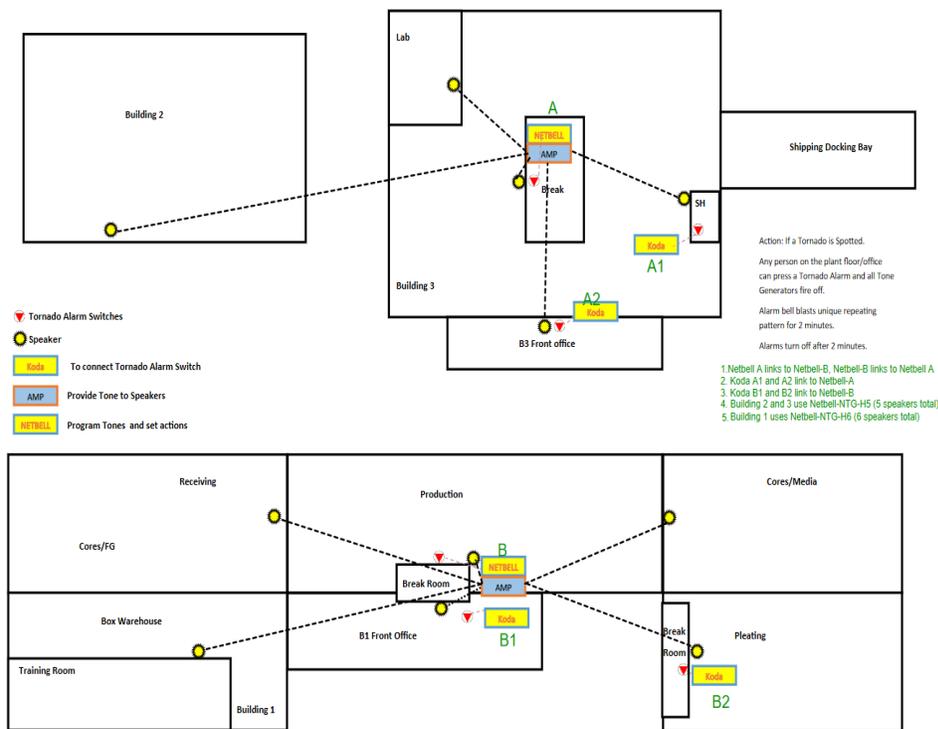


## Master-Slave Application for the Tornado warning using Netbell PA System and Koda100 controllers.

**Background:** I have a case with 3 buildings and we want to build a tornado warning system. Any person on the plant floor/office can press a Tornado Alarm switch if a tornado is spotted and it will ring from all speakers in our facility for two minutes. After two minutes it will turn off automatically. I'm wondering if your products can do it.



**Device to use:**

1. [Netbell-NTG-H6](#): for Building 1, 6 speakers in total
2. [Netbell-NTG-H5](#): for Building 2 and Building 3, 5 speakers in total.
3. [Koda 100](#): The Koda 100 will be used as a slave controller, to connect a push switch to activate the pre-recorded emergency alarm sound stored in the Netbell-NTG PA system controller over the network.

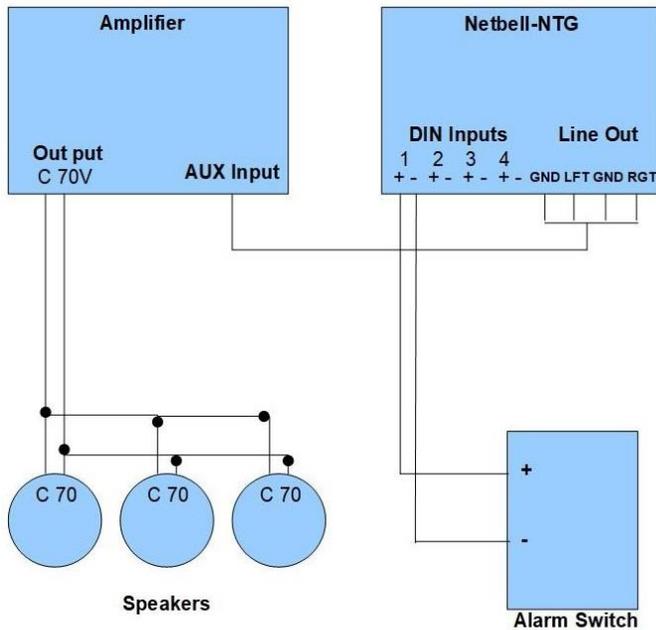
- Alarm Switches:** 6 switches will be placed across the buildings, marked on the map as A, A1, A2, B, B1, B2. The alarm switch will be connected to each Koda 100 slave controller and the Netbell-NTG PA system controller digital input.

**Challenges:**

We need to build a networked master-slave system so that each device can talk to each other over the network. In this case, we use the Netbell-NTG on each building as the master controller, every Koda 100 is set as slave controller. Then link the Netbell-NTG on each building together so that when someone pushes either switch, it will ring all the speakers.

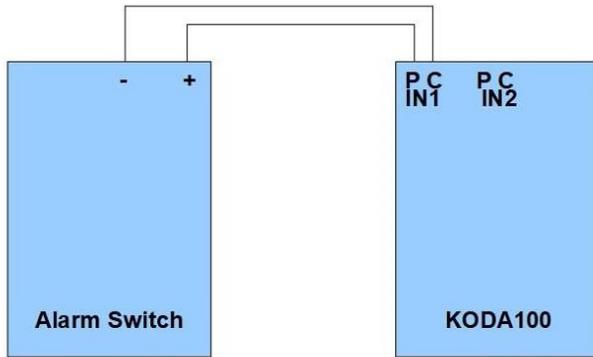
**Wiring:**

**1. Wire Netbell PA system and an alarm switch**



TORNADO WARNING SIMPLE SCHEMATIC

**2. Wire Koda 100 with an alarm switch**



ALARM SWITCH TO KODA100 CONNECTION SCHEMATIC

### Software configurations:

Each Linortek controller includes built-in remote function that you can use one device to control the other. To use this feature, you will need to link the devices together through their IP address so that they can talk to each other over the network.

As we stated in the Challenge section, we will use the Netbell-NTG as the master controller, and the Koda 100 as the slave. Link each of the slave controllers to the master in the same building, then link the two master controllers together (two ways, Master A links to Master B, Master B links to Master A).

To use the Master-Slave feature, we encourage you **NOT** to use **DHCP** on your controllers, use a static IP or a specific IP address if your network allows. That way, in the event of a power outage, you will not need to reset IP addresses. To use static IP on your remote controller, go to **Configure - Network Config** page, uncheck **Enable DHCP** box, enter the IP address assigned to that device, then click the **SAVE CONFIG** button.

If the slave controllers are not on the same network, you will need to port the controllers to the Internet, so that you can obtain a web address, then link the web address to the master controller.

Here are the steps we will need to perform in order to set up the system:

1. Link the slave controllers to the master
2. Link the push switch to a relay
3. Link the slave relay to master relay

#### 1. Slave (KODA100) Devices Setup

In order to make the devices to talk to each other, the first step is to link the **MASTER** controller to the **SLAVE** controllers through its IP address.

**1.1** To link the Master controller IP address to the Slave controller, login to your Slave device, go to **Configure** menu, then select **Remote Device Config** from the drop-down menu.

**1.2** On the Remote Device page, enter your remote device information, including Device Name, IP Address, Login User Name and Password.

Click **Save Config** button after finish.

The Remote Devices page for each Slave controller will look like this:

**LINORTEK** PAUSE

Home Services Tasks Logs Settings Configure System

### Remote Devices

These settings allow Fargo to remotely control another Fargo server. This is done by selecting the Remote Device in the Schedule program.

Remote Device Configuration Saved Successfully.

**CAUTION:** Incorrect settings will cause the board to lose its remote connections.

Enter the new settings for the board below:

No.	Device Name	IP Address	User name	Password
1	Master	172.16.1.109	admin	*****
2				
3				
4				
5				
6				
7				
8				

SAVE CONFIG CANCEL

### 1.3 Link the relay - Use the Slave controller relay to trigger the Master controller relay

Go to **Service - Relays**, select **Relay 1**, click the **Edit** icon, you will be at the **Set Relay page**.

**Name:** Give this relay a name

**Relay Type:** If you are not using the relay at the Slave and only to control the Master relays, just select **Remote**.

**Width:** If you use a push switch to trigger the relays, once you push the switch, the relay should be on until you release the button. But just in case, we would suggest giving the relays a maximum duration so that it won't be on forever. For example, if you want the relay to be on for **2 minutes**, put **2** here, then select **Min** from the next box.

**Pulse Width Multiplier:** Select **Min** if you want the relays to be on for 2 Minutes as the sample above.

**Location ID:** Enter the remote devices ID (from 1-8) which we set on Remote Device Setup page; the first column No. is the device ID.

**Relay at Location:** From 1-8, depending on which relay you want to control on the slave controller.

Click the **Save** button, the Master relay has been linked to the Slave relay.

**Set Relay**

This page allows the user to edit the settings for the individual relay selected on the previous page. Click "Save" to save changes made or click "Cancel" to return to the previous page. Leaving the page without clicking save will result in your changes being ignored by the Fargo server.

**Relay Set Details Saved Successfully.**

Relay Select: 1

Name: Bell No. 1

NO Name:

Com Name:

NC Name:

Pulse Width: 2

Pulse Width Multiplier: Min

Relay Type: Remote

Location ID: 1

Relay at Location: 1

Block Users: User1:  User2:  User3:

Send Email: Yes:

**SAVE** **CANCEL**

#### 1.4. Use Digital Input to Control Relay(s)

You can use a digital sensor or a push switch connecting to one the digital inputs to trigger the relays on slave and master controllers. When wiring the push switch to the digital input, please open the enclosure of your controller, make sure the digital input switch is at **PU** position.

Login to the master controller webpage to setup. When you press the push button, the relay will be turned on until released.

##### Set digital input to trigger a relay

To set the push switch to trigger the relay, go to **Services – In/Out** page, click **Input 1 (IN1)** edit icon if you connect the switch to input 1, you will be at Set Digital Input page.

**Name:** You can set a 15-character name for this input. This name goes in the bar at the top of the display.

**USE:** Sets this input to active. When this box is checked, it will turn the input number indicator to green.

**Type:** Select State, this is for knowing if an input is on or off.

**Display:** This selection lets you change the display type used.

**Relay L/T:** Enter **1L**, which means this input is linked to relay 1.

Click **SAVE** button.

## Set Digital Input

Digital Input Selected

Name

Label

Corrector  Two term corrector, use +,-,\*/ value, separate terms with space  
For example: +8 /1.5

USE :

Type

Display

Relay L/T  R#+L: Relay linked to Input state, R#+T: Triggers relay

Command L/Z/N/I  L: Load counter, Z: Zero Counter, N: Input Normal mode, I: Invert input

Value Min :  Max :

Yellow From :  To :

Red From :  To :

Green From :  To :

## 2. Master (Netbell-NTG) Devices Setup

**2.1** This step is **very important**. You have to connect both Netbell-NTG between each other to turn on all speakers in all buildings. If you **skip** this step, the Master controllers (Netbell-NTGs) will only trigger their own speakers. Follow to **Step 1** of this Application and add another Netbell-NTG to the Remote devices list. Repeat this step for each Master controller.

**2.2** In this case we need to play the Tornado alarm sound for **2 minutes**. There is no standard sound on Netbell-NTG sound list with the same duration, but you can create any other sound and save it on the built-in Micro SD card. Please refer to **Page 17** of the **Netbell-NTG User Manual**.

**2.3** Go to **Settings – Settings** to set Audio system. For instructions of how to set Audio, please refer to **Page 10** of the **Netbell-NTG User Manual**.

### 2.4 Set Relay

We have already explained above how to **set Relay** for Slave controllers (step 1.3). In this case we use Netbell-NTG to trigger Relay1 and Relay1 on Second Netbell-NTG, therefore we need to change **Relay type: Normal and Remote**.

### Set Relay

This page allows the user to edit the settings for the individual relay selected on the previous page. Click "Save" to save changes made or click "Cancel" to return to the previous page. Leaving the page without clicking save will result in your changes being ignored by the Fargo server.

Relay Select: 1

Name: Bell No. 1

NO Name:

Com Name:

NC Name:

Pulse Width: 2

Pulse Width Multiplier: Min

Relay Type: Normal and Remote

Location ID: 1

Relay at Location: 1

Block Users: User1:  User2:  User3:

Send Email: Yes:

**SAVE** **CANCEL**

## 2.5 Assigning Audio tone to Relay

The following screenshot will use the pre-recorded tone named "TORNADOW" for an example.

### Set Schedule

This page allows the user to edit the settings for the individual scheduled task selected on the previous page. Click "Save" to save changes made or click "Cancel" to return to the previous page. Leaving the page without clicking save will result in your changes being ignored by the Fargo server.

Schedule Select: 6

Schedule Name: Tornado Tone

Use:  Log  Email

**IF**

Device A: RELAY

Data A: 01+ A/D-In: <,=,>  
D-In: S=State. C=Cntr, c=Resetable Cntr, F=Freq., P=Period

Logic: NONE

Device B: NONE

Data B:  A/D-In: <,=,>  
D-In: S=State. C=Cntr, c=Resetable Cntr, F=Freq., P=Period

**THEN**

Device C: SEND UART

Data C: PTORNADOWOGG

Action: ON

**SAVE** **CANCEL**

## 2.6 Use Digital Input to Control Relay(s)

This step is completely identical to **Step 1.4** of this Application.



PAUSE

Home Services Tasks Logs Settings Configure System

### Set Digital Input

Digital Input Selected

Name

Label

Corrector  Two term corrector, use +,-,\*,/ value, separate terms with space  
For example: +8 /1.5

USE :

Type

Display

Relay L/T  R#+L: Relay linked to Input state, R#+T: Triggers relay

Command L/Z/N/I  L: Load counter, Z: Zero Counter, N: Input Normal mode, I:  
Invert input

Value Min :  Max :

Yellow From :  To :

Red From :  To :

Green From :  To :

All steps listed above have to be done **for both Netbell-NTG controllers and all Slave Koda100 controllers.**

### The Results:

At this point, when there is a tornado warning anyone can push the Warning button and it will turn on all speakers in the facility. After 2 minutes it will turn off automatically.