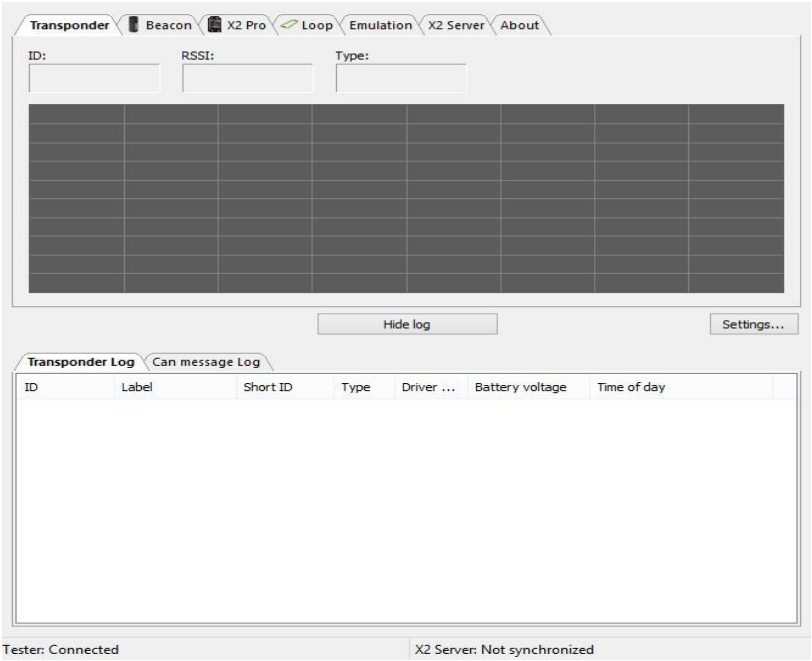
# MYLAPS X2 USB Tester




# MANUAL

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# Contact Information

**MYLAPS EMEA Office**
Haarlem
The Netherlands
Tel: +31 23 7600 100
E-mail: info@mylaps.com

**MYLAPS Americas Office**
Atlanta
USA
Tel: +1 678 816 4000
E-mail: info.americas@mylaps.com

**MYLAPS Japan Office**
Tokyo
Japan
Tel: +81 3 6418 8209
Email: info.japan@mylaps.com

**MYLAPS Asia Australia Pacific Office**
Sydney
Australia
Tel: +61 2 9546 2606
Email:info.asia.pacific@mylaps.com

**MYLAPS Asia Office**
Kuala Lumpur
Malaysia
Tel: +60 356 131 235
Email: info.asia@mylaps.com

**www.mylaps.com**

# 1. Introduction

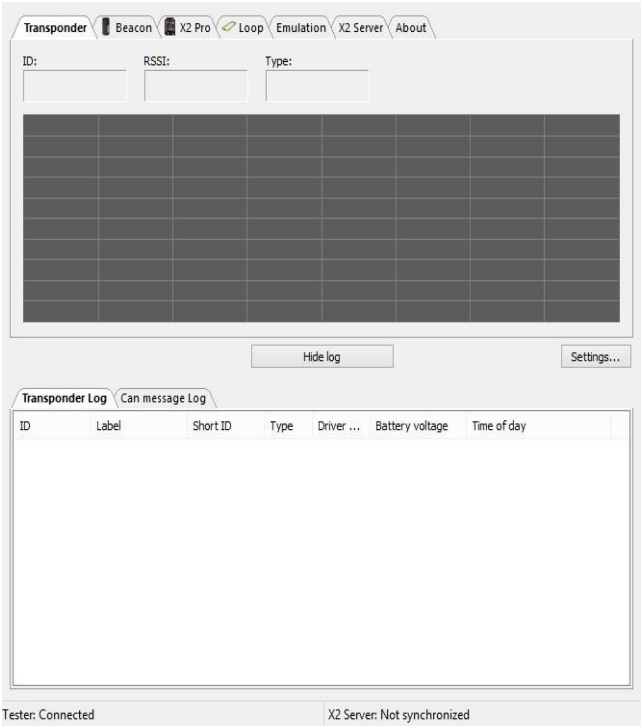
The X2 Tester is an application which has to be used in conjunction with the USB Transponder Reader and then can read transponder and beacon information. Besides this it can also be used to test a loop and send test transponder signals to a loop. It's also possible to synchronize with an X2 Server, after this the software is able to identify a transponder by its label stored in the X2 Server.

# 2. X2 Tester Hardware

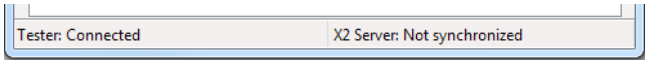
The X2 Tester hardware consists of a USB Transponder Reader and a USB cable to connect the reader to the PC.

When the reader is connected to the PC and the X2 Tester software, the LEDs near the USB connector of the reader will light up green. A red LED indicates that the reader is not connected yet.

Do **not** connect the reader to the PC before or during the installation of the X2 Tester software!




When the software detects a correctly connected USB Transponder Reader, it will show 'Tester: Connected' in the lower left corner of the application.



# 3. X2 Tester Software

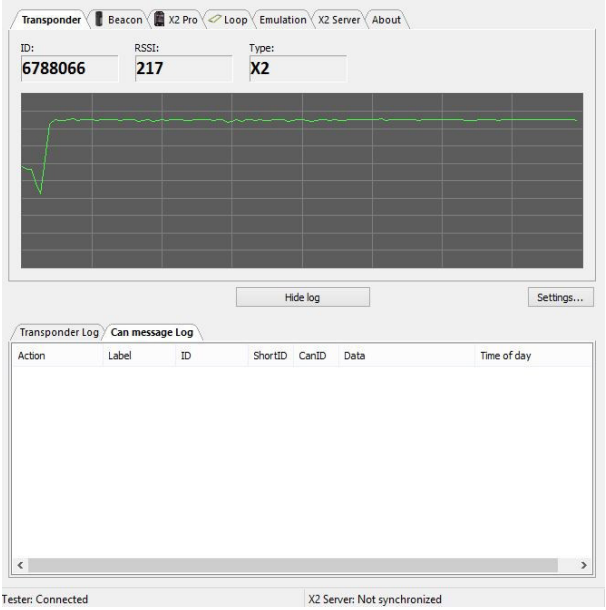
## 3.1 Introduction

The X2 Tester software consists of the X2 Tester application and a driver for the USB Transponder Reader, which are installed by one installer. The software can be downloaded via the following link: [http://support.amb-it.com/x2tester/X2Tester_Setup.exe](http://support.amb-it.com/x2tester/X2Tester_Setup.exe)

## 3.2 Transponder tab

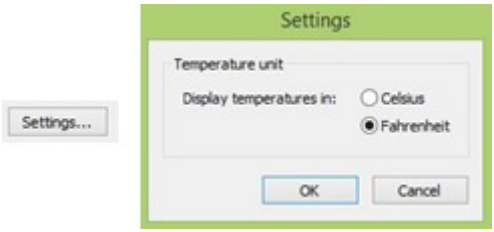
On the Transponder tab the ID, RSSI (received signal strength indicator) and type of the detected transponder will be shown. To get an impression of the RSSI of a transponder the graph on the right will show the RSSI over a period of time. Click on 'Show log' to open the information fields which will be used when a transponder is received. When receiving a battery powered transponder which is low on power a 'Low' indication will be shown in the battery voltage column.

When receiving a transponder with driver ID functionality the driver ID number will be shown in the driver column. As long as the application is running the previously detected transponder data will be added to a list at the bottom of the transponder tab. For later reference all transponder data will also be saved to a comma separated log file which will be stored in the application directory.



The tester is very useful to determine the best possible position on a vehicle. When the tester is placed on the ground underneath the vehicle you can determine the best possible position for your transponder. This is the position where the received signal strength is the highest. When placing a transponder try to avoid to place the transponder in a closed metal loop, because this is a short circuit for the magnetic signal.

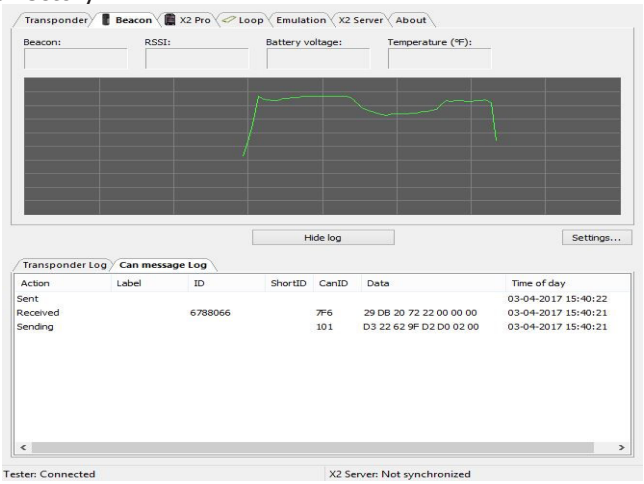
When clicking on the 'Settings' button you can select to display temperature in Celsius or Fahrenheit. Please note that temperature is only available in selected devices. Supported transponders are MYLAPS CAR/BIKE/KART/MX Type3, X2 and ProChip.




### 3.3 Beacon tab

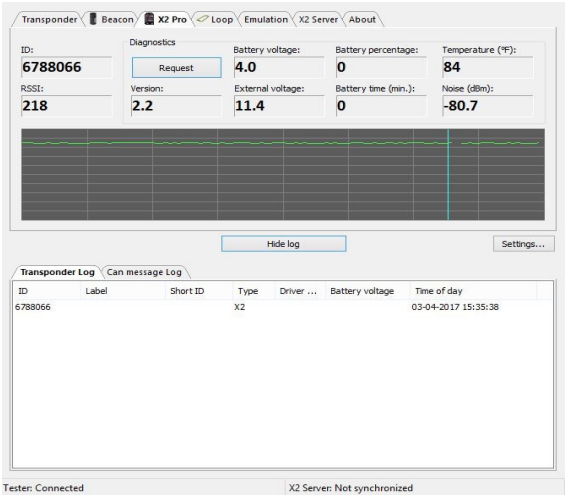
On the Beacon tab the ID, RSSI (received signal strength indicator), battery voltage and temperature of the detected beacon will be shown. To get an impression of the transmission RSSI of a beacon the graph will show the RSSI over a period of time.

As long as the application is running the previously detected beacon data will be added to a list at the bottom of the beacon tab. For later reference all beacon data will also be saved to a comma separated log file which will be stored in the application directory.



### 3.4 X2 Pro tab

The X2 Tester application can also be used to get diagnostic information from an X2 Pro Transponder. Click on the 'Request' button and the transponder will respond with diagnostic information among which it's version, received noise level, temperature and battery information.

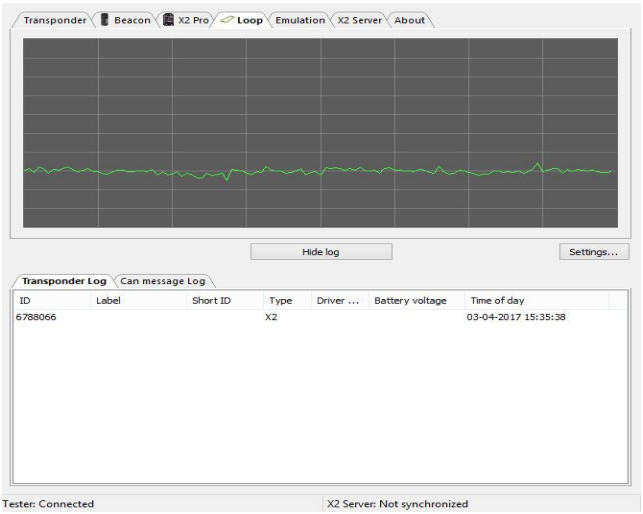



Notes:

- X2 transponders will only send diagnostic information in X2 mode and after waking up it will take some time for an X2 transponder to switch to X2 mode.
- The transponder updates its battery information periodically, so it can take some time before this information is updated.
- X2 Transponders use motion detection to save power. Before testing make sure the X2 Transponder is activated by means of vibration/movement

### 3.5 Loop tab

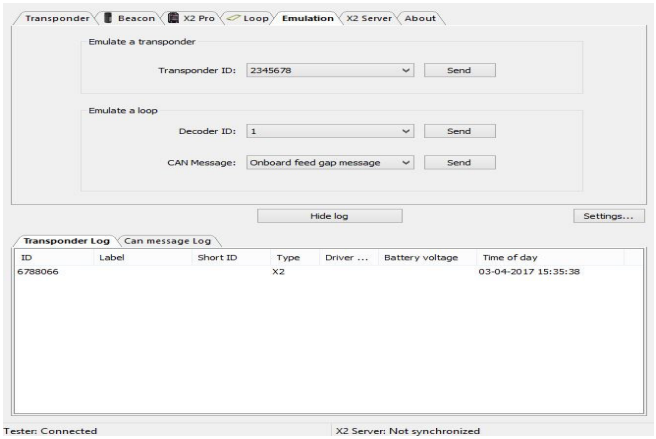
In conjunction with a Loop Tester in transmit mode, the X2 Tester can be used to locate a broken loop wire. Put the Loop Tester in transmit mode and hold it above the loop, sweep the USB Transponder Reader above the loop wire on about the same height as the Loop Tester. The loop wire is probably broken when the graph shows a significant drop in RSSI.



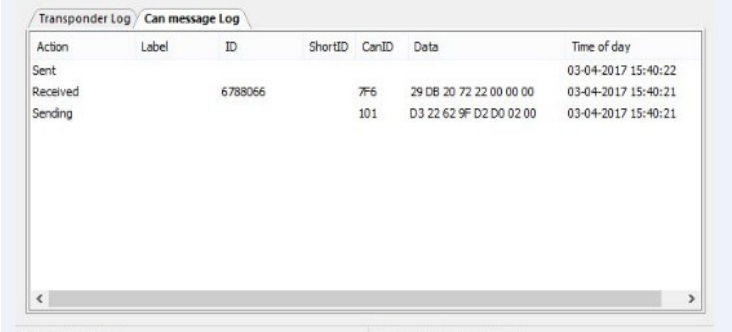

### 3.6 Emulation tab

To test a loop, it's possible to emulate a couple of transponder numbers on the emulate a trasponder section. To test a loop hold the USB Transponder Reader above a loop, select a transponder number from the dropdown box and click 'Transmit'. A transponder signal with the chosen number will be transmitted by the reader. Correct reception can be checked in the X2 Manager software or X2 compatible timing software.

To emulate a loop passing for the X2 transponder, select a decoder ID in the emulate loop section and click on send. A loop ID will be transmitted to the X2 transponder and will also put this information on the CAN-bus. Note that the transponder emulator only emulates a TranX transponder signal.



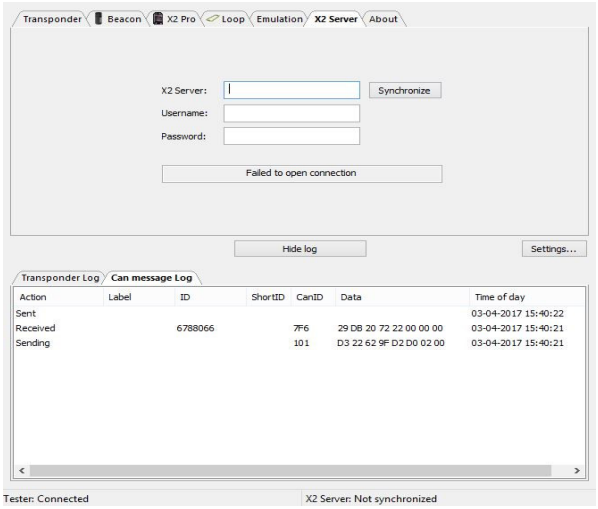
In emulate a loop section it is possible to send a CAN message to the CAN bus which is connected to the X2 transponder. Some default messages are available from the pull down menu. Select a message and click on send to transmit the message. In the CAN message log you can monitor the received and send CAN messages.



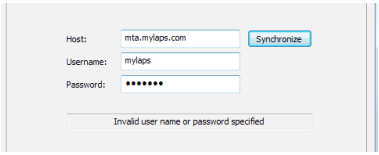

The CAN messages from the drop down list come from a XML file. It is possible to add CAN messages to this file. When done they will appear in the drop down list. Please refer to appendix A for a detailed description.

### 3.7 X2 Server tab

On the X2 Server tab transponder data (label and short ID) can be read from an X2 Server. This enables the identification of a transponder by its label or short ID stored in an X2 Server, making it possible to check if transponder relations are correct. The last time the data is synchronized with the X2 Server is shown in the lower right corner of the application.

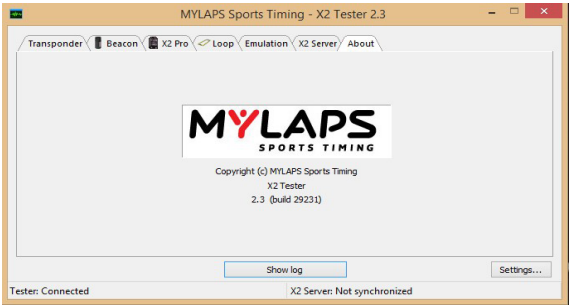


During the connection with the X2 Server the status of the connection will be shown. Login failures will also be displayed.




### 3.8 About tab

The version of the software can be found on the About tab.




### 3.9 Notification area

The X2 Tester application can also be found in the notification area of the taskbar and if the application is minimized it will automatically minimize to the notification area.

# Appendix A - Loop Emulator XML description

| Elements | Attribute/ Level | Description | Type | Occurance |
|---|---|---|---|---|
| loopemulator | 0 | The root element | | 1 |
| messagesequence | 1 | Element that holds can message | | 1..* |
| | **name** | Name of message sequence | String | 1 |
| tbm | 2 | Nr of seconds between messages (min. 1.0 sec) | Decimal number | 0..1 |
| canmessage | 2 | Group of competitors | | 1..* |
| | **name** | Name of can message | String | 0..1 |
| towayid | 3 | 2-way id used to send the message | Decimal number | 1 |
| canid | 3 | Can id of message | Hexadecimal number | 1 |
| rtr | 3 | Remote transmission request | Boolean | 0..1 |
| data | 3 | Can databytes | Hexadecimal number | 0..8 |

**Example**

```
<loopemulator>
        <messagesequence name=”Test with one message”>
                <canmessage>
                        <twowayid>60</twowayid>
                        <canid>F6</canid>
                        <rtr>0</rtr>
                        <data>12</data>
                        <data>34</data>
                        <data>56</data>
                        <data>78</data>
                        <data>90</data>
                        <data>AB</data>
                </canmessage>
```

```
        </messagesequence>
        <messagesequence name="Onboard feed message sequence">
                <tbm>1.5</tbm>
                <canmessage name = "Lap time">
                        <twowayid>1</twowayid>
                        <canid>100</canid>
                        <rtr>0</rtr>
                        <data>8B</data>
                        <data>19</data>
                        <data>98</data>
                        <data>05</data>
                        <data>44</data>
                        <data>06</data>
                        <data>58</data>
                        <data>01</data>
                </canmessage>
                <canmessage name = "Gap">
                        <twowayid>1</twowayid>
                        <canid>101</canid>
                        <rtr>0</rtr>
                        <data>D3</data>
                        <data>22</data>
                        <data>62</data>
                        <data>9F</data>
                        <data>D2</data>
                        <data>D0</data>
                        <data>02</data>
                        <data>00</data>
                </canmessage>
                <canmessage name = "Personal">
                        <twowayid>1</twowayid>
                        <canid>102</canid>
                        <rtr>0</rtr>
                        <data>DB</data>
                        <data>A0</data>
                        <data>A4</data>
                        <data>02</data>
                        <data>F0</data>
                        <data>01</data>
                        <data>00</data>
                        <data>00</data>
                </canmessage>
        </messagesequence>
</loopemulator>
```

**MYLAPS EMEA**
Haarlem, The Netherlands
E: info@mylaps.com

**MYLAPS AMERICAS**
Atlanta, USA
E: info.americas@mylaps.com

**MYLAPS JAPAN**
Tokyo, Japan
E: info.japan@mylaps.com

**MYLAPS AUSTRALIA ASIA PACIFIC**
Sydney, Australia
E: info.asia.pacific@mylaps.com

**MYLAPS ASIA**
Kuala Lumpur, Malaysia
E: info.asia@mylaps.com

**www.mylaps.com**