SCI PDI Builder

Release 6.8

Embention

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SCI BUILDER

SCI PDI Builder is the **SCI** configuration tool to adapt it to a specific vehicle.

CHAPTER

QUICK START

SCI PDI Builder is used to set all the configurable parameters of SCI (Smart CAN Isolator).

SCI can be adjusted according to different inputs, outputs, CAN communications and telemetries.

1.1 Installation

To configure a SCI, first of all download and install SCI PDI Builder.

To install **SCI PDI Builder** on Windows just execute the exe file and follow the installer indications. Administrator rights are needed.

Warning: If users have any problems with the installation, please disable the antivirus and the Windows firewall. Disabling the antivirus depends on the antivirus software.

To disable the firewall, go to "Control Panel" \rightarrow "System and Security" \rightarrow "Windows Defender Firewall" and then, click on "Turn windows Defender Firewall on or off".

📽 Windows Defender Firewall					-	×
← → ∽ ↑ 💣 « System and	d Security > Windows Defender Firewall	\checkmark	Ö	Search Control Panel		Ą
Control Panel Home	Help protect your PC with Windows [Defender F	irewall			
Allow an app or feature through Windows Defender	Windows Defender Firewall can help to prevent h through the Internet or a network.	ackers or mal	icious so	oftware from gaining access to your PC		
Firewall Change notification settings	Private networks			Connected 📀		
Turn Windows Defender Firewall on or off	Guest or public networks			Not connected \odot		
Restore defaults						
Advanced settings						
Troubleshoot my network						
	Fig. 1: Wi	ndows	Defe	ender Firewall		

CHAPTER

TWO

CONFIGURATION

When SCI PDI Builder is executed, the following window and options will appear:



Fig. 1: CAN ISO PDI Builder

- 1. Offline configuration: Click here to work with configurations offline, without the need of a connected device.
- 2. **Upload PDI:** Upload an existing configuration to the selected device. .. note:: PDI files are configuration files. This files are used by modular control with improved version management.
- 3. Open CAN Isolator: Open the configuration of the selected device.
- 4. Current mode: Current mode of the selected device. Click to alternate between Normal (Green) and Maintenance (Orange) modes.
- 5. Selected device: Selected device upon the connected devices.

Important: Builder and Firmware major and minor versions must match (For example, Firmware version **6.8.40** is compatible with Builder version **6.8.13**, but not with version **6.10.13**.

Clicking on 1. or 3. will open the configuration menu, where the following options are available:



Fig. 2: CAN ISO PDI Builder configuration

- 1. Configuration tabs: Access to the configuration of the different available features.
- 2. Export PDI: Save the current configuration files into your local storage.
- 3. Import Online PDI (NOT AVAILABLE YET): Import configuration from the available online configurations.
- 4. Import PDI from Local Storage: Import configuration from your local files.

2.1 Operating Modes

Smart CAN Isolator has two different operating modes. The current mode can be seen on the bottom left corner when connected to CAN ISO PDI Builder.



Fig. 3: Smart CAN Isolator mode

Clicking on the indicator allows to switch the current mode.

Tip: Smart CAN Isolator will modify the baudrate of its interfaces when in **maintenance mode**. If these baudrates do not match your setup, an external configuration setup will be needed to modify the configuration.

With normal operating mode. The loaded configuration will be executed. **Smart CAN Isolator** will always try to boot in **Normal mode**.

Read Maintenance mode section to know more.

2.2 Establishing connection

The configuration of the Smart CAN Isolator can only be performed through one of its CAN interfaces.

In order to do this, a support device is needed to act as a **configurator** (for example a **Veronte Autopilot** or a **Veronte CAN Expander**).

Important: For configuration purposes, only specific baudrates can be used. Once in **maintenance mode**, **1M** baudrate must be used to configure **Smart CAN Isolator** through the **A** interface, and **500k** for the B interface. See *Operating modes* for more information.

2.3 CAN baudrate

1M for interface A, 500k for interface B:

CAN ISO Configurat	∞ 💿 🖸 ☵ 🔇 端 🕸 🗂 🔺 🖉 🎟
Pin: 25	Baudrate 1000000.0 Bd
-	
► ADC	
 Arbiter 	
▼ CAN	
▼ A	
High	
Low	
▶ B	
► FTS	
► GPIO/EQEP	
► GPIO	
► I2C	
Others	
Sorial Y	
Add 👻	

2.4 Port routing

Redirect the messages addressed to the **Smart CAN Isolator** through a Comm Manager port. For this example CAN Isolator **S/N:20001** and **Comm Port 6** are used:

CAN ISO Configurator 🛪 🛛	◎ 💽 ☵ 🛛 🗱 🍄 🖽 🖾 🔺 🖉 🎟	
▼ Communications	Ports	+
4G	Pouting 1	â
Comstats	Routing I	
Iridium	Forward Route	
Ports		
Micro	- PORT 3	
Payload	PORT 4	
Sensors		
Stick		
▶ Veronte	IRIDIUM	
▶ Others		
Add device 👻		Ų

2.5 I/O Manager

In the I/O Manager, connect a Serial to CAN interface biderectionally with the selected Comm Manager Port:

Communications	Princitu		Deaducer		C	
4G	Priority	40	Froducer		Consumer 1	-
Comstats	High	-94 (028		Commgr port 1	
Iridium	High K	25	Veronte LOS	\rightarrow	Commgr port 2	
Ports	High 📢	X	Veronte LTE	\leftrightarrow	Commgr port 3	0
Micro	High	22	RS232		Commar port 4	a
Payload		NGR (DC 405		Nere	
Sensors		-A	N340J		None	
Stick	High K	25	Commgr port 1	\rightarrow	USB	0
Veronte	High 📢	X ⁰	Commgr port 2	\leftrightarrow	Veronte LOS	
I/O Manager	High	X0	Commgr port 3	\rightarrow	Veronte LTE	Q
CAN Config	📄 High 【	X0	Commgr port 4	\leftrightarrow	RS232	0
Digital Input Manager	High 📢	X ^o	Commgr port 5	\rightarrow	None	
	🗌 High 🔾	20	Commgr port 6	\rightarrow	Serial to CAN 1	
		9) (
		~0	съсаре глехтлал	-	NOTE	-
	🗌 High 📢	X.	CAN to serial 1	\rightarrow	Commgr port 6	
	📄 High 📢	X2 [CAN to serial 2	\rightarrow	None	
	High 📢	x	CAN to serial 3	\rightarrow	None	
		1 15	CAN		News	

2.6 CAN Config

Connect the **Serial to CAN** and **CAN to Serial** producer and consumer to the respective input and output filters. Set both to **High** priority:

Micro	Priority		Producer		Consumer	
Pavload	🗸 High	Q_0^0	Serial to CAN 1	\rightarrow	Output filter 1	4
Sensors	High	Q_0^0	Serial to CAN 2	\rightarrow	None	<
Stick	High	00	Serial to CAN 3	\rightarrow	None	1
Veronte	High	Q ⁰	CAN custom message 1	\rightarrow	None	
Others I/O Manager	High	00	CAN custom message 2	\rightarrow	None	
CAN Config	✓ High	00	Input filter 1	\rightarrow	CAN to serial 1	1
Digital Input Manager	High	Q_0^0	Input filter 2	\rightarrow	None	<
	High	\dot{Q}^{0}_{0}	Input filter 3	\rightarrow	None	
	High	Q ⁰	Input filter 4	\rightarrow	None	
	High	Q_0^0	CAN unwrapper 1	\rightarrow	None	
	High	Q_0^0	CAN unwrapper 2	\rightarrow	None	1
	High	\dot{Q}^0_0	CAN GPIO remote 1	\rightarrow	None	1
	High	00	CAN GPIO remote 2	\rightarrow	None	1

Use ID 1302 for Serial to CAN producer and ID 1301 for the Input Filter:

Micro	Priority	nsumer				
Pavload	V High 👯	Id		Extended	tput filter 1	00
Sensors	High 🗘	Timeout	6.7E-4	s	None	0
Stick	High	Serial to	CAN 3	•	None	0
Veronte	High 08	CAN custom	message 1		None	10
' Others	ingii mo		inicasayo i		nens	
I/O Manager	High Q	CAN-tem			None	Q;
CAN Config	🗸 High 🔯	Port	CAN A	•	N to serial 1	0
Digital Input Manager	High 🔯	ld	1301		None	03
	High 🔯	Mask	2047	dec	None	03
	High 🔯	Filter type	Standard	•	None	0
	High 🔯	CAN unw	rapper 1	•	None	0
	High 🔯	CAN unw	rapper 2		None	
	High	CAN GPIO	remote 1	\rightarrow	None	0
	High 🔯	CAN GPIO	remote 2	•	None	0

Finally, add CAN ID 1301 to the CAN Mailboxes

CAN ISO Configurator 🛪 🧕		🗄 🐼 🐝	🕉 🗂	▲ ⊘							
► Communications	Config	guration Custom	Message 1	Custom M	1essage 2 Mailboxes						
Micro	CAN A	A CAN B									
Payload	_	N									
Sensors	Units ID DEC - Units Mask BIN -										
► Stick	Mailtane and DVA Mailtane and Inda 20										
► Veronte	IVIAIIDO										
▼ Others	#	Mailboxes	Extended	ID	Mask						
I/O Manager	1	— 4		1301	1111111111						
CAN Config											
Digital Input Manager											
Add device 👻											

2.7 CAN configuration for normal mode

In order to be able to communicate with **Smart CAN Isolator** while in **normal mode**, a specific configuration is needed. This configuration will be set by default.

CANI/O	Configu	ration CAN custom message	ge 0		
CAN Setup	<u> </u>	Producer		Consumer	
	\$\$°	CAN Input Filter 1	\rightarrow	CAN to Serial 1	Q ²
	Q _0	CAN Input Filter 2	\rightarrow	CAN Output Filter 2	Q ₀
	Qo	CAN Input Filter 3	\rightarrow	None	O ₆
	Q ₀	CAN Input Filter 4	\rightarrow	None	OS .
	Q0	CAN Input Filter 5	→	CAN Output Filter 5	Q ^o
	Q ₀	CAN Input Filter 6	→	CAN Output Filter 6	Q ^o
	Q0	Serial to CAN 1	\rightarrow	CAN Output Filter 1	O ^o
	Q ₀	Serial to CAN 2	\rightarrow	None	OC .
	Q0	Serial to CAN 3	\rightarrow	None	O ₆
	Q ₀	CAN Telemetry	\rightarrow	None	OS .

CAN Isc	lator PDI Builder		×
		Communications	205
0	CAN I/O	Configuration CAN custom message 0	
	CAN Setup	Port BOTH Consumer	Â
-		Id 1302 CAll Output Filter 2	
		Mask 2047 dec None	
		Pilter type Standard None OS	
		$ \mathfrak{Q}^{\mathfrak{G}}_{\mathfrak{G}} $ CAN Input Filter 5 \longrightarrow CAll Output Filter 5 $ \mathfrak{Q}^{\mathfrak{G}}_{\mathfrak{G}} $	
		CALLOutput Filter 6	
		Id Extended CAI Output Filter 1	
		Timeout 6.7E-4 s None 🔅	
		Ø ⁸ ₀ Serial to CAN 3 → None Ø ⁸ ₀	
		$ \dot{Q}_0^0 $ CAN Telemetry \rightarrow None $ \dot{Q}_0^0 $	
			~

CAN Isolator PDI Builder		စု Coi	nmunic	ations		× 4 4 ±
CAN I/O CAN Setup	CAN/ Units Mailt 1 2 3	ANB DEC reserved RX20 Mailboxes 4 8 8 8	Units I	Mask BIN boxes availab d ID 1302 0 0	Baudrate 1000000.0 Ie 12 Mask 1111111111 0 0 0 0	

2.8 VCP

1. Enable VCP Status Message: (Veronte Communication Protocol) Smart CAN Isolator will send a periodic message so that other applications and devices in the Embention environment can know its status. The period of this message can be chosen, or it can be disabled of required.

CAN Iso	lator PDI Builder		×
		🔿 Can Isolator	205
0	Enable VCP Status Message		
P	Period 1.0 s		

Fig. 4: VCP Status configuration

Warning: Disabling the Status Message will disable other apps and devices from detecting **Smart CAN Isolator** automatically.

2.9 CAN I/O

Configuration of the CAN Producers and Consumers

olator PDI Builder						
			ations			* 0
CAN I/O	Configu	ration CAN custom messa	ge 0			
CAN Setup		Producer		Consumer		
	¢\$	CAN Input Filter 1	\rightarrow	CAN to Serial 1	¢¢,	
	¢¢₀	CAN Input Filter 2	\rightarrow	None	Q0	
		CAN Input Filter 3	\rightarrow	None	$\dot{\Omega}^{0}_{0}$	
	Q ₀	CAN Input Filter 4	\rightarrow	None	ф¢	
		CAN Input Filter 5	\rightarrow	CAN Output Filter 5	00	
		CAN Input Filter 6	\rightarrow	CAN Output Filter 6	¢.4	
		Serial to CAN 1	\rightarrow	CAN Output Filter 1	00	
	Q ⁰ ₀	Serial to CAN 2	\rightarrow	None	$\dot{\Omega}_0^0$	
		Serial to CAN 3	\rightarrow	None	$\dot{\Omega}^0_0$	
		CAN Telemetry	\rightarrow	None	$\langle Q_0^0 \rangle$	
				0		
		\bigcirc				

Fig. 5: CAN I/O configuration

- 1. Producers: Producers allow to read CAN messages from the CAN buses or to create new ones.
- 2. Consumers: Consumers allow to process CAN messages or send them into one of the CAN buses.
- 3. Producer settings
- 4. Consumer settings

2.9.1 Producers

• CAN Input Filter: Read CAN Messages from the CAN bus.

Important: For a message to be read by an Input filter, it must have an assigned mailbox in CAN Setup.

- Serial to CAN: Producer for internal and configuration messages. Only Serial to CAN 1 is currently enabled.
- CAN Telemetry: Custom CAN messages producers. See CAN Telemetry section.

2.9.2 Consumers

- CAN Output Filter: Send CAN Messages into the CAN bus.
- CAN to Serial: Consumer for internal and configuration messages. Only CAN to Serial 1 is currently enabled.
- CAN GPIO consumer: Consumer for GPIO command messages. For controlling Smart CAN Isolator GPIO outputs, it is necessary to send activation for Virtual GPIO 02 (Interface A) and Virtual GPIO 04 (Interface B).

2.9.3 CAN Telemetry

With **CAN Telemetry** the user can create CAN custom messages using its internal variables. Examples of internal variables are:

- Voltage Input
- GPIO Status
- Configuration CRC
- Device ID

CAN Isolator PDI Builder		×
	Communications	* 0 *
CAN I/O CAN Setup	Configuration CAN custom message 0	+
	Memory usage: 0 / 512 bytes)

Fig. 6: CAN Telemetry configuration

- 1. Add new CAN message: Add a new custom message to the CAN Telemetry
- 2. CAN Message Data: Edit the message Data field.

- 3. CAN ID Type: Select between Standard CAN ID (11-bit) or Extended CAN ID (29-bit).
- 4. CAN Message ID: CAN ID for the message.
- 5. Endianness: Big Endian, Little Endian or Hybrid.
- 6. Period: Frequency at which the message is sent.
- 7. Memory usage: Memory left for building CAN Telemetry messages.

2.10 CAN Setup

×
5
۲

Fig. 7: CAN Setup configuration

- 1. Interface selection: Apply settings to interface A or interface B.
- 2. Baudrate: CAN Baudrate for the selected interface.
- 3. Mask display settings: Select in which format the mask is displayed.
- 4. Available mailboxes: Current mailbox distribution.
- 5. Create new mailbox entry: Add a new line to the mailbox list.
- 6. Number of mailboxes: Number of mailboxes assigned to a given ID.
- 7. ID type: Select between Standard CAN ID (11-bit) or Extended CAN ID (29-bit).

- 8. ID: Input CAN ID.
- 9. Mask: Input mask. Use it for accepting more than one CAN ID within the same mailbox group.

Warning: At least one available mailbox must be left for **Smart CAN Isolator** to be able to send messages through that given interface.

CHAPTER

THREE

INTEGRATION EXAMPLES

3.1 Transparent Tunnel

In this example, a transparent tunnel will be created using **Smart CAN Isolator**. The result will be that any messages received on **Interface A** will be sent through **Interface B**. Optionally, the mailboxes can be equally distributed to support both standard and extended **CAN IDs**.

In order to do this we will need to:

1. Create a new mailbox entry for Interface A. Assign half of the mailboxes to it and set a Mask of 0.

CAN Isc	olator PDI Builder						×
			🖗 Col	mmunic	ations		2 8 5
	CAN I/O CAN Setup	CANA C Units ID Mailboxe 2 mm 3 mm	Contraction of the second seco	Mmunica Units M Extended	Ations Mask BIN Doxes availab 1302 0 0	Baudrate 1000000.0 Mask 111111111 0 0 0	
		<					

2. Configure CAN Input Filter 2 on CAN A, with a Mask of 0 and Both types.

CAN Isolator PDI Builder				
	(¢) c	ommunications		± 0 0
CAN I/O	Configuration CAN	custom message 0		
CAN Setup	Pro	ducer	Consumer	
(P)	We Part	CANA	CAN to Serial 1	- Q5
	Port Port	CAN A	None	\$\$°
	Ø\$ Id	0	None	
	Mask Mask	0 d	None	Q0
	G Filter type	Both	AN Output Filter 5	Q ^o
	CAN Inp	out Filter 6 🔶	CAN Output Filter 6	¢\$
	OC Serial 1	to CAN 1	CAN Output Filter 1	00
	COC Serial t	to CAN 2	CAN to Serial 2	
	Q [®] Serial t	to CAN 3	CAN to Serial 3	Q0
	CAN T	elemetry	None	\$\$ \$

3. Bind CAN Output Filter 2 to CAN Input Filter 2, configured to CAN B.

				ations				7	5
CAN	N I/O	Configu	ation CAN custom messa	ge 0					
CAN	N Setup		Producer		Consumer				
			CANTInput Filter 1		CAN to Scrid 1	448			-
		00	CAN Input Filter 2	\rightarrow	CAN Output Filter 2	00	Port	CAN B	
		250	CAN Input Filtor 2		None	2000			_
		Q ₀	CAN Input Filter 4	\rightarrow	None	Q_0^0			
		00	CAN Input Filter 5	\rightarrow	CAN Output Filter 5	Q_0^0			
		\$\$\$	CAN Input Filter 6	\rightarrow	CAN Output Filter 6	Q_0^0			
		\$\$\$	Serial to CAN 1	\rightarrow	CAN Output Filter 1	Q_0^0			
		Ø.0	Serial to CAN 2	\rightarrow	CAN to Serial 2	00			
		Ф <mark>0</mark>	Serial to CAN 3	\rightarrow	CAN to Serial 3	00			
		08	CAN Telemetry	\rightarrow	None	00			

3.2 CAN filter

In this example, only a certain range of CAN IDs will be allowed to cross from **Interface B** to **Interface A**. The allowed range will be from **0x550** to **0x55F**.

1. Create a new mailbox entry for Interface B. Assign some of the mailboxes to it and set the ID to 0x550.

		P Co	nmunicat	ions		*	8
CAN I/O	CANA	ANB					
CAN Setup	Units ID	HEX -	Units Mas	k BIN	Baudrate 500000.0]	
	Mailboxa	reconved PV9	Mailbox	os availabl	la 24		
	#	Mailhoxes	Extended		Mask	-	
	1 10000	4		16	1111111111	8	
	2			50	1111111111		
	2	4	-	50		J	
	<						

2. Set a **Mask** which will ignore the last 4 bits.

CAN Isolat	tor PDI Builder			@ (a)	nmunic	ations		
	CANLICO				munica			
0	CAN I/O	CAN	A C	ANB				
	CAN Setup	Unit	s ID	HEX 👻	Units M	lask BIN	Baudrate 500000.0	
		Mail	boxes	reserved RX8	Mailb	oxes availab	le 24	
		#		Mailboxes	Extended	ID	Mask	+
		1		4		516	1111111111	
		2	-	4		550	1111110000	
								>
								<i>x</i>

3. Configure CAN Input Filter 2 on CAN B, with the same settings as the Mailbox.

CAN Iso	lator PDI Builder						×
			@ (Communications			205
Ö	CAN I/O	Conf	figuration CAN	l custom message 0			
	CAN Setup		Pro	oducer	Consumer		
P		WQ.	1		CAN to Serial 1	¢6	â
		Q ₀	Port	CAN B	None	$\dot{\Omega}_{0}^{0}$	
		Q_0^0	Id	550	None	Ω_0^0	
		Q_0^0	Mask	2032 0	dec None	Q0	
		Q_0^0	Filter type	Standard	CAN Output Filter 5	Q0	
		Q_0^0	CAN In	nput Filter 6 🔶 🔶	CAN Output Filter 6	Q0	
		Q_0^0	Serial	to CAN 1	CAN Output Filter 1	00	
		Q_0^0	Serial	to CAN 2	None	Q0	
		Q^0_0	Serial	to CAN 3	None	Q0	
		Q^0_0	CAN	Telemetry	None	Ω_0^0	
							\bigcup

4. Bind CAN Output Filter 2 to CAN Input Filter 2, configured to CAN A.

CAN I/O	Configu	ration CAN sustem marsa	ao 0				
CAN Setup	Conligu	Producer	geo	Consumer			
	100 000 000 000 000 000 000 000 000 000	CAN input Filter 1		CAN to Senar 1	100 C		2
	Q ⁰	CAN Input Filter 2	→	CAN Output Filter 2		Port	CAN B
	240 ⁰	GAAT Imput Filter 9		None	244 ⁰		
	Qo	CAN Input Filter 4	\rightarrow	None	Q0		
		CAN Input Filter 5	\rightarrow	CAN Output Filter 5	Q_0°		
		CAN Input Filter 6	\rightarrow	CAN Output Filter 6	Q_0^0		
	Q ⁰	Serial to CAN 1	\rightarrow	CAN Output Filter 1	Q_0^0		
	Q ⁰	Serial to CAN 2	\rightarrow	None	Q ₀		
	Ø8	Serial to CAN 3	\rightarrow	None	Q0		
	Q0	CAN Telemetry	\rightarrow	None	Q0		

3.3 Control the GPIO Outputs

In this example we will see how to control the GPIO Output pins on Smart CAN Isolator.

1. On **Veronte**, Configure **CAN GPIO Remote** and connect it to an Output Filter. We will need to command Virtual GPIOs 2 and 4. The CAN ID can be arbitrarily chosen. For this example, **ID 100** will be used.

► C	ommunications	Configuration	Custom Message 1 Custom Message 2 Maliboxes				
► N	licro	High	Serial to CAN 1	\rightarrow	None	de?	
► P	ayload	High C	Serial to CAN 2	\rightarrow	None		
► S	tick	High C	Serial to CAN 3	\rightarrow	None		
► V	eronte	V High	CAN custom message 1	Ì→[Output filter 3	Q ^o	
eriod	0.1	s	CAN custom message 2	Ì→Ì	Output filter 4	Q0	
d of the gene	rated 100	dec Extended	Input filter 1	\rightarrow	None	Q0	
AN message:	;		Input filter 2	→	None	Q0	
Destination	Value		Input filter 3]→[Custom message 1	Q0	
Virtual 01	Virtual 01		Input filter 4]→[Custom message 2	Q ₀ ^o	
✓ Virtual 02	Virtual 02	-	CAN unwrapper 1	→	None	00	
Virtual 03	Virtual 01	-	CAN unwrapper 2	\rightarrow	None	Q0	
✓ Virtual 04	Virtual 04		CAN GPIO remote 1	\rightarrow	None	00	
		High 🕵	CAN GPIO remote 2	\rightarrow	Output filter 2	Q ^o	

2. Use the action **Output** in Veronte, to control the Virtual GPIOs.

Veronte Ground 🛪 🙆	े 🗄 🚱 📫 🚱 🗂 🔺	0		
✓ 0 - Virtual GPIOS	Virtual GPIOS			
	Events AND OR	NOT	Actions	+
	1 - GUI Button		1 - Virtua	I GPIO 2
			2 - Virtua	I GPIO 4
		[Delay 0.0 s	Periodical: Off
	Output - Virtual	GPIO 4		
	Virtual 4			
	Off () On Pulse On	Pulse Off		
	Time 0.0	S		
New Automation				

3. In Smart CAN Isolator, create a mailbox with ID 100 to receive the CAN message.

CAN Iso	lator PDI Builder								×
					nmunica	ations			1 0 F
Ö	CAN I/O	CANA	C	ANB					
@	САмзещр	Units I	D	DEC 💌	Units M	ask BIN	Baudrate 1000000.0		
_		Mailbo	xes	reserved RX5	Mailb	oxes availabl	e 27		
		#		Mailboxes	Extended	ID	Mask		
		1	00000	4		1302	1111111111		
		2	nimint.	1		100	1111111111		
		<]	>	

4. Configure a CAN Input Filter to accept the CAN message, and connect it to a CAN GPIO Consumer.

Ö	CAN I/O	Configu	ration CAN custom messa	ge 0		
	CAN Setup	100	Producer		CONU to Serial 1	100
			CAN Input Filter 2	\rightarrow	CAN GPIO consumer	
Port	100	↓ 00°	CAN Input Filter 3	\rightarrow	None	OC S
u Mask	2047		CAN Input Filter 4	-	None	00
Filter type	Standard	- \$	CAN Input Filter 5	→	CAN Output Filter 5	Q ₀ ^o
			CAN Input Filter 6]→[CAN Output Filter 6	Ø.
		Q0	Serial to CAN 1	→	CAN Output Filter 1	Q_0^0
		Q ₀	Serial to CAN 2	\rightarrow	None	Q ₀ ⁰
		Q0	Serial to CAN 3	\rightarrow	None	00
		Q0	CAN Telemetry	\rightarrow	None	00

3.4 Send Internal Telemetry

In this example we will see how to create a custom CAN message to send internal information to other devices.

1. In **CAN telemetry**, create the CAN message, including any relevant variables. For this example, internal ID, power inputs and status of GPIOs will be sent. Only Data and ID need to be configured. **Smart CAn Isolator** will automatically build the rest of the message.

CAN	Isolator PDI Builder		×
		Communications	2 2 5
O	CAN I/O	Configuration CAN custom message 0	
9	CAN Setup	▼ TX EXT Can ID: 15 Little endian Period 1.0 s	+
CAN	message ID: 12		
Checksu	m Matcher Skip Variat	ble ASCII Position Occupancy	
0	0 0 7	0 0	
	— 🗐 🕂 VA	\V address	+
	- 📑 🗇 🕂 🗛	C vin 1	
	- 📑 🗇 🕂 🗛	C vin 2	
	— 📑 🗍 🕂 🛛	YEP_A (GPIO17) Off	
	— 📑 🗍 🕂 🛛	XEP_B (GPIO18) Off	
	— 📑 🗍 🕂 🛛	XEP_S (GPIO19) Off	
	— 📑 🗍 🕂 🛛	YEP_I (GPIO20) Off	

1. Connect the **CAN Telemetry** producer to an output filter, on the **CAN Interface** you want the information to be sent.

CAN I/O	Configu	ration CAN custom message	D		
CAN Setup		Producer		Consumer	
	00	CAN Input Filter 1	\rightarrow	CAN to Serial 1	Q ⁰
	Q ₀ ⁰	CAN Input Filter 2	→	None	¢¢
	Q0	CAN Input Filter 3	\rightarrow	None	¢¢
	Q0	CAN Input Filter 4	\rightarrow	None	¢¢
	Q0	CAN Input Filter 5]→[CAN Output Filter 5	Ø ^o
	Q ₀	CAN Input Filter 6]→[CAN Output Filter 6	Ø o
	Q0	Serial to CAN 1]→[CAN Output Filter 1	Ø ₀
	Q0	Serial to CAN 2	\rightarrow	None	¢₿
	00	Serial to CAN 3	\rightarrow	None	Q0
	Q0	CAN Telemetry	\rightarrow	CAN Output Filter 2	¢°

3. Now any device on the bus can read the information.

CHAPTER

TROUBLESHOOTING

4.1 Maintenance mode

Debugging and configuration mode. Smart CAN Isolator must be in maintenance mode in order to modify its configuration.

While in **maintenance mode**, a default configuration will be executed.

Warning: In maintenance mode, CAN interface A will switch to a baudrate of 1M, while CAN interface B will switch to a baudrate of 500k.

4.1.1 Forcing Maintenance mode for troubleshooting

If a mistake was made when building the configuration and the communication with the device has been lost, it is possible to force the device to boot into **maintenance mode** in order to modify its configuration.