

# Support for CAN module in a LinPAC with I-87120

Applies to:			No. L6-002
Platform	OS version	OS version SDK version	
LP-8x3x/8x4x		LP-8x3x/8x4x:1.11 later	
LP-8x2x/9x2x		LP-8x2x/9x2x:1.1 later	Linux Applications
LP-8x8x/8x8x-atom	All version	LP-8x8x/8x8x-atom: 0.8.3 later	Linux Applications
LX-8x3x/9x3x/9x7x/9x8x		LX-8x3x/9x3x/9x7x/9x8x: 0.8.8 later	

The LinPAC I-87120 module provides message transfer functionality for CAN modules. Let's look at an example where we wish to communicate between an I-87120 module on an LP-8841 and an I-7565-H2 module. The following is a demonstration of the configuration and processes involved.

In this example, we will use the modules indicated in the table below, which also provides a brief description of each module:

Module	Description
LP-8841	This is a standard LinPAC-8000 module with 8 I/O slots.
I-87120	This module provides a 1-port programmable CAN interface slot.
I-7565-H2	This module is a high-performance intelligent USB to 2- port CAN bus converter.

### Step 1: Set up the configuration.

Connect the USB port on the I-7565-H2 module to the Host PC and then connect the CAN\_L pin and the CAN\_H pin on both the I-87120 module and the I-7565-H2 module. Figure 1 below shows the wiring diagram for the modules.

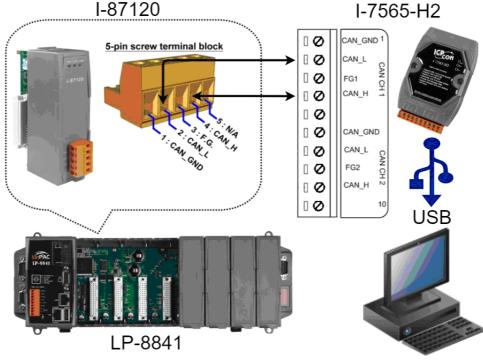


Fig 1. Wiring diagram



#### Step 2: Install the Driver for the I-7565-H2 Module.

For full details of how to install the necessary drivers for the I-7565-H2 module, refer to the "Driver Installation" section in the User Manual, which can be found at:

<u>ftp://ftp.icpdas.com/pub/cd/fieldbus\_cd/can/converter/i-7565-h1h2/manual/win2k\_xp/i-7565h1h2\_userm</u> <u>anual\_en\_v2.3.1.pdf</u>

Download the driver from the ICP DAS website at: http://ftp.icpdas.com/pub/cd/fieldbus\_cd/can/converter/i-7565-h1h2/driver

Once the driver installation file has downloaded, execute the "**ICPUsbConverter\_Drvinst\_v1.4**" file to automatically install the driver, and then wait until the installation process has finished, as illustrated in figure 2 below.

📜 > I-7565-H1H	H2_DrvFile_v1.4			
^ Name	^	Date modified	Туре	Size
amd64		10/05/2017 11:35	File folder	
📕 i386		10/05/2017 11:35	File folder	
icpusbo	converter	18/10/2013 09:26	Setup Information	3 KB
🙀 ICPUsb	Converter_DrvInst_v1.4	06/02/2014 12:01	Application	3,172 KB
icpusbo	converterx64	06/02/2014 10:18	Security Catalogue	10 KB
icpusbo	converterx86	06/02/2014 10:19	Security Catalogue	10 KB
	ICPUsbConverter_DrvI	nst_v1.4 DAS USB Converter Dr	×	
			ОК	
~				

Fig 2. Driver Installation

#### Step 3: Using the I-7565-H1H2\_Utility.

The I-7565-H1/H2 Utility is a powerful tool that is provided by ICP DAS to enable quick and easy testing of CAN bus communication when sending or receiving CAN messages. An additional function of the I-7565-H1/H2 Utility allows the time-stamp to be displayed for each CAN message received, providing a convenient method when analyzing data. The I-7565-H1/H2 Utility can be downloaded from the ICP DAS website at:

http://ftp.icpdas.com/pub/cd/fieldbus\_cd/can/converter/i-7565-h1h2/software/utility.



The following is a description of how to use the Utility based on desktop editions of Windows 10.

Once you have downloaded the I-7565-H1/H2 Utility rar file, decompress the package and locate the I-7565-H1H2\_Utility\_Win10.exe file. Right click the icon for the file, and select the **"Run as administrator**" option from the context menu to open the Utility, as illustrated in figure 3 below.

📜   🛃 💻	Application Tools I-7565-H1H	H2_Utility_v1.17	
File Home	Share View Manage		
	📋 🔏 Cut 📃 🚺 🗙 (	Thew New	item 👻 📑 Open 👻
Pin to Quick Copy	Paste Copy path Move Copy Delete R	ename New	Open
access	Paste Paste shortcut to to to	folder	🐤 Run as administrator
Cli	pboard Organise	New	Troubleshoot compatibility
$\leftarrow \rightarrow \checkmark \uparrow$	test(I-87120) > I-7565-H1H2_Utility_v1.17		Pin to Start
	^ Name	Date modified	7-Zip
📌 Quick acces			CRC SHA
📙 Deskto 🖈	CAN1_20170510_162527	10/05/2017 16:25	Edit with Notepad++
Downic 🖈	CAN1_20170510_162555	10/05/2017 16:27 10/05/2017 16:28	Windows Defender Scan
🗎 Docum 🖈	CAN1_20170510_102736	10/05/2017 16:28	😕 OfficeScan
Picture:	CAN1_20170511_110939	11/05/2017 11:09	Share with
I-7565-H1	CAN2_20170510_151333	10/05/2017 15:13	Pin to taskbar
LinPAC_FA	CAN2_20170510_153522	10/05/2017 15:35	Restore previous versions
LP-8x4x (	CAN2_20170510_154142	10/05/2017 15:51	
EP-0X4X (	COMCAT.DLL	31/05/1998 00:00	Send to
	COMDLG32.OCX	09/03/2004 00:00	Cut
\land OneDrive	🗟 dao360.dll	25/03/2008 12:50	Сору
S This PC	I7565H_API.dll	27/03/2009 18:58	Create shortcut
	🕤 I-7565-H1H2_SymFile	19/08/2011 14:06	Delete
🥌 Data (D:)	🔰 I-7565-H1H2_Utility	28/03/2017 15:12	Rename
📜 7-Zip	I-7565-H1H2_Utility	19/08/2011 13:28	Drapartias
📜 FileZilla F1	VI-7565-H1H2_Utility_Win10	28/03/2017 15:12	Properties
📜 I-7565-H1		15/04/2005 19:58	ActiveX control 1,04
📜 Notepad+	MSCOMM32.OCX	01/09/2008 23:10	ActiveX control 10

Fig 3. Starting the I-7565-H1H2\_Utility



The "I-7565-H1/H2 Utility" can now be used to configure the connection parameters for the module. Click the "**Connect**" button to connect to the I-7565-H2 module, and then configure the parameters as illustrated in figure 4 below.

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🔽 Port 1 ( [	🗆 Liste	en Only Mode	)
🔽 Port 2 ( [	Liste	en Only Mode	)
CAN1 Baud Ra	ate		
CAN1 Baud Ra	ate	83.333	Kbps
	•	83.333	Kbps
1000K	•	83.333	Kbps Kbps
1000K	▼ ate		

Fig 4. Configuring the connection parameters

#### Note:

- 1) The instructions above are for Windows 10.
- 2) If you using an earlier version of Windows, execute the file "I-7565-H1H2\_Utility.exe".

## Step 4: <u>Execute the "i87120.exe" example and begin communicating with the I-7565-H2</u> <u>module.</u>

To begin communicating with the I-7565-H2 module we can use the example file, "i87120.exe", which can be found in the examples folder of the LP-8x4x SDK. However, in order to use the "i87120.exe" example file, we first need to upload it from the LP-8x4x SDK to the LinPAC.

In this example, we will use the I-87120 module to send 10 CAN messages to the I-7565-H2 module, and use the I-7565-H1/H2 Utility to monitor the messages received. The I-7565-H1/H2 utility can also be used to send CAN messages to the I-87120 module, and then the results of the CAN message received by the I-87120 module, will be displayed on the screen of the LP-8x4x.

Figure 5 below provides an illustration of the interface for the I-7565-H1/H2 Utility. The two main features of the Utility are the "CAN Message Send Area" and the "CAN Message Receive Area".



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			Configure			1.2		122	120		2.12	2.13.7	2023 1		. 28		42.5	
	and the second division of the	ode	ID (Hex)		RTR	a second	LC	D1	D2		- CAL CAL	and the second second	and the second second	06 D	over generative	20	ner (ms	
	11-bit	ID 🗾	111	N	• •	8	-	13	00	0	5 ] 2	21	00	30 0	00 00		1000	
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	1	0	111	0	8	13	00	05	21	00	30	00	00	1000				
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			ouny _ oc		000000	(C				111111111111			i Se	nacht	1	10		
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-C	AN1 R	lecvMs	3g		• Sc		) Mode	• C	Over	Write	Mode	t			, ⊾ Sc	rolli	ng	
- c	AN1 R	ecvM:	iD(hex)	RTR	⊙ Sc	C roll I D1	Hode D2	C D3	Over D4	Write	Mode D6	D7	D8		Sc meStarr	rolli	ng	
- C	AN1 R	MODE 1	<b>12345678</b>	RTR	€ Sc DLC 8	(C roll ) D1 12	Hode D2 23	C D3 34	Over D4 45	Write D5 56	Mode D6 67	D7 78	D8 89		Sc meStarr 11269.0	rolli p(sec 8119	ng	
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Fig 5. The interface of the I-7565-H1/H2 Utility

Follow the procedure described below to send a CAN message.

- (A) First enter the desired CAN packet message in the text boxes found in the "SendMsg Configuration" panel. In this example we are sending the command 13 00 05 21 00 30 00 00, and then enter the value 1000 in the "Timer (ms)" textbox. This means that the I-7565-H2 module will send a CAN message to the I-87120 module once every second.
- (B) Click the "Add" button to add the CAN message to the "CAN Message Send Area".
- (C) After clicking the "**Send**" button, the I-7565-H1/H2 Utility will automatically send the CAN messages to the I-87120 module via the USB port on the HostPC.



Establish a remote connection the LP-8x4x host and execute the "i87120.exe" file. The I-87120 module will send 10 CAN messages to the I-7565-H2 module. All the messages received by the I-7565-H2 module will be displayed in the "CAN Message Receive Area" on the I-7565-H1/H2 utility, as illustrated in Fig 5.

The I-7565-H1/H2 Utility sends the CAN messages to the I-87120 module via the USB port on the Host PC. When the I-87120 module receives the CAN message, the information will be displayed on the screen of the LP-8x4x host, as illustrated in Fig 6 below.

₽ 10.1.0.6 - PuTTY	_	×
# ./i87120.exe		~
Input the slot (1~7) where the I-87KCAN is plugged: 7		
Baud is set to 1000K		
Start to send and receive CAN messages.		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
2.0A, ID=111, RTR=0, Dlen=8, Data=13, 00, 05, 21, 00, 30, 00, 00		
Exit Program.		
#		
		$\sim$

Fig 6. Output screen on the LP-8x4x host