

CAN Test Tool Quick Start

July 25, 2013

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

ICP DAS assume no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

Trademark

The names used for identification only maybe registered trademarks of their respective companies.

Copyright

Copyright 2013 by ICP DAS. All rights are reserved.

Contents

1	Introd	luctio	on																				3
2	Featu	res																					4
3	Test F	unct	ion																				5
	$3.1 \mathrm{S}^{-1}$	tep 1										 						 • •				 •	5
	$3.2 \mathrm{S}^{-1}$	tep 2										 						 •				 •	6
	$3.3 ext{ S}^{-1}$	tep 3										 										 	7
	3.	3.1	Test	with	other	·CA	١N	por	t.			 										 •	7
	3.	3.2	Test	with	other	· CA	ΑN	dev	ice	•	 •	 •	•	•	 •	 •	•	 •	•	•	•	 •	8
4	Other	\mathbf{S}																					12

Introduction

The CAN test tool can help users to test the CAN communication of CAN series of ICP DAS by the simple steps. This tool supports most of all CAN products of ICP DAS. You can use these device to be an simple CANopen master, CANopen slave, DeviceNet master, DeviceNet slave, J1939 transmitter or J1939 receiver to test the DUT (device under test). It can easily and quickly test if the DUT works well or not. Only three simple steps, you can finish the test of these devices.

🔜 CAN Port Test Tool 1.00	
Step 1: Select CAN device which the test tool would use.	Back Save Clear
Step 1 125 kbps 💙 PISO-CAN200U:Board 0-Port 1 🗸 Active	
Step 2 Test with other CAN port Test with other CAN device Next Step 3	

Figure 1.1: CAN Test Tool

"CAN Test Tool" supports several functions, such as two CAN port test to each other, test with other CAN device, test with CANopen Master, test with CANopen Slave, test with DeviceNet Master, test with DeviceNet Slave and test with J1939 device. There is brief introduction in every step. The test report can be saved to analyse if need. The following chapter will describe the above functions.

Features

- 1. Auto scan all supported ICP DAS CAN device on your PC.
- 2. Three steps, easy to test.
- 3. Save test result to txt file.
- 4. Support Test Functions.
 - Two CAN port test to each other
 - Test with other CAN device
 - Test with CANopen Master
 - Test with CANopen Slave
 - Test with DeviceNet Master
 - Test with DeviceNet Slave
 - Test with J1939 Receiver
 - Test with J1939 Transmitter
- 5. Support CAN Hardware.
 - I-7530, I-7530A, I-7530-FT
 - I-7540D
 - I-7565, I-7565-H1, I-7565-H2
 - PCM-CAN100, PCM-CAN200, PCM-CAN200P
 - PEX-CAN200i
 - PISO-CAN100(U), PISO-CAN200(U), PISO-CAN400(U), PISO-CAN800(U)

Test Function

3.1 Step 1

After the test tool is executed, it will search all the supported CAN devices of ICP DAS and list on the combo box. And then just as the brief description of the step 1 "Step 1: Select CAN device which the test tool would use.". Select the CAN port and CAN baud, and then click "Active" button to enable the CAN port.

E CAN Port Test Tool 1.00		
Step 1: Select CAN device which the test tool would use.	Back Save	Clear 🚺
Step 1 125 kbps 👻		
PISO-CAN200U:Board 0-Port 1 PISO-CAN200U:Board 0-Port 1 PISO-CAN200U:Board 0-Port 2		
 Test with other CAN port Test with other CAN device 		
Step 3		

Figure 3.1: Select CAN Port

3.2 Step 2

In the step 2, there are two functions, "Test with other CAN port" and "Test with other CAN device".

Test with other CAN port "Test with other CAN port" means that the CAN port of step 2 is also an ICP DAS's CAN device on the same PC of step 1. And these two CAN ports will test to each other.

Step 2: Select CAN test function and click Next.	Back Save	Clear 🚺
Step 1		
125 kbps 🐱		
PISO-CAN200U:Board 0-Port 1		
Step 2		
 Test with other CAN port 		
○ Test with other CAN device		
PISO-CAN200U:Board 0-Port 2 Vext		
PISO-CAN200U:Board 0-Port 1 PISO-CAN200U:Board 0-Port 2		

Figure 3.2: Function select - Test with other CAN port

Test with other CAN device "Test with other CAN device" means that the CAN port of step 2 is another CAN related device such as CAN, CANopen, DeviceNet and J1939. And the detail test description is as following.

CAN Port Test Tool 1.00		
Step 2: Select CAN test function and click Next.	Back Save	Clear 🚺
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Step 2 Test with other CAN port Test with other CAN device		
CAN Device Next CAN open Master Device CANopen Slave Device CANopen Slave Device DeviceNet Master Device DeviceNet Master Device 11939 Receiver J1939 Receiver J1939 Transmitter		

Figure 3.3: Function select - Test with other CAN device

3.3 Step 3

When users select the suitable test function, users can start to test the CAN device. Following will describe all the test function.

Note: before start the step 3, be sure to connect the two CAN ports.

3.3.1 Test with other CAN port

In the function, when user has decided the "Mode", "ID", "Len" and "Data" of the CAN message and clicked "Send" button. The CAN message will be sent from the step 1 CAN port to step 2 CAN port. If the step 2 CAN port has received the CAN message, the step 2 CAN port will send the same CAN message back to the step 1 CAN port.

CAN Port Test Tool 1.00	
Step 3: Send and monitor CAN message to check if CAN port o The message will be send from Step1 port and received at Step2 port and than Step2 port will back the same data to Step1 port.	k Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Active	TISO-CAN2000 Boat 01-7017 2846 DiOX7FF Len 8 Data 01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 2 Receive: ID:0X7FF Len 8 Data 01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 2 Send: ID:0X7FF Len 8 Data 01 23 45 67 89 AB CD EF
Step 2	PISO-CAN2000:Board 0-Fort 1 Receive: ID:0x7FF Len:8 Data:01 23 45 67 89 AB CD EF
Test with other CAN device PISO-CAN20011/Board 0-Port 2 Next	
Step 3 Mode 11-bits V ID 7FF Len 8 V 01 23 45 67 89 AB CD EF Send	

Figure 3.4: Test with other CAN Port

3.3.2 Test with other CAN device

CAN Device

Users can input ID, Len and data and click "Send" button to send a CAN message to other CAN device. Of course, the test tool also monitors all CAN message that received from the CAN port.

CAN Port Test Tool 1.00	
Step 3: Send and monitor CAN message to check if CAN port o The message will be send and received from Step1 port	k Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Step 2	PISO-CAN200U:Board 0-Port 1 Send: ID:0x7FF Len:8 Data:01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 1 Receive: ID:0x0 Len:8 Data:FE DC BA 98 76 54 32 10
 Test with other CAN port Test with other CAN device CAN Device Next 	
Mode 11-bits ID 7FF Len 8 01 23 45 67 89 AB CD EF Send	

Figure 3.5: Test with other CAN Device

CANopen Master Device

After select node and enable, the tool will send a boot up message with the node id and start to monitor CANopen command of other CANopen Master. The tool supports simple NMT and SDO protocols. If CANopen Master sends other command such as PDO, the tool will not have any response for it.

CAN Port Test Tool 1.00	
Step 3: Select Node to active to be a virtul CANopen slave, user can use a CANopen Master to communicate with the virtual slave. The virtual slave only support NMT and SDO protocol	Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Active	PISO-CAN200U:Board 0-Port 1 Send: CANopen Slave 1 Boot-up Message PISO-CAN200U:Board 0-Port 1 Receive: ID:0x601 Len:8 Data:40 00 10 00 00 00 00 00 PISO-CAN200U:Board 0-Port 1 Send: Read 1 Index:0x1000 Subindex:0x00 Data:91 01 00 00
Step 2 Test with other CAN port Test with other CAN device CANopen Master Device	
Step 3 Node 1 V Enable Node Disable Node	

Figure 3.6: Test with CANopen Master Device

CANopen Slave Device

Users can send some NMT and SDO commands to other CANopen Slave and monitor Slave's responses. For example, select node 2 and click "Operational" button to send a NMT Operational Command to CANopen node 2. Or select node 3, input "Index-Subindex" with 0x100A-0x00 and click "SDO Read" button, it will send a SDO command to read address 0x100A-0x00 of node 3.

CAN Port Test Tool 1.00	
Step 3: Change NMT status or Send SDO to a CANopen slave to check if the CAN port is ok.	Back Save Clear
Step 1	PISO-CAN200U:Board 0-Port 1 Send: Set slave 2 to Operation Mode.
PISO-CAN200U:Board 0-Port 1	PISO-CAN200U:Board 0-Port 1 Send: Read 3 Index:0x100A Subindex:0x00 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x583 Len:8 Data:43 0A 10 00 0A 0B 0C 0D
Step 2	
Test with other CAN device	
CANopen Slave Device Next	
Step 3 Operational PreOperational Node 3 Operational PreOperational Index - Subindex Len Data SDO Read 100A 00 4 01 23 AB CD SDO Write	

Figure 3.7: Test with CANopen Slave Device

DeviceNet Master Device

After select node and click "Connect" button, the tool will send boot up message twice and start to monitor DeviceNet command of other DeviceNet Master. The tool supports simple Pre-define connection and read vendor id data service.

CAN Port Test Tool 1.00	
Step 3: Select Node to active to be a virtul DeviceNet slave, The virtual slave only support Pre-define connection and get vendor id data service.	Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Step 2 Test with other CAN port Test with other CAN device DeviceNet Master Device Next Step 3 Node 1 Connect Stop	PISO-CAN200U:Board 0-Port 1 Send: DeviceNet Slave 1 Boot-up Mesg: 00 23 03 01 00 00 00 PISO-CAN200U:Board 0-Port 1 Send: DeviceNet Slave 1 Boot-up Mesg: 00 23 03 01 00 00 00 PISO-CAN200U:Board 0-Port 1 Receive: D:0:x402 Len: 0 Beat:00 4B 03 01 01 00 PISO-CAN200U:Board 0-Port 1 Send: D:0:x402 Len: 0 Beat:00 4B 03 01 01 00 PISO-CAN200U:Board 0-Port 1 Send: D:0:x40B Len: 3 Data:00 CB 00

Figure 3.8: Test with DeviceNet Master Device

DeviceNet Slave Device

Select slave node and click "Connect" button, the tool will connect to a DeviceNet Slave with pre-define connection. Users can input Class ID, Instance ID and Attribute ID and press "Get Data" button. The tool will send a message to get the data of the DeviceNet Slave. Note that, if the timer of get data message is over than the timeout value of the DeviceNet Slave, the tool would need to re-connect to the slave.

CAN Port Test Tool 1.00	
Step 3: Select slave and connect with pre-define connection, and then use Get Attribute Service to get object data.	Back Save Clear
Step 1	PISO-CAN200U:Board 0-Port 1 Send: DeviceNet Connect 1:00 4B 03 01 01 00 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x40B Len:3 Data:00 CB 00
PISO-CAN200U:Board 0-Port 1 Active	PISO-CAN200U:Board 0-Port 1 Send: Node 1 Class: 0x01 Instance: 0x01 Artibute: 0x01 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x40B Len:4 Data:00 8E 23 03
Iest with other CAN port Test with other CAN device DeviceNet Slave Device Next	
Step 3 Node 1 Connect Stop Class ID Instance ID Attribute ID 01 01 01 Get Data	

Figure 3.9: Test with DeviceNet Slave Device

J1939 Receiver

Set Node ID, PGN Code, Timer and Data, then click "Send" button to start to send specific J1939 message cyclically. If the CAN port is no problem, others J1939 device will receive the specific message.

CAN Port Test Tool 1.00	
Step 3: First select slave Node, input PGN code, timer and data. Second click Send Button to start send J1939 message with the PGN code.	Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Step 2 Text with other C & N port	PISO-CAN200U:Board 0-Port 1 Send: Write 1 PGN:0x61444 Data:01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 1 Send: Write 1 PGN:0x61444 Data:01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 1 Send: Write 1 PGN:0x61444 Data:01 23 45 67 89 AB CD EF PISO-CAN200U:Board 0-Port 1 Send:
Test with other CAN port Test with other CAN device J1939 Receiver Next Step 3 Node 1 PGN Code 1444 Timer Data Send 1000 ms 01 23 45 67 89 AB CD EF Stop	Write I PGN 0x61444 Data:01 23 45 67 89 AB CD EF

Figure 3.10: Test with J1939 Receiver

J1939 Transmitter

Set Node ID and PGN Code and then click "Update Filter" button. The tool will receive only the specific J1939 message. If users want to monitor another message, only need change the Node ID and PGN Code to suitable setting and click "Update Filter" button again.

CAN Port Test Tool 1.00	
Step 3: First select slave Node and input PGN code. Second clich Update Filter Button to start receive J1939 message with the PGN code.	k Back Save Clear
Step 1 125 kbps PISO-CAN200U:Board 0-Port 1 Step 2 Test with other CAN port	PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive:
 Test with other CAN device J1939 Transmitter Next Step 3 Node 1 PGN Code 61444 	ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10 PISO-CAN200U:Board 0-Port 1 Receive: ID:0x18F00401 Len:8 Data:FE CD BA 98 76 54 32 10
Update Filter Stop Filter	

Figure 3.11: Test with J1939 Transmitter

Others

Following are functions description of the others buttons.

Back

Click the button can back to previous step at any time.

Save

Save

Clear

Driver Information

Back

It can save the all messages of the message list to a text file.

Clear

The "Clear" button can clear the message list.



This button can show all the drivers information that are used by the test tool.



Figure 4.1: Drivers Information