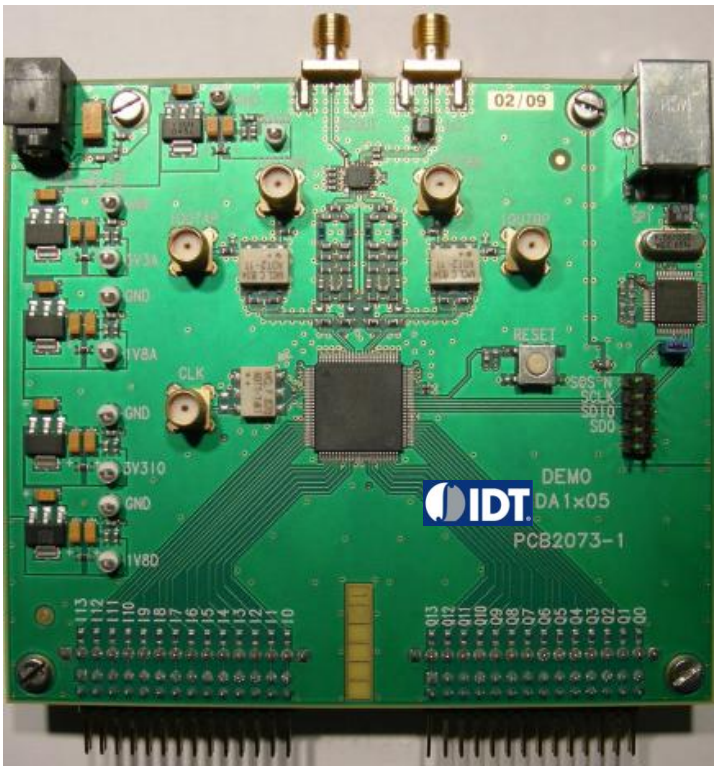
Quick Start

DEMO DA1x05 Demonstration Board for DAC1405D650

Rev. 2.0 — 2 July 2012 **Quick Start**

Document information

Info	Content
Keywords	DEMO DA1x05, PCB2073-1, Demonstration board, DAC, Converter, DAC1405D650
Abstract	This document describes how to use the demonstration board DEMO DA1x05 for the digital-to-analog converter DAC1405D650.
Overview	

Revision history

Rev	Date	Description
2.0	20120702	Rebranded.
0.1	20090129	Initial version.

1. Quick start

1.1 Setup overview

Figure Fig 1 presents the connections to measure DEMO DA1x05.

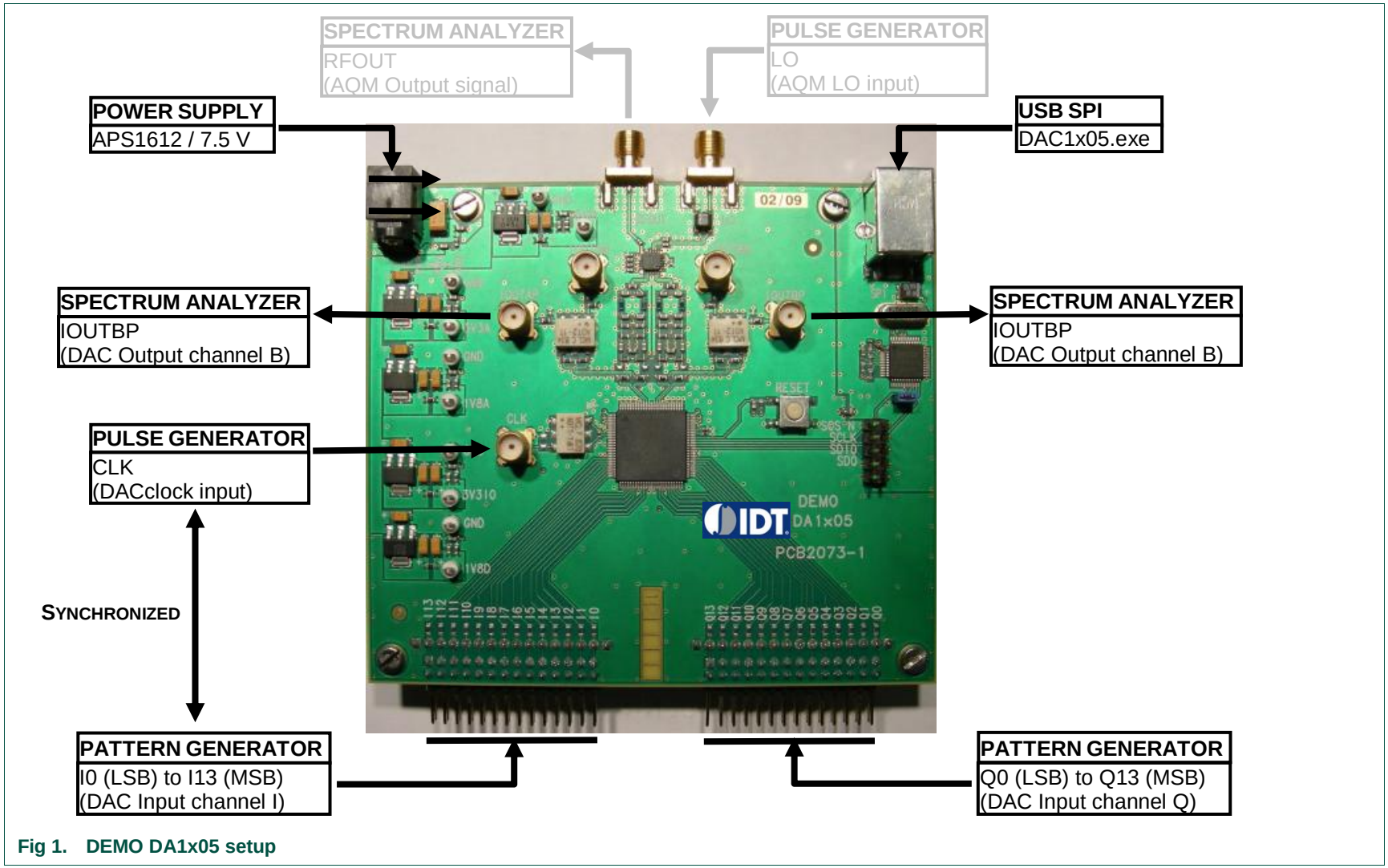
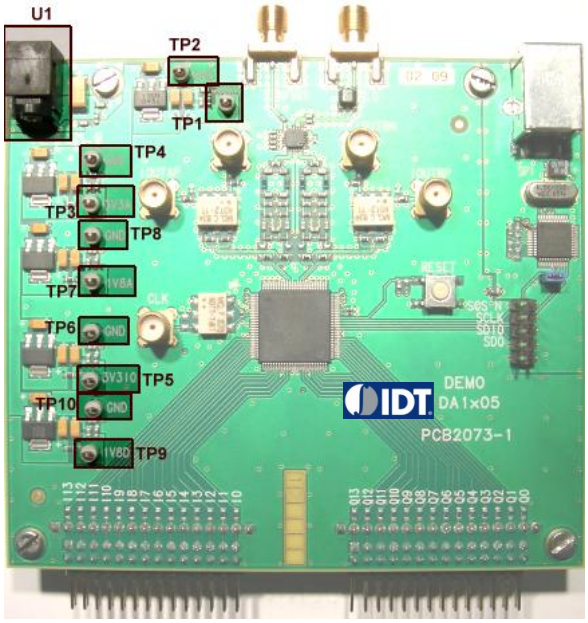


Fig 1. DEMO DA1x05 setup

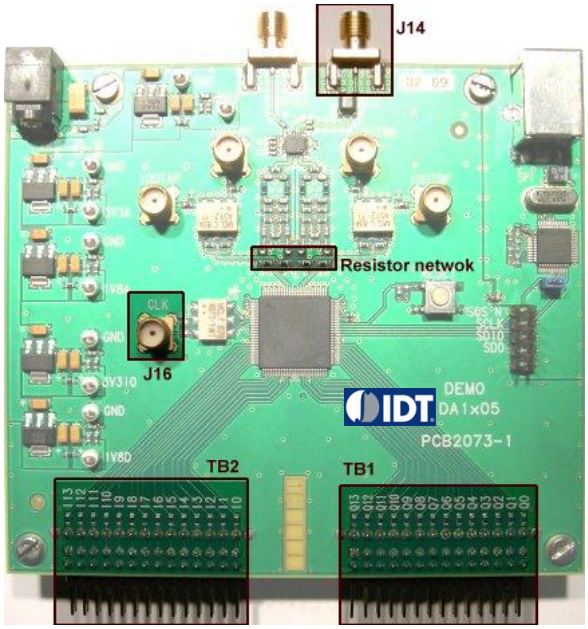
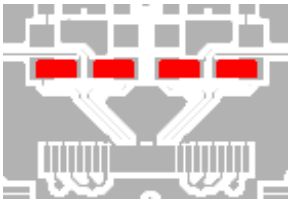
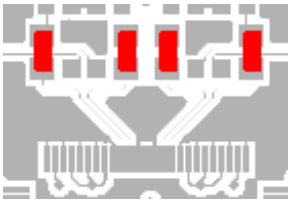
1.2 Power supply

Table 1. General power supply

Name	Function	View
U1	PWR – General power supply 7.5V V_{DC}	
TP1	5V0A test point – Analog power supply 5.0 V_{DC}	
TP3	3V3A test point – Analog power supply 3.3 V_{DC}	
TP7	1V8A test point – Analog power supply 1.8 V_{DC}	
TP5	3V3IO test point – I/O power supply 3.3 V_{DC}	
TP9	1V8A test point – Analog power supply 1.8 V_{DC}	
TP2, TP4, TP8, TP6, TP10	GND test point – Ground	

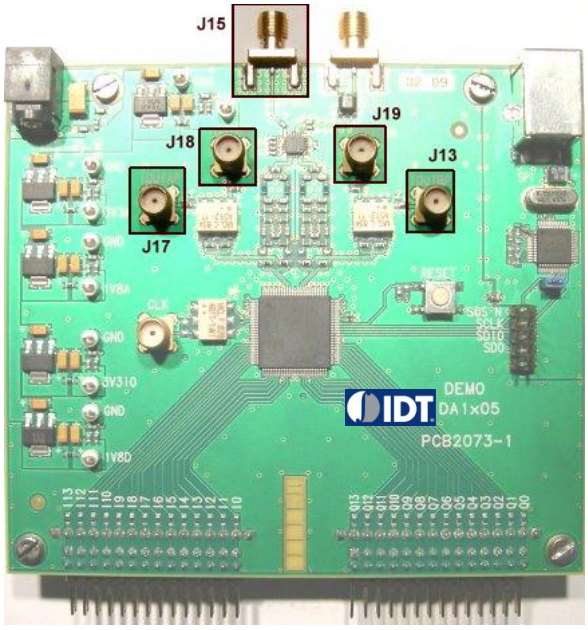
1.3 Digital inputs

Table 2. Digital inputs

Name	Function	View
TB2	I data connector – Channel I digital input (I0 to I13)	
TB1	Q data connector – Channel Q digital input (Q0 to Q13)	
J16	CLK connector – DAC clock input	
J14	LO connector – AQM LO input	
Resistor network	DAC output connected to the output transformers 	
	DAC output connected to the AQM 	

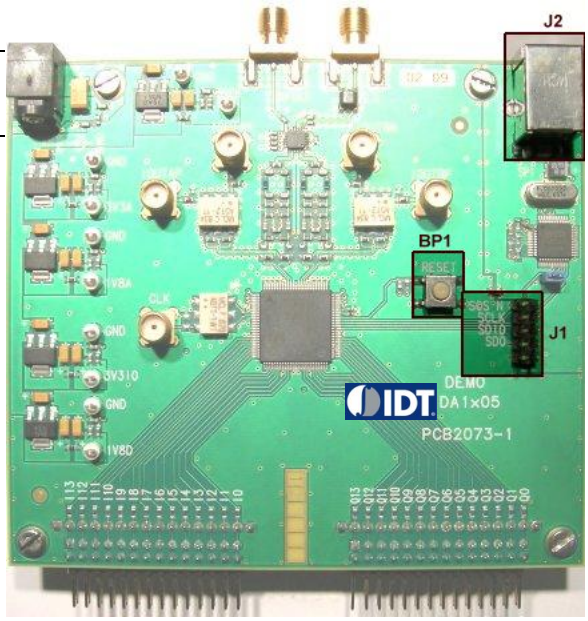
1.4 Analog outputs

Table 3. Analog outputs

Name	Function	View
J17	IOUTAP connector – DAC channel A analog output signal (positive analog output signal when IOUTAN is used)	
J18	IOUTAN connector – DAC channel A negative analog output signal	
J13	IOUTBP connector – DAC channel B analog output signal (positive analog output signal when IOUTBP is used)	
J19	IOUTBN connector – DAC channel B negative analog output signal	
J15	RFOUT connector – AQM analog output	

1.5 SPI interface

Table 4. **SPI interface**

Name	Function	View
BP1	RESET button – Hardware reset of the DAC registers	
J1	SPI test point – External connection to SCS_N, SCLK, SDIO and SDO	
J2	SPI connector – USB input for SPI programming	

2. Example

2.1 Setup example

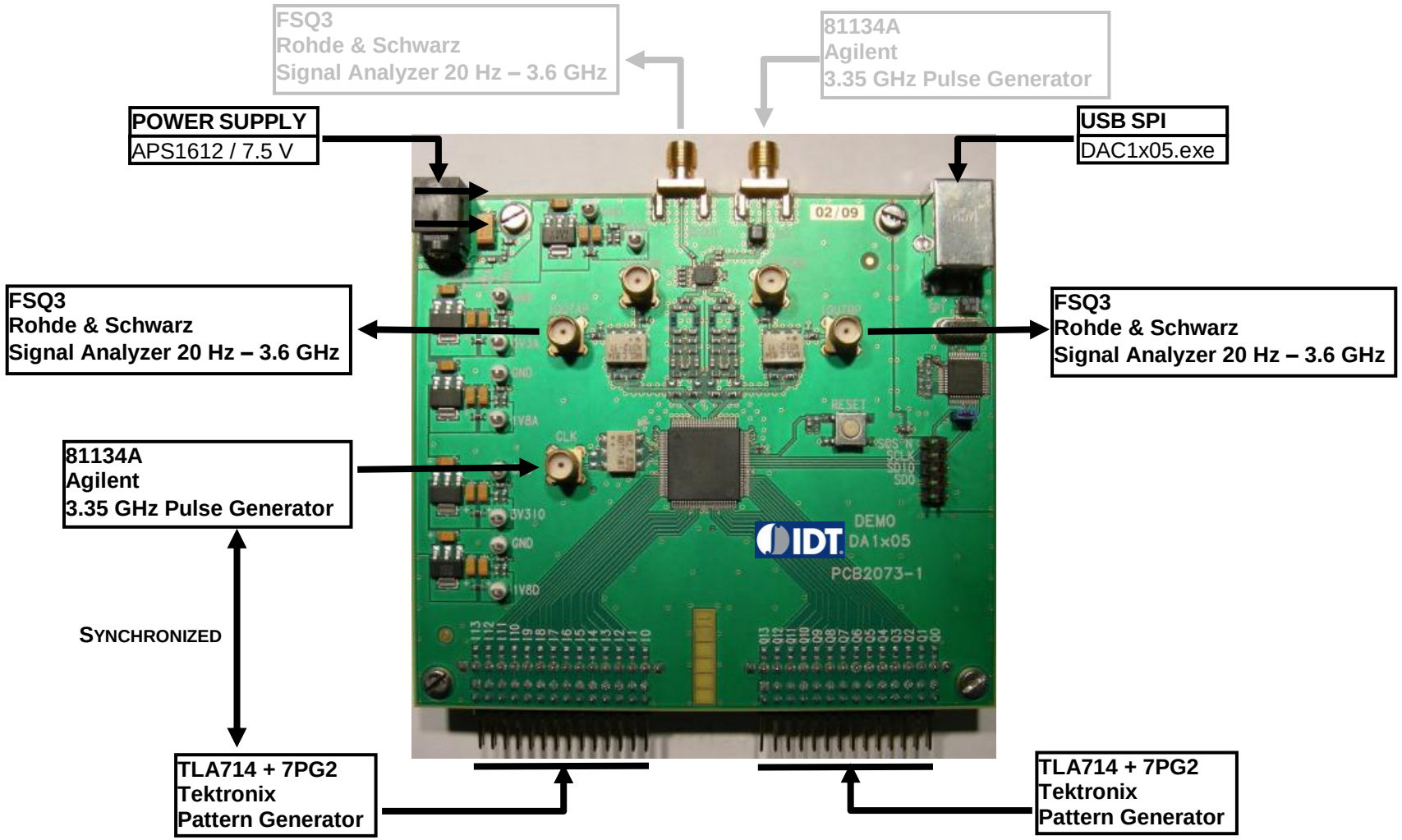


Fig 2. DAC1405D650 hardware setup

3. SPI quick start

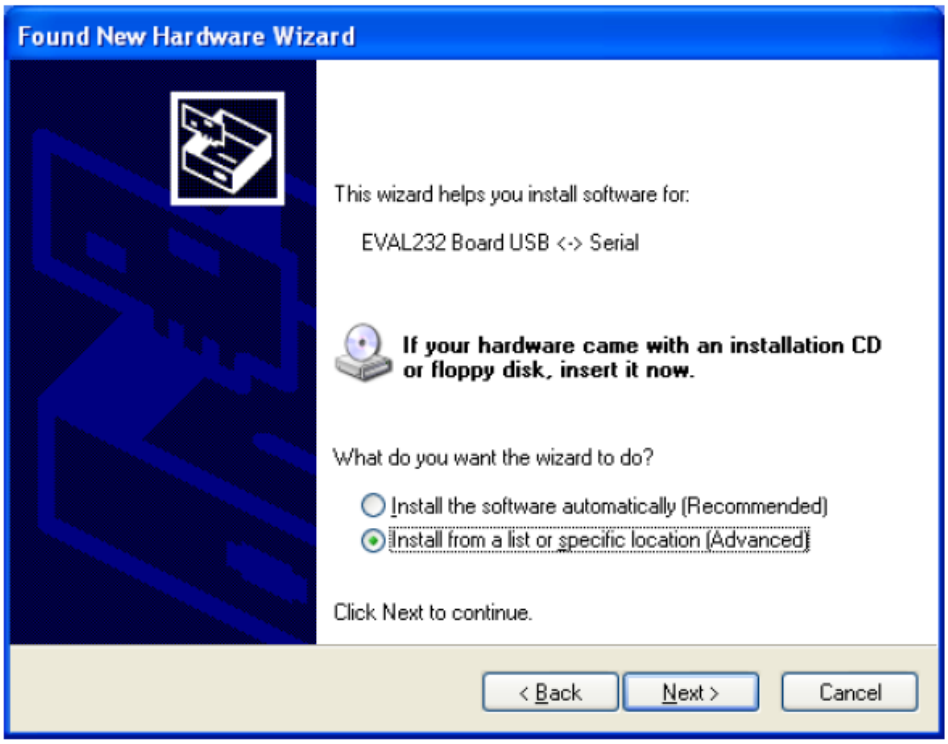
3.1 Install

- Step 1

Connect the device to a USB port on your PC. Windows '**Found New Hardware Wizard**' will be launched. Select '**No, not this time**' from the options available and then click '**Next**' to proceed with the installation.

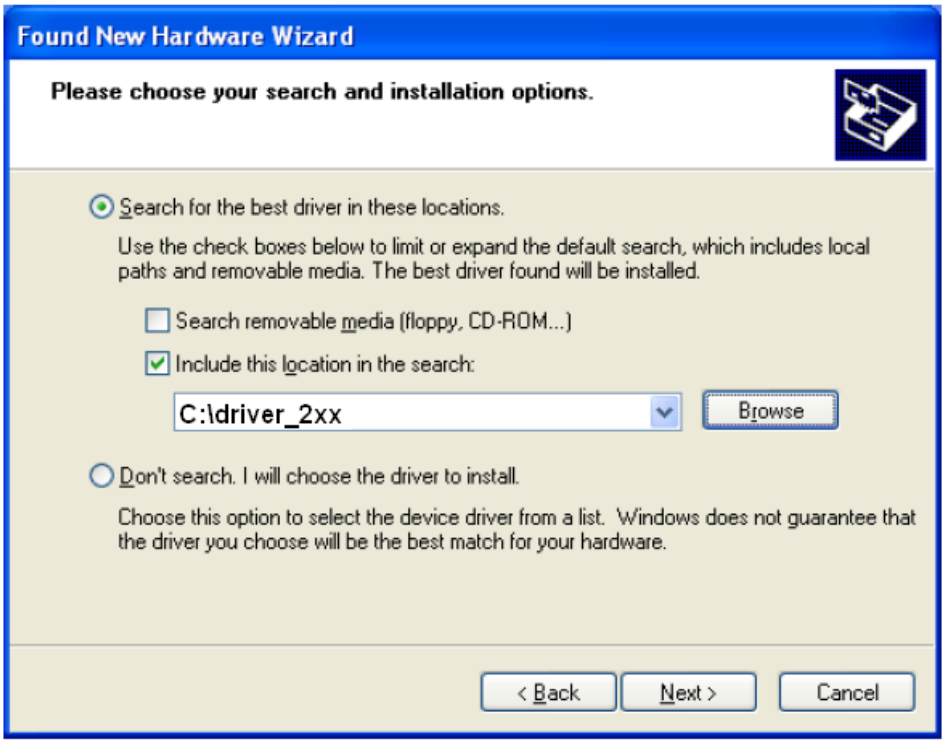
- Step 2

Select '**Install from a list or specific location (Advanced)**' as shown below and then click '**Next**'.



- Step 3

Select '**Search for the best driver in these locations**' and enter the file path of the folder '**driver_2xx**' in the combo-box ('C:\driver_2xx' in the example below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click '**next**' to proceed.



- Step 4

Windows should then display a message indicating that the installation was successful. Click '**Finish**' to complete the installation for the first port of the device.

- Step 5

The Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard.

Once the second port is installed, the device should be ready to be used.

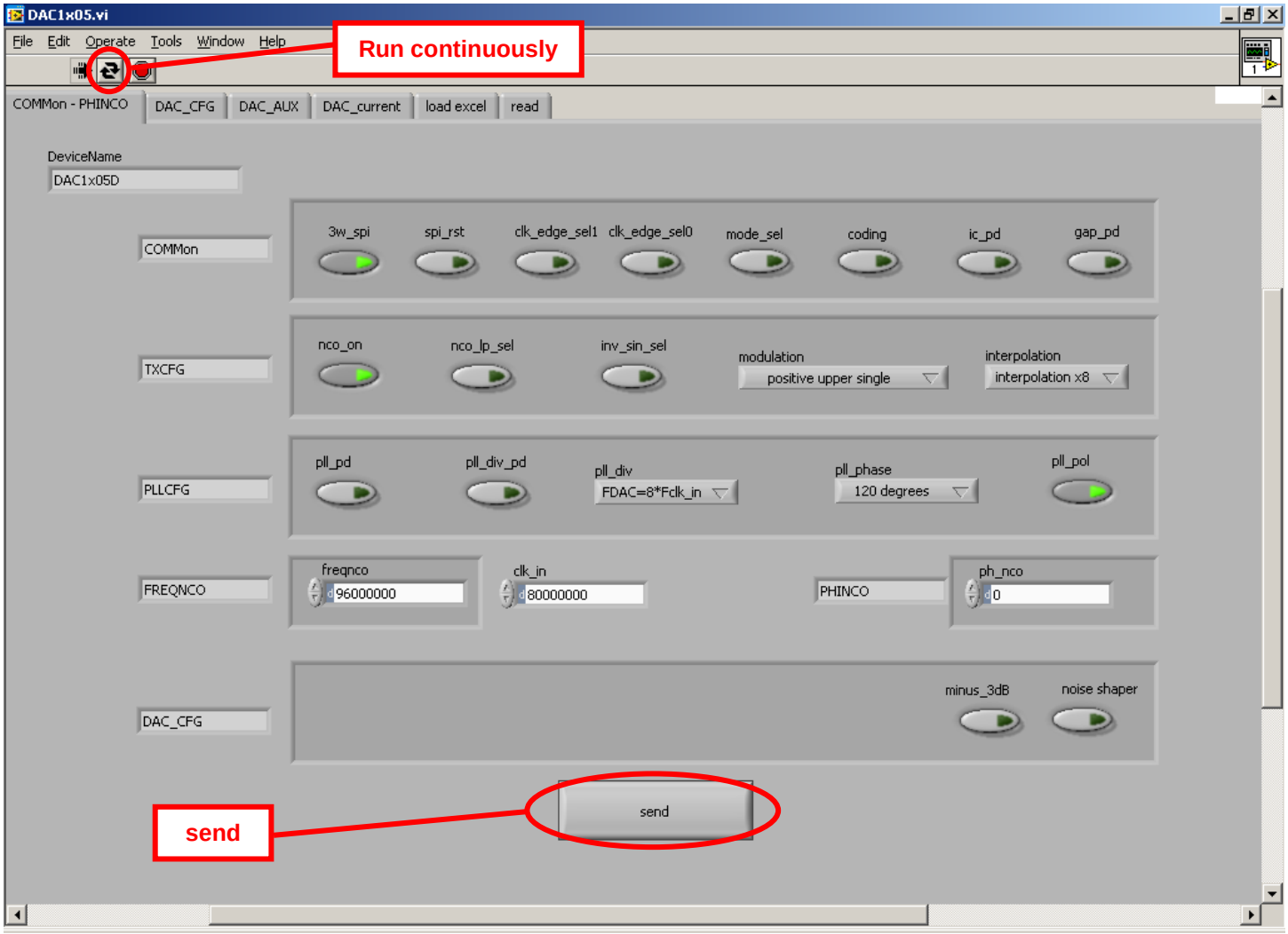
3.2 SPI interface

- Step 1

Install the LabVIEW Run-time Engine (if not already installed).

- Step 2

Start the LabVIEW application “DAC1x05.exe”.



Click on the ‘**run continuously**’ button, program each register using the buttons in the clusters, then click ‘**send**’. The registers are now programmed.

The page COMMon-PHINCO allows to adjust the main settings of the DAC1x05D650.

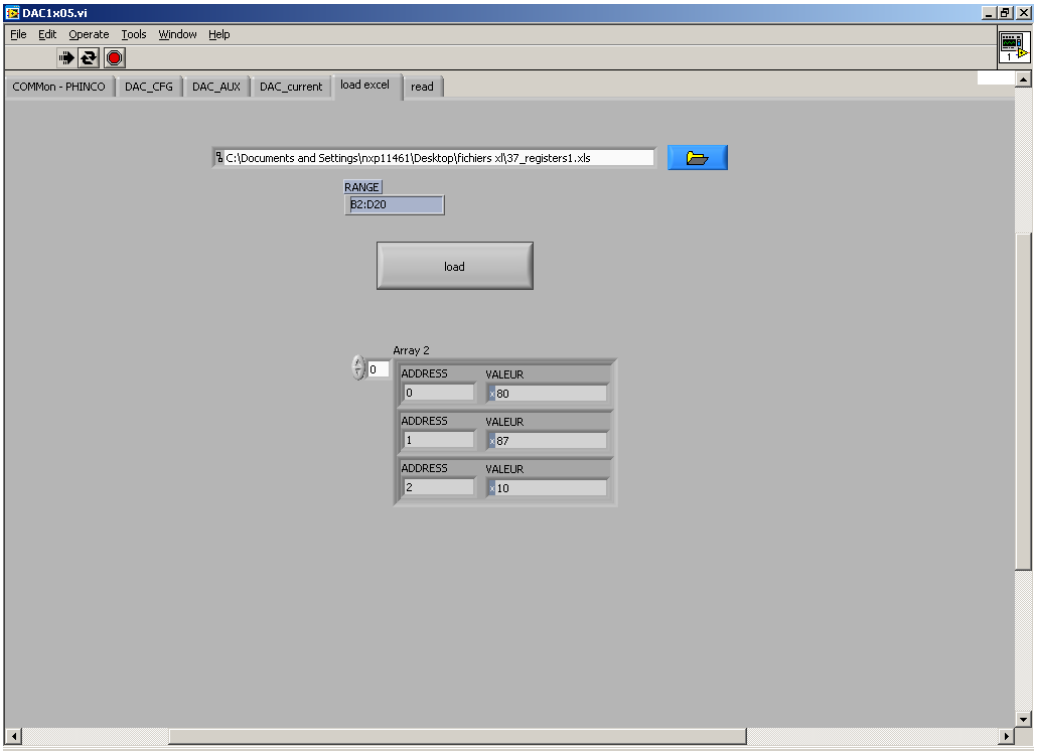
The page DAC_CFG allows to adjust the gain and the digital offset of each DAC.

The page DAC_AUX allows to adjust the current of each auxiliary DAC.

The page DAC_current is only for debug and should not be used in the application.

- Load excel

A file with all the pattern can be loaded directly via the SPI interface. The file '**Initial.xls**' is an example of file with the default configuration.



- Read

In the read page, click on '**read**' and the register's value will be displayed in the '**registers**' fields. You can also read one register by writing its address in '**address**' field.