PROGRAMMABLE LOGIC CONTROLLER

EX1N,1S

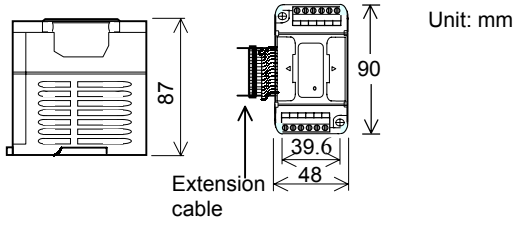
Ex1n2DA USER'S GUIDE

☛This manual contains text, diagrams and explanations which will guide the reader in the correct installation and operation of the Ex1n2DA special function block.

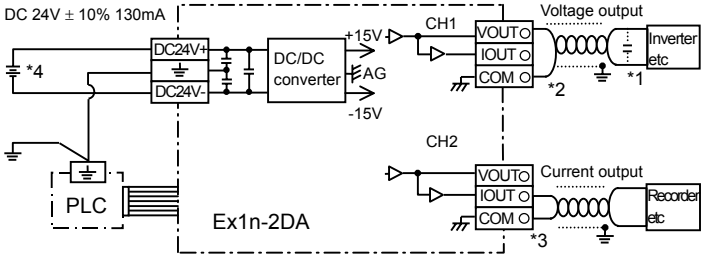
✱✱✱ Introduction ✱✱✱

1) The Ex1n2DA type analog output block (Hereafter referred to as the Ex1n2DA) is used to convert a digital value of 12 bits into an analog output of two points (voltage output and current output).
2) The analog output is selected from the voltage output (-10V ~ +10V) or the current output (4 ~ 20mA) by the method of connecting wires.

✱✱✱ External Dimensions ✱✱✱



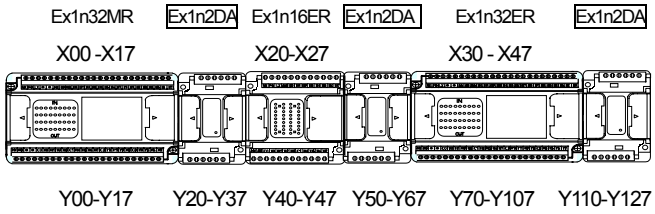
✱✱✱ Wiring ✱✱✱



*1 Connect a 0.1 to 0.47μF 25V DC capacitor with the position of *1 when there is voltage ripple in the voltage output or there will be a lot of noise.
*2 For voltage output please don't short circuit IOUT and COM as shown in the diagram.
*3 If the output terminal shortage, then will damage this module.
*4 DC24V supplied from the external device.

✱✱✱ Connection with PLC ✱✱✱

1) The blocks occupy 16 output points (Y).
2) Applicable PLC : Ex1n, Ex2n series
3) The Ex1n2DA and the main unit are connected with the cable at the right of the main unit.



✱✱✱ Specifications ✱✱✱

1. Environment specification

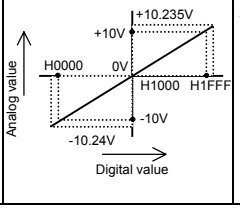
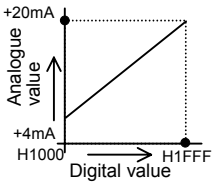
Item	Content
Directric Withstand voltage	500V AC 1min(Between analog output terminals and case)

Environmental specifications other than the above-mentioned are the same as the main unit of the Programmable controller. (Refer to the manual of the Programmable controller)

2. Power supply specification and isolation

Item	Content
Analog circuits	24V DC±10% 85mA (supplied from the External)
Digital circuits	5V DC 30mA (supplied from main unit)
Isolation	Photo-coupler isolation between analog and digital circuits.

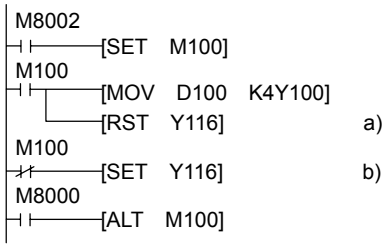
3. Performance specification

Item	Voltage output	Current output
Range of analog output	-10 to 10V DC (External load resistance 2K to 1MΩ)	4 to 20mA (External load resistance 500Ω or less)
Digital input	12bit (the 13th bit is positive and negative sign bit)	
Resolution	2.5mV(10V/4000)	4μA{(20-4)/4000}
Integrated accuracy	±1%(full scale -100 to 10V)	±1%(full scale 4 to 20mA)
Processing time	2 scantime/ 1 circuit	
Output characteristics	Analogue value:-10V to 10V Digital value:H0000 to H1FFF 	Analogue value:+4mA to +20mA Digital value:H1000 to H1FFF 

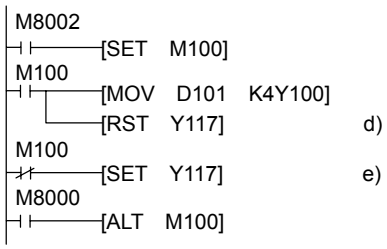
✱✱✱ Program Example ✱✱✱

The following program examples are formula circuits, user only change the content of data register (D), then can change output voltage.

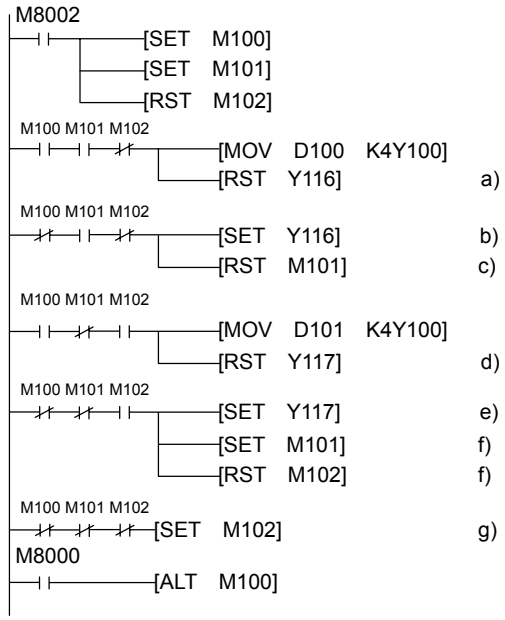
The program example for only use CH1, two scantime convert once analog value.
This example:
When D100=H0000, output voltage =-10V
When D100=H07FF, output voltage=-5V
When D100=H1000, output voltage=0V
When D100=H17FF, output voltage=+5V
When D100=H1FFF, output voltage=+10V



The program example for only use CH2, two scantime to convert once analog value.
This example:
When D101=H0000, output voltage =-10V
When D101=H07FF, output voltage=-5V
When D101=H1000, output voltage=0V
When D101=H17FF, output voltage=+5V
When D101=H1FFF, output voltage=+10V



The program example for using two CH at the same time, needs four scantime to convert once analog value.



a) Write CH1 digital data
b) Execute CH1 D/A convert
c) CH1 disable
d) Write CH2 digital data
e) Execute CH2 D/A convert
f) CH2 disable, CH1 enable
g) CH2 enable

♦ Effective digital data bit0-bit11, bit12 is positive and negative sign bit. (1=positive value, 0=negative value), the range: -4096~+4095
bit14 is CH1 trigger signal, bit15 is CH2 trigger signal. bit13 ineffective.
As above example:
Y100-Y107, Y110-Y113, 12bits are data bits
Y114 is positive and negative signal
Y116 is executing CH1 D/A convert bit
Y117 is executing CH2 D/A convert bit

Ex1n2DA-edoc0302v100

LIYAN ELECTRIC INDUSTRIAL LTD.

TEL: 886-4-25613700 FAX: 886-4-25613408

WEBSITE: http://www.liyanplc.com

E-MAIL: twliyan@ms16.hinet.net