Startup: ADAM-5081 with ADAM-5550KW:

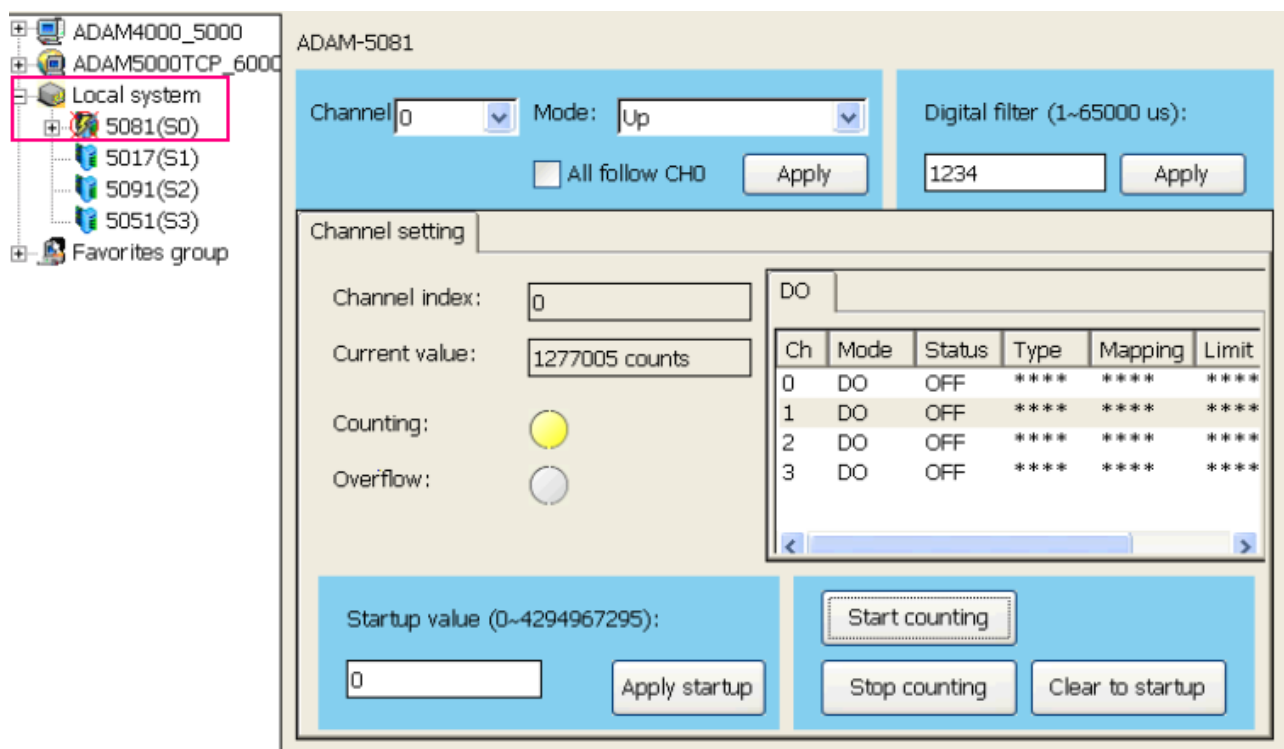Insert ADAM-5081 in ADAM -5550KW, for example in Slot 0.

Before starting programming, the module can be tested by using Adam.Net utility.

The Adam.Net utility is located as illustrated:

The procedure can be demo from the v1.

Select the desired testing channel and setup proper counter mode and correct wiring thus the counting value can be checked form the utility.

Counter Programming in KW Multiprog

After testing and make sure the module works fine, please turn on Multiprog and create a new project using Adam CE template.

1. Create a new project using AdamCE template.
2. Using I/O Configuration to Configure the Adam-5081 properties.
3. Add Adam-5081GetCnt function block for Programming
4. Compile, download and test
   a. In IO configuration 'Advantech_DAQ' select 'output' tab and add 'Adam-5081O' driver. All the Adam-5081 configurations can be setup at a popup window. Input the slot number in board ID and the proper counter mode for using channel.
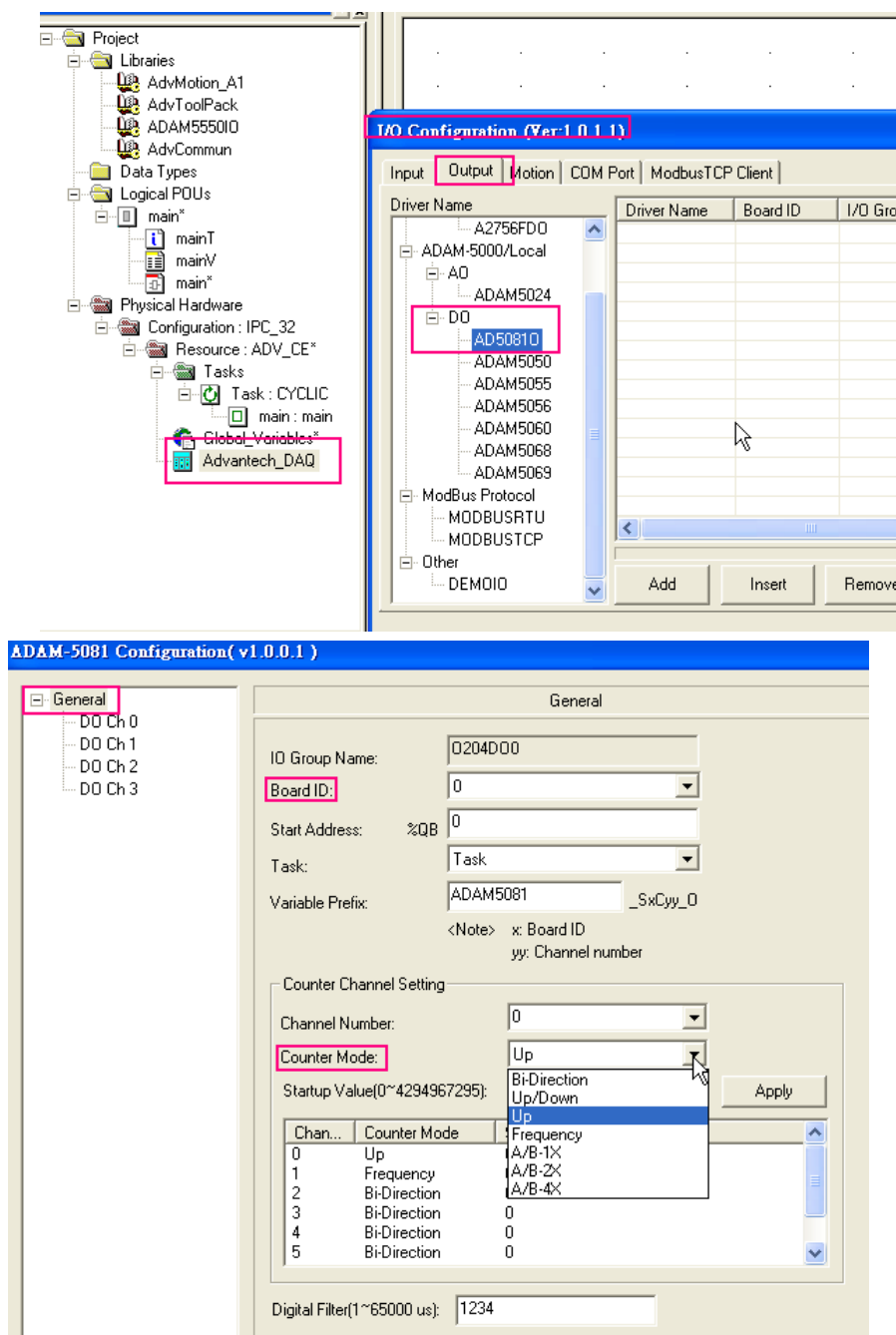
b. After configurations, add the A5081GetCnt Function Block and input proper parameters/values. Compile the program and download the program. It can read the counter value.
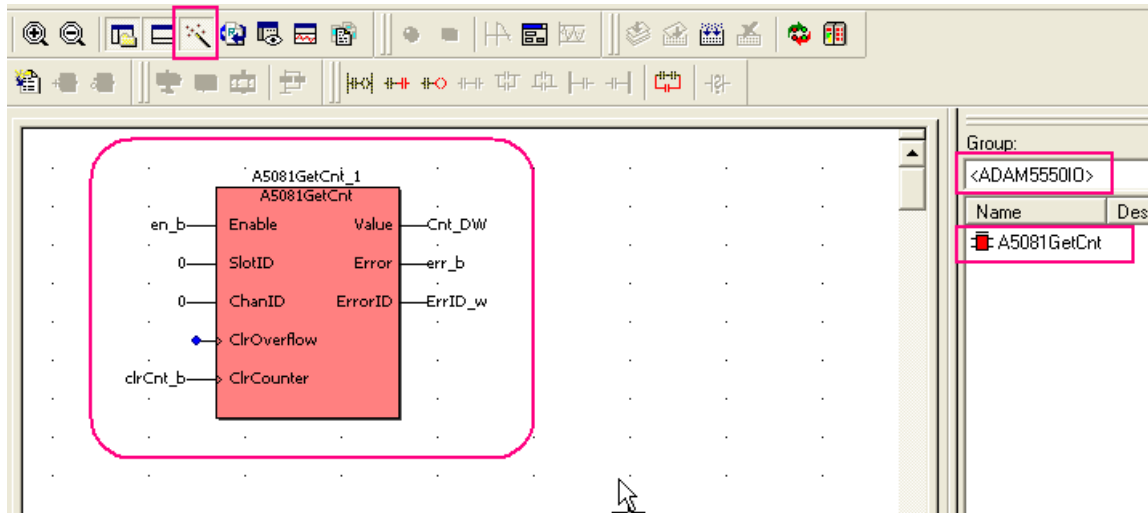
Additional DO functions:

ADAM-5081 provides 4 DO channels. The DO can be used as normal DO function or can be used as Alarm Latch. The setting is also in I/O configuration 'Output' tab and click DO Ch0. In the 'DO Mode' drop down window, you can select 'DO' or 'Local Alarm Latch'.
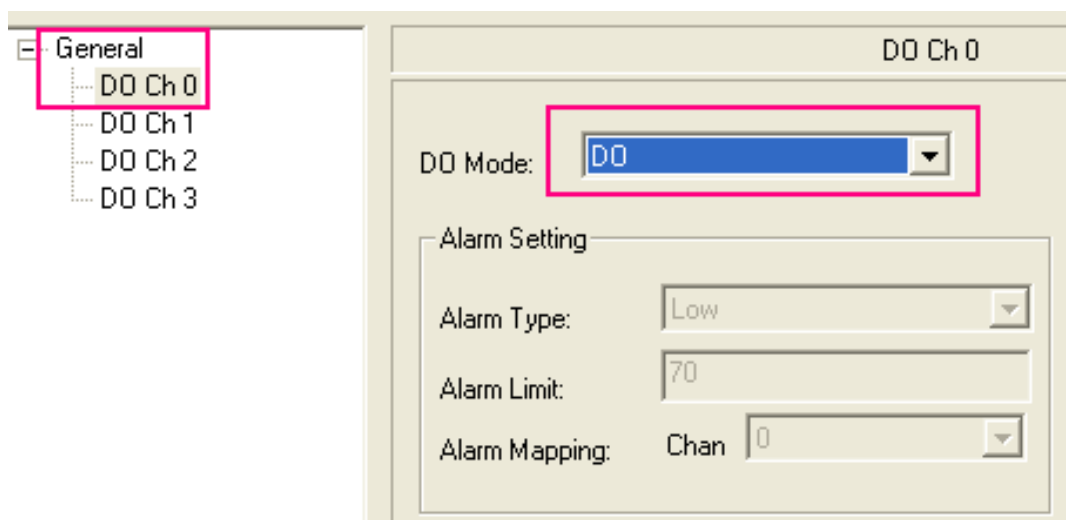
1. If the 'DO' mode is selected, then it is standard digital output and the mapping I/O address can be found in Global variable.
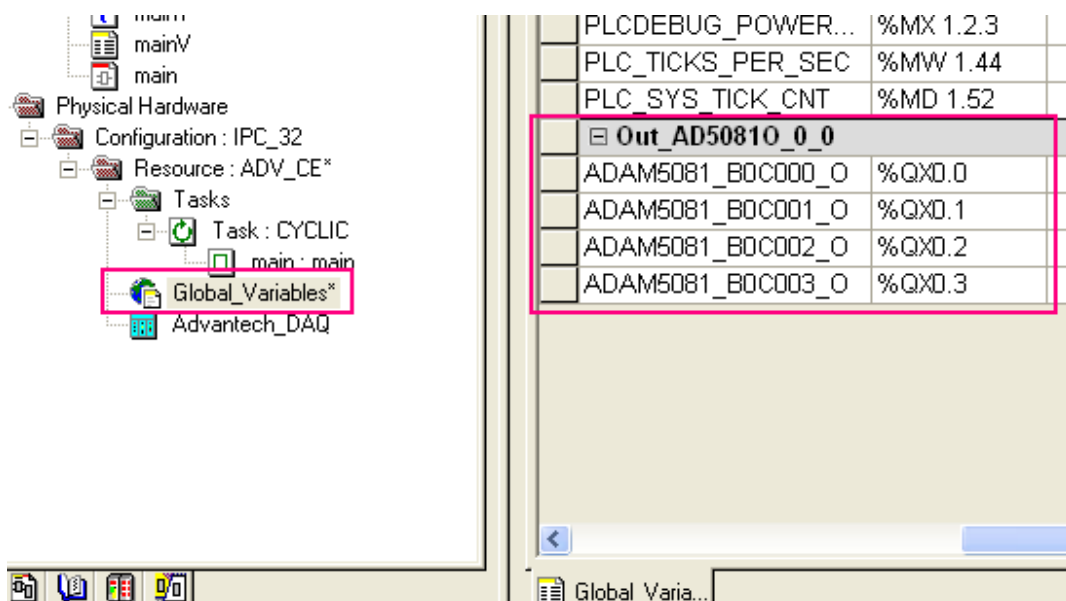

2. DO can also be configured as 'Local Alarm Latch' mode. When setting up this mode, 3 more parameters like alarm type, limit and the counter channel number which is mapped to the DO needed to be setup. Alarm type is for high alarm or low alarm. For example, if high alarm is selected and when the counter number is over high alarm limit then the DO will be latched. When using this mode, digital output function will be disabled. The DO function will change to clear the latch. Therefore, the output mapping address in global variable, like %QX0.0 will be used to clear the latch.
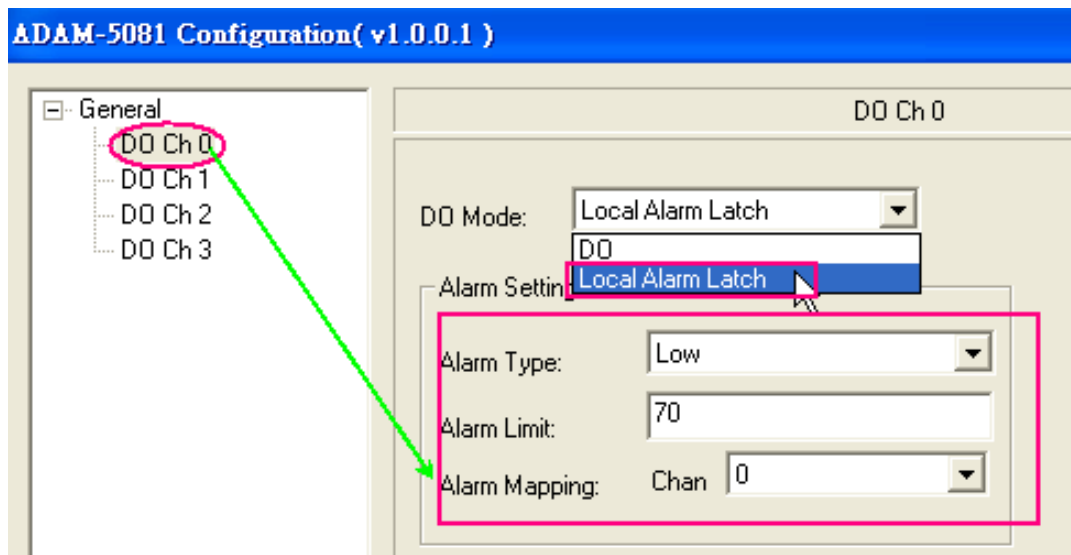
Plus, in order to check Alarm latch status, it will need to add another input driver.
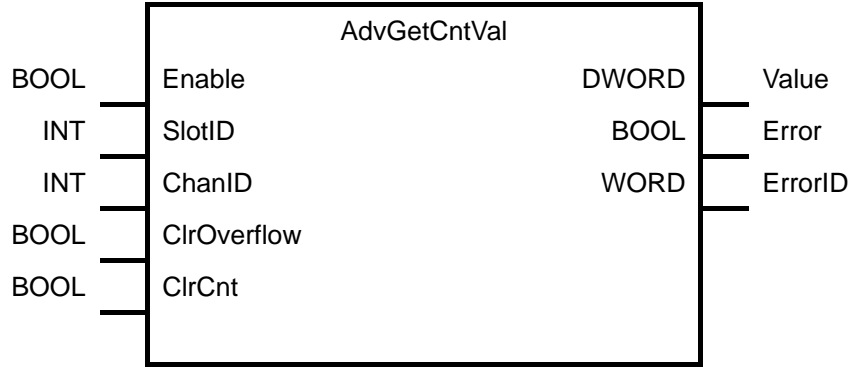
From Advantech_Daq (IO configuration) add and configure AD5081I. The corresponding IO address will generate at global variables. Thus if the alarm latches, the corresponding DI will change from low to high.
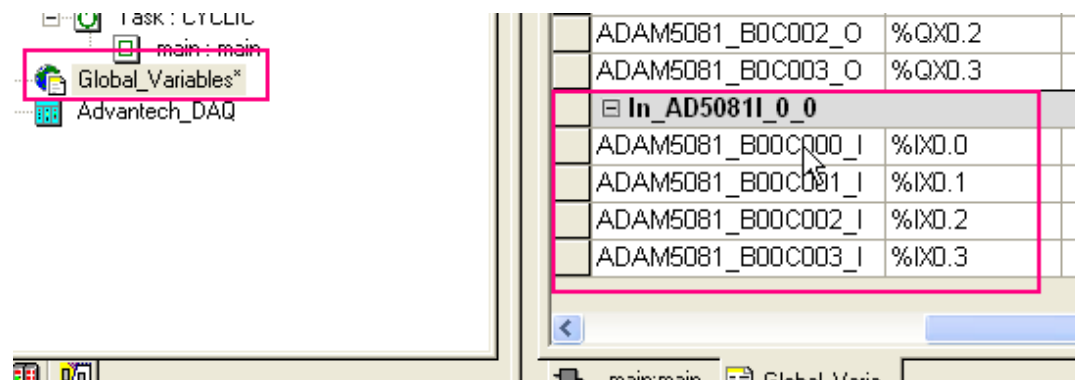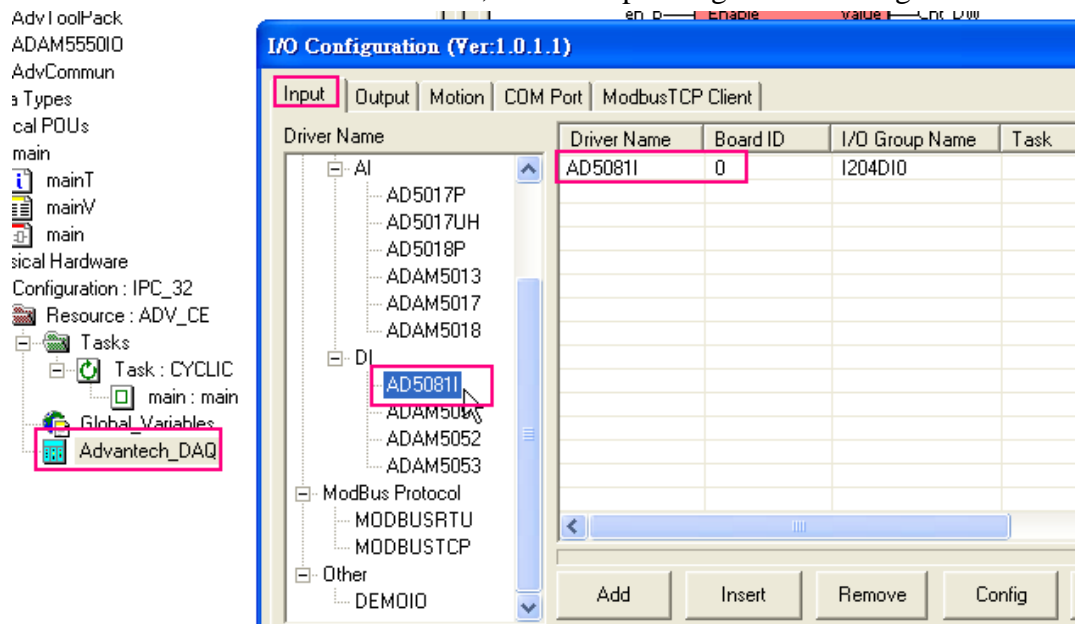
Function Block definition

AdvGetCntVal

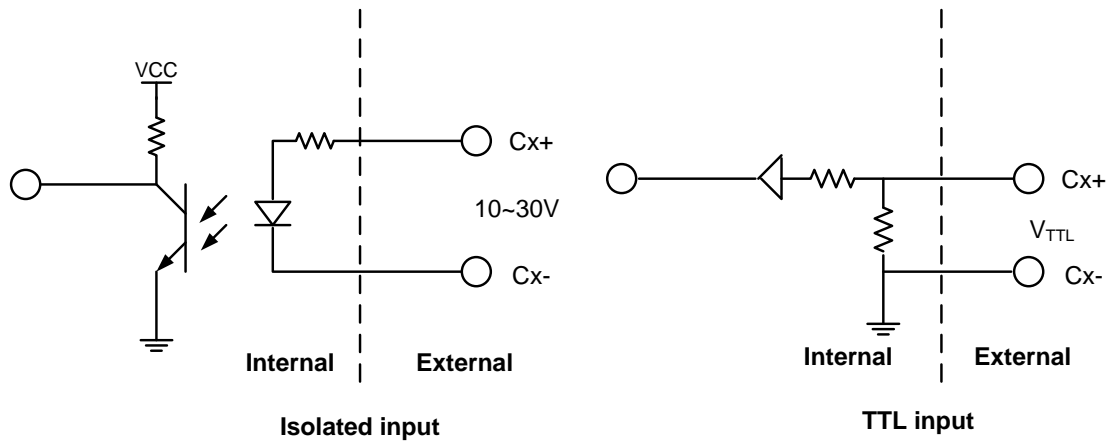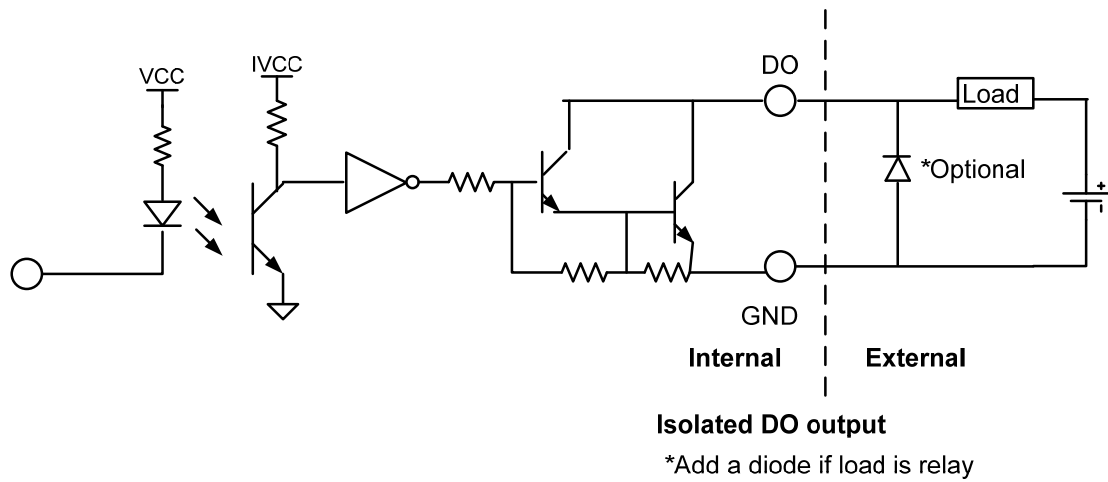| FB-Name	**AdvGetCntVal**		
This function block gets counter value continuously if Enable = true			
VAR_INPUT			
	Enable	BOOL	Get counter value if enable = true
	SlotID	INT	The slot number of ADAM5550
	ChanID	INT	The channel number of ADAM5081
	ClrOverflow	BOOL	Clear overflow at the rising edge of ClrOverflow
	ClrCnt	BOOL	Clear count at the rising edge of ClrCnt
VAR_OUTPUT			
	Value	DWORD	The returned counter value
	Error	BOOL	Signals that an error has occurred within FB
	ErrorID	WORD	Error code
Note: - .			

```
                    ┌─────────────────────────────────────┐
                    │           AdvGetCntVal              │
      BOOL        ──┤ Enable                    DWORD     ├── Value
       INT        ──┤ SlotID                     BOOL     ├── Error
       INT        ──┤ ChanID                     WORD     ├── ErrorID
      BOOL        ──┤ ClrOverflow                         │
      BOOL        ──┤ ClrCnt                              │
                    └─────────────────────────────────────┘
```

➢ Error ID

Error ID	*Error Description*
0	Success
1	Invalid slot ID
2	Invalid channel number
3	Failed to get counter
4	Invalid module
5	Failed to clear overflow
6	Failed to clear counter
7	Failed to enable counter
8	Failed to disable counter

Hardware Wiring:

Input

VCC

Cx+

10~30V

Cx-

Internal   **External**

Isolated input

Cx+

V_{TTL}

Cx-

Internal   **External**

TTL input

Output

VCC

IVCC

DO

Load

*Optional

+

GND

Internal   **External**

Isolated DO output
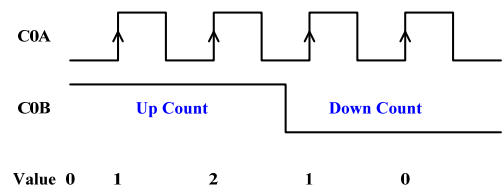
*Add a diode if load is relay

ADAM-5081 4/8 Channel Counter/Frequency Module
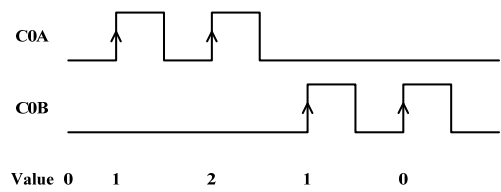
- **Spec.**
    1. **Channels:** 4 (Bi-direction or Up-Down or AB Phase) / 8 (Up or Frequency)
    2. **Function Modes:**
        A. Bi-direction (Pulse/Dir)
        B. Up-Down
        C. Up
        D. Frequency
        E. A/B Phase: 1x, 2x, 4x
    3. **Maximum Count:** 4294967295(32 bit)
    4. **Input Frequency:** 1Hz~1MHz (50% duty cycle)
    5. **Minimum Input Current:** 5mA (Isolated)
    6. **Input Level: (select by jumper)**
        A. Isolated: Logic level 0: 0~3V, Logic level 1: +10~30V
        B. TTL: Logic level 0: 0~0.8V, Logic level 1: +2.3~5V
    7. **Isolation Voltage:** 2500 V
    8. **Counter Aux. Function:**
        A. Initial preset
        B. Hi-low alarm setting and digital output mapping
        C. Overflow flag
        D. Programmable digital noise filter: 1~65000 μ Sec
    9. **Frequency measurement accuracy:**
        A. +/-50 ppm. (oscillator)
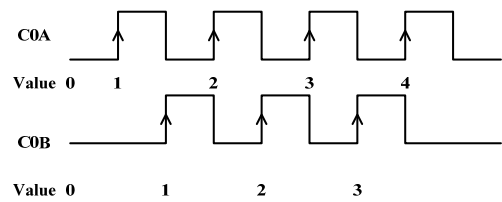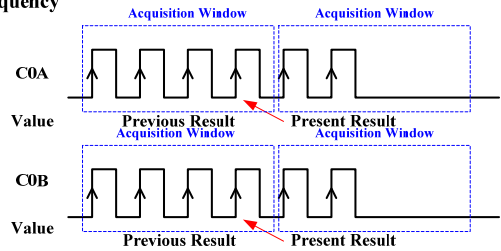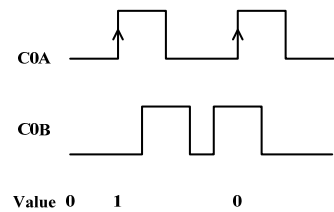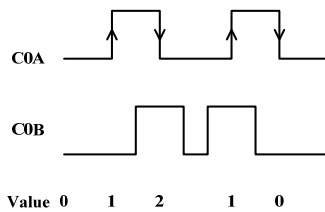
● **Support Input Type:**

Bi-direction

C0A

C0B Up Count Down Count

Value 0 1 2 1 0

Up/Down

C0A

C0B

Value 0 1 2 1 0

Up

C0A

Value 0 1 2 3 4

C0B

Value 0 1 2 3

Frequency

Acquisition Window Acquisition Window

C0A

Value Previous Result Present Result

Acquisition Window Acquisition Window

C0B

Value Previous Result Present Result

A/B Phase 1X

C0A

C0B

Value 0 1 0

A/B Phase 2X

C0A

C0B

Value 0 1 2 1 0

A/B Phase 4X

C0A

C0B

Value 0 1 2 3 4 3 2 1 0

● Alarm

Value

Alarm Trigger
Point (Edge
Trigger)

◄---- Alarm Value

◄---- Alarm Value -1

Counter
Value

time

DO Status

DO Off DO On

Hi Alarm

Value

◄---- Alarm Value+1

◄---- Alarm Value

Counter
Value

time

DO Status

DO Off DO On

Lo Alarm