출하시 기본설정(공장 초기화)
Address: 01H
Baud rate: 9600 bps
Communication Protocol: Custom ASCII Protocol, checksum disabled

사용자 재설법
1. 전원 OFF상태에서 CONFIG 핀과 Ground연결
2. 전원 ON, 필요시 기본값(통신속도, 어드레스, 통신모드, 체크섬) 재설정
3. 전원 OFF, CONFIG핀과 GND 연결 분리 , 전원 ON

기본설정
Address:01H
Baud Rate: 9600bps
Communication Protocol:Custom ASCII protocol, checksum disabled

1.Set N-Channel Analog Output Value Command

Command :
Syntax：#AAN(data)(cr)

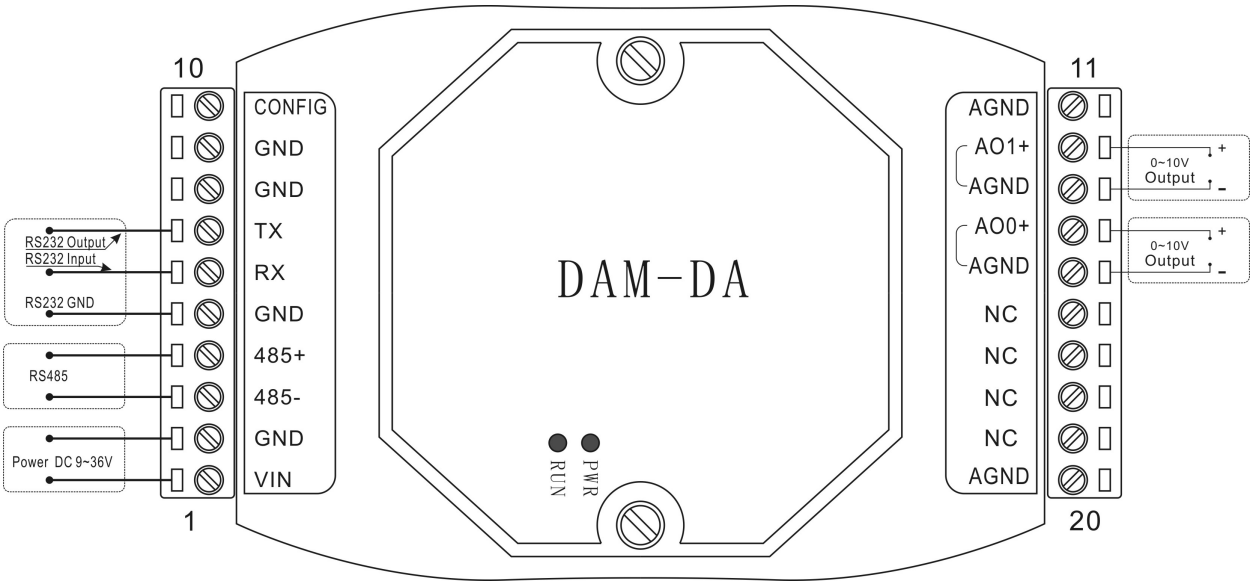
Parameter Description:
delimiter character
AA (range 00-FF) represents the 2-character hexadecimal address of the module.
N Channel code 0 or 1
(cr) the terminating character, carriage return (0Dh)

Response :
!AA(cr) command is valid.
?AA(cr) invalid command or nonlicet operation

Parameter Description:
! delimiter character
(cr) terminating character, carriage return (0Dh)

채널 0번에 4.632V 출력 예)
Command #230+04.632(cr)
Response !23(cr)

Footprint Definition:



Form1: pin definition

PIN Name	PIN No.	PIN Name	PIN Function
POWER	1	VIN	Power input+
GND	2	GND	Power Ground
DI/DO	3	485-	RS485 signal input negative
DI/DO	4	485+	RS485 signal input positive
GND	5	GND	Power Ground
DI	6	RX	RS232 receive terminal
DO	7	TX	RS232 transmit terminal
GND	8	GND	Power Ground
GND	9	GND	Power Ground
DI	10	CONFIG	Configuration Terminal

Form 2: DAM-DA Pin Definition

PIN Name	PIN NO.	PIN Name	PIN Function
NC	11	AGND	analog output CH 1 negative
NC	12	AO1+	analog output CH 1 positive
NC	13	AGND	analog output CH 0 negative
NC	14	AO0+	analog output CH 0 positive
NC	15	AGND	
NC	16	NC	Reserve
AO	17	NC	Reserve
AO	18	NC	Reserve
AO	19	NC	Reserve
AO	20	AGND	Reserve

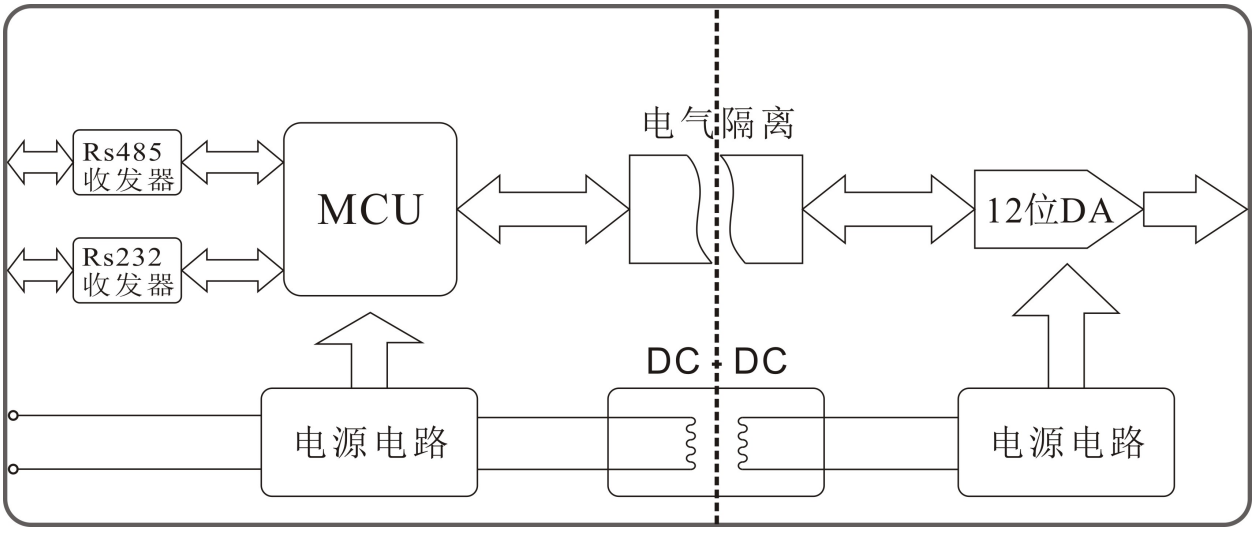


Figure3: DAM-DA Block diagram

MODBUS RTU COMMUNICATION PROTOCOL

Modbus Description:

DAM series module support standard Modbus protocol, the data transmit on the bus by RTU format. And Its every 8 bytes of the information is divided into two 4 bit hexadecimal characters. The advantage of this protocol is with the same baud rate, it transmit characters density is higher than under ASCII protocol.

Format of every byte under RTU:

System coding:8 bit binary system, hexadecimal 0-9, A-F

Data bits:1 start bit

8 data bits, low bit transfer first

Parity check 1bit; no parity 0 bit

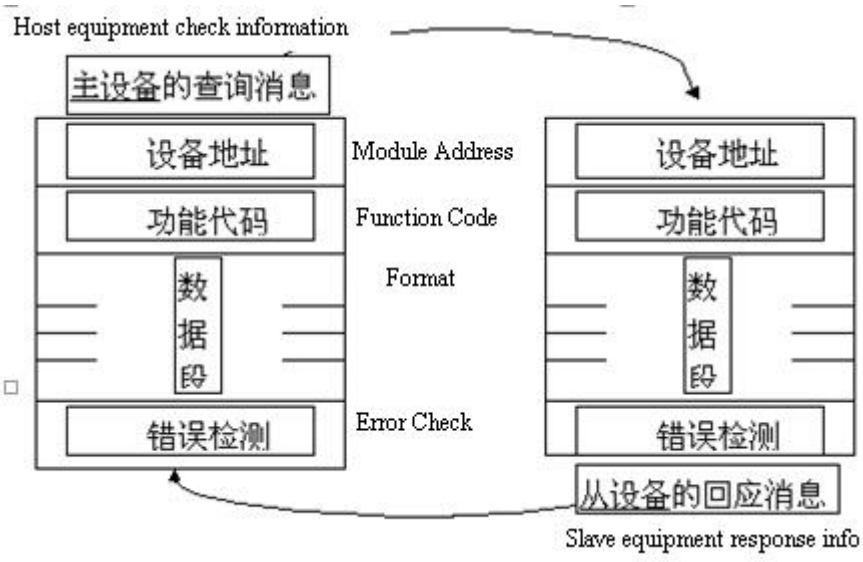
Stop bit 1bit(with check):stop bit 2bit (no check)

With check 1bit stop bit; without check 2 bit stop bit

Error Check Area:cyclic redundancy check(CRC)

Remark: DAM module is transmitted by usual 8-N-1 data bits. That is 1 start bit, 8 data bits, 1stop bit.

Check Response Period:



Host-Slave Check-Response Period

Check:

The function of query message code of the selected from the device to perform the function of what.Data section contains any additional information from the device to perform functions.Such as functional code 03 is read from the device is asked to keep a register and return their content.Data must be included to inform the information from equipment: where to start reading and to read the registers.Error detection domain is from the device provides a correct method of validation message content.

Response:

If from the device to produce a normal response, in response to the message the function code is in the query message function response.Data segment includes collecting data from devices: such as register values or states.If there is an error occurs, the function code will be modified to points out that the response message is wrong, at the same time data section contains information describing the error code.Error detection domain to allow the master to confirm the message content is available.

Modbus Command:

DAM module support Modbus 03 and 06 command. The command and the response format please see below form. The Modbus Address is 0x0000-0xffff. It can read 36 byte one time at most.

Read Register Command 03

Host Inquiry						
Address	Function code	The 1st register high address	The 1st register low address	The high of the register number	The low of the register number	Error check
01	03	00	38	00	01	XX

Slave Response					
Address	Function code	Number of byte	Data High byte	Data low byte	Error check
01	03	2	41	24	XX
The decimal of HEX 4124 is 16676, the error check value is decided by the transmit method.					

Preset single Register Command 06

Host require						
Add.	Function	The high	The low add	The high of	The low of	Error check

	code	add of the preset register	of the preset register	the preset	the preset	
01	06	00	01	00	0F	XX
Slave Response						
Add.	Function code	The high add of the preset register	The low add of the preset register	The high of the preset	The low of the preset	Error check
01	06	00	01	00	0F	XX

Register Specification:

ADD（PLC）	ADD（PC，DCS）	DATA content	attribute	Data explanation
40001	0000	Module Name	Only read	Module Name Code
40002	0001	Channel status	Read/write	Indicates if there is output
40003	0002	Out0(0x0000-0x0FFF)	Read/write	The 0 channel analog output value
40004	0003	Out1(0x0000-0x0FFF)	Read/write	The 1 channel analog output value
40005	0004	Sout0 (0x0000-0x0FFF)	Read/write	The 0 channel with power analog output value
40006	0005	Sout1 (0x0000-0x0FFF)	Read/write	The 1 channel with power analog output value

Modbus Rtu Register Specification

Remark: The module support address range is 0x0000 - 0xFFFF, except this, all the address read is 0 and no write.

The module is defaul Custom ASCII protocol if not required, if need to set the module to Modbus RTU protocol, please do as below steps:

1, Short connect the CONFIG pin and GND PIN.

2,Connect the power line and the Communication Interface

3,Get through the power, the module will enter into the default state, the address is 01, baud rate is 9600.

4, Wait the module initialize

5 Send Command $01P1(cr), check the response, if response!01(cr) then it is set successful.

6,shut off the power, disconnect the CONFIG from the GND PIN.

7, the module is already under the modbus RTU communication Protocol.

Dimension：(Unit：mm)