OMRON

SYSMAC Remote Relay Module

G730-R

Remote Input and Output Slave Modules to Meet Your Design Needs

- Choose 4-point, 8-point and 16-point modules
- Two-conductor cable communications available using Omron Wired Remote I/O Master Modules (C200H-RM201 and C500-RM201)
- For high-frequency switching, use power MOSFET relay modules (G730-A); no contacts to wear out, long service life, no leakage current
- Built-in finger protection of 4-point modules meet VDE0160 requirements

Ordering Information

■ REMOTE RELAY MODULES

Classification	Points	Rated voltage	Relay coil rating	Applicable relay	Part number
Relay input	4 points	24 VDC	12 VDC	G3R-IDZR-1SN DC12-24	**G730-RID04 DC12**
			24 VDC	G2R-1A3-S DC24	**G730-RID04 DC24**
			100/110 VAC	G3R-IAZR-1SN AC100-240	**G730-RIA04 AC110**
			200/220 VAC	G3R-IAZR-1SN AC100-240	**G730-RIA04 AC220**
Relay output	4 points		24 VDC	G2R-1A-S-ASI DC24	**G730-ROC04 DC24**
	8 points			G6D-1A DC24	**G730-ROC08 DC24**
	16 points				**G730-ROC16 DC24**
Power MOSFET relay outputs	8 points			G3DZ-2R6PL DC24	**G730-AOM08 DC24**
	16 points				**G730-AOM16 DC24**

■ REMOTE RELAY I/O BLOCK BASES

Classification	Points	Rated voltage	Relay coil rating	Applicable relay	Part number
Input socket	4 points	24 VDC	5 to 24 VDC	G2R-1A3-S, G3R (SSR) G3RZ (Power MOSFET relay)	**G730-ZID04 DC5-24**
			100 to 240 VAC		**G730-ZIA04 AC100-240**
Output socket			24 VDC	G2R-1A-S, G3R (SSR), G3RZ (Power MOSFET relay)	**G730-ZOM04 DC24**

Note: 1. Other combinations are possible, such as sockets and G3R SSR and sockets, and G3RZ Power MOSFET Relays.
2. All input relays must be G2R-1A3-S Relays with bifurcated crossbar contacts or G3R I/O series Solid State Relays.

Specifications

■ RATINGS

Inputs

Item	G730-RID04		G730-RIA04	
Rated input voltage	12 VDC	24 VDC	100/110 VAC	200/220 VAC
Rated input current	43.6 mA	21.8 mA	6.2 mA	3.3 mA
Coil resistance	275 Ω	1.1 kΩ	6.5 kΩ	25 kΩ
Operating voltage	70% max.		80% max.	
Release voltage	15% min.		30% min.	
Max. permissible voltage	110%			
Power consumption	Approx. 0.53 W		Approx. 0.7 VA	
ON delay	20 ms			
OFF delay	35 ms		25 ms	
Life expectancy	Electrical: 100,000 operations min. (under a rated load at 1,800 operations/hr) Mechanical: G730-RID04: 20,000,000 operations min. (at 1,800 operations/hr) G730-RIA04: 10,000,000 operations min. (at 1,800 operations/hr)			

Outputs

Item	G730-ROC04		G730-ROC08, G730-ROC16
Rated load	Resistive load: 5 A at 250 VAC; 5 A at 30 VDC	Inductive load: 2 A at 250 VAC; 3 A at 30 VDC	Resistive load: 3 A at 250 VAC; 3 A at 30 VDC
Rated carry current	5 A		3 A
Max. switching voltage	380 VAC, 125 VDC		250 VAC, 30 VDC
Max. switching current	5 A		3 A
Max. switching capacity	1,250 VA, 150 W	500 VA, 90 W	730 VA, 90 W
Min. permissible load (See Note)	100 mA at 5 VDC		10 mA at 5 VDC
Life expectancy	Electrical: 100,000 operations min. (under a rated load at 1,800 operations/hr) Mechanical: 20,000,000 operations min. (at 1,800 operations/hr)		

Note: This value fulfills the P reference value of opening/closing at a rate of 120 times per min (ambient operating environment and determination criteria according to JIS C5442).

Power MOSFET Relay Specifications

Item	G730-AOM08, G730-AOM16
Load voltage	3 to 264 VAC, 3 to 125 VDC
Load current	100 μA to 0.3 A
Inrush current	6 A (10 ms)

■ CHARACTERISTICS

Item	G730-RID04, G730-ROD04	G730-ROC08	G730-ROC16	G730-AOM08	G730-AOM16
Master module	For SYSMAC BUS Wired Remote I/O Systems: C200H-RM201, C500-RM201				
Communication method	Two-conductor, half duplex				
Synchronization method	Asynchronous				
Transmission distance	200 m (total length)				
Transmission speed	187.5 kbps				
Transmission path	Two-conductor cable (VCTF 0.75 x 2 C is recommended)				
Interface	RS-485				
Operating voltage range	24 VDC $^{+10\%}/_{-15\%}$				
Current consumption (See Note)	Input: 70 mA max. at 24 VDC Output: 220 mA max. at 24 VDC	Input: 70 mA max. at 24 VDC Output: 220 mA max. at 24 VDC			
Insulation resistance	20 MΩ min. (at 250 VDC)				
Dielectric strength	*G730-RIA04/-ROC04:* 2,700 VAC for 1 min between the whole I/O terminals and power supply and transmission terminals, 500 VAC for 1 min between the whole power supply terminals and transmission terminals *G730-RID04:* 500 VAC for 1 min between the whole I/O terminals and power supply and transmission terminals; between the whole power supply terminals and transmission terminals	2,000 VAC for 1 min between the whole output terminals and power supply and transmission terminals 500 VAC for 1 min between the whole power supply terminals and transmission terminals			
Noise immunity	Power supply normal: 600 V for 10 min with a pulse width of 100 ns to 1 μs Power supply common: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs Coiling around transmission path: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs Coiling around Unit: 600 V for 10 min with a pulse width of 100 ns to 1 μs				
Vibration resistance	10 to 55 Hz, 0.75 mm double amplitude for 2 hrs each in X, Y, and Z directions				
Shock resistance	Destruction: 300 m/s^2 (approx. 30G) Malfunction: 100 m/s^2 (approx. 10G)				
Ambient temperature	Operating: 0°C to 55°C (32°F to 131°F) Storage: −20°C to 65°C (−4°F to 149°F)				
Ambient humidity	Operating: 35% to 85%				
Mounting strength	No damage when 5 kgf (49N) pull load was applied for 1 s in all directions				
Terminal strength	Tightening strength: 10 kgf • cm (0.98 N • m) Pulling strength: 5 kgf (50 N) for 1 min				
Weight	G730-RID: approx. 223 g G730-RIA: approx. 225 g; G730-ROC: approx. 224 g (with all the relays mounted.)	Approx. 140 g (with all the relays mounted.)	Approx. 230 g (with all the relays mounted.)	Approx. 140 g (with all the relays mounted.)	Approx. 230 g (with all the relays mounted.)
Approvals	UL recognized, File No. E41515; CSA certified, File No. LD31928				

Note: The above current consumption is a value with all the points turned ON including the current consumption of the G2R/G6D coils for the Remote Output Terminal.

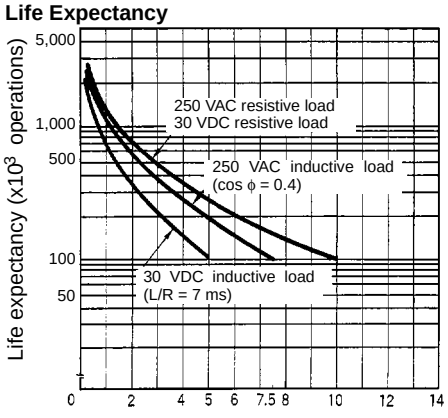
Engineering Data

■ OUTPUT

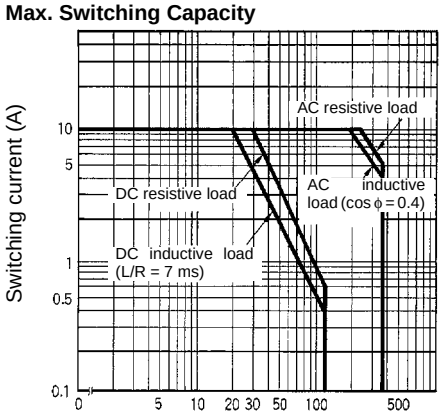
G2R-1A-S Relay (24 VDC)

For G730-ROC04 and G730-ROC04-A

Life Expectancy



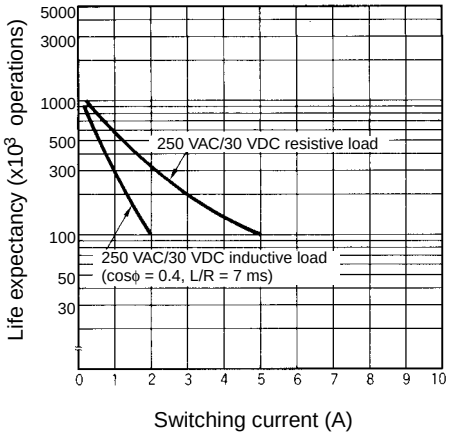
Max. Switching Capacity



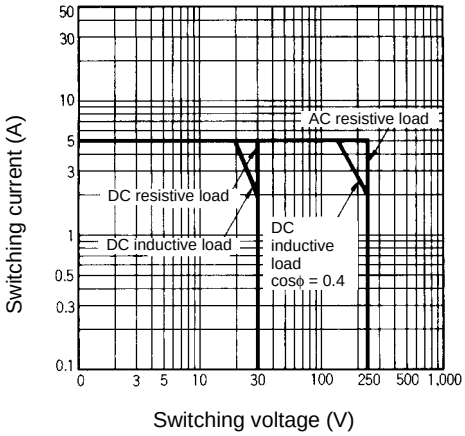
G6D-1A Relay (24 VDC)

For G730-ROC08 and G730-ROC16

Life Expectancy



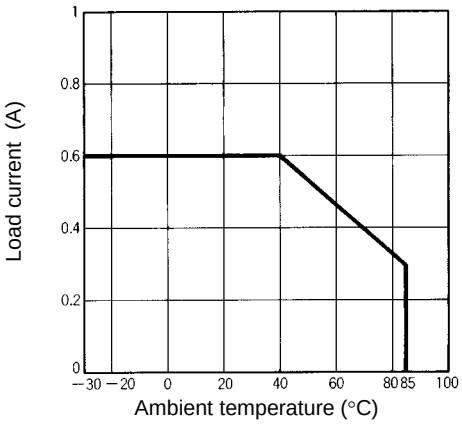
Max. Switching Capacity



G3DZ-2RGPL Relay

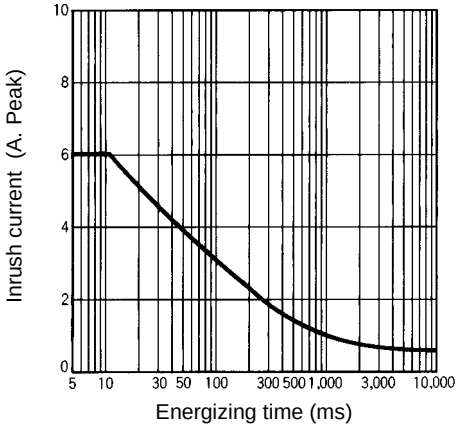
For G730-AOM08 and G730-AOM16

Load Current vs. Ambient Temperature Characteristics



Inrush Current Resistivity

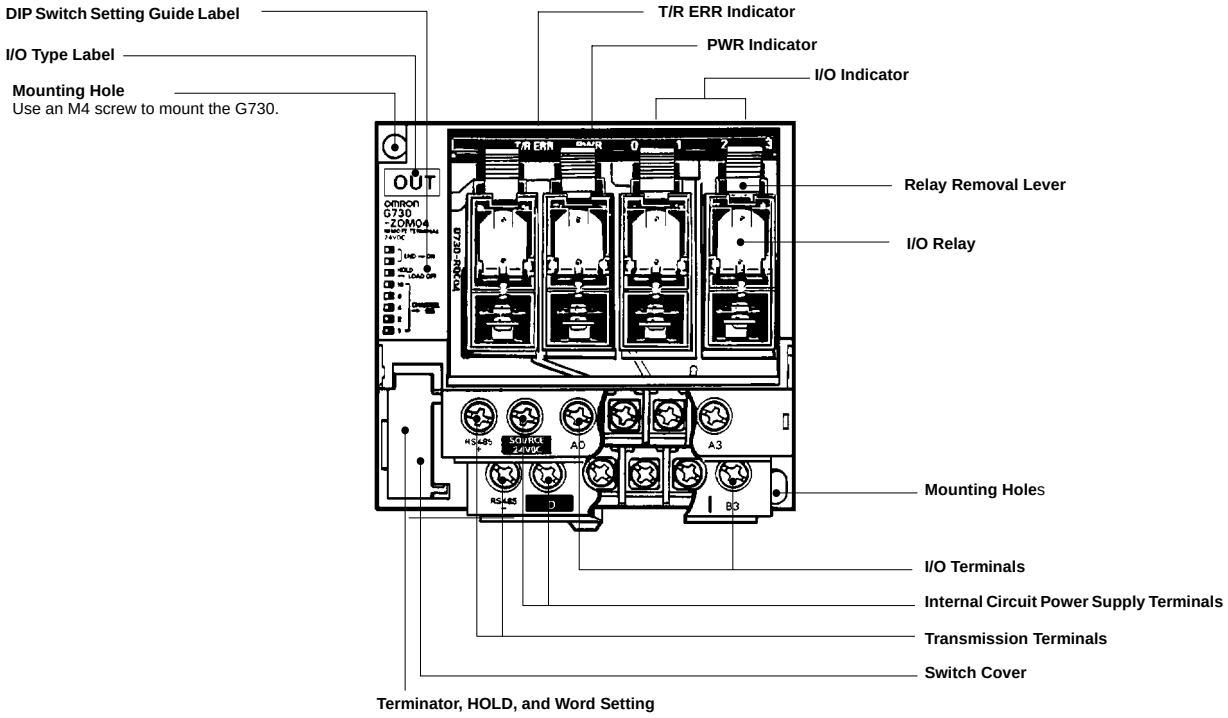
Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

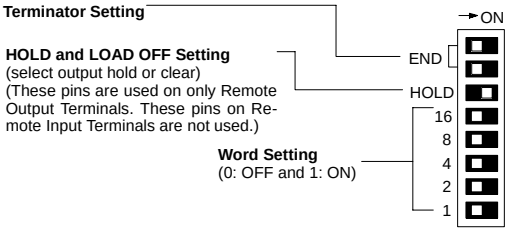


Nomenclature

■ FOUR-POINT INPUT AND OUTPUT MODULES

G730-RIA04, G730-RID04, G730-ROC04

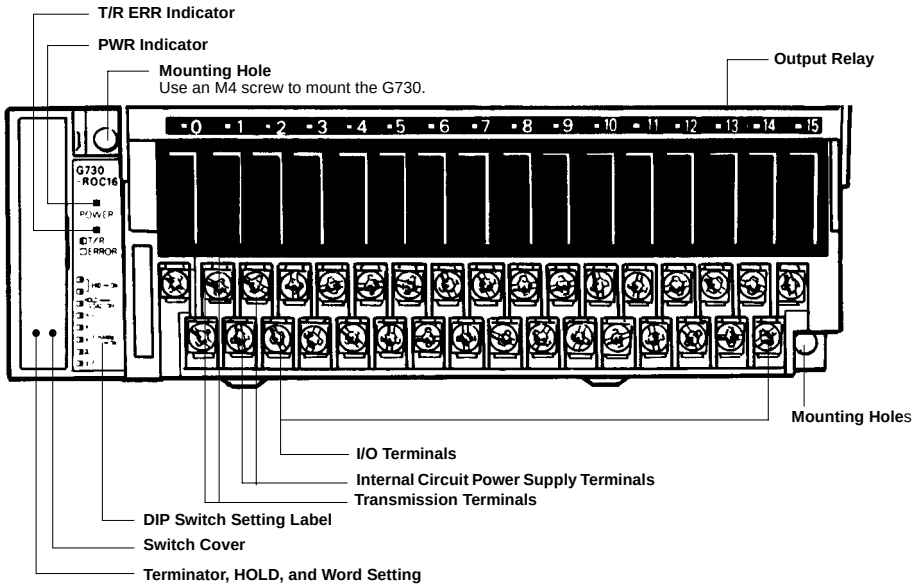


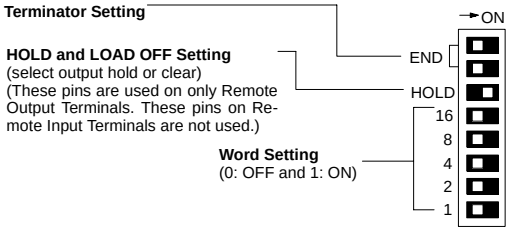


Note: Be sure to turn off the G730 before setting the DIP switch.

■ 16-POINT OUTPUT MODULES

G730-ROC16, G730-AOM16





Note: Be sure to turn off the G730 before setting the DIP switch.

Mounting Holes

Use an M4 screw to mount the G730.

Terminator Setting

These pins on the terminator must be set to ON.
If these pins on the terminator are set to ON, the terminator resistance of the terminator is turned ON. There must be only one terminator in a system. The G730-V located farthest from the G730-M on the transmission path must be the terminator. These pins are factory-set to OFF.

HOLD and LOAD OFF Setting

HOLD	LOAD OFF
If there is a Slave transmission error during signal transmission, the signal being transmitted is put on hold.	If there is a Slave transmission error during signal transmission, the output of the G730-V is turned OFF.

Note: If the Master has a data error or if there is no data from the Master, a Slave transmission error will result. The HOLD/LOAD OFF selector is factory-set to LOAD OFF.

T/R ERR Indicator

Display	Function
Flashing	Flashes during normal transmission.
Lit	Lit while the Master Module is waiting for transmission or when a transmission error results.
Not lit	Turns OFF if a CPU error is detected during watchdog timer monitoring.

PWR Indicator

Display	Function
Lit	Lit when the G730-R is in operation.
Not lit	Turns off when there is a power failure.

I/O Indicator

Indicates the ON and OFF conditions of the I/O of the G730.

Internal Circuit Power Supply Terminals

Connect to a 24 VDC power supply.

Transmission Terminals

Connect a transmission cable.

Switch Cover

There is a DIP switch under the cover, which is used for word, terminator, and HOLD settings.

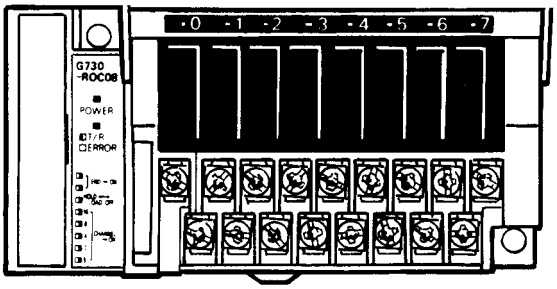
Word Settings

Word	Switch					Word	Switch				
	1	2	4	8	16		1	2	4	8	16
0	OFF	OFF	OFF	OFF	OFF	16	OFF	OFF	OFF	OFF	ON
1	ON	OFF	OFF	OFF	OFF	17	ON	OFF	OFF	OFF	ON
2	OFF	ON	OFF	OFF	OFF	18	OFF	ON	OFF	OFF	ON
3	ON	ON	OFF	OFF	OFF	19	ON	ON	OFF	OFF	ON
4	OFF	OFF	ON	OFF	OFF	20	OFF	OFF	ON	OFF	ON
5	ON	OFF	ON	OFF	OFF	21	ON	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF	OFF	22	OFF	ON	ON	OFF	ON
7	ON	ON	ON	OFF	OFF	23	ON	ON	ON	OFF	ON
8	OFF	OFF	OFF	ON	OFF	24	OFF	OFF	OFF	ON	ON
9	ON	OFF	OFF	ON	OFF	25	ON	OFF	OFF	ON	ON
10	OFF	ON	OFF	ON	OFF	26	OFF	ON	OFF	ON	ON
11	ON	ON	OFF	ON	OFF	27	ON	ON	OFF	ON	ON
12	OFF	OFF	ON	ON	OFF	28	OFF	OFF	ON	ON	ON
13	ON	OFF	ON	ON	OFF	29	ON	OFF	ON	ON	ON
14	OFF	ON	ON	ON	OFF	30	OFF	ON	ON	ON	ON
15	ON	ON	ON	ON	OFF	31	ON	ON	ON	ON	ON

Note: The word is factory-set to 0.

■ EIGHT-POINT OUTPUT MODULES

G730-ROC08, G730-AOM08

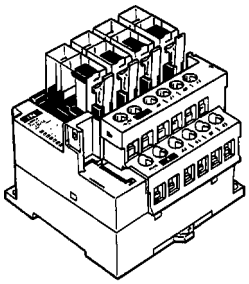


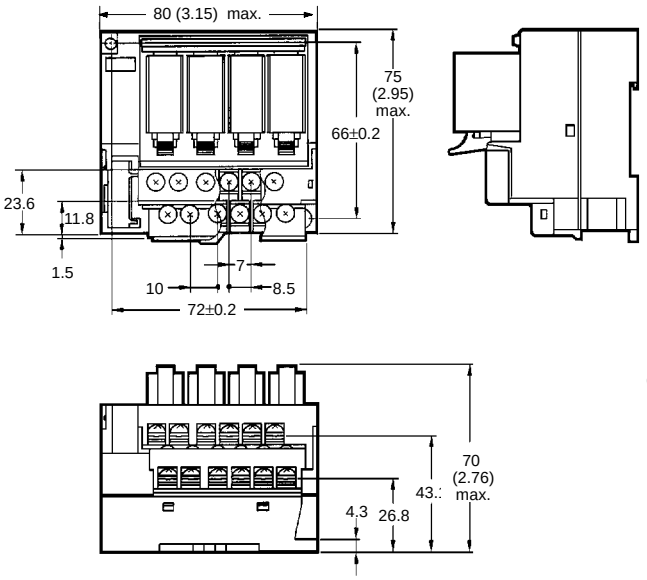
The LED indicators, terminator, HOLD, and word setting methods are the same as for 16-point models.

Dimensions

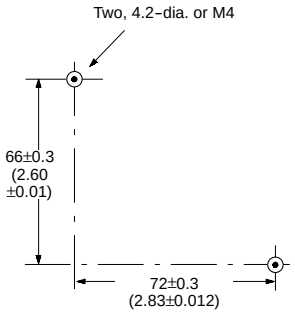
Unit: mm (inch)

G730-RID(A)04

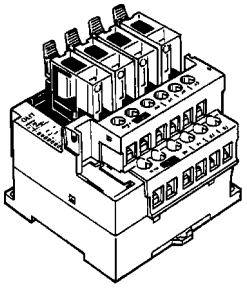


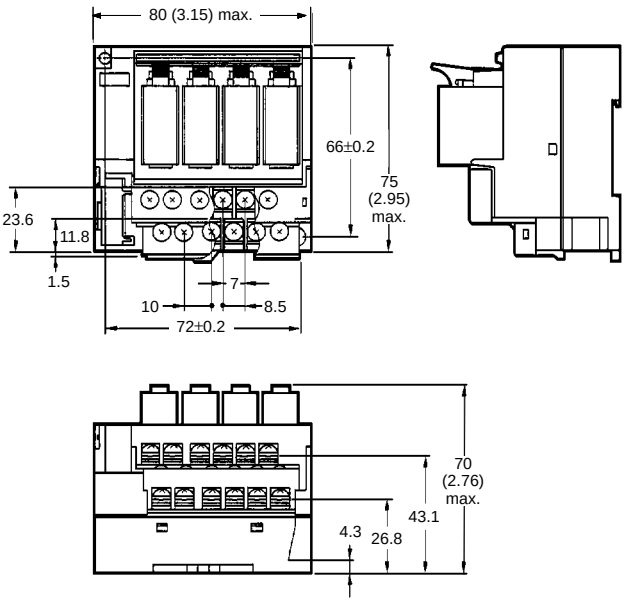


Mounting Holes

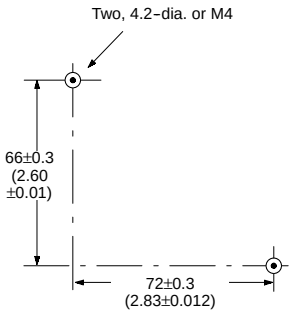


G730-ROC04

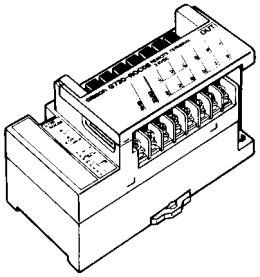


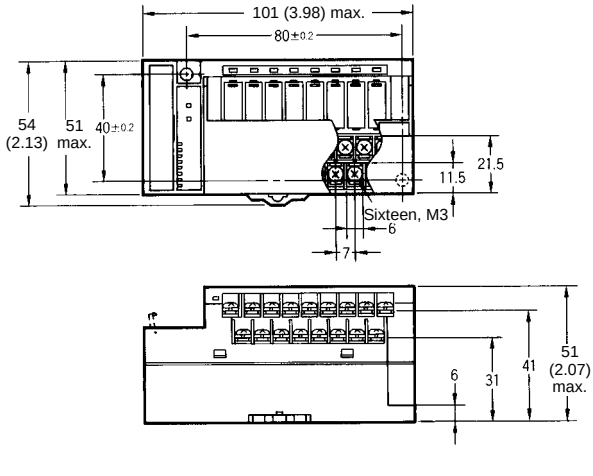


Mounting Holes

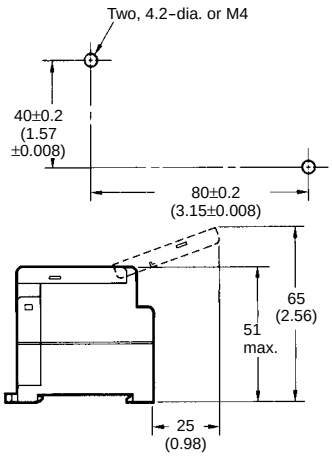


G730-ROC08
G730-AOM08

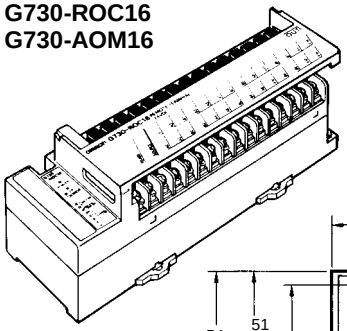


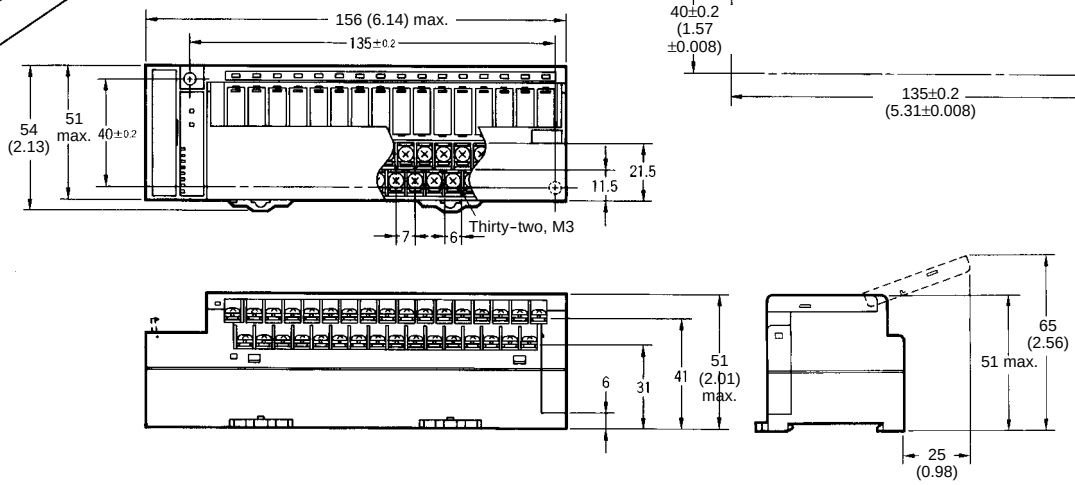


Mounting Holes

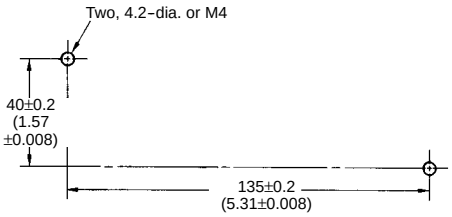


G730-ROC16
G730-AOM16





Mounting Holes

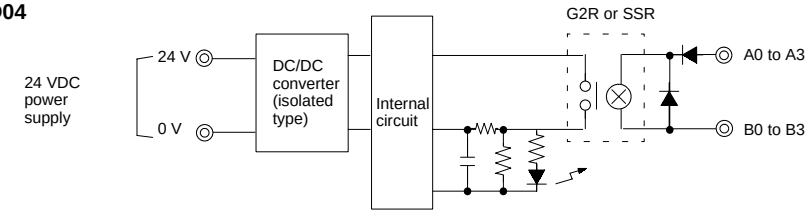


Installation

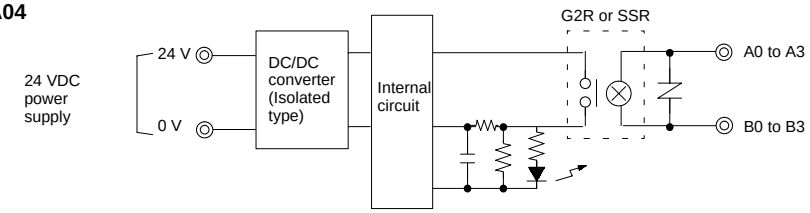
■ INTERNAL CIRCUIT CONFIGURATION

Input Circuits

G730-RID04

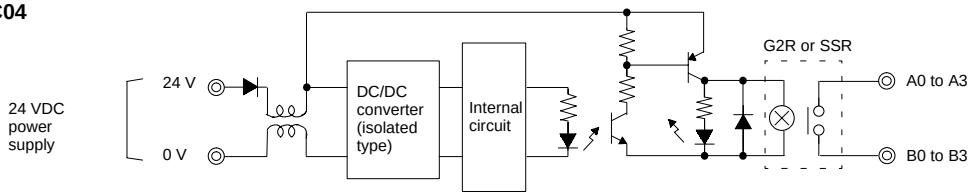


G730-RIA04

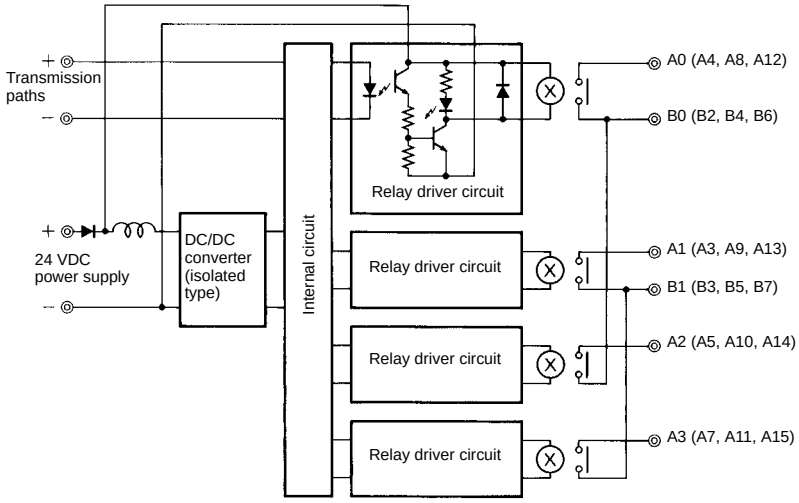


Output Circuit

G730-ROC04



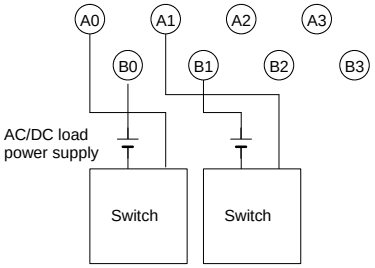
G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16



■ EXTERNAL CONNECTIONS

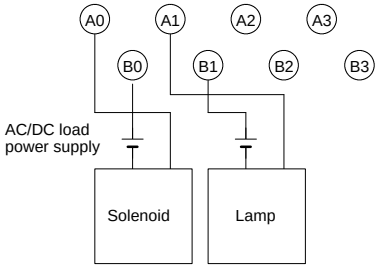
Input Blocks

G730-RIA04, G730-RID04



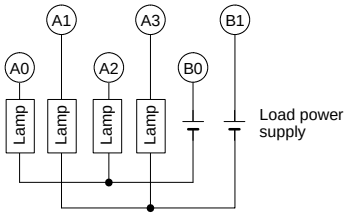
Output Blocks

G730-ROC04



Output Blocks

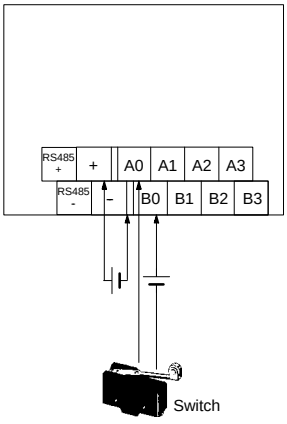
G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16



■ TERMINAL ARRANGEMENT AND I/O DEVICE CONNECTION EXAMPLES

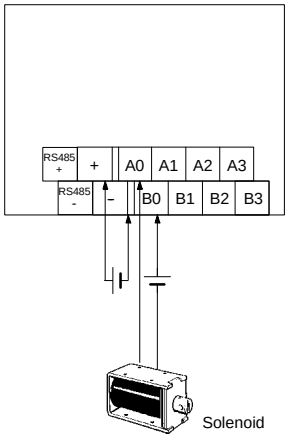
Input Terminals

G730-RIA04, G730-RID04



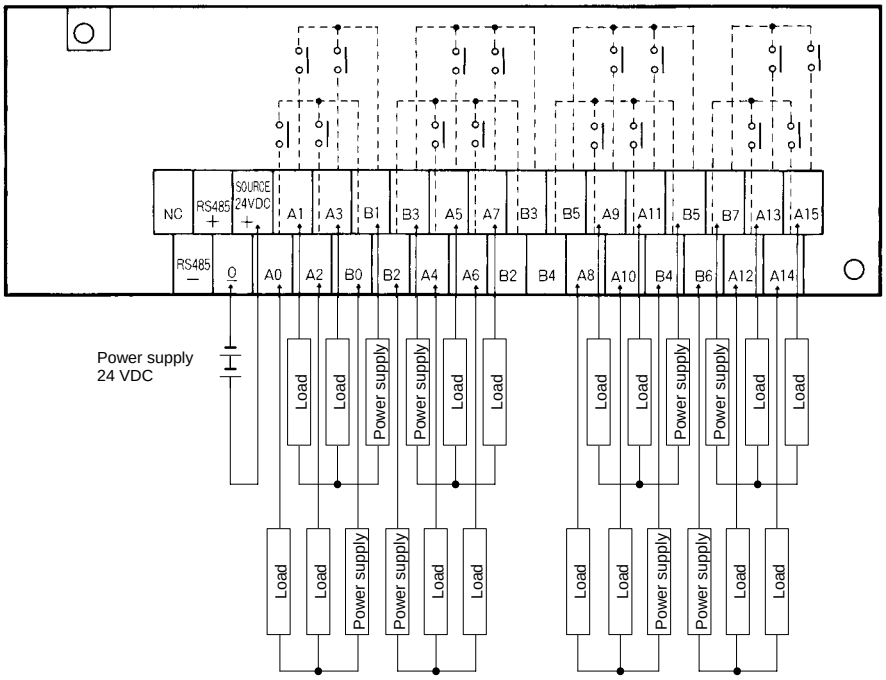
Output Terminals

G730-ROC04



Output Terminals

G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16



Note: The G730-ROC16/AOM16 is shown above. G730-ROC08 and G730-AOM08 do not have terminals A0 through A7.

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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