NuDAM -6050 Digital Input/Output Module

1. Introduction

NuDAM-6050 is a digital input and output module. The digital input channels can monitor active TTL signals, and sense passive switch on/off signal because of the internal pull high resistors. The convenient open collector output channels can sink up to 50mA current. Combining with the relay devices, it is possible to control the high power devices by programming output channel of the NuDAM-6050.

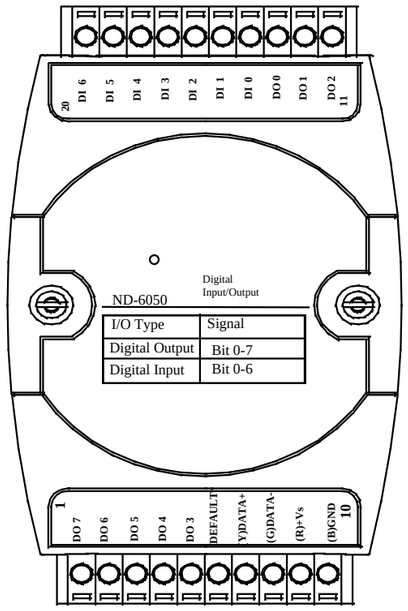
Features

- 7 bits digital input
- 8 bit open collector digital output
- programmable power on output state
- programmable in/out polarity setting
- programmable host watchdog timer for host failure protection
- internal watchdog timer for device failure protection
- easy programming by software
- easy installation and wiring

Specifications

- Interface:
  RS-485, 2 wires
  Speed (bps): 600, 1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k
- Digital Input:
  Channel number: 7
  Logic level: TTL
  Pull up resistor: 10KΩ
  Maximum current: 0.5mA
- Digital Output:
  Channel number: 8
  Output characteristic: open collector transistor
  Maximum current sink: 50mA
- Storage Temperature Range: -25 to 80 °C
- Operating Temperature Range: -10 to 70 °C
- Power Requirement: +10V to +30V_{DC} Unregulated with against power reversal
- Power Consumption: 0.35W
- Case: ABS with captive mounting hardware
- CE Class A Conformity

2. Pin Assignment



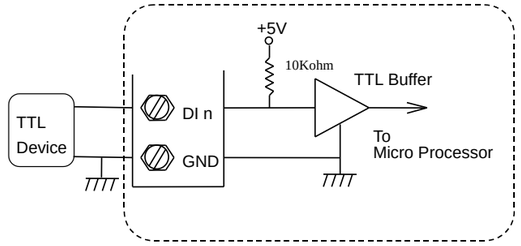
Pin Definitions

Pin #	Signal Name	Description
1	DO7	Digital output channel 7
2	DO6	Digital output channel 6
3	DO5	Digital output channel 5
4	DO4	Digital output channel 4
5	DO3	Digital output channel 3
6	DEFAULT*	Initial state setting
7	(Y)DATA+	RS-485 signal, positive
8	(G)DATA-	RS-485 signal, negative
9	(R)+VS	Power supply, +10V ~ +30Vdc
10	(B)GND	Ground
11	DO2	Digital output channel 2
12	DO1	Digital output channel 1
13	DO0	Digital output channel 0
14	DI0	Digital input channel 0
15	DI1	Digital input channel 1
16	DI2	Digital input channel 2
17	DI3	Digital input channel 3
18	DI4	Digital input channel 4
19	DI5	Digital input channel 5
20	DI6	Digital input channel 6

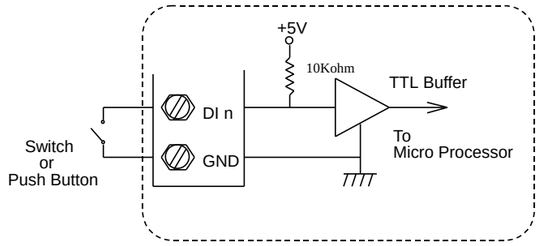
The module is in DEFAULT mode when DEFAULT* pin connected to GND while applying power on the module.
Do not apply any power signal to DEFAULT* pin, just left it open or connected it to GND.

3. Application Wiring

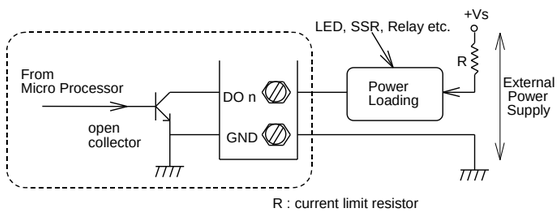
TTL Input



Digital Input Connect with Switch/Push Button

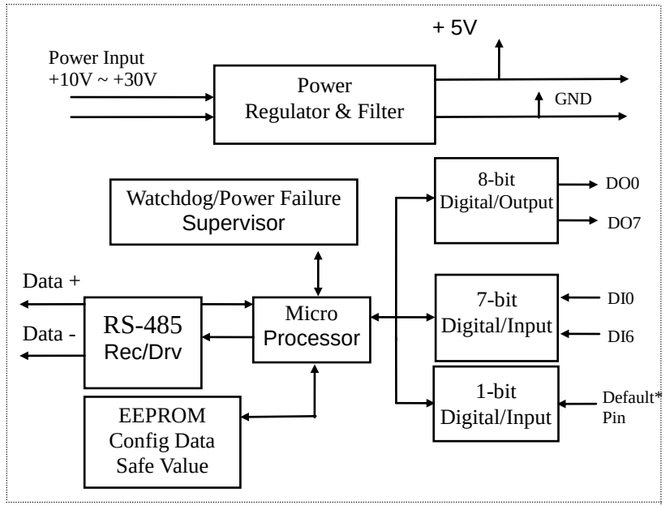


Open Collector Output with Power Load



R : current limit resistor

4. Functional Block Diagram



5. Installation

Equipment for Installation

A existing RS-485 network
NuDAM modules
DC Power supply (+10V~+30V)
Wires for power, communication and I/O signal

Installation Procedure

1. Configure every single NuDAM module under the administration utility.
2. The baud rate setting and calibration procedure must be done under the DEFAULT* mode.
3. The baud rate and check-sum status must be identity with the application network. The address ID must not be conflict with other modules on the network.
4. Plug the new module to the existing network.
5. Use the NuDAM administration utility to check the entire network.

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6. Command Set

There are three categories of NuDAM commands. The first is the ***general commands***, including set configuration command, read configuration, reset, read module's name or firmware version, etc. Every NuDAM can response to the general commands. The second is the ***functional commands***, which depends on functions of each module. Not every module can execute all function commands. The third is the ***special commands*** including functions about the programmable watchdog timer, safe values, and the programmable leading code. All the commands used in the NuDAM discrete input/output module are list in the following table.

Command	Syntax
General Command	
Set Configuration	**%(OldAddr)(NewAddr)(InputRange)(BaudRate)(DataFormat)**
Read Configuration	**$(Addr)2**
Read Module Name	**$(Addr)M**
Read Firmware Version	**$(Addr)F**
Software Reset	**$(Addr)RS**
Reset Status	**$(Addr)5**
Functional Command	
Digital Input	**$(Addr)6**
Digital Output	**#(Addr)(ChannelNo)(OutData)**
Synchronized Sampling	**#****
Read Synchronized Data	**$(Addr)4**

Special Command	
Read Command Leading Code Setting	**~(Addr)0**
Change Command Leading Code Setting	**~(Addr)10(C1)(C2)(C3)(C4)(C5)(C6)**
Set Host Watchdog / Safety Value	**~(Addr)2(Flag)(TimeOut)(SafeValue)**
Read Host WatchDog / Safe Value	**~(Addr)3**
Host is OK	**~****
I/O Polarity Setting	**~(Addr)CP(State)**
Read Polarity Setting	**~(Addr)CR**

**** The module accepts calibration command, baud rate and checksum configuration setting under the DEFAULT* mode.***

**** Please refer the manual in PDF file format in the CD for detail description of these commands.***

7. ADLINK on the Internet

The full version manual can be download from website
http://www.adlink.com.tw/download/manual/index.htm#6000

Homepage: http://www.adlink.com.tw
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