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## 1. Introduction

This module is for controlling a Sennheiser TC Bar M unit via IP using TC Bar M Open API 3.1.0.

## 2. Installation and Configuration

### 2.1. Installation

Minimum equipment requirement for the solution:

- Lightware UCX series Universal Matrix Switcher (FW: v2.12.0b3)
- Sennheiser TC Bar M (FW: 1.0.0)
- Ethernet network switch
- Cables

Before you start, please setup the TC Bar M using Sennheiser Control Cockpit.

Further information can be found here: <https://www.sennheiser.com/en-us/catalog/applications/assistive-listening-and-audience-engagement/control-cockpit/control-cockpit-111111>

Before uploading any LARA module, or configuration, please download the latest Firmware from <https://lightware.com/>. Upgrade your UCX series Universal Matrix Switcher and activate LARA.

For further information please refer to the user manuals:

[https://lightware.com/pub/media/lightware/filedownloader/file/User-Manual/Taurus\\_UCX\\_series\\_Users\\_Manual.pdf](https://lightware.com/pub/media/lightware/filedownloader/file/User-Manual/Taurus_UCX_series_Users_Manual.pdf)

<https://lightware.com/lara/>

[https://lightware.com/pub/media/lightware/filedownloader/file/User-Manual/LARA\\_Users\\_Manual.pdf](https://lightware.com/pub/media/lightware/filedownloader/file/User-Manual/LARA_Users_Manual.pdf)

## 2.2. Configuration

### 2.2.1. Starting LARA, Uploading Configuration

Start a new browser window and start LARA. e.g.: <https://192.168.1.88/lara>

The IP address is : UCX series matrix device IP.

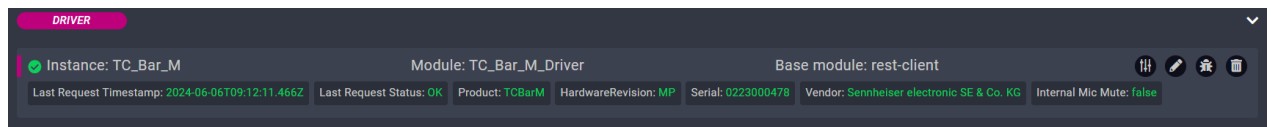
Choose: UPLOAD CONFIGURATION



## 3. Dashboard Content

The following status indicator is displayed on the Status board in the row of the instance:

- Connection state of the device
- Product data
- MIC mute status



## 4. Defined parameters

- ipAddressOrHost: The IP address or the host name of the TC Bar M
- Username: defined in Sennheiser Control Cockpit ( 3rd Party Access )
- Password: defined in Sennheiser Control Cockpit ( 3rd Party Access )

## 5. Defined Events

### 5.1. **intMicGain:**

This event is dispatched, when the TC Bar M reports feedback for internal mic gain

### 5.2. **speakerLevel:**

This event is dispatched, when the TC Bar M reports feedback for speaker volume.

### 5.3. **micIdentity:**

Is triggered when identity information is readed from the TC Bar M

### 5.4. **muteState:**

Is triggered when a mute status information is received from the TC Bar M and returns the information in its "mute" parameter. True equals to mute on, False to mute on.

### 5.5. **ledState:**

This event is dispatched, when the TC Bar M reports feedback for LED brightness.

### 5.6. **error:**

e.g. Problem in the data transmission, e.g. wrongly set frame delimiter. `errorMessage` parameter is defined in this event for the error code.

### 5.7. **responseReceived:**

The received string; `string` parameter is defined in this event. It can be used to analyse the content of the response received from the device.

## 6. Defined Methods

### 6.1. **put, post, get, del**

Common rest api methods

### 6.2. **internalMicGain**

Sets the internal microphone gain of the TC Bar M via the Gain Parameter, can be -60 .. 0 dB

### 6.3. **speakerVolume**

Sets the internal speaker volume of the TC Bar M via the Volume Parameter, can be 0 .. 100 %

### 6.4. **setLedBrightness**

Sets the LED ring brightness of the TC Bar M via the Brightness Parameter, can be 0 .. 5

### 6.5. **internalMicMute**

Sets the Mute State of the TC Bar M to muted

### 6.6. **internalMicUnMute**

Sets the Mute State of the TC Bar M to unmuted

### 6.7. **ident**

Get the device identity

## 7. Defined Rules in the Test Logic Module

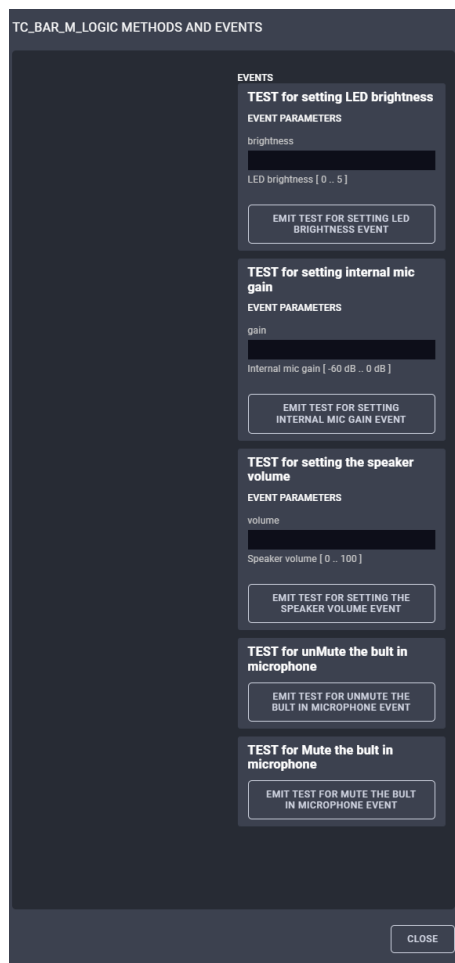
There are two kind of Rules defined in the TEST logic module:

### 7.1. Rules for testing

TEST setting internal mic gain, TEST setting LED brightness,

Test setting the spaker volume, TEST unmute, TEST mute.

Test Events can be emitted manually in the debug section of logic module, and designed to call the appropriate method of the TC Bar M driver e.g. to send the volume value for internal speaker.



### 7.2. Rules for operation

These Rules triggered by Events emitted by the TC Bar module, and designed to give feedback for changing the appropriate parameter of the TC Bar M driver e.g. gives feedback for changing the volume value for internal speaker.

Rev.	Release date	Changes	Editor
v1.0	07-06-2024	Initial version	Péter Szabó 3