

Quick Start Guide



IP Pulse

Windows[®] 7

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Contents

Introduction.....	3
Menu Item Description	3
User Input Pulse	3
Mstr Pulse Enable	4
Mstr Pulse Disable.....	4
Pulse Re-enable	4
Insert Shift	4
Disable Chans	4
Sending Pulses	5
Send Pulse on Channel 0 and 1	5
Enter 4 - "Mstr Pulse Enable"	5
Enter 3 - "User Input Pulse"	5
Resend same Pulse on Channel 0 and 1	5
Enter 6 - "Pulse Re-enable"	5
Send Pulse on all Channels	6
Enter 3 - "User Input Pulse"	6
Enter 4 - "Mstr Pulse Enable"	6
Insert Shift on Chanel 0	6
Enter 7 - "Insert Shift"	6

Introduction

This quick start guide is intended to help the user start using the Dynamic Engineering (DE) IP-Pulse User Application provided with the driver. IpPulseUserApp is used to run a manufacturing test on the module. Also included are menu items to provide a fast start with the IP Pulse. Please refer to the hardware and software manuals for detailed information about the module. The IP Modules & Carriers Quick start guide can also be helpful for details of driver installation as well as the use of our user applications.

Hardware and software manual for all carriers and modules can be found on the Dynamic Engineering website¹. Each module and carrier has separate Dynamic Data Sheets. The summary of all things IndustryPack related is shown in the footnote.

Dynamic Engineering IP Modules can be installed on any Carrier. The Carrier and Module software provided will only operate with DE carriers. The module driver will not install if the carrier is not one provided by DE.

Menu Item Description

IpPulseUserApp executable opens a menu that includes 14 menu items. These items provide the user with all the necessary controls for the IP Pulse. Using these menu items; the user will be able to send pulses of varying widths, counts, shifts, etc. Below are the explanations for each pertinent menu item and how they can be used to send pulses according to the user's preferences.

Some of the menu items are strictly for manufacturing tests done at DE. They will not be necessary for the purpose of sending pulses. The menu can be changed to only show the pertinent items. This can be done by entering 'i'. To change it back to the mode where all items are shown enter 'a'.

User Input Pulse

This item calls the user_input function. This function allows the user to input values for a Channel's On Time, Off Time, Count, and whether pulse should be inverted or not.² These values are set using the SetPulseParms IOCTL. The function will print 'Press spacebar to **repeat**' once the values are captured. Pressing spacebar will allow the user to input values for another channel or reenter new values to the same channel. Pressing **any** other button will stop parameter entry.

The PulseEnable bit is set using the SetPulseConfig IOCTL. The local enables are set with the input function. The master pulse enable can be used to synchronize the start-up of the 1-4 ports. The master pulse enable bit has to be set to TRUE to send. If not set during data entry and then set after entry the ports will start synchronously.

¹ <http://www.dyneng.com/industrypack.html>

² The On time, Off Time, and Count values are hexadecimal number. This means input of '10' is the same as '0x10', it matters not if the '0x' is not included.

Using this item on a channel will set the 'enab_flag' flag to TRUE. This flag is used by the 'Pulse Re-enable' menu item. The 'enab_flag' flags are all initially set to FALSE when the menu is opened.

Mstr Pulse Enable

The item calls the EnablePulses IOCTL. It sets the master pulse generator enable bit to true. When this bit is set each channels' local pulse enable bit can be used to enable pulses.

Mstr Pulse Disable

The item calls the DisablePulses IOCTL. It sets the master pulse generator enable bit to false. When this bit is cleared each channels' local pulse enable bit will not enable pulses. [requires both to be TRUE to transmit]

Pulse Re-enable

This item calls the pulse_reenable function. This function calls the DisablePulses IOCTL, sets initialized channels' local enable bit, then calls the EnablePulses IOCTL. This allows the user to sync initialized channels'. Hitting space bar will repeat the entire function, hitting any other button will end the call. This gives the user an easy way to resend pulses with the same parameters. It should be noted that this function only re-enables the channels where the 'enab_flag' is set to TRUE. This is accomplished by running 'User Input Pulse' on the desired channel.

Insert Shift

This item calls the insert_shift function. This function allows the user to input a shift value³ for the user selected channel. The function will print 'Press spacebar to repeat'. Pressing spacebar will call the SetPulseConfig again with the same parameters set the first time. Pressing any other button to stop adding shift offsets to the port.

Disable Chans

This items set the 'enab_flag' for all channels to FALSE.

³ This is a hexadecimal input.

Sending Pulses

IpPulseUserApp can be used as-is to send Pulses according to the user's preferences. Examples follow:

Send Pulse on Channel 0 and 1

Enter 4 - "Mstr Pulse Enable"

Enter 3 - "User Input Pulse"

- Input 0, 100, 100, 10, 0.
- Press the space bar.
- Input 1, 100, 100, 10, 0.
- Press any button that is not the space bar.
- Press the space bar to quit the test.

From the hardware manual you will see that the On Time/Off Time input of 100 is equal to $(0x100 + 2) * 20ns$. That means an input of 0x100 translates to a time of 5150 ns. Therefore, we entered On Time of 5150 ns, Off Time of 5150ns, for 16 non-inverted pulses, for channel 0 and 1. Since Master Pulse enable was set to true before the channel Pulse Enables, the pulses will start as soon as the Channel Pulse Enable is set to true.

Resend same Pulse on Channel 0 and 1

Enter 6 - "Pulse Re-enable"

Assuming one or more of the channels have been setup, the Pulse Re-enable item turns off the Master Enable Pulse then turns it back on. That means the pulses be restarted and the start of the pulses will be synchronized. Remember this menu item will only re-enable channels where the 'enab-flag' have been set to true. To set a channel's 'enab-flag' to true, run the 'User Input Pulse' menu item for it.

The Pulse Re-enable menu item allows the user to press spacebar to repeat. This allows the user to resend pulses with one press of a button. To quit simply press any button that is not the spacebar.

Send Pulse on all Channels

Enter 3 - "User Input Pulse"

- Input 0, 100, 100, 0, 0.
- Press the space bar.
- Input 1, 100, 100, 0, 0.
- Press the space bar.
- Input 2, 100, 100, 0, 0.
- Press the space bar.
- Input 3, 100, 100, 0, 0.
- Press any button that is not the space bar.
- Press the space bar to quit the test.

Enter 4 - "Mstr Pulse Enable"

Inputting a zero for the Count value for each channel puts it in infinite mode where there is no end count for the pulses. In this example, the Master Pulse Enable is set after each channel's pulse enable has been set. This means each port will be synchronized and send an infinite number of the same pulses.

Insert Shift on Chanel 0

Enter 7 - "Insert Shift"

- Input 0, 40
- Press spacebar to repeat
- Press any button that is not the spacebar to quit.

Assuming channel 0 has been setup, running the above will cause a shift to be inserted. This menu items allows the user to press spacebar to repeat. This allows the user to reinsert pulses with one press of a button. To quit simply press any button that is not the spacebar.