

LX1s Series User's Manual

Thank you for purchasing the LX1s Series programmable logic controller.

The information in this User's Manual, including text, diagrams and explanations, which will guide the reader in the correct installation and operation of the LX1s series PLC, and should be understood before attempting to install or use the products. The information provided in this manual may be changed without notice.

WARNING Warning notice indicates which will cause either personal serious injury or damage to equipment, if notice is not taken.

CAUTION Caution notice indicates which possible cause either personal serious injury or damage to equipment, if notices is not taken.

NOTE: Depending on the circumstances, indicated by CAUTION may also cause serious injury. In any case, it is important to follow this manual properly. Always inform the customers about this manual.

1.Design Precautions

WARNING

To ensure safety system operation, Please configure emergency braking circuit, positive inversion circuit or other similar protection circuit for PLC, which protection circuit can prevent the damage to PLC or other devices.

- External power supply would break down unexpectedly.
- All outputs are turned off, as an error is detected by PLC CPU during self-diagnosis, such as a watch dog timer error. Also when error that cannot be detected, internal protection circuit may be disabled.
- The output state of relay or transistor in the PLC can not be controlled, when relay or transistor is damaged.

2.Installation Precautions

WARNING

- Always make sure to install PLC on vertical plane, not on broadside.
- 50 mm safe distance must be kept with other devices, and far away from the high-voltage power line, high-voltage device and the power equipment.



CAUTION

- Never use the product on condition with dust, oily smoke, conductive dusts, Corrosive gas, flammable gas, vibration or impacts, or expose to high temperature, fire or rain.
- Do not leave anything in the vent. when installation or wiring is completed,
- Always make sure to remove the dust proof sheet from the PLC's vent when installation or wiring is completed.
- Put connection cables, storage boxes, display module in proper socket, bad connection may led to serious consequences

3.Wiring Precautions

WARNING

- Before installation and wiring, you must cut off the power.
- Before running, please make sure to attach the cover for I/O on PLC.
- That positive inversion contactor are worked on at the same time will be dangerous.
- PLC will be damaged, if the invalid I/O on the PLC being connected with other devices.

CAUTION

- Please follow the instruction to connect with power supply which provided in this manual. The range of AC source must be from 100V to 240V.
- Please never directly connect I/O with external power supply which is over 24V.
- Separately grounding is recommended.

- The signal input cable and the signal output cable can not go with the same cable.
- Never put the signal input/output cable and other power cable together.
- It would be more safer if the cable within 20m.

Note:The PLC would stop working, if the power-off time is over 10ms. The PLC would stop working with the long time power-off or low voltage, and the all the output of this PLC will be OFF. The PLC would continue work automatically with normal power supply.

4.Maintenance Precautions

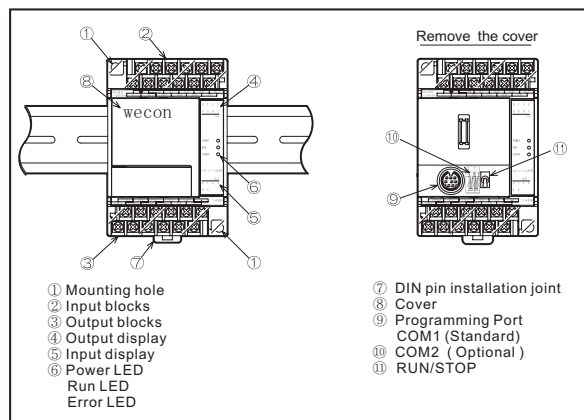
WARNING

- Never touch the PLC when power is on.
- Never clean up PLC when power is on, that may cause the electric shock.
- The manual should be understood before attempting to install or program.

CAUTION

- Never modify structure of PLC.
- If there is something wrong with our products please contact Wecon technology company.
- Working with high frequency and large capacity load will shorten service life.
- Please check the following items:
 - Keep far away from directing sunshine or other heating element, because that would raise the temperature of PLC.
 - Make sure there is no dust or electrical dust in the PLC.
 - Make sure there is no anomaly in the PLC.

5.Module&Product specification



6. Communication Interface

The LX series PLC has no communication port, support Rs422 (Standard) and Rs485 (Optional).

Pinout of COM1 and COM2.

Pin	Signal	Description
1	RXD-	Received data (negative)
2	RXD+	Received data (positive)
3	GND	Signal ground
4	TXD-	Transmitted data (negative)
5	+5V	Output voltage is +5V, The same as the internal voltage
6	NC	Empty
7	TXD+	Transmitted data (positive)
8	NC	Empty
Pin	Signal	Description
A+	485+	Received data (positive)
B-	485-	Received data (negative)


7. Model

Series name	Total points	Basic unit	Output type	Power supply type
LX□□-□□	□□	□	□	A: AC 220V B: AC 110V C: AC 24V D: DC 24V
			R: relay T: transistor	
The total points	Input points	Output points	Relay output	Transistor output
20	12	8	Lx1s-20MR-A	Lx1s-20MT-A
32	16	16	Lx2n-32MR-A	Lx2n-32MT-A
40	24	16	Lx2n-40MR-A	Lx2n-40MT-A

8.Electrical Specification

Item	Lx1s-20M□-A	Lx2n-32M□-A / Lx2n-40M□-A
Rated voltage	AC 100V ~ 240V	
Voltage range	AC 85V ~ 264V	
Rated frequency	50/60HZ	
Power outage time	continue to work with less than 10ms power outage time	
Power fuse	250V 1A 5φ X20mm	250V 3.15A 5φX20mm
Impulse current	Less than 15A 5ms/AC100V Less than 25A 5ms /AC 200V	Less than 20A 5ms/AC100V Less than 60A 5ms /AC200V
Power (W)	20W	50W
Sensor power supply	DC 24V 400mA	DC 24V 700mA

9.Enverornmental Specifications

Temperature	Using:0~55℃ Saving: -20~70℃				
Humidity	35~85%RH(no condensation)				
Resistance to vibration	JIS C 0040 standards				
	DIN rail installed	Frequency	Acceleration	Amplitude	10 times of X,Y,Z (80 minutes from every direction)
		10~57Hz	---	0.035mm	
	Directly installed	57~150Hz	4.9m/ S ²	---	
		10~57Hz	---	0.075mm	
	57~150Hz	9.8m/ S ²	---		
Impact resistance	JIS C 0041 standard				
Resistance to noise	Noise voltage 1000Vp-p noise 1μs up to 1ns frequency 30~100Hz noise simulation				
Voltage resistance	AC1500V (1 minute)		Confirm with JEM-1021		
Insulation resistance	DC500V is more than 5MΩ				
Grounding					
	Special grouding(Best)	Common grouding(Better)	Grounding together(Never)		
Environment	No corrosive gas, combustible gas, or electrical dust				

10. Input Specifications

Model	LX1S basic unit	LX2N basic unit
Power supply	AC power supply, DC output	
Input single voltage	DC24V ±10%	
Input single current	7mA/DC24V(X002 or later, 5mA/DC24V)	
Input ON current	4.5mA or more(behind X002, 3.5mA/DC24V)	
Input OFF current	Less than 1.5mA	
Input responding time	About 10ms	
	X000-X005 change D8020 into 0-15ms by the x built-in digital filter inside	
Input single type	Contact input or NPN Open electrode transistor input	
Insulated return	Optocoupler insulation	
Input status	When input is ON, LED is on	

11.Output Specification

Output type	Relay	Transistor
Model	Lx1s / LX2n	
Power supply	Less than AC250V/DC30V	DC5~30V
Loop insulation	Mechanical insulation	Photoelectric coupling insulation
Action	Relay coil driven, LED on	Optical coupler driven,LED on
Max load	Resistive	2A/point, 8A/COMx port
	Inductive	80VA 12W/DC24V, 7.2W/DC24V(Y0,Y1)
	General	100W 0.9W/DC24V, 0.9W/DC24V(Y0,Y1)
Leak current	—	0. 1mA/ DC30V
Min load	DC5V 2mA (reference)	—
Response time	About 10ms	Less than 0.2ms, 5μs(Y0,Y1)

12.COM2 Port Setting

M8120	Reserved	D8120	Communication format (0 by default)
M8121	Sending waiting	D8121	Station number
M8122	Sending flag	D8122	Rest of sending data
M8123	Received flag	D8123	Amount of receiving data
M8124	Receiving	D8124	Beginning character STX
M8125	Reserved	D8125	Ending character ETX
M8126	Reserved	D8126	Communication protocol (0 by default)
M8127	Reserved	D8127	The beginning address of the data
M8128	Reserved	D8128	Amount of sending data
M8129	Timeout judgement	D8129	Timeout setting,10(100ms) by default

COM2 Setting (D8126)

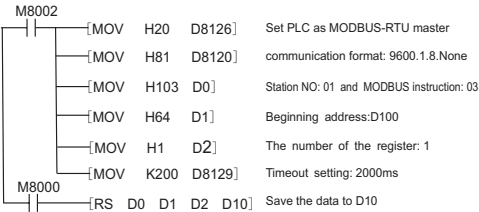
protocol	D8126	Mode	Communication format
Rs instruction	00H	Half-duplex	By D8120
HMI monitoring protocol	01H		
MODBUS-RTU slave	02H		
MODBUS-ASCII slave	03H		
Rs instruction	10H		
MODBUS-RTU master	20H		
MODBUS-ASCII master	30H		

Communication format (D8120)

Bit	Item	Content	
		0	1
b0	Length	7 bits	8 bits
b2 b1	Verification	00: None 01: Odd 11: Even	
b3	Stop bit	1 bit	2 bits
b7 b6 b5 b4	Baudrate (bps)	0111:4800 1000:9600 1001:19200 1010:38400 1011:57600 1100:115200	

NOTE: the communication format is 9600. 1. 8 .None, so check the form, b7b6b5b4=1000, b3=0 , b2b1=00, b0=1.D8120=81H

Example1: MODBUS RTU master.



Example2: MODBUS RTU SLAVE.

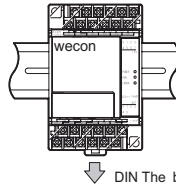


13. I/O

Pin	Description	
	LX1S	LX2N
L/N	AC 100V~240V	
+24V/COM	output +24V	
⏏	Grounding	
●	The empty post, never be connected	
X0~Xn	External input post	
Y0~Yn,COMn	Group number of Y0~Yn	
S/S	—	support leakage input (connected to +24V) or source input (connected to COM).

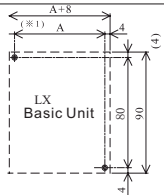
14.Installation

Directly install in DIN46277(width35mm) pin, when disboard the host Pull the joint slowly for DIN installation

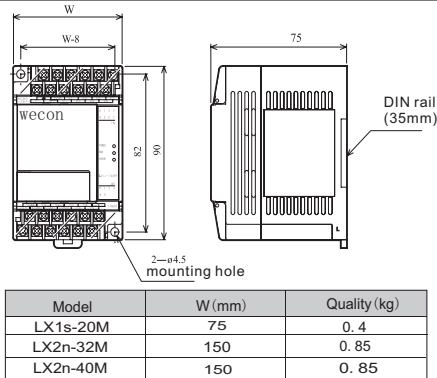


Model	A (mm)
LX1s-20M	67
LX2n-32M	92
LX2n-40M	92

Use the M4 screw to install the PLC. The distance and the location refer to the right figure,



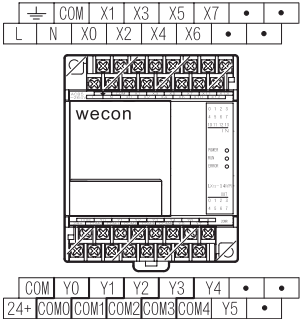
15. Size



16.The arrangement of I/O for Lx1s series

The type of relay and transistor have the same arrangement of I/O (*The bold line is the boundary of each group)

<LX1s-14MR-A>DC input 8 point, relay output 6 point
<LX1s-14MT -A>DC input 8 point, transistor output 6 point



<LX1s-20MR-A>DC input 12point, relay output 8 point
<LX1s-20MT-A>DC input 12point, transistor output 8 point

