

3-5 I/O Module Specifications

■ General Specifications

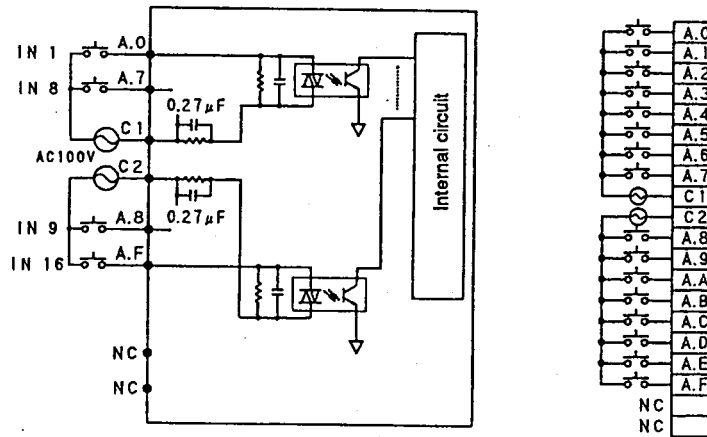
General specifications of I/O modules are described below.

Item	Specifications
Terminal	20P or 40P detachable terminal with a wrong insertion preventive device and a cover
Terminal screw	M3.5
Applicable cable diameter	0.75 ~ 2mm ²
Applicable crimp style terminal	For M3.5
Base connector	32P connector
Display	I/O display Red LED (Lights when the contact turns on)
Short-circuit protection	16 points 100/200Vac output terminal. Fuse with a disconnection indication provided 32 points 100/200V ac output terminal. Fuse with a disconnection indication provided (A fuse is mounted to protect wiring when either a load short-circuit failure or other failures occurred.)
External dimensions	Module using 20P terminals 38(W) × 250(H) × 91(D)mm Module using 40P terminals 38(W) × 250(H) × 91(D)mm

Input Module

Specifications	100Vac 16-point input module
Model No.	MX100GT01
No. of input points	16 points
Input voltage range	80 ~ 132Vac (50-60Hz)
Input current	10mA TYP (100Vac 60Hz)
Input impedance	Approx. 10k Ω (60Hz) Approx. 12k Ω (50Hz)
On Voltage	Higher than 7.5Vac
Off Voltage	Lower than 35Vac
Off current	Lower than 3.5mA
Response time off \rightarrow on	Shorter than 35ms
Response time on \rightarrow off	Shorter than 35ms
Internal current consumption	5Vdc, lower than 50mA
Common system	8 points/common, 2 circuits
Terminal	20P
Weight	0.45kg

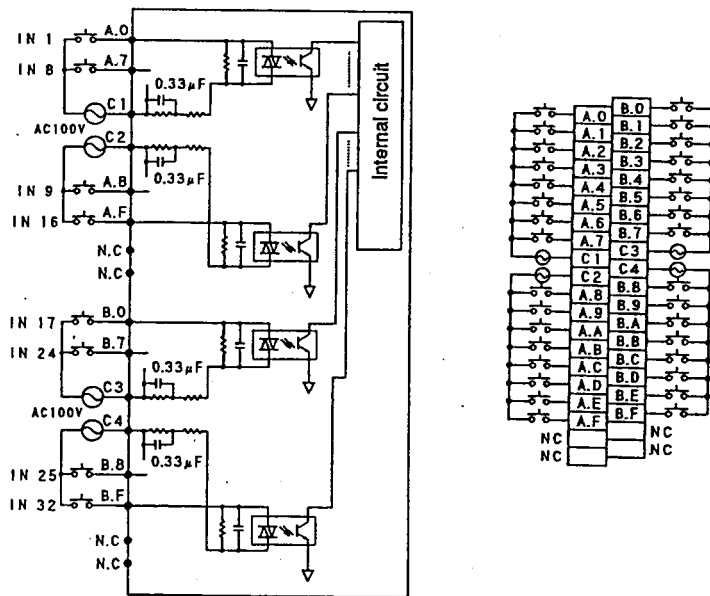
Circuit configuration & terminal connection



Input Module

Specifications	100Vac 32-point input module
Model No.	MX100GT02
No. of input points	32 points
Input voltage range	80 ~ 132Vac (50-60Hz)
Input current	10mA TYP (100Vac 60Hz)
Input impedance	Approx. 10k Ω (60Hz) Approx. 12k Ω (50Hz)
On Voltage	Higher than 75Vac
Off Voltage	Lower than 35Vac
Off current	Lower than 3.5mA
Response time off \rightarrow on	Shorter than 35ms
Response time on \rightarrow off	Shorter than 35ms
Internal current consumption	5Vdc, lower than 100mA
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.5kg

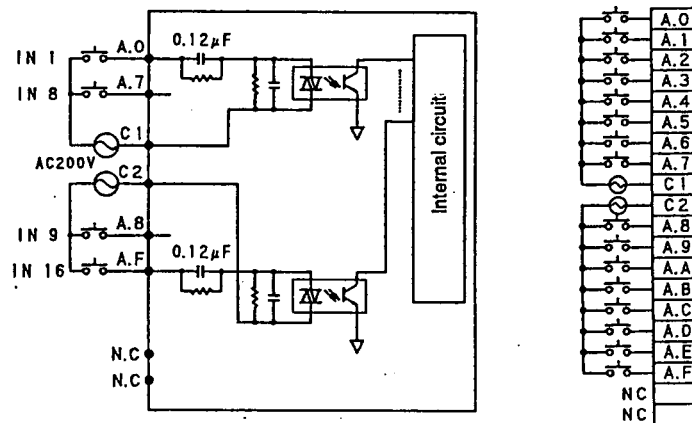
Circuit configuration & terminal connection



Input Module

Specifications	200Vac 16-point input module
Model No.	MX100GT31
No. of input points	16 points
Input voltage range	180 ~ 250Vac (50-60Hz)
Input current	9mA TYP (100Vac 60Hz)
Input impedance	Approx. 22k Ω (60Hz) Approx. 26.5k Ω (50Hz)
On Voltage	Higher than 140Vac
Off Voltage	Lower than 60Vac
Off current	Lower than 2.8mA
Response time off \rightarrow on	Shorter than 35ms
Response time on \rightarrow off	Shorter than 35ms
Internal current consumption	5Vdc, lower than 50mA
Common system	8 points/common, 2 circuits
Terminal	20P
Weight	0.45kg

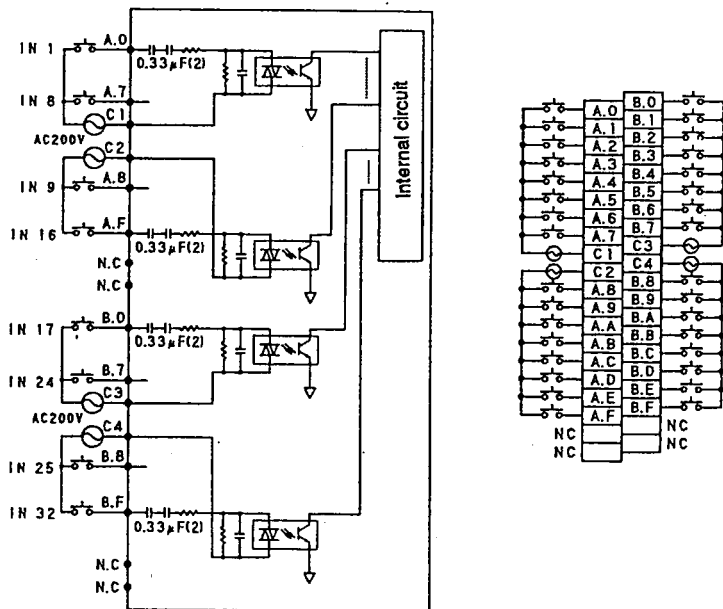
Circuit configuration & terminal connection



Input Module

Specifications	200Vac 32-point input module
Model No.	MX100GT32
No. of input points	32 points
Input voltage range	180 ~ 250Vac (50-60Hz)
Input current	11mA TYP (100Vac 60Hz)
Input impedance	Approx. 16k Ω (60Hz) Approx. 20k Ω (50Hz)
On Voltage	Higher than 140Vac
Off Voltage	Lower than 60Vac
Off current	Lower than 2.8mA
Response time off \rightarrow on	Shorter than 35ms
Response time on \rightarrow off	Shorter than 35ms
Internal current consumption	5Vdc, lower than 100mA
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.5kg

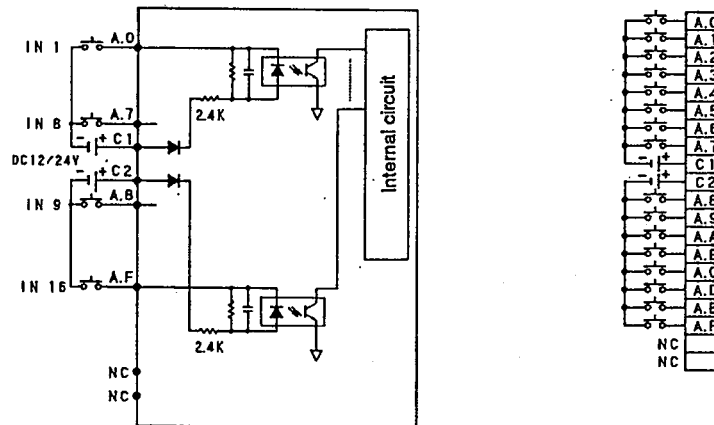
Circuit configuration & terminal connection



Input Module

Specifications	12/24Vdc 16-point input module
Model No.	MX100GT11
No. of input points	16 points
Input voltage range	10 ~ 26.4Vdc
Input current	5mA (12Vdc) / 10mA (24Vdc)
Input impedance	Approx. 2.4k Ω
On Voltage	Higher than 10Vdc
Off Voltage	Lower than 3.5Vdc
Off current	Lower than 1.5mA
Response time off \rightarrow on	Shorter than 15ms
Response time on \rightarrow off	Shorter than 15ms
Internal current consumption	5Vdc, lower than 50mA
Common system	8 points/common, 2 circuits
Terminal	20P
Weight	0.4kg

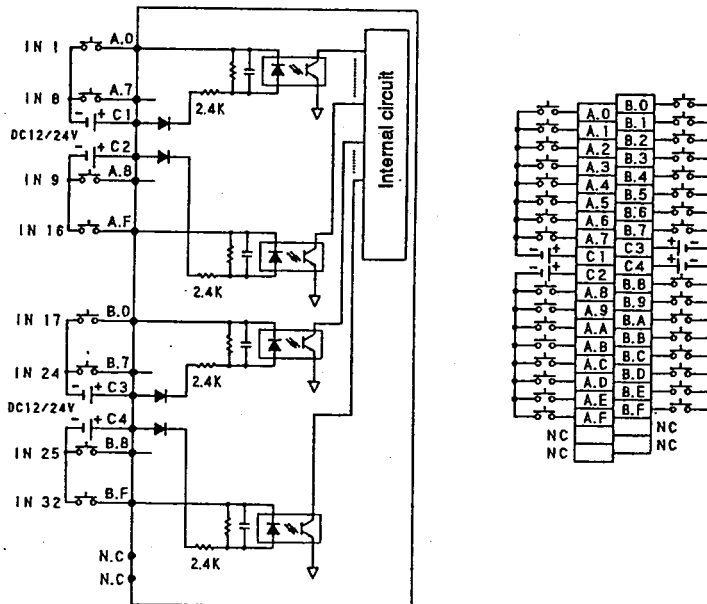
Circuit configuration & terminal connection



Input Module

Specifications	12/24Vdc 32-point input module
Model No.	MX100GT12
No. of input points	32 points
Input voltage range	10 ~ 26.4Vdc
Input current	5mA (12Vdc) / 10mA (24Vdc)
Input impedance	Approx. 2.4k Ω
On Voltage	Higher than 10Vdc
Off Voltage	Lower than 3.5Vdc
Off current	Lower than 1.5mA
Response time off \rightarrow on	Shorter than 15ms
Response time on \rightarrow off	Shorter than 15ms
Internal current consumption	5Vdc, lower than 100mA
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.45kg

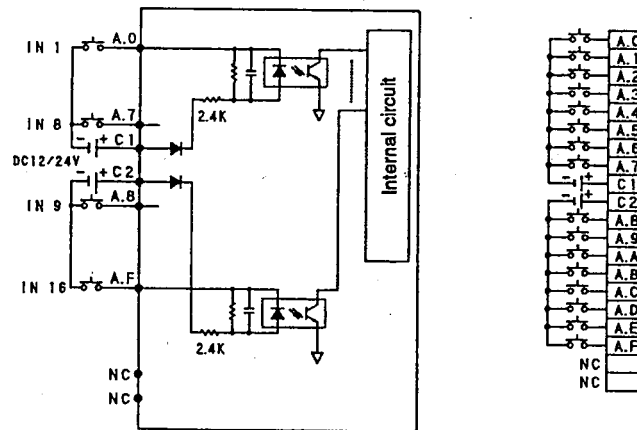
Circuit configuration & terminal connection



Input Module

Specifications	12/24Vdc 16-point input module
Model No.	MX100GT14
No. of input points	16 points
Input voltage range	10 ~ 26.4Vdc
Input current	5mA (12Vdc) / 10mA (24Vdc)
Input impedance	Approx. 2.4k Ω
On Voltage	Higher than 10Vdc
Off Voltage	Lower than 3.5Vdc
Off current	Lower than 1.5mA
Response time off \rightarrow on	Shorter than 1ms
Response time on \rightarrow off	Shorter than 1.5ms
Internal current consumption	5Vdc, lower than 50mA
Common system	8 points/common, 2 circuits
Terminal	20P
Weight	0.4kg

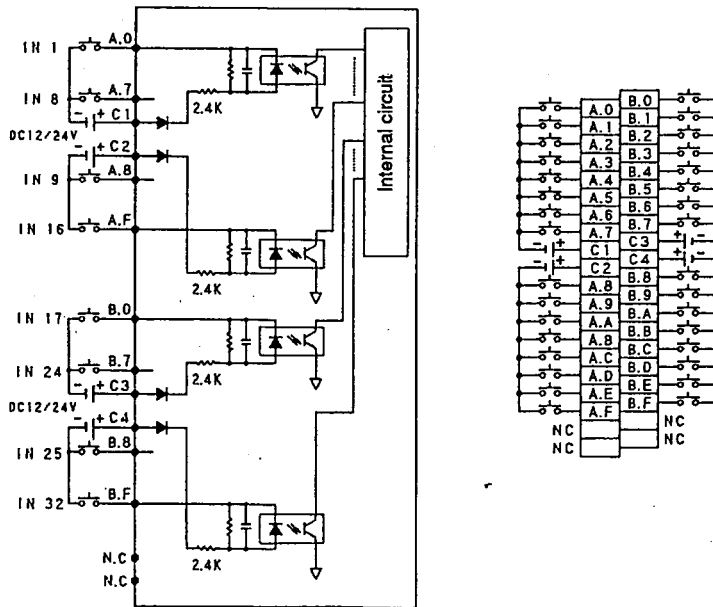
Circuit configuration & terminal connection



Input Module

Specifications	12/24Vdc 32-point input module
Model No.	MX100GT15
No. of input points	32 points
Input voltage range	10 ~ 26.4Vdc
Input current	5mA (12Vdc) / 10mA (24Vdc)
Input impedance	Approx. 2.4k Ω
On Voltage	Higher than 10Vdc
Off Voltage	Lower than 3.5Vdc
Off current	Lower than 1.5mA
Response time off \rightarrow on	Shorter than 1ms
Response time on \rightarrow off	Shorter than 1.5ms
Internal current consumption	5Vdc, lower than 100mA
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.45kg

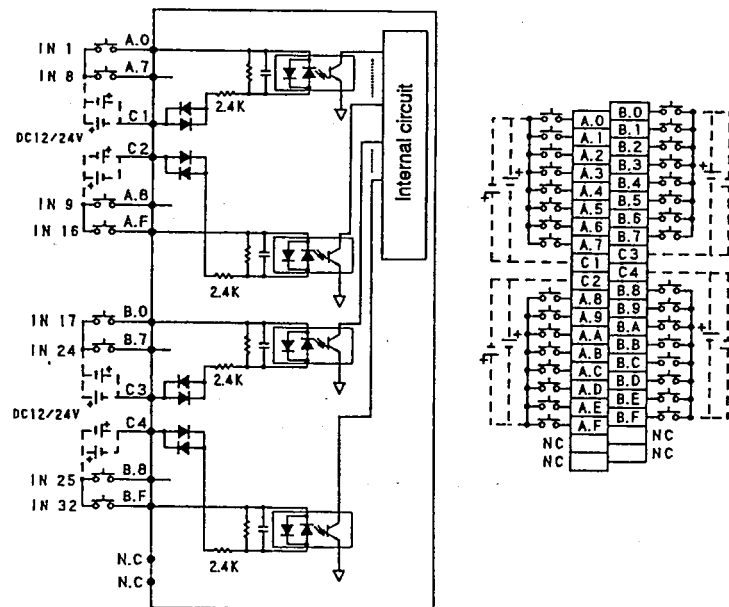
Circuit configuration & terminal connection



Input Module

Specifications	12/24Vdc 32-point input module	
Model No.	MX100GT75	MX100GT78
No. of input points	32 points	
Input voltage range	10 ~ 26.4Vdc	
Input current	5mA (12Vdc) / 10mA (24Vdc)	
Input impedance	Approx. 2.4k Ω	
On Voltage	Higher than 10Vdc	
Off Voltage	Lower than 3.5Vdc	
Off current	Lower than 1.5mA	
Response time off \rightarrow on	Shorter than 1ms	Shorter than 0.5ms
Response time on \rightarrow off	Shorter than 1.5ms	Shorter than 0.5ms
Internal current consumption	5Vdc, lower than 100mA	
Common system	8 points/common, 4 circuits	
Terminal	40P	
Weight	0.45kg	

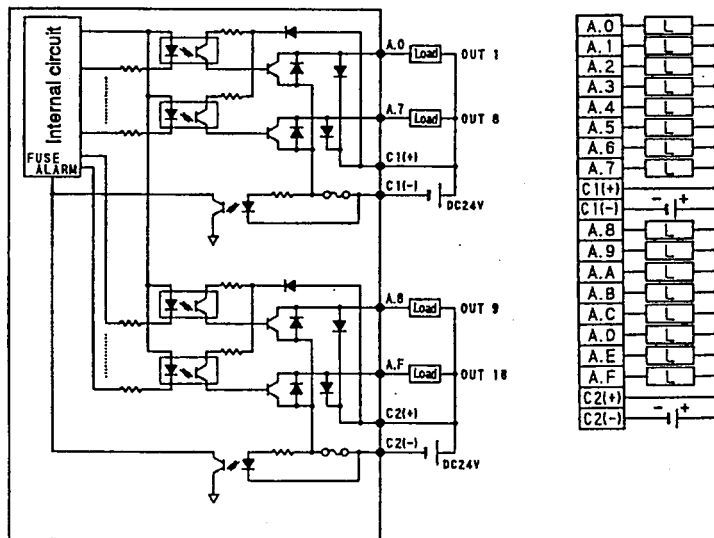
Circuit configuration & terminal connection



Output Module

Specifications	12/24Vdc 16-point output module
Model No.	MX100PT11
No. of output points	16 points
Load voltage range	10 ~ 26.4Vdc
Max. output current	1A/point, 4A/common, 6A/module
Surge current	Max. 5A (Lower than 1ms)
Leak current	Lower than 1mA
Max. voltage drop at ON time	1.5V (1mA)
Response time off → on	Shorter than 1ms
Response time on → off	Shorter than 1ms
Internal current consumption	5Vdc, lower than 120mA
Surge killer	Clamp diode
Fuse rating	5A 1 fuse in 8 circuits
Common system	8 points/common, 2 circuits
Terminal	20P
Weight	0.5kg

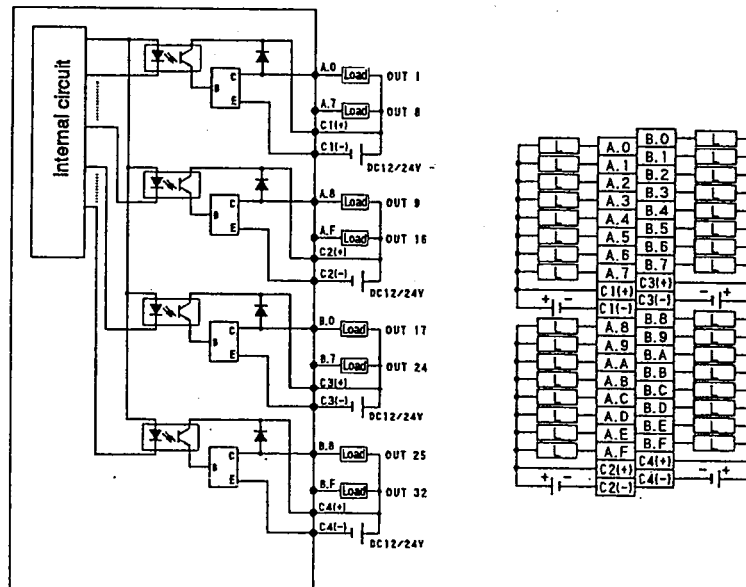
Circuit configuration & terminal connection



■ Output Module

Specifications	12/24Vdc 32-point output module
Model No.	MX100PT12
No. of output points	32 points
Load voltage range	10 ~ 26.4Vdc
Max. output current	0.2A/point, 0.8A/common
Surge current	Max. 0.4A (Lower than 10ms)
Leak current	Lower than 0.3mA
Max. voltage drop at ON time	1.6V (0.2A)
Response time off → on	Shorter than 1ms
Response time on → off	Shorter than 1ms
Internal current consumption	5Vdc, lower than 200mA
Surge killer	Clamp diode
Fuse rating	No fuse is mounted.
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.45kg

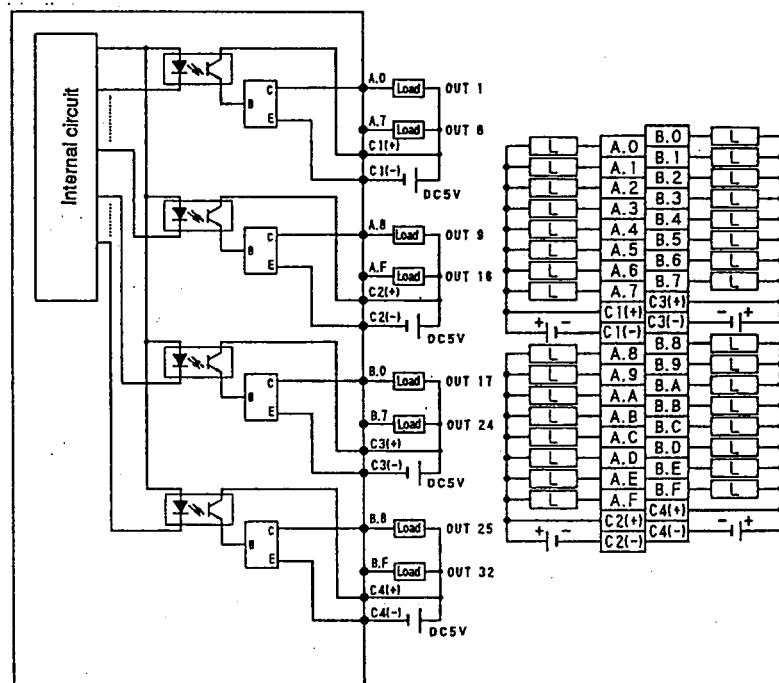
Circuit configuration & terminal connection



Output Module

Specifications	5Vdc 32-point output module
Model No.	MX100PT42
No. of output points	32 points
Load voltage range	4.5 ~ 5.5Vdc
Max. output current	20mA/point, 0.16A/common
Surge current	Max. 50A (Lower than 10ms)
Leak current	Lower than 0.01mA
Max. voltage drop at ON time	0.4V (20mA)
Response time off → on	Shorter than 1ms
Response time on → off	Shorter than 1ms
Internal current consumption	5Vdc, lower than 200mA
Surge killer	None
Fuse rating	No fuse is mounted.
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.45kg

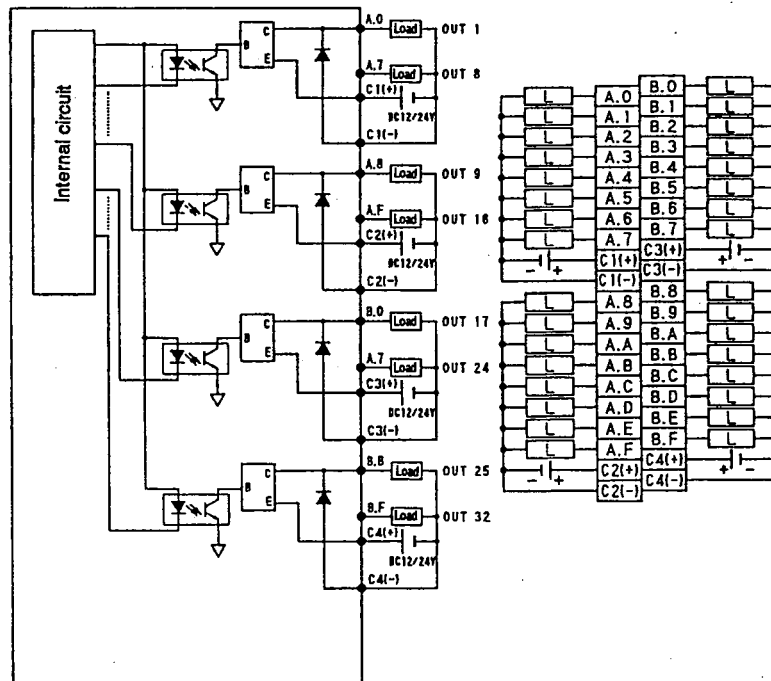
Circuit configuration & terminal connection



Output Module

Specifications	12/24Vdc 32-point output module
Model No.	MX100PT72
No. of output points	32 points
Load voltage range	10 ~ 26.4Vdc
Max. output current	0.2A/point, 0.6A/common
Surge current	Max. 0.4A (Lower than 10ms)
Leak current	Lower than 0.1mA
Max. voltage drop at ON time	2.4V (20mA)
Response time off → on	Shorter than 1ms
Response time on → off	Shorter than 1ms
Internal current consumption	5Vdc, lower than 200mA
Surge killer	Clamp diode
Fuse rating	No fuse is mounted.
Common system	8 points/common, 4 circuits
Terminal	40P
Weight	0.45kg

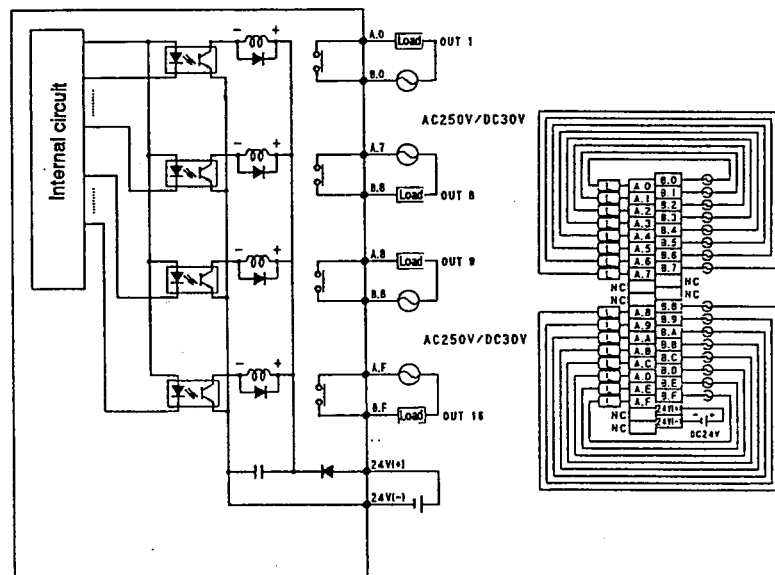
Circuit configuration & terminal connection



■ Output Module

Specifications	Relay 16-point output module
Model No.	MX100PT21
No. of output points	16 points
Max. switching voltage	250Vac / 30Vdc
Max. switching current	2A/point, (Resistive load 250Vac)
Min. switching capacity	10mA 5V
Relay life (mechanical)	More than 20,000,000 cycles
Relay life (electrical)	More than 300,000 cycles (Resistive load 250Vac)
Max. switching frequency	3,600 cycles/hour
Response time off → on	Shorter than 15ms
Response time on → off	Shorter than 15ms
Internal current consumption	5Vdc, lower than 100mA
Surge killer	None
Fuse rating	No fuse is mounted.
Common system	Independent at each point
External power supply (for relay drive)	24Vdc ± 10%, 8mA TYP/point
Terminal	40P
Weight	0.5kg

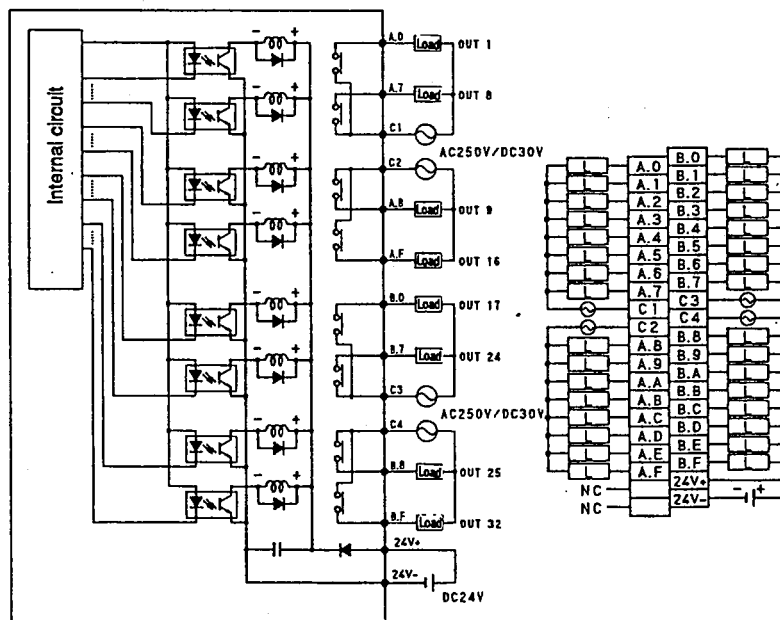
Circuit configuration & terminal connection



Output Module

Specifications	Relay 32-point output module
Model No.	MX100PT22
No. of output points	32 points
Max. switching voltage	250Vac / 30Vdc
Max. switching current	2A/point, 8A/common (Resistive load 250Vac)
Min. switching capacity	10mA 5V
Relay life (mechanical)	More than 20,000,000 cycles
Relay life (electrical)	More than 300,000 cycles (Resistive load 250Vac 1A)
Max. switching frequency	3,600 cycles/hour
Response time off → on	Shorter than 15ms
Response time on → off	Shorter than 15ms
Internal current consumption	5Vdc, lower than 200mA
Surge killer	None
Fuse rating	No fuse is mounted.
Common system	8 points/common, 4 circuits
External power supply (for relay drive)	24Vdc ± 10%, 8mA TYP/point
Terminal	40P
Weight	0.55kg

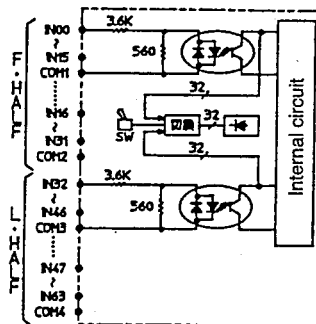
Circuit configuration & terminal connection



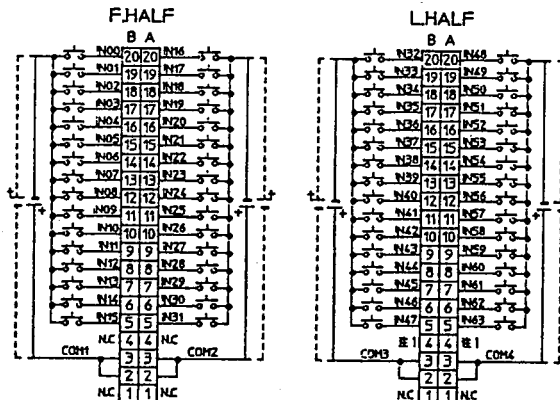
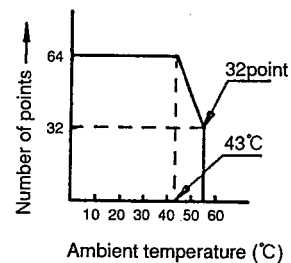
Input Module

Specifications	12/24Vdc 64-point double direction input module
Model No.	MX100GT13
No. of input points	64 points
Input voltage range	10 ~ 26.4Vdc
Input current	3mA (12Vdc) / 6.5mA (24Vdc)
Input impedance	Approx. 3.6k Ω
On Voltage	Higher than 10Vdc
Off Voltage	Lower than 3.5Vdc
Off current	Lower than 1.5mA
Response time off \rightarrow on	Shorter than 1.5ms
Response time on \rightarrow off	Shorter than 1.5ms
Internal current consumption	5Vdc, lower than 300mA
Common system	16 points/common, 4 circuits
Connector	FCN-365P040-AU (Fujitsu) 2pieces
Weight	0.45kg

Circuit configuration & connector connection



Max. number input vs Ambient temperature (24Vdc)

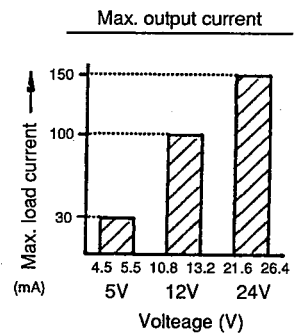
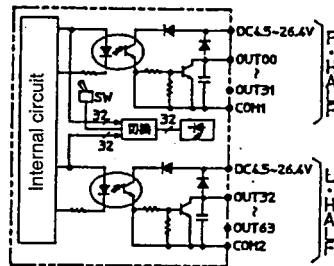


Note: A4 and B4 connectors of L.HALF can't be used.

Output Module

Specifications	5/12/24Vdc 64-point output module
Model No.	MX100PT13
No. of output points	64 points
Load voltage range	5 ~ 26.4Vdc
Max. output current	30mA ~ 150mA/point, 4.8A/common
Surge current	Max. 0.4A (Lower than 10ms)
Leak current	Lower than 0.3mA
Max. voltage drop at ON time	0.4V (0.2A)
Response time off → on	Shorter than 1ms
Response time on → off	Shorter than 1ms
Internal current consumption	5Vdc, lower than 300mA
Surge killer	Clamp diode
Fuse rating	No fuse is mounted.
Common system	32 points/common, 2 circuits
Connector	FCN-365P040-AU (Fujitsu) 2pieces
Weight	0.45kg

Circuit configuration & connector connection

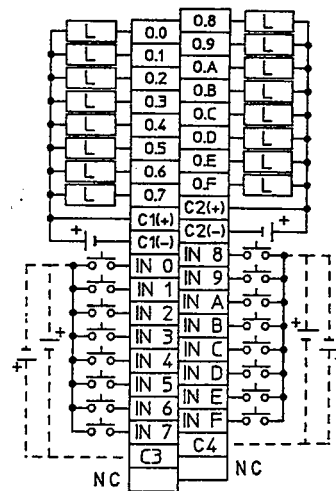
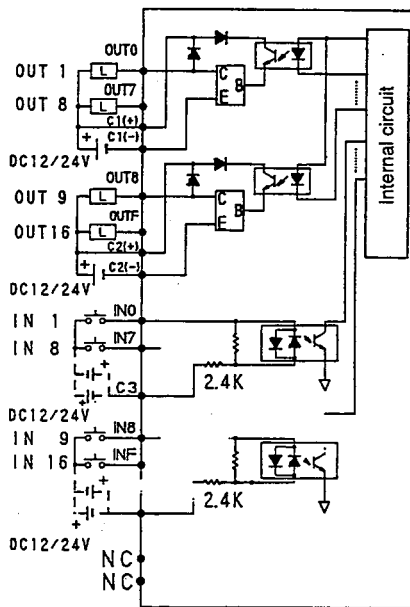


Note: A4 and B4 connectors of L.HALF can't be used.

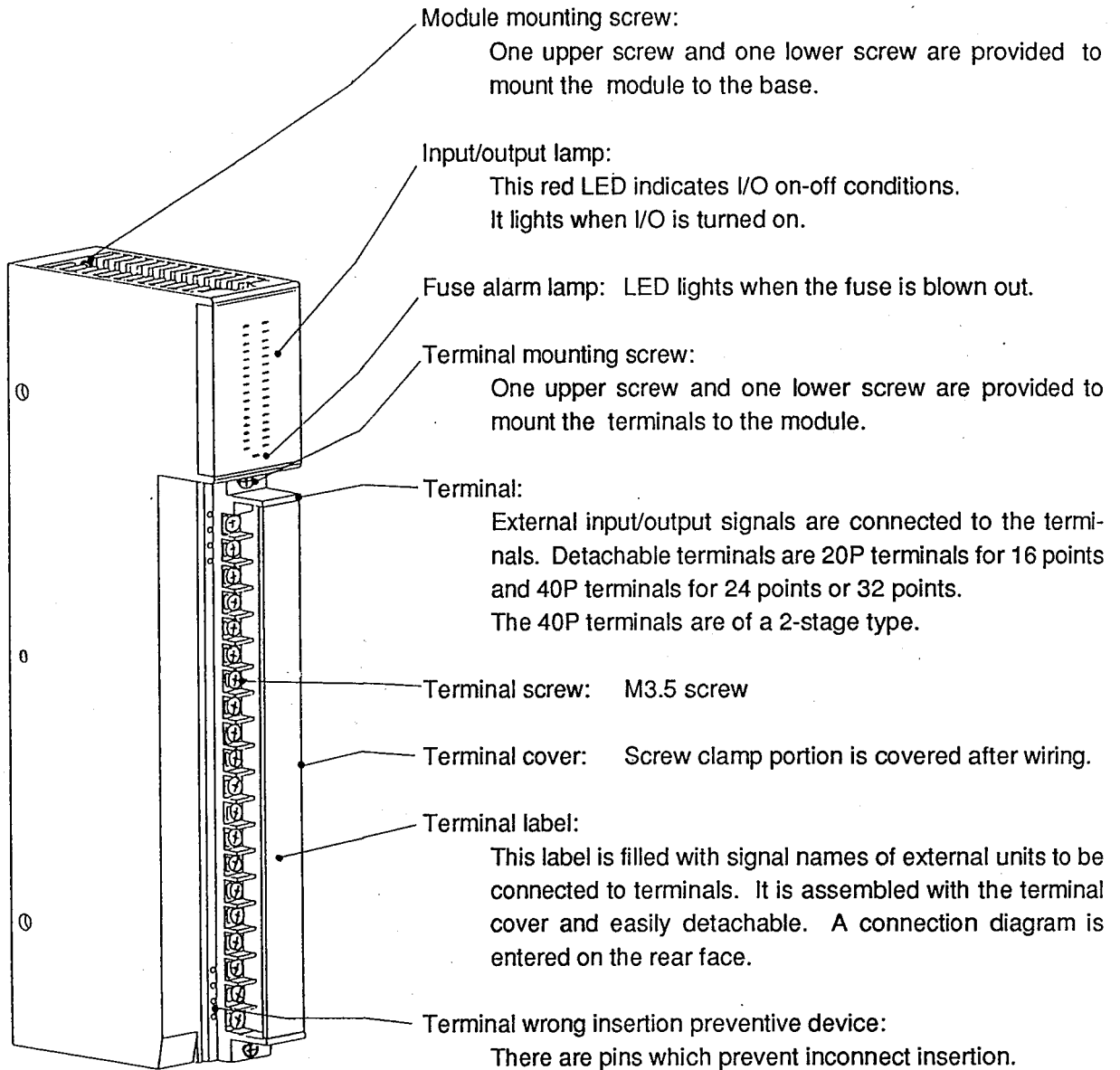
Input - Output Module

Specifications 1	12/24Vdc 16-point input 16-point output module		
Model No.	MX100GP12		
Input specifications		Output specifications	
No. of input points	16 points	No. of output points	16 points
Input voltage range	10 ~ 26.4Vdc	Load voltage range	10 ~ 26.4Vdc
Input current	5mA (12Vdc) 10mA (24Vdc)	Max. output current	0.2A/point, 0.8A/common
Input impedance	Approx. 2.4k Ω	Surge current	Max. 0.4A (Lower than 10ms)
On Voltage	Higher than 10Vdc	Leak current	Lower than 0.3mA
Off Voltage	Lower than 3.5Vdc	Max. voltage drop at ON time	1.6V (0.2A)
Off current	Lower than 1.5mA	Response time off \rightarrow on	Shorter than 1ms
Response time off \rightarrow on	Shorter than 1.5ms	Response time on \rightarrow off	Shorter than 1ms
Response time on \rightarrow off	Shorter than 1.5ms	Surge killer	Clamp diode
Internal current consumption	5Vdc, lower than 200mA		
Common system	8 points/common, 2 circuits		
Terminal	40P		
Weight	0.45kg		

Circuit configuration & terminal connection



Names and Functions of Component Parts



3-6 Base Specifications

■ Specifications

This paragraph describes the specifications of the base.

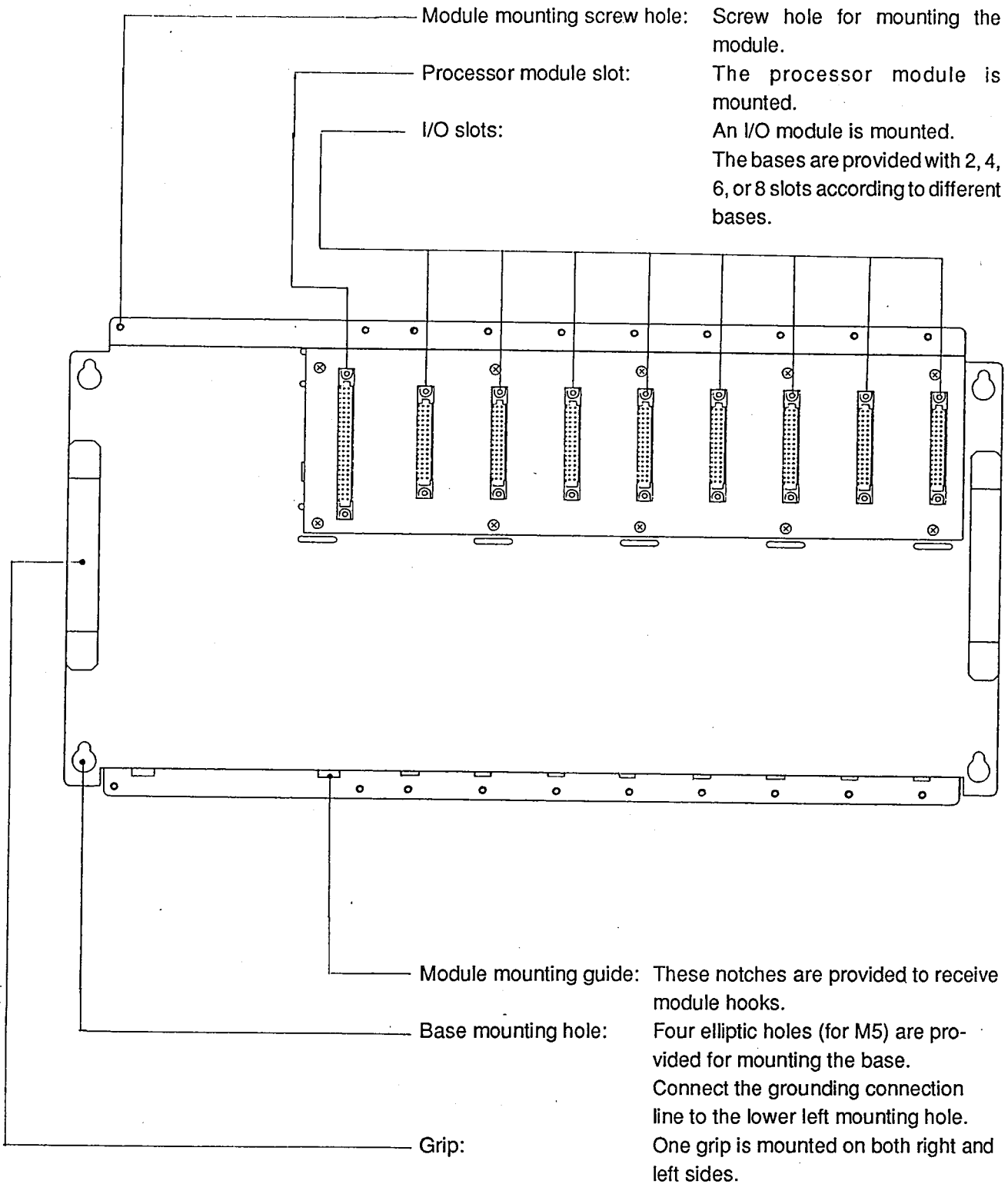
The processor module, I/O modules, and special function modules are mounted on the base.

Four kinds of bases having 2, 4, 6, and 8 slots are provided according to the number of mounted I/O modules.

All bases are provided with processor module mounting slots.

No. of slots	Model No.	Weight	Mounting hole	Mounting screw
2	MX100BS01	Approx. 0.7kg	M5 elliptic hole	M5
4	MX100BS02	Approx. 0.9kg		
6	MX100BS03	Approx. 1.2kg		
8	MX100BS04	Approx. 1.4kg		

Names and Functions of Component Parts



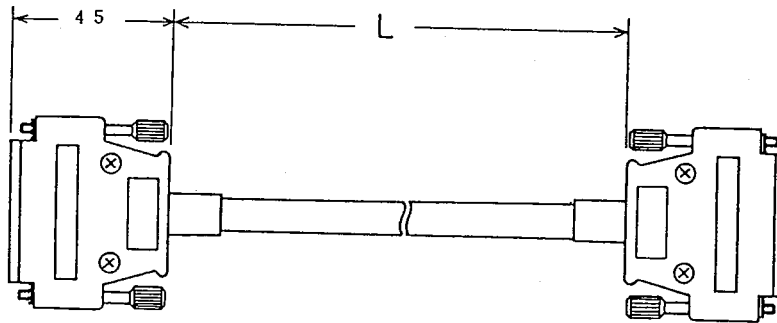
3-7 Others Specifications

■ RS-232C Cables

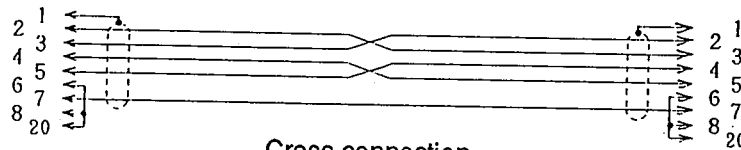
These cables are used to connect the processor module and personal computer loader, and the processor module and the handy loader.

Two kinds of cables are provided for connecting the personal loader, while one kind of cable is provided for connecting the handy loader.

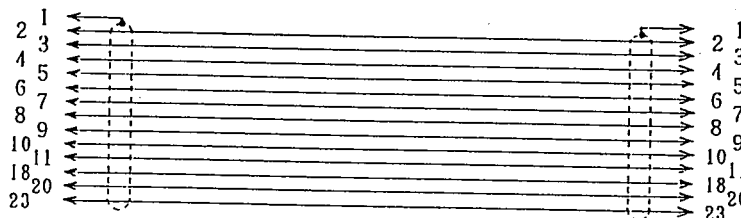
Items	Specifications			
	For connecting the personal computer loader			For connecting the handy loader
Use				
Model No.	CBL-RS232T02	CBL-RS232T08	CBL-RS232AFT02	CBL-RS232P02
Connection type	Cross	Cross	Cross	Straight
Cable length	2m	8m	2m	2m
Connector	Pin(25) ↔ Pin(25)	Pin(25) ↔ Pin(25)	Pin(25) ↔ Socket(9)	Pin(25) ↔ Socket(9)
Kind of cable	8 φ circular cable	8 φ circular cable	8 φ circular cable	8 φ circular cable
Weight	Approx. 0.25kg	Approx. 0.8kg	Approx. 0.25kg	Approx. 0.25kg
PC	PC-9801	PC-9801	IBM PC	-----



RS-232C cable



Cross connection



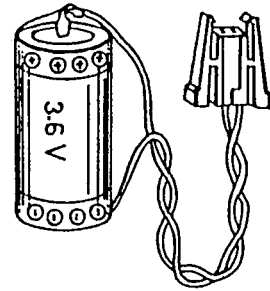
Straight connection

Cable connection diagram

■ Lithium Battery

This battery is used to back up the RAM memory and hold data during power interruption. An exclusive connector and a wire are attached.

Item	Specifications
Model No.	MX100BT01
Nominal voltage	3.6Vdc
Battery life	5 years (25°C)
Guarantee against power interruption	Same as the battery life
External size	20ø × 36mm

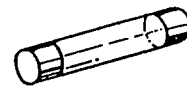


Lithium battery

■ Fuses

These fuses are used for both processor module and output modules.

Item	Specifications	
	Model No.	MX100FS01
Rated current	2A	5A
Profile	Glass cartridge tube	
External size	5.2ø x 20	4.6ø x 16
Use	Processor module MX100CP02	MX100PT11 12/24Vdc 16 points outputs
Recommend fuses	MT4-2-N1 (manufactured by SOC Co.)	MF41NN5 by Toyo Fuse Co.

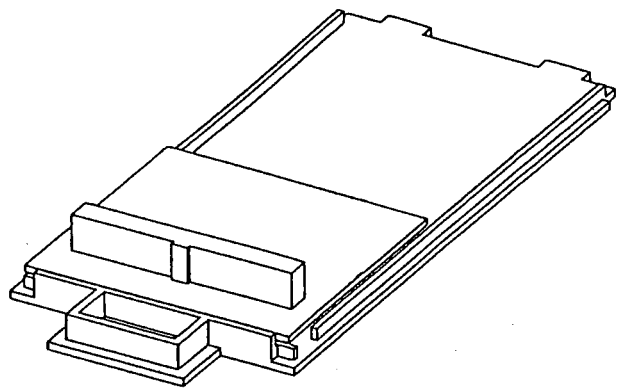


Fuse

■ Cover

This cover is used for the processor module when either memory card or PROM is used as a program memory.

Item	Specifications	
Model No.	MX100ST02	
Use	For PROM	
Applicable memory	CMOSEPROM	27C256



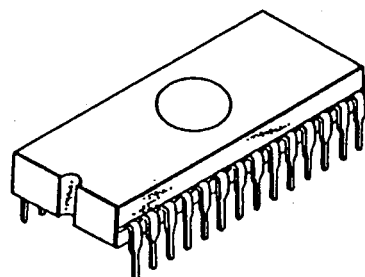
■ PROM

This PROM is used when a program requires.

Select a commercially-available PROM whose access time is shorter than 150ns.

For writing data into PROM, use a commercially-available PROM writer.

Item	Specifications	
Memory type	CMOS EPROM	
Memory capacity	32K words × 8 bits	64K words × 8 bits
Recommendable model No.	27C256	27C512
External profile	28PDIL	



PROM