

Multiple I/O is a Configurable I/O System that Allows Field-Based I/O Devices to Communicate to a DeviceNet Master. All I/O Modules Interface to DeviceNet via the Communications Unit.



- Accommodates up to 8 I/O Modules and configures up to 256 local I/O with a single node address
- Flexible I/O options allow users to choose 8-, 16- and 32-point densities in both NPN and PNP types
- Mix and match 8-point analog inputs or 4-point analog outputs with discrete I/O
- Easy set-up of node address and baud rate through dip switches
- Use Omron's DeviceNet Configuration Tool to configure and maintain your complete network

## Ordering Information

Item	Part number
Multiple I/O Communications Unit	DRT1-COM
16 point terminal block-type digital NPN input	GT1-ID16
16 point terminal block-type digital NPN output	GT1-OD16
16 point terminal connector-type NPN digital input	GT1-ID16MX
16 point terminal connector-type NPN digital output	GT1-OD16MX
32 point terminal connector-type NPN digital input	GT1-ID32ML
32 point terminal connector-type NPN digital output	GT1-OD32ML
8 point relay output	GT1-ROP08
1 m I/O connecting cable	GCN1-100
16 point terminal block-type digital PNP input	GT1-ID16-1
16 point terminal block-type digital PNP output	GT1-OD16-1
16 point terminal connector-type PNP digital input	GT1-ID16MX-1
16 point terminal connector-type PNP digital output	GT1-OD16MX-1
32 point terminal connector-type PNP digital input	GT1-ID32ML-1
32 point terminal connector-type PNP digital output	GT1-OD32ML-1
8 point analog input	GT1-AD08MX
4 point analog output	GT1-DA04MX

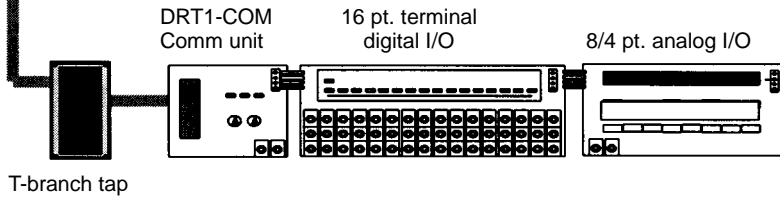
# Application Example

## THE DEVICENET MULTIPLE I/O SYSTEM CONNECTS, EXPANDS AND SPEEDS UP YOUR DEVICE-LEVEL NETWORK

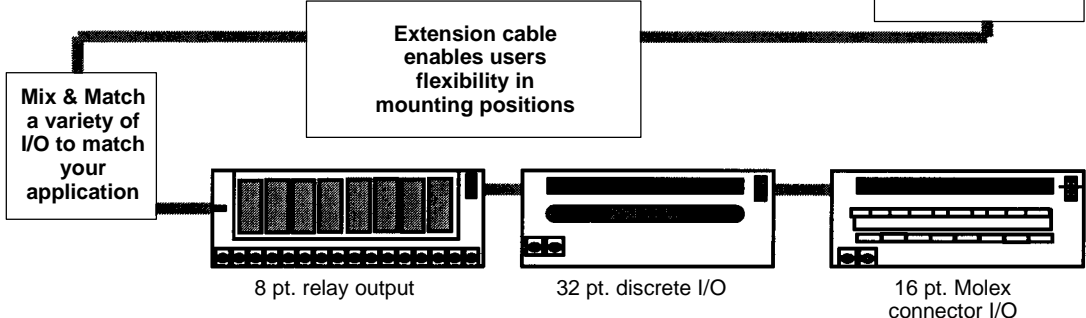
Master Module  
(SYSMAC C200HX/HG/HE, C200HS, CV Series)



Connect up to 8 multiple I/O Modules to a single Comm Unit



Total length of 3 m (1m between Modules)



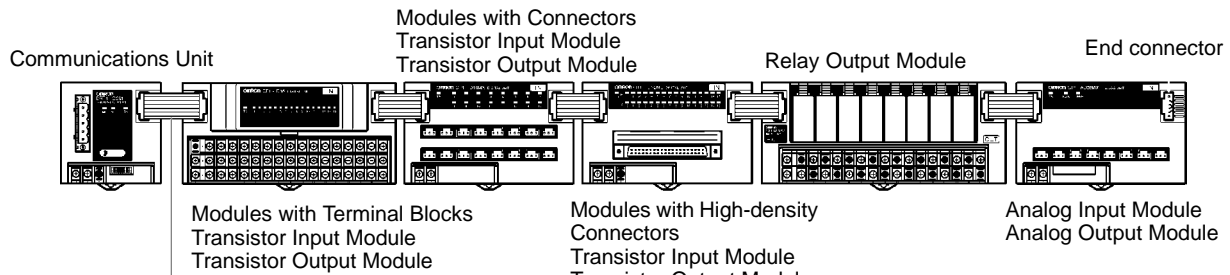
Mix & Match a variety of I/O to match your application

Extension cable enables users flexibility in mounting positions

High density I/O to accommodate high I/O counts

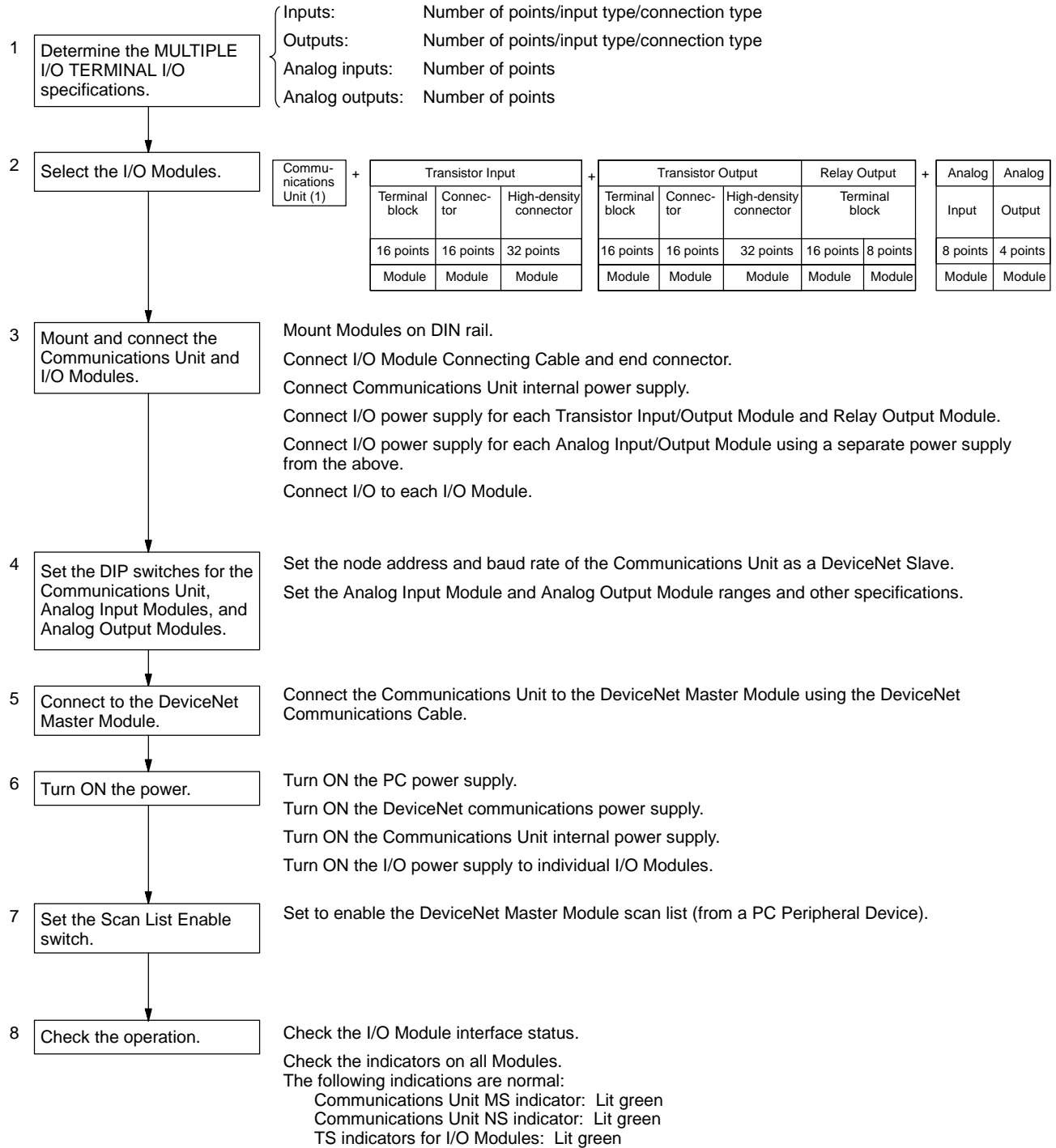
Molex connectors make it easy to remove and install I/O Devices

## TYPICAL CONFIGURATION



I/O Module Connecting Cables  
Included with module: 40 mm  
GCN1-100: 1 m (sold separately)

**Configuration Flowchart**



# General Specifications

Module		I/O points	Words allocated in PLC memory		I/O connections	Module power supply voltage	Installation	Model	Remarks
			Input	Output					
Communications Unit		None	Status two words	0 words	None	24 VDC (supplied from outside)	DIN rail	DRT1-COM	---
Basic I/O Module	Transistor Input Module	16 inputs	1 word	0 words	M3 terminal block			GT1-ID16 GT1-ID16-1	---
		16 inputs	1 word	0 words	Connectors (made by MOLEX)	GT1-ID16MX GT1-ID16MX-1	---		
		32 inputs	2 words	0 words	High-density connector (made by FUJITSU)	GT1-ID32ML GT1-ID32ML-1	---		
	Transistor Output Module	16 outputs	0 words	1 word	M3 terminal block	GT1-OD16 GT1-OD16-1	---		
		16 outputs	0 words	1 word	Connectors (made by MOLEX)	GT1-OD16MX GT1-OD16MX-1	---		
		32 outputs	0 words	2 words	High-density connector (made by FUJITSU)	GT1-OD32ML GT1-OD32ML-1	---		
	Relay Output Module	8 outputs	0 words	1 word	M3 terminal block	GT1-ROP08	---		
	Special I/O Module	Analog Input Module	8 inputs	8 words	0 word	Connectors (made by MOLEX)	GT1-AD08MX	Inputs: 4 to 20 mA, 0 to 20 mA, 0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	
		Analog Output Module	4 outputs	0 words	4 words		GT1-DA04MX	Outputs: 0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	

# I/O Module Interface Specifications

## ■ SPECIFICATIONS

Item	Specification	
Communications method	Special protocol	
Number of I/O Module	8 Modules max.	
Maximum number of points	Total inputs/outputs: 256 points	
Communications distance	Total length	3 m max.
	Between Modules	1 m max. (Cable included with Module is 40 mm.)
Communications power supply	Supplied from the Communications Unit to the I/O Module (0.4 A max.)	
Relationship to DeviceNet	After the I/O Module interface is established, DeviceNet communications continue normally, even if an error occurs on the I/O Module interface.	
Addresses	Automatically recognized when the power to the Communications Unit is turned ON.	
I/O configuration	Automatically recognized when the power to the Communications Unit is turned ON. If the configuration is changed while the power supply is ON, a configuration error will occur.	
Self-diagnostic functions	Configuration errors	The I/O Module configuration is constantly checked while power is supplied. If a mismatch occurs while the power is turned ON, I/O refreshing for all I/O Modules is stopped.
	Special I/O Module errors	Errors are detected in the Special I/O Module (Analog Input and Analog Output Module) on the I/O Module interface.
	I/O Module interface errors	Communications stop when there is no communications response from an I/O Module. Communications stop when there is no specific response from the last I/O Module (terminator). Communications stop when nine or more I/O Modules are connected.
	Power supply overload to I/O Modules	The power supply to the I/O Module and I/O refreshing for all I/O Modules are stopped when the power supply to the I/O Modules through the Communications Unit exceeds 0.4 A.
Error detection	Frame error check; CRC-CCITT check	

## ■ I/O CURRENT CONSUMPTION

I/O Module	I/O interface current consumption
GT1-ID16(-1)	35 mA
GT1-OD16(-1)	35 mA
GT1-ID16MX(-1)	35 mA
GT1-OD16MX(-1)	35 mA
GT1-ID32ML(-1)	55 mA
GT1-OD32ML(-1)	65 mA
GT1-ROP08	40 mA
GT1-AD08MX	50 mA
GT1-DA04MX	50 mA

# Communications Unit

## ■ SPECIFICATIONS

Item	Specification	
Model	DRT1-COM	
DeviceNet communications power supply	Voltage range	11 to 25 VDC (supplied from the DeviceNet communications connector)
	Module current consumption	30 mA max.
Internal power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Module current consumption	110 mA max. (at 24 VDC)
	Maximum current	0.6 A (with maximum output to I/O Module)
	Inrush current	30 A max.
I/O Module interface	Number of Modules connected	8 Modules max.
	Total number of inputs/outputs	Total inputs (IN) and outputs (OUT): 1,024 points max.
	Rated output current	0.4 A max.
	Overcurrent protection function	105% of rated current or higher. When an overcurrent occurs, the power supply to the I/O Modules will remain OFF until the power supply is turned ON again.
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
I/O Module interface connector lock strength	50 N	
Weight	Approx. 135 g	

This product has been tested in the test laboratory of a third party authorized by ODVA and has been approved as conforming to ODVA Conformance Software Ver. 2.0-1.00.

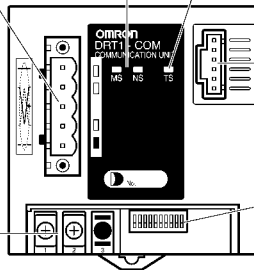
■ COMPONENTS

DeviceNet Indicators (MS, NS Indicators)  
Indicate the status of the Slave and the network.

DeviceNet Communications Connector  
Connects to the DeviceNet communications cable.  
The communications power supply is also connected via this connector.

I/O Module Interface Indicator (TS Indicator)  
Shows the communications status of the I/O Module interface.  
Normal communications: Lit green  
I/O Module interface error: Lit red  
Special I/O Module error: Flashing green  
During initialization: Not lit

Power Terminals  
Connect to the power supply for operation (internal circuit power supply).



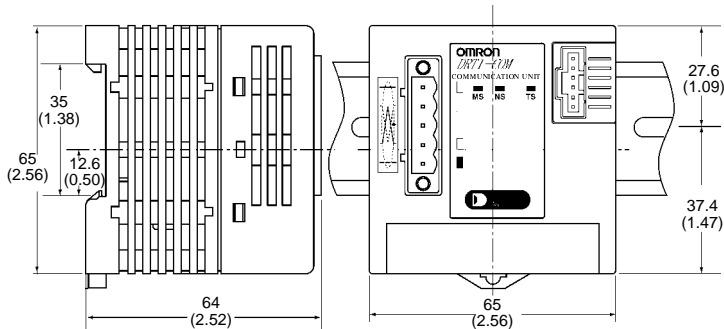
I/O Module Interface Communications Connector  
Connects to the I/O Module interface communications cable.

DIP Switch  
Set the pins as follows:  
Pins 1 to 6: DeviceNet node address  
Pins 7 and 8: DeviceNet baud rate  
Pin 9: Not used  
Pin 10: Hold/clear outputs for communications errors (I/O Modules with separate settings, such as Analog Output Modules, do not follow this setting; they follow their own setting.)

DIN rail Mounting Hooks  
Used when mounting the Module to DIN rail.

■ DIMENSIONS

Unit: mm (inch)



# Transistor Input Module with Terminal Block

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-ID16 and GT1-ID16-1	
I/O connections	Terminal block (M3 terminal block)	
Number of inputs	16 inputs (allocated one word in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	---
Current consumption (I/O Module interface)	35 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
I/O Module interface connector lock strength	50 N	
Weight	Approx. 330 g	

### Input Specifications

Item	Specification
ON voltage	15 VDC min. (between each input terminal and V, and each input terminal and G)
OFF voltage	5 VDC max. (between each input terminal and V, and each input terminal and G)
OFF current	1 mA max.
Input current	6 mA max./point at 24 VDC (between each input terminal and V and each input terminal and G)
ON delay time	1.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	16 points
Number of simultaneous ON inputs	12 points max.



■ COMPONENTS

TS Indicator

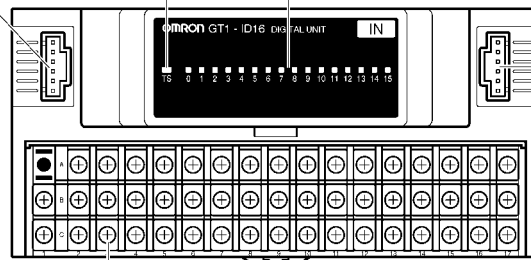
Shows the communications status of the I/O Module interface.  
 Normal communications: Lit green  
 I/O Module interface error: Lit red  
 During initialization, or with no power supply: Not lit

I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the Communications Unit side).

Input Indicators

Display the status of the inputs.  
 Lit when an input is ON.



I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the terminator side).

DIN rail Mounting Hook

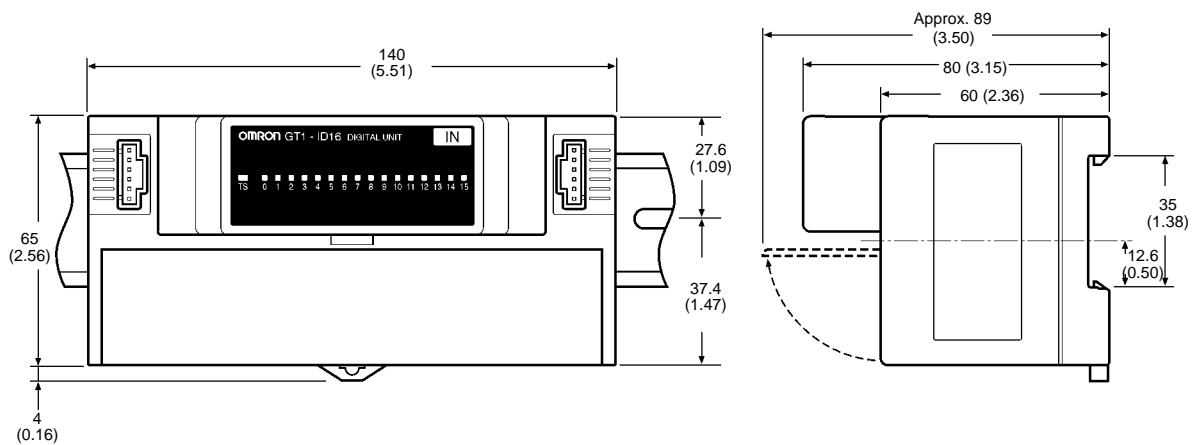
Used when mounting the Module to a DIN rail.

Terminal Block

Connects to the input power supply, or input devices such as switches and sensors.

■ DIMENSIONS

Unit: mm (inch)



# Transistor Input Module with Connector

## ■ SPECIFICATIONS

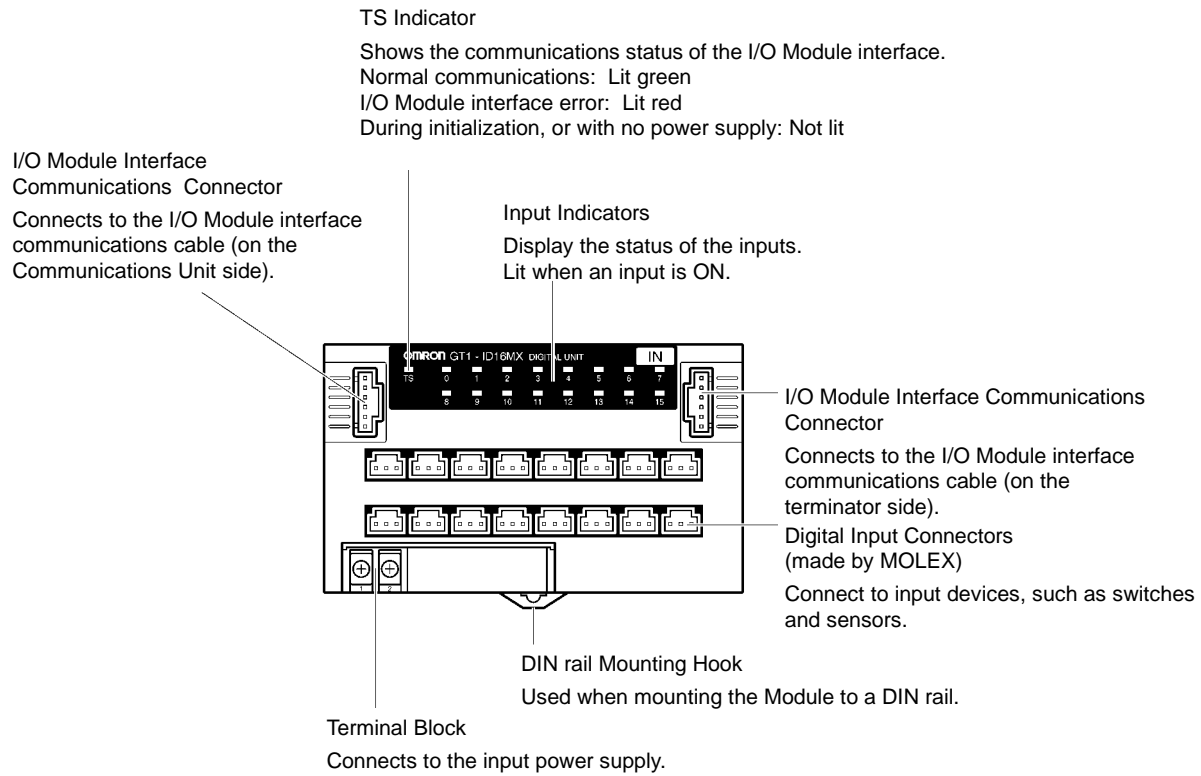
### General Specifications

Item	Specification	
Model	GT1-ID16MX and GT1-ID16MX-1	
I/O connections	Connectors (made by MOLEX)	
Number of inputs	16 inputs (allocated one word in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	---
Current consumption (I/O Module interface)	35 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VA (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Digital input connector: 50 N	
Weight	Approx. 175 g	

### Input Specifications

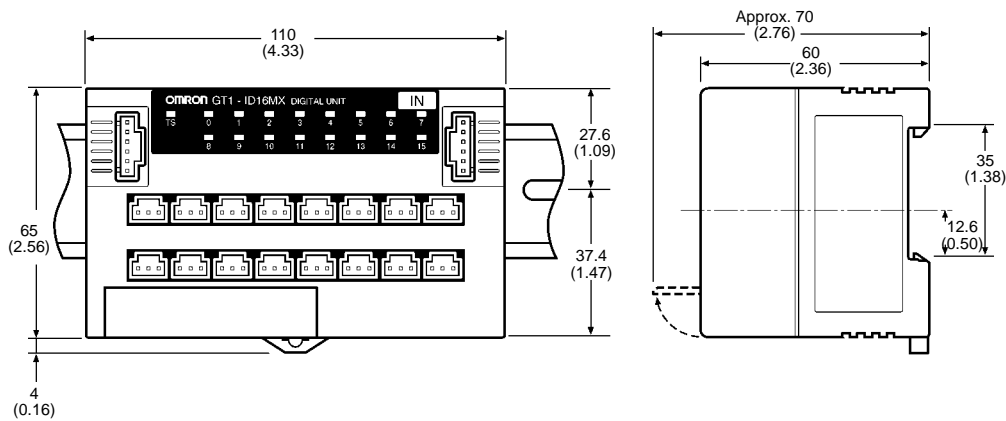
Item	Specification
ON voltage	15 VDC min. (between each input terminal and V, each input terminal and G)
OFF voltage	5 VDC max. (between each input terminal and V, each input terminal and G)
OFF current	1 mA max.
Input current	6 mA max./point at 24 VDC (between each input terminal and V, each input terminal and G)
ON delay time	1.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	16 points
Number of simultaneous ON inputs	16 points max.

■ COMPONENTS



■ DIMENSIONS

Unit: mm (inch)



# Transistor Input Module with High-Density Connector

## ■ SPECIFICATIONS

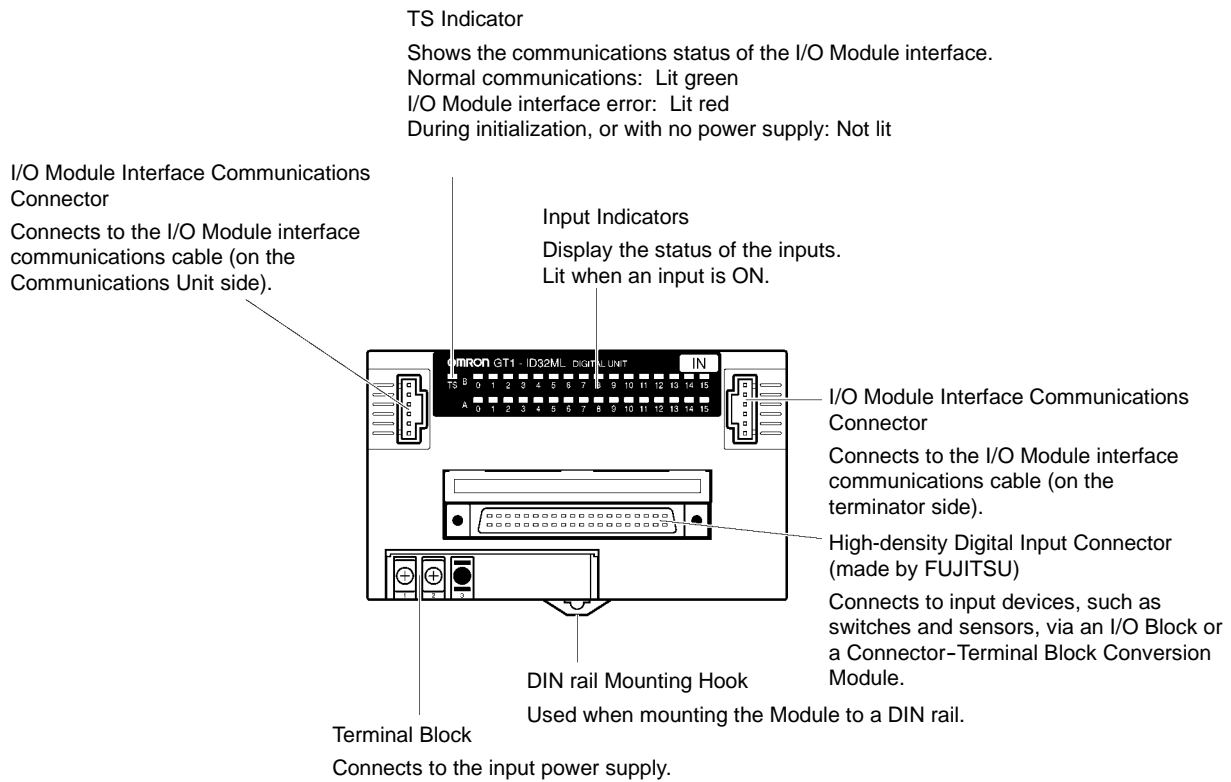
### General Specifications

Item	Specification	
Model	GT1-ID32ML and GT1-ID32ML-1	
I/O connections	High-density connector (made by FUJITSU)	
Number of inputs	32 inputs (allocated two words in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	---
Current consumption (I/O Module interface)	55 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Multipoint digital input connector: 100 N	
Weight	Approx. 195 g	

### Input Specifications

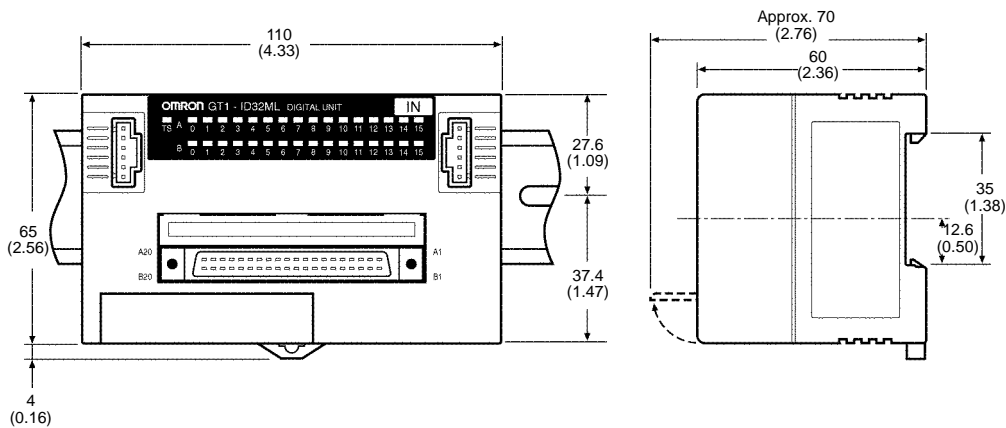
Item	Specification
ON voltage	15 VDC min. (between each input terminal and V, and each input terminal and G)
OFF voltage	5 VDC max. (between each input terminal and V, and each input terminal and G)
OFF current	1 mA max.
Input current	6 mA max./point at 24 VDC (between each input terminal and V, and each input terminal and G)
ON delay time	1.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	32 points
Number of simultaneous ON inputs	16 points max.

■ COMPONENTS



■ DIMENSIONS

Unit: mm (inch)



# Transistor Output Module with Terminal Block

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-OD16 and GT1-OD16-1	
I/O connections	Terminal block (M3 terminal block)	
Number of outputs	16 outputs (allocated one word in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	9 mA max.
Current consumption (I/O Module interface)	35 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
I/O Module interface connector lock strength	50 N	
Weight	Approx. 330 g	

### Output Specifications

Item	Specification
Rated output current	0.5 A/point, 4 A/common
Residual voltage	1.2 V max. (at 0.5 A, between each output terminal and G, and each output terminal and V)
Leakage current	0.1 mA max. (at 24 VDC, between each output terminal and G, and each output terminal and V)
ON delay time	0.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	16 points

■ COMPONENTS

TS Indicator

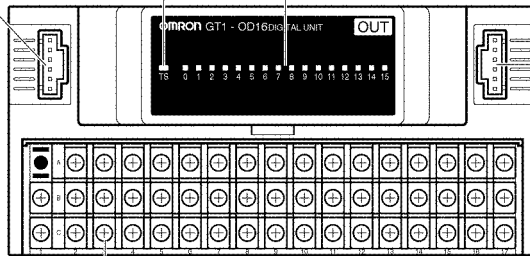
Shows the communications status of the I/O Module interface.  
 Normal communications: Lit green  
 I/O Module interface error: Lit red  
 During initialization, or with no power supply: Not lit

I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the Communications Unit side).

Output Indicators

Display the status of the outputs.  
 Lit when an output is ON.



I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the terminator side).

DIN rail Mounting Hook

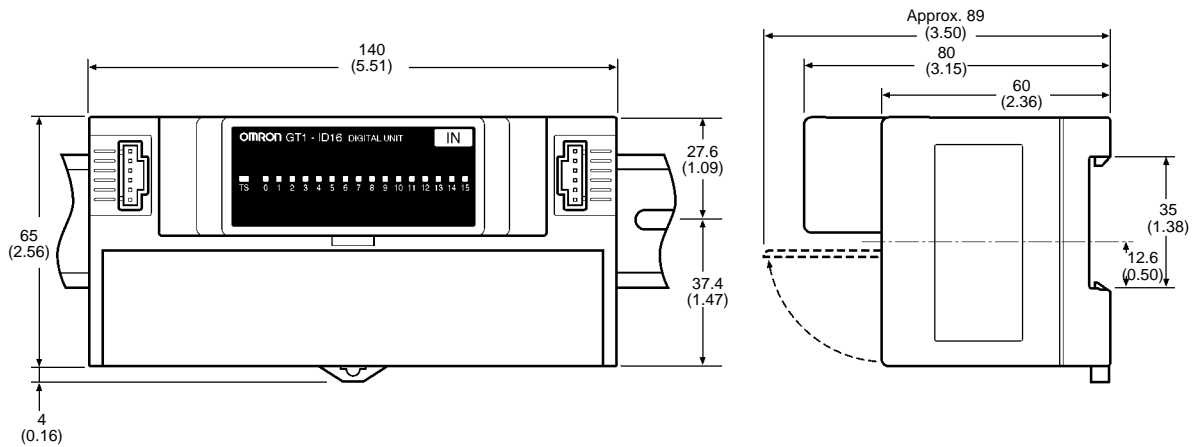
Used when mounting the Module to a DIN rail.

Terminal Block

Connects to the output power supply, or output devices such as relays and solenoids.

■ DIMENSIONS

Unit: mm (inch)



# Transistor Output Module with Connector

## ■ SPECIFICATIONS

### General Specifications

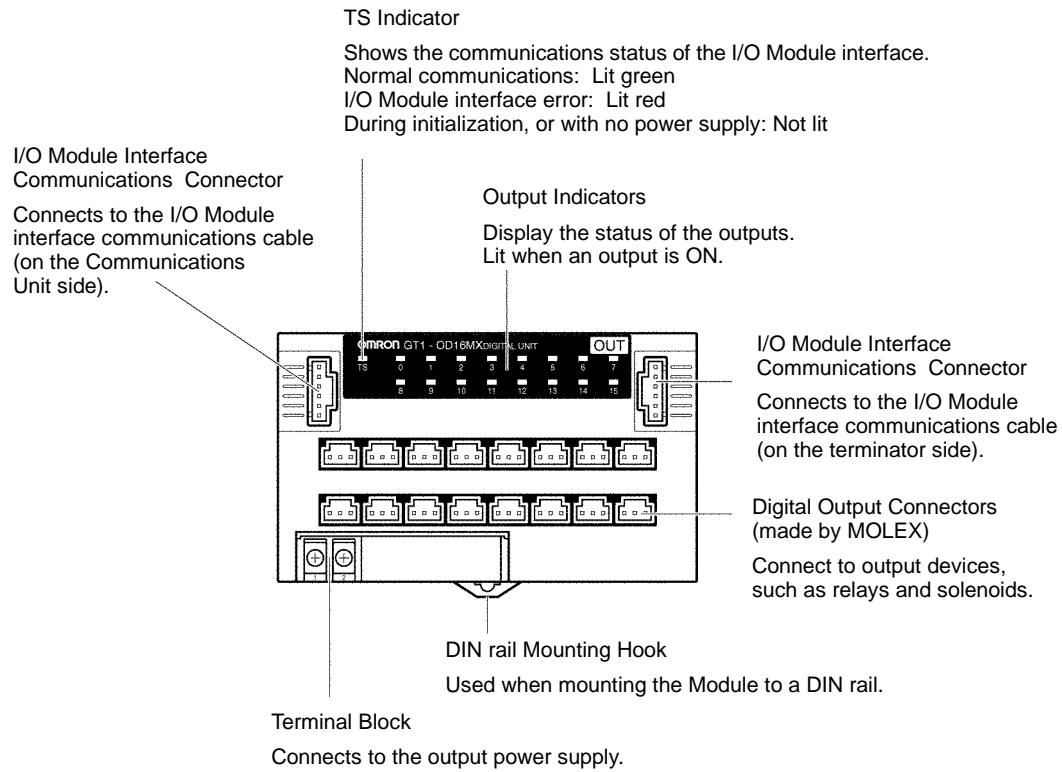
Item	Specification	
Model	GT1-OD16MX and GT1-OD16MX-1	
I/O connections	Connectors (made by MOLEX)	
Number of outputs	16 outputs (allocated one word in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC +10%/-15%)
	Current consumption in Module (inrush current)	9 mA max.
Current consumption (I/O Module interface)	35 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Digital input connector: 50 N	
Weight	Approx. 150 g	

### Output Specifications

Item	Specification
Rated output current	0.5 A/point, 4 A/common
Residual voltage	1.2 V max. (at 0.5 A, between each output terminal and G, and between each output terminal and V)
Leakage current	0.1 mA max. (at 24 VDC, between each output terminal and G, and between each output terminal and V)
ON delay time	0.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	16 points

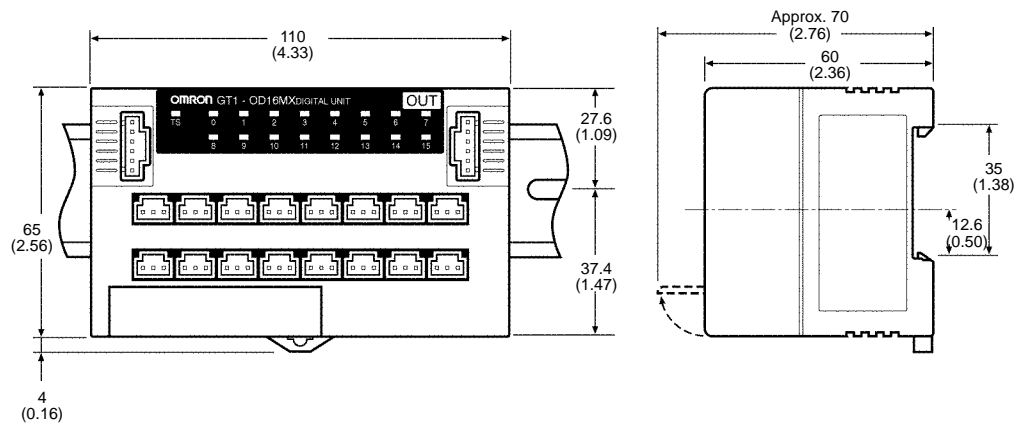


■ COMPONENTS



■ DIMENSIONS

Unit: mm (inch)



# Transistor Output Module with High-Density Connector

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-OD32ML and GT1-OD32ML-1	
I/O connections	Connector (made by FUJITSU)	
Number of outputs	32 outputs (allocated two words in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	11 mA max.
Current consumption (I/O Module interface)	65 mA max.	
Noise immunity	1,500 V p-p Pulse width 0.1 to 1 $\mu$ s Pulse rise time: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Multipoint digital input connector: 100 N	
Weight	Approx. 165 g	

### Output Specifications

Item	Specification
Rated output current	When a common terminal inside the connector is used: 0.5 A/point 2 A/common When a common terminal outside the connector is used: 0.5 A/point 4 A/common
Residual voltage	1.2 V max. (at 0.5 A, between each output terminal and G, and each output terminal and V)
Leakage current	0.1 mA max. (at 24 VDC, between each output terminal and G, and each output terminal and V)
ON delay time	0.5 ms max.
OFF delay time	1.5 ms max.
Insulation resistance	20 M $\Omega$ min. at 250 VDC (between isolated circuits)
Isolation method	Photocoupler
Number of circuits	32 points

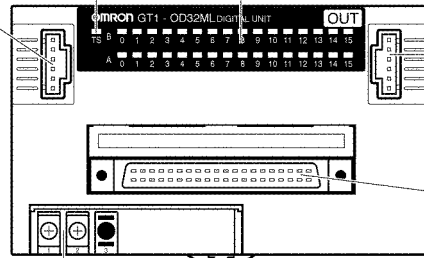
■ COMPONENTS

TS Indicator

Shows the communications status of the I/O Module interface.  
 Normal communications: Lit green  
 I/O Module interface error: Lit red  
 During initialization, or with no power supply: Not lit

I/O Module Interface Communications Connector  
 Connects to the I/O Module interface communications cable (on the Communications Unit side).

Output Indicators  
 Display the status of the outputs.  
 Lit when an output is ON.



I/O Module Interface Communications Connector  
 Connects to the I/O Module interface communications cable (on the terminator side).

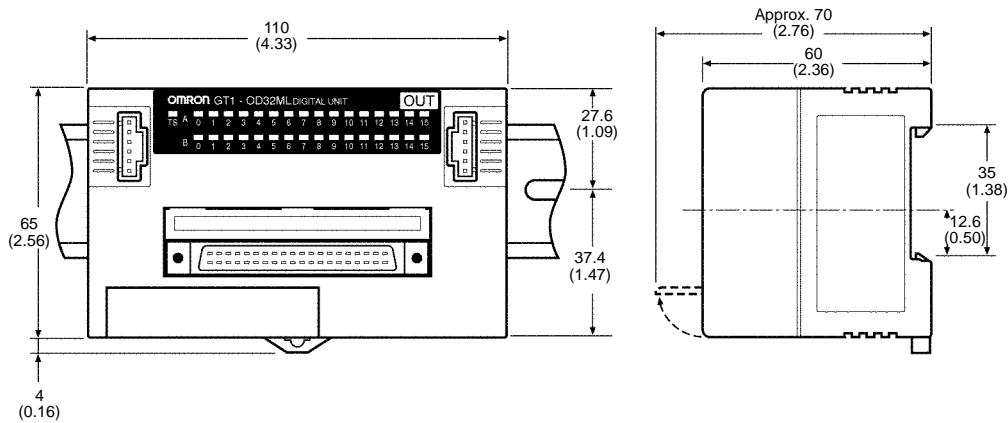
High-density Digital Output Connector (made by FUJITSU)  
 Connects to the output devices, such as relays and solenoids, via an I/O Block or a Connector-Terminal Block Conversion Module.

DIN rail Mounting Hook  
 Used when mounting the Module to a DIN rail.

Terminal Block  
 Connects to the output power supply.

■ DIMENSIONS

Unit: mm (inch)



# Relay Output Module

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-ROP08	
I/O connections	Terminal block (M3 terminal block)	
Number of outputs	8 outputs (allocated one word in the Master Module)	
I/O power supply	Voltage range	20.4 to 26.4 VDC (24 VDC +10%/-15%)
	Current consumption in Module (inrush current)	350 mA max. (inrush current 30 A max.)
Current consumption (I/O Module interface)	40 mA max.	
Noise immunity	1,500 V p-p Pulse width: 0.1 to 1 $\mu$ s Startup pulse: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 0.2-mm double amplitude or 15 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	2,000 VAC 50/60 Hz (between output terminals)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
I/O Module interface connector lock strength	50 N	
Weight	Approx. 405 g (with on-board relay)	

### Output specifications

Item	Specification
Relay	Power relay: G2R-1-SN
Rated load	250 VAC at 5 A/ 30 VDC at 5 A (Resistive load)
Rated overcurrent	5 A
Maximum switching voltage	250 VAC/125 VDC
Maximum switching current	5 A
Insulation resistance	1,000 M $\Omega$

**COMPONENTS**

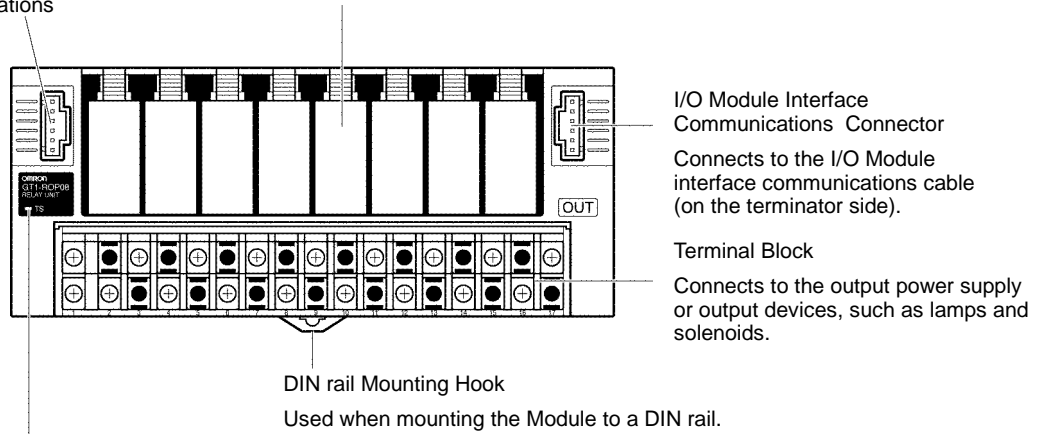
**I/O Module Interface**

**Communications Connector**

Connects to the I/O Module interface communications cable (on the Communications Unit side).

**Power Relays**

In each relay, there is an indicator that displays the status of the output, and it is lit when the output is ON.



**I/O Module Interface Communications Connector**  
Connects to the I/O Module interface communications cable (on the terminator side).

**Terminal Block**  
Connects to the output power supply or output devices, such as lamps and solenoids.

**DIN rail Mounting Hook**  
Used when mounting the Module to a DIN rail.

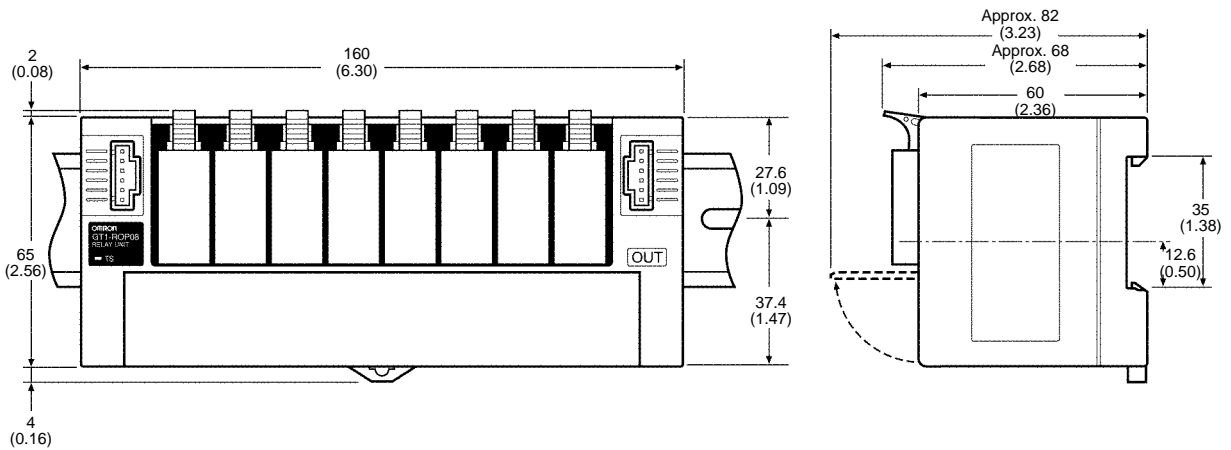
**TS Indicator**

Shows the communications status of the I/O Module interface.  
Normal communications: Lit green  
I/O Module interface error: Lit red  
During initialization, or with no power supply: Not lit

**DIMENSIONS**

Unit: mm (inch)

**GT1-ROP08**



# Analog Input Module

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-AD08MX	
I/O connections	Connectors (made by MOLEX)	
Number of inputs	Either 8 points or 4 points (set with the DIP switch) (Master Module uses 8 input words or 4 input words.)	
Internal power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%/-15\%$ )
	Current consumption in Module (inrush current)	100 mA max. (inrush current 30 A max.)
Current consumption (I/O Module interface)	50 mA max.	
Noise immunity	1,500 V p-p Pulse width: 0.1 to 1 $\mu$ s Startup pulse: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Analog input connector: 50 N	
Weight	Approx. 180 g	

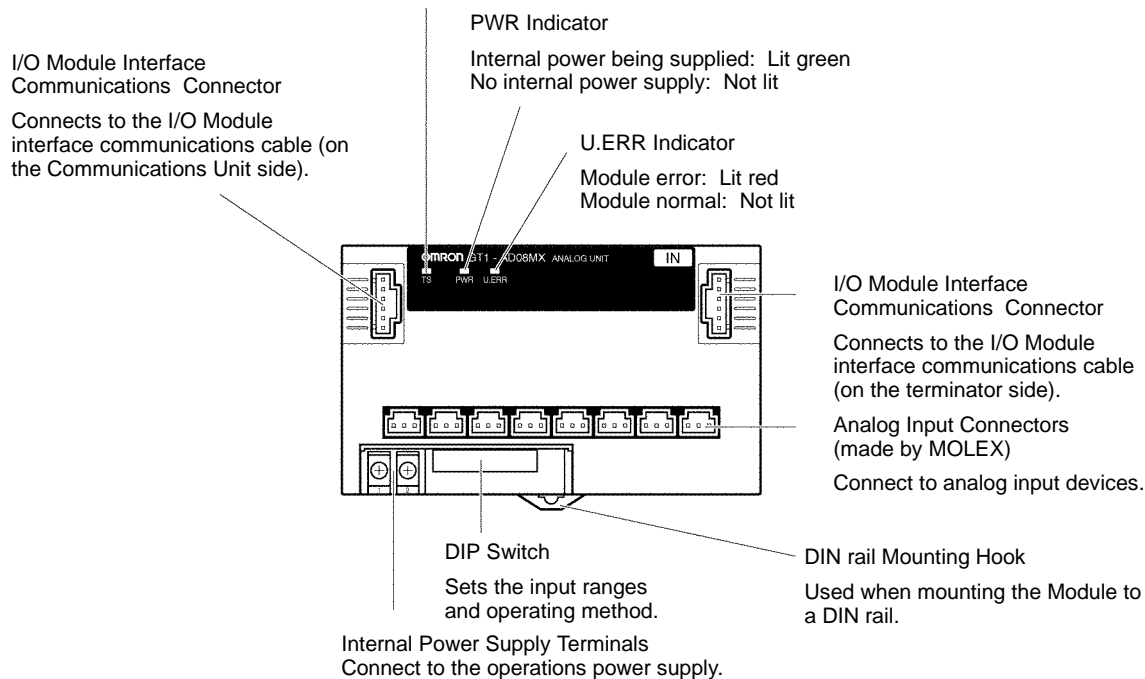
**Characteristics**

Item	Specification		
	Voltage inputs	Current inputs	
Input signal range	0 to 5 V, 1 to 5 V, 0 to 10 V, or -10 to 10 V	0 to 20 mA or 4 to 20 mA	
Max. signal input	±15 V	±30 mA	
Input impedance	1 MΩ min.	Approx. 250 Ω	
Resolution	1/6000 (FS)		
Accuracy	25°C (77°F)	±0.3% FS	±0.4% FS
	-10°C to 55°C (14°F to 131°F)	±0.6% FS	±0.8% FS
Conversion time	With 8 inputs: 8 ms/8 points With 4 inputs: 4 ms/4 points (Select using the DIP switch.)		
Converted output data (Binary)	Binary (4-digit hexadecimal)  -10-V to 10-V range: F448 to 0 to 0BB8 full scale Other signal ranges: 0000 to 1770 full scale		
Averaging function	Settable (via DIP switch)		
Open circuit detection	Provided (with a range of 1 to 5 V or 4 to 20 mA)		
Dielectric strength	500 VAC; detected current 1 mA (between communications section and analog input, and between internal power supply and analog input)		
Isolation method	Photocoupler insulation (between communications part and analog input) (no insulation between analog inputs)		

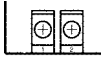
**COMPONENTS**

**TS Indicator**

Shows the communications status of the I/O Module interface.  
 Normal communications: Lit green  
 I/O Module interface error: Lit red  
 During initialization, or with no power supply: Not lit

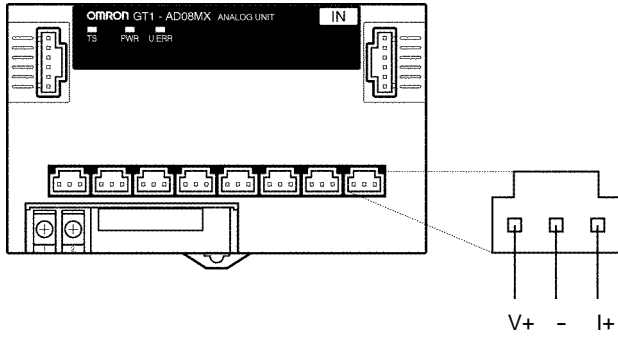


### Terminal Arrangement



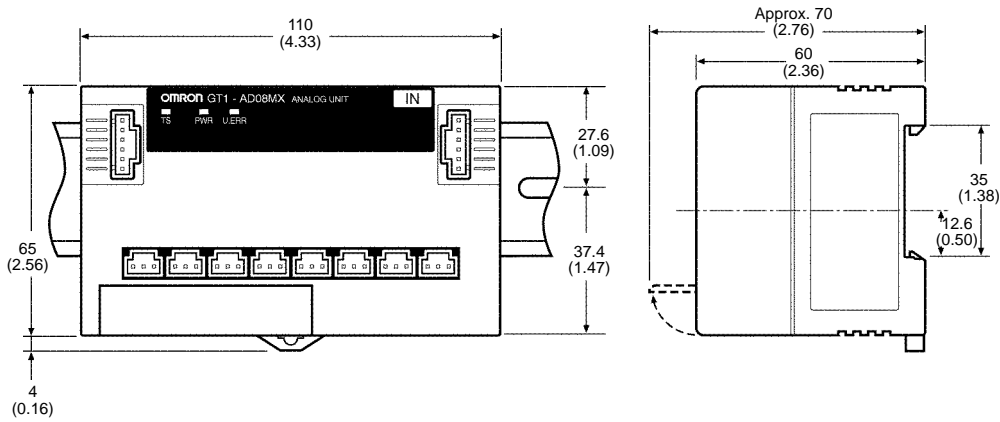
### Connector Pin Arrangement

The following diagram shows the pin arrangement for the connector.



### ■ DIMENSIONS

Unit: mm (inch)





# Analog Output Module

## ■ SPECIFICATIONS

### General Specifications

Item	Specification	
Model	GT1-DA04MX	
I/O connections	Connectors (made by MOLEX)	
Number of outputs	4 outputs (allocated four words in the Master Module)	
Internal power supply	Voltage range	20.4 to 26.4 VDC (24 VDC $+10\%$ / $-15\%$ )
	Current consumption in Module (inrush current)	100 mA max. (inrush current 30 A max.)
Current consumption (I/O Module interface)	50 mA max.	
Noise immunity	1,500 V p-p Pulse width: 0.1 to 1 $\mu$ s Startup pulse: 1 ns (via noise simulator)	
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>	
Shock resistance	200 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Ambient temperature	-10°C to 55°C (14°F to 131°F)	
Ambient humidity	25% to 85% (with no condensation)	
Operating atmosphere	No corrosive gases	
Storage temperature	-25°C to 65°C (-13°F to 149°F)	
Safety standards	UL508, CSA22.2	
EMC directives	EN50081-2, EN50082-2	
Mounting	DIN 35-mm rail	
Mounting strength	100 N	
Terminal strength	100 N	
Connector lock strength	I/O Module interface connector: 50 N Analog input connector: 50 N	
Weight	Approx. 180 g	

### Characteristics

Item	Specification	
Output signal range	0 to 5 V, 1 to 5 V, 0 to 10 V, or -10 to 10 V	
Allowable external output load resistance	5 K $\Omega$ min.	
External output impedance	0.5 $\Omega$ max.	
Resolution	1/6000 (full scale)	
Accuracy	25°C (77°F)	$\pm 0.4\%$ FS
	-10°C to 55°C (14°F to 131°F)	$\pm 0.8\%$ FS
Conversion time	4 ms/4 points	
Converted output data (Binary)	Binary -10-V to 10-V range: F448 to 0 to 0BB8 full scale Other signal ranges: 0000 to 1770 full scale	
Dielectric strength	500 VAC; detected current 1 mA (between communications section and analog output, and between internal power supply and analog output)	
Isolation method	Photocoupler insulation (between communications part and analog output) (no insulation between analog outputs)	

■ COMPONENTS

TS Indicator

Shows the communications status of the I/O Module interface.  
 Normal communications: Lit green  
 I/O Module interface error: Lit red  
 During initialization, or with no power supply: Not lit

PWR Indicator

Internal power being supplied: Lit green  
 No internal power supply: Not lit

U.ERR Indicator

Module error: Lit red  
 Module normal: Not lit

I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the Communications Unit side).

I/O Module Interface Communications Connector

Connects to the I/O Module interface communications cable (on the terminator side).

Analog Output Connectors (made by MOLEX)

Connect to an analog output devices.

DIP Switch

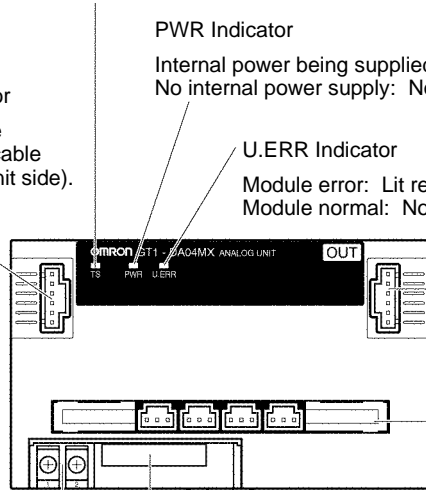
Sets the output ranges and the output method when a communications error occurs.

DIN rail Mounting Hook

Used when mounting the Module to a DIN rail.

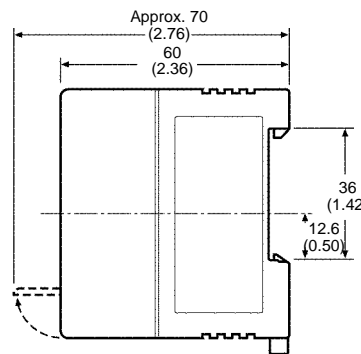
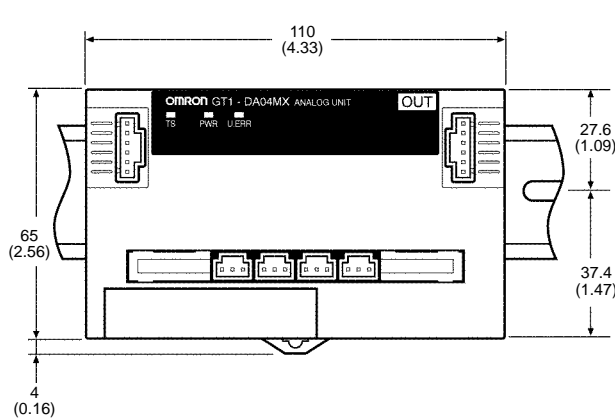
Internal Power Supply Terminals

Connect to the operations power supply.



■ DIMENSIONS

Unit: mm (inch)



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

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**OMRON**®  
**OMRON ELECTRONICS, INC.**  
One East Commerce Drive  
Schaumburg, IL 60173  
**1-800-55-OMRON**

**OMRON CANADA, INC.**  
885 Milner Avenue  
Scarborough, Ontario M1B 5V8  
**416-286-6465**