NuDAM -6021 Analog Output Module

1. Introduction

ND-6021 is an analog signal output module. It receives the digital command from host computer through RS-485 network. The format of the digital value can be engineering units, hexadecimal format or percentage of full-scale range (FSR). The analog output can be either voltage or current output.
The ND-6021 is designed for safety. It provides many safety functions such as isolation, watchdog, and power on safety value. The opto-isolators provide 5000Vrms isolation voltage to isolate the digital section and the remote controlled analog equipment. The damage of power surges is avoided.
Another safety function is the watchdog. Whenever the host is loss contact with the remote NuDAM module, or the micro-processor is down, the module will reset itself and send the safety value to the analog output therefore the industry safety is guarantee. The safety value / power-up value can be set by configuration software.

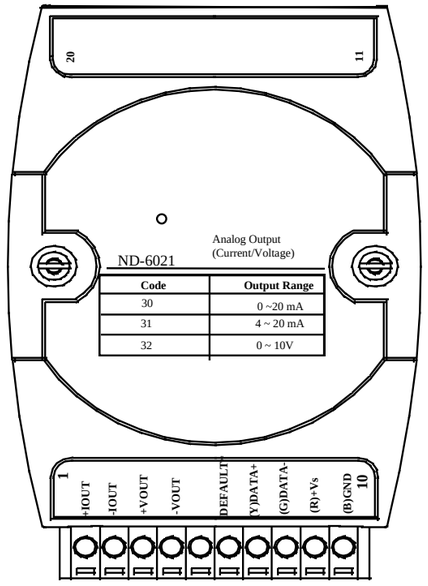
Features

- unipolar analog output channel
- two sets of differential current and voltage output terminals
- 5000 Vrms analog output isolation
- 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
- Analog Output:
  Signal output type: differential
  Resolution: 12 bits
  Accuracy: ±0.2% of FSR
  Voltage output: 0 to 10V
  Current output: 0 to 20mA, 4 to 20mA
  Slew rate: 0.0625 to 64V/sec, 0.125 to 128mA/sec
  Isolation Voltage: 5000 Vrms
- 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: 1.35W
- Case: ABS with captive mounting hardware
- CE Class A Conformity

2. Pin Assignment



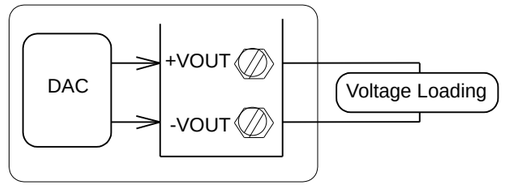
Pin Definitions

Pin #	Signal Name	Description
1	+IOUT	Positive current output terminal
2	-IOUT	Negative current output terminal
3	+VOUT	Positive voltage output terminal
4	-VOUT	Negative voltage output terminal
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

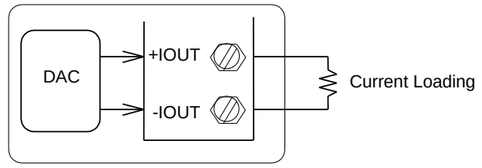
The module is in DEFAULT mode when DEFAULT* pin connected to GND while applying power on the module.
Do not apply any power signal to DEFAULT* pin, just left it open or connected it to GND.

3. Application Wiring

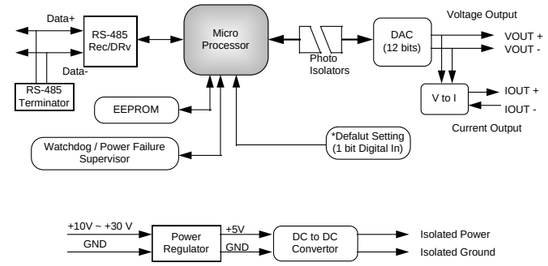
Differential Voltage Output



Differential Current Output



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.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

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 analog output module are list in the following table.

Command	Syntax
General Command	
Set Configuration	**%(OldAddr)(NewAddr)(OutputRange)(BaudRate)(DataFormat)**
Read Configuration	**$(Addr)2**
Read Module Name	**$(Addr)M**
Read Firmware Version	**$(Addr)F**
Reset Status	**$(Addr)5**
Software Reset	**$(Addr)RS**
Functional Command	
Analog Data Out	**#(Addr)(OutData)**
Save Power on Analog Value	**$(Addr)4**
Last Value Read Back	**$(Addr)6**
Current Read Back	**$(Addr)8**
Trim Calibration	**$(Addr)3(Counts)**
4mA Offset Calibration	**$(Addr)0**
20mA Offset Calibration	**$(Addr)1**

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	**~****

**** 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
Service: service@adlink.com.tw
Technical Assistance: NuDAM@adlink.com.tw

Copyright © 2000~2001 ADLINK TECHNOLOGY INC.
TEL: 886-2-82265877 FAX: 886-2-82265717
Contents and specification subject to change without notice.
NuDAM® is a registered trademark of ADLINK TECHNOLOGY INC. Other brands of products are trademarks or registered trademarks of their respective holders. **AM-ND6021-E1.00**

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000