





IPEmotion\_PlugIn\_IPETRONIK\_FlexRay\_Extender\_V01\_00\_00

19. Januar 2018

# **Table of Contents**

1	Important and general information       3         1.1       Important information	;
	1.1.1 Safety and Warning instructions	5
	1.2 Terms and conditions	
	1.2.1 Leaend of used icons	
	1.2.2 Support	
2	PlugIn overview	;
	2.1 PlugIn description	;
	2.2 PlugIn installation	)
3	PlugIn configuration	;
	3.1 Functional architecture	;
	3.2 Creating interface systems	,
	3.2.1 Access to description file and signal parameters	)
4	Interface FlexRav Extender to a data logger	
	4.1 IPElog2	
	4.2 M-LOĞ V3	;
5	Firmware udpate procedure	;
6	LED blink codes	;

## 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  $70 \,^{\circ}C$  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

<b>8</b>	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 FlexRay Extender PlugIn is supporting the FlexRay Bus measurement together with the FlexRay Extender Hardware. The Plugin is developed to perform signal based measurements together with IPEmotion. However the FlexRay extender hardware is supported also for IPElog2 and M-LOGV3 data loggers together With the TESTdrive data logger software. The FlexRay extender is not supporting any FlexRay traffic measurements for logger or PC based setups.

## 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.



The PlugIn is supporting the following operating systems:

32 bit

# 3 PlugIn configuration

## 3.1 Functional architecture

In order to use the FlexRay extender PlugIn you need the FlexRay extender hardware. The hardware is interfaced to the Ethernet interface of your computer.



The interface cable between Extender und Laptop is

- ▶ 620-654.xxx
- 620-656.xxx (Input cable to interface to the FlexRay network)



## 3.2 Creating interface systems

The PlugIn for the FlexRay extender is supporting an automatic hardware detection. The Extender is providing a DHCP server function. The LAN interface of your computer must be configured for automatic IP-address assignment. It is not possible to operate several FlexRay extenders on one LAN interface because all extenders are using the same factory default IP-address which cannot be changed.

File Project	Signals	Acquis	sition	View	Dat	a manag	er	Analysis	Rep	porting	Script
			B	1	1	0		K	Q.	$\triangleright$	
IPETRONIK FlexRay-E	System	Components	Functions	Import	Export	Check	Adjust	Detect	Initialize	Display	Details
Hardware			Config	juration					Access		View
V01.00.00.59433 RC					Na	me				Active	Unit
Name				Σ	9						
/ 🚔 FlexRayEx	tender-1			0							
4 📾 80500	105			0							
🐺 Fle	xRay A/B			0							

Automatic extender hardware detection [4\_F]

When the hardware is detected you can import on the extender level the following description files:

File Project	Signals Acqui	isition	View	Data manager	Analysis	Reporting
IPETRONIK FlexRay-E	System Components	Functions	Import	Export Check	Adjust Detect Ini	tialize Display
Hardware		Config	0	AUTOSAR Signal import from	AUTOSAR file	55
V01.00.00.59433 RC						Unit 9
Name	*	2	•	Signal import from	A2L file	
✓ ∰ FlexRayExten ✓ ● 80500105	der-1	0	FielRay	FlexRay parame Import of FlexRay	eter parameters	
FlexR:	ay A/B	0	FIBEX	FIBEX Import from FIBEX	(file	
			3	Synchronize Synchronize the in a new description	nported signals with file	
						_
		Import o	descrip	tion files		[5_F

- Autosar
- A2L

•

- FlexRay Parameter
- Fibex

On Extender level you have 3 tab sheets.

Project Signals Ac	quisition		Active:	8050010	5	
IPETRONIK System Compone FlexRay-E	nts Functi	Des	scription:	8050010	5/FlexRayEx	(tender-
V01.00.00.59433 RC		General	Extended	Inform	nation	
Ame America Americ America America Ame	0			Asyn	Front numb	er: 105 de: 🗹
FlexRay A/B	0	General	Extende	d Info	rmation	
			Calibrat	ion date:		
			Hardware	version:	02.10.00	
			Firmware	version:	01.12.02	
	L	Device	parame	ters		[5_1

Extended
 On is tab sheet you can define the front number of the device in the case of a dry configuration with out an y hardware connected. Also you can activate the Asynchrony mode. When this check box is activated the extender will automatically pull out from the Flex-Ray network the correct communication parameters. This setting is helpful when try to setup your measurement on networks with unknown network parameters. The Asynchronous mode requires that the raw data received by the extender can be correctly processed.
 Information

and hardware versions.

#### 3.2.1 Access to description file and signal parameters

In FlexRay extender Interface level you can access via right klick on the interface the description file properties.



In the same way with right klick on the signal level you can access the signal properties.



## 4 Interface FlexRay Extender to a data logger

### 4.1 IPElog2

The extender is also supported for IPElog2. In order to configure the extender you need to activate the IPETRONIK LOG PlugIn for data logger configuration.

E   E 🔒 🗄 🛃	Signals	i 🔏 📭 Acquisi	lin 🔒	A B View	X Data	Ӿ 🖍	er a	🗱 🕓 Analysis	🕐 /	l 🕹	- * j S	IPEn cripting
IPETRONIK LOG	System	Components	Functions	Import	Export	Check		Detect	Initialize	Disp	lay De	tails
Hardware	10022	M-LOG V3 Modular data in	oper						Access		V	iew
V03.59.01	_	Contraction and the				N	lame				Active	Unit
Name	00022	M-LOG Modular data k	oder			9						
		FLEETlog Data logger			,							
		IPElog Data logger			•		IPElog (12	2 CAN, 2 E	eth, wan	)		
	1	Import System import					IPElog2 (1	10 CAN, 6	LIN, 2 ETI	H, WA	N)	
					_		IPElog2 (1	16 CAN, 2	ETH, WAI	v)		
				CI	eate	IPElo	g sys	tem				[10]

IPElog2 has 2 Ethernet inputs. One input is dedicated to the X-LINK system and on this interface on connection cable to the FlexRay Extender is available. Therefore you need to create the FlexRay extender on the ETH interface. The media type is set to auto or to 100 Mbit.

Fie System Cor	Project :	Signal	s Acquisiti import Export	on Ch	View	Data manag M & Detect Initial Acce	er E Displi	
/03.59.01					Name			
Name			5		9			
			-					
- 18 82	900000		0					
<b>e</b> 2	Project setting	js	0					
Ŧ	CAN 01		0					
	CAN 10 LIN 01 LIN 02 LIN 03 LIN 04			×	LINK EXTENDER	t (FlexRay) ay A/B	0	General ETH input Media type: Auto
÷.	LIN 05		0			1		
Ŧ	LIN 06		0			/		
<u> </u>	X-LINK	_	0		General E	Hinput		
	DIN DOUT US8	B. II B.	Components Change Into Functions		EXTE O EXTE	NDER (4 CAN)		Croate ElevDay extender on <b>FT</b>
÷ (†	ETH WLAN / WFI Audio	+	Import Export	;[	EXTE	NDER (FlexRay)		interface only.
8) 1	GPS Looper proces	8	Use as default		Multi;	le selection		[11_F]

H in lin B × 3 h -File Project Signals Acquisition View Data manager Analysis Reporting Script L 100 100 Ē 8 Q ĥ IPETRONIK LOG Check Details System Import Adjust Detect Initialize Display Configuration Access V03.59.01 Name Active Uni Σ 4 . Name 80900000 0 4.178 Project settings -0 CAN 01 0 ..... CAN 11 0 CAN 12 0 ETH 01 0 EXTENDER (FlexRay) 4 0 FlexRay A/B Ē ETH 02 E. DIN := DOUT 8 US8 ¢ 👃 Import AUTOSAR , ETH 0 Signal import from AUTOSAR file ÷ 630 XCP service 🚳 Use as default DAQ list slow A2L -Signal import from A2L file ð DAQ list medium 也 DAQ list fast Copy Ctrl+C **FlexRay parameter** Display Import of FlexRay parameters Paste GPS 0 100 Logger processing Ē, FIBEX FIBER Import from FIBEX file 14 Status X Delete Import description files for measurement

When the extender is created you can import the description files for you measurement.

The following diagram shows the interface cabling between IPElog2 and extender. The required cable is:

▶ 620-696.xxx



## 4.2 M-LOG V3

To use the FlexRay extender with M-LOG V3you need to have a logger with Port replicator PR8 which includes 2 ETH inputs.



Create M-LOG V3 with ETH inputs

[14\_F]

On any of the 2 Eth inputs you can create a FlexRay extender unit.

Hard	ware		-	FUNC	toons Confic	ouration	re export check kaju
/03.59.01						Name	
Name			1	Σ	٣		
4 <u>m</u> 8	2500000			0			
	Project settings	12		0			
Ŧ	CAN 01			0			
Ť	CAN 02			0			
Ŧ	CAN 03			0			
Ŧ	CAN 04			0			
+	CAN 05			0			
Ŧ	CAN 06			0			
1	CAN 07			0			
Ŧ	CAN 08			0			
$\Theta$	ETH 01	8		-	1	_	1
$\Theta$	ETH 02	Et Com	ponents	•			EXTENDER (4 CAN)
•	DIN	E Char	nge into	. 8	10		
200	DOUT	B Func	tions		1	0	EXTENDER (2 Video)
	USB	J Impo	rt		1	-	
- (-)	ETH						EXTENDER (FlexRay)
· · · · ·							

Create FlexRay extender on any ETH interface.

[15\_F]

4 B B 2 R 4 Project Signals Acquisition View Data manager Analysis Reporting 102 103 Q 201 14 **IPETRONIK LOG** Check Adjust System Import Export Detect Initialize Displa Configuration Hardware Access V03.59.01 Ph) Name Active Unit 9 Σ Name -82500000 0 A 19911 Project settings 0 • CAN 01 0 CAN 02 0 CAN 03 0 CAN 04 0 CAN 05 0 CAN 06 0 CAN 07 0 **CAN 08** 0 ETH 01 0 EXTENDER (FlexRay) 0 0 FlexRay A/B 民. × ETH 02 6í 여름 DIN -----DOUT ß \$ USB 👃 Import AUTOSAR . ETH 0 Signal import from AUTOSAR file Ť 1 4 000 XCP service DAQ list slow 8 Use as default A2L -Signal import from A2I, file DAQ list medium  $\mathbf{\nabla}$ 勘 DAQ list fast Copy Ctrl+C **FlexRay parameter** COM-1 -Import of FlexRay parameters 8 COM-2 The Paste 4) Audio Paste behind FIBEX FIBER Display Import from FIBEX file X 4 188 Logger processing [16 F]

On the FlexRay interface you can import the description files.

Import description files for measurement

The following diagram shows the interface cabling between M-LOG V3 and extender. The required cable is

▶ 620-649.xxx



# 5 Firmware udpate procedure

The firmware update is currently not supported in the FlexRay Extender PlugIn. However, you can update the device FW through a previous IPETRONIK X-PlugIn version V01.04.06.

Project	Signals System Cor	Acquisition		View s Import	Data Carlor Export	a manage Check	r Adju	Analy ist De	vsis	Reportir alize Dis	ng D splay
01.04.06=			i i	Update de	vices		T	Active	Unit	Phys	s Min
ame			Σ	9							
TICKNOY		12.00		1							
	.,	Update Device		ڻ Exit	Target v	ersion	Ψ	Progress			
		Update Device Device Name System	1: X-1 10105	Esot	Target v	ersion 2	Ŷ .	Progress	ownioading	Application	n - 41,72%

After the update you need to reboot the device. A corresponding message is provided during the update process.

# 6 LED blink codes

The following LED codes are supported by the device.



LED codes

[21\_F]

Author FOT