

# blue PiraT2

## RCV User Guide

Version 1.9.1 - 30.01.2014



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### 3. Overview

The blue PiraT Remote Control (RC) and Remote Control Voice (RCV) are remote controls and external display devices for the blue PiraT and the blue PiraT 2 data logger. They provide the following functions:

- Setting trigger
- Display a list of set triggers
- Show the Date and time
- Display of status information on the recorded buses (bus load etc.)
- Sound feedback by set trigger and key press
- Dimmable backlight of the display
- Dimmable lighting keys (just Remote Control Voice)
- Ten function keys in preparation for feature enhancements
- Expandable menu navigation
- Record and play back voice messages (just Remote Control Voice)

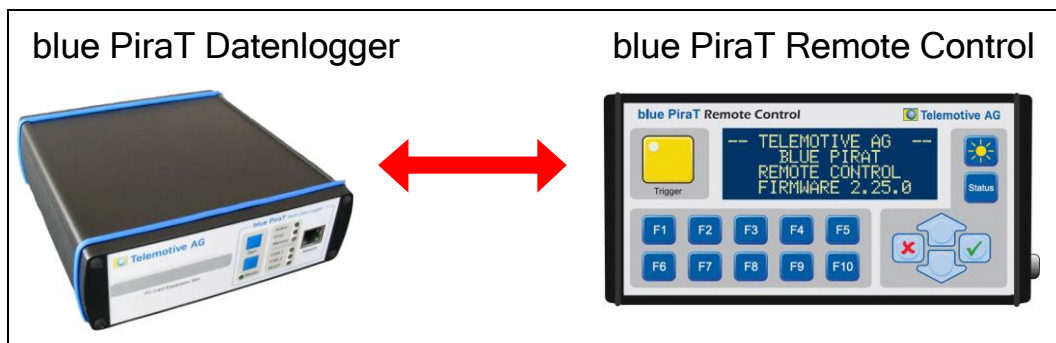


Figure 1: The blue PiraT 2 system with an attached remote control

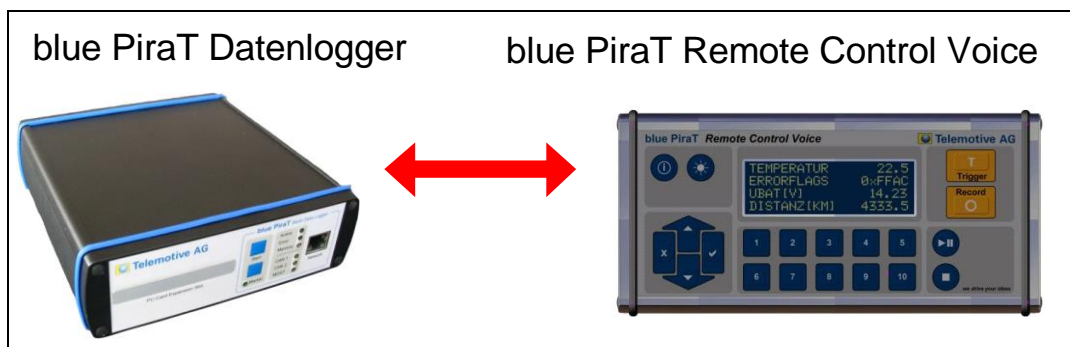


Figure 2: The blue PiraT 2 system with an attached remote control voice

## 4. Connecting the RCV

### 4.1. Connecting the Remote Control (Voice) to blue PiraT / blue PiraT2

To connect the Remote Control or Remote Control Voice to the blue PiraT / blue PiraT2 a special universal cable set and a connection cable is necessary. Figure 3 shows the connection. The connection cable is plugged into the right side of the Remote Control.

**Fehler! Es ist nicht möglich, durch die Bearbeitung von Feldfunktionen Objekte zu erstellen.**

**Figure 3: Connecting the Remote Control to the data logger**

#### **Note:**

By using a RC or RCV the power supply voltage must be limited to

- 18 V in combination with RV
- 24 V in combination with RCV

## **4.2. Cascading**

In addition to the universal cable set, a special cascading adapter is necessary.

### **Note:**

It is not permitted to use the cascading adapter without plugged Remote Control or Remote Control Voice.

**Fehler! Es ist nicht möglich, durch die Bearbeitung von Feldfunktionen Objekte zu erstellen.**

**Figure 4: Connecting the Remote Control Voice adapter with cascading**



## 5. Operation

Figure 5 shows the user interface of the remote control. It consists of a membrane keypad with 17 keys and a display with 4 lines of 20 characters.



Figure 5: Remote Control

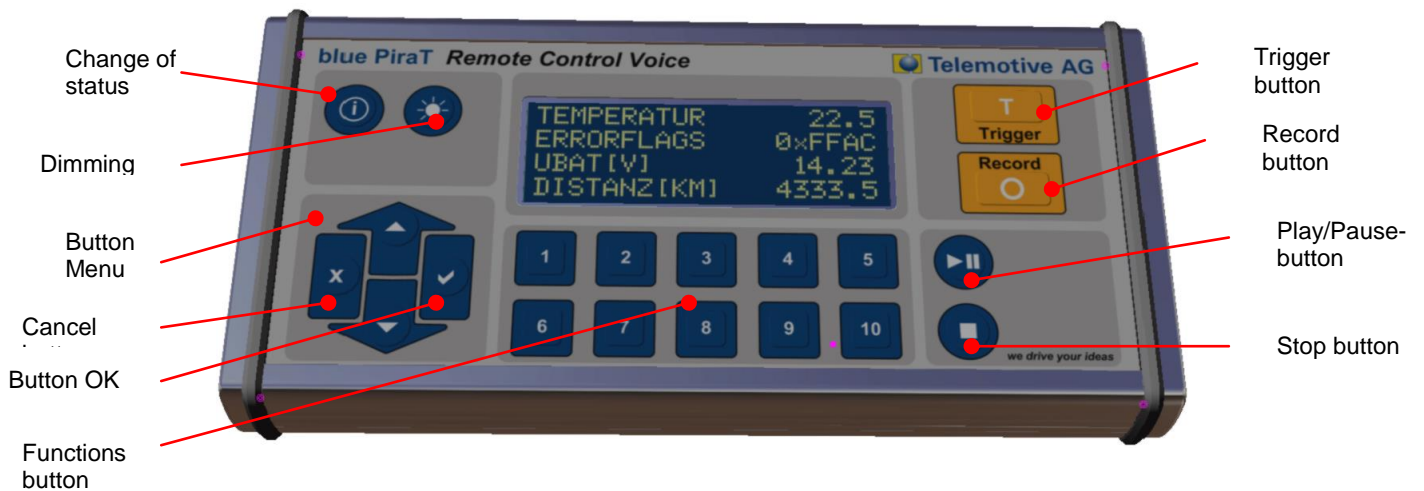
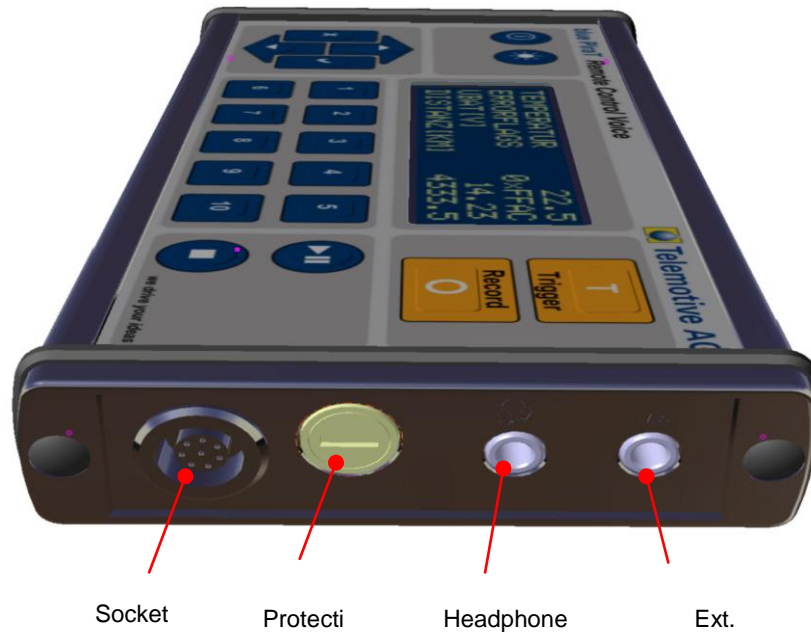


Figure 6: Remote Control Voice

The Remote Control Voice shows the user interface of the Remote Control Voice. It consists of a membrane keypad with 20 keys and a display with 4 lines of 20 characters.





**Figure 7: Remote Control Voice - side view**

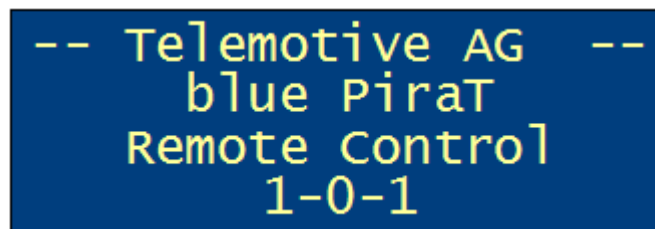
The Remote Control Voice has in addition to its built-in microphone a connector for an external microphone (right side). For the playback of voice notes, you have to connect a headphone.

Also at the right side is a fuse located. If the Remote Control voice is not working, please check this fuse (Miniature fuses 5x20, 2A time-lag)

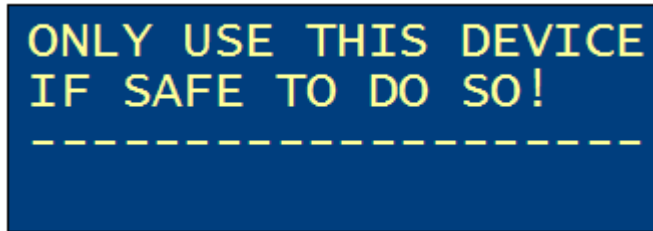
### 5.1. Activation and standby mode

The Remote Control (voice) starts automatically when the data logger is activated. The Remote Control (Voice) can also be started via the trigger button. The data logger is automatically activated in this case. If the data logger changes to the standby mode, the remote control (Voice) also switches to standby.

At the startup of the Remote Control (Voice) an initial screen is shown for two seconds(Figure 7), followed by a Legal Disclaimer (s Figure 8), which is displayed for three seconds. While the connection to the data logger, "Waiting for logger" is shown (see Figure 9). During activation, all buttons are disabled, except the brightness button. During the startup, the button illumination is turned off. Turning off the display is not possible during start-up.

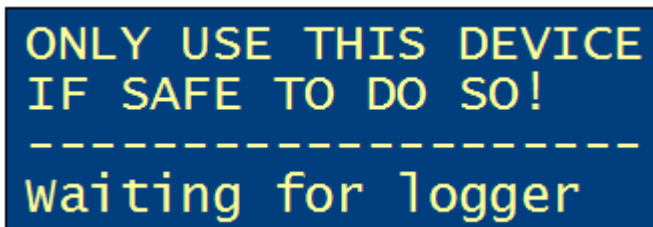


**Figure 8: Home Screen**



ONLY USE THIS DEVICE  
IF SAFE TO DO SO!  
-----

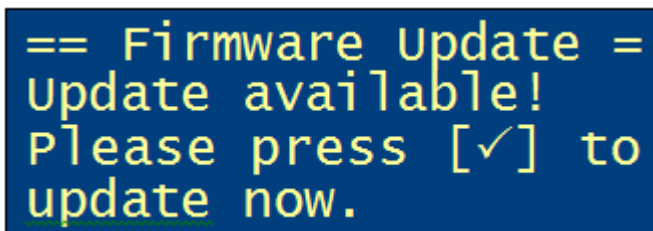
**Figure 9: Legal Disclaimer**



ONLY USE THIS DEVICE  
IF SAFE TO DO SO!  
-----  
waiting for logger

**Figure 10. During the call phase with the data logger**

If after a firmware update of the data logger also a new firmware for the Remote Control (Voice) is available, a message appears as shown in Figure 11.



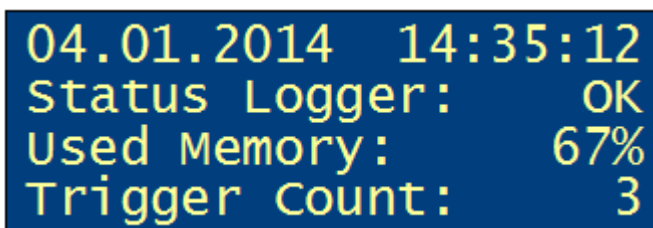
== Firmware Update =  
Update available!  
Please press [✓] to  
update now.

**Figure 11: Message to update the firmware**

If the user presses the "OK" (✓)-button, the update is started. Further informations are written in section 5.9. The "abort" (\*)-button overleaps the Firmware update.

## 5.2. Standard Display

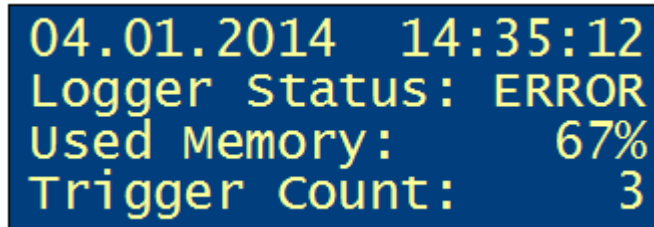
The standard screen is shown in Figure 12. At the top of the display, date and time of the data logger will be displayed. Below this, the status, memory usage and trigger counter are displayed.



04.01.2014 14:35:12  
Status Logger: OK  
Used Memory: 67%  
Trigger Count: 3

**Figure 12: Standard display**

„ERROR“ is displayed in case of failure of the data logger (Figure 12), it's always the case, if the "Error" LED on the front panel of the data logger lights. Changes the status from "OK" to "ERROR", the Remote Control (Voice) signals this by five short beeps.

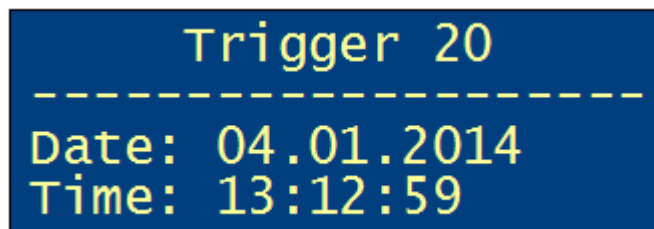


04.01.2014 14:35:12  
Logger Status: ERROR  
Used Memory: 67%  
Trigger Count: 3

Figure 13: Standard display in case of an error

### 5.3. Handset of triggers

With the trigger button you can set triggers. The triggers are numbered and shown with date and time for three seconds in the display (see Figure 13). When cascading, the trigger numbers are synchronized (see 5.8.6).



Trigger 20  
-----  
Date: 04.01.2014  
Time: 13:12:59

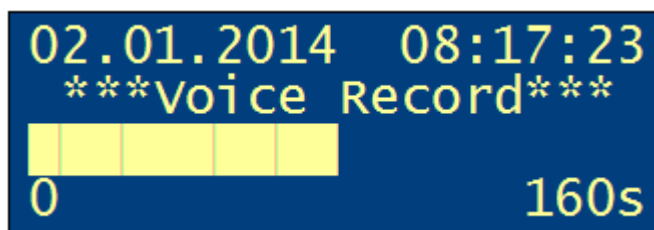
Figure 14: Display with set trigger

### 5.4. Recording a voice message (only Remote Control Voice)

A voice recording is started with the "Record" button. The voice recording can be stopped via the "Stop" button or the "Cancel" button (\*). The voice recording will stop automatically after the configured voice recording time (blue PiraT max. 120s, blue PiraT2 max. 160s). When recording a voice message, a trigger is set.

The recording can be temporarily stopped with the "Play / Pause" button. Recording is continued by pressing again the "Play / Pause" button. If the voice recording doesn't continue after 20 seconds, recording will stop automatically.

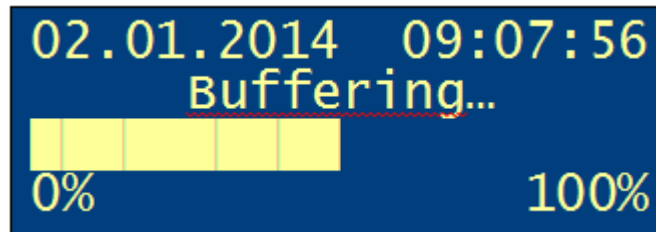
During voice recording, Figure 16 is displayed.



02.01.2014 08:17:23  
\*\*\*Voice Record\*\*\*  
0 160s

Figure 15: Display voice recording

After the recording, the data are transferred to the blue PiraT2. The buffering status is displayed until the message has been completely transmitted. The Remote Control Voice can be operated during transmission. If the abort (□)-button is pressed, the standard display is shown. The functions "Play" and "Record" are not possible during the transfer. When you press the "Play"- or "Record"-button while the transmission, the buffering window is displayed.



**Figure 16: Buffering voice recording**

## 5.5. Dimming

With the “dimming” button, the brightness of the LED buttons and the backlight can be changed. By pressing the button, the brightness switches between six levels (Remote Control Voice - four brightness levels). The brightness value is stored in the remote control, so the brightness remains constant after a standby of the data logger. A longer key press (about one second) of the “dimming” button turns the display- and LED-illumination off. All buttons are in this case active and a key press turns the illumination on.

## 5.6. Status Indicators

The “status” button switches between different status displays. By pressing the status button for several times or by using the arrow keys, you can navigate through the status displays. Further informations you can find below.

- 5.6.1 Status CAN
- 5.6.2 Status of the serial interfaces
- 5.6.3 Status LIN
- 5.6.4 Status MOST 25
- 5.6.5 Status MOST150
- 5.6.6 Status FlexRay
- 5.6.7 Status Camera
- 5.6.8 Status Ethernet
- 5.6.9 Status CCP/XCP (blue PiraT2 with CCP/XCP License only)
- 5.6.10 Status GPS (blue PiraT2 with GPS License only)
- 5.2 Standard Display

In the upper right corner, you can see the number of the status display and the total number. The status indicators are updated once per second. By pressing the termination (✱)-button, the default display is shown.

### 5.6.1. Status CAN

The CAN status display includes the bus load on all channels (see. Figure 17). The display is generated dynamically depending on the number of CAN interfaces of the data logger – more than six channels, a second screen is necessary. In case of error frames, the word "ERROR" is displayed instead of the busload. After one second without error frames, the display switches back to busload. If the CAN interface is not activated by the data logger configuration, the word "OFF" is displayed.

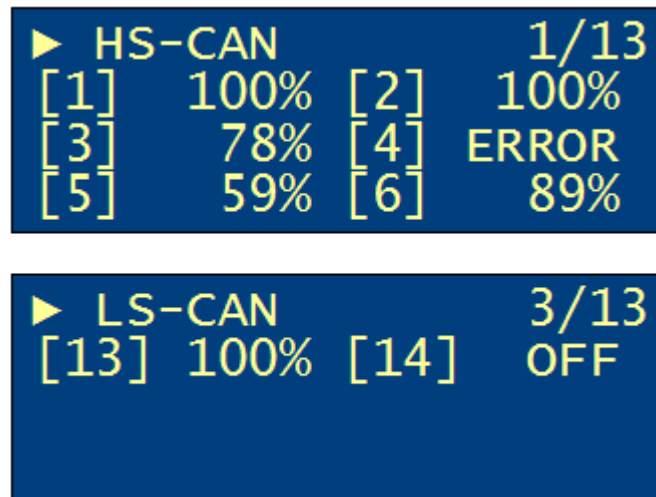


Figure 17: Display of CAN status

### 5.6.2. Status of the serial interfaces

The serial status display includes the utilization of the serial ports at all channels (see. Figure 18).

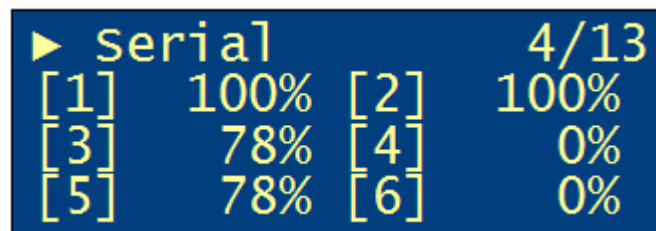


Figure 18: Display of the serial status

In case of errors at the serial port (e.g. Frame Error), the word „ERROR“ is displayed. The display switches back to the bus load after one second without error frames. If the serial interface is not enabled on the data logger configuration, the word “OFF” is displayed.

### 5.6.3. Status LIN

The status display includes the workload of LIN interface at all channels (see. Figure 19). If the LIN interface is not activated by the data logger configuration, the word “OFF” is displayed.

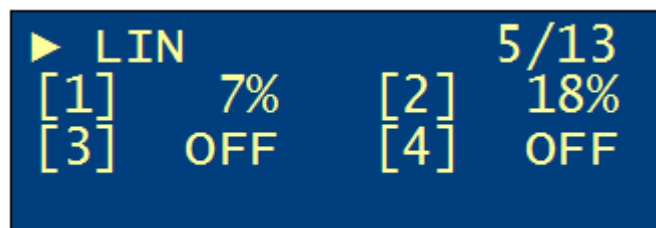


Figure 19: Display LIN-Status

#### 5.6.4. Status MOST25

The status display MOST25 includes the number of messages per second and the bytes per message of the control- and data-channel (see Figure 20).

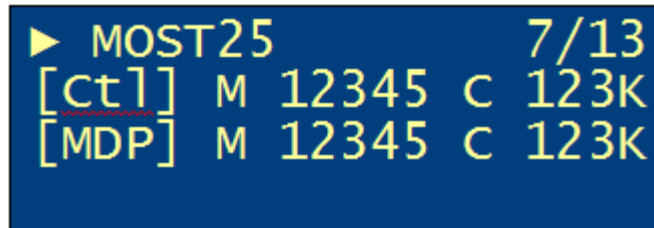


Figure 20: Display of MOST25-Status

- CtI = control message
- MDP = data packets
- M = messages / sec
- C = bytes / message

“Light off” is reported, if the cable is not proper plugged or if the bus is idle (sees Figure 21).

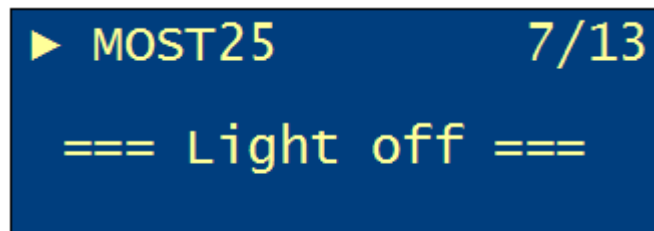


Figure 21: Display of MOST25-Status in Light off

#### 5.6.5. Status MOST150

The status display MOST25 includes the number of messages per second and the bytes per message of the control-, data- and ethernet-channel (see Figure 22).

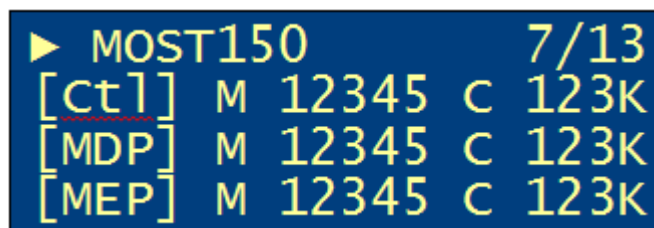


Figure 22: Display of MOST150-Status

- CtI = control message
- MDP = data packets
- MEP = ethernet packets
- M = messages / sec
- C = bytes / message

“Light off” is reported, if the cables is not proper plugged or if the bus is idle (see Figure 23).

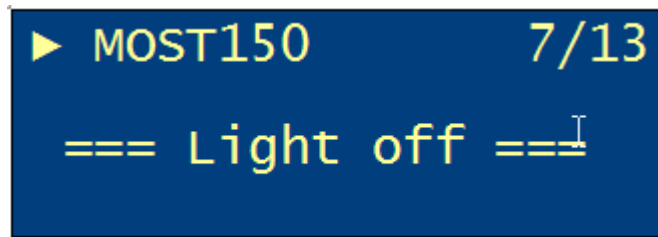


Figure 23: Display of MOST150-Status in Light off

#### 5.6.6. Status FlexRay

The status display includes the utilization of the FlexRay interface on both channels in kFrames per second (see Figure 24). If a channel is disabled, the word "OFF" is displayed. "n/c" (not connected) is shown, if no FlexRay-bus is plugged.

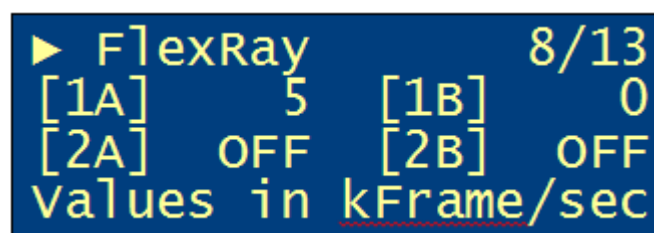


Figure 24: Display FlexRay-Status

#### 5.6.7. Status Camera

The status display camera includes the transmission rate of each camera channel in kbytes per second (see **Fehler! Ungültiger Eigenverweis auf Textmarke.**). If there is no camera plugged, "n/c" (not connected) is shown. "OFF" is displayed, if the channel is disabled.

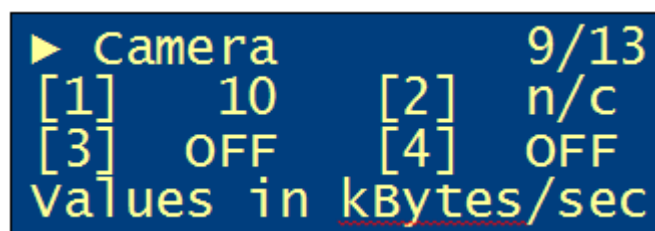


Figure 25: Display Camera-Status

#### 5.6.8. Status Ethernet

The status display Ethernet includes the transmission rate of each ethernet channel in kbytes per second (see Figure 26). If there is no Ethernet station plugged, "n/c" (not connected) is shown. "OFF" is displayed, if the channel is disabled.



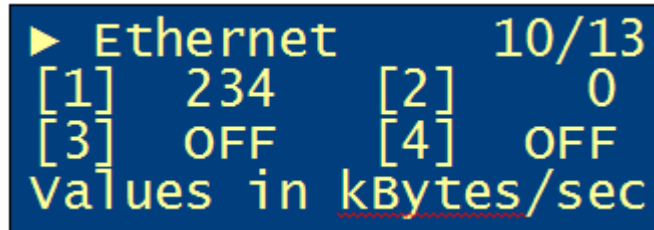


Figure 26: Display Ethernet-Status

#### 5.6.9. Status CCP/XCP (blue PiraT2 with CCP/XCP License only)

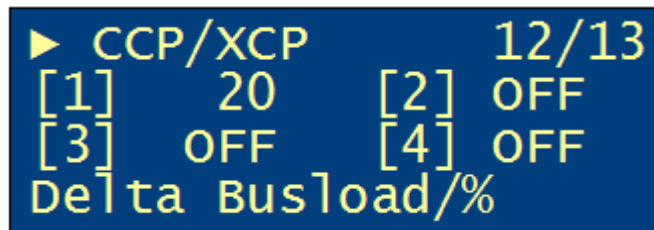


Figure 27: Display CCP/XCP-Status

The delta is the difference between the busload before and during (CCP/XCP) measurement.

#### 5.6.10. Status GPS (blue PiraT2 with GPS License only)

The status display GPS shows the longitude, the latitude, the absolute altitude, the driving speed, the movement direction and the number of located satellites (see Figure 28).

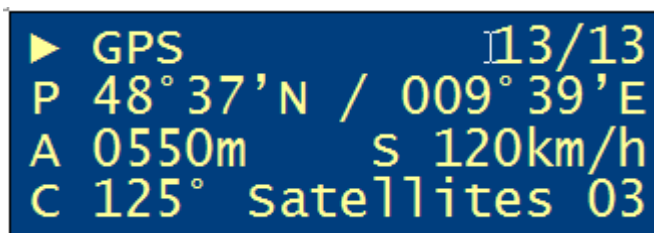


Figure 28: Display GPS-Status

- P = position Latitude/Longitude
- A = Altitude (Height)
- S = Speed
- C = Course (Direction)
- Satellites = number of located satellites (at least 3 to determinate the position)

“No GPS Signal” (see Figure 29) is displayed, if:

- No GPS receiver is plugged
- No satellite located
- GPS interface is disabled

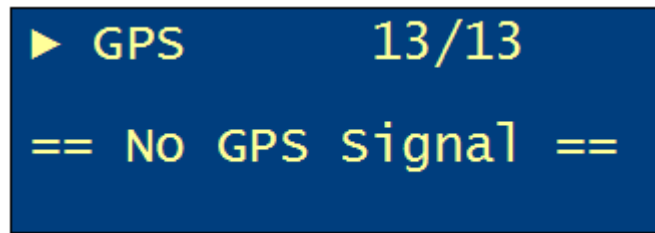


Figure 29: Display of GPS-Status, if no signal is received

## 5.7. Key Busload

	CAN	Serial	LIN	Flexray	Camera	Ethernet	CCP/XCP
OFF	X	X	X	X	X	X	X
N/C					X	X	
ERROR	X						X

- OFF = Interface disabled
- N/C = not connected

## 5.8. Menu functions

The functions menu is accessed by using the arrow keys. These buttons can switch through all menu items. The currently selected menu item is displayed in the top line, along with the function number and the total number of functions. A menu function is executed by the "OK" (✓)-button and stopped by the "abortion" (✖)-button. In the last case last case the standard display will be shown (see. 5.2).

There are the following default menu functions:

- **Fehler! Verweisquelle konnte nicht gefunden werden.** Trigger listVoice Notes  
(Remote Control Voice only)
- 5.8.2 Clear Trigger List (blue PiraT only)
- 5.8.4 Voice Notes (Remote Control Voice only)
- 5.8.6 Cascading

### 5.8.1. Trigger list

If the "Trigger list" is selected ("OK" (✓)-button), a list of all the triggers with numbering, date and time is displayed (see Figure 31). With the arrow keys you can move through the list. By pressing the cancel (✖)-button, you return to the standard display (see section 5.2).

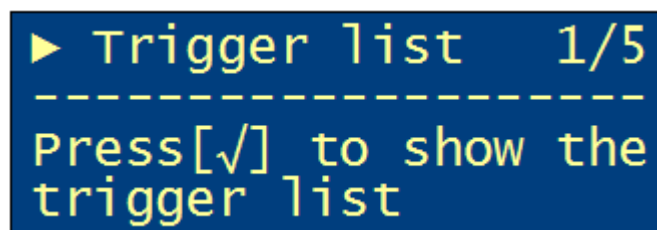
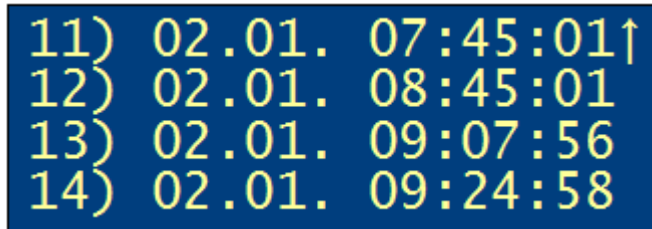


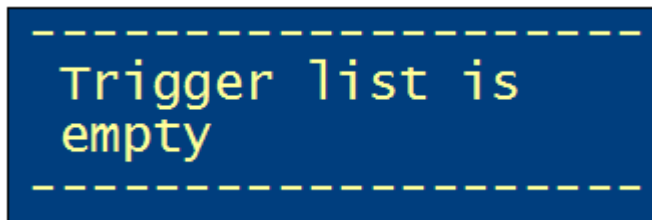
Figure 30: „Trigger list“ Menu



```
11) 02.01. 07:45:01↑  
12) 02.01. 08:45:01  
13) 02.01. 09:07:56  
14) 02.01. 09:24:58
```

Figure 31: „Trigger list“

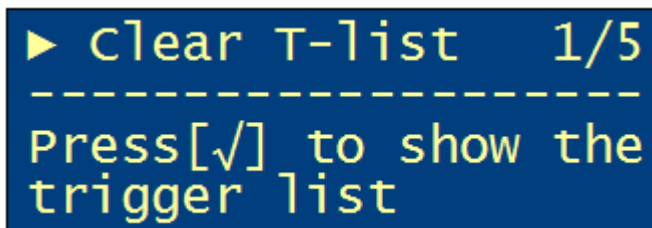
The following window is shown, when there is no trigger on the data logger:



```
-----  
Trigger list is  
empty  
-----
```

Figure 32: Trigger list is empty

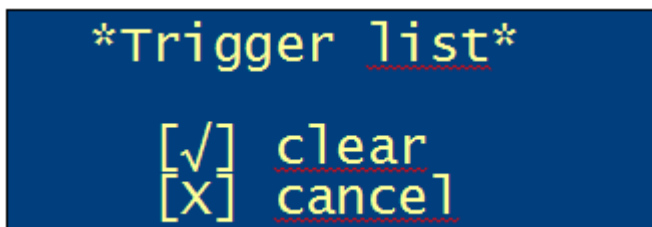
#### 5.8.2. Clear Trigger List (blue PiraT only)



```
▶ Clear T-list 1/5  
-----  
Press [√] to show the  
trigger list
```

Figure 33: „Clear Trigger List“

Select this function to clear the trigger list. By the pressing the „OK“ (√)-button, you clear the trigger list. To leave this menu, press the “abortion” (×)-button.



```
*Trigger list*  
  
[√] clear  
[×] cancel
```

Figure 34: confirmation „Clear Trigger list“

### 5.8.3. Network Config

In the menu function “Network Config”, the DHCP mode, the IP-address of the data logger and the subnet mask is shown.

```
== Network Config ==  
DHCP server  
IP   :192.168.0.233  
Subn:255.255.255.0
```

Figure 35: Menu function “Network Config”

### 5.8.4. Voice Notes (Remote Control Voice only)

In the “Voice Notes”- list are all voice notes with number, date and time registered. With the arrow keys you can move through the list.

```
1) 02.01. 07:43:01  
2) 02.01. 07:45:01  
3) 02.01. 08:45:01  
▶▶▶ 02.01. 09:07:56↓
```

Figure 36: Voice Note Liste

If Voice recordings are not available, the following pop-up window appears:

```
-----  
Voice Notes list is  
empty  
-----
```

Figure 37: Voice Notes list is empty

By selecting a message (OK (✓)-Button) the voice message is displayed (see Figure 38) and by pressing the “Play”- button, the message is played.

```
13) 02.01. 09:07:56↑  
***Voice Note***  
[▶] play
```

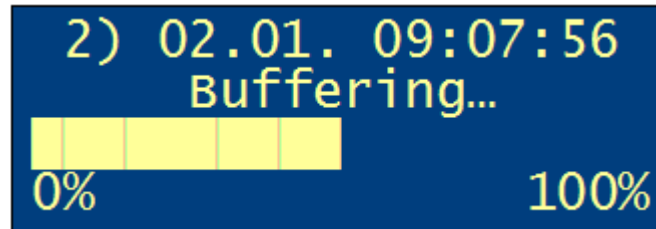
Figure 38: selected voice note

#### Note:

With the operation of the Play button, you are going directly to the Voice Notes list and can select a recording and play (Play-Button).

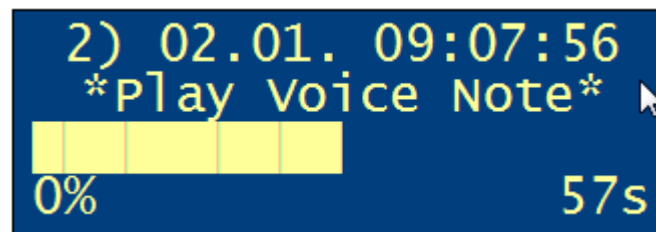
### 5.8.5. Playing a voice message

If a voice note is selected by the “Play”- button, the message will be transmitted from the blue PiraT(2) to the Remote Control Voice. During the transmission, the following display is shown (see Figure 39). The progression of the buffering is presented by a progress bar in percent.



**Figure 39: Buffering voice recording**

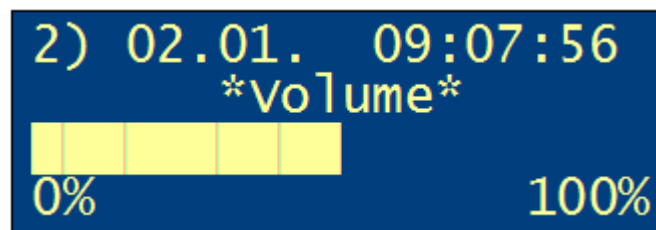
The voice note will be played after the transmission (Figure 40). The progression of the playing is presented with a time bar in seconds.



**Figure 40: Playback voice recording**

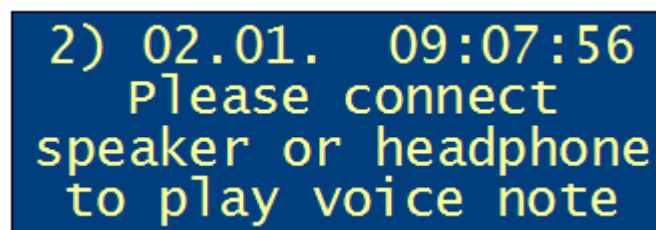
The playback can be paused temporarily (Play/Pause-button) or stopped (Stop-Button or Abort (\*)-Button). When the playback or the buffering is stopped, the display is changing to the voice list.

During buffering and playback you can use the arrow keys to set the volume.



**Figure 41: Adjusting the volume**

If no audio device (e.g. headset) is connected and a record is selected, the following indication is displayed:



**Figure 42: No audio device connected**

### 5.8.6. Cascading

The basic function of the menu item „cascading“- menu is the switching of the Remote Control (Voice) display between the two cascaded logger (Master/Slave). In the status displays (see. 5.6), the bus status of the activated data logger is then displayed.

#### Note:

To use the “Cascading“- function, the feature in the blue PiraT configuration tool must be enabled.

In the “cascading” menu, you could change between the master- and slave-mode by pressing the “OK“ (✓)- button. In the upper left corner of each display, the current mode is displayed (M=Master, S=Slave).

A longer key press (about two seconds) of the “Status” button switches also the mode between Master and Slave.

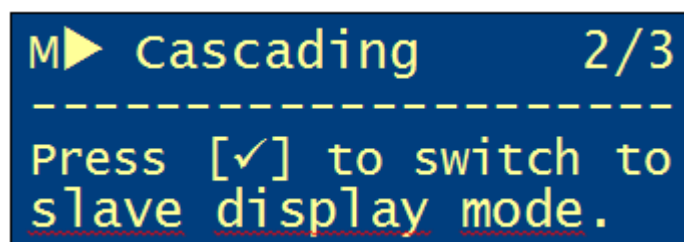


Figure 43: Switch to Slave mode

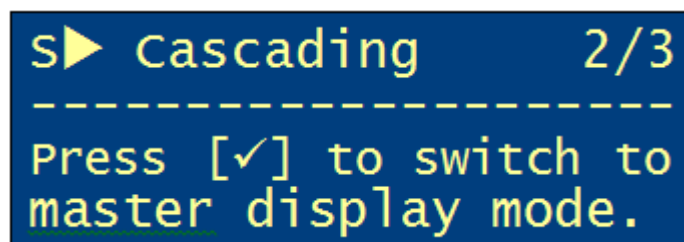


Figure 44: Switch to Master mode

The default display of cascading is shown as follows:

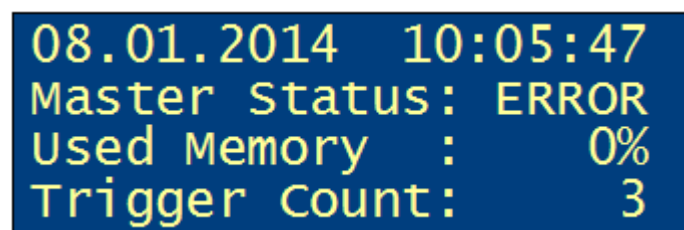
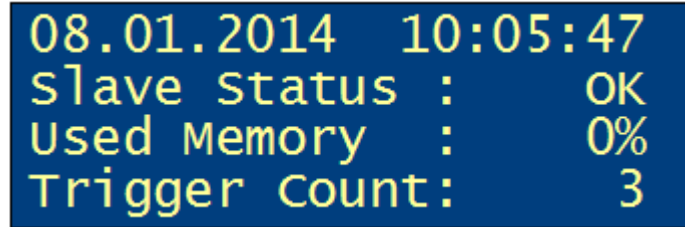
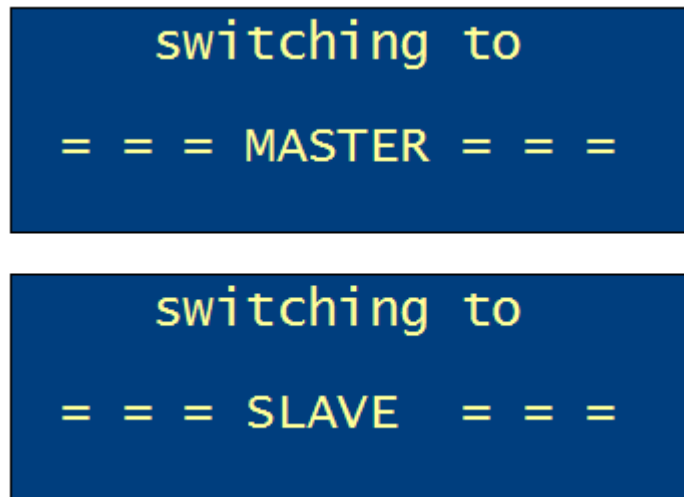


Figure 45: Status display of the Master



```
08.01.2014 10:05:47
Slave status :      OK
Used Memory   :      0%
Trigger Count:      3
```

When switching to the master or the slave mode following info display on the remote control will appear for 1 second.

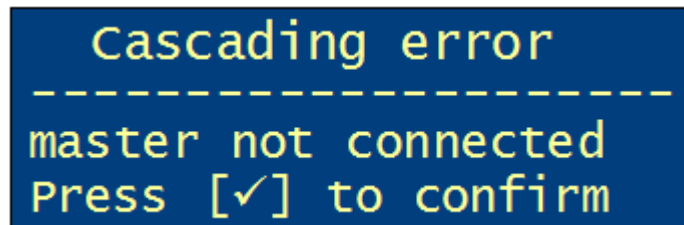


```
switching to
=== MASTER ===

switching to
=== SLAVE ===
```

**Figure 46: Info display master / slave switchover**

If it is not possible to change the mode, an error message is shown:



```
cascading error
-----
master not connected
Press [✓] to confirm
```

**Figure 47: Failure of the master**

The blue PiraT(2) (master and slave) can detect a misconfiguration. A misconfiguration occurs when the following combinations are adjusted and connected.

- Master / Master
- Slave / Slave
- Master / Standard (Cascading disabled)
- Slave / Standard (Cascading disabled)

In an error case of the master-slave remote control system, an error message on the remote control will be displayed (see Figure 48 to Figure 50). The error message will remain visible until the configuration error has been fixed.



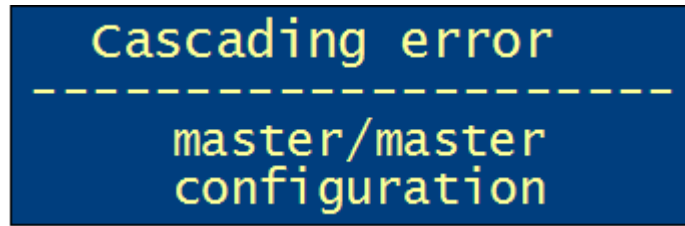


Figure 48: Configuration error master/master

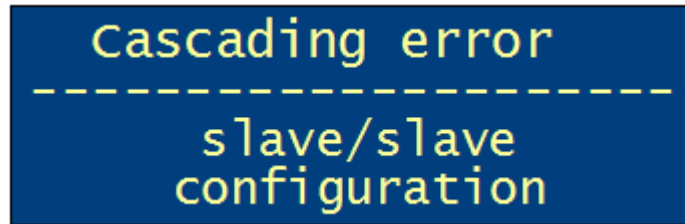


Figure 49: Configuration error slave/slave

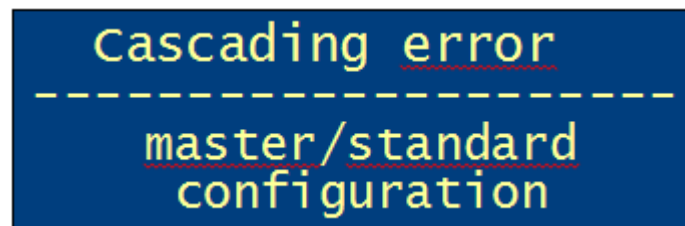


Figure 50: Configuration error slave/standard or master/standard

If the time sync failed, followed message is shown

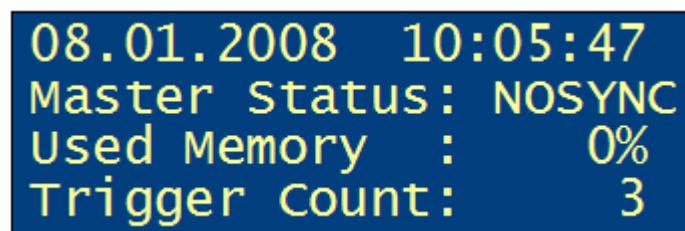


Figure 51: Failure of time tick Signals

The trigger counter is synchronized at the master or slave data logger for any triggers who are set in the "cascading" mode. Existing triggers are retained.

**For example:**

The master data logger has a trigger count by 5, the slave logger by 9. After cascading these loggers, the next trigger count in at both loggers is 10.

**Note:**

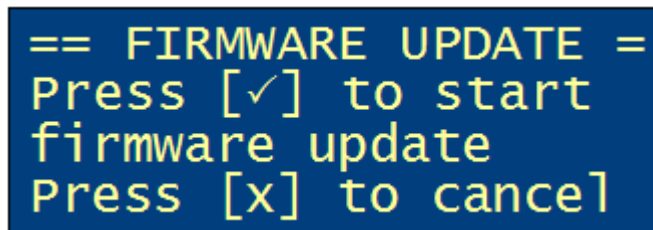
It's recommended to delete the trigger counter at the master and the slave logger before cascading.

## 5.9. Updating the Firmware

The appropriate firmware of the remote control is included in the firmware package of the data logger. If a data logger firmware update with new Remote Control firmware is uploaded, the Remote Control automatically asks the next startup after updating their firmware (see. Figure 11). If this is selected by a user, a conformation prompt appears (see. Figure 52). An abort is possible by using the “abort” (✖)-button. After confirming with the “OK” (✓)-Button the firmware update begins (see. Figure 53). This takes no more than a minute.

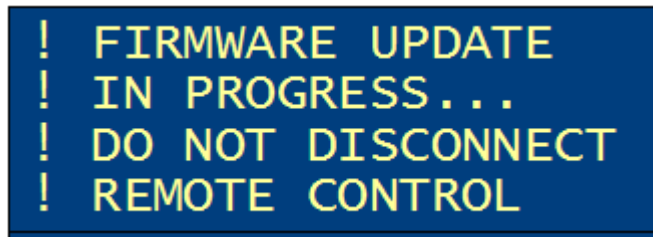
### Caution!

The remote control and data logger may not be separated from the power and will not shut down during the firmware upgrade. The connection between the remote control and the data logger mt not be separated.



```
== FIRMWARE UPDATE =  
Press [✓] to start  
firmware update  
Press [x] to cancel
```

Figure 52: Security check before starting the firmware update



```
! FIRMWARE UPDATE  
! IN PROGRESS...  
! DO NOT DISCONNECT  
! REMOTE CONTROL
```

Figure 53: Display during the firmware update

## 5.10. Function keys

The function keys 1 to 10 are extensions, e.g. the licenses “Complex Trigger“ and “Remote Control Monitor“ provided.

See also the user manual “Complex Triggers“

## 6. Appendix A: Specifications

### 6.1. Remote Control:

#### General data

Power	8,5V..16V, 12V (typ.)
Current consumption (ca.)	75mA...315mA (je nach Displayhelligkeit)
Power consumption in standby mode (ca.)	0,1mA
Temperature range(in action)	-20oC to 50oC
Temperature range (storage)	-20oC to 70oC
Weight (ca.)	300g

#### Housing

Dimensions (ca.)	154mm x 85mm x 25mm
Controls	Membrane keyboard with 17 Button
Display	Display, 20 Character x 4 Lines
Connections	Lemo connector for connection to the data logger

### 6.2. Remote Control Voice:

#### General Data

Power	8,5V..16V, 12V (typ.)
Current consumption (ca.)	200mA...350mA (depending on display brightness)
Power consumption in standby mode (ca.)	0,1mA
Temperature range (in action)	-20oC to 50oC
Temperature range (storage)	-20oC to 70oC
Weight (ca.)	370g

#### Housing

Dimensions (ca.)	173mm x 85mm x 25mm
Control	Membrane keyboard with 20 Button
Display	Display, 20 Character x 4 Lines
Connections	Lemo connector for connection to the data logger 3,5mm External microphone jack 3,5mm Jack for headphone

## 7. Appendix B: Abbreviations

blue PiraT	Processing Information Recording Analysing Tool
CAN	Controller Area Network. Bus-System
MOST (www.mostnet.de)	Media Oriented Systems Transport. Bussystem für Multimedia-Netzwerke
UTC	Universal Time, Coordinated

## 8. Contact



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