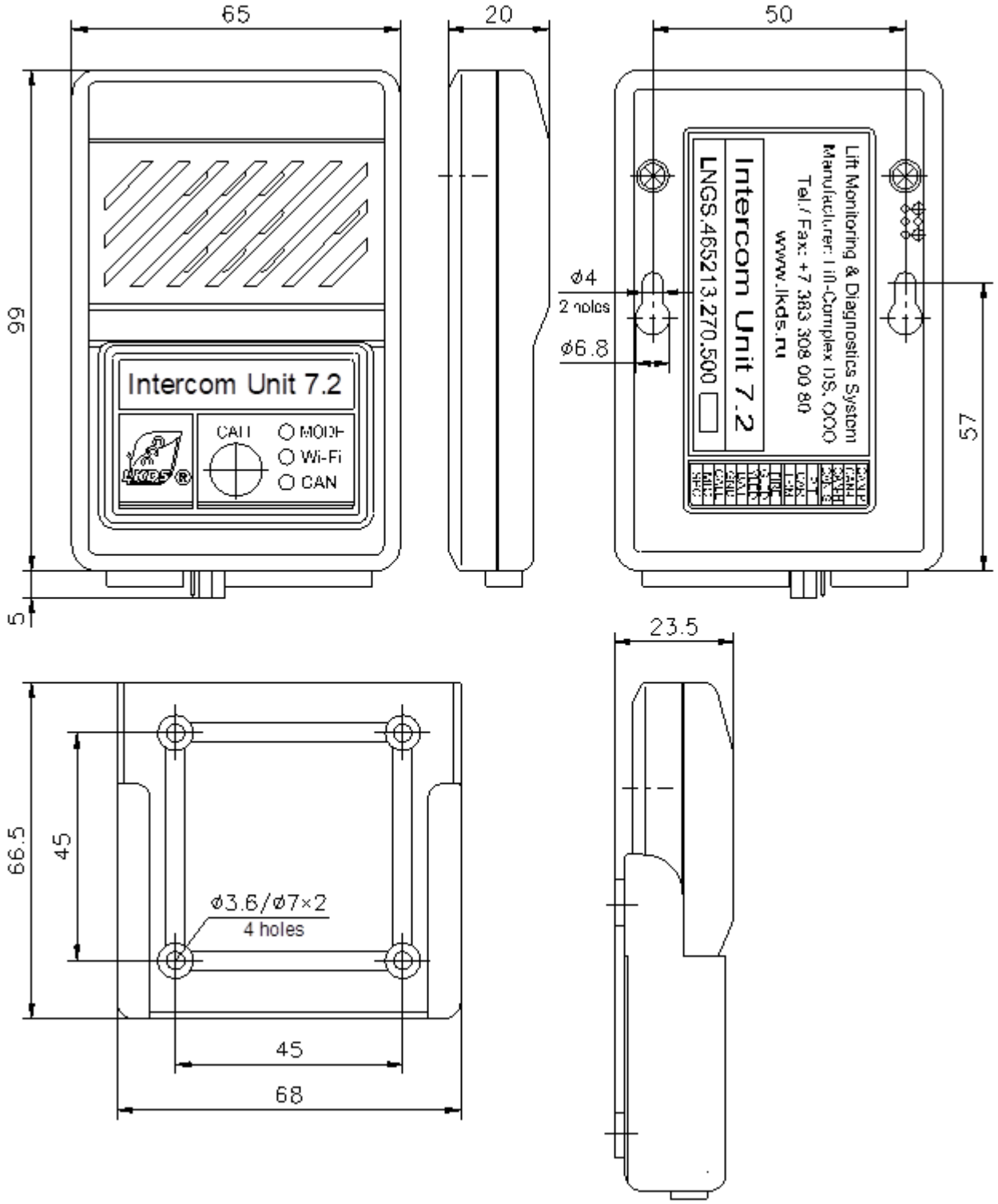
STORAGE

1. Intercom Unit 7.2 of the Lift Monitoring & Diagnostics System can be stored up to 6 months from the date of manufacturing.
2. Intercom Unit 7.2 in original packing must be stored in enclosed spaces with natural ventilation, without artificial climate regulators, where the humidity and temperature fluctuation is less than in open air, located in moderate/cold climatic region.
3. Storage rooms must be free from dust, vapor of acids or alkali, aggressive gases and other harmful or corrosive substances.

TRANSPORTATION

1. Packed Intercom Unit 7.2 must be transported by closed transportation means (railway carriages, containers, closed trucks, etc.) of any way with the exception of naval transportation, in accordance with acting rules for transportation by this particular type of transportation.
2. When transported by air, Intercom Unit 7.2 in original packaging must be stored in heated pressurized compartments.
3. Placement and fixing of boxes must ensure their stable positioning, eliminating any possibility of their displacement and rough knocking onto each other and transportation vehicles walls. Allowed stacking – not more than 5 crates up.
4. In the course of transportation it is necessary to comply with notices on transportation crates.
5. Transportation and intermediate storage time should not exceed three months.
6. As concerns climatic impacts during transportation must be followed.
7. After transportation under negative temperatures or in excessive humidity Intercom Unit 7.2 must be matured under normal climatic conditions for at least 24 hours before installation and commissioning.

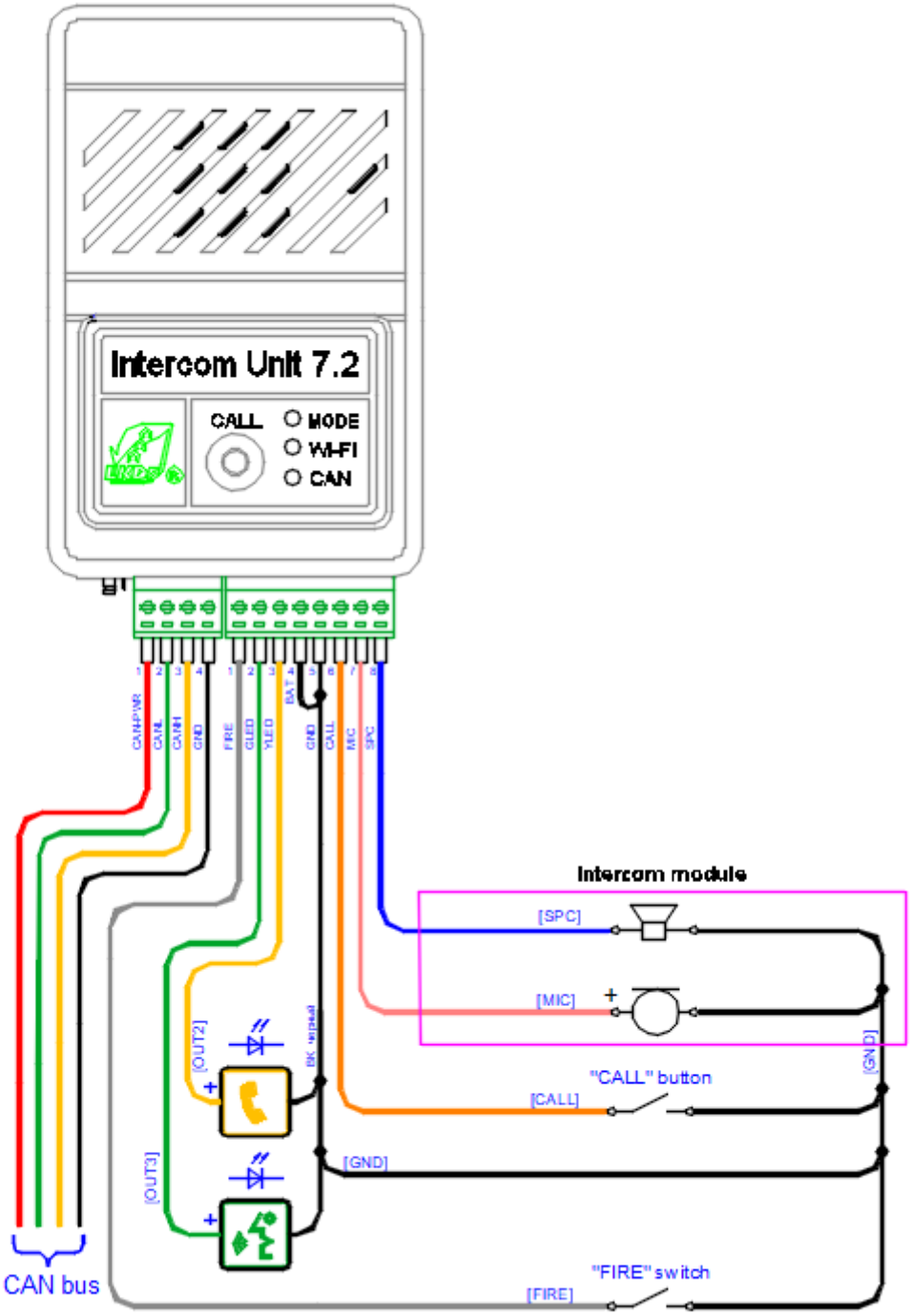
APPENDIX 1



Intercom Unit 7.2.

Overall and mounting size.

APPENDIX 2



Intercom Unit 7.2.

Wiring diagram.

465213.270.500 E5

APPENDIX 3

Input control			Output control	
“Dry contact” № in SW	Inputs/Buttons of IU 7.2		Output № in SW	Output of IU 7.2
00	“CALL” button		00	«GLED»
01	“Default” button		01	«YLED»
02	Input «CALL»			
03	Input «FIRE»			
04	Input «GLED”			
05	Input «YLED”			

Intercom Unit 7.2

Correspondence of signals in the LMDS software to the input / output sensors

APPENDIX 4

1. Sound files SD_RIN

Format of supported wav sound files and MP3.

2. Supported Events by SD _ RIN

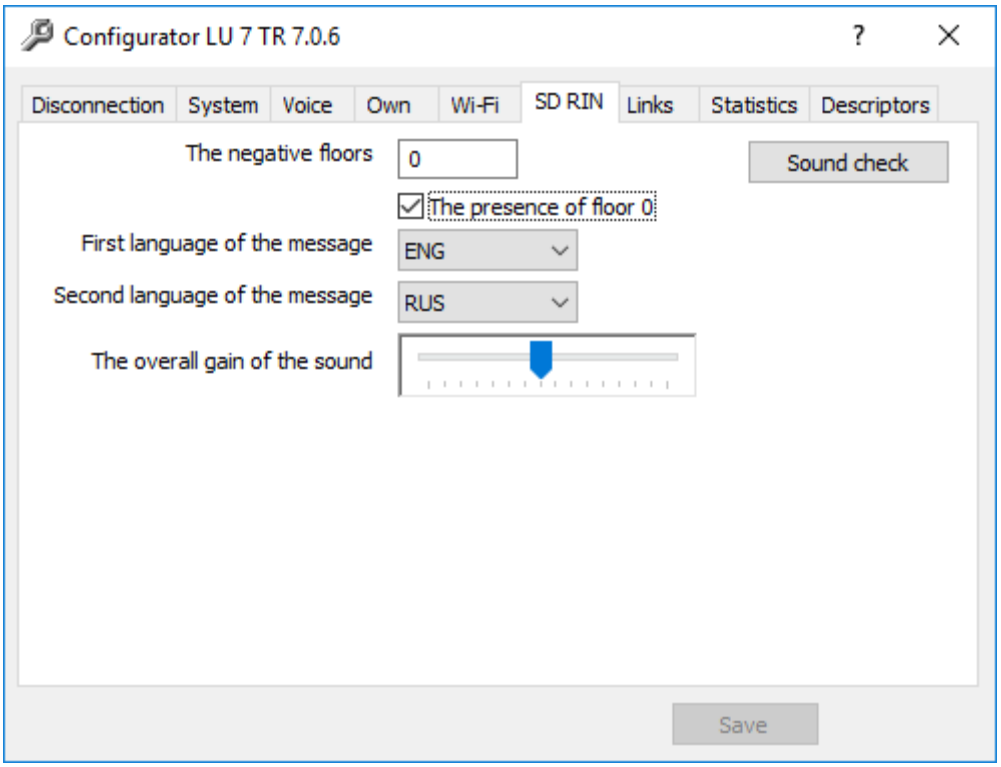
N	Event #	Name and a brief description	Folder name
	10	"Dispatch Call"	10_ CALL_DISP
2	30	"Floor Number". Floor arrivals message.	30_ FLOORS
3	98	"Background music". Background music playback.	9 8 _ MUSIC

The priority of an event is determined by its number. The smaller the number, the higher the priority.
The table shows the events supported in the current implementation.

3. Operational Management SD_RIN

To control the on / off messages and background music SD _ RIN is used cell 14 NVRAM.
Bit 0 - is responsible for the formation of the "Hoots line" (temporarily not implemented);
Bit 1 - is responsible for the message "Call accepted";
Bit 2 - responsible for reporting floor numbers;
Bit 3 - is responsible for the on / off background music.

For the operational change of the general volume level, languages of messages and number of floors, taking into account the characteristics of using LB on the elevator, use the tab “ SD RIN " of ConfigLBPro utility.



ConfigLBPro program does not change the SD _ RIN configuration file located on the SD card.

4. SD_RIN configuration file

The parameters used by the SD _ RIN are stored by default in the file “ Configrin . ini ”, which is located on the microSD card in the“ SD _ RIN ” directory . When you change the contents of the file “ Configrin . ini ”settings are applied instantly.

Events.

The following parameters are defined for each event in the file:

- enable = "1" - event enable flag
- from _ datetime = "12/31/2015 24:00:00" - the beginning of the permission to form an event
- to_datetime = "12/31/2099 00:00:01" - end of event resolution
- counter = "0 xffff " - limiting the number of generated messages. (0 xFFFF - without restrictions).
- tplaydelay = "0" - delay in the start of message playback when an event occurs
- repeat _ msg = "0" - the number of message repetitions when an event occurs
- tpause _ msg = "0" - pause between repetitions of a message
- language 1 - the first language of the message. See supported SD languages Rin.
- language 2 is the second language of the message. See it dry odderzhivaemye languages SD Rin.
  - KMul _ L = "1" - the gain factor of the "left" channel for the event
  - KDiv _ L = "1" - the divider of the “left” channel gain for the event
  - KMul _ R = "1" - the gain factor of the "right" channel for the event
  - KDiv _ R = "1" - divider of the “right” channel gain for the event

Daily schedule.

The validity of the daily schedule is 1 day.

Schedule controls the overall volume of the SD RIN and applies to all events.

The overall volume complements the personal volume of each event.

During the day and stands 8 periods to personally set the overall volume level SD _ RIN.

The accuracy of determining the period is a multiple of 1 hour.

Daily schedule options:

day _ schedule 0 - number of daily schedule period 0

part _ day = "0 ..3 " - time period from 0.00 to 2.59 hours

KMul _ L = "1" - total left channel gain in the period from 0.00

KDiv _ L = "32"

KMul _ R = "1" - the total gain of the right channel in the period from 0.00 to 2.59

KDiv_R = "32"

5. EVENT FILE NAMES

5.1. Event “Dispatcher call” folder 10_ CALL _ DISP. Supports 22 languages.

123. wav (“Emergency Call Registered”).

5.2. Event "Floor Number" folder 30_ FLOORS . Supports 22 languages.

The correspondence of file names to the contents is given in the table.

Floor	File name	Content
-5	070. wav	Floor minus five
	173.wav	Floor minus five
	080.wav	Minus fifth floor
-4	069. wav	Floor minus four
	172.wav	Floor minus four
	079.wav	Minus fourth floor
-3	068. wav	Floor minus three
	171.wav	Floor minus three
	078.wav	Minus third floor
-2	067.wav	Floor minus two
	170.wav	Floor minus two
	077.wav	Minus second floor
-1	066.wav	Floor minus one

	169.wav 076.wav	Floor minus one Minus ground floor
0	001.wav 071.wav 075.wav	Ground floor
1	002.wav	Ground floor
2	003.wav	Second floor
3	004.wav	Third floor
4	005.wav	Third floor
5	006.wav	Fifth floor
6	007.wav	Sixth floor
7	008.wav	Seventh Floor
8	009.wav	Eighth Floor
9	010.wav	Ninth floor
10	011.wav	Tenth Floor
11	012.wav	Eleventh floor
12	013.wav	Twelfth floor
13	014.wav	Thirteenth floor
14	015.wav	14th floor
15	016.wav	Fifteenth floor
16	017.wav	16th floor
17	018.wav	Seventeenth floor

18	019.wav	Eighteenth floor
19	020.wav	Nineteenth floor
20	021.wav	Twentieth floor
21	022.wav	Twenty first floor
22	023.wav	Twenty second floor
23	024.wav	Twenty third floor
24	025.wav	Twenty fourth floor
25	026.wav	Twenty fifth floor
26	027.wav	Twenty sixth floor
27	028.wav	Twenty seventh floor
28	029.wav	Twenty eighth floor
29	030.wav	Twenty ninth floor
30	031.wav	30th floor
31	032.wav	Thirty first floor
32	033.wav	Thirty second floor
33	034.wav	Thirty third floor
34	035.wav	Thirty fourth floor
35	036.wav	Thirty fifth floor
36	037.wav	Thirty sixth floor
37	038.wav	Thirty seventh floor
38	039.wav	Thirty eighth floor

39	040.wav	Thirty ninth floor
40	041.wav	Fortieth floor
41	042.wav	Forty first floor
42	043.wav	Forty second floor
43	044.wav	The forty third floor
44	045.wav	Forty-fourth floor
45	046.wav	45th floor
46	047.wav	46th floor
47	048.wav	47th floor
48	049.wav	Forty-eighth floor
49	050.wav	The forty ninth floor
50	051.wav	50th floor
51	052.wav	Fifty first floor
52	053.wav	Fifty second floor
53	054.wav	Fifty third floor
54	055.wav	Fifty-fourth floor
55	056.wav	Fifty fifth floor
56	057.wav	Fifty-sixth floor
57	058.wav	Fifty-seventh floor
58	059.wav	Fifty-eighth floor
59	060.wav	Fifty-ninth floor

60	061.wav	60th floor
61	062.wav	Sixty ground floor
62	063.wav	Sixty second floor
63	064.wav	Sixty third floor
64	065.wav	Sixty fourth floor
	072.wav	Penthouse c first level
	073.wav	Penthouse c second level
	074.wav	Basement
	082.wav	Ground floor, first level
	083.wav	Ground floor, second level
	084.wav	Mezzanine
	085.wav	Mezzanine first level
	086.wav	Mezzanine second level
	087.wav	Shopping area
	088.wav	Shopping area first level
	089.wav	Second level shopping area
	090.wav	Shopping area third level
	091.wav 098.wav	Parking, level zero
	092.wav 099.wav	Parking, first level

	093.wav 100.wav	Parking, second level
	094.wav	Parking, third level
	095.wav	Parking, fourth level
	096.wav	Parking, fifth level
	097.wav	Parking, level six
	101.wav	A restaurant
	102.wav	Bar
	103.wav 107.wav	Cafe
	104.wav	Supermarket
	105.wav	Terrace
	106.wav	Pool
	108.wav	Main entrance
	109.wav	Exit zone
	110.wav	Hall
	111.wav	Reception desk
	112.wav	Arrival
	113.wav	Departure
	114.wav	Mezzanine
	129.wav	Open terrace

	130.wav	Platform
	131.wav	Gallery
	132.wav	Atrium
	133.wav	Pavilion
	134.wav	Reception room
	135.wav	First aid
	136.wav	Lobby
	137.wav	Boutiques
	138.wav	Barbershop
	139.wav	Casino
	140.wav	Game room
	141.wav	Salon
	142.wav	Ball room
	143.wav	Night club
	144.wav	Congress Hall
	145.wav	Administration
	146.wav	Office
	147.wav	Showroom
	148.wav	Showroom
	149.wav	A fitness center
	150.wav	Offices

	151.wav	Surgery
	152.wav	Pharmacy
	153.wav	Notary
	154.wav	Law office
	155.wav	Lawyer
	158.wav	Technical floor
	174.wav	The outside
	175.wav	Porch
	176.wav	Platform

5.3. Event «Background music», folder 98_MUSIC.

This folder contains the albumX subfolders , where X = 0..31. The maximum number of folders can be 31, album 0 .. album 31. These folders should contain files of the type *. wav . The maximum number of files in the folder is not strictly stipulated, the recommended value is 8-10 files. SD _ RIN consistently loses all the files from the folder and then goes to the next folder.

If there are no files in the next folder (empty folder), or the folder is missing, the SD _ RIN goes to the album album 0 folder.

6. Supported languages SD_RIN

Code	Folder	Language
0	quit	- language support disabled
1	ALE	- German
2	ARA	- Arabic
3	SPA	- Spanish
4	CAT	- Catalan
5	CHE	- Czech

6	DAN	- Danish
7	SLO	- Slovak
8	BAQ	- Basque
9	FLA	- Flamenco
10	FRA	- French
11	GRE	- Greek
12	HEB	- Hebrew
13	HUN	- Hungarian
14	ENG	- English
15	ITA	- Italian
16	LIT	- Lithuanian
17	NOR	- Norwegian
18	POL	- Polish
19	POR	- Portuguese
20	RUS	- Russian
21	SWE	- Swedish
22	TUR	- Turkish
23	UA	- Ukranian