MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

OMRON

GT1-OD32ML

OMRON GT1 32-POINT NPN TRANSISTOR OUTPUT UNIT

Used with the applicable Omron GT1 Multiple I/O Terminal configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

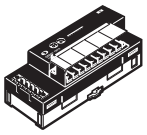
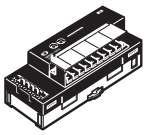
Source: Omron manufacturer document for GT1-OD32ML

Cat. No. W267-E1-13

DeviceNet™

OPERATION MANUAL

OMRON

Name	Appearance	I/O points	Model number	Remarks
Temperature Input Terminals		4 input points (Switchable between R, S, K1, K2, J1, J1, T, E, B, N, L1, L2, U, W, and PL2.)	DRT2-TS04T	Thermocouple input
		4 input points (Switchable between PT, JPT, PT2, and JPT2.)	DRT2-TS04P	Platinum resistance thermometer input

1-2-3-3 MULTIPLE I/O TERMINAL Units

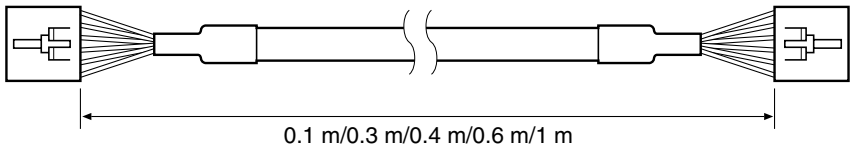
Unit		I/O points	Words allocated in PLC memory		I/O connections	Unit power supply voltage	Installation	Model number	Remarks
			Input	Output					
Communications Unit		None	Two status words	0 words	None	24 V DC (supplied from outside)	DIN track	DRT1-COM	---
Basic I/O Units	Transistor Input Units	16 input points	1 word	0 words	M3 terminal block			GT1-ID16	NPN
								GT1-ID16-1	PNP
		16 input points	1 word	0 words	Connector (made by MOLEX)			GT1-ID16MX	NPN
								GT1-ID16MX-1	PNP
		16 input points	1 word	0 words	Connector (made by FUJITSU/ OTAX)			GT1-ID16ML	NPN
								GT1-ID16ML-1	PNP
		16 input points	1 word	0 words	Connector (D-sub, 25 pin)			GT1-ID16DS	NPN
								GT1-ID16DS-1	PNP
		32 input points	2 words	0 words	High-density connector (made by FUJITSU)			GT1-ID32ML	NPN
								GT1-ID32ML-1	PNP
	Transistor Output Units	16 output points	0 words	1 word	M3 terminal block			GT1-OD16	NPN
								GT1-OD16-1	PNP
		16 output points	0 words	1 word	Connector (made by MOLEX)			GT1-OD16MX	NPN
								GT1-OD16MX-1	PNP
		16 output points	0 words	1 word	Connector (made by FUJITSU/ OTAX)			GT1-OD16ML	NPN
								GT1-OD16ML-1	PNP
		16 output points	0 words	1 word	Connector (D-sub, 25 pin)			GT1-OD16DS	NPN
								GT1-OD16DS-1	PNP
		32 output points	0 words	2 words	High-density connector (made by FUJITSU)			GT1-OD32ML	NPN
								GT1-OD31ML-1	PNP
	Relay Output Units	8 output points	0 words	1 word	M3 terminal block			GT1-ROP08	---
		16 output points	0 words	1 word	M3 terminal block			GT1-ROS16	---

Unit		I/O points	Words allocated in PLC memory		I/O connections	Unit power supply voltage	Installation	Model number	Remarks
			Input	Output					
Special I/O Units (See note.)	Analog Input Units	4 inputs	4 words	0 words	M3 terminal block	24 V DC (supplied from outside)	DIN track	GT1-AD04	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
		8 inputs	8 words	0 words	Connector (made by MOLEX)			GT1-AD08MX	
	Analog Output Units	4 outputs	0 words	4 words	M3 terminal block			GT1-DA04	Outputs: 4 to 20 mA, 0 to 5 V, 1 to 5 V, 0 to 10 V, –10 to 10 V
		4 outputs	0 words	4 words	Connector (made by MOLEX)			GT1-DA04MX	Outputs: 0 to 5 V, 1 to 5 V, 0 to 10 V, –10 to 10 V
	Temperature Input Unit	4 inputs	4 or 8 words (varies with data format)	0 words	M3 terminal block			GT1-TS04T	Sensor types: R, S, K, J, T, B, L
								GT1-TS04P	Sensor types: Pt100, JPt100
	Counter Unit	1 input	3 words	3 words	M3 terminal block			GT1-CT01	1 external input 2 external outputs

Note The Analog Input Units, Analog Output Units, Temperature Input Units, and Counter Units belong to a group called Special I/O Units. The front-panel indicators and other parts of Special I/O Units differ from those of other I/O Units.

One I/O Unit Connecting Cable (cable length 40 mm) is included with each I/O Unit. One end connector is attached to the Communications Unit.

I/O Unit Connecting Cables with a cable lengths of 0.1, 0.3, 0.4, 0.6, and 1 m (GCN1-010/030/040/060/100) are sold separately (see below).



DRT1-series Environment-resistive Slaves

Model	Specifications
DRT1-ID08C	Environment-resistive Terminal with 8 transistor inputs (NPN), meets IEC IP66 standards
DRT1-HD16C	Environment-resistive Terminal with 16 transistor inputs (NPN), meets IEC IP66 standards
DRT1-HD16C-1	Environment-resistive Terminal with 16 transistor inputs (PNP), meets IEC IP66 standards
DRT1-OD08C	Environment-resistive Terminal with 8 transistor outputs (NPN), meets IEC IP66 standards
DRT1-WD16C	Environment-resistive Terminal with 16 transistor outputs (NPN), meets IEC IP66 standards
DRT1-WD16C-1	Environment-resistive Terminal with 16 transistor outputs (PNP), meets IEC IP66 standards
DRT1-MD16C	Environment-resistive Terminal with 8 transistor inputs and 8 transistor outputs (NPN), meets IEC IP66 standards
DRT1-MD16C-1	Environment-resistive Terminal with 8 transistor inputs and 8 transistor outputs (PNP), meets IEC IP66 standards
DRT1-ID04CL	Waterproof Terminal with 4 transistor inputs (NPN), meets IEC IP67 standards
DRT1-ID04CL-1	Waterproof Terminal with 4 transistor inputs (PNP), meets IEC IP67 standards
DRT1-ID08CL	Waterproof Terminal with 8 transistor inputs (NPN), meets IEC IP67 standards
DRT1-ID08CL-1	Waterproof Terminal with 8 transistor inputs (PNP), meets IEC IP67 standards
DRT1-OD04CL	Waterproof Terminal with 4 transistor outputs (NPN), meets IEC IP67 standards
DRT1-OD04CL-1	Waterproof Terminal with 4 transistor outputs (PNP), meets IEC IP67 standards
DRT1-OD08CL	Waterproof Terminal with 8 transistor outputs (NPN), meets IEC IP67 standards
DRT1-OD08CL-1	Waterproof Terminal with 8 transistor outputs (PNP), meets IEC IP67 standards
DRT1-B7AC	B7AC Interface Terminal with 10 inputs × 3, meets IEC IP66 standards

DRT2-series Analog Slaves

Model	Specifications
DRT2-AD04	Analog Input Terminal with 4 analog data inputs (4 words)
DRT2-AD04H	High-resolution Analog Input Terminal with 4 analog data inputs (4 words)
DRT2-DA02	Analog Output Terminal with 2 analog data inputs (2 words)
DRT2-TS04T	Thermocouple Temperature Input Terminal with 4 temperature data inputs
DRT2-TS04P	Platinum-resistance Thermometer Temperature Input Terminal with 4 temperature data inputs

DRT1-series Special I/O Slave Units

Model	Specifications
CPM2C-S100C-DRT	Programmable Slaves
CPM2C-S110C-DRT	These Slaves are equipped with SYSMAC CPM2C functions and CompoBus/S Master functions. Explicit messaging can be used to read/write data in any data area.
C200HW-DRT21	I/O Link Unit for C200HX/HG/HE PLCs 512 inputs max., 512 outputs max. (Linked areas can be user-set.) Explicit messaging can be used to read/write data in any data area.
DRT1-232C2	RS-232C Unit with 2 RS-232C ports 16 inputs (communications status) Explicit messaging can be used to set the RS-232C ports' parameters and transfer data to/from external devices.

MULTIPLE I/O TERMINAL Units

Model	Specifications
DRT1-COM	Communications Unit, two input words (status)
GT1-ID16	Transistor Input Unit (terminal block) with 16 transistor inputs (NPN)
GT1-ID16-1	Transistor Input Unit (terminal block) with 16 transistor inputs (PNP)
GT1-ID16MX	Transistor Input Unit (MOLEX connector) with 16 transistor inputs (NPN)
GT1-ID16MX-1	Transistor Input Unit (MOLEX connector) with 16 transistor inputs (PNP)
GT1-ID16ML	Transistor Input Unit (FUJITSU/OTAX connector) with 16 transistor inputs (NPN)
GT1-ID16ML-1	Transistor Input Unit (FUJITSU/OTAX connector) with 16 transistor inputs (PNP)
GT1-ID16DS	Transistor Input Unit (D-sub, 25-pin connector) with 16 transistor inputs (NPN)
GT1-ID16DS-1	Transistor Input Unit (D-sub, 25-pin connector) with 16 transistor inputs (PNP)
GT1-ID32ML	Transistor Input Unit (FUJITSU high-density connector) with 32 transistor inputs (NPN)
GT1-ID32ML-1	Transistor Input Unit (FUJITSU high-density connector) with 32 transistor inputs (PNP)
GT1-OD16	Transistor Output Unit (terminal block) with 16 transistor outputs (NPN)
GT1-OD16-1	Transistor Output Unit (terminal block) with 16 transistor outputs (PNP)
GT1-OD16MX	Transistor Output Unit (MOLEX connector) with 16 transistor outputs (NPN)
GT1-OD16MX-1	Transistor Output Unit (MOLEX connector) with 16 transistor outputs (PNP)
GT1-OD16ML	Transistor Output Unit (FUJITSU/OTAX connector) with 16 transistor outputs (NPN)
GT1-OD16ML-1	Transistor Output Unit (FUJITSU/OTAX connector) with 16 transistor outputs (PNP)
GT1-OD16DS	Transistor Output Unit (D-sub, 25-pin connector) with 16 transistor outputs (NPN)
GT1-OD16DS-1	Transistor Output Unit (D-sub, 25-pin connector) with 16 transistor outputs (PNP)
GT1-OD32ML	Transistor Output Unit (FUJITSU high-density connector) with 32 transistor outputs (NPN)
GT1-OD32ML-1	Transistor Output Unit (FUJITSU high-density connector) with 32 transistor outputs (PNP)
GT1-ROP08	Relay Output Unit (power relays) with 8 relay outputs (allocated 1 word)
GT1-ROS16	Relay Output Unit (miniature relays) with 16 relay outputs
GT1-AD04	Analog Input Unit (terminal block) with 4 inputs (allocated 4 words)
GT1-AD08MX	Analog Input Unit (MOLEX connector) with 8 inputs (allocated 4 words) or 4 inputs (allocated 4 words) (Use the DIP switch to select 8 inputs or 4 inputs.)
GT1-DA04	Analog Output Unit (terminal block) with 4 outputs (allocated 4 words)
GT1-DA04MX	Analog Output Unit (MOLEX connector) with 4 outputs (allocated 4 words)
GT1-TS04T	Temperature Input Unit with 4 temperature inputs (Thermocouple: R, S, K, J, T, B, or L) (Use the DIP switch to allocate 4 words or 8 words.)
GT1-TS04P	Temperature Input Unit with 4 temperature inputs (Platinum-resistance thermometer: Pt100 or JPt100) (Use the DIP switch to allocate 4 words or 8 words.)
GT1-CT01	Counter Unit with 1 encoder input (A, B, Z), 1 external input, and 2 external outputs (allocated 3 input words and 3 output words)

Communications Cables

Model	Specifications
DCA2-5C10	Thick cable: 5 wires, 100 m
DCA1-5C10	Thin cable: 5 wires, 100 m
DCA1-5CN□□W1	Cable with shielded micro-size (M12) connectors on both ends (female socket and male plug)
DCA1-5CN□□F1	Cable with shielded micro-size (M12) connector (female socket) on one end
DCA1-5CN□□H1	Cable with shielded micro-size (M12) connector (male plug) on one end
DCA1-5CN□□W5	Cable with shielded connector on both ends (male plug on mini-size end, female socket on micro-size end)
DCA2-5CN□□W1	Cable with shielded mini-size connectors on both ends (female socket and male plug)
DCA2-5CN□□F1	Cable with shielded mini-size connector on one end (female socket)
DCA2-5CN□□H1	Cable with shielded mini-size connector on one end (male plug)
DCA4-4F10	Flat cable (4-wire flat cable without sheath, conforming to UL standards), size: 100 m, conductor diameter: 0.75 mm^2 × 2 wires, 0.5 mm^2 × 2 wires

A variety of DeviceNet communications cables are available from several manufacturers. For details, refer to the home page of the ODVA at the following URL:

http://www.odva.org/

Loose Wire Crimp Connectors

Item	Model	Specifications
Socket	XG5M-4032-N	Compatible cable wire gauge: 24 AWG
	XG5M-4035-N	Compatible cable wire gauge: 28 to 26 AWG
Partial Cover	XG5S-2001	Two required per connector.
Hood Cover	XG5S-5022	Cannot be used with multi-drop DeviceNet connectors.

I/O Connecting Cables for MULTIPLE I/O TERMINAL Units

Model	Specifications
(Provided with I/O Units)	Cable length: 40 mm
(Provided with Communications Units)	End connector
GCN1-010	Cable length: 0.1 m
GCN1-030	Cable length: 0.3 m
GCN1-040	Cable length: 0.4 m
GCN1-060	Cable length: 0.6 m
GCN1-100	Cable length: 1 m

Connectors for MULTIPLE I/O TERMINAL Units

Model	Description			Remarks
14-60-0032	MOLEX connectors	Pressure weld connection	Housing	For 24 AWG
50-57-9403		Crimp connection	Housing	
16-02-0069			Reeled pins	For 24 to 30 AWG
16-02-0086				For 22 to 24 AWG
16-02-0096			Loose pins	For 24 to 30 AWG
16-02-0102				For 22 to 24 AWG
11-01-0209			Crimping Tool	For 24 to 30 AWG

Connector Cables for MULTIPLE I/O TERMINAL Units

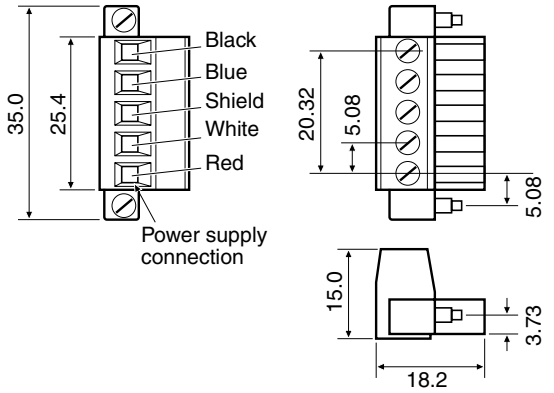
Model	Unit connected
G79-□□□C	Connects a GT1-ID16ML to an I/O Block (G7TC-I□16).
	Connects a GT1-OD16ML to an I/O Block (G7TC-OC16, G7OD-SOC16, G7OD-FOM16, G7OA-ZOC16-3, or M7F).
	Connects a GT1-OD16ML-1 to an I/O Block (G7TC-OC16-1, G7OD-SOC16-1, G7OD-FOM16-1, G7OA-ZOC16-4, or M7F).
G79-I□C-□	Connects a GT1-ID32ML or to an I/O Block (G7TC-I□16).
G79-0□C-□	Connects a GT1-OD32ML to an I/O Block (G7TC-OC16, G7TC-OC08, G70D-SOC16, G7OD-FOM16, G70A-ZOC16-3, or M7F).
	Connects a GT1-OD32ML-1 to an I/O Block (G7TC-OC16-1, G70D-SOC16-1, G7OD-FOM16-1, or G70A-ZOC16-4).
XW2Z-□□□A	Connects a GT1-ID16ML(-1) or GT1-OD16ML(-1) to a Connector-Terminal Block Conversion Unit (XW2B-20G4 or XW2B-20G5)
XW2X-□□□B	Connects a GT1-ID32ML(-1) or GT1-OD32ML(-1) to a Connector-Terminal Block Conversion Unit (XW2B-40G4 or XW2B-40G5)

Appendix B

Dimensions of Connectable Devices

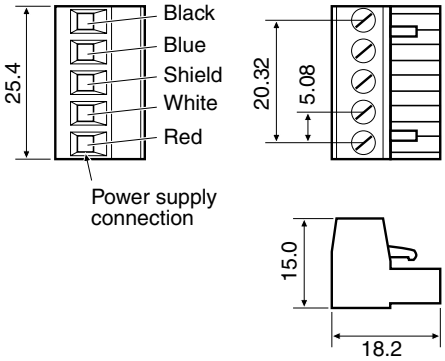
Connectors for Node Connections

XW4B-05C1-H1-D Straight Connector with Attachment Screws



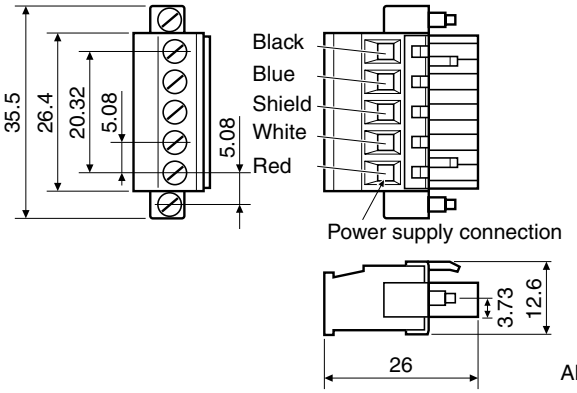
All dimensions are in mm.

MSTB2.5/5-ST-5.08AU Straight Connector without Attachment Screws



All dimensions are in mm.

XW4B-05C1-VIR-D Right-angle Connector with Attachment Screws



All dimensions are in mm.

Model	Communications current consumption
DRT2-WD16CL(-1)	35 mA max.
DRT2-MD16CL(-1)	40 mA max.

DRT1-series Environment-resistive Slaves

Model	Internal current consumption	Communications current consumption
DRT1-ID04CL	(Shares communications power supply.)	25 mA max.
DRT1-ID04CL-1	(Shares communications power supply.)	25 mA max.
DRT1-ID08CL	(Shares communications power supply.)	30 mA max.
DRT1-ID08CL-1	(Shares communications power supply.)	30 mA max.
DRT1-ID08C	50 mA max.	30 mA max.
DRT1-HD16C	50 mA max.	30 mA max.
DRT1-HD16C-1	50 mA max.	30 mA max.
DRT1-OD04CL	(Shares communications power supply.)	35 mA max.
DRT1-OD04CL-1	(Shares communications power supply.)	35 mA max.
DRT1-OD08CL	(Shares communications power supply.)	40 mA max.
DRT1-OD08CL-1	(Shares communications power supply.)	40 mA max.
DRT1-OD08C	50 mA max.	30 mA max.
DRT1-WD16C	60 mA max.	30 mA max.
DRT1-WD16C-1	60 mA max.	30 mA max.
DRT1-MD16C	50 mA max.	30 mA max.
DRT1-MD16C-1	50 mA max.	30 mA max.
DRT1-B7AC	500 mA max.	70 mA max.

DRT2-series Analog Slaves

Model	Communications current consumption
DRT2-AD04	90 mA max. at 24 VDC 150 mA max. at 11 VDC
DRT2-AD04H	70 mA max. at 24 VDC 110 mA max. at 11 VDC
DRT2-DA02	120 mA max. at 24 VDC 220 mA max. at 11 VDC
DRT2-TS04T	70 mA max. at 24 VDC 110 mA max. at 11 VDC
DRT2-TS04P	70 mA max. at 24 VDC 110 mA max. at 11 VDC

DRT1-series Special I/O Slaves Units

Model	Internal current consumption	Communications current consumption
CPM2C-S100C-DRT CPM2C-S110C-DRT	170 mA max.	30 mA max.
C200HW-DRT21	250 mA max. (Supplied from the 5 V DC base.)	45 mA max.
DRT1-232C2	100 mA max.	50 mA max.

MULTIPLE I/O TERMINALs

Communications Unit

Model	Internal current consumption	Communications current consumption
DRT1-COM	110 mA max.	30 mA max.

I/O Units

Model	I/O Unit interface current consumption	Internal and I/O current consumption
GT1-ID16(-1)	35 mA max.	---
GT1-ID16MX(-1)	35 mA max.	---
GT1-ID16ML(-1)	35 mA max.	---
GT1-ID16DS(-1)	35 mA max.	---
GT1-ID32ML(-1)	55 mA max.	---
GT1-OD16(-1)	35 mA max.	9 mA max.
GT1-OD16MX(-1)	35 mA max.	9 mA max.
GT1-OD16ML(-1)	35 mA max.	9 mA max.
GT1-OD16DS(-1)	35 mA max.	9 mA max.
GT1-OD32ML(-1)	65 mA max.	11 mA max.
GT1-ROP08	40 mA max.	350 mA max. (Inrush current 30 A max.)
GT1-ROS16	50 mA max.	250 mA max. (Inrush current 30 A max.)
GT1-AD04	50 mA max.	Internal power supply: 100 mA max. (Inrush current 20 A max.)
GT1-AD08MX	50 mA max.	Internal power supply: 100 mA max. (Inrush current 30 A max.)
GT1-DA04	50 mA max.	Internal power supply: 150 mA max. (Inrush current 20 A max.)
GT1-DA04MX	50 mA max.	Internal power supply: 100 mA max. (Inrush current 30 A max.)
GT1-TS04T	50 mA max.	Internal power supply: 80 mA max. (Inrush current 10 A max.)
GT1-TS04P	50 mA max.	Internal power supply: 80 mA max. (Inrush current 10 A max.)
GT1-CT01	90 mA max.	9 mA max.

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