



# **blue PiraT**

**User's Manual**

**Recording over Ethernet**

**Version: 1.4.5**

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# 1 Introduction

## 1.1 Overview

By using the license „Recording over Ethernet“ it is possible to record trace data of electronic control units (from now on called „target“) over an ethernet port. The following protocols will be supported by the data logger: GN-Log, TCP-RAW, TCP-UTF8 and it is also an UDP-Server implemented.

## 1.2 Connecting the Data Logger

The target, from which the GN-Log should be recorded, has to be connected to the data logger by a cross-over Ethernet cable. To download the trace data from the data logger to a Laptop, the Ethernet port of the logger must be switched to the Ethernet cable of the Laptop (see Figure 1). By using the blue PiraT E data logger with integrated Ethernet switch, up to four targets can be recorded simultaneously (see Figure 2). To connect the data logger to a PC/Laptop, however, it is necessary to unplug one of them.

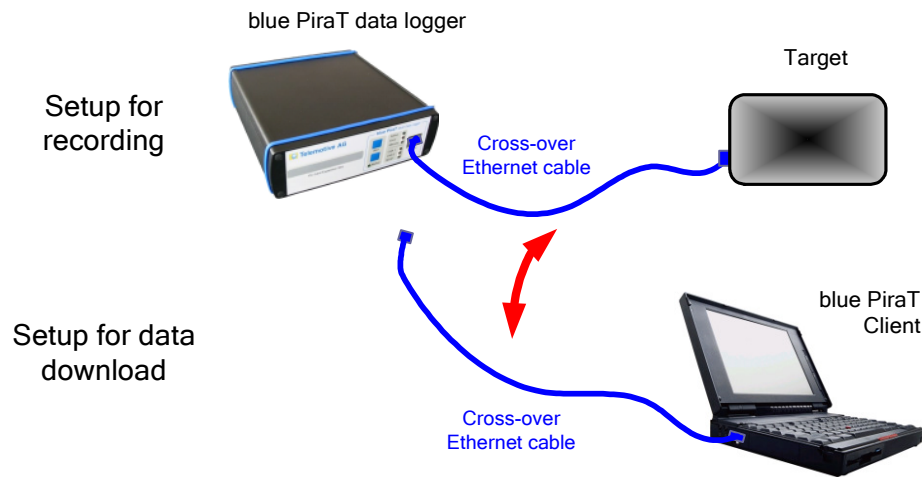


Figure 1. Connecting the data logger for recording over Ethernet

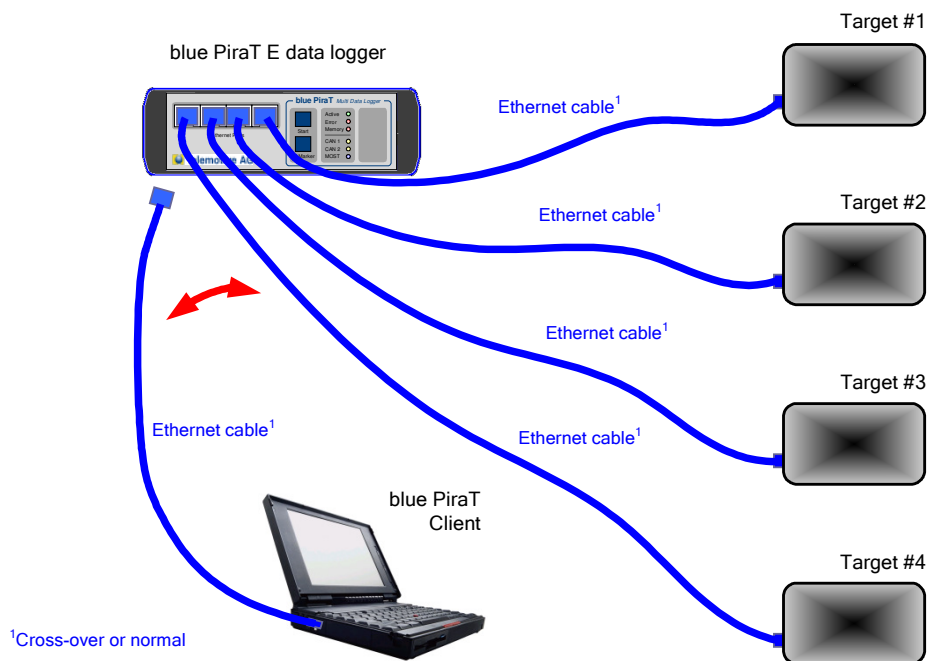


Figure 2. Connecting multiple targets to a blue PiraT E data logger

## 2 Installation

### 2.1 Software Versions

This manual refers to the following software versions:

- Data logger firmware 7.3.1
- Client 4.3.2

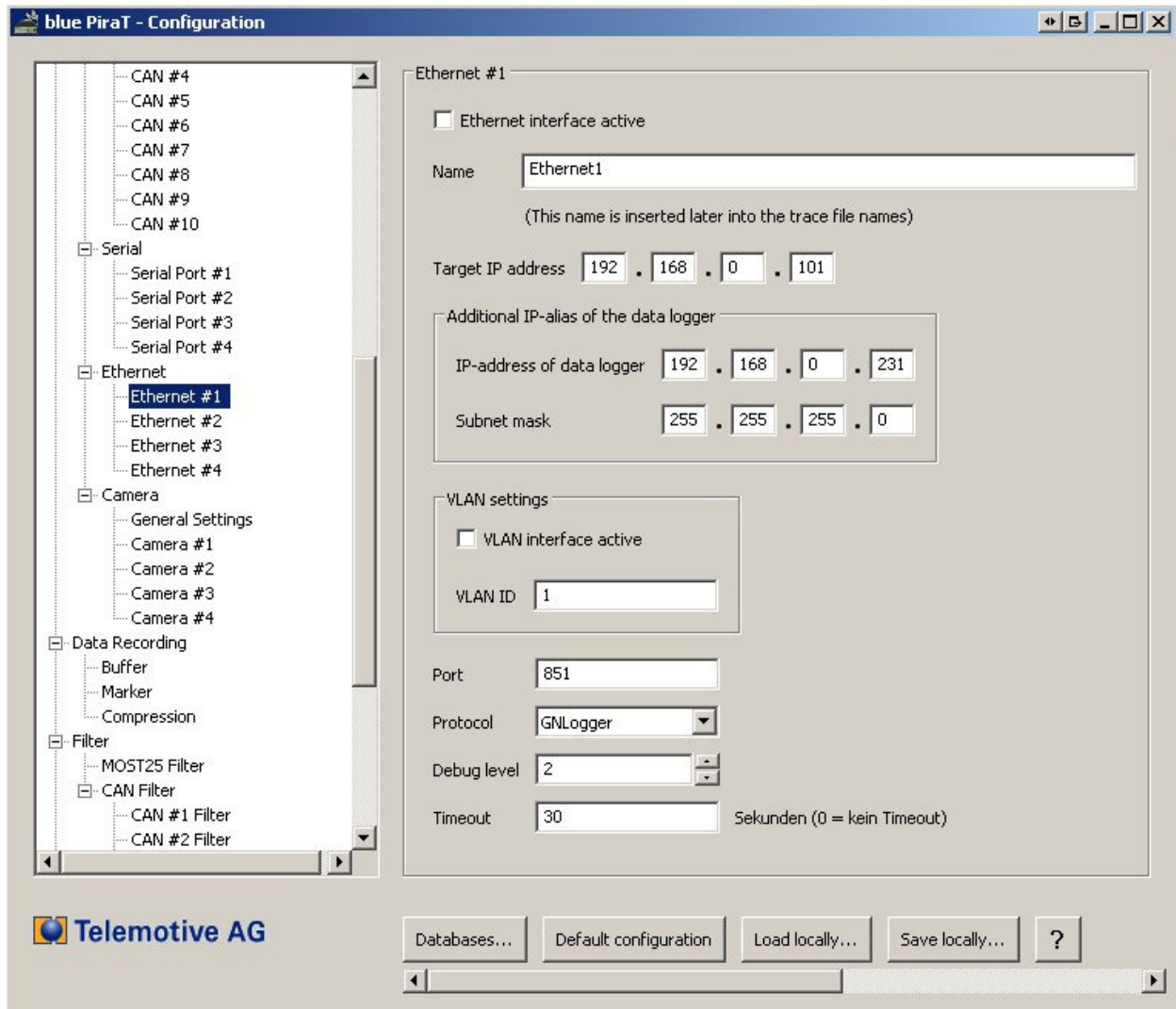
Since these software versions implement the latest protocol specification, it is highly recommended to immediately update from older versions. Software updates are frequently available in the blue PiraT Service Center. Please make sure to have a current software installed.

### 2.2 License

To enable this feature, an appropriate license must be present on the logger. For more information about obtaining and installing a license, please consult the general user's manual of the blue PiraT data logger.

### 3 Configuration

To configure the logging over Ethernet, the configuration application must be started. If the license has been installed correctly, the tree on the left shows the entries „Ethernet #1“ to „Ethernet #4“ to configure at most four targets (see Figure 3). Note: "Ethernet #1" to "Ethernet #4" do not refer to the physical Ethernet ports of the blue PiraT E.



**Figure 3. Configuration of the Ethernet logging**

Each of the four virtual Ethernet ports can be activated or deactivated (mark on “Ethernet interface active”). If a name is given for the port, the client uses the Ethernet port name in the file names of the Ethernet trace files. To locate the target, its fixed IP address must be entered. Additionally it has to be configured a separate IP address for the datalogger, which has to be configured to the same subnet as the target. This is called “Additional IP-alias of the data logger”. This is analogue for all kind of protocols.

There are the following limitations of the IP-configuration:

- The target must have an IP address and port within the subnet of the data logger. This subnet is configured in the settings for the IP-alias.
- It is not possible to use the IP address of the data logger (i.e., 192.168.0.231 or any additionally configured IP-alias) for the IP-address of the target.
- The target should not be configured as 192.168.0.x with  $x \leq 100$ , because this range is used for DHCP.
- The combination of IP address and port number must not be used by any other target.



- If VLAN is used, every VLAN (Ethernet #1 to #4) has to be configured in a different subnet.

If VLAN is used (VLAN interface active) and configured, the targets Ethernet data has to be send within the appropriated VLAN-ID.

Example: If you configure the address "10.0.0.1" with subnet mask "255.255.255.0" as an IP-alias, the data logger uses the "10.0.0.x" subnet for communication with the target. Hence, the target must be located in the same subnet – possible IP-addresses range from "10.0.0.2" to "10.0.0.255".

Finally, it is possible to adjust the debug level of the GN-Log data stream.

You can choose in the drop down menu "Protocol" also either "utf8" or "raw" data. Therefore is now debug level option given.

### 3.1 Protocol Dropdown Menu

In the dropdown menu it is possible to choose different protocols:

- 1) **"GN-Log"** Protocol
- 2) Ethernet Logging **"UTF8"** data.  
Data packages with packet-length of 40kByte getting an time stamp and will be stored on the data logger. There is no Debug-Level for choose. The used protocol for UTF8 is TCP.
- 3) Ethernet Logging **"raw"** data.  
Data packages which are ending with LF (LineFeed) are getting an time stamp and will be stored on the data logger. There is no Debug-Level for choose. The used protocol for UTF8 is TCP.
- 4) **UDP-Server**  
The bluePiraT is for this feature an "UDP-Server", which can be reached by the configured IP Address/Port (data logger). After connecting with the bluePiraT raw-data with packet length of max 40kByte getting an time stamp an will be stored on the data logger.

By using „UDP Server“ please note:

*The setup for „Target IP address is used for logging all UDP packages of the client. All UDP packages, Unicast- and Broadcast packages will be logged which are coming in on configured port and subnet. Then the data logger will selecting the packages from the configured "Target IP address" and store them on the logger.*

*"Unicast packages", are packages with one special IP target address. This address than should be the address of the data logger. If this status is given, the data logger will log udp messages on the configured port.*

*If it is used a "broadcast address" in the client as target, the logger is also able to log udp messages on the configured port.*

Pleas see Figure 4.

## 3.2 Timeout

For the protocols GNLOG, RAW, UTF8 a setup for “Timeout” is available. The Timeout will close the connection when no data is registered. After closing the connection the bluePiraT will initiate a new connection. A Timeout = 0 means no Timeout. Values between 0 and 3600 (Seconds) are allowed.

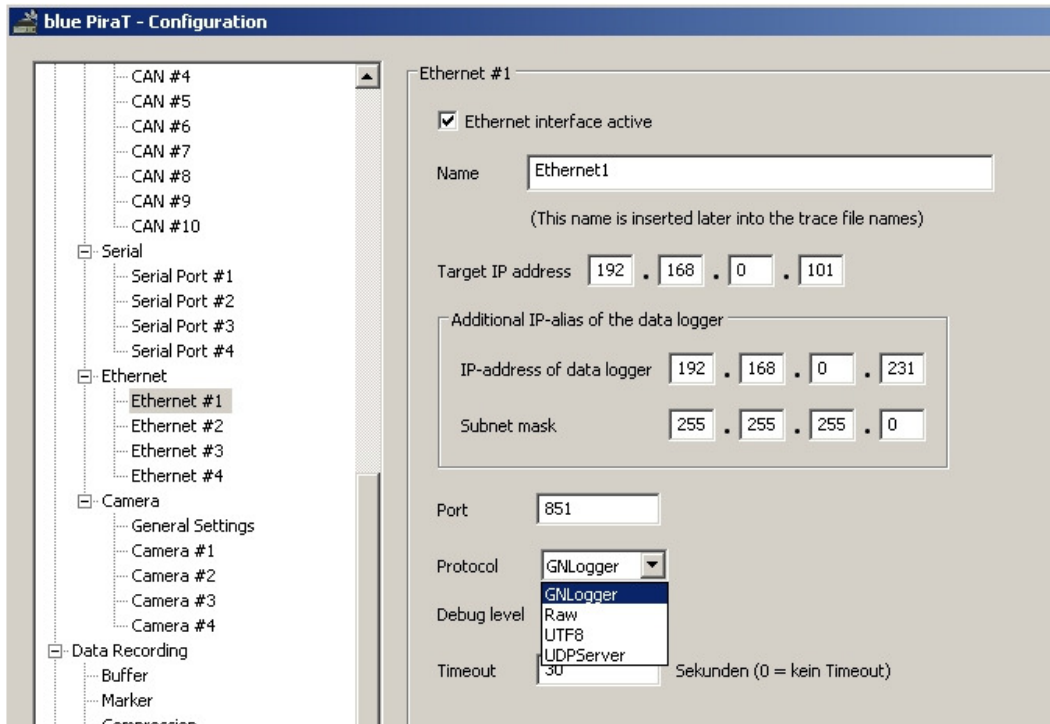
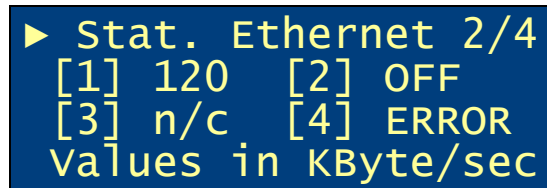


Figure. 4 Protocol Dropdown Menu

## 4 Recording Data

### 4.1 Display in the Remote Control

The status display function of the remote control (triggered by the "Status" button) provides an additional screen to show the current status and data rate of the ethernet connection of the supported protocols (see Figure 5).



```
▶ Stat. Ethernet 2/4
[1] 120   [2] OFF
[3] n/c   [4] ERROR
Values in KByte/sec
```

**Figure 5. Display of the Ethernet Status**

There are four possible types of display:

- OFF: The Ethernet target is deactivated in the configuration
- n/c: No connection to the target is established, i.e., the target has not (yet) responded to the connection requests
- ERROR: There is an error in connecting to the target (e.g., protocol error)
- Data rate in KByte/sec

## 5 Downloading the Trace Data

### 5.1 Downloading the Trace Data for GN-Log

If the license has been installed properly, the data transfer settings show the four virtual Ethernet ports in the file format tab (see Figure 6). The only available file formats are "GN-Log Format, separate files" and "GN-Log Format, shared file" is the format „Raw GN Logger Format“. Both file formats basically have the same contents, however, the option " shared file" writes multiple channels (Ethernet as well as serial channels) into the same target file. There is a maximum number of three Ethernet channels and two serial channels that can be written to the shared GN-Log file.

The extension of this file format is „. [x] aa “, where "[x]" is the last digit of the current year, i.e. "8" for "2008".

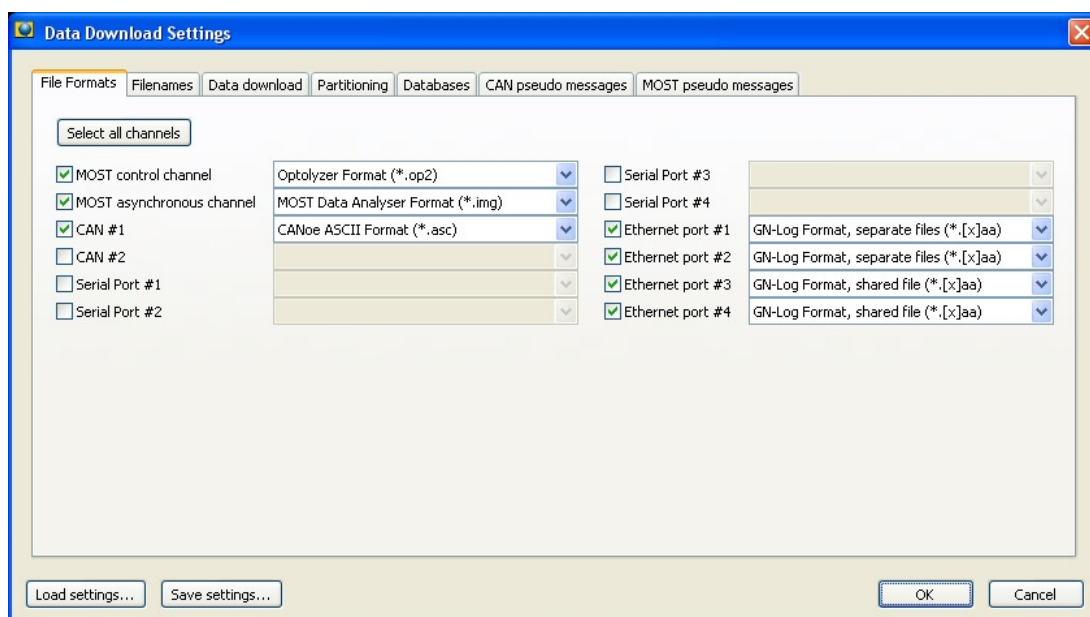


Figure 6. Ethernet file formats in the data transfer settings

### 5.2 Downloading the Trace Data for TCP-RAW, TCP-UTF8 and UDP-Server

For downloading trace data of the protocols: TCP-RAW, TCP-UTF8 and UDP Server please chose one of the following file formats: "Telemotive ASCII" or "Telemotive binary". Other file-formats like GN-Log take no effect.

## **Appendix A: Abbreviations**

blue PiraT Processing Information Recording Analysing Tool