

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

OMRON

G700-UMD16

MIXED INPUT/OUTPUT REMOTE I/O TERMINAL

Used with the applicable G700-U Remote I/O configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Omron manufacturer documentation for G700-UMD16

Combines the Features of a Communications Terminal with a Wiring Block; I/O Quantity and Blend Flexibility

- Reduced mounting space requirements.
- Accepts signals from Remote I/O Master Unit (CV500-RM221) via shielded twisted-pair cable (B200-TW) up to 500 m away.
- Expandable in increments of four I/O points by adding the G700-T or G700-S I/O Blocks.
- Expandable to up to 32 I/O points.
- Inputs and outputs can be mixed.
- ON/OFF indicator (LED) for each I/O point and communications status indicators (LED).
- Fuse replaceable on the back panel.
- Mount to DIN track or via screws.
- Provides power terminals for I/O devices.

Ordering Information

Classification	Internal I/O circuit common	Rated voltage	Model
Input	NPN (+ common)	24 VDC	G700-UID16
Output	NPN (- common)	24 VDC	G700-UOD16
Input/output (mixed)	Input (+ common); output (- common)	24 VDC	G700-UMD16

Specifications

■ Transmission

Communication method	1: N polling
Coding method	Manchester coding
Topology	Wired multi-drop
Baud rate	1.5 M bps
Transmission delay	5.2 ms max.*
Transmission distance	500 m max.
No. of connecting nodes	32 max. per Remote I/O Master Unit (do not exceed the I/O capacity of the PC)
Communications cable	Shielded Twisted-pair Shielded Cable B200-TW
Error control method	CRC-CCITT inverted double transmission collation
Interface	Dedicated interface

*Set the transmission delay of the PC to 0 when the G700-U or G700-E is connected.

■ Characteristics

Power supply voltage	24 VDC
Operating voltage range	21.6 to 26.4 VDC
Current consumption	2.5 W max. (excluding I/O current consumption)
Insulation resistance	20 MW min. (at 250 VDC)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between the transmission paths and power supply terminals
Noise immunity	Noise level: 1.5 kV min.; pulse width: 100 ns, 1 ms
Vibration resistance	Malfunction: 10 to 55 Hz, 0.25-mm single amplitude
Shock resistance	Malfunction: 200 m/s ² (approx. 20G)
Ambient temperature	Operating: 0% to 55°C Storage: -20% to 65°C
Ambient humidity	35% to 85%
Ambient atmosphere	No corrosive gas
Mounting strength	No abnormality when 5 kgf (49 N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of track).
Terminal strength	No abnormality when 5 kgf (49 N) pull load was applied for 1 s in all directions.
Weight	Approx. 360 g

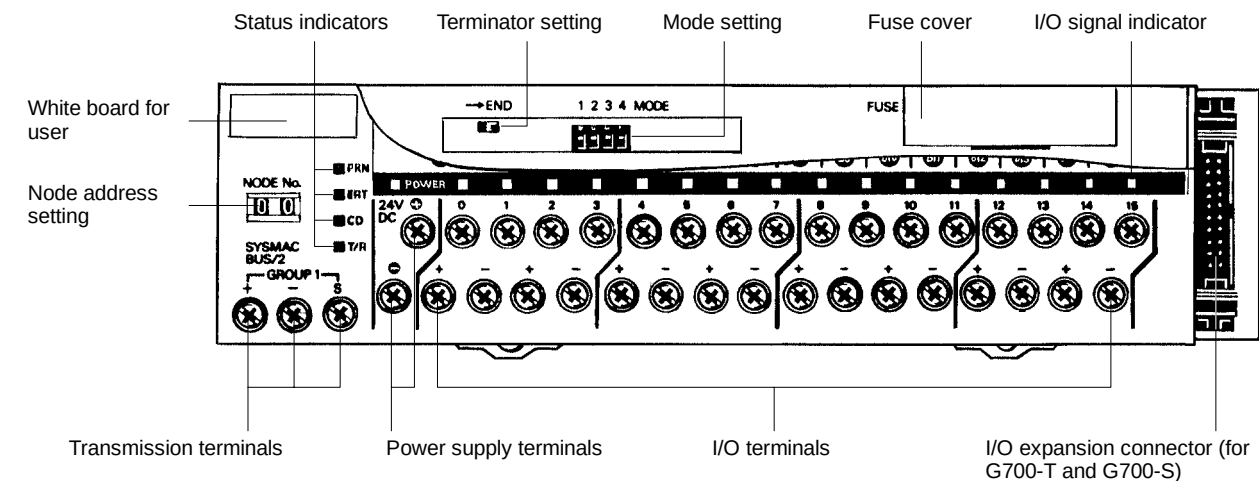
Inputs

Item	G700-UID16	G700-UMD16
Input current	10 mA max./point	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits	16 points/common; 1 common	8 points/common; 1 common
ON voltage	15 VDC max. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.)	
OFF voltage	7 VDC min. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.)	
Insulation method	Photocoupler	
Input indicators	LED (orange)	

Outputs

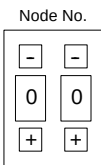
Item	G700-UID16	G700-UMD16
Rated output current	0.3 A max./point	
Residual voltage	1.2 V max.	
Leakage current	200 mA max.	
Number of circuits	16 points/common; 1 common	8 points/common; 1 common
Insulation method	Photocoupler	
Output indicators	LED (orange)	

Nomenclature



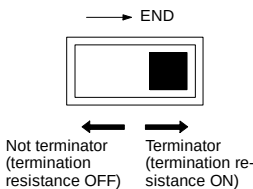
Operation

■ Surface Switch Setting
Node Address Setting (Node No. Switch)



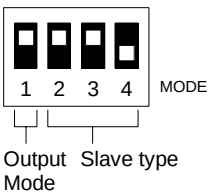
Each Remote I/O Subsystem connected to a Remote I/O Master Unit can contain up to 32 nodes (slaves). Use the thumbwheel rotary switch (2-digit, decimal) of the G700-U to set the node address (a 2-digit value) in numerical order from 00 to 31. The PC recognizes the node addresses when the G700-U Units are turned on or when the I/O table is made. Address changes after that will not be recognized. The node address is set to 00 before shipping.

Terminator Setting



The terminator setting sets the termination resistance. Set only one terminator per Remote I/O Master Unit and be sure that the Unit farthest from the Master is set as terminator. The PC recognizes the terminator when the G700-U Unit is turned on. Address changes after that will not be recognized. No terminator setting is made before shipping.

Mode Setting



Output Mode: HOLD/OFF

Switch setting	Mode	Description
	Hold mode	When a transmission error has occurred, the G700-U maintains the previous output status. To clear the output, select the OFF mode.
	OFF mode	When a transmission error has occurred, the G700-U turns OFF all outputs.

Operation for Errors

Error	POWER	PRN	ERT	CD	T/R	Countermeasure
Power failure of the Unit	OFF	OFF	OFF	OFF	OFF	Turn power on.
I/O Terminals in the main system not ready	ON	OFF	OFF	OFF	OFF	Turn on the host system.
Cable disconnection	ON	OFF	OFF	OFF	OFF	Connect the cable.
Wrong address setting	ON	OFF	OFF	ON	OFF	Reset the address and restart.
Duplicate address setting	ON	OFF	OFF	ON	OFF	Reset the address and restart.
Interface error with the host user of the subsystem	ON	---	---	---	---	Check the I/F of the subsystem and host controller.
Interruption of data transmission during cyclic transmission	ON	OFF	OFF	OFF	OFF	Restart cyclic transmission.
Power failure in the host system during cyclic transmission	ON	OFF	OFF	OFF	OFF	Check the host system.
Deterioration of the transmission paths	ON	OFF	OFF	OFF	OFF	Check the transmission paths.

■ Protection

Short-circuit

The fuse will melt when the positive and negative I/O terminals are short circuited, in which case just replace the fuse with a new one. No maintenance service to the internal circuitry of the G700-U is required.

The fuse could melt when the I/O terminals have not been short-circuited, in which case there is a possibility that the internal circuitry of the G700-U is malfunctioning and repairs may be required. The following table lists the fuse ratings for G700-U models.

Model	Fuse ratings
G700-UID16	2 A, 125 V
G700-UOD16	5 A, 125 V
G700-UMD16	3 A, 125 V

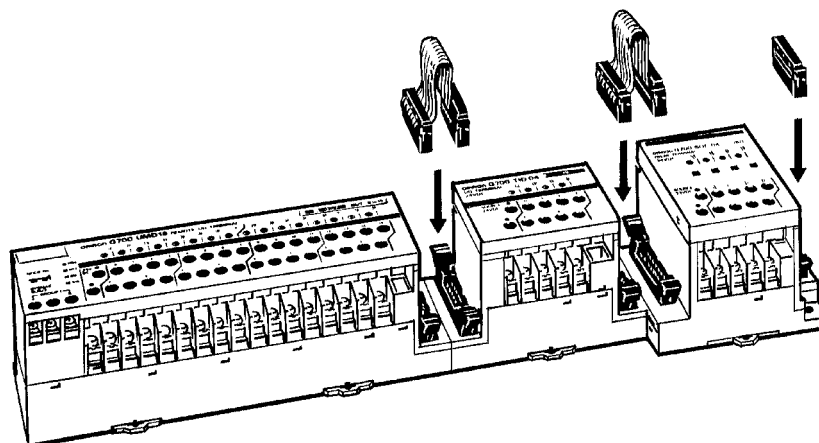
The power supply terminals have polarity. Do not reverse the power supply lines when connecting the power supply terminals or the G700-U will be damaged.

■ Replacement of Fuse

1. Remove the main cover.
2. Remove the fuse cover.
3. Replace the fuse with a new fuse of the same type.
4. Align the fuse cover so that the edges of the fuse cover match the grooves in the case, and then press on the fuse cover.
5. Replace the main cover.

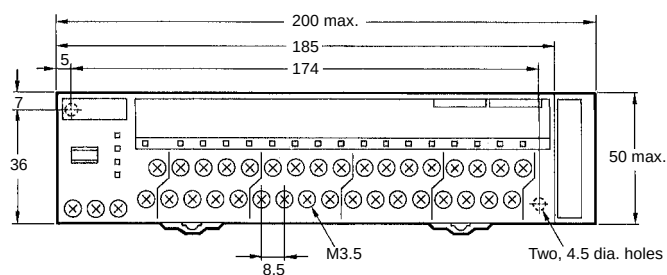
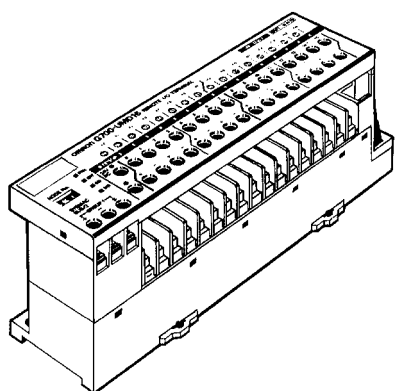
■ Connection of G700-T or G700-S Unit

The G700-U should be connected to the G700-T or G700-S with the cable provided with the G700-T or G700-S. Lock the cable connectors with the levers after the cable is connected. Connect the XG4M-2030 (MIL-type socket, sold separately) and XG4T-2004 (strain-relief type, sold together) to the end terminals that are not connected to an I/O Block.

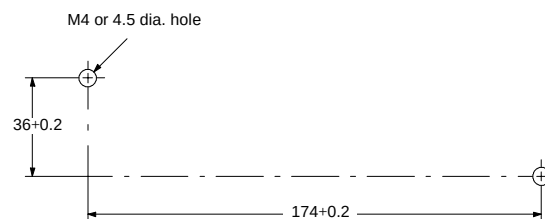


Dimensions

Note: All units are in millimeters unless otherwise indicated.



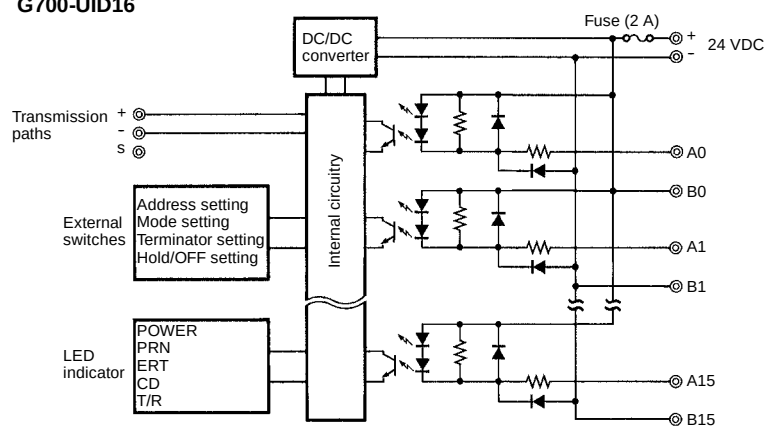
Mounting Holes



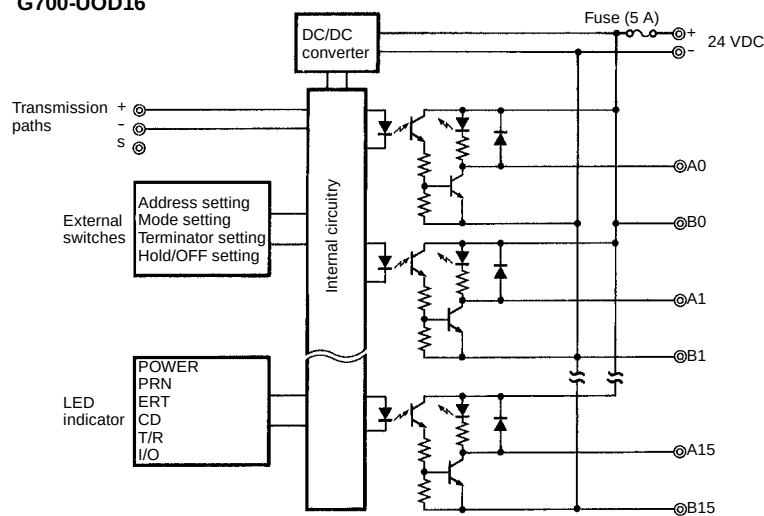
Installation

Internal Circuit Configuration

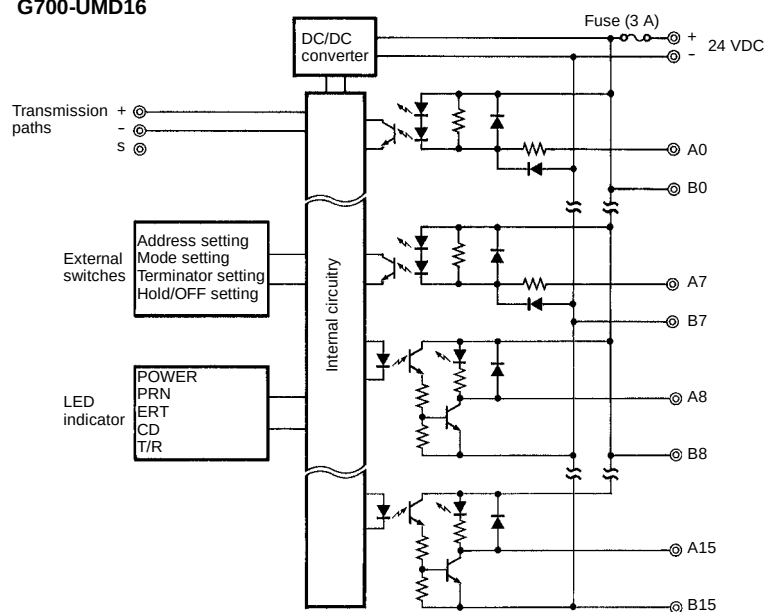
G700-UID16



G700-UOD16



G700-UMD16

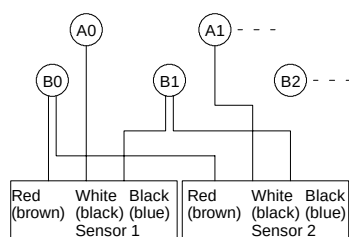


External Connections

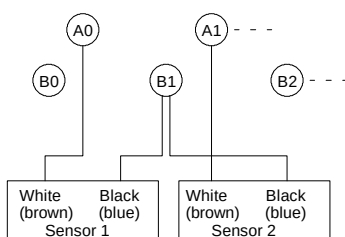
No relay terminal boards for the sensor loads are required.

Input Blocks

Three-wire System (NPN)



Two-wire System



Output Blocks

