

blue PiraT2 / 5E / Mini / Remote Diagnostic Log and Trace User Guide Version 2.4.1 / 16.09.2016



Table of contents

1	LICENSE AGREEMENT	. 3
2	PRODUCT LIABILITY	.4
3	Overview	. 5
4	System requirements	. 6
	4.1 Further manuals	.7
5	Connecting the data logger	. 8
	5.1 Ethernet	. 8
	5.2 Serial ports	. 8
6	Configuring	.9
	6.1 Configuring of DLT logging over Ethernet	. 9
	6.2 Configuring of DLT logging over serial interfaces	10
	6.3 Parameters	11
7	Converting the trace data	12
8	Abbreviations	14
9	List of figures	16
10	List of tables	
11	Contact	
	oontaot	10

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3 Overview

This user guide describes the feature of the license **Diagnostic Log and Trace**, (**DLT logging**) for the data loggers

- blue PiraT2
- blue PiraT2 5E
- blue PiraT Mini
- blue PiraT Remote

of Telemotive AG. These data loggers are supporting logging of **AUTOSAR DLT** data via Ethernet and serial ports.

This user guide describes the configuration and usage of this feature. The general configuration is described in the user guides of the used data logger as well as the Telemotive System Client, which is valid together.

The client software was only tested with Microsoft[®] Windows[®] 7.

This document refers to **firmware version 02.04.01** and the **Telemotive System Client** from **version 2.4.1.** 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 the Telemotive ServiceCenter. (*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.

4 System requirements

Control Unit

A Windows based Laptop or PC is needed to configure the devices of Telemotive AG by **Telemotive System Client**. It also allows to save the recorded data and to use them offline later.

Telemotive System Client

The software client is used for configuring the data logger as well as downloading the recorded data or convert these into your needed file format. An firmware update can be performed by the **Telemotive System Client** too to ensure that your devices are always up to date.

blue PiraT2 / blue PiraT2 5E / blue PiraT Mini

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

The **blue PiraT2** is our top-class all-in-one data logger. Seven models cover a wide range of interfaces.

Additionally, the **blue PiraT2 5E** offers improved power management and power backup, five integrated Ethernet ports and super-fast start-up behavior. The blue PiraT2 can be flexibly expanded via <u>Telemotive System Link</u>.

The **blue PiraT 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 flexibly expanded to one cluster and therefore handled very easily by using <u>Telemotive System Link</u>.

Remote Control Touch

Operate your blue PiraT Mini or blue PiraT2 data loggers safely and comfortably from the driver's or passenger seat. Via Telemotive System Link our new remote control becomes part of your logger network. One remote control can handle all connected loggers.

blue PiraT Remote

While Remote Control Touch is just a control unit for handling unique devices or a TSL network, the blue PiraT Remote additional has logger functionality by offering internal storage and some interfaces.

License

For the additional feature **Diagnostic Log and Trace (DLT)**, 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 guide we offer the main manuals for our client as well as for the different data logger generations in our ServiceCenter at <u>https://sc.telemotive.de/bluepirat</u>.

User manual for the Telemotive System Client

https://sc.telemotive.de/4/uploads/media/TelemotiveSystemClient_UserManual.pdf

User manual for blue PiraT2 / blue PiraT2 5E

https://www.telemotive.de/4/uploads/media/blue_PiraT2_UserManual.pdf

User manual for blue PiraT Mini

https://www.telemotive.de/4/uploads/media/blue_PiraT_Mini_UserManual.pdf

User manual for Remote Control Touch

https://sc.telemotive.de/4/uploads/media/RCTouch_UserGuide.pdf

User manual for blue PiraT Remote

https://sc.telemotive.de/4/uploads/media/blue_PiraT_Remote_UserGuide.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.

File Tools Window Network Logger Name CS_TSL (3) CS_bP2_10036 CS_bPP_10057	, Telemotive System Client manual blue PiraT 2 manual blue PiraT Mini manual Remote Control Touch manual	S	
음 CS_bP2_10036 음 CS_bPR_10057	blue PiraT Remote manual		H
CS_RCT_10060	Info		Ŧ

Figure 4.1: links to the manuals

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

5 Connecting the data logger

5.1 Ethernet

The **blue PiraT2** is equipped with a 1-Gbit-Ethernet port at the front panel (RJ45 connector) and with four 100-Mbit-Ethernet ports at the rear side (FCI connector).

Usually the 1-Gbit-Ethernet port will be used for connecting the data logger with a PC. For the Ethernet port at the rear side an Ethernet kit is available.



Figure 5.1: Connecting the Ethernet kit at blue PiraT2

The Ethernet kit provides four Ethernet ports. The blue PiraT2 is able to log up to 16 Ethernet channels simultaneous. Five Targets could be plugged directly (one at the front and four at the rear side). If you need more plugs, you have to connect a hub, switch, etc. to one of the Ethernet plugs.

The **blue PiraT2 5E** has 4 integrated Ethernet ports at the rear side and therefore omit the additional Ethernet Kit.

For a DLT connection the **blue PiraT Mini** has 4, and **blue PiraT Remote** 2 integrated Ethernet ports.

5.2 Serial ports

Targets with serial connections can be connected equivalent.

Therefore the adapter cable Serial/RS232, Analog/Digital is used. With this cable, you can connect six serial Interfaces.

More Information for connecting serial interface can be found in the User manual for blue PiraT2 / blue PiraT2 5E, blue PiraT Mini or blue PiraT Remote.

6 Configuring

6.1 Configuring of DLT logging over Ethernet

Click on the application **[Open configuration]** in the Telemotive System Client. Expand the folder **[Ethernet]** in the window on the right. It contains the entries "Ethernet #1" to "Ethernet #16". It is possible to configure up to 16 Ethernet ports.

Note:

"Ethernet #1" to "Ethernet #16" does NOT refer to the physical Ethernet ports of the data logger.

Configuration (Config_bP2_5E_150M14C8LFR_V02	.04.0	0.200_def_Liz-much.zip) 🛛		
Channels * Trigger * 🛛 * 💭 *		Ū Ļ	Jser Guide for DLT	
General	-	Ethernet #1		
E ⊂ CAN		Ethernet Interface Active	2	
		Name:	Ethernet-1	
E-Serial				
main most		Connector:	Back 👻	
🖶 📲 FlexRay				
Settings of Rear Ports		Protocol:	DLT 👻	
Ethernet #1 (Ethernet-1)				_
Ethernet #2 (Ethernet-2) inactive		Target IP address:	192 . 168 . 1 . 101 Port: 851	
Ethernet #3 (Ethernet-3) inactive		IP Address of Data Logger:	192 . 168 . 1 . 233	
Ethernet #4 (Ethernet-4) inactive	Ξ	IF Address of Data Logger.		
Ethernet #5 (Ethernet-5) inactive		Subnet Mask:	255 . 255 . 255 . 0	
Ethernet #6 (Ethernet-6) inactive				
🔊 Ethernet #7 (Ethernet-7) inactive		VLAN Interface Active		
🌮 Ethernet #8 (Ethernet-8) inactive		VLAN ID:	1 O dec hex	
🥭 Ethernet #9 (Ethernet-9) inactive		VERITE.		
P Ethernet #10 (Ethernet-10) inactive		-	20 (0	
Ethernet #11 (Ethernet-11) inactive		Timeout:	30 s (0 = no Timeout)	
Ethernet #12 (Ethernet-12) inactive		Default Log Level:	DLT_LOG_ERROR	
Ethernet #13 (Ethernet-13) inactive			DLT LOG OFF	
Ethernet #14 (Ethernet-14) inactive		Default Trace Status:	DLT_LOG_FATAL	
Ethernet #15 (Ethernet-15) inactive Ethernet #16 (Ethernet-16) inactive		ECU ID:	DLT_LOG_ERROR	
Ethernet #16 (Ethernet-16) inactive General Settings				
		DLT Verbose Mode:	DLT_LOG_INFO DLT_LOG_DEBUG	
E Digital Input			DLT_LOG_VERBOSE	
E Digital Output				
E	-			
1				
		Default configur	ation Load from file Save as file Write to	logger

Figure 6.1: Configuration – Ethernet logging

Each of the 16 virtual Ethernet ports can be activated or deactivated by a checkbox. The Telemotive System Client uses the name of the Ethernet port in the file names of the Ethernet trace files. To locate the target device, its fixed IP address must be entered. It is possible to assign an additional IP address ("IP-alias") and subnet mask for recording the Ethernet data.

Index

There are the following limitations of the IP configuration:

- The target device 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., 192.168.0.233 or any additionally configured IP-alias) for the IP address of the target device.
- The target device should not be configured as 192.168.0.x with x <= 100, because this range is used for DHCP.
- The combination of IP address and port number must not be used by any other device.

Example:

🔵 Telemotive AG

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" for communication with the target device. Hence, the target device must be located in the same subnet. Possible IP addresses range from "10.0.0.2" to "10.0.0.254".

6.2 Configuring of DLT logging over serial interfaces

Click on the application **[Open configuration]** in the Telemotive System Client. Expand the folder **[Serial]** in the window on the right. It contains the entries "Serial #1" to "Serial #6". The quantity of interfaces depends on the logger model.

Configuration (Config_bP2_5E_150M14C8LFR_V02.0	04.00.	.200_def_Liz-n	nuch.zip) %	
Channels • Trigger • 🔂 • 🐻 •			User Guide for DLT	
General Genera Genera	E	Serial port #1 Serial In Name: Baudrate: Databits: Stopbits: Parity: Protocol: ECU ID:	Iterface Active Serial-1 (This name is inserted later into the trace file names) 115200 bit/s 8 1 NEW NEW	
			Default configuration Load from file Save as file Write to	logger

Figure 6.2: Configuration – Serial logging

6.3 Parameters

Note:

Ethernet DLT doesn't support Baudrate, Databits, Stopbits and Parity. Serial DLT doesn't support Timeout, Default Log-Level and Default Trace-Status.

Baudrate, Databits, Stopbits and Parity are configuring the interface.

Protocol

In the dropdown menu it is possible to choose different protocols. Choose "DLT" for logging DLT messages.

Timeout

Here you can specify the "Timeout". Timeout means that the connection is terminated, if during the defined time in seconds no data was sent. After the termination the logger tries to reconnect.

Default Log-Level

Here you can set one of the DLT default Log-Levels specified within the DLT specification.

Timeout:	30	s	(0 = no Timeout)
Default Log Level:	DLT_LOG_ERROR		
Default Trace Status:	DLT_LOG_OFF	7	
Default frace status:	DLT_LOG_FATAL		
ECU ID:	DLT_LOG_ERROR		
	DLT_LOG_WARN		
DLT Verbose Mode:	DLT_LOG_INFO		
	DLT_LOG_DEBUG		
	DLT_LOG_VERBOSE		

Figure 6.3: Log-Level Dropdown Menu

Default Trace-Status

This setting configures the Default Trace-Status, in which the DLT standard is defined.

ECU-ID

Here you can define an ECU-ID name, so if no ECU-ID is sent by the ECU it will be taken.

7 Converting the trace data

🔵 Telemotive AG

Click on the application **[Convert data]** in the Telemotive System Client. Select in the "Event overview" the desired data. Double-click the channel in the "Channel selection tree", whose recorded data is to be converted into the "DLT Logging Format (*.dlt)", to add him to the window on the right. There open the dropdown menu next to the channel and select the "DLT Logging Format (*.dlt)".

It is also possible to export the same channel in another format (e.g., "Telemotive ASCII Format (*.txt)").

rent logger time: Friday, 1/17/2014 09:25:37 ent overview Time period	Channel selection tree	Target directory E:\Test
ata range all data Reload	B -	Format settings Import Export Remove all
Event Time Image: Tuesday, 07.01.2014 09:57:15 Image: Section #1 - Startup (428MB) 09:57:15 Shutdown 14:04:03 Image: Section #2 - Startup (8MB) 14:04:16 Shutdown 14:09:05 Image: Section #3 - Startup (2MB) 14:09:20 Image: Clear selection Select all marker	CCP_XCP Digital-in Ethernet <i>f</i> = (Ethernet-1) <i>f</i> = (Ethernet-3) <i>f</i> = (Ethernet-3) <i>f</i> = (Ethernet-5) <i>f</i> = (Ethernet-5) <i>f</i> = (Ethernet-6) <i>f</i> = (Ethernet-6) <i>f</i> = (Ethernet-7) <i>f</i> = (Ethernet-8)	Ethernet #1 (Ethernet-1) DLT Logging Format (*.dit)
ata selection by marker art of data block End of data block) Start of section End of section Sec. before marker Next marker or info entry with text	 Default (Tools -> Options) Default color ID Add 	-

Figure 7.1: Converting to DLT data

To set the data format of the channels to the "DLT Logging Format (*.dlt)" in advance, click the button **[Settings...]** in the button bar at the bottom on the right or in the menu item **[Tools]** at the top on the left.

Settings	Convert
3	

Figure 7.2: Button bar in the window "Conversion"

In the appearing window open the tab **[Formats]**. Select in the dropdown menu next to the channel the "DLT Logging Format (*.dlt)" and click **[OK]**.

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Settings	•				t ^	Q Filte	r (Ctrl	+F)
General Dow	nload C	Conversion	Configuration O	nlineMonitor	Terminal			
CAN pseudo ma General	essages		ST pseudo messag names	es	CAN databases Partitioning	Specific Format Settin Formats	OS	٦
Load last config show hint						conversion the chosen form	ət will	1
Analog-in	format.		ormat (*.txt)					
CAN		ASCII Forma					in.	
CCP_XCP	-							
-	-	Telemotive ASCII Format (*.txt)						
Camera	MPEG4 - Video format, separate files (*.mpeg4)							
Digital-in	Telemot	Telemotive ASCII Format (*.txt)						
ECL	MOST D	ata Analyse	r Format (*.img)			•	-	
Ethernet	Telemot	Telemotive ASCII Format (*.txt)						
FlexRay	Binary Lo	ogging Form	at (*.blf)				וור	
· · · ·		ging Format						
GPS		:e File (*.eso Format (*)	SNLog. 16aa)					
LIN		t Raw Forma						
MOST 150 CTRL		np (*.pcap)						
MOST 150 MDP		ive ASCII Fo						
	-		Trace File (*.xtm	t)				
MOST 150 MEP	MOST D	ata Anaiyse	r Format (*.img)			•		
								_

Figure 7.3: Conversion settings: Formats

8 Abbreviations

Kürzel / abbreviation	Bedeutung / meaning
blue PiraT	Processing Information Recording Analyzing Tool
bP	blue PiraT
bP2	blue PiraT2
bP2 5E	blue PiraT2 5E
bPMini	blue PiraT Mini
RC Touch	Remote Control Touch
bP Remote	blue PiraT Remote
DF Remote	
A2L	ASAM MCD-2 MC Language
AE	Automotive Electronics
ACK	ACKnowledged
CAN	Controller Area Network
ССР	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	Fleld 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	Media Access Control
MCD	Measure Calibrate Diagnose
MDX	Meta Data EXchange Format
MEP	MOST Ethernet Packet
MOST	Media Oriented Systems Transport (<u>www.mostnet.de</u>)
ODT	Object Descriptor Table
ODX	Open Data EXchange
OEM	Original Equipment Manufacturer

Diugnostic Log and Trace User Guide Datum: 16.09.2016 Seite 15 von 18 PHY PHYsical Bus Connect PW Passwort RX Receiver Data SD Secure Digital SFTP Secure File Transfer Protocol SHA Secure Sockets Layer TCP/IP Transmission Control Protocol/Internet Protocol TLS Transport Layer Security TMP Telemotive System Link UDP User Datagram Protocol USB Universal Serial Bus Wi-Fi Wireless Fidelity WLAN Wireless Fidelity WLAN Universal Measurement and Calibration Protocol			
PHY PHYsical Bus Connect PW Passwort RX Receiver Data SD Secure Digital SFTP Secure File Transfer Protocol SHA Secure Bash SSL Secure Sockets Layer TCP/IP Transmission Control Protocol/Internet Protocol TLS Transport Layer Security TMP Telemotive Packetformat TSL Telemotive System Link UDP User Datagram Protocol USB Universal Serial Bus Wi-Fi Wireless Fidelity WLAN Wireless Fidelity	C Telemotive AG		Datum: 16.09.2016 Seite 15 von 18
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TCP/IP Transmission Control Protocol/Internet Protocol TLS Transport Layer Security TMP Telemotive Packetformat TSL Telemotive System Link UDP User Datagram Protocol USB Universal Serial Bus UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	SHA	Secure Hash	
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TLSTransport Layer SecurityTMPTelemotive PacketformatTSLTelemotive System LinkUDPUser Datagram ProtocolUSBUniversal Serial BusUTCUniversal Time, CoordinatedWi-FiWireless FidelityWLANWireless Local Area Network			
TMP Telemotive Packetformat TSL Telemotive System Link UDP User Datagram Protocol USB Universal Serial Bus UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	TCP/IP	Transmission Control Protocol/Internet Protocol	
TSL Telemotive System Link UDP User Datagram Protocol USB Universal Serial Bus UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	TLS	Transport Layer Security	
UDP User Datagram Protocol USB Universal Serial Bus UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	ТМР	Telemotive Packetformat	
USB Universal Serial Bus UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	TSL	Telemotive System Link	
UTC Universal Time, Coordinated Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	UDP	User Datagram Protocol	
Wi-Fi Wireless Fidelity WLAN Wireless Local Area Network	USB	Universal Serial Bus	
WLAN Wireless Local Area Network	UTC	Universal Time, Coordinated	
WLAN Wireless Local Area Network			
	Wi-Fi	-	
XCP Universal Measurement and Calibration Protocol	WLAN	Wireless Local Area Network	
XCP Universal Measurement and Calibration Protocol			
	XCP	Universal Measurement and Calibration Protocol	

Table 8.1: Abbreviations

blue PiraT2 / 5E / Mini Diagnostic Log and Trace User Guide

9 List of figures

Figure 4.1: links to the manuals	.7
Figure 5.1: Connecting the Ethernet kit at blue PiraT2	. 8
Figure 6.1: Configuration – Ethernet logging	. 9
Figure 6.2: Configuration – Serial logging	10
Figure 6.3: Log-Level Dropdown Menu	11
Figure 7.1: Converting to DLT data	12
Figure 7.2: Button bar in the window "Conversion"	12
Figure 7.3: Conversion settings: Formats	13



blue PiraT2 / 5E / Mini Diagnostic Log and Trace User Guide

10 List of tables

Table 8.1: Abbreviations



11 Contact



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