

ADLINK Technical Document

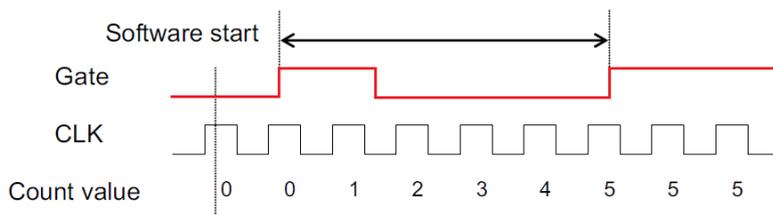
Abstract	How to Use Pulse Measurement		
OS	Windows		
Keyword	GPTC		
Related Products	USB-1210, USB-1901, USB-1902, USB-1903		
Date	2021-12-28	No.	

- Issue Details:

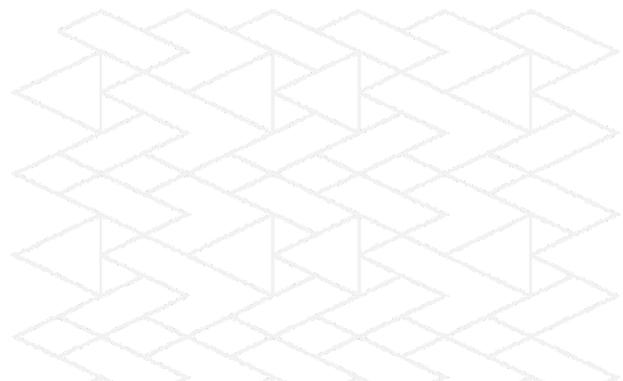
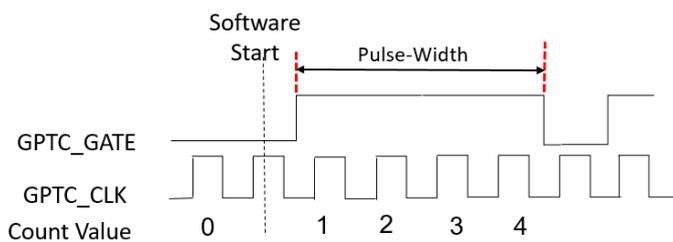
This document outlines how to use pulse width measurement, one of the several GPTC functions available to users.

- More information:

Single period measurement calculates the period of the signal from GPTC_GATE in terms of GPTC_CLK signal. The counter calculates the number of active edges on GPTC_CLK between two active edges of GPTC_GATE.



Single pulse width measurement calculates the pulse width of the signal from GPTC_GATE in terms of GPTC_CLK. The counter calculates the number of active edges on GPTC_CLK.



- Solution:

Step 1: Identify pins

Refer to the user manual and check the pin definitions to find the **GPTC_CLK** and **GPTC_GATE** pin numbers. For the USB-1210, the GPTC_CLK is pin 19 and the GPTC_GATE is pin 17.

	Pin	Pin	
IGND	20	40	IGND
GPTC_CLK	19	39	GPTC_OUT0
GPTC_UD0	18	38	GPTC_OUT1
GPTC_GATE0	17	37	GPTC_OUT2
GPTC_AUX0	16	36	GPTC_OUT3
GPTC_CLK2	15	35	IGND
GPTC_UD2	14	34	N/C*
GPTC_GATE2	13	33	N/C*
GPTC_AUX2	12	32	N/C*
IGND	11	31	N/C*

For the USB-1900 series, the GPTC_CLK is pin 31, the GPTC_GATE is pin 33.

Pin	Function	Pin	Function
		38	GPTC_AUX2
17	GPTC_OUT3	37	GPTC_GATE2
16	GPTC_OUT2	36	GPTC_UD2
15	GPTC_OUT1	35	GPTC_CLK2
14	GPTC_OUT0	34	GPTC_AUX0
13	DGND	33	GPTC_GATE0
		32	GPTC_UD0
		31	GPTC_CLK
		30	DGND

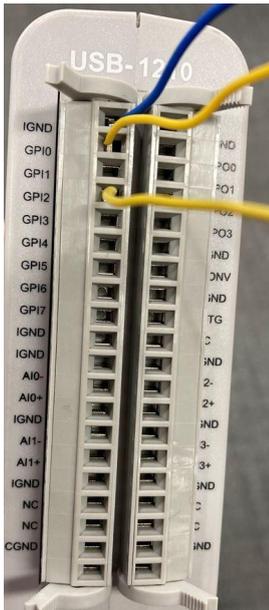
Table 4-5: Timer/Counter Pin Definition

*For other DAQ pin definitions, please consult the user manual.



Step 2: Connect pins

Connect the source signal for measurement to GPTC_GATE (pin 17).



	Pin	Pin	
IGND	20	40	IGND
GPTC_CLK	19	39	GPTC_OUT0
GPTC_UD0	18	38	GPTC_OUT1
GPTC_GATE0	17	37	GPTC_OUT2
GPTC_AUX0	16	36	GPTC_OUT3
GPTC_CLK2	15	35	IGND
GPTC_UD2	14	34	N/C*
GPTC_GATE2	13	33	N/C*
GPTC_AUX2	12	32	N/C*
IGND	11	31	N/C*

Step 3: Install U-Test

Download and install the U-Test utility from the ADLINK website.

U-Test



U-Test v. 18.11 Configuration-based Testing Software for ADLINK USB DAQ Series
(NOTE: Please install MAPS Core BEFORE installing U-Test)

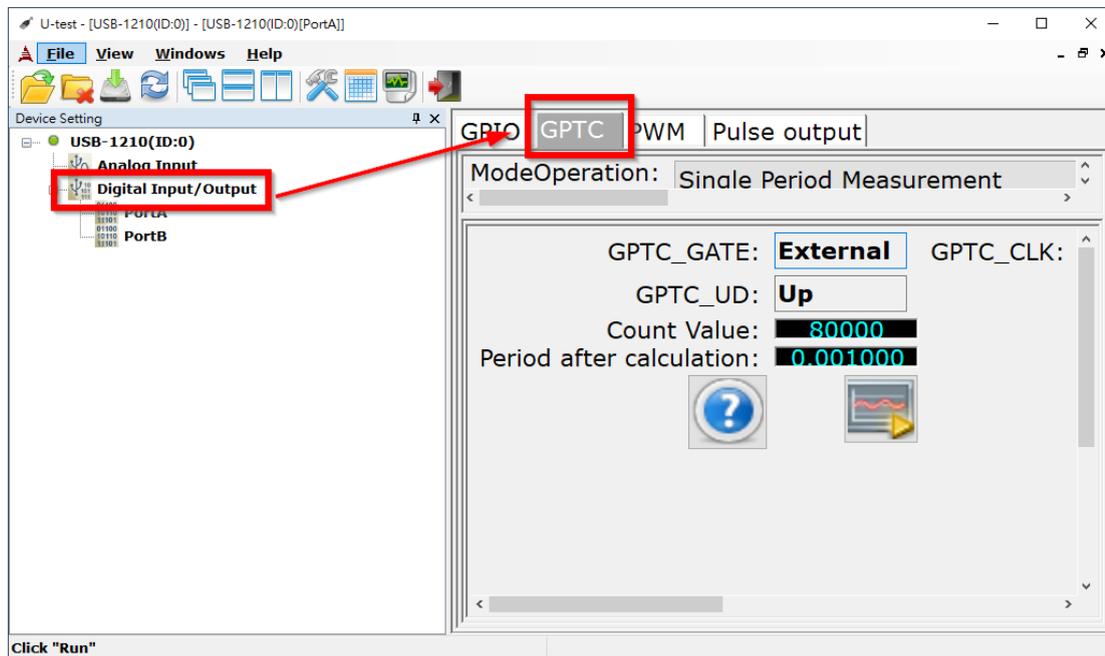
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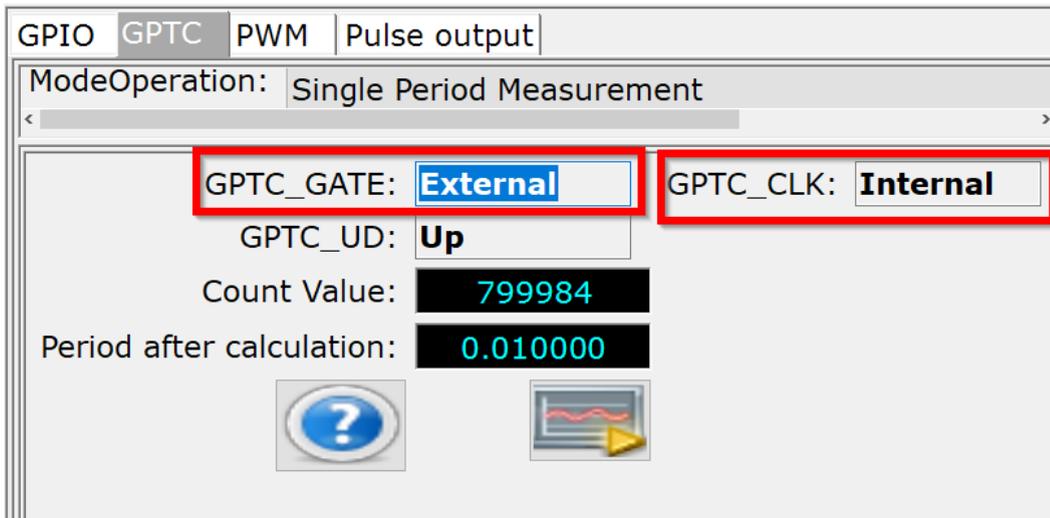
Step 4: Launch sample program

1. Launch U-test
2. Click **Digital Input/Output** in the left pane
3. Select the **GPTC** tab in the right pane
4. Under **ModeOperation**, select **Single Period Measure** or **Single Pulse-Width**



Step 5: Set gate and clock

Set **GPTC_GATE** to External and **GPTC_CLK** to Internal.

**Step 6: Run**

Press the run button (highlighted below) and the DAQ card will start to measure the period. The source signal is 100Hz, the period is $1/100 = 0.01$

