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

Version 2.4.1 / 16.09.2016

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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 Telemotive System Link.

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 Telemotive System Link.

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

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.
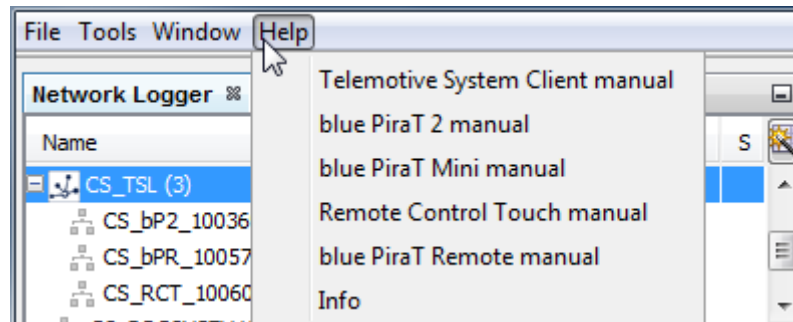

Figure 4.1: links to the manuals

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.
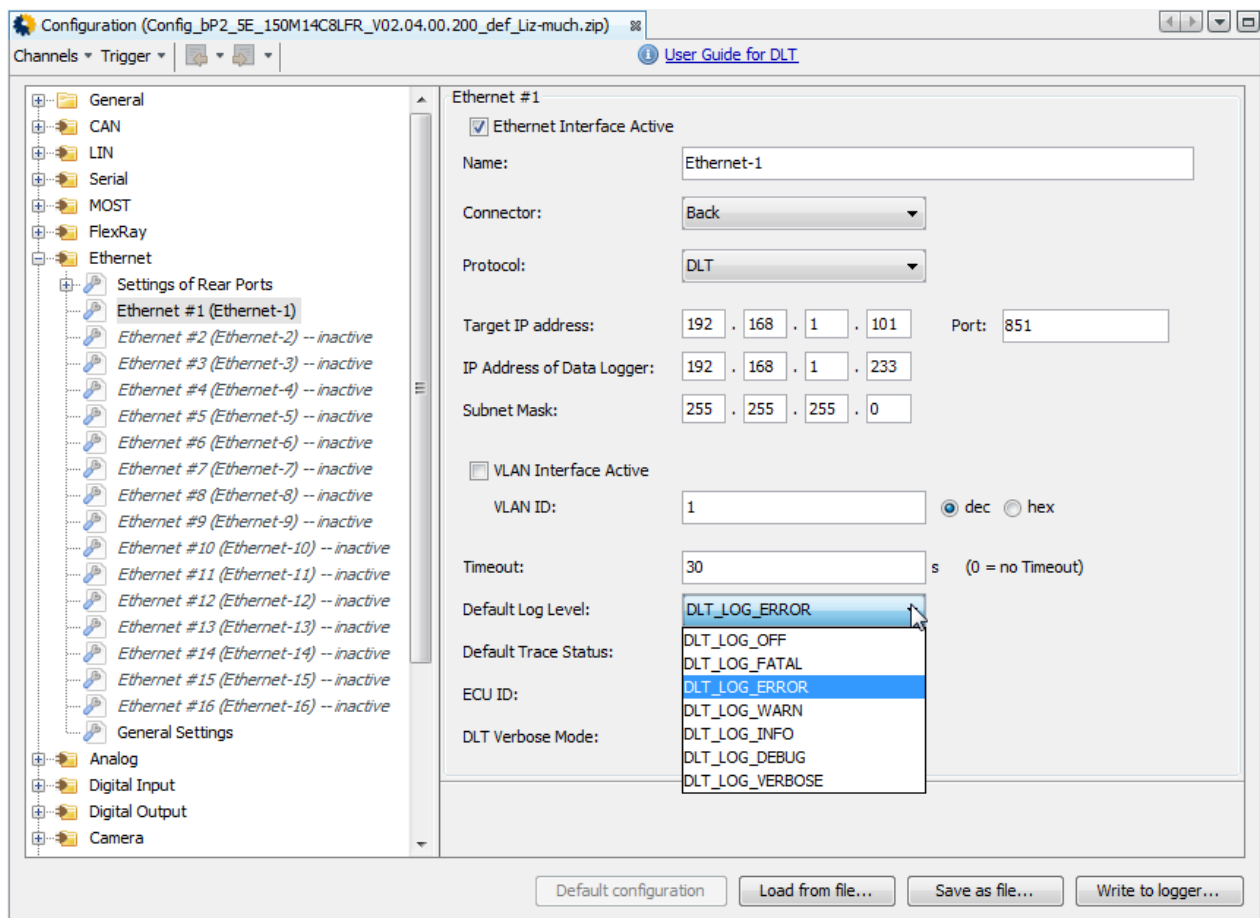

Figure 6.1: Configuration – Ethernet logging

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.

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:
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.
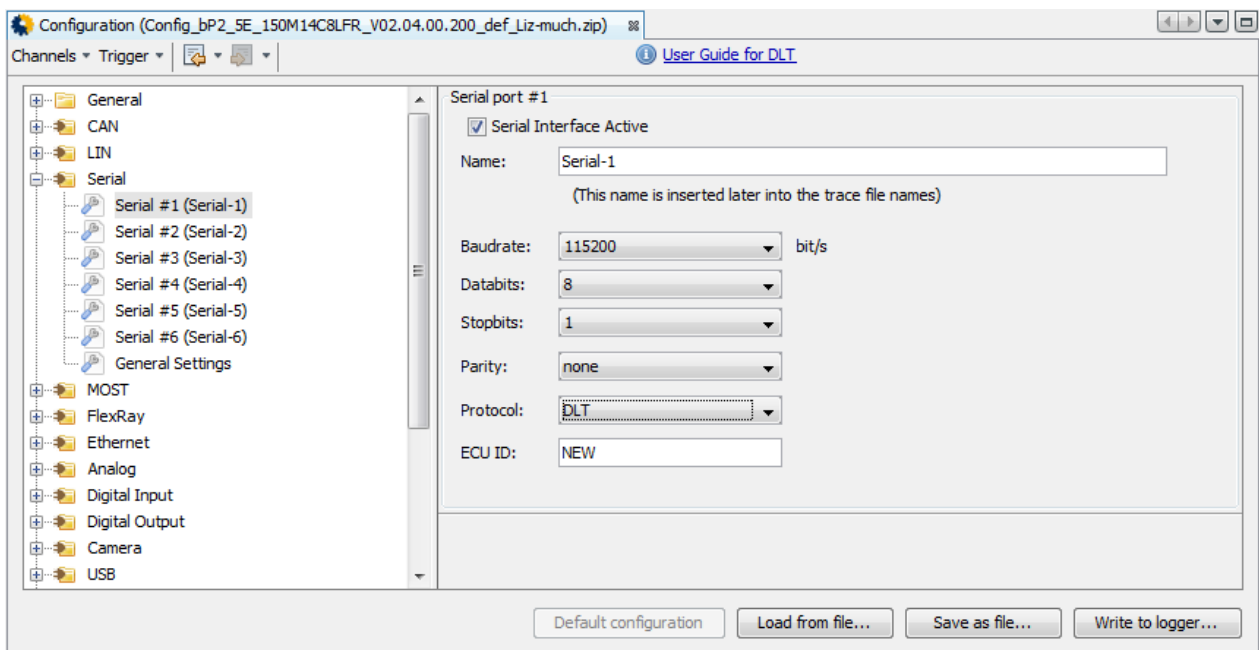

Figure 6.2: Configuration – Serial logging

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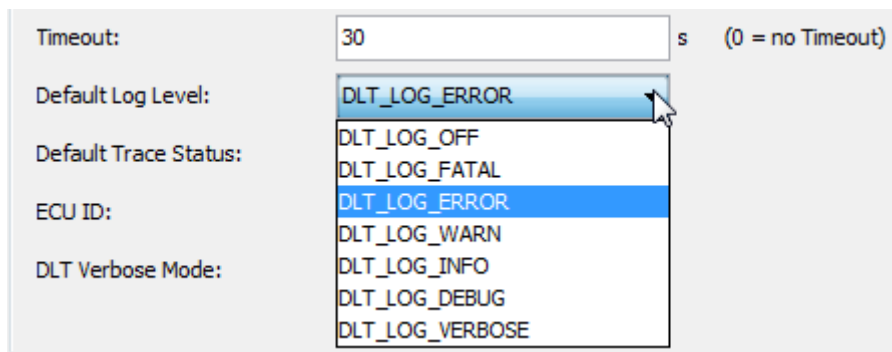Here you can set one of the DLT default Log-Levels specified within the DLT specification.

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.

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7   Converting the trace data

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)").
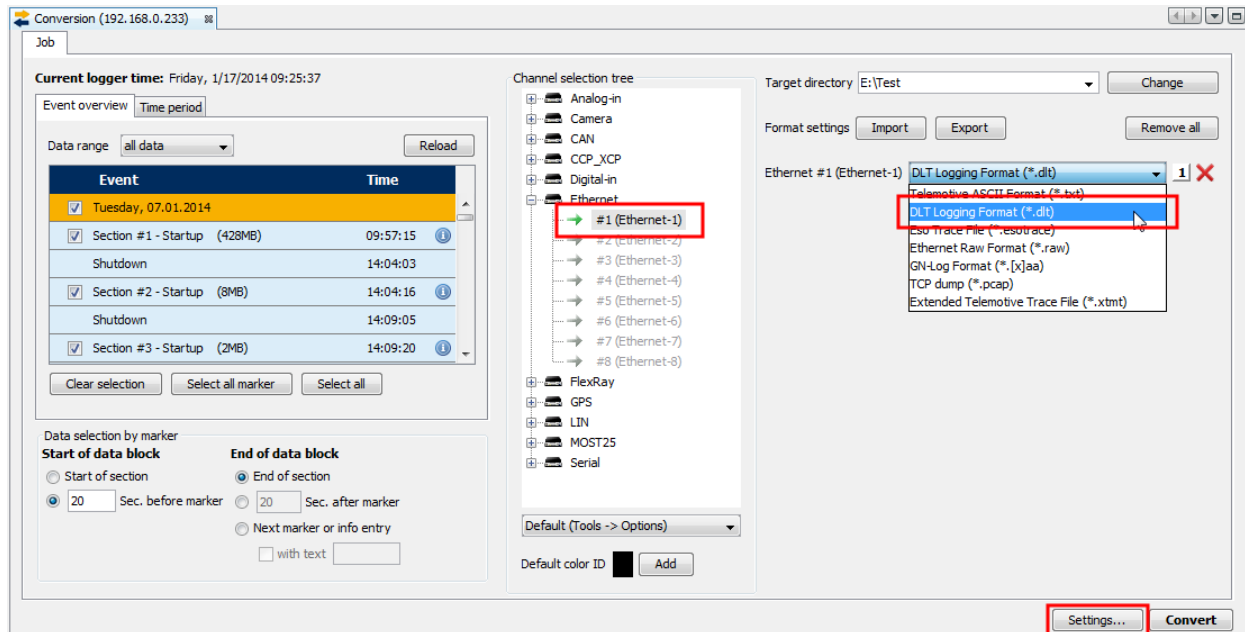

Figure 7.1: Converting to DLT data

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.

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]**.
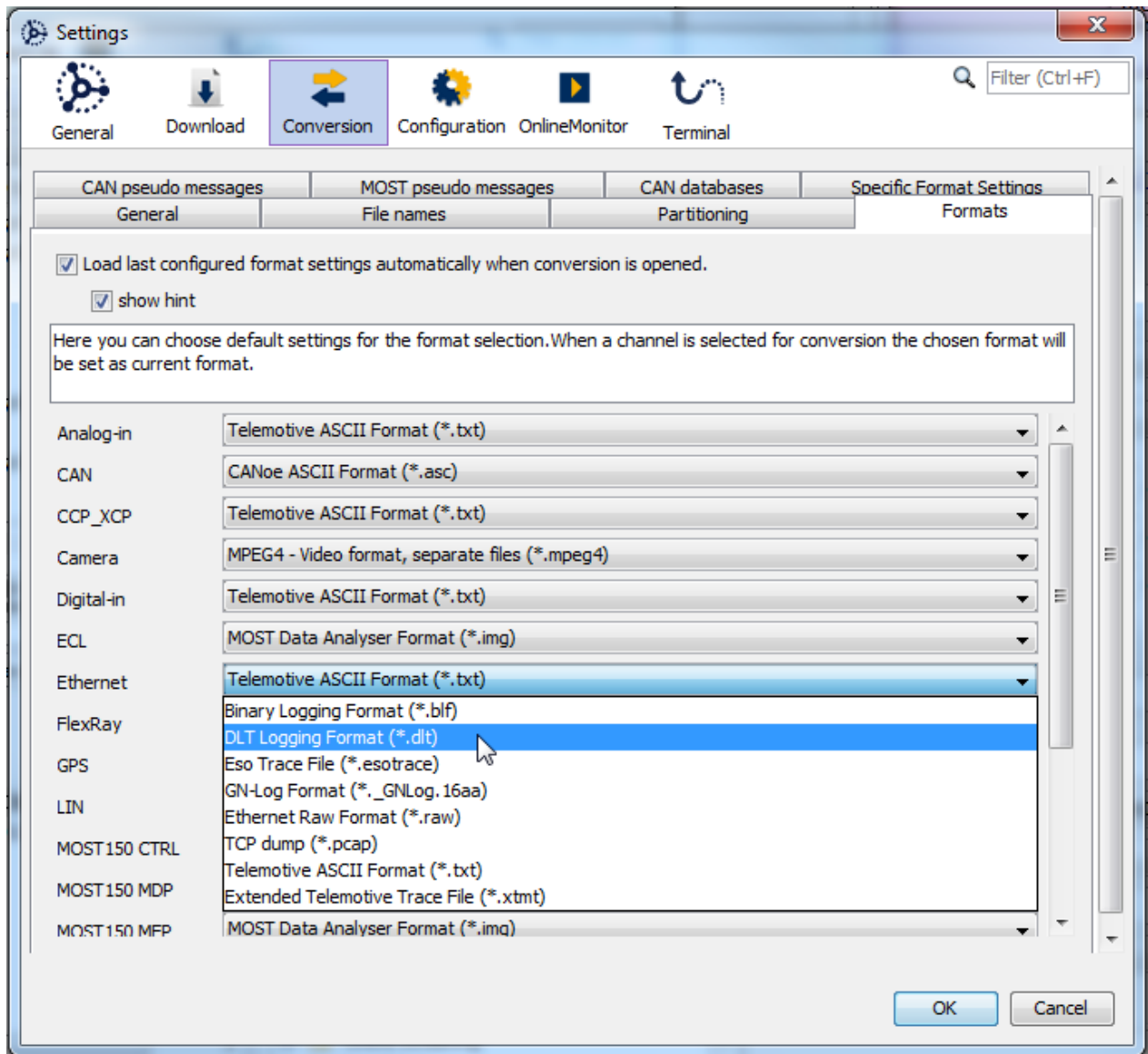
Figure 7.3: Conversion settings: Formats

8 Abbreviations

Kürzel / abbreviation	Bedeutung / meaning
blue PiraT	**P**rocessing **I**nformation **R**ecording **A**nalyzing **T**ool
bP	**b**lue **P**iraT
bP2	**b**lue **P**iraT**2**
bP2 5E	**b**lue **P**iraT**2** 5E
bPMini	**b**lue **P**iraT Mini
RC Touch	**R**emote **C**ontrol **T**ouch
bP Remote	**b**lue **P**iraT **R**emote
A2L	**A**SAM MCD-**2** MC **L**anguage
AE	**A**utomotive **E**lectronics
ACK	**ACK**nowledged
CAN	**C**ontroller **A**rea **N**etwork
CCP	**C**AN **C**alibration **P**rotocol
CF	**C**ompact **F**lash
CRO	**C**ommand **R**eceive **O**bject
DAQ	**D**ata **A**cquisition
DTO	**D**ata **T**ransmission **O**bject
ECL	**E**lectrical **C**ontrol **L**ine
ECU	**E**lectronic **C**ontrol **U**nit
FIBEX	**FI**eld **B**us **Ex**change Format
FW	**F**irm**w**are
GMT	**G**reenwich **M**ean **T**ime
INCA	**IN**tegrated **C**alibration and **A**pplication Tool
LAN	**L**ocal **A**rea **N**etwork = Netzwerk
LIN	**L**ocal **I**nterconnect **N**etwork
MAC	**M**edia **A**ccess **C**ontrol
MCD	**M**easure **C**alibrate **D**iagnose
MDX	**M**eta **D**ata **EX**change Format
MEP	**M**OST **E**thernet **P**acket
MOST	**M**edia **O**riented **S**ystems **T**ransport (www.mostnet.de)
ODT	**O**bject **D**escriptor **T**able
ODX	**O**pen **D**ata **EX**change
OEM	**O**riginal **E**quipment **M**anufacturer

PHY	**PHY**sical Bus Connect
PW	**P**ass**w**ort
RX	**R**eceiver Data
SD	**S**ecure **D**igital
SFTP	**S**ecure **F**ile **T**ransfer **P**rotocol
SHA	**S**ecure **Ha**sh
SSL	**S**ecure **S**ockets **L**ayer
TCP/IP	**T**ransmission **C**ontrol **P**rotocol/**I**nternet **P**rotocol
TLS	**T**ransport **L**ayer **S**ecurity
TMP	**T**ele**m**otive **P**acketformat
TSL	**T**elemotive **S**ystem **L**ink
UDP	**U**ser **D**atagram **P**rotocol
USB	**U**niversal **S**erial **B**us
UTC	**U**niversal **T**ime, **C**oordinated
Wi-Fi	**Wi**reless **Fi**delity
WLAN	**W**ireless **L**ocal **A**rea **N**etwork
XCP	Universal Measurement and **C**alibration **P**rotocol

Table 8.1: Abbreviations

9   List of figures

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11   Contact

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