





IPEmotion_PlugIn_IPETRONIK-PLIN_V02_01_00

29. November 2017

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1 Important and general information

1.1 Important information

Please follow these instructions before and during the use and application on any IPETRONIK product!

1.1.1 Safety and Warning instructions

Please follow the instructions and information as contained in the user manual!

- 1. The user can **influence an electronic system by applying the IPETRONIK product**. This might cause risk of personal injury or property damages.
- 2. The use and application of the IPETRONIK product is permitted only to qualified professional staff, as well as, only in appropriate manner and in the designated use.
- 3. Before using an IPETRONIK measurement system in the vehicle it has to be verified that no function of the vehicle, which is relevant for secure operation, might be influenced:
 - by the installation of the IPETRONIK measurement system in the vehicle,
 - by an potential malfunction of the IPETRONIK system during the test drive.

In order to avoid possible danger or personal injury and property damages, appropriate actions are to be taken; such actions have to bring the entire system into a secured condition (e.g. by using a system for emergency stop, an emergency operation, monitoring of critical values).

Please check the following points to avoid errors:

- Adaption of sensors to components of the electrical system / electronics, brake system, engine and transmission control, chassis, body.
- Tap of one or several bus systems (CAN, LIN, ETHERNET) including the required electrical connection(s) for data acquisition.
- Communication with the vehicle's control units (ECUs), especially with such of the brake system and/or of the engine and transmission control (power train control system).
- Installation of components for remote data transmission (mobiles, GSM/GPRS modems, WiFi and Bluetooth components).



The products can be operated in extended temperature ranges greater $70 \,^{\circ}\mathrm{C}$ and therefore the operator has to take safety measures to avoid any skin burnings on hot surfaces while touching the products.

- 4. Before directly or indirectly using the data acquired by an IPETRONIK measurement system to calibrate control units, please review the data regarding to plausibility.
- 5. With regard to the application of IPETRONIK products in vehicles during use on public roads the manufacturer and/or registered user of the vehicle has to ensure that all changes/modifications have no influence concerning the license of the vehicle or its license of operation.
- 6. User does agree to the instructions and regulations as mentioned above. In case the user does not agree with the instructions and regulations as mentioned above, he has to notify this expressly and immediately in writing to IPETRONIK before confirming the sales contract.

1.2 Terms and conditions

See IPETRONIK website for details: https://www.ipetronik.com/

1.2.1 Legend of used icons

8	Тір	This icon indicates a useful tip that facilitates the application of the software.
i	Information	This icon indicates additional information for a better understan- ding.
\triangle	Attention!	This icon indicates important information to avoid potential error messages.

1.2.2 Support

Headquarter:

IPETRONIK GmbH & Co. KG

Im Rollfeld 28 76532 Baden-Baden, Germany Phone +49 7221 9922 0 Fax +49 7221 9922 100 info@ipetronik.com www.ipetronik.com Limited commercial partnership with its head office in Baden-Baden, registry court HRA No. 201313 IPETRONIK Verwaltungs-GmbH Baden-Baden is an individually liable society, registry court Mannheim HRB No. 202089 CEOs: A. Wocke, C. Buchholz

Technical support and product information

www.ipetronik.com e-mail: support@ipetronik.com

2 PlugIn Overview

2.1 PlugIn description

The PLIN PlugIn is supporting only the IPEcan FD Pro interface hardware from IPETRONIK. With this CAN / LIN interface you can measure LIN bus networks and send LIN messages to the network.

2.2 PlugIn installation

In order to use the PlugIn together with IPEmotion you need to install it. The PlugIn is available for download from the IPETRONIK website: https://www.ipetronik.com/ When you have installed the PlugIn, you need to launch the IPEmotion software. Then you need to access the application menu and open the OPTIONS. In the OPTIONS you can activate the PlugIn as indicated below.

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1	New	Re	ecent proj	ects list		-					
	Open										
	Save						Act	tivate PlugIn i	IN OPTIONS		[1_PLIN]
	Save ac				IPEmotion options						×
	oure do				Frequently used	Active		Title	Version	Description	Manufactu
	Ann-Export				Basic settings			IPETRONIK CAN	01.16.00	Connection of IPETRONIK CAN acquisitio	IPETRONII
~	hpp Export	Š.,			Appearance			IPETRONIK X	02.05.02	IPETRONIK CAN and Ethernet devices	IPETRONII
	Runtime version				View		1000	IPETRONIK LOG	03.59.01	IPETRONIK Data logger (M-LOG, S-LOG,	IPETRONII
-	rearrance version				Data manager		(SA)	GPS	01.05.00	Serial interface for GPS mouse	IPETRONII
a	Compare				Import		0	Video	01.02.00.58	Synchronic recording of video data for ca	IPETRONII
	compare				Export	~	5.	Protocols	02.00.00	Protocol acquisition with any CAN hardwa	. IPETRONII
	2.1				Analysis		1	ETAS - ES4xx	01.01.00.13	Connection of ETAS ES4xx Series Micro M	IPETRONII
	Print				Maps		-	Velleman	02.01.00	Velleman devices	IPETRONII
					Directories	~	lool	Demo	01.05.00	Generation of demo signals	IPETRONII
	View	•			Units		R	PCAN-USB Pro LIN	S 02.01.00 -	LIN Master/Slave	IPETRONI
	Administration				User administration						
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\bigcirc	Options	C	ptions		PlugIns					Download manual	wnload
6	About		Snow/edit	jenerai IPE	User displays User operations	Plugin s Specify to The used no autom	ettings ne plugi plugin v atic upo	s ns to be used, version can be changed v late is run at installing lat	vithin the list. If a versio er plugin versions.	n number is selected that ends with a '=' char	acter, +
0	Close									OK	Cancel

The PlugIn is supporting the following operating systems:

- Windows 32 bit
- Windows 64 bit

3 PlugIn configuration

3.1 Functional architecture

The following diagram shows the schematic system architecture. You need to establish a USB connection between your PC and the interface IPEcan Pro FD interfaces hardware. The connection to the LIN networks is established over the SUB-D 9 connector.





Information

This PlugIn is not supporting any LIN bus traffic measurement functions.

The PIN assignment of the SUB-D 9 connector is as following.

in ass	ignment D-Sub									
Pin	Pin assignment									
1	Not connected / optional +5V									
2	CAN-L									
3	CAN-GND									
4	LIN									
5	LIN-GND									
6	LIN-GND									
222										
7	CAN-H									
7 8	CAN-H Not connected									

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3.2 Detecting interface hardware

In order to configure your measurement, you need to change to the SIGNALS work space and select the PLIN PlugIn from the hardware system drop down list, if you like to create the system manually. However due to the USB interface to the PC you can use the automatic detect function from the ribbon to create the interface too.

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Hardware			Config	uratio	n : (Access		View	
V02.01.00					Name				Active	Unit	Phys	Min	Phys
Name			Σ	۴									
PCAN USB Pro			0										
T LIN Conne	ector-1		0										
TIN Conne	ector-2		0										
						0.00							
				Ge	eneral	setti	ngs	-					
						Seri	ial numbe	er 453	7479				
				Hor	duor	in in a	lataat	od				TA: I	SE IN

Hardware is detected

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After successful hardware detection the interface with 2 LIN connectors is created. Also, the serial number of the device is displayed on the settings tab sheet of the interface.

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Hardware			Config	uration	1				Access		View	
V02.01.00					Name			Active	Unit	Phys	Min	Phys
Name			Σ	٩								
PCAN USB Pr LIN Conn LIN Conn	o-1 ector-1 ector-2		0	Ge	neral	Settings						
						Serial nu	umber 45	37479				
				Har	dware	e is dete	ected				[5_	PLIN

3.3 LIN interface configuration

On LIN interface level you have configuration options for the baud rate and the LIN version. The PlugIn supports LIN standards 2.0 and 1.3. The default version is 2.0 The supported baud rates are:

V02.01.00			Name			Active	Unit	Phys Min
Name	Σ	9						
A 🛷 PCAN USB Pro-1	0							
🐴 LIN Connector-1	0							
LIN Connector-2	0							
		Ge	neral	LIN	Mode			
				В	aud rate:	9,6 kBd		*
				LIN	version:	2.0		
						10000		

- 1.2 kBaud
- 2.4 kBaud
- 4.8 kBaud
- 9.6 kBaud
- 19.2 kBaud

In the mode tab sheet you define the measurement mode. The required measurement mode is depending on your network architecture and the ECUs. The mode is defined from the perspective of the IPEmotion PC. When you configure the mode as master the PC with the IPEmotion software is the master and the corresponding network with the ECUs must operate as slaves. The architecture allows only one master in the network. In the case the master is part of the network the PC software should be configured in the slave mode.

V02.01.00		Name			Active	Unit
Name	Σ	٩				
A I PCAN USB Pro-1	0					
🐺 LIN Connector-1	0					
LIN Connector-2	0					
		General	LIN	Mode		
		General	LIN	Mode Mode	Master Slave Listen	

- Master
- Slave
- Listen

3.3.1 LDF import

In order to configure your measurement you need to import the description file. The CAN db import supports the file extension .dbc, .ldf and .xml. The description files for LIN networks have .LDF extension.

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File	Project	Signals	Acquis	sition	View	Data	manag	er	Analysis	F
UNIT)			ß	T	1	Ö		16	Ċ.
PCAN-USB	Pro LIN	System	Components	Functions	Import	Export	Check	Adjust	Detect	Initia
Hardw	are			Config		CANdb	1	- 000 6		
V02.01.00						Signal I	nport fro	m DBC TH	÷	
Name				Σ	3	Synch Synchro	ronize onize the lescriptio	imported	signals wi	th
4 🥔 - PC	AN USB Pro-1			0		arriant s				
1	LIN Connect	tor-1		0						
Ŧ	LIN Connect	tor-2		0						
						mnort			19	DI INI
						mport			10	- rud

In the import dialog you select the signals you like to measure.

			terre alle de la contracta d				Project	*
	a column neader ne	re to group	by that column				Project numb	
	Name	Selection	Sampling rate	Physical range Description			Project version	
7					-		Protocol: LIN	
0	ACT CFR INI I		9.0497737	1 Item 31			Protocol	LIN
	ACT CER INT		9.0497737	3 reserved			Signal count	7.
	ACT CER INT		9 0497737	0 Position		•	Version	1,:
	ACT_CER_SET		25 Hz	1 Item 31			Message	a'o kpc
	ACT_CER_SET		25 Hz	3 reserved			Name	ACT CFR IN
	ACT CFR SET		25 Hz	0 Post Calest individual or			CAN ID	std 2C h
	ACT CER SET	-	25 Hz		*		Length	S4
				all messages			Sampling rate	9,04977376 H

3.3.2 Sending LIN messages

On channel level in the format tab sheet you can configure the data direction. The default direction if the LIN channel sins INPUT in order to measure LIN data.

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File Project	Signals	Acquisition	View	Da	ata mana	ager	Analysis	Repor	rting S	Scripting	Info
PCAN-USB Pro LIN Hardware	System Cor	nponents Functions	Impor	rt Expo	ort Che	k Adjust	IR Detect	Initialize Access	Display De	etails	
V02.01.00				Name			Active	Unit	Phys Min	Phys Max	Sensor Min
Name		Σ	۴								
			+	ACT_CF	R_INI_Ib	em_DEMO	~	0			
ACA_	- 1 1 1 0	Ger	neral (Format	Scaling	Display					
					Type:	8-Bit integ	er unsigned	ł.	÷	Task: Defa	ult
			No	Value / C)efaultVa	lue					
					Value:	-FullScale			- D	Deactivate NoVal	ue and use Defa
			Ch	annel ty	pe						
			L		Input:	~		Out	out: 🗌		

Input - for measurement

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If you like to send LIN data on channel level you can change the direction from input for measuring to output for sending data. You can use the slide controller or the alphanumerical instrument in order to define the values you like to send to the Lin network.

	Name		Active	Unit	Phys Min	Phys Max	Sensor Min	Sensor Max	Sampling rate	Start value
٩										
•	ACT_CFR_INI_Ite	em_DEMO	~						9,04977376 Hz	0,0
Ge	eneral Format	Scaling	Output	Display						
D	ata type									
	Type:	8-Bit intege	er unsigned		-	Task: Defa	ult		*	
N	oValue / DefaultVal	ue								
	Value:	-FullScale			* 🗌 De	activate NoVal	ue and use Defa	ult Value		
C	hannel type									
	Input:			Outp	ut: 🗹					
				-						

Output - for sending data

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Author: FOT