

Introduction

The thunder call system for LULA is designed to be light in configuration and components. The usual battery backed up Thunder Gateway in the machine room and the two wires Power Over Data line going thru the traveling cable is removed to simplify the system and reduce cost. The LULA architecture has the trade off of needing external battery backup and using more wires in the traveling cable.

The system consists of three main components.

- **Cab phone (Elevator):**

Integrated LCD screen with speaker, microphone and camera. The display is off until the call button is pressed, then the screen shows that a call has been initiated. The screen displays the status of the call, the messages sent by the call center and the response from the passenger. The camera is pre-configured to have a 180-degree FOV, the video stream of the elevator shows the entirety of the floor.

- **Ethernet Router (Machine Room):**

Pre-configured router with firewall protection. It allows to secure the equipment as required by the 2022 code. The router is used as a layer of security for the VOIP communication with a secure tunnel to the VOIP servers.

- **Line monitoring Alarm (Fire Recall):**

Alarm to signal an issue of the elevator communication system. As per code, the LMA has a blinking LED and a buzzer when the alarm is active. The approved personnel can mute the buzzer for a 12-hours period with a keyswitch.

The system uses 6 wires in the traveling cable. Two pairs are for the TX and RX for the Ethernet communication and the remaining pair is for the control of the Line monitoring alarm. To limit the usage of wire in the traveling cable. The cab phone needs to be alimented from the car top 12V battery back up.

To be code compliant, it is required that the system can sustain a 4-hour power outage. The following power source needs to be tested for 4 hours:

- Car top 12V battery back up
- Machine Room 120VAC powering the Ethernet Router
- Every network equipment provided by the customer to bring Eth in the machine room (Router, Switch, etc.)

If the customer is unable to give ethernet access or back up its equipment, a cellular gateway will be needed

Accessories are available:

TR0021: LTE Cellular Gateway. Needed if the customers network can't be backed up for 4h or if no network is available.

TP43: Machine Room Phone. This phone contains a local Vidatech PBX server and an handset to make calls to the elevator.

TP7012: Desktop Phone: Phone usually place at the security's desk to answer the call locally

Glossary

Abbreviations	Definitions
IVR	Interactive voice menu for telephony
CSR	Call center communications representative
ID	5-digit elevator identifier
DTMF	Phone keypad key 0 to 9, *, #.

Getting Started

1- Wire the system

Consult the **System Wiring section** (p.7) for the connection of each component. It is required that the 120VAC for the router is on the machine room UPS. The consumption of the router is 3.5W in normal operation.

The wiring from the RJ45 terminal block to the Cab phone should be direct wired and not use terminal block as much as possible. Terminal blocks could cause stubs in the wiring and worsen the ethernet signal.

2- Setup the call number

Consult the **Program Emergency Numbers** section (p.12) to configure the phone number of the call center. It is possible to configure three emergency numbers. If the call is not answered within the configurable ring time (default: 45sec), the call will go to the next number on the list or recall if it's the sole number.

When the call is answered, the responder has the operator wait time (default:60sec) to acknowledge the call. The acknowledgement is done by pressing the DTMF 1 as it's said in the location message. If the responder doesn't acknowledge the call within the allowed period, the elevator phone will forward the call to the next number in the callee list.

3- Setup the location message

Consult the **Location Message** section (p.13) to record the message that will be played for the CSR at the beginning of the conversation. The structure of the message should be as follow:

“Emergency call from elevator < elevator # >, from < building address >.

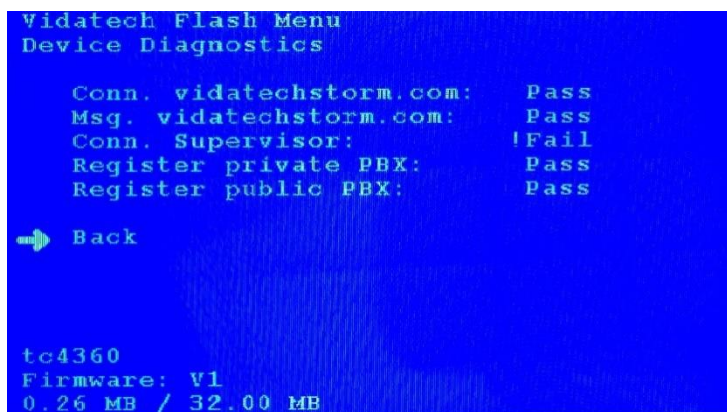
Once the call is answered, the CSR will hear the location message, the Elevator ID and to press DTMF “1” to acknowledge the call. The elevator's passenger will see that the communication is established when the call is answered and the audio will start when the call is acknowledged.

“Emergency call from elevator < elevator # >, from < building address >. To view the video stream, please open vidatechstorm.com with the following elevator ID < Elevator ID>. Please press 1 to start the call ”.

The audio is not played to the passenger until the call is acknowledged to prevent the passenger to hear if the call is hold or went to a voicemail. In those circumstances, the elevator phone will retry the next number on the list when the Operator Wait Time is over.

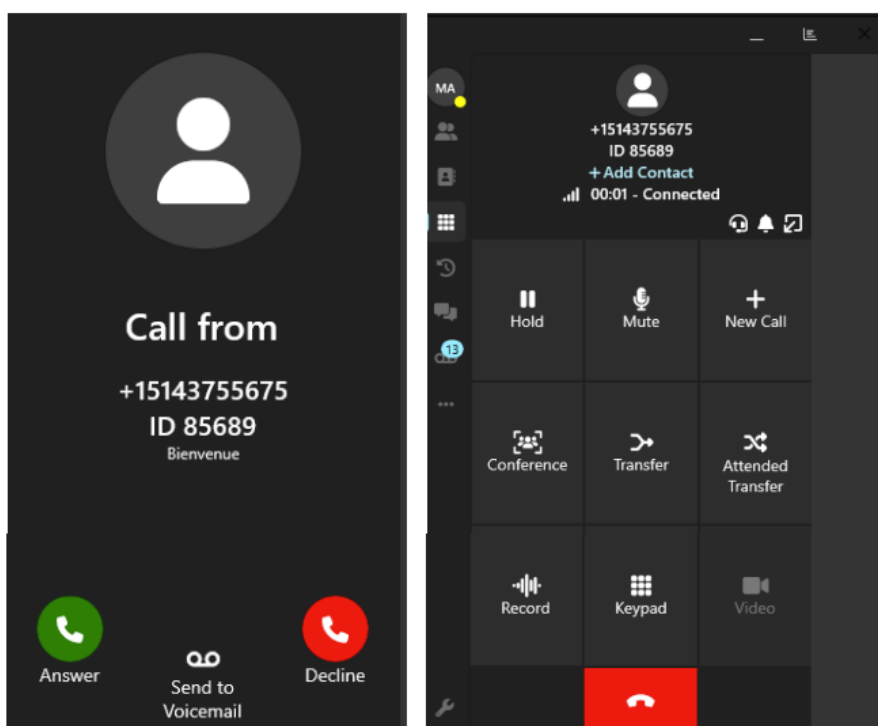
4- Run System Diagnostic

Consult the **Device Diagnostics** section (p.14) to test the system. This test makes sure that every critical part of the communication system is working. The test does the video stream, the messaging and a PBX test. In a LULA configuration, the connection to Supervisor should be ignored since there's no on-site tactile configuration device called Thunder Supervisor.

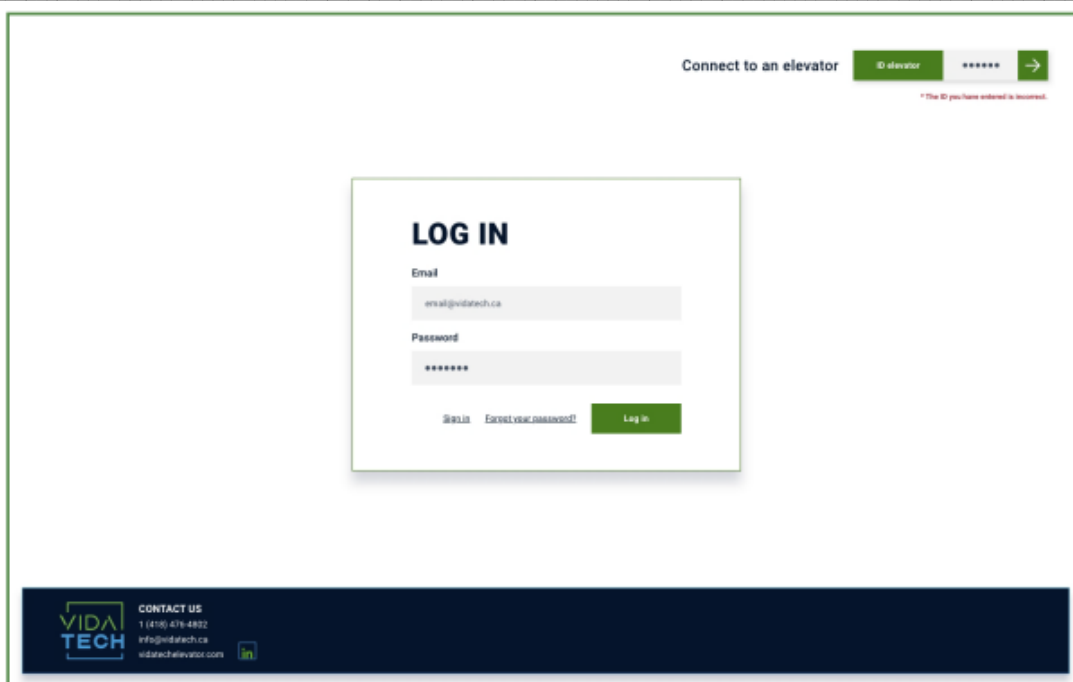


5- Make a test call

To test the audio and video, the installer can put his own cell phone number as a callee in the Program Emergency Number menu. Press the call button to make a test.



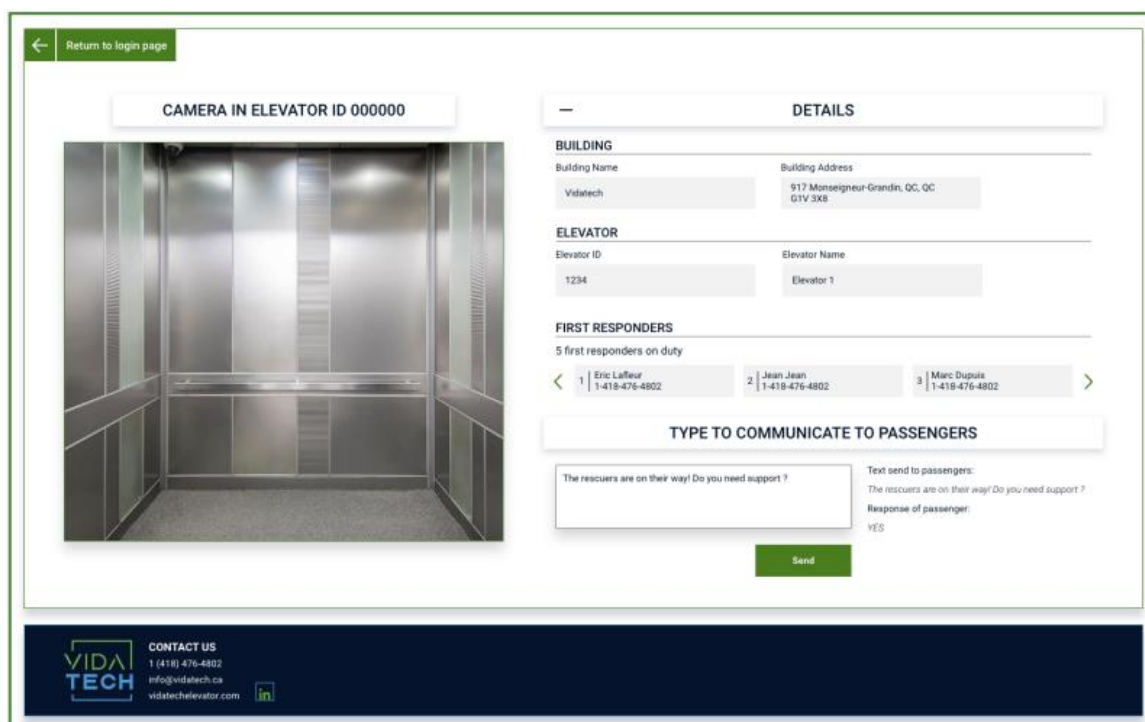
When the call is answered, ask the responder for the elevator ID. They have it displayed as the Caller ID on their phone, or they can press 1 to replay the location message. Go to vidatechstorm.com and enter the elevator ID in the upper right corner.



The CSR will then have access to elevator's information. They will also be able to see the car's video feed to check if anyone is trapped inside. CSR will have access to the list of operators on duty at the time of the call. These are the people to call when a person is trapped in the elevator.

Finally, CSR can communicate via the dialog box if the person is unable to speak. It is necessary to formulate short-answer questions, since the elevator user can only answer YES or NO. The Open/Close door buttons are usually assigned to these answers (YES / NO).

When the user presses the "open door" button, an audio "yes" message is sent on the phone call, as well as a written message in the chat section on vidatechstorm.com. The language of the messages sent depends on the language configured on the elevator phone.



If the responder dials DTMF during the call, an IVR audio message is sent:

- 0 : IVR Menu stop/start
- 1 : Stop/start location message
- 2 : Change language selection
- 3 : *" Can you hear me ? "*
- 4 : *" Do you need the police ? "*
- 5 : *" Do you need an ambulance ? "*
- 6 : *" Is the door stuck ? "*
- 7 : *" Has the power failed ? "*
- 8 : *" Help is on the way "*
- 9 : Extend the call for 10 minutes.

By default, the maximum conversation time is 10 minutes. The CSR must press " 9 " to extend the call for another 10 minutes, otherwise the call will end in 20 seconds. The system plays the following message by audio to the responder:

"To extend the call, press 9 "

To end the call, simply hang up the phone and leave the call. Instantly, the elevator's video stream is stopped, and all the information about the elevator disappears when the web page is refreshed.

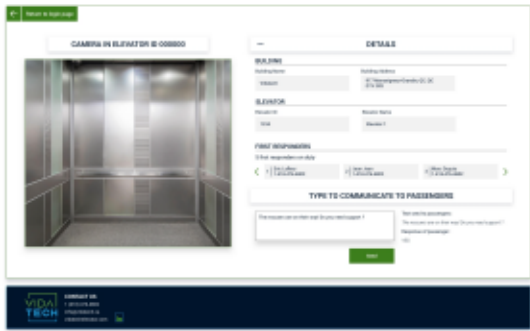
6- Test call back

If the CSR needs to call back the car, he must call 514-375-5675 (caller ID number), then an IVR will ask for the 5-digit elevator ID (name of the caller ID received).

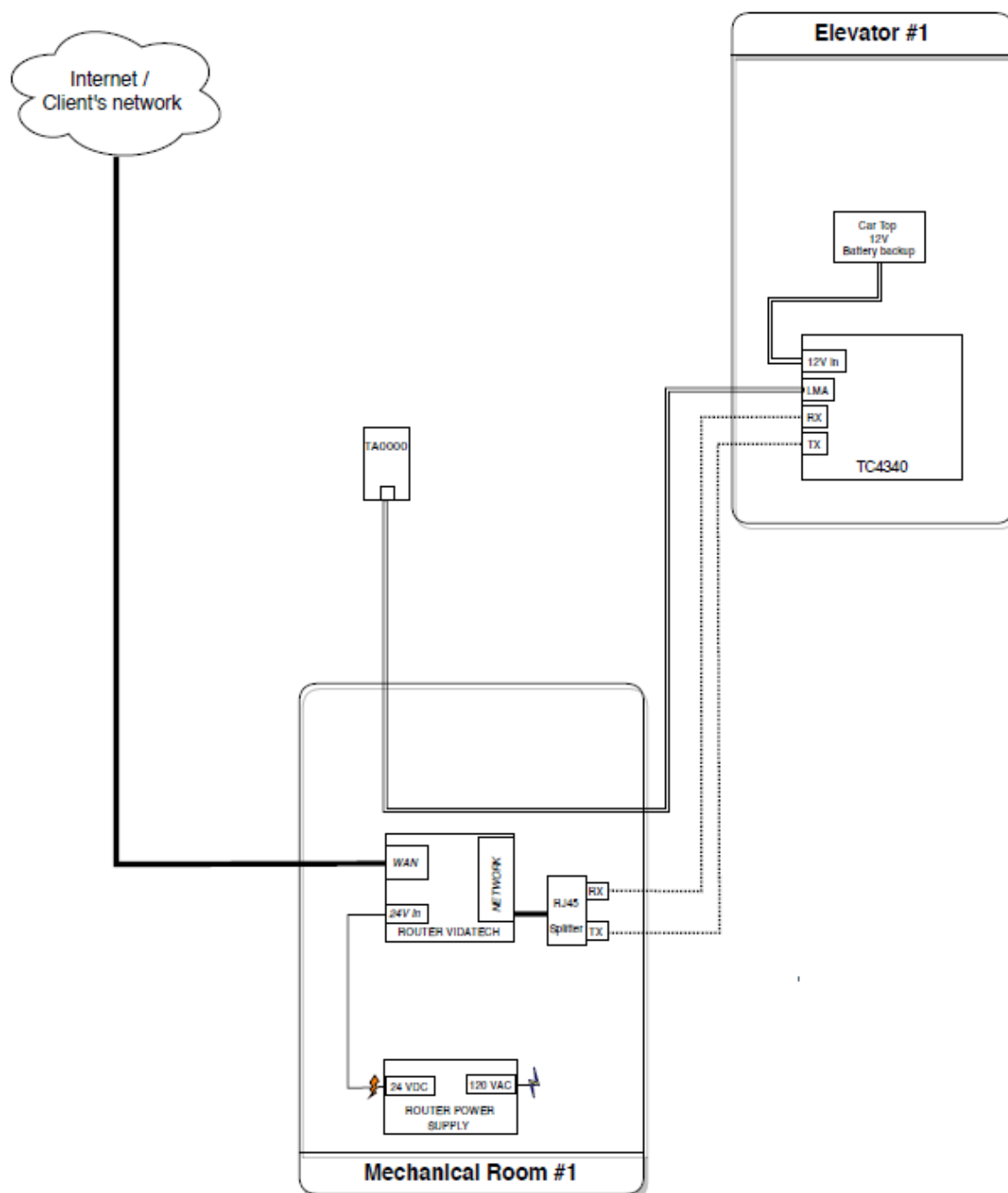
Note: This option is only available 1 hour after the end of the previous call; after this time, no call-back will go thru.

If the elevator cannot be reached, a message is dictated by the IVR at 514-375-5675. Possible causes are as follows:

- Time limit of 1 hour has passed.
- The elevator is on a call with an on-site telephone.
- Network problem making it impossible to reach the elevator.

CALL CENTER GUIDE	
CALL FROM THE ELEVATOR	CALL TO THE ELEVATOR
1 Identify the Elevator Caller ID on the phone and listen to the location message. 2 Press 1 to acknowledge the call. 3 Go to vidatechstorm.com and enter the ID : Connect to an elevator ID elevator ***** → 4 The elevator information, the video and the chat box are now available when connected to the elevator.  5 Prioritize audio communication via the handset. If the passenger is unable to communicate vocally, use the chat area to send messages on the elevator screen.  Do not use hands-free functionality in noisy environments. Passenger's audio may be cut off. 6 To end the conversation, hang up the audio call. The video will end simultaneously.	1 Call VidatechStorm's number: 514-375-5675 2 Enter the ID of the elevator to be contacted on the phone keypad. An elevator is available for callback for one hour after a call was initiated by the elevator. 3 Go to vidatechstorm.com and enter the ID : Connect to an elevator ID elevator ***** → 4 Elevator informations, video zone and chat box are now available.
DTMF GUIDE 0 : Start IVR menu. 1 : Stop/start location message. 2 : Change language selection. 3 : "Can you hear me ?" 4 : "Do you need the police ?" 5 : "Do you need an ambulance ?" 6 : "Is the door stuck ?" 7 : "Has the power failed ?" 8 : "Help is on the way". 9 : Extend the call for 15 minutes.	

System Wiring



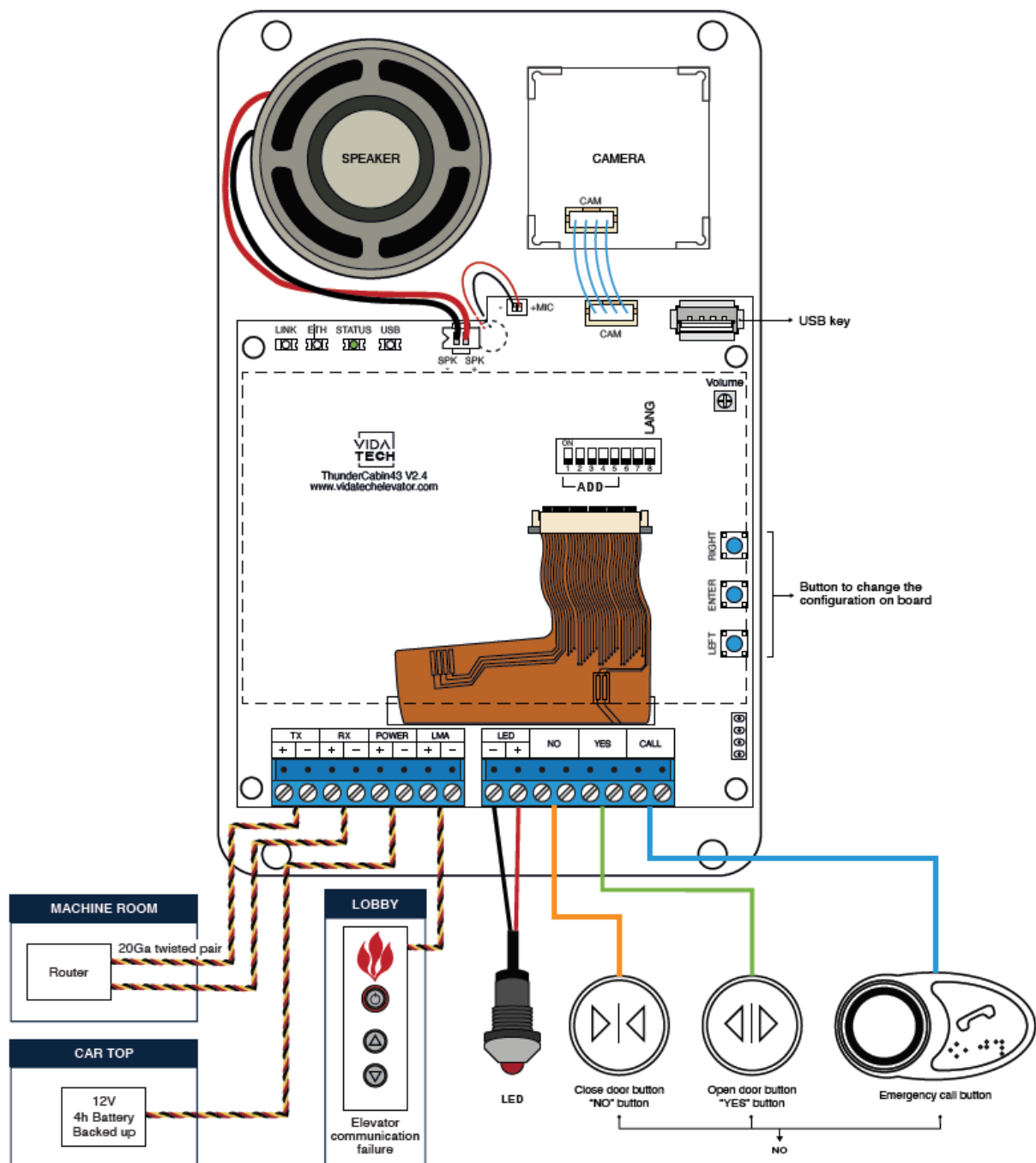
-  2 cables of type 20 AWG
-  Cable of type CAT5 / CAT6
-  120 VAC
-  24 Volts
-  2 twisted cables of type 20 AWG

THE WIRE GAUGES INDICATED ON THESE PLANS ARE FOR REFERENCE ONLY. THE POWER CABLE EXTERNAL TO THE GATEWAY MUST COMPLY WITH LOCAL ELECTRICAL CODES AND STANDARDS. THE CAPACITY OF THE NETWORK SUPPLYING THE GATEWAY MUST BE LIMITED TO 120VAC-20 AMP. IF THE ELEVATOR IS CONNECTED TO A BACKUP POWER SOURCE, THE ELECTRICAL SYSTEM MUST ALSO BE CONNECTED TO IT.

RECOMMENDED PRINT FORMAT: LEGAL (DIMENSIONS: 8.5 X 11 INCHES)

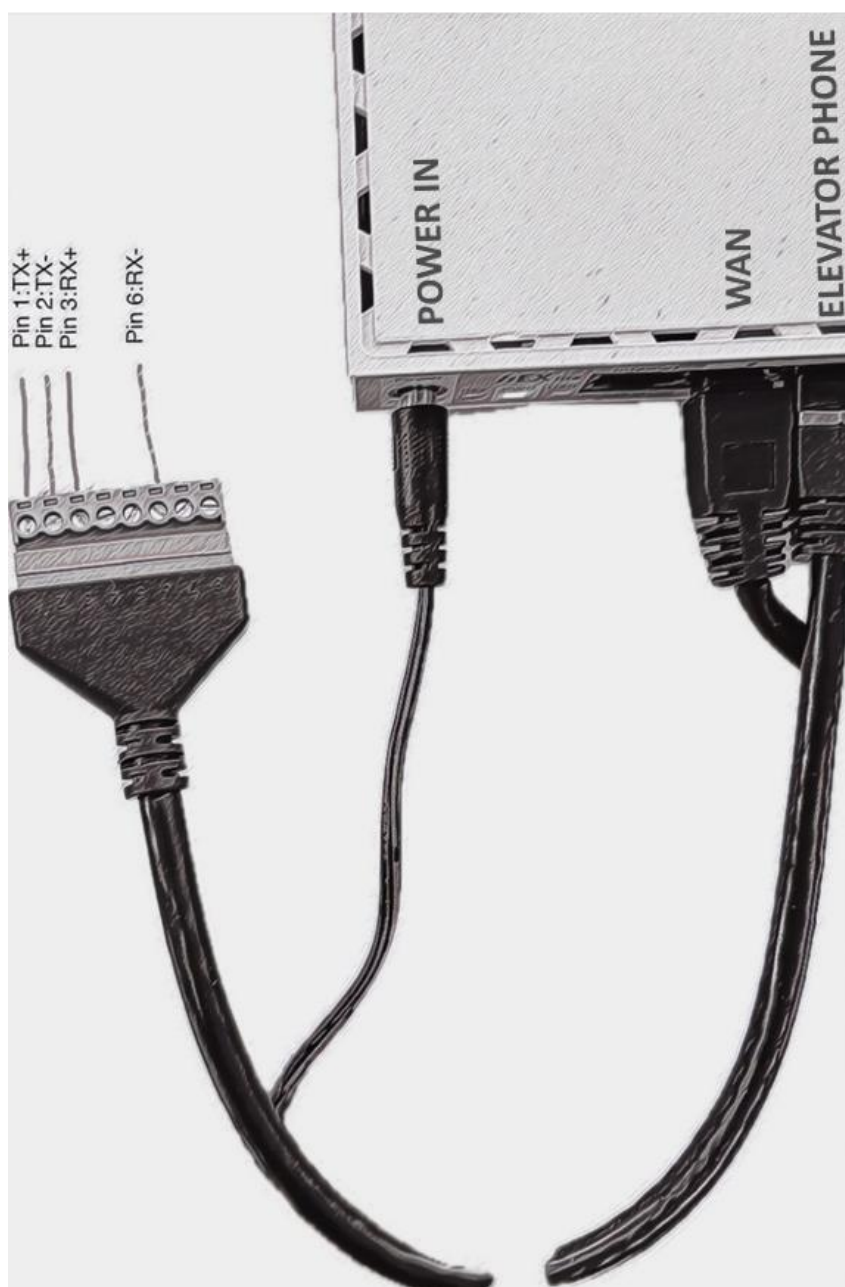
Cab Phone (Elevator)

- **TX:** TX+/TX- from the Router terminal block in the machine room.
- **RX:** RX+/RX- from the Router terminal block in the machine room.
- **POWER:** 12V from the car top battery backup
- **LMA:** Line Monitoring Alarm signal going to the fire recall
- **LED:** Call LED that blink when the call is initiated and steady when in conversation
- **NO, YES, CALL:** Button signal, needs to be on normally open buttons



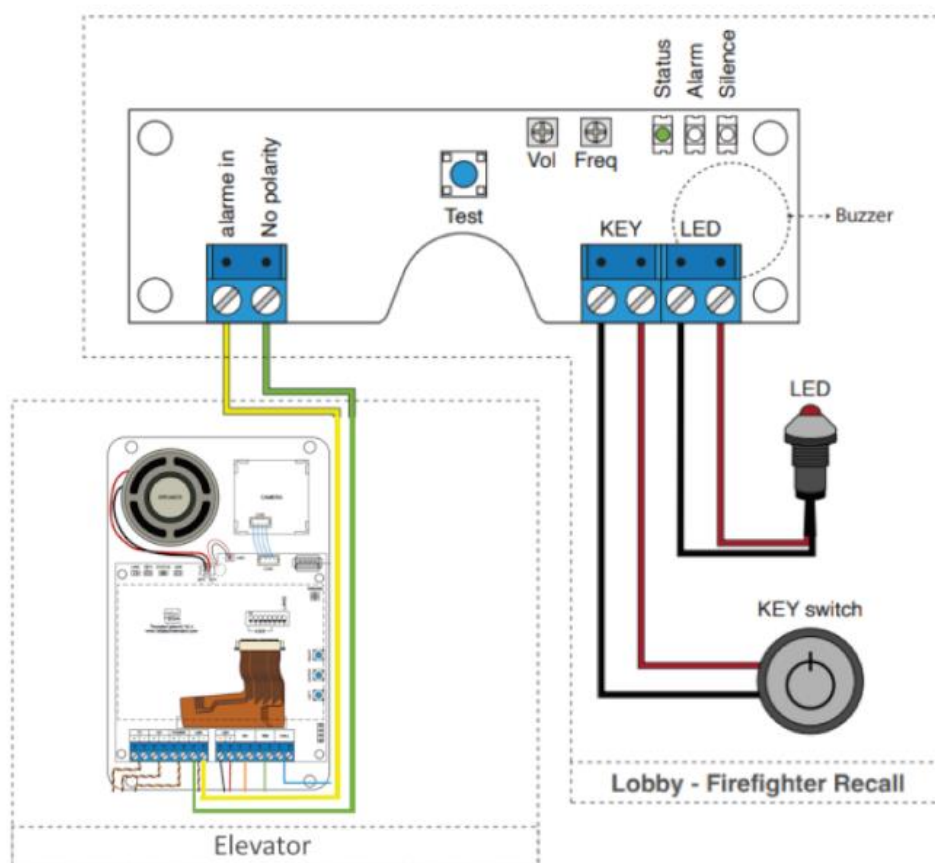
Ethernet Router (Machine Room)

- **TX+:** Terminal block adapter Pin 1
- **TX-:** Terminal block adapter Pin 2
- **RX+:** Terminal block adapter Pin 3
- **RX-:** Terminal block adapter Pin 6
- **POWER IN:** 24V from the included Power supply. Must be on the 120VAC UPS for 4h backup
- **WAN:** Customer's Internet connection
- **ELEVATOR:** Included RJ45 terminal block adapter.

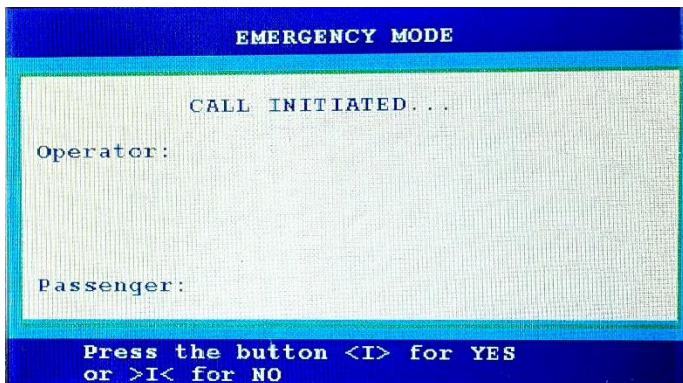


Line Monitoring Alarm (Fire Recall)

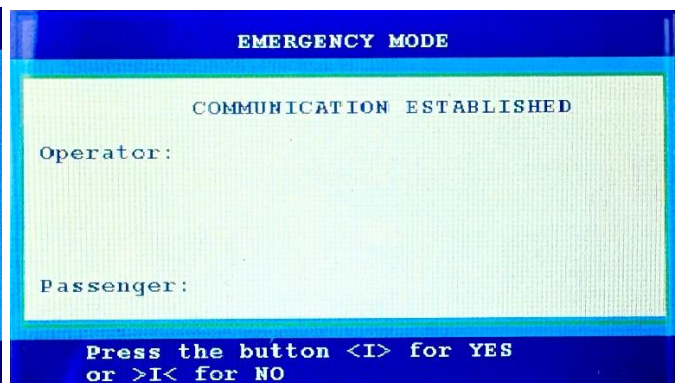
- **Alarm in:** 2 Wire going to the Cab Phone
- **KEY:** Switch Signal to mute the buzzer when the alarm is active
- **LED:** LED to visually show the elevator communication failure



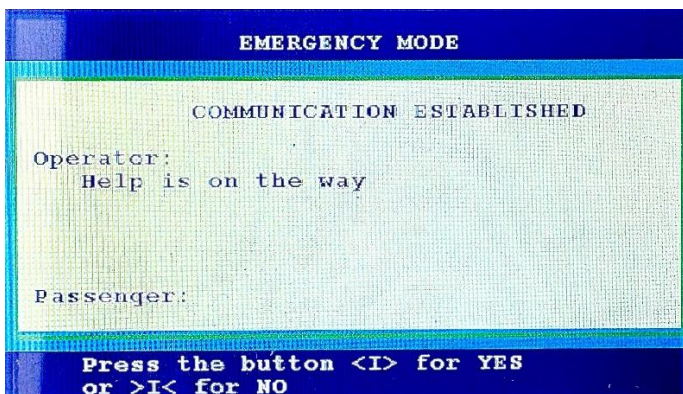
Normal Operation Screens



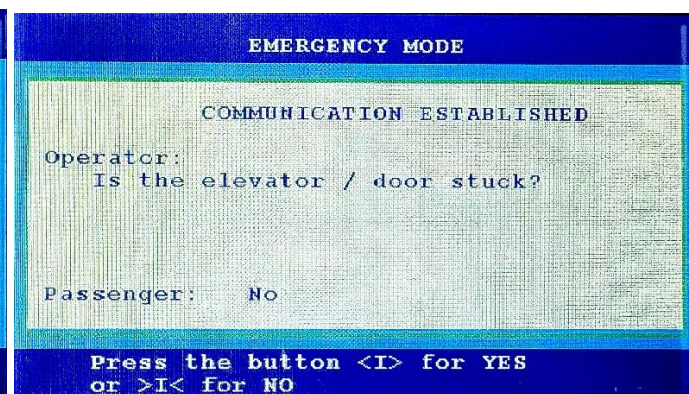
Call button was pressed. The Cab Phone is initiating the call



The call was answered by the call center



The operator pressed the DTMF “8” sending the preconfigured message: “Help is on the way”



The operator pressed the DTMF “6” sending the preconfigured message: “Is the elevator / door stuck?”

The passenger responded: “No” by pressing the close door button



The cab phone is in sleep state waiting for a call button press

System Configuration

```
Vidatech Flash Menu

➔ Program Emergency Numbers
Program Location Message
Device Diagnostics
Activate Remote Programming
>> Configuration
>> Status
>> Commands
>> Miscellaneous
About
Exit Menu

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

```
Vidatech Flash Menu
Program Emergency Numbers

➔ Emerg Nbr #1: N/A
Emerg Nbr #2: N/A
Emerg Nbr #3: N/A
Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

```
Vidatech Flash Menu
Program Emergency Numbers > Phone List

➔ REMOVE
DIAL (Enter number manually)
Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

```
Vidatech Flash Menu
Program Emergency Numbers > Edit Phone
Number

➔ 0
Back

Use '#' to introduce a 2 second pause
Use ' ' (space) to end edition & keep
value

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Main Menu Page

To access the Menu: Press Enter when
in sleep mode

ENTER Button: Select

LEFT/RIGHT Button : Change Arrow
position or change selection

Program Emergency Numbers

List of the 3 phone numbers the cab
will attempt to call

Press ENTER to edit an Emergency
Number

Press ENTER on “Dial” to add a new
number

Press ENTER on “Remove” to remove
the current number

Press RIGHT or LEFT to change the
current digit

Press ENTER to select the current digit
and move to the next digit

Select the blank character “ ” to
complete the Dial

Select the “#” to add a 2 sec delay
while the phone dials the number

```
Vidatech Flash Menu
Program Emergency Numbers > Edit Phone
Number
```

```
→ 4184764802
Back
```

```
Use '#' to introduce a 2 second pause
Use ' ' (space) to end edition & keep
value
```

```
tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

No need to enter the “1” at the beginning for numbers in North America

```
Vidatech Flash Menu
Program Emergency Numbers
```

```
Emerg Nbr #1: 4184764802
Emerg Nbr #2: N/A
Emerg Nbr #3: N/A
```

```
→ Save
Back
```

```
tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Press ENTER to the save the list of numbers

The device should not be reset within a minute of a save. Otherwise the list of numbers can be lost

Location Message

```
Vidatech Flash Menu
Program Location Message
```

```
→ Play
Record
Back
```

```
tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Select “Program Location Message” on the main Menu

Press ENTER on “Play” to hear the current location message

Press ENTER on “Record” to record a new location message, then press ENTER on “Stop” when finish

Press ENTER on “Save” to overwrite the new location message

Device Diagnostics

```

Vidatech Flash Menu
Device Diagnostics

Conn. vidatechstorm.com:   Testing...
Msg. vidatechstorm.com:
Conn. Supervisor:
Register private PBX:
Register public PBX:

➡ Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB

```

Select “Device Diagnostics” on the main Menu

The diagnostic will automatically start.

Conn. Vidatechstorm.com: **Video test**

Msg. Vidatechstorm.com: **Message test**

Conn. Supervisor: **N/A for LULA**

Register private PBX: **Local call test**

Register public PBX: **External call test**

```

Vidatech Flash Menu
Device Diagnostics

Conn. vidatechstorm.com:   Pass
Msg. vidatechstorm.com:   Pass
Conn. Supervisor:         Fail
Register private PBX:     Pass
Register public PBX:     Pass

➡ Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB

```

For a LULA system, those results are expected

Device Configurations

```

Vidatech Flash Menu
Configuration

➡ IP Address Configuration
Location Message playback times
Door Number
Operator Wait Time
Ring Time
Talk Time
Volume Speaker
Volume Microphone
Program IVR Access Code
Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB

```

Select “Device Configurations” on the main Menu

IP Address:

Static IP, DHCP

Location Message Playback:

Nbr repeat of message

Operator Wait Time:

Time to ack the call

Ring Time:

Time before next callee

Talk Time:

Time of conversation

Volume Speaker:

Speaker volume

Volume Microphone:

Microphone sensitivity

Device Status

```
Vidatech Flash Menu
Status
➔ Device Status
  Network Status
  VoIP Status
  Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Select “Status” on the main Menu

```
Vidatech Flash Menu
Device Status

Device Type:      12
Device Name:      LULA Elevator
Physical Address:  0
Door Number:      0
BFG Status:       Ok
BFG Timestamp:    N/A

Errors:           none

➔ Back

tc4360
Firmware: V1
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```

**Select “Device Status” on the “Status”
Menu**

```
Vidatech Flash Menu
Network Status

DHCP:      Enabled
IPv4 Address: 172.31.255.45
Network Mask: 255.255.255.0
Gateway:    172.31.255.254
DNS Server: 172.31.255.254
MAC Address: 44:B7:D0:C0:0C:00

➔ Back

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```

**Select “Network Status” on the
“Status” Menu**

```
Vidatech Flash Menu
VoIP Status

Public SIP
Status:      Registered
Name:        Public
PEX IP:      sip.vidatechstorm.com
Extension:   ea4863b7_2

➔ Back

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Firmware: V1
0.26 MB / 32.00 MB
```

**Select “VoIP Status” on the “Status”
Menu**

Commands

```
Vidatech Flash Menu
Commands

➡ Reset device
  Format memory
  Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Select “Commands” on the main Menu

**Format memory will require a USB stick
to reupload the resources.**

About

```
Vidatech Flash Menu
About

TC4360
Firmware version:    v1.0.16.0
Hardware revision:   v1.3.0.0

For support: www.vidatechelevator.com
              1 (418) 476-4802

➡ Back

tc4360
Firmware: V1
0.26 MB / 32.00 MB
```

Select “About” on the main Menu

Troubleshooting

<u>Issue</u>	<u>Possible Cause</u>	<u>Solution</u>
Call Center doesn't hear well	-The COP microphone hole isn't lined up -The microphone volume is set too low	Adjust the microphone volume in the Configuration Menu
Call Center doesn't know the location of the elevator	-No location message were recorded	Play the location message in the menu. Record if the message is not right
"Call initiated" but never "Communication Established."	- Bad wiring	On the cab phone, the LINK LED isn't green; Check the wiring of TX/RX
	- Customer network	Run Device Diagnostic If: device diagnostic fails; check the device diagnostic fails troubleshooting else: check the client network is connected on router with green blinking LED
Device diagnostics fails	- Customer network is not allowing internet access	Ask IT to allow internet access to the router
LMA is in alarm mode	-Device did not register to external PBX -Device tried to register to inexistent local PBX	Check Device Status Run Device Diagnostic