XTRA.EMERGENCY BUTTON

User Manual

Article No. 200.910

Copyright

Safety

All De Haardt's products are designed as supplement to make karting safer, but cannot replace safe track procedures. If equipment fails, the normal operating procedure must still be adequate to safely operate the track.

This document has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this publication or for their consequences.

Table of Contents

1 Getting started

This manual provides one with all the information needed to install, configure and use the Xtra.Emergency Button

The Xtra.Emergency Button is a product that can be used to stop or to slow down go karts and does not disconnect electrical circuits of the go karts. The Xtra.Emergency Button is a supportive product that could result in less dangerous situations. The Xtra.Emergency Button is designed as supplement to make karting safer but cannot replace safe track procedures.

1.1 What is in the box

Before proceeding, make sure the box contains the following items:

1. **Xtra.Emergency Button**

Figure 1 - Xtra.Emergency Button

2. **5 -meter-long Ethernet cable with a waterproof connector on one side**

Figure 2 - Ethernet cable

3. Power over Ethernet injector

Figure 3 - Power over Ethernet injector

1.2 Installation

Before installing the Xtra.Emergency Button, it is important to understand that the Xtra.Emergency Button is not able to stop or slow down go karts which are out of range. Therefore it is necessary to prevent any blind spots by using one or more Xtra.Black Boxes. The Xtra.Black Box is capable of receiving the messages of the Xtra.Emergency Button and forward them across a wide range on the track.

The Xtra.Emergency Button is a product that has to be activated manually. For this reason it is important that the Xtra.Emergency button is easy to access and installed at a location without obstacles.
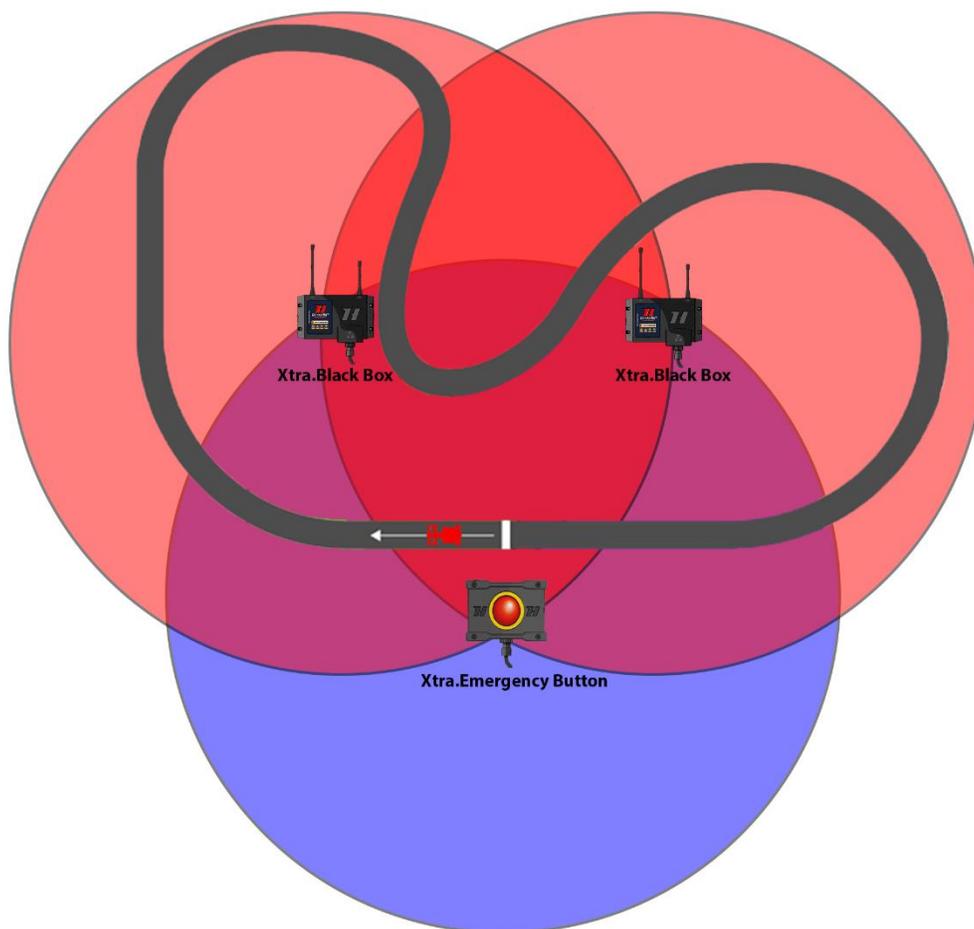

Figure 4 - Xtra.Emergency Button placement

1.2.1 Mounting

The Xtra.Emergency Button can be mounted using 4 bolts or screws as shown in figure 5. The Xtra.Emergency button has 4 holes, 2 holes on each side. It is necessary to mount the Xtra.Emergency Button on flat surfaces to guarantee its functionality. By using 4 bolts or screws it is possible to hang the Xtra.Emergency Button on flat surfaces.
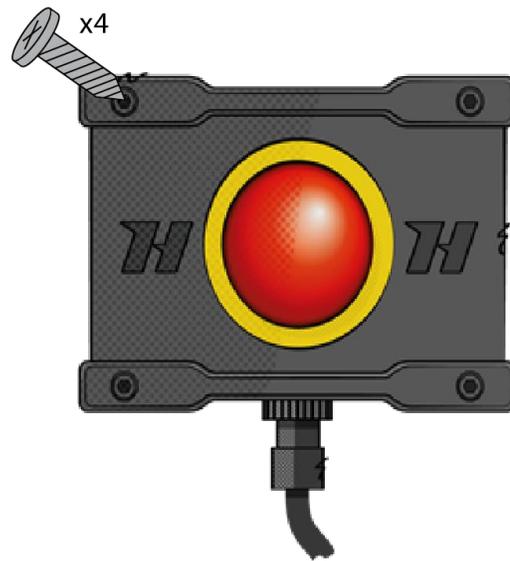

Figure 5 - Xtra.Emergency Button mounting

The Xtra.Emergency Button must be mounted vertically as shown in figure 5.

Figure 6 - Mounting orientation

Mounting the Xtra.Emergency Button on a wall or fence with steel in it may result in loss of radio signal.

> ⚠️ Mounting the Xtra.Emergency Button to a wall or plate made of metal may result in radio dysfunctionality.
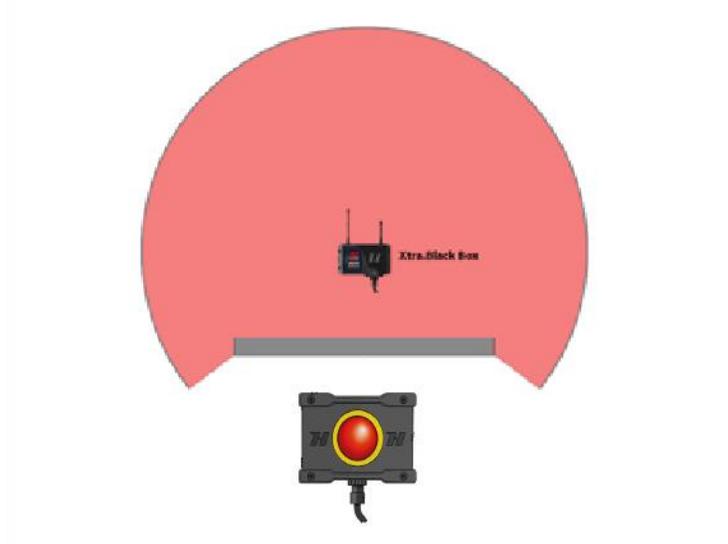

Figure 7 - Wall blocking radio signals

1.2.2 Connecting

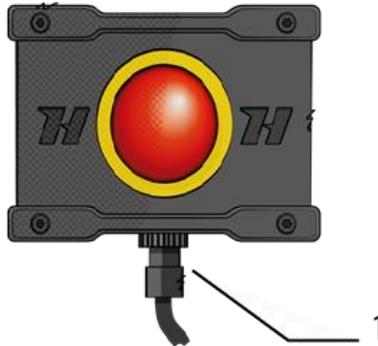This chapter describes how to connect the Xtra.Emergency Button.

Figure 8 - Xtra.Emergency Button

1. **Ethernet connector:** Used to provide power to the Xtra.Emergency Button through power over Ethernet and may also be used for Ethernet communication. The waterproof connector of the supplied Ethernet cable must be connected to the Ethernet connector of the Xtra.Emergency Button and the other end of the cable must be connected to the port labeled OUT on the power over Ethernet injector.

Figure 9 - Power over Ethernet injector

The power over Ethernet injector features two ports labeled IN and OUT. The port labeled OUT should be used to connect the power over Ethernet injector to the Xtra.Emergency Button using the supplied Ethernet cable. The port labeled IN may be used to provide the Xtra.Emergency Button with access to an Ethernet network by connecting the port to a network router or switch using an Ethernet cable.

> For the power over Ethernet injector to function, it must be plugged into a wall socket.

> The side of the supplied Ethernet cable that connects to the power over Ethernet injector as well as the power over Ethernet injector itself are **NOT waterproof**. Make sure these are protected from water!

2 Operation

2.1 Overview

The front of the Xtra.Emergency Button is provided with 6 LEDs around the push button.

Figure 10 - Front with indication LEDs

2.2 Indication LEDs

The 6 LEDs on the front of the Xtra.Emergency Button will light up the push button when the Xtra.Emergency Button has been powered on. These LEDs can have the following conditions:

- White light: Idle mode - > ready to be activated, push button is active and could be pressed.
- Red light blinking: Active mode -> the button has been pressed. Xtra.Emergency Button sends signals to go karts. For a, in the webpage configured, duration the red light will continue blinking.
- Red light: Active mode -> Xtra.Emergency Button sends signals to go karts. The red light is no longer blinking instead in a stable red light and can be pressed again to disable the Xtra.Emergency Button.
- Red light Always on mode: In this mode the Xtra.Emergency Button will not be disabled by pressing the push button. It will continue to send for 10 minutes.

3 Configuration

The Xtra.Emergency Button can be configured using the products web interface. This chapter describes how to access the web interface and what the different settings are.

3.1 Accessing the web interface

The web interface can be accessed using any device featuring a web browser. When the IP address of the Xtra.Emergency Button is entered into the address bar of a web browser, the products web interface will appear. If the IP address is unknown, the web interface can also be accessed through File Explorer on a Windows computer.

> To be able to access the web interface, the Xtra.Emergency Button should be connected to the same Ethernet network as the device you are trying to access the web page from.

1. Press **Windows Key + E** on your keyboard to open **File Explorer**
2. Use the navigation pane on the left to open the **Network Tab**
3. In the **Other Devices** category, the Xtra.Emergency Button appear as in figure 11.
4. Double clicking the Xtra.Emergency Button will open the web interface using the default web browser.
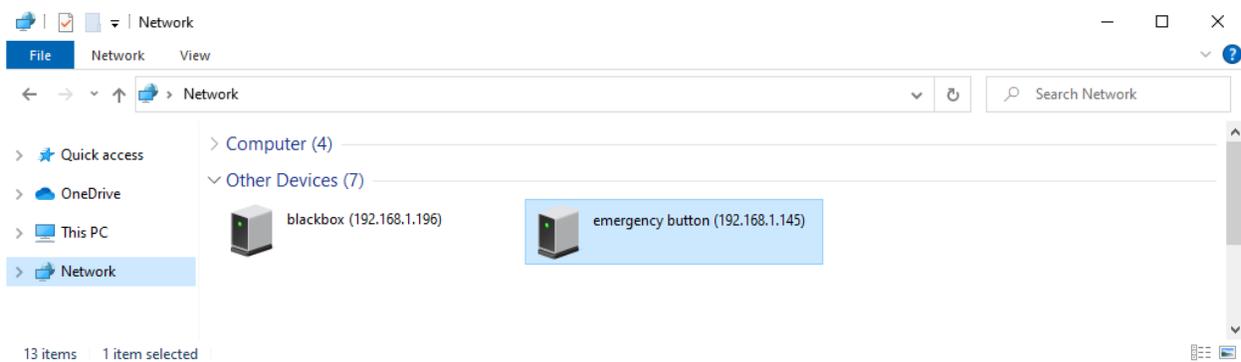

Figure 11 - Network Tab of File Explorer (Windows 10)

> A firewall may hinder the detection of the Xtra.Emergency Button and therefore prevent the product from appearing in the Network Tab of File Explorer.

3.2   Using the web interface

The web interface is divided into 4 webpages:

1. **Home:** Provides an overview of the active general settings.
2. **Setup:** Allows the user to change the settings of the Xtra.Emergency Button.
3. **Run Time Statistics:** Provides statistics for support purposes.
4. **System Tools:** Allows the user to perform a firmware update.

The navigation bar on the left side of the web interface can be used to switch between the 4 web pages.

3.2.1   Login
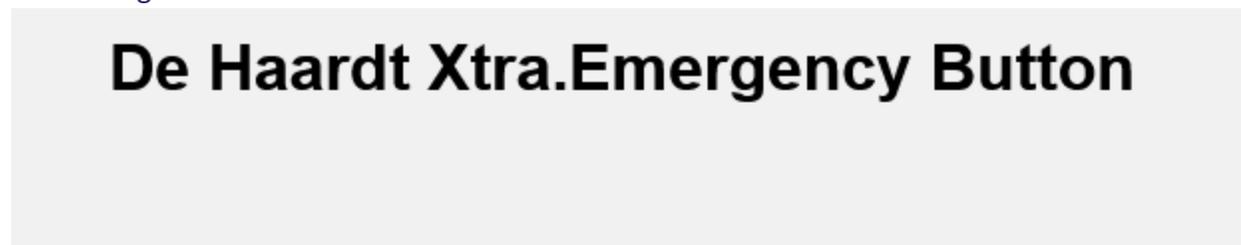
Figure 12 login with pincode

On this page you login with the pincode. The pincode can be changed at any time in the system tools page.

3.2.2   Home

The home webpage provides an overview of the active general settings. The current LAN and Xtra.Network settings are displayed here. For further explanation about these settings, see 3.*2.3 Setup*. The home webpage also displays the firmware version, hardware version and serial number of the Xtra.Emergency Button.
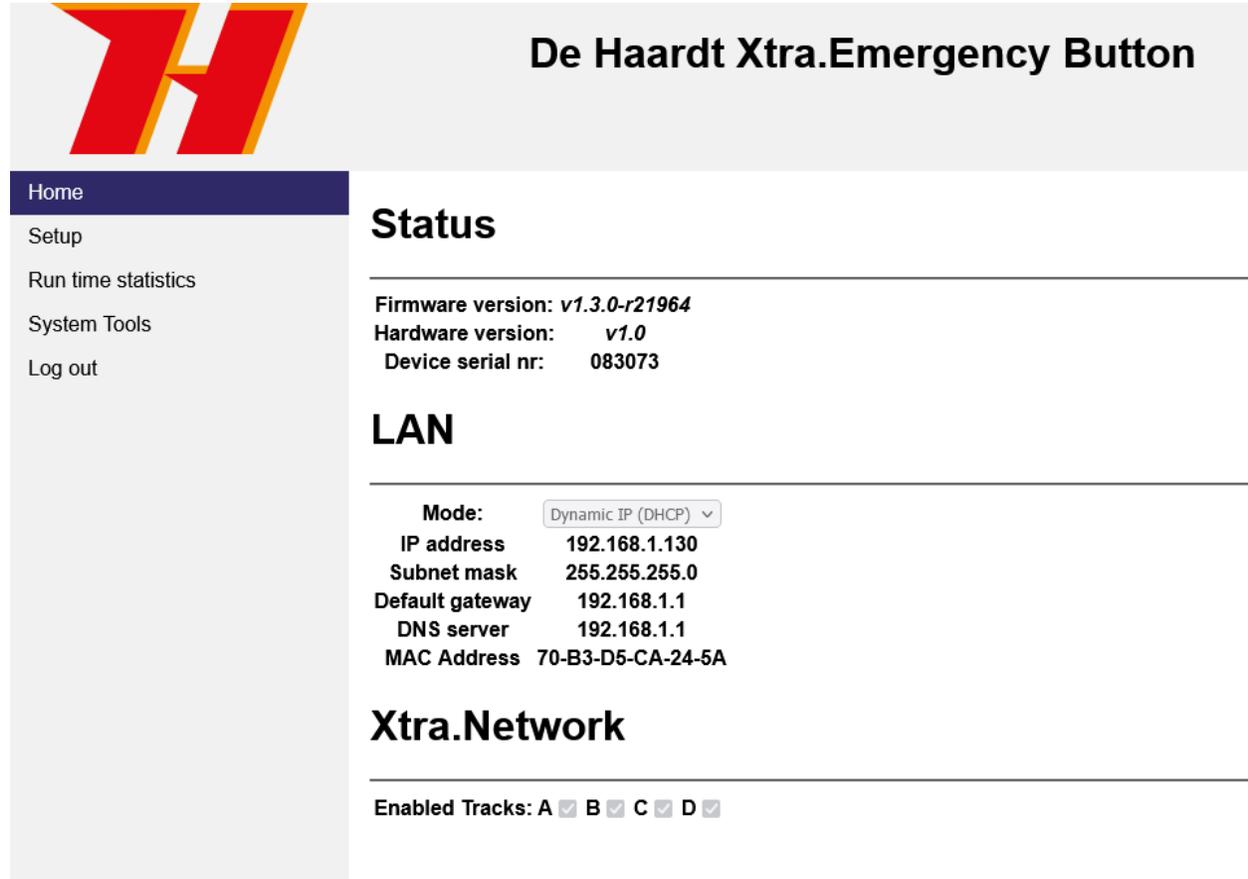
De Haardt Xtra.Emergency Button

Home

Setup

Run time statistics

System Tools

Log out

Status

Firmware version: *v1.3.0-r21964*
Hardware version: *v1.0*
Device serial nr: 083073

LAN

Mode: Dynamic IP (DHCP) ⌄
IP address 192.168.1.130
Subnet mask 255.255.255.0
Default gateway 192.168.1.1
DNS server 192.168.1.1
MAC Address 70-B3-D5-CA-24-5A

Xtra.Network

Enabled Tracks: A ☑ B ☑ C ☑ D ☑
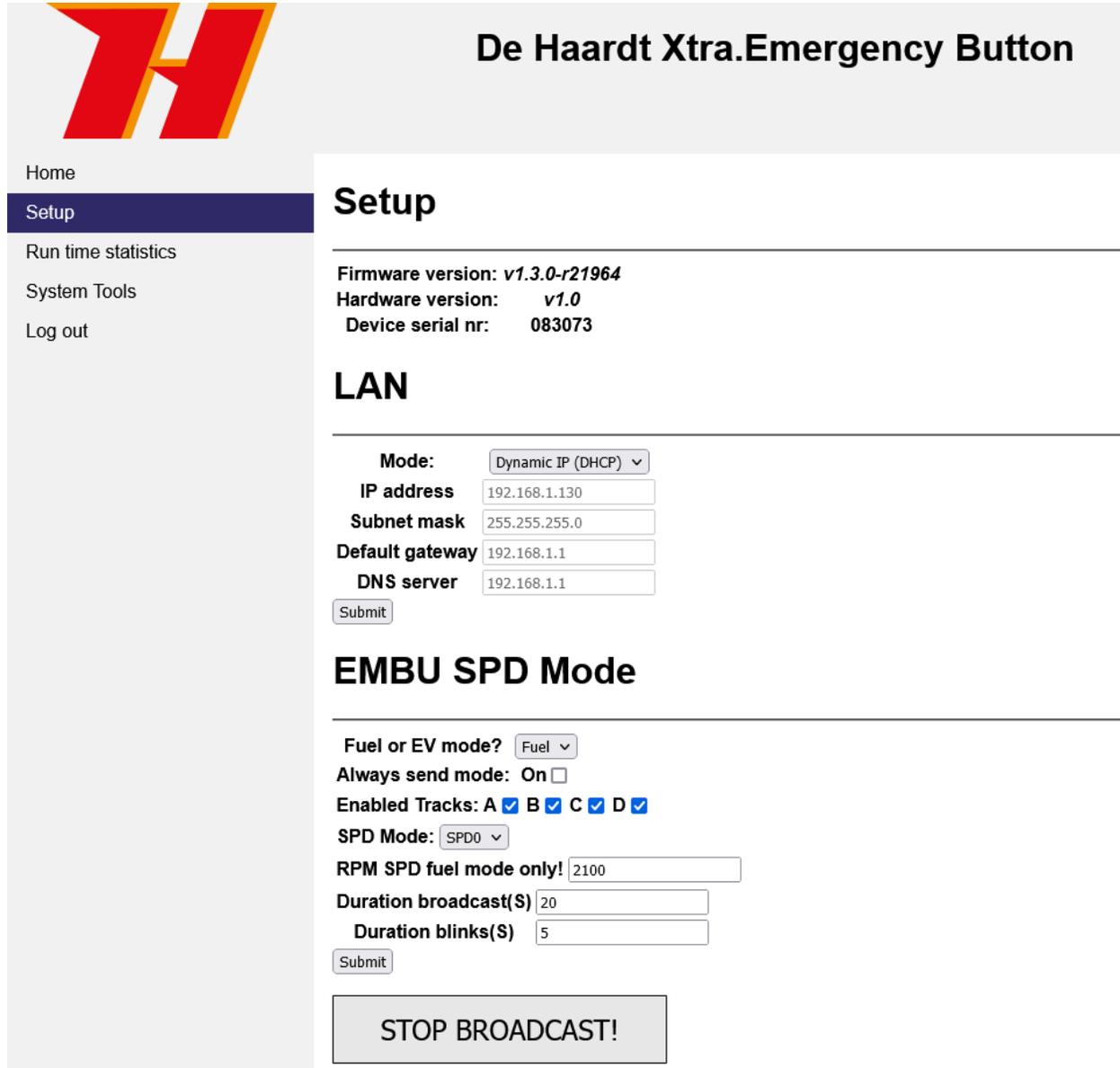
Figure 13 - Home webpage

3.2.3 Setup

The setup webpage allows the user to change the settings of the Xtra.Emergency Button.
The webpage is divided into 3 sections:

1. **LAN:** Change the LAN settings.
2. **EMBU SPD Mode:** Change the function of the push button.

Each section will be explained separately in this paragraph. The setup webpage also displays the firmware version, hardware version and serial number of the Xtra.Emergency Button.

Figure 14 - Setup webpage

⚠️ **IMPORTANT:** Select the correct mode(Fuel or EV) for your karts or the emergency button might not function properly.

3.2.3.1   Change the LAN settings

In the LAN section, two modes can be selected: Dynamic IP (default) and Static IP. When the Static IP mode is selected, the user must provide some network properties. After changing the LAN mode, the Xtra.Emergency Button needs to be restarted for it to take effect. This can be done by temporarily removing the power from the device or by using the restart button on the System Tools webpage.

LAN

Mode:	Dynamic IP (DHCP)
IP address	192.168.1.129
Subnet mask	255.255.255.0
Default gateway	192.168.1.1
DNS server	192.168.1.1

Figure 15 - LAN section of the setup webpage

> ⚠ The Static IP mode should only be selected by users with knowledge of the local network. Entering incorrect network properties may result in loss of access to the web interface and/or the Xtra.Emergency Button itself.

3.2.3.2   Enable or disable tracks

In the EMBU SPD Mode section, the user can indicate to which karting tracks the Xtra.Emergency Button belongs using checkboxes. This is so that the product only responds to radio signals that are intended for these tracks. By default, all tracks are enabled. If none of the tracks are enabled, track A will be enabled automatically.

EMBU SPD Mode

Enabled Tracks: A ☑ B ☑ C ☑ D ☑

Figure 16 - Xtra.Network section of the setup webpage

3.2.3.3   EMBU SPD Mode

In the EMBU SPD Mode section, the function of the button can be changed from EV mode to fuel mode and vice versa. The Xtra.Emergency Button can be used to stop or slow down go karts. Besides it is also possible to configure the duration that the Xtra.Emergency Button will be active after the button has been pressed. To change these functions of the push button, the following steps must been taken:

1. Select the dropdown menu at "Fuel or EV mode?" And select the preferred setting. If "Fuel mode" is selected, make sure a valid RPM value has been filled in that corresponds the RPM value for the preferred speed setting. Maximum value is 4500 RPM. Minimum value is 1500 RPM.
2. Always send mode: When this enabled it will activate the emergency button on start up.
3. Enable the preferred active tracks.
4. Select the preferred speed mode.
5. Select the preferred broadcast duration time in seconds. When the value 0 has been filled, the Xtra.Emergency Button will send continuously. The Xtra.Emergency Button has to be reset manually to disable the active state. If a preferred duration has be configured, the Xtra.Emergency Button will reset automatically when the duration has been passed.
6. Enter the preferred button light blink duration in seconds. After this period the Xtra.Emergency Button will stop blinking and will be continuously red. The Xtra.Emergency Button can at that point be disabled by pressing the button for a second time.
7. Press the submit button to save the new configuration.

Figure 17 - Safety Lighting section of the setup webpage

> ⚠️ The RPM value <u>must</u> be filled in before submitting the preferred speed setting for fuel go-karts (Fuel mode only). The Default RPM value is 2100.

> ⚠️ Changing the configuration from continuously sending to a specified duration may result in dangerous situations. Continuously sending is the default setting (duration 0).

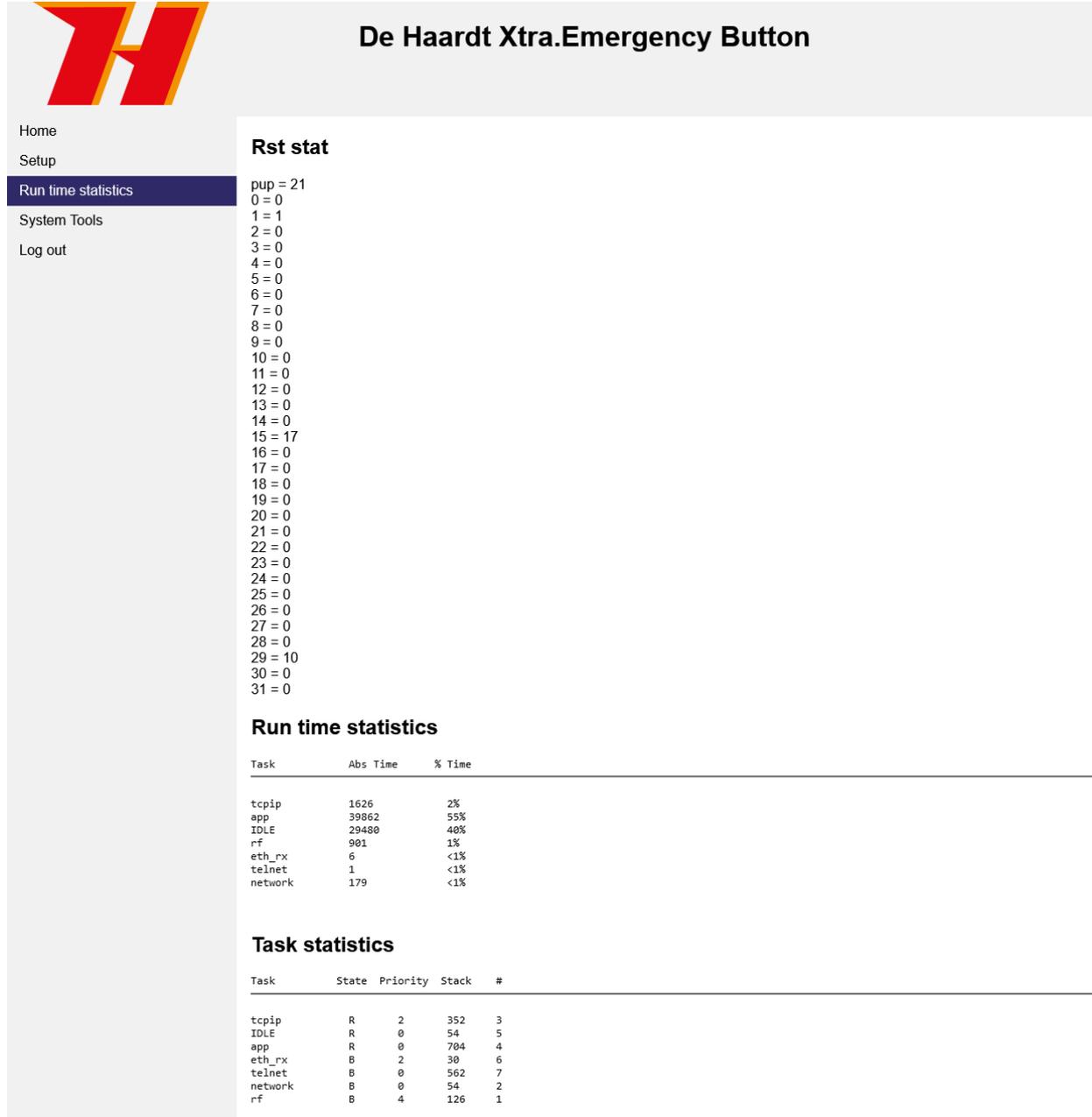> ℹ️ The default function of the Xtra.Emergency Button is to <u>slow down</u> all go karts to SPD 1.

After the button has been pressed, the Xtra.Emergency Button is active and will send radio signals until it has been reset or the preferred duration has been passed. When duration 0 (continuously mode) has been chosen, it is possible to reset the Xtra.Emergency Button in the following ways:
- Power cycle
  - o Remove the Ethernet cable and put it back after a few seconds.
- Press the "RESET EMBU!" Button in de "EMBU SPD Mode" section on the webpage.

The Xtra.Emergency Button will reset and change the red lights to white lights.

3.2.4 Run Time Statistics

The Run Time Statistics webpage provides statistics for support purposes. When there is a problem with the Xtra.Emergency Button, a support employee of De Haardt can use this data to identify the issue.

Figure 48 - Run Time Statistics webpage

3.2.5 System Tools

The Systems Tools webpage allows the user to perform a firmware update. There are two options to upgrade to a new firmware version: perform a manual firmware update or check for online firmware updates.

Figure 59 - System Tools webpage

3.2.5.1   Perform a manual firmware update

A manual firmware update can be performed in the following way:

1. In the web firmware upgrade section, click the browse file button.
2. Select the firmware update file supplied by De Haardt using the File Upload window.
3. In the web firmware upgrade section, click the upgrade button.
4. Wait for the new firmware version to be downloaded.
5. Restart the Xtra.Emergency Button. This can be done by temporarily removing the power from the device or by using the restart button on the webpage.

> ⚠ Do not select any file that is not supplied by De Haardt. Doing so can cause the Xtra.Emergency Button to stop working.

Figure 20 - Web Firmware Upgrade section of the Systems Tools webpage
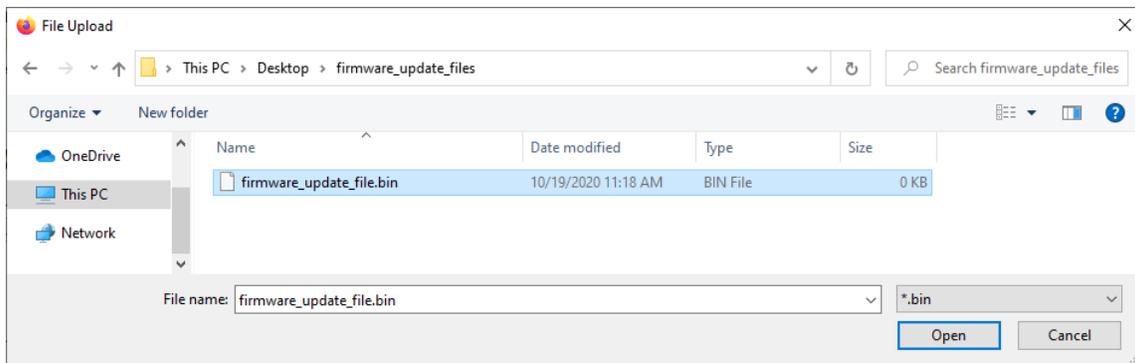

Figure 21 – File Upload window

> 🛈 If the firmware update file is not displayed in the File Upload window, try changing the dropdown box above the "Open" and "Cancel" buttons to "All Files (*.*)".

Figure 22 - Firmware downloading

> ⚠ Wait for the firmware download to complete or the Xtra.Emergency Button will not be updated.

3.2.5.2 Change pin code

The user can choose to change the pincode required to enter the webpage. To change the pincode the following steps must be taken:

1. Enter the old pincode in the "Old pincode" field. Default is "0000".
2. Enter the new pincode in the "New pincode" field. The pincode can consist of 4 numbers. Letters are not allowed.
3. Confirm the new pincode in the "Confirm new pincode" field.

Set new pincode

Old pincode	Enter Pincode
New pincode	Enter Pincode
Confirm new pincode	Enter Pincode

Submit

Figure 23 Set new pincode

4 Technical specifications

This chapter describes the technical specifications of the Xtra.Emergency Button.

4.1 Specification overview

Description	Min	Typical	Max	Unit
Operational temperature	-5		50	°C
Operation voltage	48		56	V
Input current*	15	30	80	mA
Radio Range safety band**		100		m
Radio frequency 1		433		MHz
IP code	IP57			

*Ambient temperature 20°C.

** The environment is of great influence on the achieved range.

> ⚠ At lower temperatures the push button can give more resistance before it will be activated.

4.2 Water and dust resistance

The Xtra.Emergency Button is rated as an IP57 device.

> ⚠ De Haardt cannot be held responsible for water damage when:
> - An Ethernet cable other than the one supplied is used.

4.3 Power over Ethernet

The Xtra.Emergency Button is in compliance with the IEEE 802.3af standard.

If the Xtra.Emergency Button is powered with a POE switch, make sure that the POE port from the switch supports at least 6,5W.

> ℹ According to the standard, an Ethernet cable with a maximum length of 100 meters may be used. However, De Haardt recommends using the supplied 5-meter-long cable.

> ⚠ The side of the supplied Ethernet cable that connects to the power over Ethernet injector as well as the power over Ethernet injector itself are **NOT waterproof**. Make sure these are protected from water!

5 Support

For support, one can contact the support department of De Haardt by email: support@de-haardt.com