LX5 Series User Manual

> ### Safety Precautions
>
> Before installing, operating, and maintaining the micro- programmable control, be sure to familiarize yourself with this user manual and other related manuals to ensure proper use. Please use it after you are familiar with the operation method, safety information and all precautions.
> In this manual, safety precautions are classified into two categories: "warning" and "caution".

> CAUTION Before installation, operation, maintenance and overhaul of the product, please be sure to read the user manual and other related manuals to ensure correct use.
> WARNING Failure to follow the instructions in the manual may result in improper installation , use and storage of the equipment, which may result in personal injury or even death, and property damage.

Part 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 be detected by PLC CPU during self- diagnosis, such as a watch dog timer error. When error that cannot be detected, internal protection circuit may be disabled.
> ●The output state of relay or transistor in the PLC can't be controlled, when relay or transistor is damaged.

Part 2 Installation Precautions

> ### ⚠ WARNING
>
> ●Always make sure to install PLC on vertical plane, not on broadside.
> ●50mm 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.

Part 3 Wiring Precautions

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

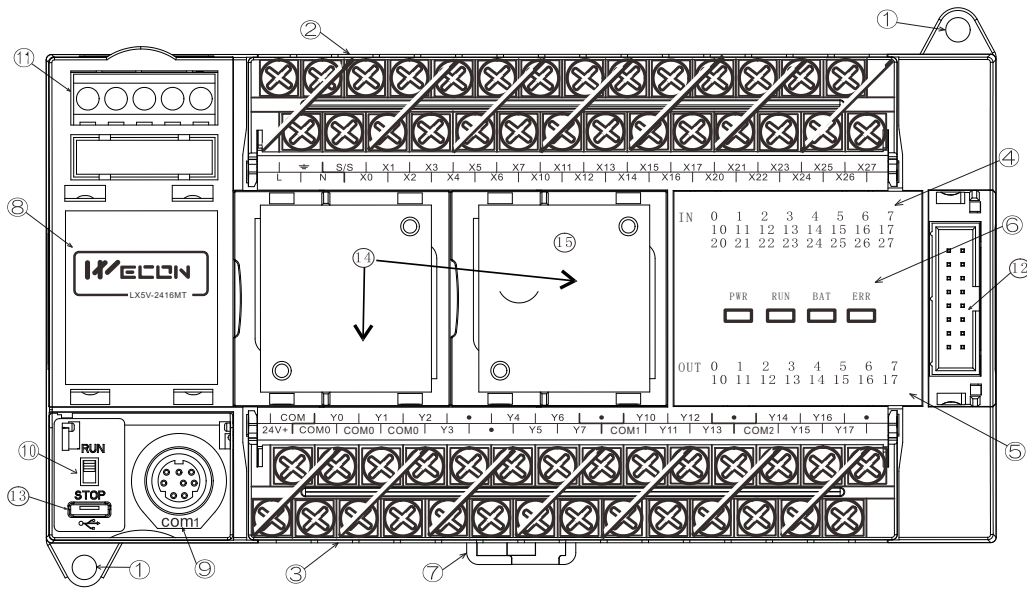| ⚠ CAUTION |
|---|
| ●Please follow the instruction to connect with power supply which provided in this manual. The range of AC source must be from 100V to 240V. |
| ●Please never directly connect terminal with external power supply which is over 24V. |
| ●Separately grounding is recommended. |
| ●The signal input cable and the signal output cable can't go with the same cable. |
| ●Never put the signal input/output cable and other power cable together. |
| ●It would be safer if the cable within 20m. |
| **Note:** The PLC would stop working, if the power-off time is over 10ms. Long-term power failure or low voltage will cause the PLC to stop working, and the all the output of this PLC will be OFF. The PLC would continue work automatically with normal power supply. |

Part 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.

Part 5 Maintenance and Overhaul

(1) Regularly check
● Whether there are short-lived consumables in the programmable controller.
● For the relay output type, if the output relay operates at abnormally high frequency or drives a large-capacity load, attention must be paid to its impact on the service life.
● Check with other equipment, please pay attention to the following points.
  ●Whether there any abnormal rise in temperature inside the machine due to other heating elements or direct sunlight?
  ●Whether there is dust or conductive dust intruding into the machine.
  ●Whether there are any loose wiring and terminals and other abnormalities.
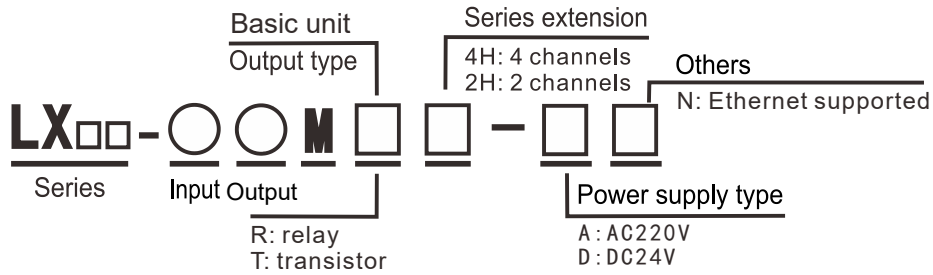
Part 6 Module & Product specification

① Mounting hole
② Input blocks
③ Output blocks
④ Output display
⑤ Input display
⑥ Power LED
   Run LED
   Error LED
⑦ DIN pin installation joint

⑧ Cover
⑨ Programming Port COM1(Standard)
⑩ RUN/ STOP
⑪ COM2 (Optional)
⑫ Socket for additional module
⑬ USB download port
⑭ Socket for BD module
⑮ Button battery (under the BD module)

Part 7 Communication Interface

The LX5V series PLC has two communication port, support RS422 (standard) and RS485 (optional).

		Pin	Signal	Description
COM1 programming port	COM1 (RS 422 standard)	1	RXD-	Received data (negative)
		2	RXD+	Received data (positive)
		3	GND	Signal ground
		4	TXD-	Transmitted data (negative)
		5	NC	Empty
(Rs422 and RS485 in this port can't be used at the same time)		6	NC	Empty
		7	TXD+	Transmitted data (positive)
		8	NC	Empty
A+ B- A+ B- GND COM1 COM2	COM1/COM2 (RS 485 optional)	Pin	Signal	Description
		A+	485+	Received data (positive)
		B-	485-	Received data (negative)

Part 8 Model

Part 9 Electrical Specification

AC Power Supply

Model	LX5V/ LX5VT/ LX5S 26 points and below	LX5V/ LX5VT/ LX5S above 26 points
Rated voltage	AC 100V ~ 240V	
Voltage range	AC 85V ~ 265V	
Rated frequency	50/60HZ	
Power outage time	continue to work with less than 10ms power outage time	
Power fuse	250V 3.15A	
Impulse current	<15A 5ms/AC100V; <30A 5ms/AC200V	
Power (W)	<35W	<60W
Sensor power supply	DC 24V 700mA	

DC Power Supply

Model	LX5V/ LX5VT/ LX5S series
Rated voltage	DC 24V
Voltage range	DC 24V±10%
Power fuse	250V 3.15A
Impulse current	<15A 1ms/DC24V
Power (W)	<30W

Part 10 Environmental Specifications

Temperature	Using:0~55℃ Saving: -20~70℃			
Humidity	35~85%RH (no condensation)			
Resistance to vibration	JISC0040 standards			
		Frequency	Acceleration	Amplitude	
	DIN rail installed	10~57Hz	--	0.035mm	10 times of X, Y, Z (80 minutes from every direction)
		57~150Hz	4.9m/S^2	--	
	Directly installed	10~57Hz	--	0.075mm	
		57~150Hz	9.8m/S^2	--	

Impact resistance	JISC0041 standard	
Voltage resistance	AC1500V (1 minute)	Confirm with JEM- 1021
Insulation resistance	DC500V is more than 5MΩ	
Grounding		
Environment	No corrosive gas, combustible gas, or electrical dust.	
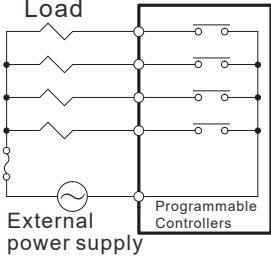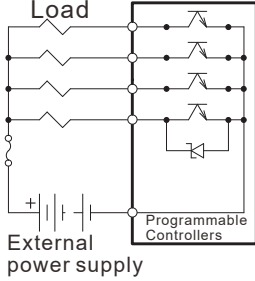
Part 11 Input Specifications

Model	LX5V/ LX5VT/L X5S series
Power supply	AC power supply, DC output
Input single voltage	DC24V ±10%
Input single current	High input point:7mA/DC24V (Low input point:5mA/DC24V)
Input ON current	4.5mA or more (behind X20, 3.5mA/DC24V)
Input OFF current	Less than 1.5mA
Input responding time	About 10ms
	Highest response 2.5us (Low input point:10us), software setting can be made
Input single type	Contact input or NPN, PNP Open electrode transistor input
Insulated return	Optocoupler insulation
Input status	When input is on, LED is on
Input circuit components	The picture is NPN connection, if S / S connection 24V negative, X then Positive, namely PNP connection.

high / low speed input point description:

Model	LX5V/ LX5VT		LX5S	
Input/output	1212/ 1412 and below	1616/2416 and above	1212/ 1412 and below	1616/2416 and above
high speed input	X0-X7	X0-X17	X0-X1	X0-X5
low speed input	X10 and above	X20 and above	X2 and above	X6 and above

Part 12 Output Specification

Model	LX5V / LX5VT / LX5S series	
Output type	Relay	Transistor
Output circuit components		
Power supply	Less than AC250V/DC30V	DC5~30V
Loop insolation	Mechanical insulation	Photoelectric coupling insulation
Action	LED lights up when the relay coil is energized	The LED lights up when the optocoupler is driven
Max load — Resistive	2A/point, 8A/COMx port	1.6A/4 points,3.2/8 points
Max load — Inductive	80VA	12W/DC24V
Max load — General	100W	0.9W/DC24V
Leak current	--	0.1mA/DC30V
Min load	DC5V 2mA (reference)	--
Response time — ON	About 10ms	Less than 0.2ms, 5us(Y0~Y7)
Response time — OFF	About 10ms	Less than 0.2ms,5us(Y0~Y7)
Out single mode	--	NPN mode

《**Constitutes the output circuit**》

●Please put the perceptual load and dc fly-wheel diode in parallel, otherwise it will significantly reduce the contact life.

Reverse voltage of Fly-wheel diode is 5-10 times bigger than the load voltage, positive current value is higher than load current.
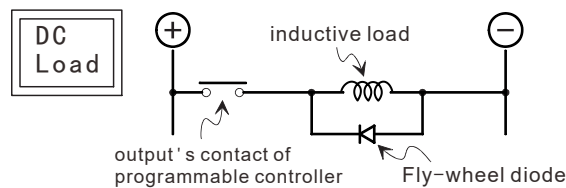
●If this is AC inductive load, make load and surge absorber in parallel, can reduce the noise.
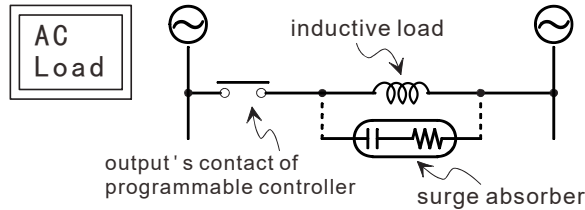
● The output contacts of the programmable control are best to use on the same phase side.
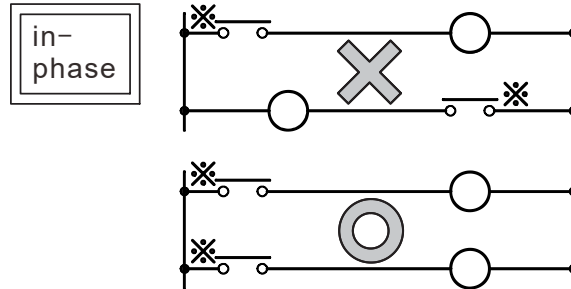
●Contactors of forward and reverse close very dangerous at the same time, like this load, except to use internal program to do interlock control, on the outside of the programmable controller must also set the interlock.

Warning
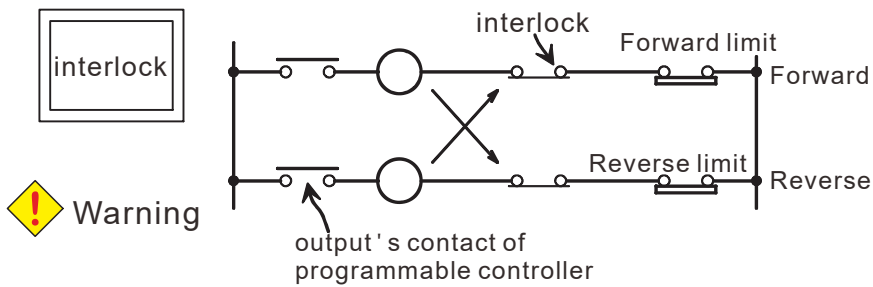
Part 13 Terminal

Pin	LX5V/ LX5VT/ LX5S series
L/N	AC 100V~240V
24V+/COM	Output +24V
⏚	Grounding
●	The empty post, never be connected
S/S	Support leakage input (connected to 24V+) or source input (connected to COM).
X0-Xn	External input terminal
Y0-Yn, COMn	Output terminal, Group number

Part 14 Installation

Directly installed on the DIN46277 (width 35mm) guide rail. When removing the main unit, gently pull out the IN rail mounting clip from below.

2—ø4.5 mounting hold

DIN the buckle of the lead rail
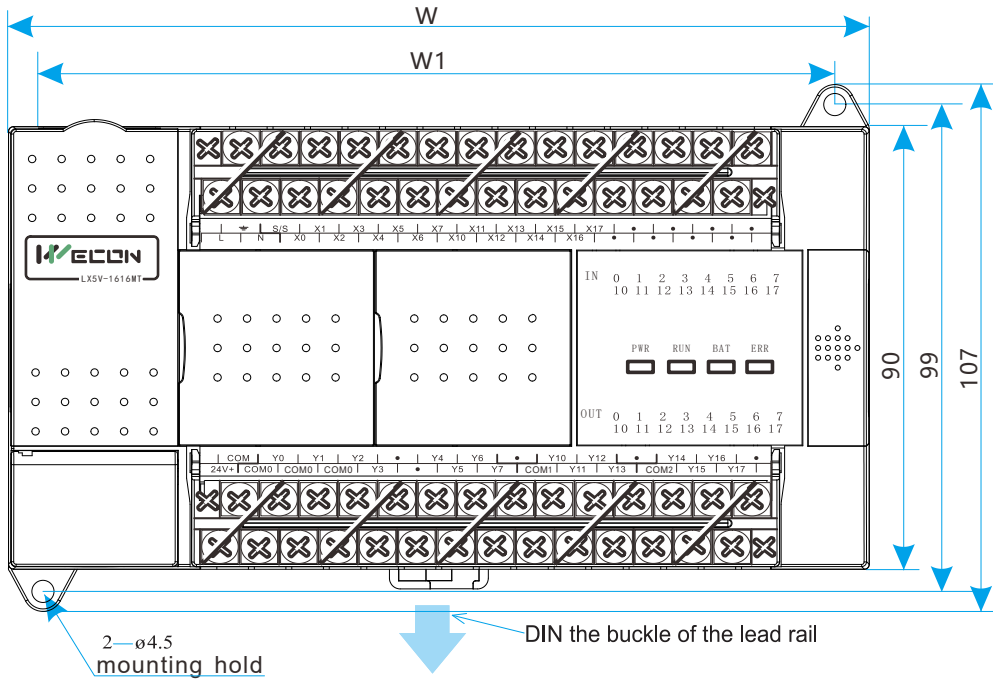
Use the M4 screw to install the PLC. The distance and the location refer to the right figure.

Model	W(mm)	W1(mm)
LX5S-0806MX	75	61
LX5S-1208MX	75	61
LX5V/LX5VT/LX5S-1212MX	136	123
LX5V/LX5VT/LX5S-1412MX	136	123
LX5V/LX5VTLX5S-1616MX	175	161
LX5V/LX5VT/LX5S-2416MX	175	161
LX5V/LX5VT-2424MX	221	207
LX5V/LX5VT-3624MX	221	207

87 — Din rail (35mm)
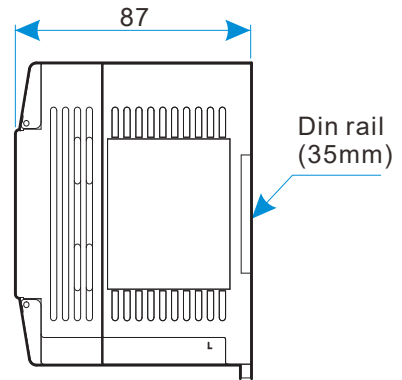
Part 15 Battery Installation Instructions
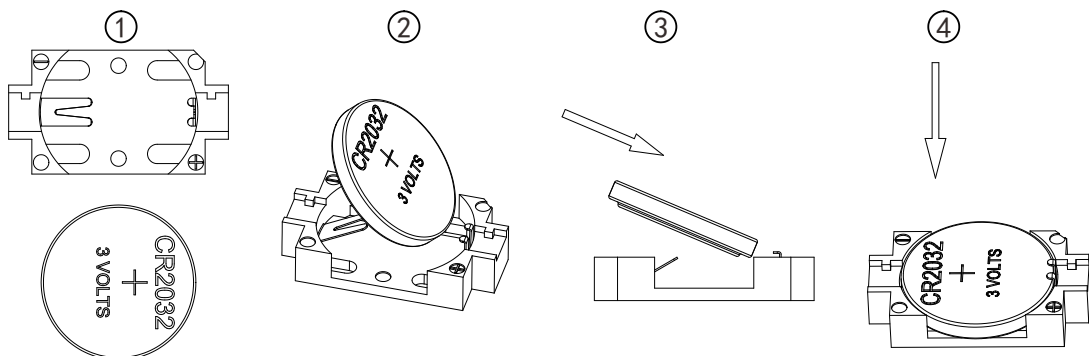
Part 16 The arrangement of terminal for LX5V/LX5VT/ LX5S series

The type of relay and transistor have the same arrangement of terminal. (*The bold line is the boundary of each group)

LX5S series：

<LX5S-0806MX-A>（※Note1）

<LX5S-0806MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	•	•
L	N	X0	X2	X4	X6	•	•

COM	Y0	COM1	Y3	Y4	•	485A	⏚
24V+	COM0	Y1	Y2	COM2	Y5	•	485B

<LX5S-1208MX-A>（※Note1）

<LX5S-1208MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13
L	N	X0	X2	X4	X6	X10	X12

COM	Y0	COM1	Y3	Y4	Y6	485A	⏚
24V+	COM0	Y1	Y2	COM2	Y5	Y7	485B

<LX5S-1212MX-A>（※Note1）

<LX5S-1212MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13	•
L	N	X0	X2	X4	X6	X10	X12	•

COM	Y0	COM1	Y3	Y4	Y6	COM3	Y11	Y13
24V+	COM0	Y1	Y2	COM2	Y5	Y7	Y10	Y12

<LX5S-1412MX-A>（※Note1）

<LX5S-1412MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13	X15
L	N	X0	X2	X4	X6	X10	X12	X14

COM	Y0	COM1	Y3	Y4	Y6	COM3	Y11	Y13
24V+	COM0	Y1	Y2	COM2	Y5	Y7	Y10	Y12

<LX5S-1616MX-A>（※Note1）

<LX5S-1616MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	•	•	•	•
L	N	X0	X2	X4	X6	X10	X12	X14	X16	•	•	•	•

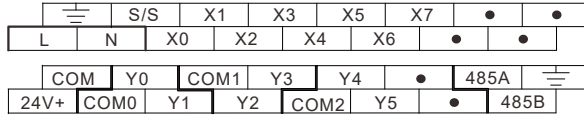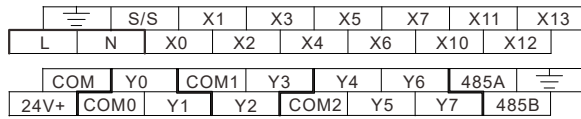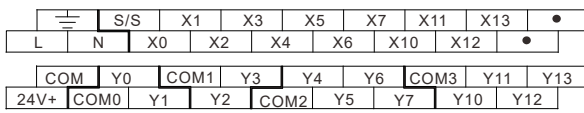| COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
24V+	COM0	COM1	COM2	Y3	COM3	Y5	Y7	COM4	Y11	Y13	COM5	Y15	Y17

<LX5S-2416MX-A>（※Note1）

<LX5S-2416MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27
L	N	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26

COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
24V+	COM0	COM1	COM2	Y3	COM3	Y5	Y7	COM4	Y11	Y13	COM5	Y15	Y17

LX5V/ LX5VT series：

<LX5V / LX5VT-1212MX-A>（※Note1）

<LX5V / LX5VT-1212MX-D>（※Note2）

⏚	S/S	X1	X3	X5	X7	X11	X13	•
L	N	X0	X2	X4	X6	X10	X12	•

COM	Y0	COM0	Y3	Y4	Y6	COM2	Y11	Y13
24V+	COM0	Y1	Y2	COM1	Y5	Y7	Y10	Y12

<LX5V / LX5VT-1412MX-A>(※Note1)
<LX5V / LX5VT-1412MX-D>(※Note2)

⏚	S/S	X1	X3	X5	X7	X11	X13	X15
L	N	X0	X2	X4	X6	X10	X12	X14

COM	Y0	COM0	Y3	Y4	Y6	COM2	Y11	Y13
24V+	COM0	Y1	Y2	COM1	Y5	Y7	Y10	Y12

<LX5V / LX5VT-1616MX-A>(※Note1)
<LX5V / LX5VT-1616MX-D>(※Note2)

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	•	•	•	•
L	N	X0	X2	X4	X6	X10	X12	X14	X16	•	•	•	•

COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
24V+	COM0	COM0	COM0	Y3	•	Y5	Y7	COM1	Y11	Y13	COM2	Y15	Y17

<LX5V / LX5VT-2416MX-A>(※Note1)
<LX5V / LX5VT-2416MX-D>(※Note2)

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27
L	N	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26

COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•
24V+	COM0	COM0	COM0	Y3	•	Y5	Y7	COM1	Y11	Y13	COM2	Y15	Y17

<LX5V / LX5VT-2424MX-A>(※Note1)
<LX5V / LX5VT-2424MX-D>(※Note2)

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	•	•	•	•	•	•
L	N	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	•	•	•	•	•	•

COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	•	Y24	Y26	•
24V+	COM0	COM0	COM0	Y3	•	Y5	Y7	COM1	Y11	Y13	COM2	Y15	Y17	COM3	Y21	Y23	COM4	Y25	Y27

<LX5V / LX5VT-3624MX-A>(※Note1)
<LX5V / LX5VT-3624MX-D>(※Note2)

⏚	S/S	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	X41	X43
L	N	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	X40	X42

COM	Y0	Y1	Y2	•	Y4	Y6	•	Y10	Y12	•	Y14	Y16	•	Y20	Y22	•	Y24	Y26	•
24V+	COM0	COM0	COM0	Y3	•	Y5	Y7	COM1	Y11	Y13	COM2	Y15	Y17	COM3	Y21	Y23	COM4	Y25	Y27

※ Note1 ： AC power type, the Land N terminal is power supply terminal, the COM and 24V+ is transducer supply output.

※ Note2 ： DC power type, the COM and 24V+ terminal is power supply terminal.

Notice

The contents of this manual are subject to change without notice.