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Advantech AE Technical Share Document

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Category	■FAQ □ SOP	**Related OS**	N/A
Abstract	ADAM-60XX-D version, What's the DO diagnosis function?		
Keyword	DO diagnosis, wire break, short to ground, over current, abnormal, D version		
Related Product	ADAM-6050, ADAM-6051, ADAM-6052		

■ Problem Description:

When activating the digital output, circuit wire break or short to ground will result in the failure of digital output. In order to help users to clarify the situation quickly, ADAM-6050/6051/6052 (D version) are designed with digital output diagnostic function that is able to detect and respond the digital output abnormal situation. This document explains what the DO diagnosis function is and how to do trouble shooting by checking the DO diagnosis status.

■ Answer:

The diagnostic status is grouped as below. Please note that only ADAM-6052 (D version) provide each channel diagnostic status function.

ADAM-6050 (D version)	
Diagnostic Group	DO channel
Group 0	0,1
Group 1	2,3
Group 2	4,5

ADAM-6051 (D version)	
Diagnostic Group	DO channel
Group 0	0,1

ADAM-6052 (D version)	
Diagnostic Group	DO channel
Group 0	0
Group 1	1
Group 2	2
Group 3	3
Group 4	4
Group 5	5
Group 6	6
Group 7	7

Table 1.1 DO diagnostic groups for ADAM-6050/6051/52 (D version)

If an error occurs on any channel in the group (or could be both channels), the DO diagnostic status will show abnormal on ADAM.Net utility (V2.05.10B08 or higher version).

The possible reasons causing the DO channel abnormal could be below conditions.

ADAM-6050/6051 (D version)	
Before DO channel is activated	**DO channel is activated**
Digital output circuit wire break (Open load)	Over current (over 1A)
Digital output connection is short to ground	
ADAM-6052 (D version)	
Before DO channel is activated	**DO channel is activated**
N/A	Digital output connection is short to ground
	DO over current (over 1A, typical)

Table 1.2 Abnormal statuses for ADAM-6050/6051/52 (D version)

Note: For ADAM-6052, when operating at 70°C, max. total current for DO0~DO3 and DO4~DO7 is recommended to be less than 3A.

Below is an example of how to trouble shooting with the DO diagnosis showing on ADAM.Net utility.

To simulate wire break happens on DO0, disconnect the loading from DO0, you will see "DO0~DO1 abnormal" show in ADAM.Net utility before both DO channel is activated as below picture.

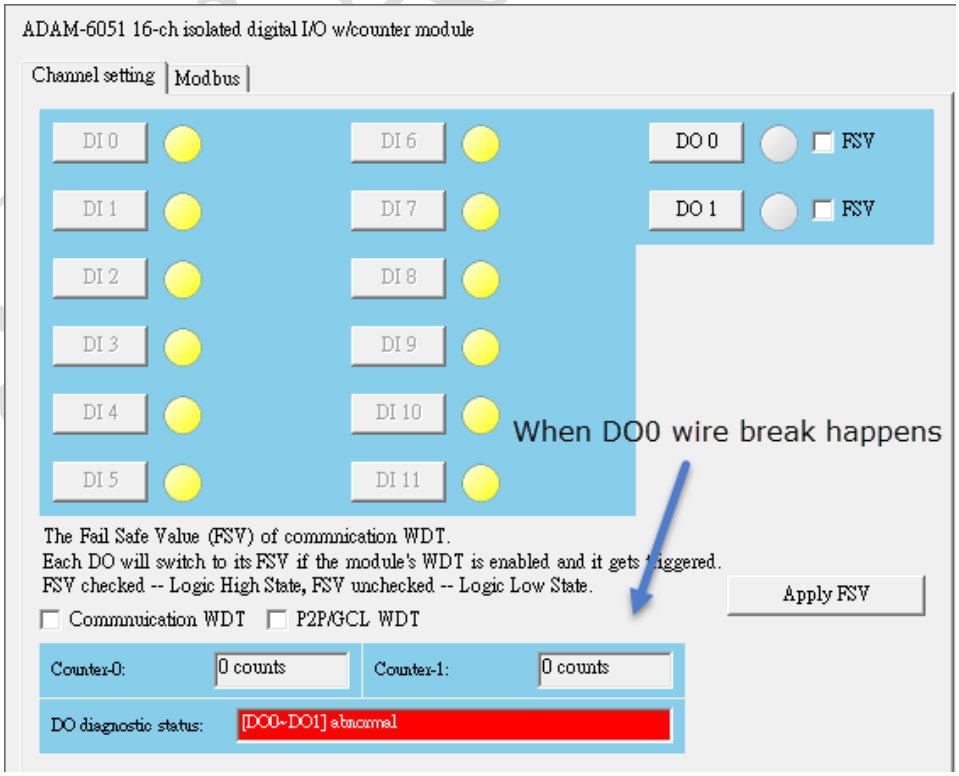

Figure 1. DO diagnostic status show "abnormal" when wire break on DO0 of ADAM-6051

After connecting DO0 loading to ADAM module, you will see “All normal” show in ADAM.Net utility before both DO channel is activated as below picture.

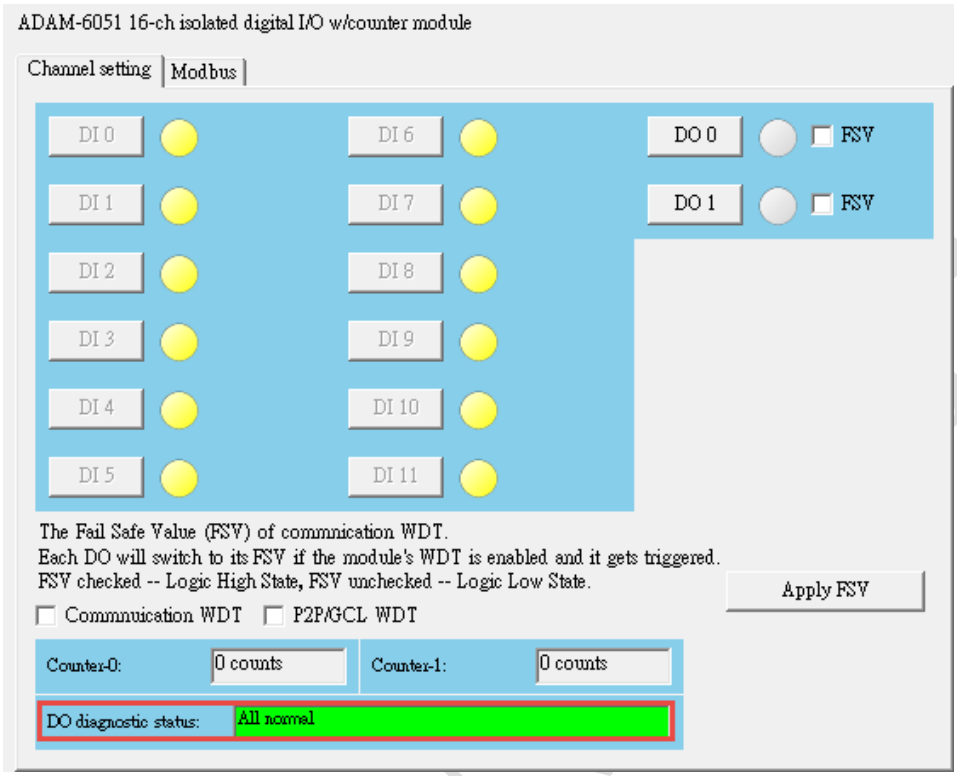

Figure 2. DO diagnostic status show “All normal” when both DO channel are connected properly

By checking the abnormal statuses for ADAM-6050/6051/52 (D version) in *Table 1.2*, user can know what might be the possible reason for DO channel showing abnormal.