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Category	■FAQ □ SOP	**Related OS**	N/A
Abstract	ADAM-4080, How to configure counter module with external control function?		
Keyword	ADAM-4080, differential signal, counter, external control, gate mode		
Related Product	ADAM-4080, ADAM-4080D		

■ Problem Description:

ADAM-4080/4080D Counter/frequency input module has two 32- bit counter input channels (counter 0 and counter 1) with built-in programmable timer for frequency measurement. There are gate control pin on this counter module, this document explains how to configure counter module with external control function.

■ Answer:

Both ADAM-4080/4080D have two types of signal input, which are differential signal input with photo-isolation design and single-end signal input on non-isolation side.

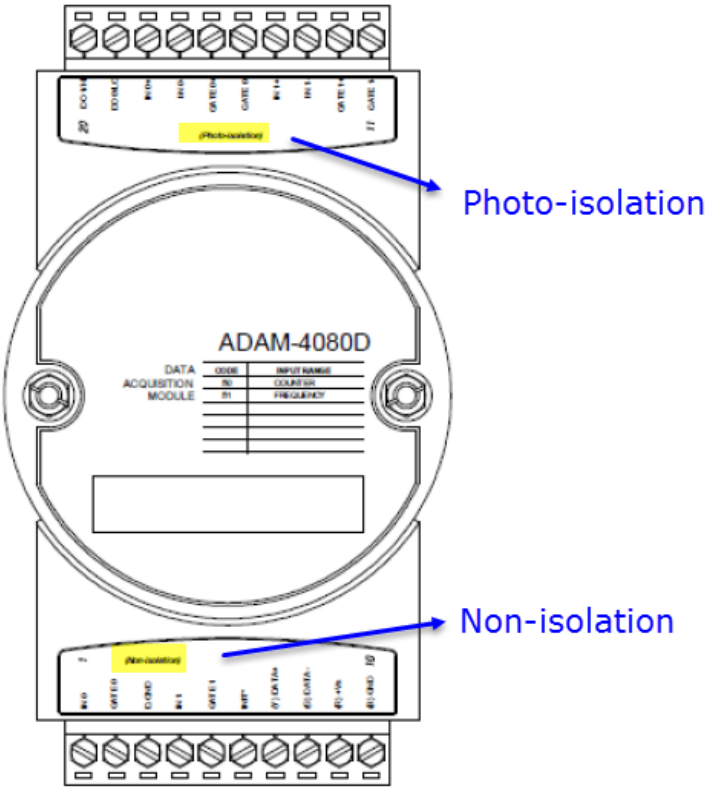
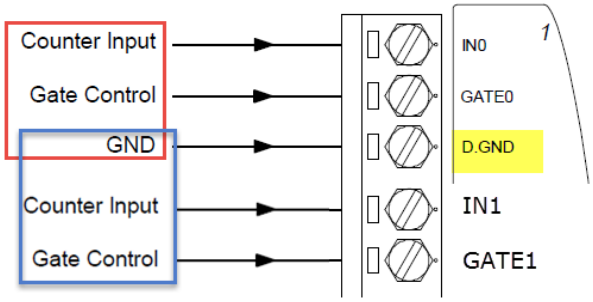
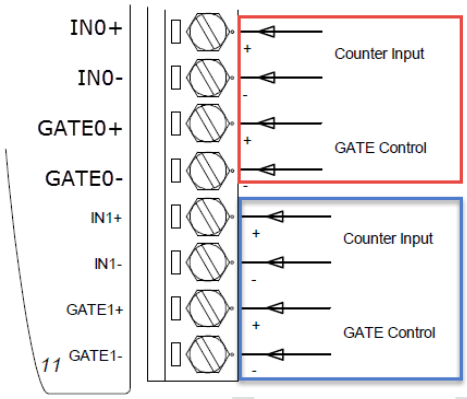


Figure 1 ADAM-4080D Counter/Frequency Input Module with LED display

Below table shows the difference for these types of signal input.

Single-end signal input (Non-isolation)	Differential signal input (Photo-Isolation)
	
Use the **same D.GND pin** for each counter signal, can save channel numbers for multiple signal input	Use **two independent channel** for each counter signal, need more channel numbers for multiple signal input

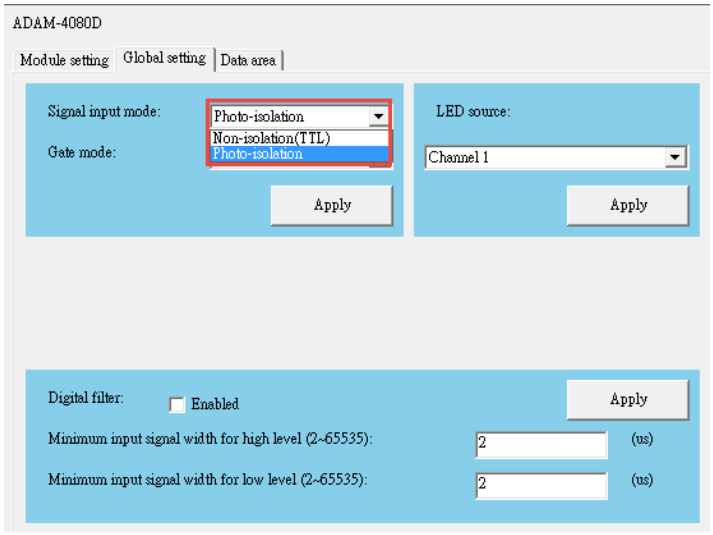
Each channel has a gate pin to connect to external gate signal. The gate signal (high or low) can trigger the counter to start or stop counting. The gate mode can be among these three options, low, high or disabled, which can be set in Utility.

Below table shows the default voltage for gate pin on ADAM-4080/4080D

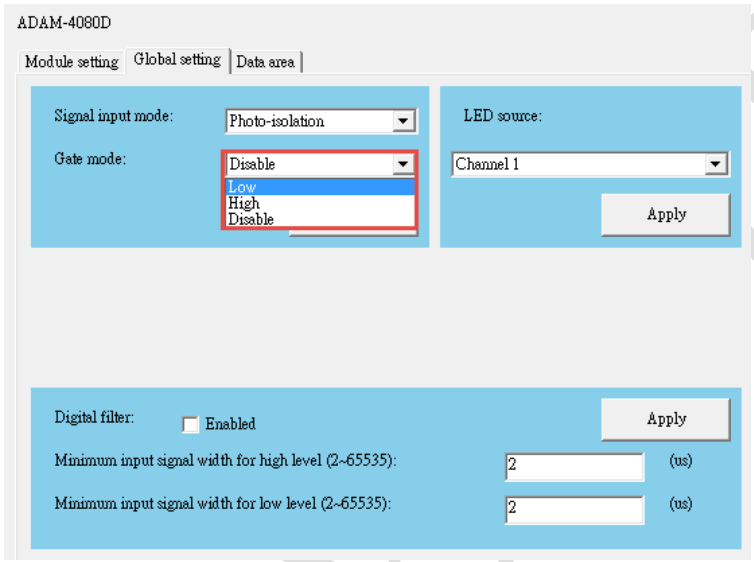
Default logic status	Gate mode	Description
Photo-isolation: Low Non-isolation: High	Low	counting starts when the gate signal is low, and it stops once the gate signal becomes high
	High	counting starts when the gate signal is high, and it stops once the gate signal becomes low
	Disable	Always start counting

To configure ADAM-4080D with external control, please follow below steps with the following pictures.

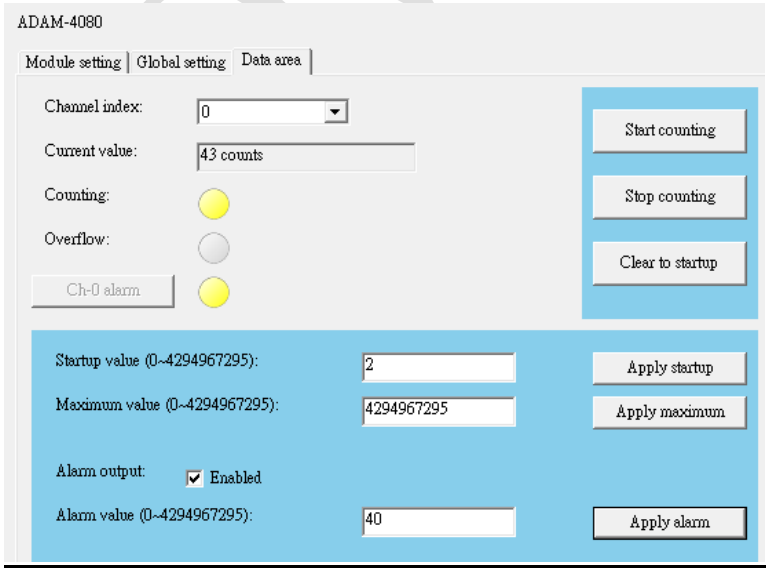
1. Choose which signal input mode in Utility



2. Choose gate mode in Utility



3. Apply counter signal to see count value in data area menu



Note: Since the default voltage on photo-isolation side is logic low, user can see the count value for counter channel 0, even when no gate pin signal is applied on.