PLIN-USB

User Manual





User Manual 2.2.0 • © 2024 PEAK-System Technik GmbH

Relevant Products

Product name	Part number
PLIN-USB	IPEH-004052

Imprint

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Document version 2.2.0 (2024-06-10)

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1 Introduction

The PLIN-USB enables the connection of a Windows computer to a LIN network via USB. The LIN interface supports the LIN protocol according to the standard ISO 17987 and complies with all LIN specifications up to version 2.2. The interface can be operated as a master or a slave.

The monitor application PLIN-View Pro as well as the PLIN programming interface for the development of applications with LIN connection are included in the scope of delivery.

1.1 Properties at a Glance

- LIN interface for the USB connection (Full-Speed mode, compatible with USB 1.1, USB 2.0, and USB 3.0)
- LIN connection (ISO 17987)
- Complies with all LIN specifications (up to version 2.2)
- Bit rates from 1 kbit/s up to 20 kbit/s
- Can be used as a LIN master or slave (1 ms master task resolution)
- Automatic bit rate, frame length, and checksum type recognition
- Autonomous scheduler with support for unconditional, event, and sporadic frames
- LIN bus connection via D-Sub, 9-pin
- LIN connection short-circuit-proof against transceiver supply and ground
- NXP LIN transceiver TJA1028T or TI LIN transceiver TLIN1028D
- Galvanic isolation on the LIN connection up to 500 V
- Indicator LED for interface status
- Voltage supply 5 V DC via USB port
- Transceiver supply 6 to 28 V DC via D-Sub, pin 9
- Extended operating temperature range from -40 to +85 °C (-40 to +185 °F)

1.2 System Requirements

- Computer with:
 - Operating system Windows 11 (x64/ARM64), 10 (x64), or Linux
 - a vacant USB port (USB 1.1, USB 2.0, or USB 3.0)
- Power supply with nominal voltage between 6 and 28 V DC

1.3 Scope of Supply

PLIN-USB in plastic casing

Downloads

- Device drivers package for Windows 11 (x64/ARM64), 10 (x64) including:
 - LIN device driver
 - LIN monitor PLIN-View Pro
- Device driver for Linux
- Programming interface PLIN-API for Windows 11 (x64/ARM64), 10 (x86/x64)
- Manual in PDF format

Optional accessories

LIN connection cable for PC LIN interfaces (IPEK-003013)

2 Installation

This chapter covers the software setup for the LIN interface PLIN-USB under Windows and the connection of the LIN interface to the computer.

Install the device drivers package before you connect the LIN interface.

2.1 Install Software and Driver

- 1. Download the device drivers package from our website: <u>www.peak-system.com/quick/DL-Driver-E</u>.
- 2. Extract the file PEAK-System_Driver-Setup.zip
- 3. Double-click the file PeakOemDrv.exe The driver setup starts.
- 4. Confirm the start and the license agreements.
- 5. Follow the program's instructions. When selecting components, select the LIN device driver (other components as needed).

The LIN monitoring software PLIN-View Pro is installed automatically.

2.2 Connection



- Connect the LIN interface to a USB port on the computer or to a USB hub. Windows notifies you about the new hardware and completes the driver installation.
- 2. Check the status LED. If the LED is green, the driver has been successfully initialized.

2.3 Connect LIN Bus

The transceiver of the LIN interface requires a power supply between 6 and 28 V DC. This must be provided via pin 9 on the D-Sub connector.

To facilitate the connection, use the optional LIN connection cable for PC LIN interfaces (IPEK-003013).

Pin	Assignment	D-Sub plug on LIN interface
1	None	
2	None	
3	None	1 2 3 4 5
4	LIN	
5	LIN_GND	
6	LIN_GND	
7	None	6 7 8 9
8	None	
9	LIN_V _{Bat}	

3 Operation

3.1 Status LED

LED status	Meaning
Green on	There's a connection to a driver of the operating system.
Green slow blinking	The LIN interface is initialized with a valid bitrate. A software application is connected to the LIN interface.
Green quick blinking	Data is transmitted via the connected LIN bus.

3.2 Unplugging the USB Connection

The LIN interface can be disconnected from the computer without further actions. In Windows, the LIN interface is not listed under "Safely Remove Hardware".

3.3 Distinguishing several PLIN-USB

You can operate several PLIN-USB interfaces on a single computer at the same time. For this purpose, the device ID can be determined in order to distinguish the LIN interfaces in a software environment.

PLIN-View Pro

To set the device ID in PLIN-View Pro:

- 1. Open the tab PLIN-USB.
- 2. Enter a hexadecimal number with suffix "h" as the new hardware ID.
- 3. Confirm the entry with Set.

PEAK Settings

To set the device ID in PEAK Settings:

- 1. Select *LIN hardware*. The installed hardware is displayed.
- 2. Click on PLIN-USB.

The view expands and the current ID is displayed in an input field.

- 3. Enter a hexadecimal number with suffix "h" as the new Device ID.
- 4. Confirm the entry with Set.

3.3.1 Identifikation

If you have connected several PLIN-USB interfaces you can identify a single interface via PEAK Settings.

- 1. Select *LIN hardware*. The installed hardware is displayed.
- 2. Click on PLIN-USB.

The view expands and the *Identify* button is displayed.

3. Click on Identify.

The LED of the selected PLIN-USB flashes orange for five seconds.

4 LIN Monitor PLIN-View Pro



The LIN monitor PLIN-View Pro is a Windows software for viewing, sending and recording LIN messages. The software is installed ready for operation under Windows with the installation of the device driver package.

In the following the initialization of a LIN interface is described as an example.

Detailed information on the use of PLIN-View Pro can be found in the program window under the menu item *Help*.

4.1 Features

- Display of incoming LIN frames
- Symbolic display of LIN messages (LDF files)
- Master or Slave mode
- Administration and processing of schedule tables
- Configurable recording of LIN frames (trace)
- Display and recording of frame events such as bus sleep, bus wake-up, and overrun
- Automation of various processes with VBScript
- Automation of LIN data and elements with C# scripts; optional use of C# assemblies
- Integrated text editor for C# with syntax highlighting
- Separate views for:
 - Transmit and Receive
 - Trace (data logger)
 - Scripting
 - Connected LIN interface

4.2 Start and Initialize PLIN-View Pro

1. From the Windows Start menu, select PLIN-View Pro.

The main window and the *Connect to* ... dialog box for selecting the LIN hardware appear. The parameters for the LIN interface are set in the dialog window.

Connect to				×	Connect to					×
PLIN-	Vie	w P	ro	Pro	🗟 PLI	N-	Vie	w P	ro	Pro
Hardware:					Hardware:					
Туре	ID	Device	Channel	Mode	Туре		ID	Device	Channel	Mode
PCAN-USB Pro FD LIN	1Eh	1	1	None	PCAN-USB Pro F	DLIN	1Eh	1	1	None
PCAN-USB Pro FD LIN	FEh	1	2	None	PCAN-USB Pro F	Ð LIN	FEh	1	2	None
Mode: Master					Mode: S	Slave				
Bit rate: 19200				~	Bit rate: 1	19200				~
Bit rate detection					Bit rate detection	n				
Timeout: 4000		🔹 ms	Detec	t	Timeout: 4	1000		🔹 ms	Dete	ct
Disconnect	ОК		Cancel	Help	Disconnect]	ок		Cancel	Help

Selection of the hardware as master.

Selection of the hardware as slave.

- 2. If there are several LIN interfaces, select the desired interface. If there are several channels, select the desired channel from the list.
- 3. Determine the operation *Mode* to be used for the LIN connection.

4. If the bit rate is known: Select the bit rate of the LIN bus from the *Bit rate* list. If the bit rate is unknown: Determine the bit rate under *Bit rate detection* with *Detect*.

ardware:					Hardware:				
ype	ID	Device	Channel	Mode	Туре	ID	Device	Channel	Mode
CAN-USB Pro FD LIN	1Eh	1	1	None	PCAN-USB Pro FD LIN	1Eh	1	1	None
CAN-USB Pro FD LIN	FEh	1	2	None	PCAN-USB Pro FD LIN	FEh	1	2	None
Bit rate: 19200					Bit rate: 19200				
Bit rate detection					Bit rate detection				
Timeout: 4000		÷ ms	Dete	ct	Timeout: 4000		🔺 ms	Dete	ct

Note: The LIN interface must not be initialized by any other software.

Bit rate detection as master.

Bit rate detection as slave.

- 5. Confirm the settings with OK.
- 6. Optional: To initialize another channel or LIN interface, open another instance of PLIN-View Pro.

4.3 Receive / Transmit Tab

۲۵ -	Untitled	- PLIN-View Pri	•											— c	з х
Eile	LIN	Transmit	Schedules	Trace Tools View Hel	p										
	٢	• 🔒 🔗	<u>6</u>	e 🔯 👒 🦈 🖉		- 🕜 🗖									
35	5	5.5.5	2.7												
	Receive	/ Transmit 🚥	Trace 🔍	Scripting + PCAN-USB Pro	FD					Table	5				
	ID	Symbol	Len	Data		Pe Co I	Direction CS	T Checks.	Errors	Globa	Frame Table				~
	<em< th=""><th>ipty></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>ID</th><th>Symbol</th><th>Pro</th><th>Direction</th><th>Length</th><th>Che</th></em<>	ipty>								ID	Symbol	Pro	Direction	Length	Che
										00h		80h	Subscrib	2	Aut
										01h		C1h	Subscrib	2	Aut
										02h		42h	Subscrib	2	Aut
										03h		03h	Subscrib	2	Aut
										04h		C4h	Subscrib	2	Aut
e										05h		85h	Subscrib	2	Aut
.≥.										06h		06h	Subscrib	2	Aut
Ű										07h		47h	Subscrib	2	Aut
Re										08h		08h	Subscrib	2	Aut
_										09h		49h	Subscrib	2	Aut
										0Ah		CAh	Subscrib	2	Aut
										0Bh		8Bh	Subscrib	2	Aut
										0Ch		4Ch	Subscrib	2	Aut
										0Dh		0Dh	Subscrib	2	Aut
										0Eh		8Eh	Subscrib	2	Aut
										0Fh		CFh	Subscrib	2	Aut
_										Prope	rties				
	ID	Symbol	Len	Data		Co Directio	n CST	Errors	Trig Comment	Frame	Definition "00h"				~
	<em< th=""><th>ipty></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>811 4</th><th>1 🖾</th><th></th><th></th><th></th><th></th></em<>	ipty>								811 4	1 🖾				
										✓ CI	angeable				
										C	necksum Type		Automatic		
										D	rection		Subscriber	Automatio	: Length
										Ev	ent Frame		No		
Ę.										Le	ngth		2		
SI										U	nconditional ID		00h		
<u> </u>										~ R	eadOnly				
1.5										ID			00h		
										P	otected ID		80h		
										Sj	mbol				
										Symb	ol				
										Speci	ies the symbol na	me of a	LIN-Frame id	entifier de	fined
										within	a LDF file.				
	Connec	ted to PCAN-US	B Pro ED I	IN (19200) Hardware ID: 55h	evice: 1 Chann	el: 1 Mode: Ma	ster Bus: Sleep	Overruns: 0							

In the upper area, the *Receive / Transmit* tab displays the Recieve window for received LIN frames. Depending on the operation mode Master or Slave, the lower area shows the *Transmit* window for the operation mode "Master" or *Publish* for "Slave". If the master requests data from a slave, the slave can publish the data in the LIN frame.

In the *Global Frame Table* all 64 defined LIN frame entries are stored, which can be processed with the LIN interface (LIN ID 0x00 to 0x3F). To send a LIN frame, the underlying frame definition must be adapted in the *Properties* window.

4.4 Transmit a LIN Frame

Depending on the customer's requirements, different scenarios for sending LIN frames are possible.

4.4.1 With LDF (LIN Description File)



Note: An LDF must be provided by the system manufacturer of the LIN bus or created by the customer.

Application examples with an LDF:

- **Master with scheduler:** The Publisher data is edited in the *Transmit* window and assigned to the *Scheduler* with the Space bar.
- Slave (Listen Only): Selecting "All Listen Only" will receive the data as a silent listener.
- Slave (LIN node simulation): The publisher data of the slave are changed in the *Publish* window. With the Space bar the data is sent to the hardware and thus made available on the LIN bus.
- Master with LIN diagnostic frames: Diagnostic frames 3C/3D are processed via a script to be created by the customer for the LDF used. Examples can be found in the *Help*.

4.4.2 Manually

Manual sending is done according to the connected hardware as master or slave. Frames are configured beforehand for this. For periodic sending, a scheduler can also be created.

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Note: In the following example, a frame is sent manually from a master as publisher without a scheduler. For automated sending, further expertise in configuring LIN frames and at least one additional LIN node are required.

- 1. Connect your LIN interface as master, see chapter *Start and Initialize PLIN-View Pro*.
- Select the menu command *Transmit* > New Frame. The New frame dialog box appears.

00h		
Data (18):		
00 00		
Comment:		
Frome Definition		
- Frame Definition		
PID:	00h 80h	
Checksum lype:	Enhanced	~
Direction:	Publisher	~
Length:	2	~

- 3. Select a frame from the ID list.
- 4. Select "Publisher" for *Direction*.

The Data fields can now be filled.

- 5. Enter the data of the LIN frame in the Data fields.
- 6. Confirm the entries with OK.

The configured message appears in the *Transmit* window. "0" is displayed in the *Count* column.

Send the selected frame with the menu command *Transmit > Send* or with the Space bar.

The message is sent on the LIN bus and appears in the *Receive* window. "1" for *Transmit* and *Receive* is displayed in the *Count* column.

Change data

- 1. Double-click the message in the *Transmit* window. The *New frame* dialog box appears again.
- 2. Change the data and confirm with OK.

The changed data will be displayed in the Transmit window.

3. Send the frame again.

The data in the *Receive* window is updated. The value in the *Count* column is increased by one for *Transmit* and *Receive*.

4.5 Trace Tab

PLIN-Slave w	ith PCAN-USB P	ro 2.0.1	inproj - PLIN-View Pro										- c	ı x
File LIN Transmit Nodes Schedules Trace Tools View Helo														
- P	- <i>8</i>	•€	🏷 🔀 🗣 💋											
5555	S 5 5	5 E												
Receive / Transmit Trace Constraining ++++++++++++++++++++++++++++++++++														
Recording 336	6,3363 s	6318 Fr	ames Untitled						Global F	rame Table				~
Time	Direction	ID	Symbol	Length	Data	Checksum	CST	Errors	ID S	symbol	Pro	Direction	Length	Che
334 6294	Publishes	05	Control yyy LIN		80.04	ES	Enhanced		00h		80h	Disabled	2	Enh
334 6774	Publisher	05	Control_xxx_LIN	5	40.08	32	Enhanced		01h 5	status_xxx_LIN	C1h	Subscrib	8	Enh
334 7264	Publisher	05	Control_XXX_LIN	5	00.14	66	Enhanced		02h E	Fror Status xx	42h	Subscrib	2	Enh
334 7754	Publisher	05	Control_XXX_LIN	5	00.01	70	Enhanced		03b S	Status vvv LIN	03h	Subscrib	8	Enh
334,9274	Publisher	05	Control_XXX_LIN	2	80.02	F7	Enhanced		046		CAL	Disabled	ž	Enh
334 8804	Publisher	05	Control_xxx_LIN	2	40.04	36	Enhanced		051	Constant and 1993	051	Dublish	-	Collins.
334 9274	Publisher	05	Control_XXX_LIN	2	00.18	62	Enhanced		USN C	CONTROLXXX_EIN	don	Publisher	4	enn
224 9754	Subscriber	01	Control_XXX_LIN		00 C0 00 00 00 EE 3E 8A	C2	Enhanced		06h		06h	Disabled	2	Enh
225 0404	Bublishes	05	Control your LIN	2	20.01	50	Enhanced		07h		47h	Disabled	2	Enh
225 0094	Publisher	05	Control_XXX_LIN	2	20.01	55	Enhanced		08h		08h	Disabled	2	Enh
225 1992	Publisher	05	Control_XXX_LIN	2	40.08	22	Enhanced		09h		49h	Disabled	2	Enh
225 2272	Publisher	05	Control_XXX_LIN	2	00.14	66	Enhanced		0Ah		CAh	Disabled	2	Enh
225 2962	Publisher	05	Control_XXX_LIN	2	00.01	70	Enhanced		OBb		8Bb	Disabled	2	Enh
335,2003	Publisher	05	Control_XXX_LIN	2	00.01	79	Enhanced		001		ACh	Disabled		E-h
335,3353	Publisher	05	Control_XXX_LIN	2	40.04	20	Enhanced		UCh		400	Disabled	2	Enn
335,3633	Publisher	05	Control_XXX_LIN	2	40.04	30	Enhanced		Propert	ties				
225 5142	Publisher	03	Status your LTN	2	00 10	62	Enhanced		Frame D	efinition "02h: Err	or Statu	us xxx LIN"		~
225 5992	Bublisher	01	Control your LTN	2	20.01	50	Enhanced		OIL AL	1000	-			
225 6262	Publisher	05	Control_XXX_LIN	-	20.01	55	Enhanced							
225 6952	Publisher	05	Control_XXX_LIN	-	40.08	20	Enhanced		Che	cksum Type		Enhanced		
225 7262	Publisher	05	Control_XXX_LIN	-	40 00	52	Enhanced		Dire	ction		Subscriber		
225 7012	Publisher	05	Control_XXX_LIN	-	00.01	70	Enhanced		Ever	nt Frame		No		
335,7913	Publisher	05	Control_XXX_LIN	-	80.02	73	Enhanced		Len	ath		2		
225 0072	Publisher	05	Control_XXX_LIN	-	40.04	26	Enhanced		Una	gui an ditional ID		- 03h F 6		
335,0075	Publisher	05	Control_XXX_LIN	-	40.04	50	Enhanced		Unc	onditional ID		UZII: Error_5	tatus_xxx	LIN
335 9853	Subscriber	01	Statue yvy LIN		00 C0 00 00 00 FE 2E 8A	C3	Enhanced		v Kea	auniy				
336 0943	Bublisher	05	Control xxx LIN	2	20.01	59	Enhanced		ID			02h		
226 1422	Publisher	05	Control_XXX_LIN	-	20.01	55	Enhanced		Prot	tected ID		42h		
336,1423	Publisher	05	Control_XXX_LIN	-	40.09	20	Enhanced		Sym	hbol		Error_Status_	xxx_LIN	- I
336 2383	Publisher	05	Control_XXX_LIN	2	00.14	66	Enhanced							
336 2973	Publisher	05	Control_XXX_LIN	2	00.01	70	Enhanced		Symbol					
336 3363	Publishes	05	Control_XXX_LIN	2	80.02	67	Enhanced		Specifie	s the symbol nan	ne of a L	IN-Frame ide	entifier del	ined
 General LII 13:35:10 - Lo 13:35:10 - 0 13:35:10 - Fil 13:35:10 - Fil 	336,2337 Publisher 05 Control_xxx_LIN 2 00 01 79 Enhanced Specific the symbol name of a LIN-Frame identifier defined within a LDF file. K General LIN Script Errors Script Errors Specific the symbol name of a LIN-Frame identifier defined within a LDF file. 1335:10:1.cading file Chlubers/Dubic/Documents/PLIN-View Pro/Projects/PLIN-Slave with PCAN-USB Pro 2.0.Improj Specific the symbol name of a LIN-Frame identifier defined within a LDF file. 1335:10:1.cading file Chlubers/Dubic/Documents/PLIN-View Pro/Projects/PLIN-Slave with PCAN-USB Pro 2.0.Improj Specific the symbol name of a LIN-Frame identifier defined within a LDF file.													
Connected to	o PCAN-USB Pro	FD LIN	I (19200) Hardware ID:	1Eh Devic	e: 1 Channel: 1 Mode: Maste	r Bus: Active	Overruns: 0							

The tracer records all sent and received LIN frames if required. The header displays the current status, the complete runtime and the number of recorded LIN frames. Newly recorded LIN frames are appended to the bottom of the list. Depending on the selected setting, recording is done temporarily or directly to a file.

4.6 Scripting Tab

P Untitled - PLIN-View Pro		– o x
<u>File LIN Transmit Schedules Trace Tools View Help</u>		
🗋 📔 - 🖶 🔗 🍕 ሩ 🔯 📨 🦈 🛑 💵 📰 😰 🖫		
💂 Receive / Transmit 🚳 Trace 🎟 Scripting 🚓 PCAN-USB Pro FD	Tables	
Peak Lin Vieu Pro Scription Global V Rolling Counter(Int32 id. Int32 length: ref Rytal) data)	Schedule Table "Schedule"	Table0" ~
	ID Symbol	De Slot Type Resolve Schedule
1/ // Inspects data[0] and change data[1] to 0xrF it data[0] is odd. 18 /// Otherwise data[1] will be set to 0x00.	02h 02h	50 Uncondi <none></none>
19 /// Data[2] and Data[3] is set to the data that is received by ID 0x01.	01h 01h	50 Uncondi <none></none>
20 ///		
22 Dif bool Modulologgie(int 1d, int length, ret byte[] data)		
23 if ((id 0x01) && (length 4))		
$26 \qquad data[1] = 0xF;$		
27 else		
28 data[1] = 0x00;		
<pre>add[2] = Convert.ToByte(rcvad a 0xFr); 30 data[3] = Convert.ToByte(rcvad a / 256);</pre>		
31 - }		
32 return true;		
	Properties	
35 /// <summary></summary>	Table Entry 2 "01h"	~
36 /// Increments data[0] with 1 until 0xF0 is reached and starts over from 0.		
<pre>3/ // 38 public bool BollingCounter(int id, int length, ref byte[] data)</pre>		
39 🖓 🕻	 Automation On After Transmit 	Rolling Counter
40 if (id 0x01)	On Refore Transmit	ModuloToggle
ALIC 1 42: byte data@ = data[0]:	 Changeable 	moduloroggie
43 data0++;	Delay	50
44 if (data0 > 0xF0)	> IDs	[01h]
45 data0 = 0; 46 data01 = data0:	Resolve Schedule	<none></none>
47 - }	Slot Type	Unconditional
48 return true;		
199 - 7 50 50		
C	On After Transmit	has frames of the onter has been
Line: 40 Column: 20	transmitted successfully.	A global script function can be used.
Ceneral LIN Script Errors		
13:57:26 - Build script code started		
13/37/20 - Duliu Succeeden		
the second se		
han o		
Connected to PCAN-USB Pro FD LIN (19200) Hardware ID: 1Eh Device: 1 Channel: 1 Mode: Master Bus: Sleep Overruns: 0		;

The *Scripting* tab is a text editor with syntax highlighting for the C# programming language. Scripts can be written to automate LIN data and LIN elements. Compiling and deploying a script is done with the check mark in the upper right corner. Feedback, warnings, and errors for the script are displayed in the *Output* section below.

C# assemblies can optionally be included via the menu *Tools > Options > Tab References > Assemblies*. For more details open the *Help* with the key F1.

4.7 LIN Interface Tab

rt Untitled - PLIN-View Pro			-	o x
Eile LIN Jransmit Schedules Trace Tools View Help				
🗋 📸 - 拱 🔗 🍕 🕶 🔯 🖙 🦻 🌮 🛑 💵 📰 😰 😨				
5 5 5 5 5 E E E E				
📮 Receive / Transmit 🚥 Trace 🚥 Scripting 📫 PCAN-USB Pro FD	Tables			
	Global Frame	Table		~
PCAN-USB Pro FD	ID Symbo	I Pro	Direction Le	ngth Che
	00h	80h	Subscrib 2	Aut
Firmware: 344	01h	C1h	Subscrib 2	Aut
	02h	42h	Subscrib 2	Aut
Device 1	03h	03h	Subscrib 2	Aut
Church 1	04h	C4h	Subscrib 2	Aut
Challet I	05h	85h	Subscrib 2	Aut
Hardware ID: 55h Cat	06h	06h	Subscrib 2	Aut
insidware it. Jiii Set	0/h	4/h	Subscrib 2	Aut
0 - HHHHHH	USh	USh	Subscrib 2	Aut
	00h	49h	Subscrib 2	Aut
	ORh	2Rh	Subscrib 2	Aut
	OCh	4Ch	Subscrib 2	Aut
	006	00b	Subscrib 2	Aut
	OFh	8Eb	Subscrib 2	Aut
	OFh	CFh	Subscrib 2	Aut
	Properties			
	Frame Definiti	on "00h"		~
	21 🖾			
	✓ Changeab	le		
	Checksum	туре	Automatic	
	Direction		Subscriber Auto	matic Length
	Event Fran	ne	No	
	Length		2	
	Unconditi	onal ID	00h	
	✓ ReadOnly			
	ID		00h	
	Protected	ID	SUh	
	Symbol			
	Symbol			
	Specifies the s within a LDF f	ymbol name of a l	LIN-Frame identif	ier defined
Connected to PCAN-USB Pro FD LIN (19200) Hardware ID: 55h Device: 1 Channel: 1 Mode: Master Bus: Sleep Overruns: 0				

The LIN Interface tab receives the name of the connected hardware and shows information about the hardware and the firmware used. In this example for the Interface PCAN-USB Pro FD. To distinguish several LIN interfaces of the same type, the *Hardware ID* of the LIN interface can be determined here.

5 PLIN-API



The intended use of PLIN-API requires compliance with the license rights. Read the license agreement for end users at: <u>https://www.peak-system.com/quick/eula</u>

The programming interface PLIN-API provides basic functions for the connection of own programs to the LIN hardware of PEAK-System. PLIN-API is the interface between the program and the device driver. In Windows operating systems this is a DLL (Dynamic Link Library).

The PLIN-API and examples for all common programming languages as well as libraries and help files are available as download package under <u>www.peak-system.com/quick/DL-Develop-E</u>

5.1 Features

- API for developing applications with LIN connection
- Windows DLLs for the development of x86, x64, and ARM64 applications
- Multiple applications can be operated on a physical channel at the same time
- Simple switching between the channels of a PLIN PC hardware
- Internal buffering of messages on software level (system service)
- Precision of time stamps on received messages up to 1 μs
- Allows storing custom data (max. 24 bytes) on the hardware
- Notification of the application through Windows events when a message is received and on plug-in or plug-out of a device
- Function to get error code descriptions in 4 languages

6 Technical Data

USB		
USB mode	USB 2.0 Full-spe	eed
USB port	Plug type A	
LIN		
LIN standard	2.2, downward-	compatible
LIN connection	D-Sub, 9-pin, Lll	N signal on pin 4
Time stamp resolution	1 µs	
Mastertask resoloution	1 ms	
Transceiver	NXP LIN transce TI LIN transceiv	iver TJA1028T/3V3/20 or er TLIN10283DDRQ
Bit rates	1 to 20 kbit/s	
Scheduler	Initialized by so 8 schedule table	ftware, processed by hardware, es with 256 slots in all configurable
Galvanic isolation	up to 500 V	
Power supply		
PLIN-USB (without Transceiver)	5 V DC via USB J	port
Transceiver	6 to 28 V DC via	D-Sub, Pin 9
Current consumption	USB Transceiver	30 mA max. 20 mA at 12 V
Measures		
Size without cablel (W x L x H)	43 x 86 x 21 mm	
Length USB connection cable	60 cm	
Weight including cable	80 g	
Environment		
Operating temperature	-40 to +85 °C (-4	0 to +185 °F)
Temperature for storage and transport	-40 to +100 °C (-	40 to +212 °F)
Relative humidity	15 to 90 %, not	condensing
Ingress protection (IEC 60529)	IP20	

Conformity	
RoHS	EU Directive 2011/65/EU (RoHS 2) + 2015/863/EU DIN EN IEC 63000:2019-05
EMC	EU Directive 2014/30/EU DIN EN 55032:2022-08 DIN EN 55035:2018-04

Appendix A CE Certificate



Appendix B UKCA Certificate



Appendix C Dimension Drawings



Appendix D Disposal

The product must not be disposed of in household waste. Dispose of the product properly in accordance with local regulations.