LX3V-2DAI-BD

User manual

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1.Mounting instruction

Before the installation make sure that the PLC host and the equipment connected to BD module have been powered off. Please install the BD module in the corresponding position of the PLC, and lock the two standard screws.

Caution

1) This BD module only support the following firmware versions or later. Users can check the PLC firmware version in D8001.
   - LX3VP:25103;
   - LX3VE: 25201;
   - LX3V-A2:25014;
   - LX3V-A1: 22006;

   When mounting module to PLC, all the lights are blinking after power ON PLC please purchase new PLC.
2) When output current, make sure that the load resistance should be less than 500Ω, otherwise the output will be lower.
3) Please fixed BD module on the PLC, poor contact may lead to failure.
4) BD module and top cover of PLC's tightening torque is 0.3 ~ 0.6 N.m.

Warning

Make sure to power off the PLC before mounting or removing the BD module and put the cover in right place.

2.Special feature

1) LX3V-2DAI-BD module equips with 2 channels analog output. This module will be mounted in the PLC.
2) The output current of LX3V-2DAI-BD module between 4 to 20mA, and the digital value will be saved in special system address, but the numerical relationship between input and output value cannot be changed.

Table 2-1

Expansion port 1 (far away from PLC light)	
Address	**Description**

M8112	The flag of switching output mode in CH1 OFF: Current input mode (4mA~20mA, 0~2000)	ON: Retain
M8113	The flag of switching output mode in CH2 OFF: Current input mode (4mA~20mA, 0~2000)	
D8112	The digital value of channel 1; (4mA~20mA, 0~2000)	
D8113	The digital value of channel 2; (4mA~20mA, 0~2000)	
Expansion port 2 (near the PLC light)		
Address	**Description**	
M8116	The flag of switching output mode in CH1 OFF: Current input mode (4mA~20mA, 0~2000)	ON: Retain
M8117	The flag of switching output mode in CH2 OFF: Current input mode (4mA~20mA, 0~2000)	
D8116	The digital value of channel 1; (4mA~20mA, 0~2000)	
D8117	The digital value of channel 2; (4mA~20mA, 0~2000)	

3. Dimension

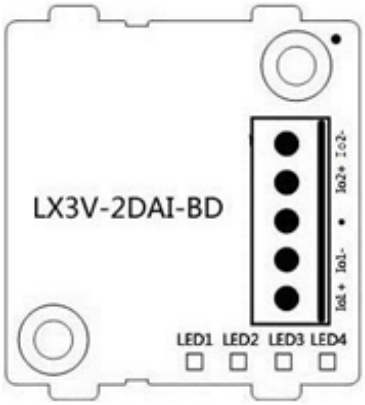


Table 3-1

IN-2DAI Output current range: 4~20mA	
Io1+	Anode of the channel 1 current output
Io1-	Cathode of the channel 1 current output
•	No connection
Io2+	Cathode of the channel 2 current input
Io2-	Cathode of the channel 2 current output

LED lights indicating

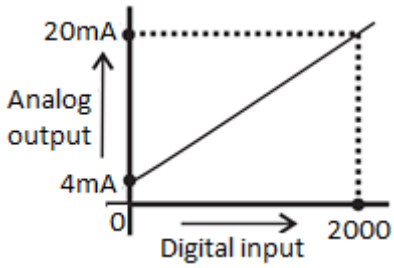
1) LED1: ON when power ON.
2) LED2: flashes when communications.
3) LED3 (AD 1): On indicates enable, OFF indicates disable, flicker indicates exceeding the measurement range.
4) LED4 (AD 2): On indicates enable, OFF indicates disable, flicker indicates exceeding the measurement range.

If the BD module is plugged into the old firmware version when on the PLC, all LEDs will be flashing.

4.Specification

1) Please refer to the LX3V user manual for the general specification of LX3V-2DAI-BD.
2) LX3V-2DAI-BD is powered supply by LX3V main unit.

Table 4-1

Specification	
item	**Current output**
Input range	DC4~20mA (Load resistance should be less than 500Ω)
Digital output	12 bits binary
Resolution	8uA[4mA-20mA/2000]
Precision	±1%
AD conversion time	One PLC scanning cycle
Characteristic	
Insulation	No insulation in each PLC channel
Occupied points	Zero point

5.Wiring

Caution

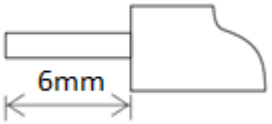
1) Don't put the LX3V-2DAI-BD module near high-voltage power cable. Keep away the power cable at least 100mm;
2) Do not solder any terminal with the others device;
3) Do not connect any unsuitable cable;
4) Please fix cable;
5) Do not connect any unit to the unused terminal;

5.1 Suitable cable

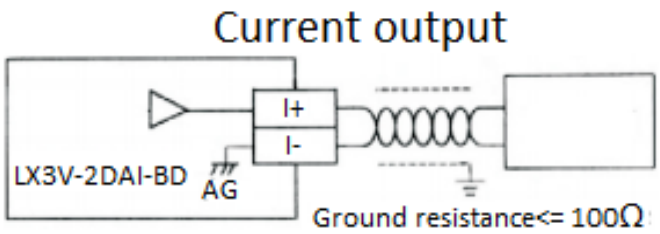
Connect to output device with AWG25-16.

Max tighten torque of terminal is 0.5 to 0.6N.m.

Table 5-1

Line type	Cross sectional area(mm^2)	End-of-pipe treatment	
AWG26	0.1288	Stranded cable: stripped jacket, rub Conductor, then connect the cable. Single-core cable: stripped jacket, Then connect the cable.	
.....	.....		
AWG16	1.309		

5.2 Output mode



6. Example

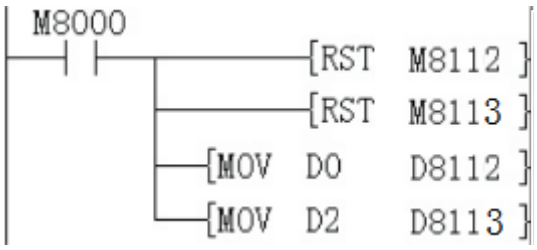
The analog value (4~20mA) in each channel will be saved in system address (D8112, D8113). It will be saved automatically when “END”, and convert into digital value.

6.1 Basic program

Caution

1) Trigger M8122 and M8113, and set the characteristic of conversion.
2) Do not change the value of D8112 and D8113.

D/A conversion



Set channel 1 as current output (4~20mA)
Set channel 2 as current output (4~20mA)
Save the value of D0 to channel 1
Save the value of D2 to channel 2

6.2 Application example

Because the LX3V-2DAI-BD has no offset and gain functions, additional programming commands are required to multiply or divide the conversion value for outside the standard specifications values.

Caution

1) There are extra program for multiplication and division, so the real accuracy and resolution of D/A conversion are different from product specifications;
2) The range for analog output is constant;

Current output mode

In current output mode, it changes the digital value (0-2000) to analog value (4-20mA). If the real digital range is 0-A (A means any value), it must be converted to 0-2000, as the following program shows, the final digital need to be saved in D8112.

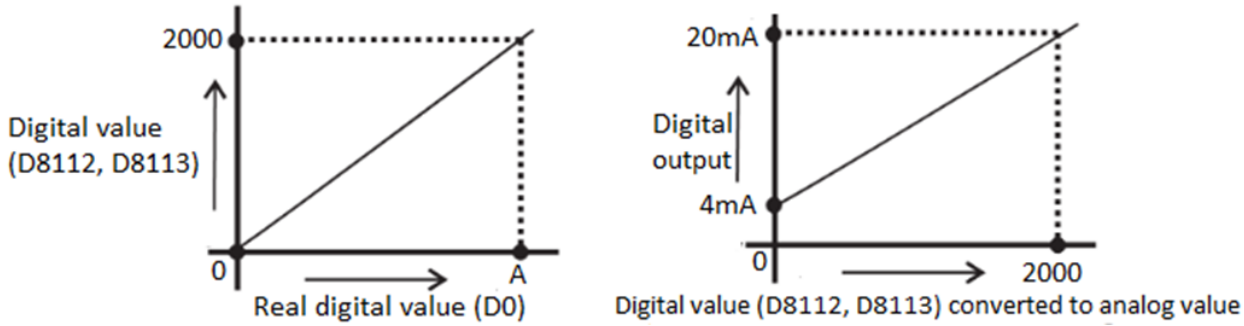


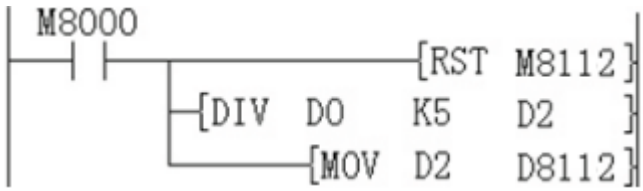
Figure 6-1

Suppose user needs 0-A digital range.

D8114=2000*D0/A

=2000*D0/10000 (A=10000)

=D0/5



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