



# BLUEPIRAT

BY MAGNA



## BLUEPIRAT Rapid User Manual / 19.05.2022

Version 5.1.1

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## 2 PRODUCT LIABILITY

### 2.1 Terms and Conditions of Sale and Delivery

The General Terms and Conditions of Sale and Delivery of MAGNA Telemotive GmbH can be found on our website (<https://telemotive.magna.com>) under imprint.

### 2.2 Important operating instructions

**Please note these important instructions about the handling of devices of MAGNA Telemotive GmbH!**

There's a linux system running on the devices and sometimes when the device has a dirty shutdown due to a power break down or unplugging the power supply, the system is corrupt from this time. You know this situation from a PC, when you switch it off some times it maybe will not work any more or show you some mistakes.

In most cases this issue is caught up and repaired by the linux system we use, but sometimes it can happen that the system on the logger is damaged and there's no access to the device any more.

We are optimizing the handling of corrupted systems permanently and are integrating some new enhancements regarding this kind of issues with every new release to save the system. But we can't make the system for 100% save against these influences.

**So please use always the provided mechanism for shutting down the device or the implemented standby function in which the device shutting down when no traffic is detected any more in an adjustable time.**

### 3 Overview

This user manual describes the handling of the pre-serial products of the **BLUEPIRAT Rapid** in its different hardware versions.

Therefore, the BLUEPIRAT Rapid manual is used for all functions that run in the same way on all models. Differences of the various device variants are mentioned individually at the appropriate place

This user guide describes hardware and interfaces as well as the general functions of the **BLUEPIRAT Rapid**. The configuration and converting of the logged trace data is described in the user guide of the **System Client** software.

This document refers to **firmware version 05.01.01** and the **System Client** from **version 5.1.1**. Some features depending on model and feature license or may not be available in older versions.

Software updates and user guides for other, optional, licensed enhancements are available in our Service Center. (Please find the address under Contact at the last page.)

To ensure the most reliable operation of your system as possible, please make sure to use always current firmware and software versions.

[Index](#)

## 4 System requirements

The communication between bus systems and control units can be monitored, and relevant data can be recorded very precisely with the data logger. The collected data are stored to the logger and can be downloaded via Ethernet to a PC.

### Control Unit

You need a Windows based Laptop or PC to configure the devices by the **System Client**. It also allows to save the recorded data and to use them offline later.

### System Client

Update, configure and read out your data loggers with System Client. Save time with central administration of your software products. System Client is your key to success for using all our products!

### BLUEPIRAT Rapid

High-performance multi-bus data logger for modern vehicle architectures based on Automotive Ethernet. With up to 3 TB internal memory and supreme recording performance. Robust and compact for in-vehicle use.

Due to the increasing complexity of driver assistance systems and the growing number of infotainment applications, the data traffic between ECUs in the most recent vehicle models has grown significantly. Consequently, besides the various classic bus systems, modern vehicle architectures are based on Automotive Ethernet according to BroadR-Reach / IEEE 802.3 100(0)Base-T1, which can keep up with the growing bandwidth demand.

### BLUEPIRAT Mini

The **BLUEPIRAT Mini** is smallest data logger in the world with an outstanding functional scope. It offers a wide range of interfaces, stable temperature behavior, very low energy consumption, four GBit Ethernet ports, and much more. Different blue PiraT Mini can be expanded flexibly to one cluster and therefore handled very easily by using [System Link](#).

### BLUEPIRAT2

The **BLUEPIRAT2** is our top-class all-in-one data logger. Seven models cover a wide range of interfaces. (Device is EOL)

### BLUEPIRAT2 5E

Additionally, the **BLUEPIRAT2 5E** offers improved power management and power backup, five integrated Ethernet ports and super-fast start-up behavior. The BLUEPIRAT2 can be expanded flexibly via [System Link](#). (Device is EOL)

### Remote Control Touch (optional)

Operate your BLUEPIRAT data loggers safely and comfortably from the driver's or passenger seat. Via System Link our new remote control becomes part of your logger network. One remote control can handle all connected loggers.

### License

For some additional features an installed license is required. Settings for licensed features can be performed with a valid license only.

If you need a license for your logger, please contact our sales department (please find the address under contact at the last page).



## 4.1 Further manuals

Beside this user Manual, we offer the main manuals for our System Client as well as for the different data logger generations in our Service Center at

<https://sc.telemotive.de/bluepirat>.

Our licensed enhancements have own manuals which are stored in the Service Center too. You will find a list of these enhancements in the user manuals in the chapter **Additional features by optional licenses**.

Under the following links, you always will find the latest versions:

### User manual for the System Client

[https://sc.telemotive.de/4/uploads/media/SystemClient\\_UserManual.pdf](https://sc.telemotive.de/4/uploads/media/SystemClient_UserManual.pdf)

### User manual for BLUEPIRAT Rapid

[https://sc.telemotive.de/4/uploads/media/BLUEPIRAT\\_Rapid\\_UserManual.pdf](https://sc.telemotive.de/4/uploads/media/BLUEPIRAT_Rapid_UserManual.pdf)

### User manual for BLUEPIRAT Mini

[https://sc.telemotive.de/4/uploads/media/BLUEPIRAT\\_Mini\\_UserManual.pdf](https://sc.telemotive.de/4/uploads/media/BLUEPIRAT_Mini_UserManual.pdf)

### User manual for Remote Control Touch

[https://sc.telemotive.de/4/uploads/media/RCTouch\\_UserGuide.pdf](https://sc.telemotive.de/4/uploads/media/RCTouch_UserGuide.pdf)

### User manual for BLUEPIRAT2 / BLUEPIRAT2 5E

[https://sc.telemotive.de/4/uploads/media/BLUEPIRAT2\\_UserManual.pdf](https://sc.telemotive.de/4/uploads/media/BLUEPIRAT2_UserManual.pdf)

For having an easy access if necessary, the most important manuals are linked in the client under the menu item [Help] and are reachable easily from there.

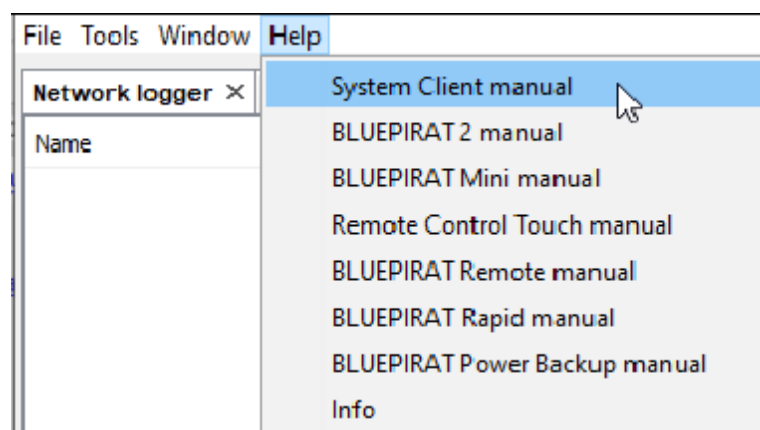


Figure 4.1: links to the manuals in the System Client

## 4.2 Additional features by optional licenses

Additional features can be activated by purchasing and installing licenses. Licenses can be ordered at our sales team. You find the user guides for these additional features in our Service Center. Currently the following licensed features are available.

Feature	Description
<b>Camera Link</b>	video recording via video server or network cameras Till now, only some cameras from AXIS were supported
<b>WLAN</b>	supporting wireless LAN / WiFi (802.11, 802.11a, 802.11n), (802.11ac from FW 02.04.01)
<b>GPS logging</b>	tracking of GPS data
<b>Measurements with CCP</b>	CAN Calibration Protocol
<b>Measurements with XCP</b>	Universal Measurement and Calibration Protocol Currently the functionality for Ethernet (XCP on Ethernet) and the CAN-bus (XCP on CAN) are available.
<b>MOST150 Streaming</b>	logging MOST150 synchronous/isochronous data
<b>MLBevo / QXDM</b>	The license Connected-Gateway MLBevo enables the recording of data of the ATOP control unit MLBevo via USB to the Magna Telemotive data logger and convert these data with the System Client. (from FW 02.03.01) Additional this license allows to log Qualcomm QXDM logs via USB (from FW 03.06.XX)
<b>Download Terminal</b>	The in the System Client integrated Download Terminal allows an automatization of configured tasks for a defined group of devices. (from FW 02.03.01)
<b>Test automation</b>	Interface for connecting to test automation tools. At the moment, the sending of CAN messages is supported. (from FW 02.04.01)
<b>Cellular network</b>	Allows the logger to send status messages over cellular network. (from FW 03.01.01)
<b>Firmware Care</b>	As part of the " Service Product Firmware Care ", new software and firmware versions are made available for download for a limited period of time. This service is available for 12 months from the date of purchasing the <b>BLUEPIRAT</b> .  This period can be extended by licenses.

**Table 4.1: Additional features by optional licenses**

## 4.3 Firmware Care

MAGNA Telemotive GmbH invests a great amount in the further development of its products.

For this we regularly provide new functions and enhancements via firmware and client releases.

### Basic conditions

As part of the "Service Product Firmware Care", new software and firmware versions are made available for download for a limited period of time. This service is available for 12 months from the date of purchasing the **BLUEPIRAT**. This period can be extended.

For details, please contact your sales partner (see contact at the end of the manual for addresses).

### Affected products

- **BLUEPIRAT Rapid**
- **BLUEPIRAT Mini**
- **Remote Control Touch**
- **BLUEPIRAT2 5E**
- **BLUEPIRAT2**

### Note:

**Enhancements are only possible in current firmware releases.**

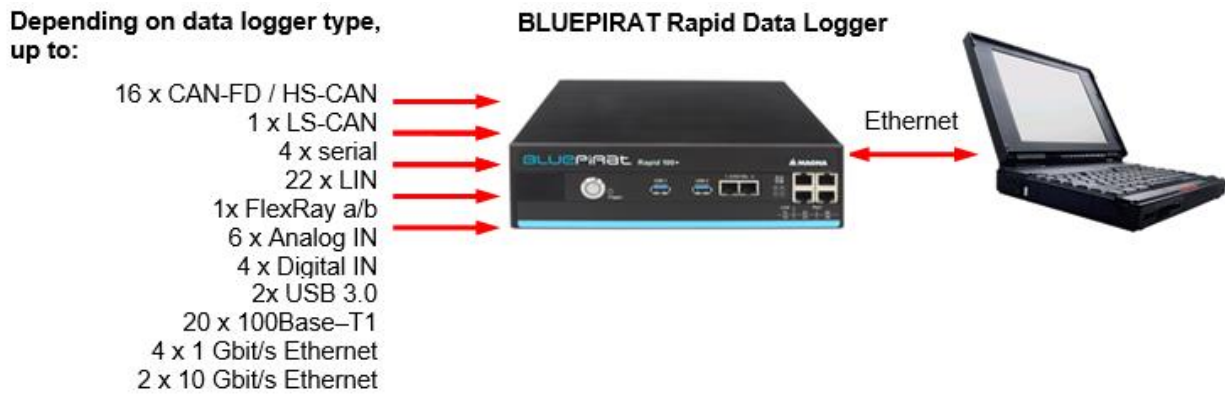
### Attention:

**Please note that updates to main firmware versions (05.00.01 / 06.00.01) need a special update license and can't be flashed to a device without this license.**

To buy these licenses please contact our sales department under [TMO.Sales@magna.com](mailto:TMO.Sales@magna.com) (please find the complete address under *Contact on the last page*).

## 5 The BLUEPIRAT Rapid system

The **BLUEPIRAT Rapid** is a data logger, which offers the following interfaces:



**Figure 5.1: Interface (overview)**

### 5.1 Accessories

There are various accessories available for the **BLUEPIRAT Rapid**

- various adapter cables
- the Remote Control Touch as remote device
- licenses which enhance the functionality of the BLUEPIRAT Rapid
- Extension of the functionality via external USB adapters for the realization of:
  - Wi Fi
  - GPS
  - Sending SMS

Please contact our sales team for more information about these accessories.

Manuals for these features are available in our Service Center.

## 6 Control elements at the front side

The next section describes the usage of the controls and connectors of the BLUEPIRAT Rapid.

The **BLUEPIRAT Rapid** provides two **10 Gbit/s** Ethernet interfaces (ETH #1 / TSL and ETH #2 / TSL) on the front side.

The **[ON / Trigger]** key, the status LEDs **STATE / ACTIVE / Diagnostics / Memory**, the 2 **USB 3.0** connections and the four **1 Gbit/s** interfaces are also located there.



Figure 6.1: BLUEPIRAT Rapid 100+ (D-sample)

### 6.1 ON / Trigger button

Use the **[ON / Trigger]** button to switch on the logger when it is connected to the power supply and in standby mode.

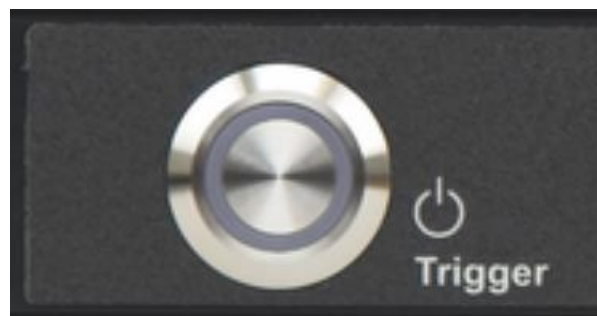


Figure 6.2: BLUEPIRAT Rapid | ON / Trigger button

Important events can be marked with the **[ON / Trigger]** button. If you press the key, the logger saves the current time as a marker. It is possible to configure the logger to take an action like sending a CAN message too. In addition, it is possible to define messages that initiate triggers. A debounce takes place, which allows the setting of max. ten triggers every 2 seconds.

When downloading the data, the client displays all triggers in an overview. In this overview you can select which data should be transferred around the marker.

## 6.2 USB 3.0 interfaces

The BLUEPIRAT rapid offers two front USB 3.0 ports in host-mode.

They can be used for connecting a GPS, mobile phone or Wi-Fi module to the logger. Wi-Fi can be used to get access to the logger over the client or to use the feature **Live View**.

The data loggers also support logging data from units, which communicate over **Android Log-Cat interface** via USB.



Figure 6.3: BLUEPIRAT Rapid – USB 3.0 interfaces

## 6.3 10 Gbit/s ETH interfaces / TSL connectors

The network connectors **ETH #1 / TSL** and **ETH #2 / TSL** at the front side are for the communication between the data logger and the system client and can be used as well for data logging.

Additionally, the ports are used to connect further devices via Ethernet to form a TSL network (System Link) and to synchronize their time.



Figure 6.4: BLUEPIRAT Rapid – 10 Gbit/s ETH interfaces

## 6.4 State LEDs

The BLUEPIRAT Rapid has 4 state LED at the front side

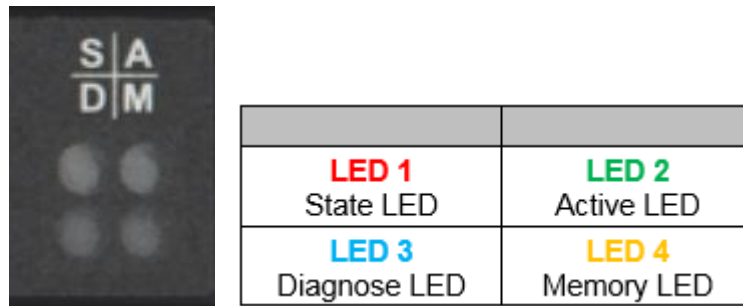


Figure 6.5: BLUEPIRAT Rapid – state LEDs

### 6.4.1 State LED (red)

State	Meaning
off	No error, normal operational status
on	Device is in error state. If the device is still reachable by the client, the error and some hints to solve this issue can be found in the bug reporter.
blinking	Overload of the data logger; maybe loss of data Information about lost data can be found in the bug reporter..
blinking	tbd

Table 6.1: state LED

### 6.4.2 Active LED (green)

State	Meaning
off	Device is off or in standby mode.
on	Device has started up and can be reached by the client.
blinking	Device is starting up.
pulsing	Device goes to standby mode.

Table 6.2: active LED

The mentioned states of the **Active-LED** are additionally overlaid by a fast flashing if data traffic takes place on one of the activated interfaces (with the exception of protocol-based Ethernet logging).

If a trigger is initiated (external or internal), the ACTIVE LED lights up briefly with full brightness.

### 6.4.3 First Frame mode LED (blue)

When starting the device, the first incoming data (first frame data) are stored in a special memory till the device has started completely. Then the first frame data are moved into the normal storage. This process is shown by the blue LED.

When the blue LED has turned off finally, you should wait at least 30 seconds before you start downloading data from the device.

State	Meaning
off	tbd
on	First Frame data are send to the normal data storage
blinking	tbd
pulsing	tbd

Table 6.3: active LED

### 6.4.4 Memory LED (yellow)

State	Meaning
off	Enough Memory capacity available
on	Memory capacity is filled up to 100 % (when ring buffer is deactivated)
blinking	Memory capacity is filled more than 75 % (when ring buffer is deactivated)

Table 6.4: active LED

## 6.5 1 Gbit/s ETH Interfaces ETH #21 to ETH #24

The 4 x 1Gbit/100MB interfaces can be used for Ethernet tracing, ETH SPY and camera recording. They support AutoNeg.

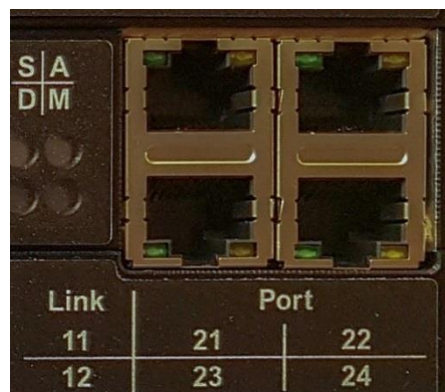


Figure 6.6: BLUEPIRAT Rapid – 1 Gbit/s interfaces ETH #21 to ETH #24



## 7 Interfaces at the rear side

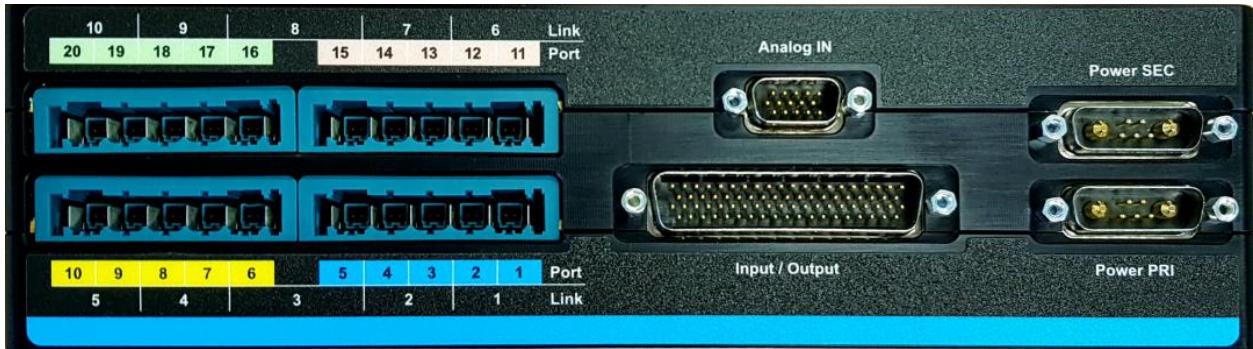


Figure 7.1: BLUEPIRAT Rapid rear side

### Attention:

The data logger is protected against reverse polarity of the power supply. Nevertheless, devices connected to the data logger can be damaged if the data logger is connected with the wrong polarity.

### 7.1 100Base-T1 / Broad-R-Reach® / Automotive Ethernet

BLUEPIRAT Rapid has at his rear side 20 100Base-T1 ports for logging. The ports are designed to forward all signals from one port to the next one, e.g. Port #1 ↔ Port #2. Please find further descriptions about the settings in the manual of the System Client, where you find drawings about the functionality too:

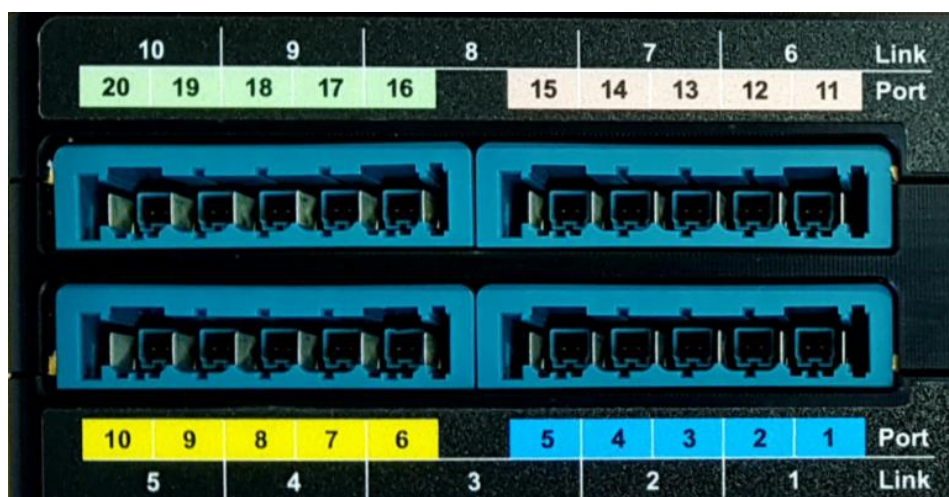
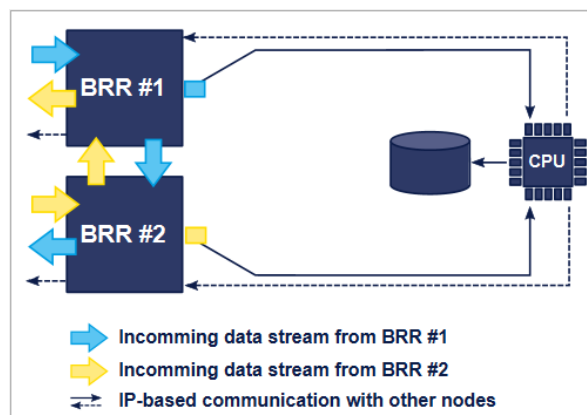


Figure 7.2: 100Base-T1 / Automotive Ethernet / Broad-R-Reach connectors

## 7.2 SUB-D 15 und SUB-D 78 Pin

The SUB-D 15 pin connector is for connecting a cable for the Analog Inputs #2 - #7.

The SUB-D 78 pin connector is for the I/O cable set, which contains the CAN / LIN / FlexRay / Serial / UART connections as well as the connectors for KI15, WakeUpLine and Digital Inputs #1 - #4.

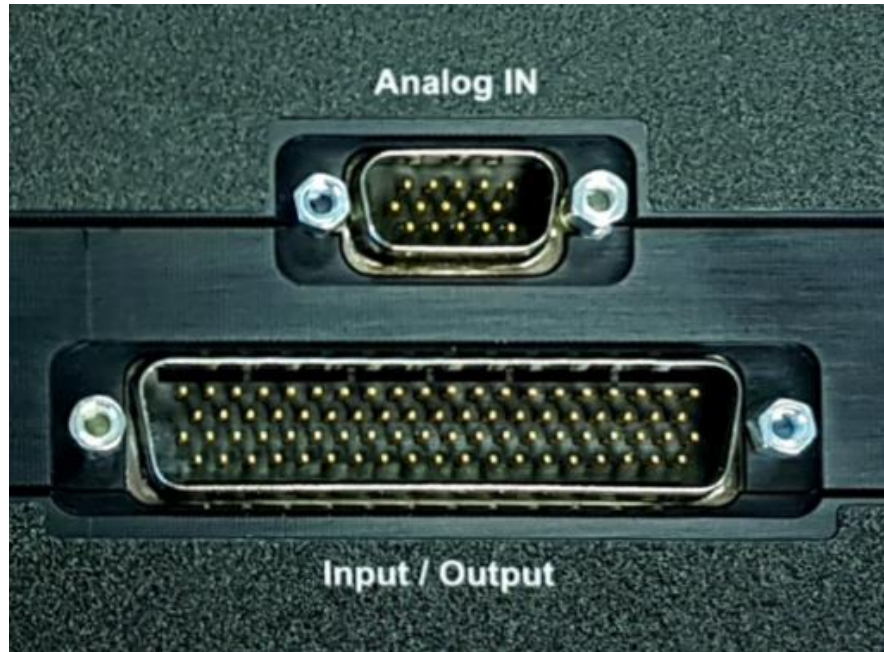


Figure 7.3: BLUEPIRAT Rapid - SUB-D 15 und SUB-D 78 Pin

## 7.3 Power Primary & Power Secondary

BLUEPIRAT Rapid offers two interfaces for connecting power sources, which provides a redundant and save power supply.



Figure 7.4: BLUEPIRAT Rapid - Power Primary & Power Secondary

## 8 The storage concept

### 8.1 Architecture

To increase the recording performance, the BLUEPIRAT Rapid data logger has two internal memory paths working parallel.

One storage path is optimized for recording raw data. This is implemented via Field Programmable Gate Arrays (FPGA), i.e. this path is implemented directly in hardware via a logic circuit. This ensures the best possible recording performance. The downstream storage architecture to the memory (SSDs) is also optimized by parallelization. The internal CPU is generally not loaded in this process. Data of this memory path is referred to as "logic data" in this manual.

The second memory path is implemented via the internal CPU of the device. This makes it possible to support SW protocols. Examples are TCP/UDP server, camera recordings, CCP XCP and others. The data is recorded on a single SSD. The CPU data recording is more flexible than FPGA based recording, but the recording performance is much lower.

"Logic data" and "processor data" are strictly separated in the device. The CPU cannot access logic data; the FPGA cannot access processor data. When the data logger is read out, the System Client or Download Terminal merges the data.

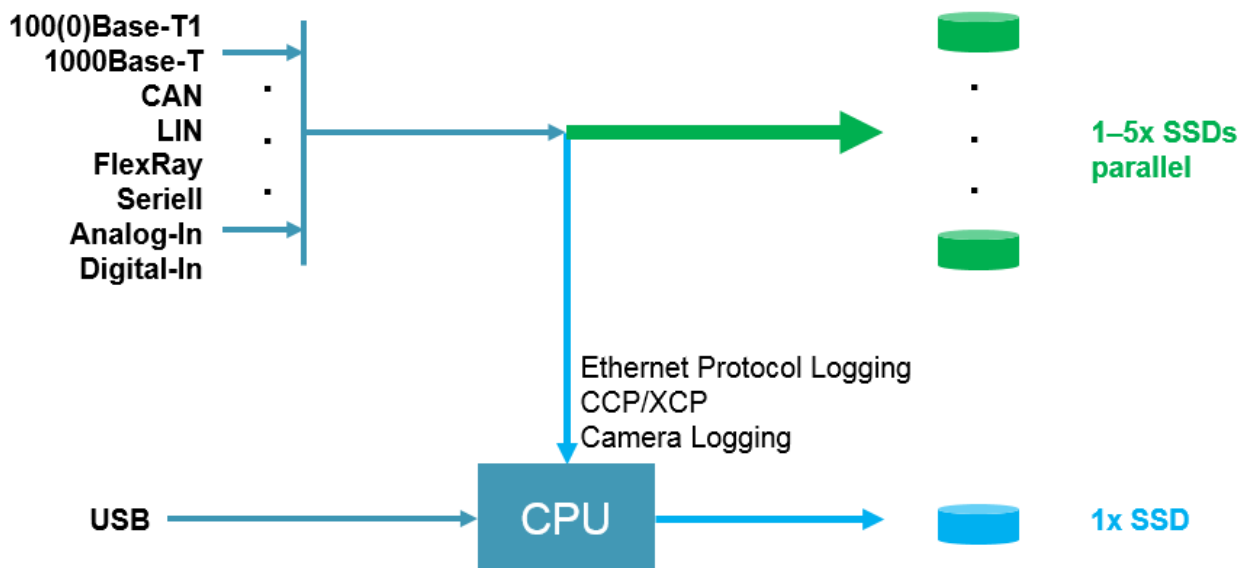


Figure 8.1: The storage concept of BLUEPIRAT Rapid

## 8.2 The ring buffer

Each memory area has its own ring buffer. As soon as one of the areas is full, the corresponding ring buffer starts erasing the oldest data in that area. Initially, only the data in the full memory area are deleted, the data in the other memory area are kept.

Of course, it can happen that in an older time range, not all data of all interfaces are available anymore, because the two ring buffers act completely independent from each other and are not synchronized.



## 9 Starting the BLUEPIRAT Rapid

### 9.1 Hook up the BLUEPIRAT Rapid

Connect the wiring harness to one of the two available sockets for the power supply on the BLUEPIRAT Rapid. Then connect power and ground (red/Vbat+/clamp30 and black/GND/-/clamp31). to the vehicle battery or a power supply.



**Figure 9.1: BLUEPIRAT Rapid – connecting the power supply**

Connect one of the two 10 GBit-Ethernet / TSL ports with the Ethernet port of your computer by using a Ethernet cable.

Note: By default, the device is configured as Automatic DHCP configuration for with default IP address 192.168.0.233!



**Figure 9.2: BLUEPIRAT Rapid – connection to your computer**

#### 9.1.1 Power on/off the BLUEPIRAT Rapid

Step 3: Switch on the BLUEPIRAT Rapid by pressing the [ON / Trigger] button and wait until the logger is ready and the green LED is still on.



**Figure 9.3: Power on/off the BLUEPIRAT Rapid**

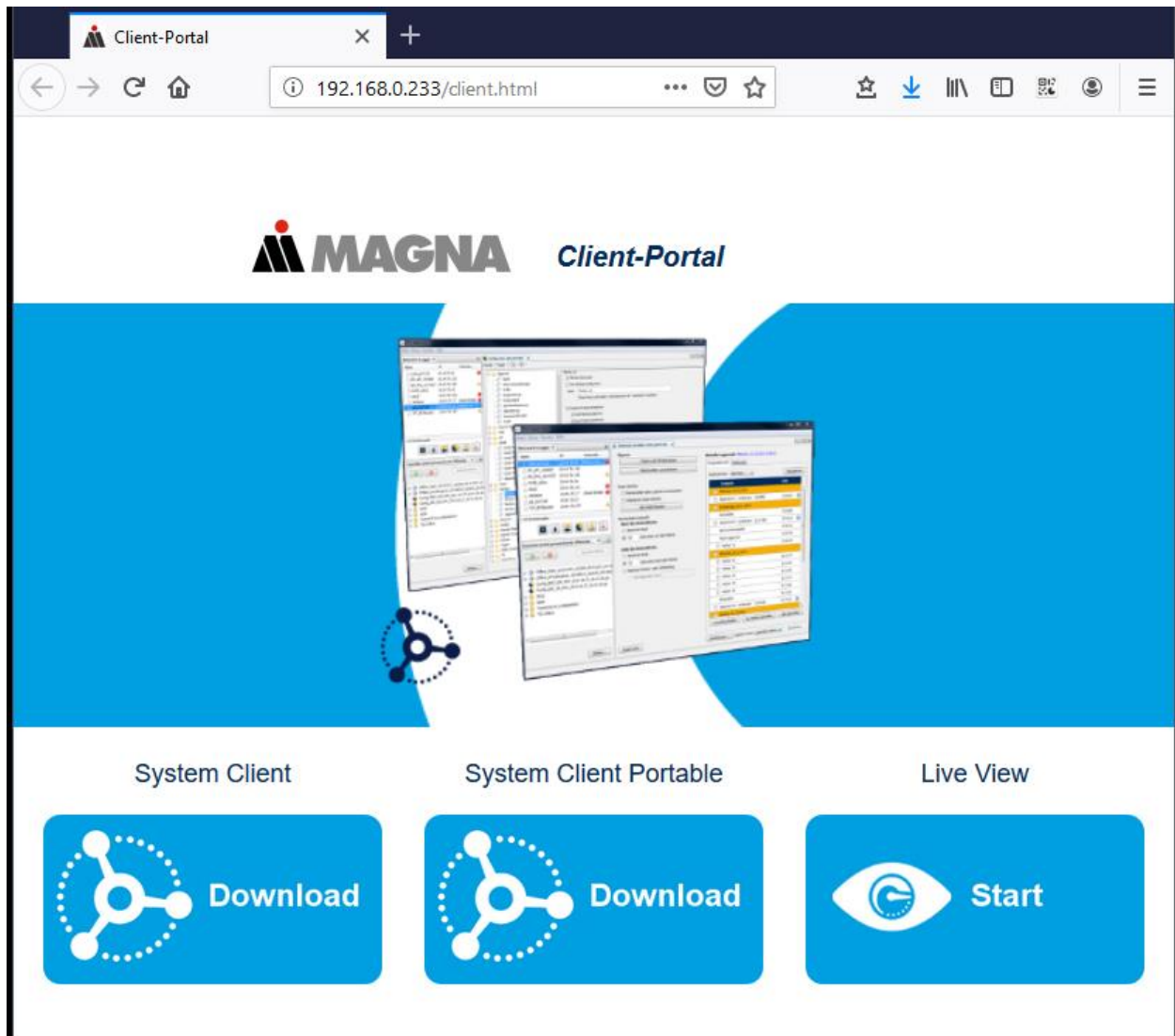
To switch off the BLUEPIRAT Rapid later, please press the [ON / Trigger] button for a few seconds, until the green LED starts pulsing.

## 9.2 Download and installation of the System Client

Open your internet browser and enter the IP address of the logger

(Default settings: **Automatic DHCP configuration for TSL with IP 192.168.0.233**) and press **[Enter]**.

<http://192.168.0.233/client.html>



**Figure 9.4: Client Portal**

The connection between the logger and your computer system will be established. Please take care that the network settings of your network adapter are set to **Obtain IP address automatically**.

Click **[Download]**, to download the System Client (64 Bit) as portable or install version directly from the logger. The 32 Bit version is available in our service center.

The links are the same as these ones:

**System Client:** [https://sc.telemotive.de/4/uploads/media/System\\_Client\\_Setup.zip](https://sc.telemotive.de/4/uploads/media/System_Client_Setup.zip)

**System Client portable:** [https://sc.telemotive.de/4/uploads/media/System\\_Client\\_Portable.zip](https://sc.telemotive.de/4/uploads/media/System_Client_Portable.zip)

Follow these steps, depending on your browser:

Browser	Proceeding
Internet Explorer	Click <b>[Save]</b> , to locally save the file on your system. Click <b>[Accomplish]</b> .
Mozilla Firefox	Click <b>[Save file]</b> , to locally save the file on your system. Click the arrow on the right top of the browser menu and select the downloaded application in the appearing context menu.

In the dialog that opens select the desired software language from the dropdown menu.  
Click **[OK]**.

Follow the instructions in the next dialog and select an installation directory.  
Click **[Install]**.

After successful installation you will find the **System Client** icon on your desktop. Double-click the icon to start the application.

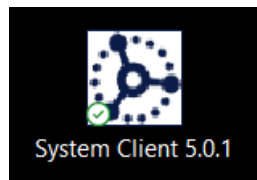


Figure 9.5: Desktop icon

### 9.3 System Client portable

The System Client is also available as a portable version which needs no installation but unpacking. This version is ready for downloading in our Service Center.

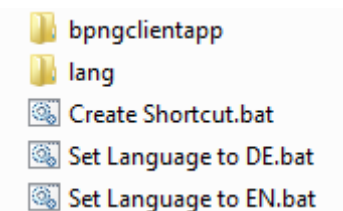


Figure 9.6: Content of the portable client

The portable version includes some batch files for these functions:

<b>Create Shortcut.bat</b>	creates a shortcut for the start file of the portable client
<b>Set Language to DE.bat</b>	changes the language into german
<b>Set Language to EN.bat</b>	changes the language into english (standard)

### 9.4 Default network settings

**Important:**

The loggers default setting is **\*Automatic DHCP-configuration for TSL with IP 192.168.0.233\*** and has to be connected by an Ethernet cable from „ETH #1 / TSL“ or „ETH #2 / TSL“ to your computer system.

⇒ <http://192.168.0.233>

### 9.4.1 Resetting the network settings

If you no longer have access to the logger, a **reset of the network settings** can solve the problem by pressing the **[On / Trigger]** key directly after switching on, during booting for approx. 10 seconds until the red State LED flashes 2 times.

The Rapid then boots completely and then reboots automatically to activate the default network settings. (Automatic DHC configuration with IP 192.168.0.233)

## 9.5 Terminal IP address

Each **BLUEPIRAT** has an additional, permanently set network address internally, which can be used to reach the device if the set IP address cannot be reached. This address can also be used if several devices have the same IP setting. For this feature every data logger has a second, fixed IP address in the subnet 10.1.X.Y which can be contacted by the System Client.

Each terminal IP address is unique!

These additional IP addresses are all located in subnet 10.1.X.Y. The system client can access the devices via this IP address

#### Attention:

**To use this option your computers network port has to be set to the fixed IP address 10.1.255.254 and subnet mask 255.255.0.0.**

To set this IP address, please go to the specific network connection at **[Properties]** change the IP settings and close the window with **[OK]**.

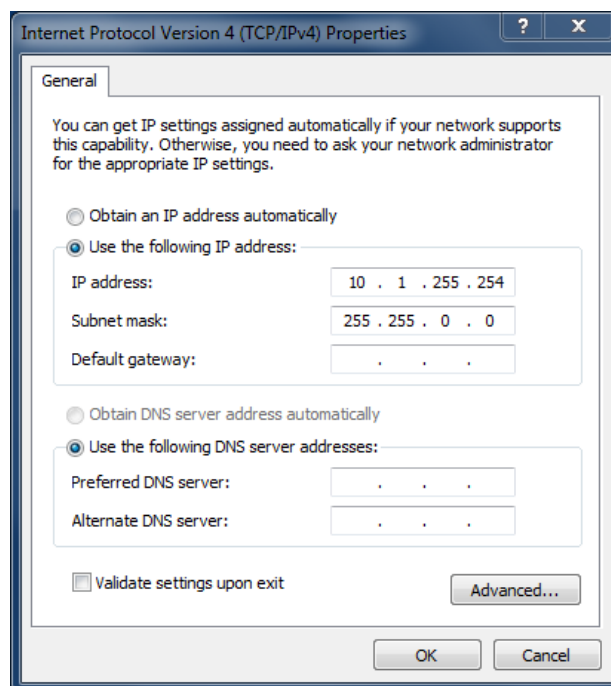


Figure 9.7: Change IP settings



If this is given, the system client finds the devices on the alternative IP address and displays them in the network logger list with the terminal IP address. From then on the devices can be used as usual. This allows the loggers to be read out simultaneously without having to operate them as a DHCP client or change the IP settings on each logger.

## 9.6 Resetting the logger to factory settings (from D3)

Beside the possibility to reset the network settings, the BLUEPIRAT Rapid (D3 and later) offers the possibility to reset the device to factory respectively delivery status, if the logger is in error state and there's no chance to connect to the logger any more (even after a network reset).

### Warning:

**Due to the reset to factory settings all data and sometimes the licenses on the logger will be deleted. Needed licenses have to be installed on the logger again after this operation. You must flash an actual firmware version after this procedure. This is signaled by the STATE-LED and a failure message "FC\_FW\_UPDATE" in the System Client.**

To reset the logger to factory settings, please follow these steps:

- Unplug the logger from power supply
- Connect the logger with the power supply again, while pressing the **[ON / Trigger]** button
- The green and the red LEDs are pulsing

### Note:

**If you do nothing, the logger tries to startup normally, in case of the button was pressed by mistake during plug in.**

- During the short phase, in which the green and the red LEDs are pulsing (for about 10 seconds), quickly press the **[ON / Trigger]** button **5 times**
- The green and red LEDs are blinking alternately
- The device starts to reset itself to factory settings. This operation will take 5 to 10 minutes. The BLUEPIRAT Rapid will switch off after this procedure automatically.
- Please start the device by pressing the **[ON / Trigger]** button
- The device continues the reset procedure and switches off again.
- Please start the device by pressing the **[ON / Trigger]** button
- Wait till the device has started completely
- Connect the device to the System Client
- Control the needed licenses and upgrade them if necessary
- Upgrade the firmware of the device to a valid version
- Send your needed configuration to the device!

## 10 Logging data

### 10.1 Setting markers

Interesting occurrences can be marked by the **[ON / Trigger]** button at the front panel or at the Remote Control Touch by setting a timestamp. When you are pressing this button, the data logger saves the current time to the internal storage as a marker.

It is possible to configure the data logger to send a CAN message as an acknowledgement of the setting of a marker

An external marker switch can also be connected via the multi-function connector (see the Complex Trigger manual), which functions like the switch on the front panel.

Additionally complex triggers are making it possible to define a message that triggers a marker. In all cases, marker triggers are debounced.

When downloading the data, the client displays all markers in a data overview. In this data overview, the client can be configured to transfer the data close to selected markers.

### 10.2 Time stamp

The recorded messages and status messages are timestamped on completion of reception, i.e. when a recipient was able to receive the message. The timestamp is inserted at the end of the message for most interfaces. The start time of the data transfer is only used for the serial interface (RS232).

Trace Data	Accuracy	start	end
CAN	1 $\mu$ s		x
LIN	1 $\mu$ s		x
FlexRay	1 $\mu$ s		x
Ethernet Spy	1 $\mu$ s		x
Ethernet protocol based	100 ms		x
RS232	1 ms	x	

**Table 10.1: Accuracy of the messages**

## 10.3 Standby mode

The table below shows, which busses or signals are monitored for keeping the logger alive and which busses or signals are able to wake up the logger.

Schnittstelle / Interface	Wachhalten / Keep alive	Aufwecken / Wake up	Konfigurierbar / configurable W = wake up A = keep alive	Kommentar / comment
CAN-FD	✓	✓	W / A: Ein / Aus W / A: On / OFF	
High Speed CAN	✓	✓	W / A: Ein / Aus W / A: On / OFF	
Low Speed CAN	✓	✓	W / A: Ein / Aus W / A: On / OFF	
LIN	✓	✓	W / A: Ein / Aus W / A: On / OFF	
FlexRay	✓	✓	W: FlexRay 1a-1b	
Seriell RS232	✓	✓	W / A: Ein / Aus W / A: On / OFF	
Ethernet 1 Gbit	✓	-	A: Ein / Aus A: On / OFF Alive time	Zeit / time: General / Standby
100Base-T1	✓	✓	W / A: Ein / Aus W / A: On / OFF	
Analog In	-	-	-	
Digital In 1 - 4	✓	✓	W / A: Ein / Aus W / A: On / OFF	
USB	-	-	-	
[ON / Trigger] -Taste [ON / Trigger] -button	-	✓	-	
WLAN	-	-	-	
WakeUpLine	-	✓		
KL 15	✓	✓	W / A: Ein / Aus W / A: On / OFF	
				Ver. 19-01

Table 10.2: Standby mode

# 11 Interfaces

Find a detailed description about the interfaces of the bus systems, supported by the BLUEPIRAT Rapid in this chapter.

## 11.1 First Frame Mode

Some Interfaces from version D3 offer the **First Frame Mode**, which allows logging data before the **BLUEPIRAT Rapid** has finished it's booting completely.

This is available for:

- CAN-FD
- LIN
- Serial
- FlexRay

## 11.2 CAN

### 11.2.1 CAN data with 29 Bit identifiers

The BLUEPIRAT Mini can also log CAN data with 29 Bit identifiers. You don't have to configure anything. All the CAN data will be logged as they are available on the CAN bus. It is also possible to log CAN messages mixed with **CAN specification 2.0a (11 Bit)** and **CAN specification 2.0b (29 Bit)** identifiers.

### 11.2.2 Operating modes High Speed / Low Speed / CAN FD

Depending on the model, the BLUEPIRAT Rapid has different numbers of High Speed (HS), Low Speed (LS) CAN or CAN FD interfaces. It is not possible to change a CAN interface. Each type is using different transceivers.

The electrical behavior of the Low Speed and the High Speed CAN is different, hence, the Low Speed CAN port of the device must not be connected to a High Speed CAN bus and vice versa.

Both operating modes use differential signals (CANH, CANL). For the correct data recording, all nodes of the bus must have a common reference potential. The BLUEPIRAT Rapid uses the connection "**clamp 31**" as a reference potential. The lines of the High Speed CANs are terminated with a high resistance.

	Low Speed-CAN	CAN FD
<b>Transceiver chip</b>	Philips NXP 1055	NXP TJA1044GT
<b>Terminating resistor</b>	4k64	4k64
<b>Baud rate – data channel</b>	50 kbit/s - 125 kbit/s	50kbit/s – 5Mbit/s
<b>Baud rate – control channel</b>	-	50kbit/s – 1Mbit/s
<b>Supported identifiers (SW)</b>	11 & 29 Bit	11 & 29 Bit
<b>Disabling acknowledge</b>	possible	possible
<b>Time stamps</b>	at the end of the message	at the end of the message

**Table 11.1: Can transceiver**

### 11.2.3 Recording content

The BLUEPIRAT Rapid is able to record the following error states of the CAN bus:

- Stuff error
- Format error
- Acknowledge error
- Bit 0/1 error
- CRC error
- Overrun

These error states are only included in the Telemotive file formats. After reaching a certain number of errors (50 errors), the recording of error states is interrupted until reception of the next successful CAN message to avoid an overload of the recorded data.

### 11.2.4 Sending CAN messages

If the BLUEPIRAT Rapid is sending a CAN message, it is shown twice in the trace: The first message indicates the transmit request of the data logger and the second message indicates the actual transmission of the message.

In the CANoe file format these messages are indicated as “TxRq” and “Tx”, respectively. The transmit request messages are not included in file format that don't support them

## 11.3 LIN

The BLUEPIRAT Rapid is able to record data compliant to the LIN specification V1.3, V2.0 and V2.1. The data logger does not actively appear as a bus member. Sending LIN messages isn't supported currently.

<b>Channels</b>	up to 20
<b>Transmission Rate</b>	1200, 2400, 4800, 9600, 19200, 20000 Baud
<b>Transmitter</b>	TJA1022
<b>Status</b>	Parity BITS, format Check for Header, Checksum for Header and Payload
<b>Terminating resistor</b>	1 kOhm

Table 11.2: LIN

### 11.3.1 LIN data blocks and time stamps

Each LIN message receives a time stamp, which marks the end of the message. If the data logger receives LIN data without a valid header, it creates blocks containing the erroneous data. The maximum block size is 10 bytes. A block will be concluded after a timeout too, which is three times the transmission time of a LIN character.

### 11.3.2 LIN transceiver

The BLUEPIRAT Rapid uses the LIN transceiver TJA1022 by NXP (former Philips Semiconductor). Supported baud rates are in the range from 1200 to 20000 Baud. Automatic baud rate detection is currently not supported. The LIN interface is configured as a slave device with a terminating resistor of 1 kΩ.

### 11.3.3 Special frames and states

Additionally to the normal frame data, the following information is recorded:

- Wake-Up Frames
- Checksum Errors

## 11.4 Serial (RS232 / UART TTL)

<b>Channels</b>	up to 4
<b>Data bits</b>	5, 6, 7, 8
<b>Stop bits</b>	1, 1.5, 2,
<b>Parity</b>	None, odd, even

Table 11.3: Serial interface

### 11.4.1 Segmentation of the serial data

The received serial data are clustered into data blocks separately for each channel. Each block is finalized after a certain time or when it reaches a certain maximum size. The time is 30 to 60 ms depending on the channel. The maximum size is 49 to 80 bytes. A time stamp is assigned to each block when it is finalized.

### 11.4.2 RS232 transceiver

The threshold voltages for data reception are the usual RS232-defined values. A logical "1" is recognized for input voltages smaller 0 Volts, a logical "0" for input voltages higher than 3 Volts.

### 11.4.3 UART / TTL Transceiver

You can easily switch between RS232 and TTL transceiver in the configuration via the System Client

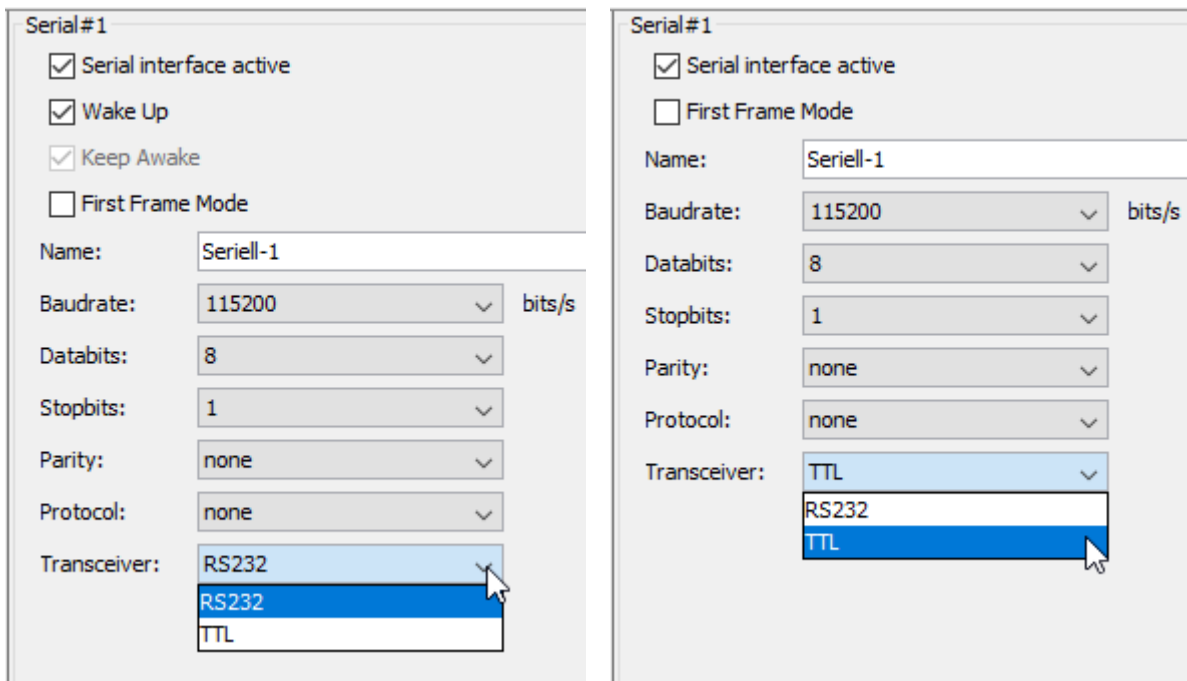


Figure 11.1: Switching from RS232 to TTL Transceiver

## 11.5 FlexRay

The BLUEPIRAT Rapid is able to record FlexRay bus data according to the FlexRay specification 2.1A. The data logger records all valid and invalid, static and dynamic frames of the FlexRay channel, including “a” and “b”, independently if the FlexRay bus is in a synchronous or asynchronous state.

<b>Channels</b>	2x (a + b)
<b>Max. bit rate</b>	10 Mbit/s
<b>Frames</b>	Static, Dynamic, Null Sync, Startup
<b>Transceiver</b>	TJA 1081B

Table 11.4: FlexRay

### Attention:

**For every measurement with FlexRay the line must be separated and lead through the BLUEPIRAT Rapid. Therefore all connectors exist two times at the cable set.**

**Turning off the BLUEPIRAT Rapid thereby causes no interruption of the FlexRay line.**

## 11.6 Analog / Digital Input

The BLUEPIRAT Rapid has 7 analog and 4 digital inputs, whereas the first analog channel is located in the logger and records the input voltage. The measuring range at analog 2 – 7 is between -60 V and + 60 V, the accuracy is 0,05 %. The sampling rate is adjustable from 1 Hz to 4 kHz. The switching threshold for the digital input is  $7\text{ V} \pm 0.2\text{ V}$ .

The combined ground has to be connected always!

## 11.7 Digital Output

The BLUEPIRAT Rapid has four digital outputs, which are depending on the connected Power supplies! If only Power primary is connected, there are only channel #1 and #2 available, see the table below:

Power Connection	Corresponding Dig OUT Channels
Power primary	Dig Out #1 & Dig Out #2
Power secondary	Dig Out #3 & Dig Out #4

The output current is up to 1 A per channel. The channels DigitalOut #1 to #3 provide an output voltage equal to the supply voltage of the Rapid, DigitalOut #4 provides an output voltage of 5 V

## 11.8 Ethernet

The BLUEPIRAT Rapid 100+ has four 1000Base-T Ethernet ports with RJ45 connector on the front and twenty 100Base-T1 interfaces at the rear side.

The two interfaces **ETH #1 / TSL** and **ETH #2 / TSL** can be used to connect the data logger to the PC and for the TSL (System Link Technology) connection.



**Broad-R-Reach® / Automotive Ethernet / 100Base-T1** is an Ethernet based standard, which allows multiple components of the electrical system of a vehicle to get access to information by using unshielded twisted pair wires simultaneously.

## 11.8.1 Supported Ethernet protocols

This section gives an overview of the available protocols. When a protocol requires an optional software license, this will be marked.

### 11.8.1.1 GNLogger

For connecting a standard TCP (open socket connection) is used. Therefore the data logger is a TCP slave device.

GNLogger is a proprietary serial protocol used for some ECU diagnosis.

### 11.8.1.2 UTF8

The data logger will initiate a TCP connection to a TCP server by using an open socket connection (you can configure IP/Port of server via client software).

By using UTF8 data transmission the logger will write a timestamp after every detected Linefeed (LF) from the incoming data.

If the connection is getting lost, it will take about 5 seconds to build up a new connection for logging data again.

### 11.8.1.3 Raw

When using the raw data transmission over TCP the data logger will be a TCP slave device. Therefore the logger will initiate a TCP connection to a TCP server by using an open socket connection (you can configure IP/Port of server via client software).

When using raw data transmission, every data package up to 40 Kbytes is getting a time stamp and will be written on the logger.

If the connection is getting lost, it will take about 5 seconds to build up a new connection for logging data again.

### 11.8.1.4 UDPServer

The data logger can be configured as a UDP server by setting up an IP address and port number.

There is an adjustable timeout. The connection will be terminated if no data arrives. This appears as a message in the trace file. There is no configurable debug level. The logger as a UDP server accepts UDP data packets, UDP multicast and UDP broadcast packets.

If the connection is getting lost, it will take about 5 seconds to build up a new connection for logging data again.

### 11.8.1.5 TCPServer

The data logger can be configured as a TCP server by setting up an IP address and port number.

There is an adjustable timeout. The connection will be terminated if no data arrives. This appears as a message in the trace file. There is no configurable debug level. The logger as a TCP server accepts TCP data packets, TCP multicast and TCP broadcast packets.

If the connection is getting lost, it will take about 5 seconds to build up a new connection for logging data again.

#### **11.8.1.6 SpyMode**

By using the Ethernet Spy mode it is possible to log all Ethernet data (promiscuous mode).

More information can be found in the **System Client User Guide**.

#### **11.8.1.7 EsoTrace**

By using the EsoTrace mode it is possible to log data in the EsoTrace protocol.

More information can be found in the **System Client User Guide**.

#### **11.8.1.8 Camera (license required)**

If you use a camera license on the data logger, it is possible to connect up to four Ethernet webcams to the BLUEPIRAT Mini. After connecting the BLUEPIRAT Mini is able to log MPEG4 video streams.

More information can be found in the **Camera User Guide**.

#### **11.8.1.9 DLT**

If you use DLT on the data logger, it is possible to connect up to 16 ECU for logging their DLT messages.

## 12 Conversion of recorded traces

All trace data will be recorded internally in the proprietary Telemotive TMT format (\*.tmt). If the recorded trace data will be downloaded and sorted, the data will be converted to an Extended TMT format (\*.xtmt).

The client provides the possibility to convert the internal format in other formats, to make the data readable or to prepare them for available analyzing tools.

More information about the file formats and a detailed manual for conversion can be found at the **System Client User Guide**.

### 12.1 Conversion format overview

The table below shows which data of the interfaces can be converted to other formats.

Format / format		Ver.2021-01																															
Tracedaten / Trace data	Format / format																																
	*.txt	*.txt	*.dlt	*.bif	*_CANCORDER.asc	*.asc	*.esotrace	*.raw	*.xtmt	*.pjaa	*.gpx	*.kml	*.kmz	*.log	*.mdf	*.mdf	*.mf4	*.mf4	*.img	*.mpeg4	*.ts	*.nmea	*.op2	*.qmdl	*_RAW.txt	*.txt	*.txt	*.pcap	*.txt	*_TC.trc	*_WUL.txt	*.pcapng	
	APN ASCII	ASCII Hexadecimal	DLT Logging Format	Binary Logging Format	CANorder	CANoe ASCII	Eso Trace file	Ethernet Raw	Extended Telemotive Trace File	GN-Log	GPS Exchange Format	KML Google Maps Format	KMZ comp. Google Maps Format	MDF Logging	MDF CAN Signal Format v3.3	MDF CCP XCP Signal Format v3.3	MDF Bus Logging Format v4.1	MDF Signal Logging Format v4.1	MOST Data Analyser Format	MPEG-4	MPEG isochron raw file	NMEA - ASCII GPS Format	Optolyzer Format	Qualcomm Memory Device Log File	RAW Serial	Serial Debug Format	Serial Trace Analyser Format	TCPdump	Telemotive ASCII Format	Trace Client Format	WakeUpLine ASCII Format	Wireshark PCAP NG	
Analog IN																																	
CAN / CAN-FD																																	
CCP_XCP																																	
Digital IN																																	
WakeUpLine (Digital IN #1 & #2)																																	
ECL																																	
Ethernet																																	
- Ethernet - DLT																																	
- Ethernet - EsoTrace																																	
- Ethernet - GN Log																																	
- Ethernet - RAW																																	
- Ethernet - TCP Server																																	
- Ethernet - UDP Server																																	
- Ethernet - UTF8																																	
Ethernet - Spy / MII																																	
FlexRay																																	
GPS																																	
Kamera/Video																																	
LIN																																	
MOST150 (CTRL / MDP)																																	
MOST150 MEP																																	
MOST150 Stream																																	
MOST25 CTRL																																	
MOST25 MDP																																	
Serial RS232																																	
Signal based filter (Format wird beibehalten "*" / keeps the used format ".")																																	
USB / Conn.-Gateway MLBevo																																	
<b>Marker</b>																																	
<b>Konvertierung / converting</b>	1	m	m	m	m	1	1	m	1	1	1	1	m	m	1	m	1	m	1	m	1	m	1	m	1	m	1	m	m	1	m		
<b>Marker</b>	<b>M</b>	Marker kann in Trace geschrieben werden																															
	<b>P</b>	Marker kann nur als CAN / MOST Pseudonachrichten in die Datei geschrieben werden																															
<b>Konvertierung / converting</b>	<b>m</b>	eine Datei für mehrere Kanäle																															
	<b>1</b>	einzelne Datei pro Kanal																															

Table 12.1: Conversion options (overview)

## 13 Service and safety instructions

### Note according to standard EN55011:2009

The device is used in an industrial environment. Due to occurring, grid-bound as well as radiated disturbances, it might possibly be difficult to ensure compliance with electromagnetic compatibility in other environments.

### Cleaning

The device may only be cleaned with a clean cloth slightly dampened with water. Other cleaning agents such as gasoline, alcohol, etc., may not be used.

### Maintenance

The device is maintenance-free. The case must not be opened by the customer. Unauthorized modifications will void the warranty.

### Fuse

In case of failure, the customer may change the fuse of the cable set or fuses accessible from outside only. The fuse may be replaced with a fuse of the same type only and nominal current rating.

### Disposal

Disposal of the unit must be in accordance with the statutory laws and regulations.

### Instruction on installation

Assembly of the device shall only take place in all three specified axes.

### Operational temperature

Operation of the device shall only be performed within the temperature range specified in the data sheet.

All tests to determine the valid operational temperature are performed under laboratory conditions. In real operation deviating temperatures can occur. Internal cut-off mechanisms exist, that prevent impermissible heating of the device's components.

A sufficient ventilation is to be taken into consideration. The unit and other components shall not be stacked atop each other provided that there is no adequate cooling ensured and the device shall be used in ambient temperatures exceeding +25°C.

**During operation under unfavorable circumstances case temperatures that exceed +70°C can occur, as the metal case contributes directly for the passive cooling of the unit. At elevated ambient temperatures the case shall not be touched due to risk of injury. Operation of the device is only permissible in industrial premises with restricted access.**

### Storage conditions

The device may only be stored within a temperature range of - 40 °C to + 85 °C.

### Condensation

During condensation the unit must not be activated. For this purpose appropriate waiting periods must be taken into consideration.

### Environmental conditions

The unit must not be used in outdoor areas or unfavorable environmental conditions such as moisture, high air humidity or dust. Furthermore it is forbidden to operate the device in flammable or explosive atmospheres. The maximum power supply voltage must not exceed +30V. Overvoltage can destroy the device and voids the warranty.

**Cable sets**

When inserting the cable sets in the usual case, only a slight force is required. At an increased mechanical resistance during insertion of the cable set, the correct alignment of the pins should be checked.

Special cable sets are to be manufactured strictly according to the sheet of the instruction manual containing the pin assignment, whereby an extra fuse provided on the cable set must be considered. The connectors specified in the instruction manual should be used.

Two pairs of pins are assigned to only one type of electrical potential, that means an interconnection to positive electrical potential (Klemme 30/Clamp 30) for one related pair and the negative one (Klemme 31/Clamp 31) for the other matching pair.

Network cables for connection to the data logger must be at least category 6A (STP or even S/FTP). The use of unshielded cables is not permitted.

The cable sets' temperature range is restricted to -20°C to +70°C due to the banana plugs.

**Mounting**

In laboratory setups and automobiles the units must be attached in such a way, that it is ensured against dropping, slipping and skidding.

**Positioning of the antenna**

The data loggers themselves are not provided with wireless communication facilities to other devices or technical equipment.

External modules are available for this functionality, which can be connected to the data logger via the two USB3.0 ports.

Any external antennas of these modules must not be located outside the vehicle!

**Replacing the battery**

A lithium button cell is located within the device, which must be only replaced by MAGNA Telemotive GmbH.

**Mechanical exposure**

+++++ Environment during operation +++++  
Height: -300 to 5500 m

+++++ Environment out of service +++++  
Height -300 to 12000 m

## 14 Technical data

General data BLUEPIRAT Rapid	BLUEPIRAT Rapid 100+	BLUEPIRAT Rapid 100+ Light
Nominal power supply voltage	13,8 V	13,8 V
Power supply voltage	7 to 28 V at system start up 6 to 30 V when running divergence +/- 8%	7 to 28 V at system start up 6 to 30 V when running divergence +/- 8%
Reverse polarity protection of the supply voltage	yes	yes
Resistance to short-circuiting	yes	yes
Power consumption / operating (typ.)	3,5 – 4,0 A (@ 12,0 V)	3,5 – 4,0 A (@ 12,0 V)
Power consumption / operating (peak.)	10,0 A (@ 12,0 V)	10,0 A (@ 12,0 V)
Power consumption / standby	< 2 mA	< 10 mA
Operating temperature	- 30°C to + 70°C for data recording, external active cooling may be required	- 15°C to + 65°C for data recording, external active cooling may be required
Storage temperature	- 40 °C to + 85 °C	- 40 °C to + 85 °C
Weight (ca.)	~ 4100 g	~ 4100 g
<b>Power Management</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
Startup time from standby to full operation	ca. 80 s	ca. 80 s
Start of logging - starting from standby	CAN-FD, LIN, FlexRay, Serial, Analog, Digital < 150 ms	CAN-FD, LIN, FlexRay, Serial, Analog, Digital < 4s
Start of logging from the stand-by mode	100Base-T1 < 300ms	100Base-T1 < 350ms
Start of forwarding from the stand-by mode	< 300 ms	< 350 ms
Standby Mode	Configurable time for activation	Configurable time for activation
First Frame Mode	per port configurable for: - CAN FD, UART/RS232, LIN, FlexRay	Not available
Wake	HS-CAN, LS-CAN, LIN, Serial, KL 15, 100Base-T1, Dig IN [ON / Trigger] -button	HS-CAN, LS-CAN, LIN, Serial, KL 15, 100Base-T1, Dig IN [ON / Trigger] -button
Data loss by power loss	If the device is switched off due to sudden power loss, up to 60 sec. of data may be lost.	If the device is switched off due to sudden power loss, up to 60 sec. of data may be lost.
<b>Case</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
Size (ca.)	252 x 70 x 200 mm (B x H x T)	252 x 70 x 200 mm (B x H x T)
Operating controls	Push-button to start and shut down data logger and to set markers	Push-button to start and shut down data logger and to set markers
LEDs	yes 4x	yes 4x
<b>Connectors</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
Front connectors	2 x 10GBase-T (RJ45), 2 x USB 3.0 (5V/900mA per Port) 4 x 1000Base-T (RJ45)	2 x 10GBase-T (RJ45), 2 x USB 3.0 (5V/900mA per Port) 4 x 1000Base-T (RJ45)
Rear connectors	20 x MATEnet.... 1 x SUB-D 78-pol: 1 x SUB-D 15-pol: 2 x DSUB COMBO 7W2	20 x MATEnet.... 1 x SUB-D 78-pol: 1 x SUB-D 15-pol: 2 x DSUB COMBO 7W2
<b>Data recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>

<b>Storage type (internal)</b>	M2 SSD memory modules	M2 SSD memory modules
<b>Storage size (internal)</b>	1,5 TB / 3 TB Up to 2.88 TB, thereof 480 GB for system & connection-oriented logging SSD Endurance pro SSD after JEDEC (Enterprise Workload): - Drive Writes Per Day (DWPD): $\geq 0,51$ (service life: 3 years)	3 TB Thereof 480 GB for system & connection-oriented logging SSD Endurance pro SSD after JEDEC (Enterprise Workload): - Drive Writes Per Day (DWPD): $\geq 0,51$ (service life: 3 years)
<b>Storage type (external)</b>	Various	various
<b>Recording modes</b>	normal, buffer	normal, buffer
<b>Data performance</b>	High-speed logging (FPGA based): - Recording with up to 1,4 Gbit/s, depending i.a. on logger memory configuration  Connection-oriented logging (CPU based): - Recording performance application-accendant significantly lower; product design and benchmarking ongoing	High-speed logging (FPGA based): - Recording with up to 1,0 Gbit/s, depending i.a. on logger memory configuration  Connection-oriented logging (CPU based): - Recording up to 150 Mbit/s - Data download up to 150 Mbit/s
<b>Timestamp accuracy</b>	1 $\mu$ s	1 $\mu$ s
<b>CAN recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
<b>Channel</b>	16 CAN-FD / HS-CAN, 1 LS-CAN	16 CAN-FD / HS-CAN, 1 LS-CAN
<b>Baud rate</b>	Up to 5.000.000 Baud at CAN-FD Up to 1.000.000 Baud at HS-CAN Up to 125.000 Baud at LS-CAN	Up to 5.000.000 Baud at CAN-FD Up to 1.000.000 Baud at HS-CAN Up to 125.000 Baud at LS-CAN
<b>Transceiver</b>	TJA 1044GT, TJA1055T	TJA 1044GT, TJA1055T
<b>Filter</b>	CAN-ID filter	CAN-ID filter
<b>Status recording</b>	Error Frames	Error Frames
<b>Serial recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
<b>Type</b>	RS232 / TTL	RS232 / TTL
<b>Channel</b>	4	4
<b>Baud rate</b>	1.200, 2.400, 4.800, 9.600, 19.200, 38.400, 57.600, 115.200, 230.400 Baud	1.200, 2.400, 4.800, 9.600, 19.200, 38.400, 57.600, 115.200, 230.400 Baud
<b>Data Bits</b>	5,6,7,8	5,6,7,8
<b>Stop Bits</b>	1,1.5,2	1,1.5,2
<b>Parity</b>	None, odd, even	None, odd, even
<b>LIN recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
<b>Channel</b>	22	22
<b>Baud rate</b>	1200, 2400, 4800, 9600, 10400, 19200, 20000 Baud	1200, 2400, 4800, 9600, 10400, 19200, 20000 Baud
<b>Transceiver</b>	TJA1022	TJA1022
<b>Ethernet recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
<b>Ports</b>	2 x 10GBase-T Ethernet, 4 x 1000Base-T Ethernet 20 x 100Base-T1	2 x 10GBase-T Ethernet, 4 x 1000Base-T Ethernet 20 x 100Base-T1
<b>Recording</b>	GNLog, Raw, UTF8, UDP, DLT, EsoTrace	GNLog, Raw, UTF8, UDP, DLT, EsoTrace
<b>100Base-T1 / Broad-R-Reach recording</b>	20 Ports, Master/Slave changeable	20 Ports, Master/Slave changeable
<b>100Base-T1 / BroadR-Reach Phy</b>	NXP TJA1100	NXP TJA1100
<b>Analog recording</b>	<b>BLUEPIRAT Rapid 100+</b>	<b>BLUEPIRAT Rapid 100+ Light</b>
<b>Channel</b>	1x Ubat (intern), 6x extern	1x Ubat (intern), 6x extern
<b>Range of measurement</b>	+ - 6 V / 0,046 mV pro Bit + - 30 V / 0,23 mV pro Bit + - 60 V / 0,46 mV pro Bit	+ - 6 V / 1 mV pro Bit + - 30 V / 5 mV pro Bit + - 60 V / 10 mV pro Bit
<b>Sampling interval</b>	1 Hz to 4 kHz	1 Hz to 4 kHz
<b>A/D converter</b>	LTC2335-18	LTC2335-18

Digital input	BLUEPIRAT Rapid 100+	BLUEPIRAT Rapid 100+ Light
Channel	4	4
Switching threshold	configurable	configurable
Sampling interval	1 Hz to 4 kHz	1 Hz to 4 kHz
Digital output	BLUEPIRAT Rapid 100+	BLUEPIRAT Rapid 100+ Light
Channel	4	4
Output voltage	#1 - #4 ~ Ubat / #4 ~ 5V	#1 - #4 ~ Ubat / #4 ~ 5V
Output current	Up to 1,0 A (continuous load)	Up to 1,0 A (continuous load)
Wake lines	BLUEPIRAT Rapid 100+	BLUEPIRAT Rapid 100+ Light
Wakeup line	Configurable pulse 2000 – 19000 mV, 0 – 2000 ms, 1 – 3 x	Configurable pulse 2000 – 19000 mV, 0 – 2000 ms, 1 – 3 x
Certifications		
	CE	CE

**Table 14.1: Datasheet**



## 15 CE Declaration of conformity



### CE EG-KONFORMITÄTSERKLÄRUNG EC DECLARATION OF CONFORMITY

Hersteller: **MAGNA Telemotive GmbH**

Anschrift: **Breitwiesen  
73347 Mühlhausen  
Deutschland**

Produktbezeichnung: **BLUEPIRAT Rapid**

Typ / Varianten: **100+ 3TB  
100+ LIGHT 3TB**

Als Hersteller erklären wir, dass das oben bezeichnete Produkt die erforderlichen Bestimmungen der folgenden Europäischen Richtlinien unter Anwendung der unten angegebenen harmonisierten Normen erfüllt.

Nummer	Richtlinie
2014/30/EU	Elektromagnetische Verträglichkeit (EMV)
2011/65/EU inkl. EU 2015/863	RoHS (Restriction of certain Hazardous Substances)
2014/35/EU	Niederspannungsrichtlinie (Produktsicherheit)

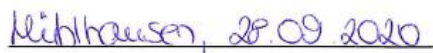
EMV	Norm
Störaussendung	EN 55032: 2015
Störfestigkeit	EN 55035: 2017

Produktsicherheit	Norm
	EN 62368-1:2014/A11:2017

Bei eigenmächtigen Änderungen an dem oben bezeichneten Produkt und/oder nicht bestimmungsgemäßer Verwendung erlischt die Gültigkeit dieser Konformitätserklärung.

  
Heinz Huber

Geschäftsführer

  
Mühlhausen, 28.09.2020  
Ort, Datum

## 16 Adapter cables & pin assignments

This chapter describes the adapter cables available for the BLUEPIRAT Rapid.

### 16.1 BLUEPIRAT Rapid | power primary cable

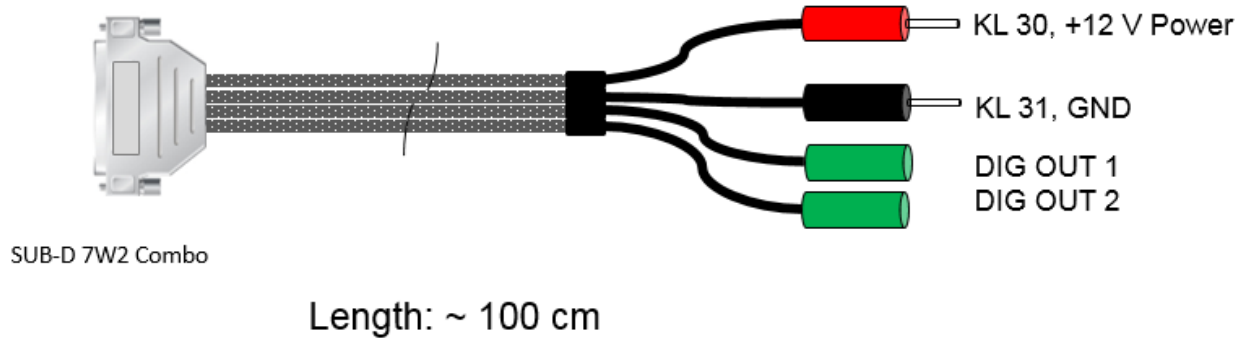


Figure 16.1: BLUEPIRAT Rapid | power primary cable

#### 16.1.1 BLUEPIRAT Rapid 100+ (D-sample) | Power primary - plug

name	type	manufacturer number	manufacturer
	DSUB, 7W2 kombo, female	680M7W2203L201	NorComp
	Shell	971-015-030R121	NorComp

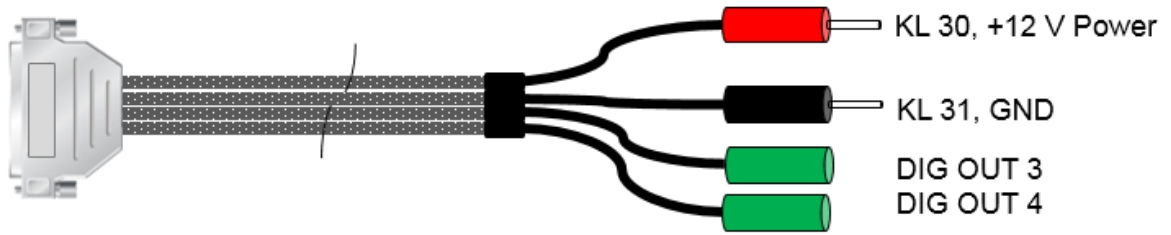
Table 16.1: BLUEPIRAT Rapid 100+ (D-sample) | Power primary - plug

#### 16.1.2 BLUEPIRAT Rapid 100+ (D-sample) | Power primary - pin assignment

<= logger		cable set =>		
pin	comment / depiction / signal name	wire size / lenght	type	contact
1	DIG OUT 1	0,25 mm <sup>2</sup> / 1000 mm	banana jack <b>green</b>	1
2	DIG OUT 2	0,25 mm <sup>2</sup> / 1000 mm	banana jack <b>green</b>	1
3	not used			
4	not used			
5	not used			
A1	KL 31 COM	2,5 mm <sup>2</sup> / 1000 mm	banana plug <b>black</b>	1
A2	KL 30 PRI & -[Fuse 15 A]-	2,5 mm <sup>2</sup> / 1000 mm	banana plug <b>red</b>	1

Table 16.2: BLUEPIRAT Rapid 100+ (D-sample) | Power primary - pin assignment

## 16.2 BLUEPIRAT Rapid | power secondary cable



SUB-D 7W2 Combo

Length: ~ 100 cm

Figure 16.2: BLUEPIRAT Rapid | power secondary cable

### 16.2.1 BLUEPIRAT Rapid 100+ (D-sample) | Power secondary - plug

name	type	manufacturer number	manufacturer
	DSUB, 7W2 kombo, female	680M7W2203L201	NorComp
	Shell	971-015-030R121	NorComp

Table 16.3: BLUEPIRAT Rapid 100+ (D-sample) | Power secondary - plug

### 16.2.2 BLUEPIRAT Rapid 100+ (D-sample) | Power secondary - pin assignment

<= logger			cable set =>	
pin	comment / depiction / signal name	wire size / lenght	type	contact
1	DIG OUT 3	0,25 mm <sup>2</sup> / 1000 mm	banana jack <b>green</b>	1
2	DIG OUT 4	0,25 mm <sup>2</sup> / 1000 mm	banana jack <b>green</b>	1
3	not used			
4	not used			
5	not used			
A1	KL 31 COM	2,5 mm <sup>2</sup> / 1000 mm	banana plug <b>black</b>	1
A2	KL 30 PRI & <b>-[Fuse 15 A]-</b>	2,5 mm <sup>2</sup> / 1000 mm	banana plug <b>red</b>	1

Table 16.4: BLUEPIRAT Rapid 100+ (D-sample) | Power secondary - pin assignment

### 16.3 BLUEPIRAT Rapid | 15 pol analog IN cable

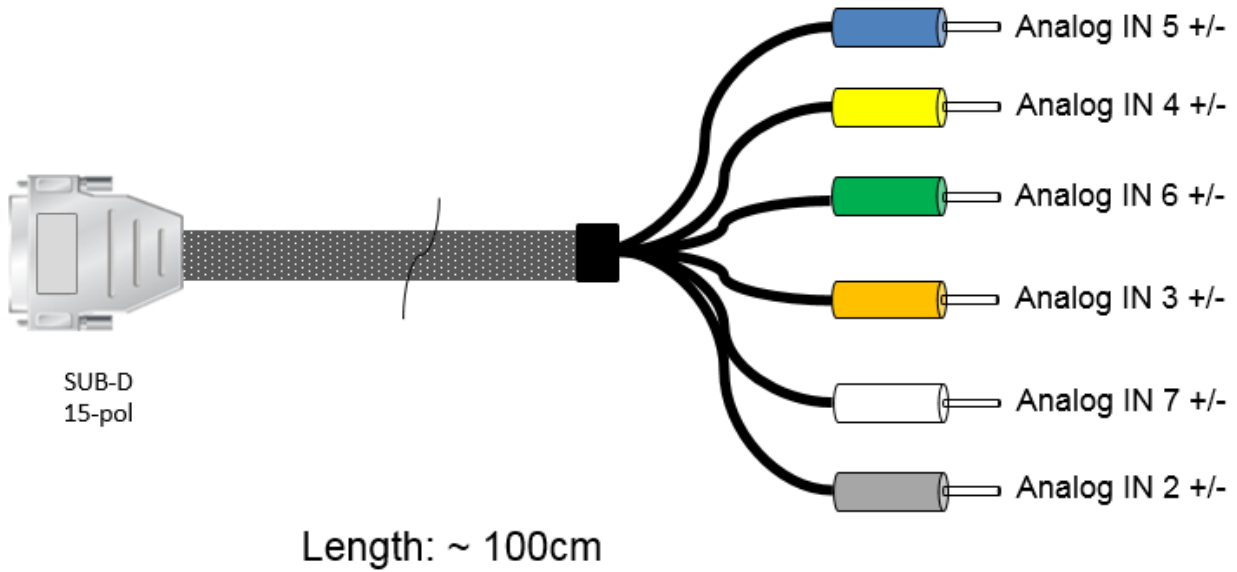


Figure 16.3: BLUEPIRAT Rapid | 15 pol Analog IN cable

#### 16.3.1 BLUEPIRAT Rapid 100+ (D-sample) | 15 pol Analog IN - plug

name	type	manufacturer number	manufacturer
	DSUB-15 jack	1757824-7	TE
	Shell	16-001760	Conec

Table 16.5: BLUEPIRAT Rapid 100+ (D-sample) | 15 pol Analog IN - plug

#### 16.3.2 BLUEPIRAT Rapid 100+ (D-sample) | 15 pol Analog IN - pin assignment

<= logger			cable set =>	
pin	comment / depiction / signal name	wire size / lenght	type	pin
1	ANA IN 5 +	A / L = 0.25mm /1000mm	banana plug <b>blue</b>	1
2	ANA IN 5 -	A / L = 0.25mm /1000mm	banana plug <b>blue</b>	1
3	not used			
4	ANA IN 4+	A / L = 0.25mm /1000mm	banana plug <b>yellow</b>	1
5	ANA IN 4 -	A / L = 0.25mm /1000mm	banana plug <b>yellow</b>	1
6	ANA IN 6 +	A / L = 0.25mm /1000mm	banana plug <b>green</b>	1
7	ANA IN 6 -	A / L = 0.25mm /1000mm	banana plug <b>green</b>	1
8	not used			
9	ANA IN 3 +	A / L = 0.25mm /1000mm	banana plug <b>orange</b>	1
10	ANA IN 3 -	A / L = 0.25mm /1000mm	banana plug <b>orange</b>	1
11	ANA IN 7 +	A / L = 0.25mm /1000mm	banana plug <b>white</b>	1
12	ANA IN 7 -	A / L = 0.25mm /1000mm	banana plug <b>white</b>	1
13	not used			

14	ANA IN 2 +		A / L = 0.25mm /1000mm	banana plug grau	1
15	ANA IN 2 -		A / L = 0.25mm /1000mm	banana plug grau	1

**Table 16.6: BLUEPIRAT Rapid 100+ (D-sample) | 15 pol Analog IN - pin assignment**

## 16.4 BLUEPIRAT Rapid | I/O harness 78-pol

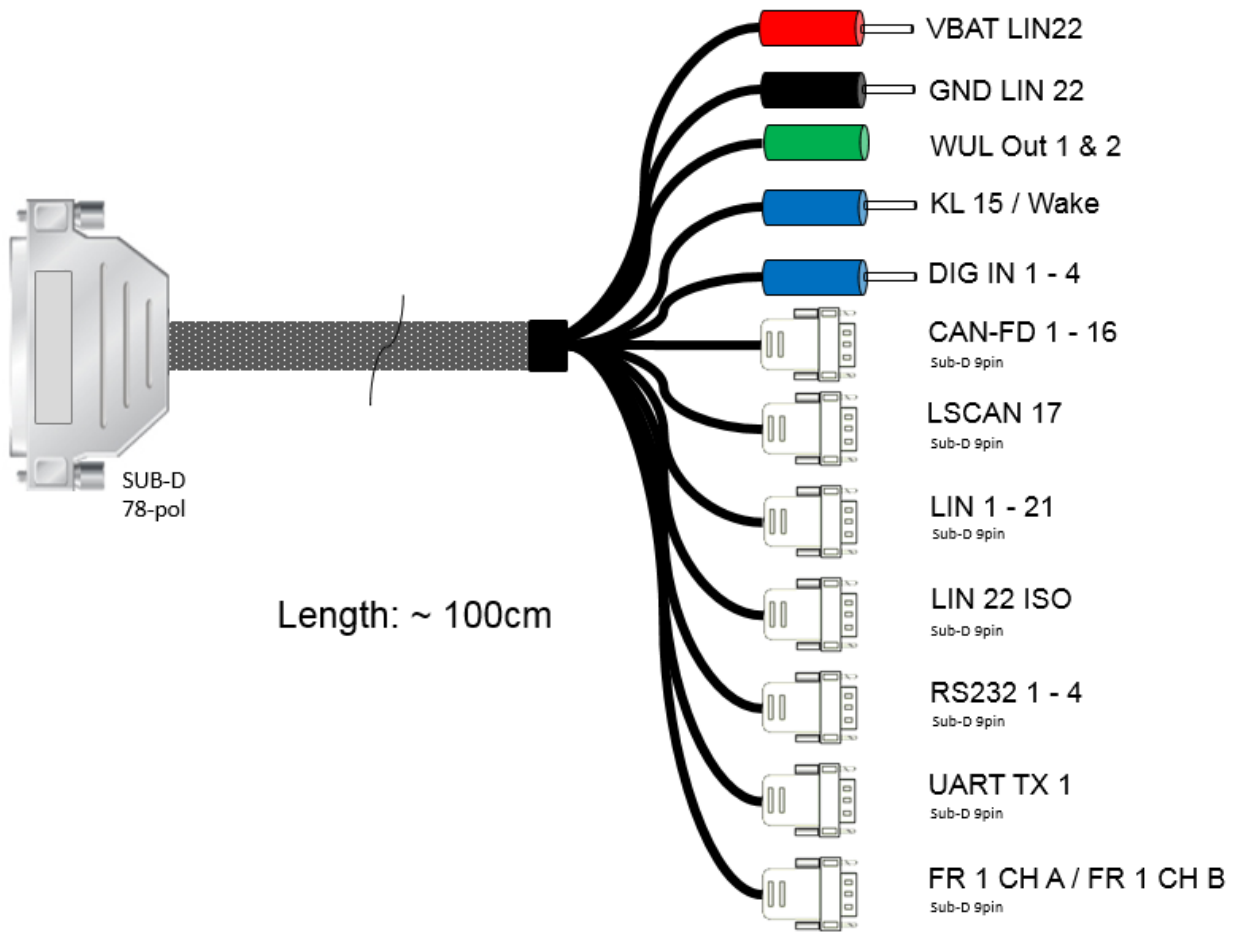


Figure 16.4: BLUEPIRAT Rapid | I/O harness 78-pol

### 16.4.1 BLUEPIRAT Rapid 100+ (D-sample) | IO cable set - plug

name	type	manufacturer number	manufacturer
	DSUB-78 jack	09565004701	Harting
Crimp contacts		09560008275	Harting
Shell		16-001790	Connec
wire cross-section max.	0.22mm <sup>2</sup> (Flexray 0.35mm <sup>2</sup> )		

Table 16.7: 5. BLUEPIRAT Rapid 100+ (D-sample) | IO cable set - plug

## 16.4.2 BLUEPIRAT Rapid 100+ (D-sample) | IO cable set - pin assignment

<= logger		cable set =>	
pin	comment / depiction / signal name	type	pin
1	CAN-FD 1 L	DSUB-9 / male	2
2	CAN-FD 1 H	DSUB-9 / male	7
3	CAN-FD 3 L	DSUB-9 / male	2
4	CAN-FD 3 H	DSUB-9 / male	7
5	CAN-FD 5 L	DSUB-9 / male	2
6	CAN-FD 5 H	DSUB-9 / male	7
7	CAN-FD 7 L	DSUB-9 / male	2
8	CAN-FD 7 H	DSUB-9 / male	7
9	LIN 2	DSUB-9 / male	7
10	LIN 21	DSUB-9 / male	7
11	LIN 4	DSUB-9 / male	7
12	LIN 6	DSUB-9 / male	7
13	LIN 8	DSUB-9 / male	7
14	LIN 10	DSUB-9 / male	7
15	RS232 / UART RX 1	DSUB-9 / male	2
16	RS232 TX 1	DSUB-9 / male	3
17	DIG IN 4	banana plug <b>blue</b>	1
18	DIG IN 3	banana plug <b>blue</b>	1
19	DIG IN 2	banana plug <b>blue</b>	1
20	DIG IN 1	banana plug <b>blue</b>	1
21	CAN-FD 16 H	DSUB-9 / male	7
22	CAN-FD 16 L	DSUB-9 / male	2
23	CAN-FD 14 H	DSUB-9 / male	7
24	CAN-FD 14 L	DSUB-9 / male	2
25	CAN-FD 12 H	DSUB-9 / male	7
26	CAN-FD 12 L	DSUB-9 / male	2
27	CAN-FD 10 H	DSUB-9 / male	7
28	CAN-FD 10 L	DSUB-9 / male	2
29	LIN 1	DSUB-9 / male	7
30	LIN 22 ISO	DSUB-9 / male	7
31	LIN 3	DSUB-9 / male	7
32	LIN 5	DSUB-9 / male	7
33	LIN 7	DSUB-9 / male	7
34	LIN 9	DSUB-9 / male	7
35	RS232 / UART RX 2	DSUB-9 / male	2
36	RS232 TX 2	DSUB-9 / male	3
37	WUL OUT 2	banana jack <b>green</b>	1
38	WUL OUT 1	banana jack <b>green</b>	1
39	KL 15 Wakeup	banana plug <b>blue</b>	1
40	FR 1 CH A -	DSUB-9 / male	2
41	FR 1 CH A +	DSUB-9 / male	7
42	CAN FD 2 L	DSUB-9 / male	2
43	CAN FD 2 H	DSUB-9 / male	7
44	CAN FD 4 L	DSUB-9 / male	2
45	CAN FD 4 H	DSUB-9 / male	7
46	CAN FD 6 L	DSUB-9 / male	2

47	CAN FD 6 H		DSUB-9 / male	7
48	CAN FD 8 L		DSUB-9 / male	2
49	CAN FD 8 H		DSUB-9 / male	7
50	LIN 20		DSUB-9 / male	7
51	LIN 18		DSUB-9 / male	7
52	LIN 16		DSUB-9 / male	7
53	LIN 14		DSUB-9 / male	7
54	LIN 12		DSUB-9 / male	7
55	RS232 / UART RX 3		DSUB-9 / male	2
56	RS232 TX 3		DSUB-9 / male	3
57	LSCAN 17 L		DSUB-9 / male	2
58	LSCAN 17 H		DSUB-9 / male	7
59	GND LIN 22 ISO		banana plug <b>black</b>	1
60	FR 1 CH B -		DSUB-9 / male	2
61	FR 1 CH B +		DSUB-9 / male	7
62	CAN-FD 15 H		DSUB-9 / male	7
63	CAN-FD 15 L		DSUB-9 / male	2
64	CAN-FD 13 H		DSUB-9 / male	7
65	CAN-FD 13 L		DSUB-9 / male	2
66	CAN-FD 11 H		DSUB-9 / male	7
67	CAN-FD 11 L		DSUB-9 / male	2
68	CAN-FD 9 L		DSUB-9 / male	2
69	CAN-FD 9 H		DSUB-9 / male	7
70	LIN 19		DSUB-9 / male	7
71	LIN 17		DSUB-9 / male	7
72	LIN 15		DSUB-9 / male	7
73	LIN 13		DSUB-9 / male	7
74	LIN 11		DSUB-9 / male	7
75	RS232 / UART RX 4		DSUB-9 / male	2
76	RS232 TX 4		DSUB-9 / male	3
77	VBAT LIN 22 ISO	& -[Fuse 15 A]-	banana plug <b>red</b>	1
78	UART TX 1		DSUB-9 / male	3

Table 16.8: BLUEPIRAT Rapid 100+ (D-sample) | IO cable set - pin assignment

## 16.5 BLUEPIRAT Rapid | Power cable for connecting to a Power Backup

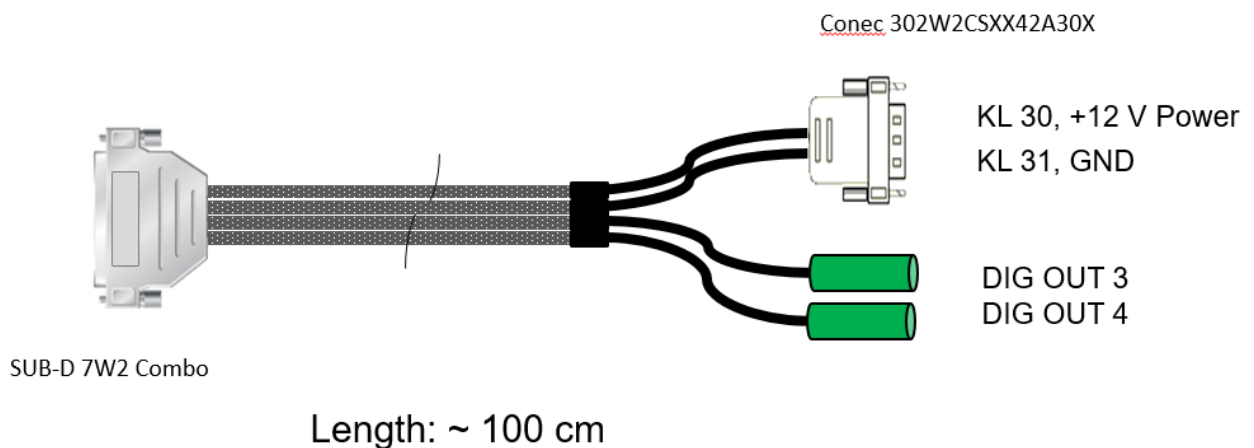


Figure 16.5: BLUEPIRAT Rapid | Power cable for connecting to a Power Backup



## 16.6 RJ45 Ethernet connector

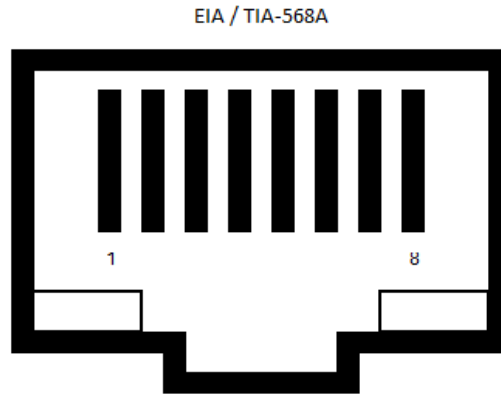


Figure 16.6: Pinout of RJ45 Ethernet connectors

Pin	Signal
1	TX1+
2	TX1-
3	TX2+
4	TX3+
5	TX3-
6	TX2-
7	TX4+
8	TX4-

Table 15.10: Pinout of the RJ45 connectors

This results in the following arrangement for the front ports

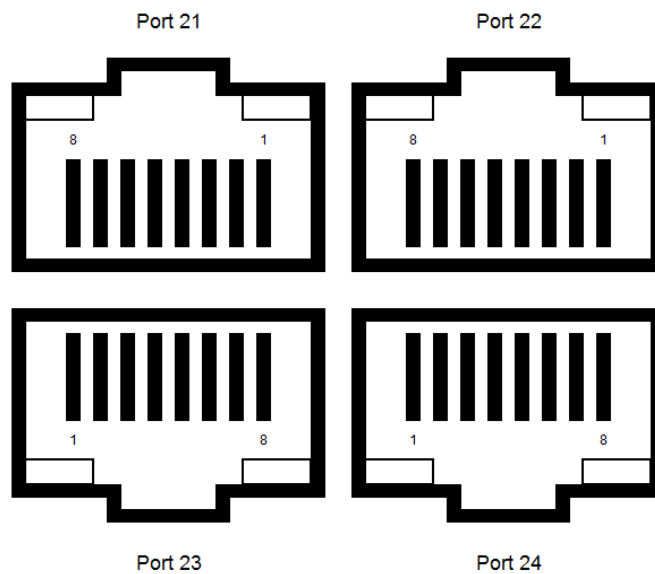


Figure 16.7: Pinout of RJ45 Ethernet connectors of Port 21 to 24

## 16.7 100Base-T1 / Automotive Eth / Broad-R-Reach Connectors

For the connection to 100Base-T1 / Broad-R-Reach connectors MATEnet connectors from TE, Tyco Electronics are used.

### 16.7.1 MATEnet Connectors | BLUEPIRAT Rapid

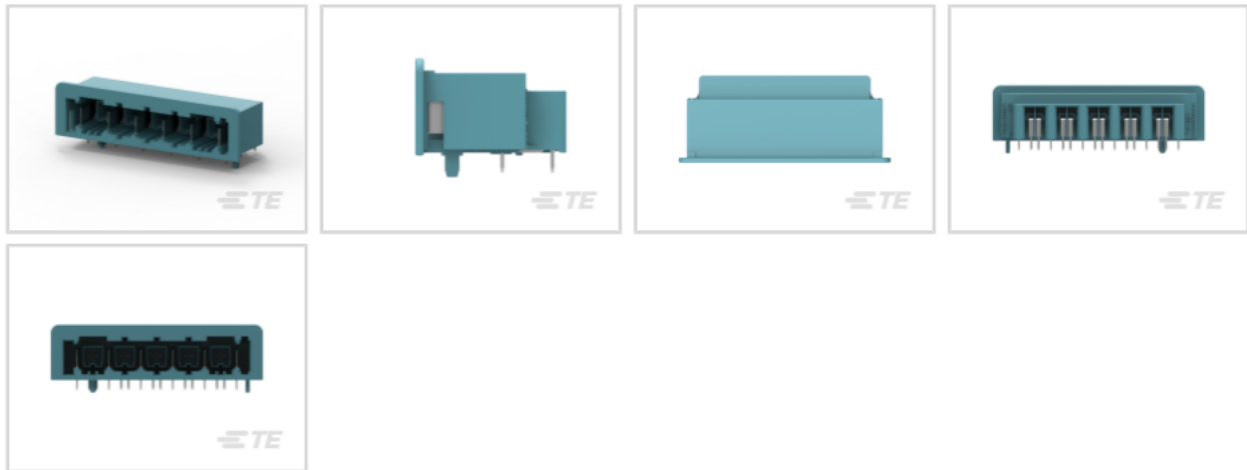


Figure 16.8: MATEnet 5-port Header Z-coded

#### 16.7.1.1 MATEnet Connectors | BLUEPIRAT Rapid | Part numbers

Part number	Part number of the pilot series: <b>9-2305390-9</b>
	new part number (series manufacturing) <b>0-2305390-9</b>
Article overview	<a href="https://www.te.com/deu-de/product-9-2305390-9.html">https://www.te.com/deu-de/product-9-2305390-9.html</a>
Datasheet	<a href="https://www.te.com/deu-de/product-9-2305390-9.datasheet.pdf">https://www.te.com/deu-de/product-9-2305390-9.datasheet.pdf</a>

Table 16.9: BLUEPIRAT Rapid 100+ (D-sample) | MATEnet Connector Rapid

16.7.1.2 MATEnet Connectors | pin assignment | Port #1 - #5

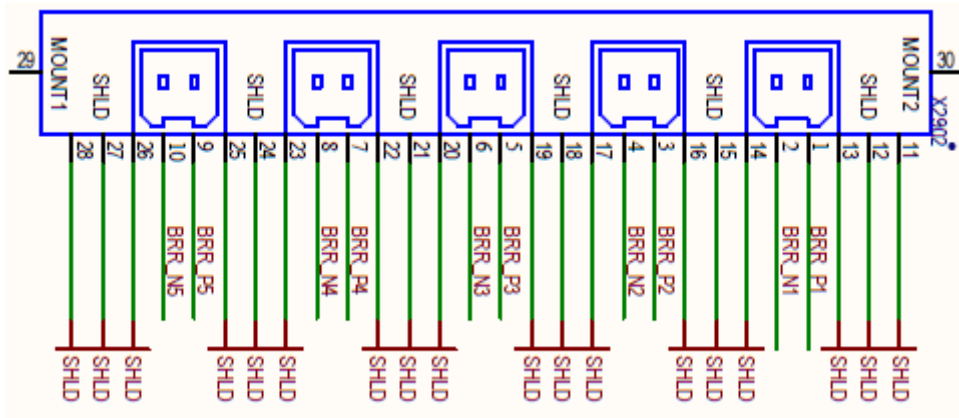


Figure 16.9: MATEnet Connectors | pin assignment | Port #1 - #5

≤ 5 PORT_MATENET - 9-2305390-9	
pin	comment / depiction / signal name
1	BRR_P1
2	BRR_N1
3	BRR_P2
4	BRR_N2
5	BRR_P3
6	BRR_N3
7	BRR_P4
8	BRR_N4
9	BRR_P5
10	BRR_N5
11	SHLD
12	SHLD
13	SHLD
14	SHLD
15	SHLD
16	SHLD
17	SHLD
18	SHLD
19	SHLD
20	SHLD
21	SHLD
22	SHLD
23	SHLD
24	SHLD
25	SHLD
26	SHLD
27	SHLD
28	SHLD
29	
30	

Table 16.10: MATEnet Connectors | pin assignment | Port #1 - #5

16.7.1.3 MATEnet Connectors | pin assignment | Port #6 - #10

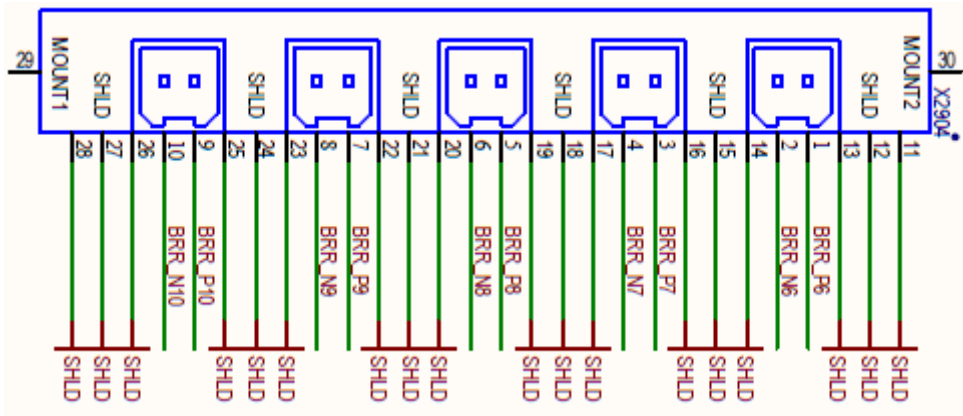


Figure 16.10: MATEnet Connectors | pin assignment | Port #6 - #10

≤ 5 PORT_MATENET - 9-2305390-9	
pin	comment / depiction / signal name
1	BRR_P6
2	BRR_N6
3	BRR_P7
4	BRR_N7
5	BRR_P8
6	BRR_N8
7	BRR_P9
8	BRR_N9
9	BRR_P10
10	BRR_N10
11	SHLD
12	SHLD
13	SHLD
14	SHLD
15	SHLD
16	SHLD
17	SHLD
18	SHLD
19	SHLD
20	SHLD
21	SHLD
22	SHLD
23	SHLD
24	SHLD
25	SHLD
26	SHLD
27	SHLD
28	SHLD
29	
30	

Table 16.11: MATEnet Connectors | pin assignment | Port #6 - #10

16.7.1.4 MATEnet Connectors | pin assignment | Port #11 - #15

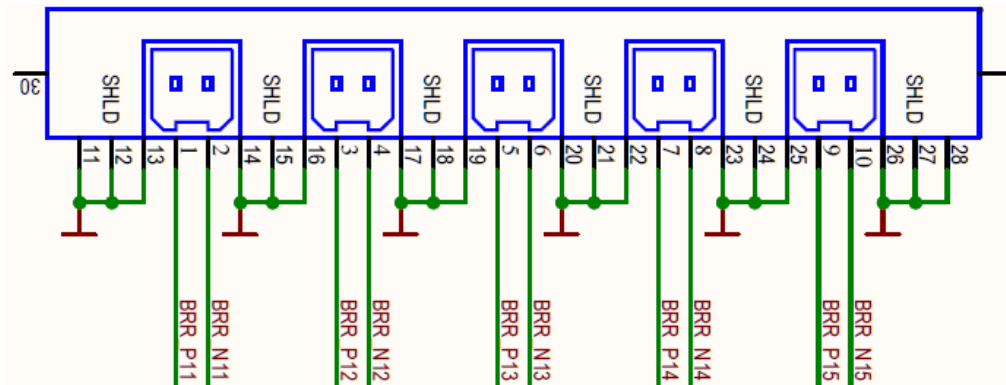


Figure 16.11: MATEnet Connectors | pin assignment | Port #11 - #15

≤ 5 PORT_MATENET - 9-2305390-9	
pin	comment / depiction / signal name
1	BRR_P11
2	BRR_N11
3	BRR_P12
4	BRR_N12
5	BRR_P13
6	BRR_N13
7	BRR_P14
8	BRR_N14
9	BRR_P15
10	BRR_N15
11	SHLD
12	SHLD
13	SHLD
14	SHLD
15	SHLD
16	SHLD
17	SHLD
18	SHLD
19	SHLD
20	SHLD
21	SHLD
22	SHLD
23	SHLD
24	SHLD
25	SHLD
26	SHLD
27	SHLD
28	SHLD
29	
30	

Table 16.12: MATEnet Connectors | pin assignment | Port #11 - #15

16.7.1.5 MATEnet Connectors | pin assignment | Port #16 - #20

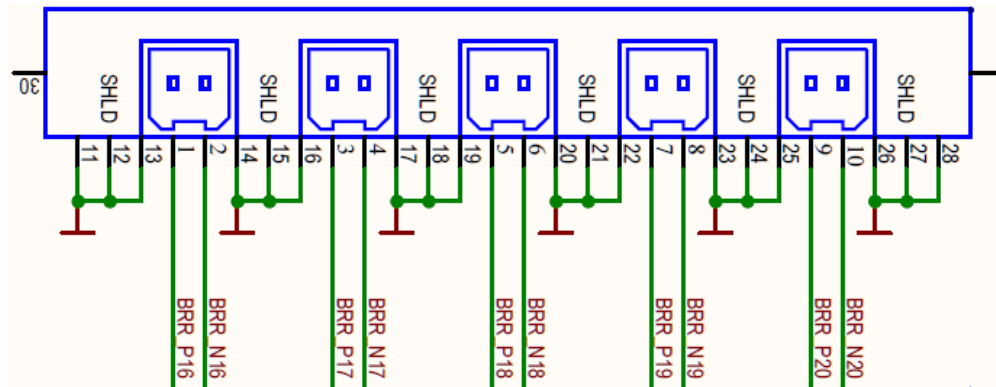


Figure 16.12: MATEnet Connectors | pin assignment | Port #16 - #20

≤ 5 PORT_MATENET - 9-2305390-9	
pin	comment / depiction / signal name
1	BRR_P16
2	BRR_N16
3	BRR_P17
4	BRR_N17
5	BRR_P18
6	BRR_N18
7	BRR_P19
8	BRR_N19
9	BRR_P20
10	BRR_N20
11	SHLD
12	SHLD
13	SHLD
14	SHLD
15	SHLD
16	SHLD
17	SHLD
18	SHLD
19	SHLD
20	SHLD
21	SHLD
22	SHLD
23	SHLD
24	SHLD
25	SHLD
26	SHLD
27	SHLD
28	SHLD
29	
30	

Table 16.13: MATEnet Connectors | pin assignment | Port #16 - #20

## 16.7.2 MATEnet Connectors | cable set

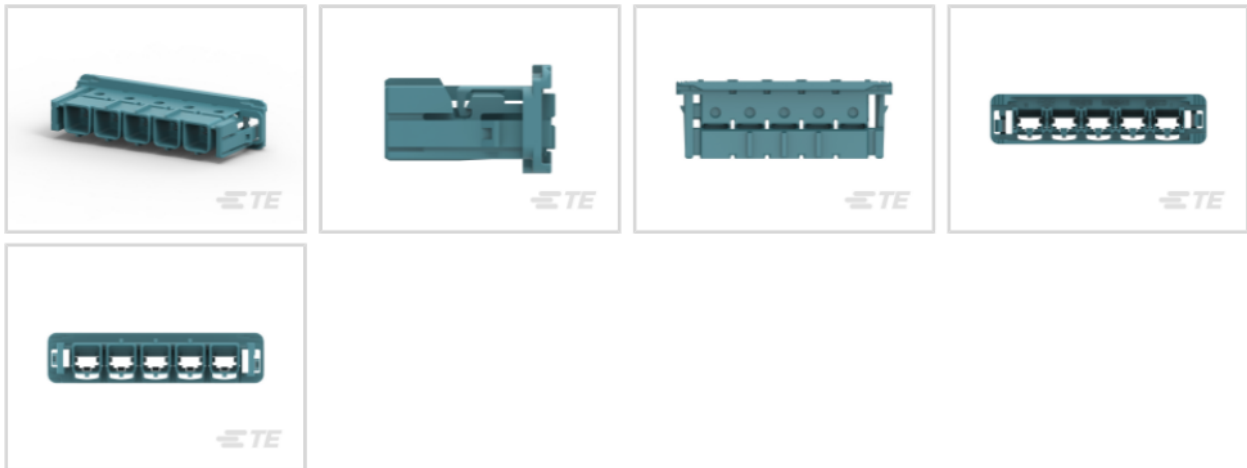


Figure 16.13: MATEnet 5-port Frame Z-coded

### 16.7.2.1 MATEnet Connectors | cable set | Part numbers

Part number	Part number of the pilot series: <b>9-2302455-9</b>
	new part number (series manufacturing) from 2020 <b>0-2302455-9</b>
Article overview	<a href="https://www.te.com/global-en/product-9-2302455-9.html">https://www.te.com/global-en/product-9-2302455-9.html</a>
Datasheet	<a href="https://www.te.com/deu-de/product-9-2302455-9.datasheet.pdf">https://www.te.com/deu-de/product-9-2302455-9.datasheet.pdf</a>

Table 16.14: BLUEPIRAT Rapid 100+ (D-sample) | MATEnet Connector cable set

## 17 Support

If problems occur with a product from Magna Telemotive GmbH, please take following steps:

- Read the User Manual
- Please check if you are using an up-to-date software
- Please check if all cables are correctly attached to the data logger
- If you are able to establish a connection to the data logger, run the program "*Bug Reporter*" in the System Client. This program creates a zip file, which you should please put into a ticket into our [OTRS Ticket system](#)
- Contact Customer Support at [TMO.productsupport@magna.com](mailto:TMO.productsupport@magna.com) (+49 89 357186-518)

### 17.1 Service Center

In our Service Center you will find the newest firmware versions and the latest version of the System Client as well as older versions for download. In addition, we offer detailed documentations and specifications for our current products.

There are two ways to reach the service center:

1. Using the current link:

<https://sc.telemotive.de/4/index.php?id=154&L=1>

2. Go to the Telemotive homepage and use the login link top right.

<http://www.telemotive.de>

**Note:** *If you do not have an account for our service center and OTRS ticket system, please send a mail to [TMO.Produktsupport@magna.com](mailto:TMO.Produktsupport@magna.com) and we will generate an account for you.*

### 17.2 OTRS Ticket system

With the login data for the service center you have access to our OTRS-Ticket system too. Every email sent to [TMO.productsupport@magna.com](mailto:TMO.productsupport@magna.com) generates automatically a ticket and can therefore be forwarded to the responsible person promptly.

At <https://produktsupport.telemotive.de> the status of your tickets can be checked fast and easily.

You can log in using your access data above. Creation of new tickets is also possible as upload an bugreport. The most important steps are described in a manual that can be found in the upper right corner of the website or under this link directly:

[https://sc.telemotive.de/4/uploads/media/OTRS\\_Kurzanleitung.pdf](https://sc.telemotive.de/4/uploads/media/OTRS_Kurzanleitung.pdf)

**Note:** *If you want to upload more than 20 MB please create a ticket first and upload the file in a second step without the limitation.*



## 17.2.1 What is OTRS?

The Open Ticket Request System (OTRS) of MAGNA Telemotive GmbH enables our customers to send inquiries and to report problems in a fast and easy way to our Customer Support, and to monitor these inquiries via a proprietary account. The personal login-area also offers the possibility to upload files to the corresponding inquiry.

## 17.2.2 Needed information in a ticket

If you notice any behavior with a MAGNA Telemotive GmbH product that does not correspond to the expected process, you are welcome to inform us via our ticket system.

Please report only one problem per ticket and do not create collective tickets to keep a clear overview.

In order to keep the processing time as short as possible for both sides, we would like to ask you to provide the following data when creating the ticket, so that the analysis can take place promptly.

### 17.2.2.1 Ticket | Checklist

- Observed behavior
- Exact time
- Used hardware
- Which system client / firmware version was used
- Location
- Reproducibility
- Last Steps
- Screenshots
- Error Report
- Offline data set

### 17.2.2.2 The points in detail

#### Observed behavior

What exactly have you observed that does not match the behavior you expected or described in the manual?

#### Exact time

The most accurate possible time when an unexpected behavior was observed.

Please always remember: Since we do not know which tests you are doing at what time, a concrete error time is absolutely necessary for the analysis. Without this information, an effective analysis is unfortunately not possible.

#### Used hardware

A list of the exact devices you were using when you observed the behavior. Is it a single device or a TSL group? If so, with which TSL participants and in which order are they connected?

#### Which system client / firmware version

Exact information about the version of the system client and the firmware used is also important, since it could possibly be a known problem in an older version. It is also important to specify whether you process data with the System Client, the Download Terminal or the ClientLib.

#### Location

Was the behavior observed in a vehicle or in a test system?

#### Reproducibility

Has the problem occurred once, or can it be reproduced with defined steps? Does the behavior occur with one or more setups?

Does the problem still occur after a restart and can it possibly be solved by a firmware update?

#### Last Steps

What was done last before this behavior was observed?

#### Screenshots

Screenshots can often explain something faster than words, so screenshots of the problem are always welcome to show or compare something. Especially for screenshots from your own tools please include an explanation of the values / representation.

#### Error report

An error report of the device / TSL network contains internal logs of the devices, the configuration, the error report of the system client with which the error report was created and optionally trace data. This combination helps us to understand what happened in the device at the specified time.

The creation of an error report is described in detail in the [User Manual of the System Client](#).

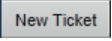
#### Offline data set

Especially if you have the feeling that something is wrong with the recording or conversion of the data, we also need an offline data set to be able to reproduce / analyze the problem.

The creation of an offline dataset is described in detail in the [User manual of the System Client](#).

### 17.2.3 Sending Inquiries

You can send inquiries as usual via your own email client to [TMO.Productsupport@magna.com](mailto:TMO.Productsupport@magna.com). This email arrives automatically the OTRS and generates a ticket. Furthermore you can write inquiries directly in the Open Ticket Request System (OTRS).

By clicking on the button  you can create a new ticket directly in your personal login-area at <https://produktsupport.telemotive.de>.

### 17.2.4 Login and Initial Steps

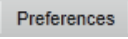
You can find the OTRS ticket system of Telemotive AG at <https://produktsupport.telemotive.de>.

There you can login to the OTRS using your access data, which you already use in the Service Center of MAGNA Telemotive GmbH.

After a successful login you will see a screen (see image 1), in which you can manage further activities.



**Figure 17.1: OTRS Ticket system**

By clicking on the button  you can adjust language and view settings.

This screen also gives you an overview of your current tickets.

Shortly after the submission of an inquiry, you will find the corresponding ticket in your personal account.

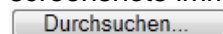
If there is more than one ticket in your account, all tickets are listed by date.

You can see the content of the sent message by clicking on the corresponding ticket.

As soon as you receive a new message from the Customer Support, it will be shown in your personal login-area. In addition, you will receive an email.

### 17.2.5 Adding Files

You have different possibilities to add files to a ticket. You can add files, such as error reports or screenshots immediately when a new ticket is created by clicking on the button



#### **Warning:**

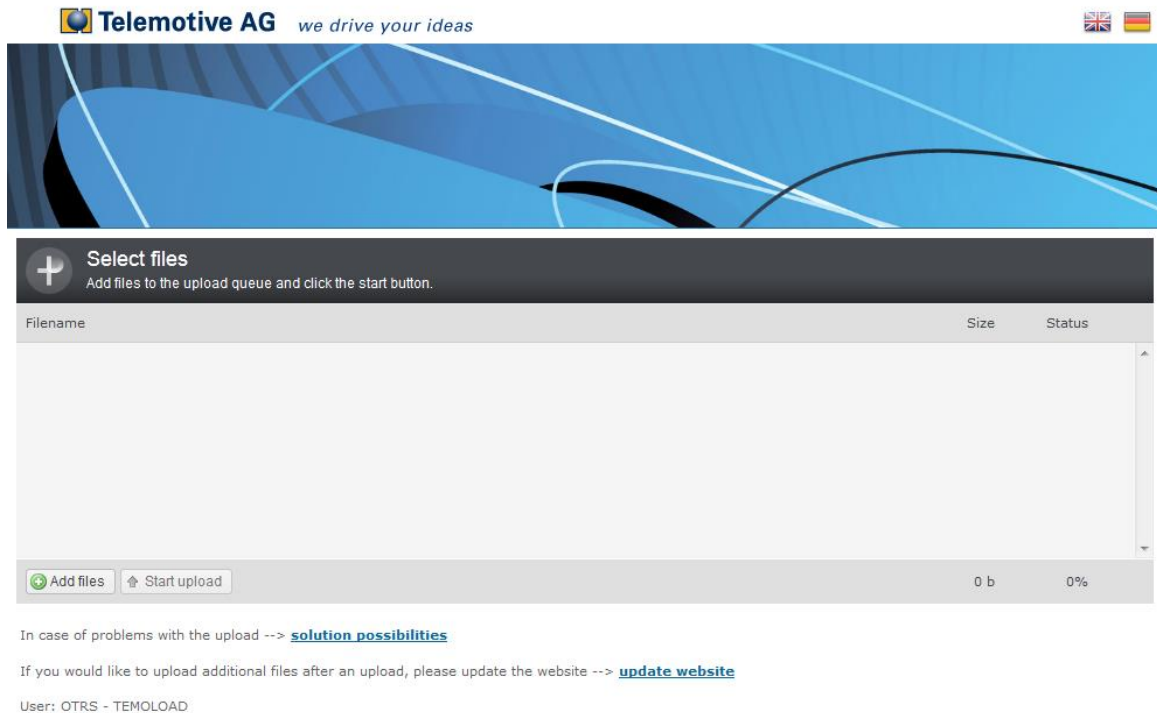
**There's a limitation up to 20 MB like in an e-mail. If you want to upload bigger files please upload these in the next step.**

You can also upload an error report or trace files to your problem description afterwards.

By clicking on the button **Dateiupload / Fileupload** in the main screen of the login-area a new screen opens (see image 2).

With the button **Add files** you can choose your desired files for the upload. The upload can be started by using the button **Start upload**.

The upload of the file will be shown in your personal login-area.



**Figure 17.2:**

## 17.2.6 Search Function

To search for a particular ticket, you can define your search criteria over the button **Search**. These criteria can be saved as a template.

## 17.2.7 Closing a ticket

In case that a problem description shall not be processed any longer, you can close the ticket yourself by clicking on the button **Reply** in the main screen of the login-area. Here you can change your status to “closed” and add a comment.

## 17.2.8 Contact

If you have any questions regarding the login or the procedure, please contact our Customer Support at [TMO.Productsupport@magna.com](mailto:TMO.Productsupport@magna.com).

## 17.3 Sending in defective devices

If your device needs to be return for repair, please complete the Service report for the device, print it out and send it with the defective device directly to Mühlhausen for repair.

### 17.3.1 Service report

The service report is available as Word and PFD file:

Word: [MagnaTelemotive-Servicereport.doc](#)

PDF: [MagnaTelemotive-Servicereport.pdf](#)

**Note:** Please note that no repair can be performed if the service report is missing or incomplete. A separate form is required for 'each' device!

### 17.3.2 Shipping address

#### Shipping address for repair devices:

MAGNA Telemotive GmbH  
to. Repair department  
Heidemannstr. 166  
80939 Munich

-Germany-

- Please make sure to ship the package on the basis of DDP (Delivery Duty Paid) and that the total value of the loggers in the pro forma invoice is under 1000 euros.
- The logger will be analysed and, if it is still in warranty, repaired and shipped back to you. If the devices warranty is expired we will send you a quotation for the repair.
- Please note that in the case of rejected quotations, the costs for analysis, function test and shipping will be charged in form of a service charge of 205€ per data logger.
- If you need help with shipping due to the included batteries, please follow the instructions in our [BatteryGuide!](#)

**Attention: On devices with internal memory the data will be deleted after the repair!**

You can find this information as well on our website at  
<https://sc.telemotive.de/4/en/servicecenter/faqs-support/support/>

### 17.3.3 Batteries:

If you need help with shipping due to the included batteries, please follow the instructions in our [BatteryGuide!](#)

(<https://sc.telemotive.de/4/fileadmin/bluepirat/support/BatteryGuide.pdf>)

## 17.4 Release info – informed just in time

With Magna Telemotive release info we will inform you about new firmware versions for our data loggers as soon as they are available. This allows you to keep your devices up to date with the latest state of development.

The notes about new features or fixed bugs can be found in the directly linked release notes.

By signing up you accept our [privacy policies](#). Opting out is possible at any time.

## 18 Abbreviations

Kürzel / abbreviation	Bedeutung / meaning
blue PiraT	Processing Information Recording Analyzing Tool
bP	blue PiraT => BLUEPIRAT
bP2	blue PiraT2 => BLUEPIRAT2
bP2 5E	blue PiraT2 5E => BLUEPIRAT2 5E
bPMini	blue PiraT Mini => BLUEPIRAT Mini
RC Touch	Remote Control Touch
bP Remote	blue PiraT Remote => BLUEPIRAT Remote
bP Rapid	BLUEPIRAT Rapid
A2L	ASAM MCD-2 MC Language
AE	Automotive Electronics
ACK	ACKnowledged
CAN	Controller Area Network
CCP	CAN Calibration Protocol
CF	Compact Flash
CRO	Command Receive Object
DAQ	Data Acquisition
DTO	Data Transmission Object
ECL	Electrical Control Line
ECU	Electronic Control Unit
FIBEX	Field Bus Exchange Format
FW	Firmware
GMT	Greenwich Mean Time
INCA	INtegrated Calibration and Application Tool
LAN	Local Area Network = Netzwerk
LIN	Local Interconnect Network
MAC	<b>M</b> edia <b>A</b> ccess <b>C</b> ontrol
MCD	<b>M</b> easure <b>C</b> alibrate <b>D</b> iagnose
MDX	<b>M</b> eta <b>D</b> ata <b>E</b> Xchange Format
MEP	<b>M</b> OST Ethernet Packet
MOST	Media Oriented Systems Transport ( <a href="http://www.mostnet.de">www.mostnet.de</a> )
ODT	<b>O</b> bject <b>D</b> escriptor <b>T</b> able
ODX	<b>O</b> pen <b>D</b> ata <b>E</b> Xchange
OEM	<b>O</b> riginal <b>E</b> quipment <b>M</b> anufacturer

PHY	<b>PHY</b> sical Bus Connect
PW	Passwort
RX	Receiver Data
SD	Secure Digital
SFTP	Secure File Transfer Protocol
SHA	Secure Hash
SSL	Secure Sockets Layer
TCP/IP	Transmission Control Protocol/Internet Protocol
TLS	Transport Layer Security
tmt	Telemotive Trace
bPP	blue PiraT Packetformat
bPSA	blue PiraT System Access
bPSL	blue PiraT System Link
UDP	User Datagram Protocol
USB	Universal Serial Bus
UTC	Universal Time, Coordinated
Wi-Fi	<b>Wireless Fidelity</b>
WLAN	<b>Wireless Local Area Network</b>
XCP	Universal Measurement and Calibration Protocol
xtmt	eXtended Telemotive Trace

**Table 18.1: Abbreviations**

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## 21 Open Source

License terms for open source software used in the firmware or System Client can be found by following this link:

⇒ [https://sc.telemotive.de/4/uploads/media/BLUEPIRAT\\_3rd\\_Party\\_Software\\_Licenses.pdf](https://sc.telemotive.de/4/uploads/media/BLUEPIRAT_3rd_Party_Software_Licenses.pdf)

## 22 Version history

Version	Änderung	Datum
4.1.0.03	blue PiraT => BLUEPIRAT diverse Bilder erneuert Konvertierungsformate überarbeitet	24.06.2019
4.2.0.03	Some changings, Open Source License	15.11.2019
4.2.0.05	Added Rapid 100+ Light	31.03.2020
4.2.0.06	Added CE declaration of conformity	09.04.2020
4.2.0.07	Some addidions	28.04.2020
5.0.0.2	Full revision	08.09.2020
5.0.1	Release	30.09.2020
5.1.1	Some small changes, final version	01.02.2022

**Table 22.1: Version history**

## 23 Contact



DRIVING **EXCELLENCE.**  
INSPIRING **INNOVATION.**

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Subject to errors and to technical changes as part of product improvement.