

Advantech AE Technical Share Document

Date	2018/1/26	SR#	1-3330915668
Category	■FAQ □SOP	Related OS	N/A
Abstract	ADAM-4X5X_ADAM-6X5X_ How to turn wet contact signal into dry contact signal.		
Keyword	Relay, wet contact, dry contact		
Related Product	ADAM-4X5X, ADAM-6X5X		

■ **Problem Description:**

Customers use an ADAM-4051 to detect the wet contact signals from different devices. However, their DO signals' GND will be connected together due to our circuit design. Customers cannot accept this wiring because of they want their signals are fully isolated.

■ **Answer:**

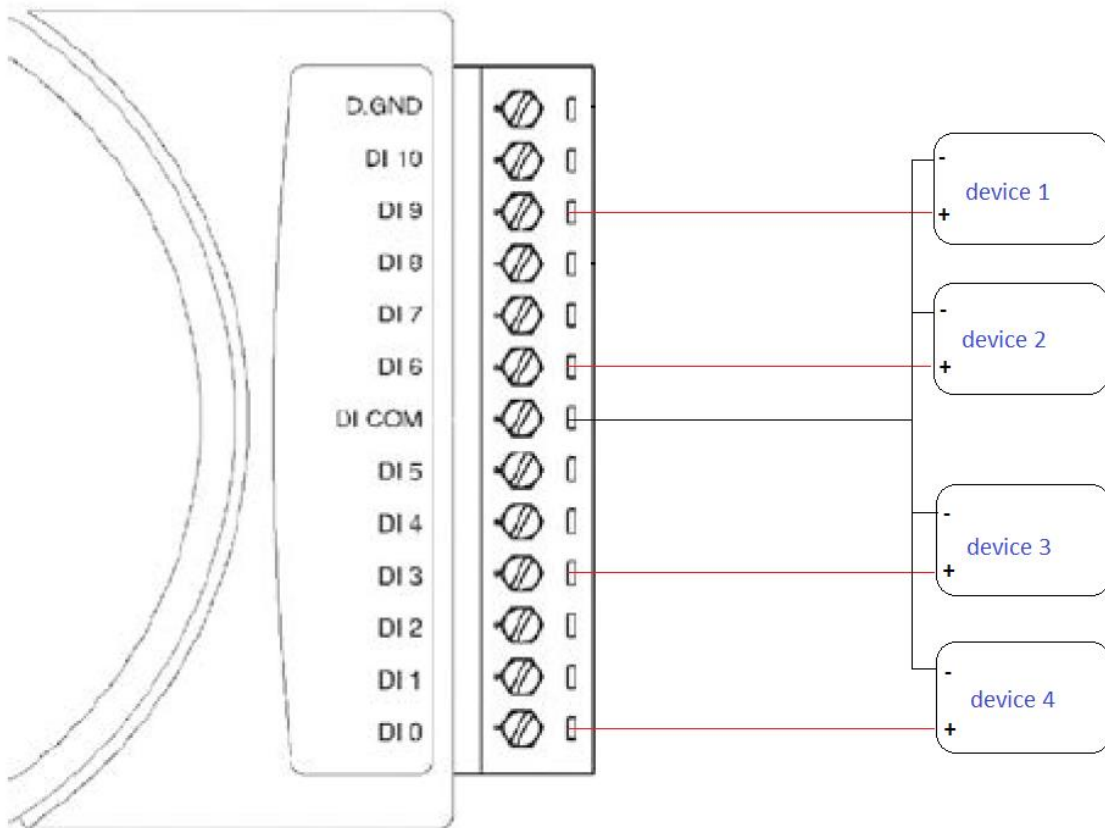


Figure 1. Users' wiring diagram (GND of every device are connected together at DI COM)

Like Figure 1. shows, customers want to use a ADAM-4051 to detect multiple signals from different devices. But ADAM-4051 is a 16 channels DI module, its application is for signals which come from equal voltage level. If there is any unequal voltage level problem between devices, the measurement may have errors.

Since DI wet signals come from different devices, they cannot be connected together with the DI COM pin of ADAM. With the help of relay component, we can turn DI wet contact signal into dry contact signal, which solves the different voltage level problem between devices. Like *Figure 2.*, when device output HIGH or LOW, relay will have different action (close or open). This will let ADAM-4051 detect different dry contact input (close to GND: 1 or open:0). So by adding relays, we can turn wet contact signals into dry contact signals and solve the unequal voltage ground problem in wet contact at the same time. Please note that the relays must match the device output voltage and its specification. (In below case, we use 5Vdc relay as example.) And please note that the wiring structure should be changed into dry contact form, because we already convert the wet signal into dry signal.

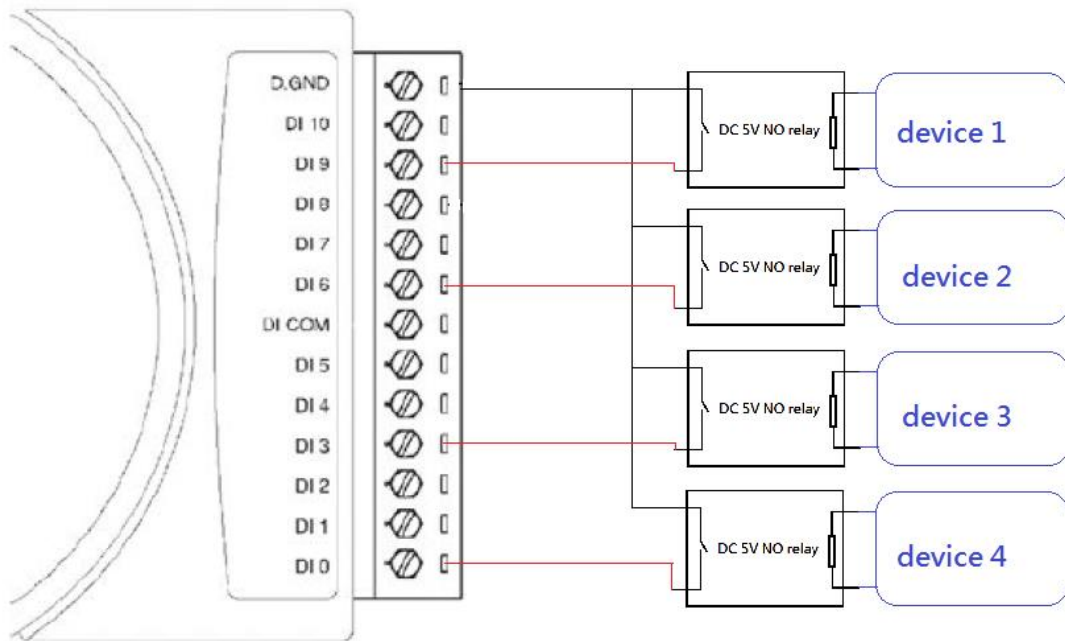


Figure 2. wiring diagram(use 5Vdc N.O. relays as example)

There is another solution for this kind of problem, use ADAM-4052. It is a module which has 6 fully independent isolated channels 2 isolated channels with common ground. Its application wiring diagram and channels' arrangement is like *Figure 3.* But please note that it has some differences comparing with ADAM-4051. (You can check the differences in its [SPEC.](#))

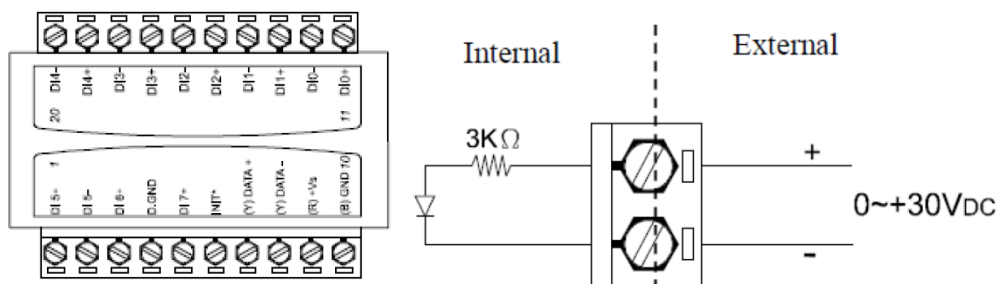


Figure 3.ADAM-4052 information