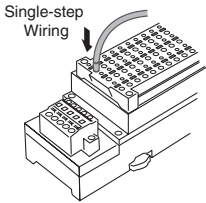


# Screw-less Clamp Terminals with Transistors

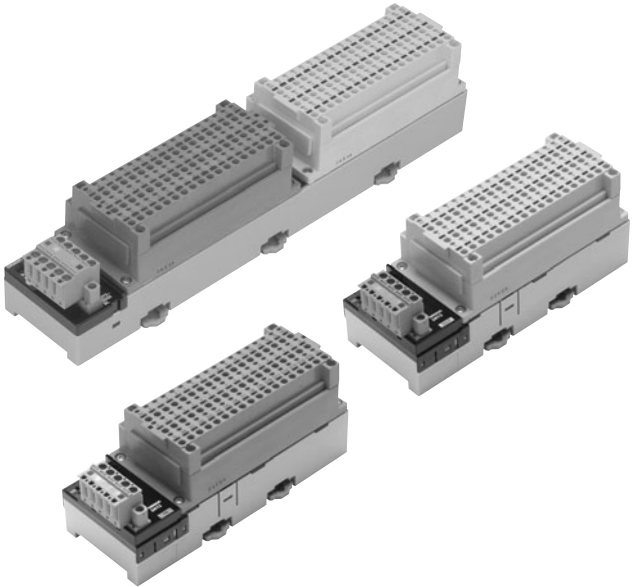
# DRT2-□D16SL(H)(-1)/□D32SLH(-1)

## Reduced Wiring and Labor on Factory Sites with Screw-less Terminal Wiring

- Screw-less structure eliminates tightening work.
- Detachable terminal blocks for easier maintenance.
- Single-step wiring by simply inserting pole terminals.



- Applicable wire sizes range from AWG24 to AWG16 (0.2 to 1.25 mm<sup>2</sup> dia.)



## Smart Slave Functions

- Operation time monitor
- Contact operation counter
- Unit conduction time monitor
- Total ON time monitor
- Unit comments
- Connected device comments
- Network power supply voltage monitor
- I/O power supply monitor function
- Communications error log function
- Input filter (input or I/O only)
- Power-ON inrush current protection (input or I/O only)
- Sensor power supply short-circuit detection (input or I/O only)
- Disconnected sensor detection (input or I/O only)
- External load short-circuit detection (output only)
- Disconnection detection (output or I/O only)
- Removable terminal block
- Communications speed auto-detection
- No need to wire Unit power supply
- Last maintenance date

## Ordering Information

Short/disconnection detection	Specifications			I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model					
Supported	Inputs	NPN (+ common)	16 points	Clamp terminals	Supplied from communications connector.	24 VDC	DRT2-ID16SLH					
		PNP (- common)					DRT2-ID16SLH-1					
	Outputs	NPN (- common)					DRT2-OD16SLH					
		PNP (+ common)					DRT2-OD16SLH-1					
Not supported	Inputs	NPN (+ common)					32 points	Clamp terminals	Supplied from communications connector.	24 VDC	DRT2-ID16SL	
		PNP (- common)									DRT2-ID16SL-1	
	Outputs	NPN (- common)									DRT2-OD16SL	
		PNP (+ common)									DRT2-OD16SL-1	
Supported	Inputs	NPN (+ common)	16 inputs/ 16 outputs	Clamp terminals	Supplied from communications connector.	24 VDC					DRT2-ID32SLH	
		PNP (- common)									DRT2-ID32SLH-1	
		Outputs									NPN (- common)	DRT2-OD32SLH
											PNP (+ common)	DRT2-OD32SLH-1
	I/O	NPN (input: + common, output: - common)					DRT2-MD32SLH					
		PNP (input: - common, output: + common)					DRT2-MD32SLH-1					

## General Specifications

Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector.)
Communications power supply current consumption	DRT2-ID32SLH(-1): 65 mA DRT2-OD32SLH(-1): 55 mA DRT2-MD32SLH(-1): 60 mA
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s <sup>2</sup> for 80 min each in the X, Y, and Z directions
Shock resistance	150m/s <sup>2</sup> , 6 directions, 3 times each
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 MΩ min. (between isolated circuits)
Ambient operating temperature	-10°C to 55°C
Ambient operating humidity	25% to 85% (with no condensation)
Ambient operating atmosphere	No corrosive gases
Ambient storage temperature	-20°C to 65°C
Mounting method	DIN 35 mm-track mounting
Weight	480 g max.

## I/O Specifications

### ● 16-point Inputs Terminals with Transistors (Input Specifications)

Item	Model	DRT2-ID16SL	DRT2-ID16SL-1	DRT2-ID16SLH	DRT2-ID16SLH-1
Internal I/O common		NPN	PNP	NPN	PNP
Input points		16 inputs			
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Input current		24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point			
Input resistance		4 kΩ			
ON delay time		1.5 ms max.			
OFF delay time		1.5 ms max.			
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)	15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)	5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)
ON current		3.0 mA max.			
OFF current		1.0 mA max.			
Number of circuits per common		16 per common			
Power short-circuit protection		--		Operates at 50 mA/point min.	
Disconnection detection		--		Operates at 0.3 mA/point max.	
Input power supply current		100 mA per point		50 mA per point	

### ● 32-point Inputs Terminals with Transistors (Input Specifications)

Item	Model	DRT2-ID32SLH	DRT2-ID32SLH-1
Internal I/O common		NPN	PNP
Input points		32 inputs	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)	
Input current		6.0 mA/6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
Input resistance		4 kΩ	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)
ON current		3 mA min.	
OFF current		1.0 mA max.	
Number of circuits per common		16 per common	
Power short-circuit protection		Operates at 50 mA/point min.	
Disconnection detection		Operates at 0.3 mA/point max.	

● 16-point Outputs Terminals with Transistors (Output Specifications)

Item	Model	DRT2-OD16SL	DRT2-OD16SL-1	DRT2-OD16SLH	DRT2-OD16SLH-1
Internal I/O common		NPN	PNP	NPN	PNP
I/O points		16 outputs			
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Output current		0.5 A per point, 4 A per common			
Residual voltage		1.2 V max.			
Leakage current		0.1 mA max.		0.1 mA max. (See Note: 1.)	
ON delay time		0.5 ms max.			
OFF delay time		1.5 ms max.			
Disconnection detection		--		(See Note: 2.)	
Output power supply current		100 mA per point			
Output for errors		According to hold/clear setting for errors (default: clear)			

**Note 1:** To enable detection of external load disconnections, a current of 0.1 mA or less is output to the load even when the output is OFF. Make sure that the load will not operate for this current.

**Note 2:** Disconnection detection can be used when the load current is 3 mA or higher. If the load current is less than 3 mA, disconnections may be falsely detected.

● 32-point Outputs Terminals with Transistors (Output Specifications)

Item	Model	DRT2-OD32SLH	DRT2-OD32SLH-1
Internal I/O common		NPN	PNP
I/O points		32 outputs	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)	
Output current		0.5 A per point, 4 A per common	
Residual voltage		1.2 V max.	
Leakage current		0.1 mA max.	
ON delay time		0.5 ms max.	
OFF delay time		1.5 ms max.	
Disconnection detection		Operates at current consumption of 3 mA/point max. (Not detected at 3 mA or higher.)	
Output for errors		According to hold/clear setting for errors (default: clear)	

● 16-point Inputs/16-point Outputs Terminals with Transistors (Input Specifications)

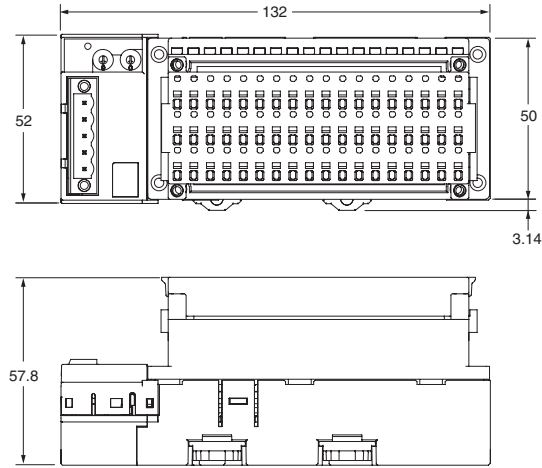
Item	Model	DRT2-MD32SLH	DRT2-MD32SLH-1
Internal I/O common		NPN	PNP
Input points		16 inputs	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)	
Input current		6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
Input resistance		4 kΩ	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)
ON current		3 mA min.	
OFF current		1.0 mA max.	
Number of circuits per common		16 per common	
Power short-circuit protection		Operates at 50 mA/point min.	
Disconnection detection		Operates at 0.3 mA/point max	

● 16-point Inputs/16-point Outputs Terminals with Transistors (Output Specifications)

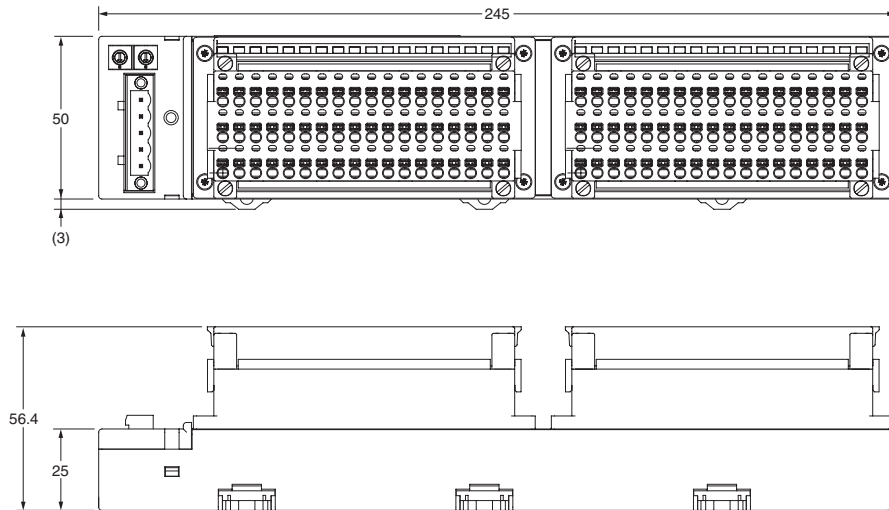
Item	Model	DRT2-MD32SLH	DRT2-MD32SLH-1
Internal I/O common		NPN	PNP
I/O points		16 outputs	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)	
Output current		0.5 A per point, 4 A per common	
Residual voltage		1.2 V max.	
Leakage current		0.1 mA max.	
ON delay time		0.5 ms max.	
OFF delay time		1.5 ms max.	
Disconnection detection		Operates at current consumption of 3 mA/point max. (Not detected at 3 mA or higher.)	
Output for errors		According to hold/clear setting for errors (default: clear)	

Dimensions

DRT2-ID16SLH(-1)  
 DRT2-OD16SLH(-1)  
 DRT2-ID16SL(-1)  
 DRT2-OD16SL(-1)

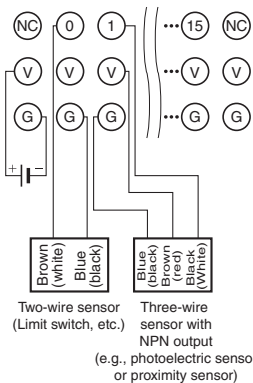


DRT2-ID32SLH(-1)  
 DRT2-OD32SLH(-1)  
 DRT2-MD32SLH(-1)

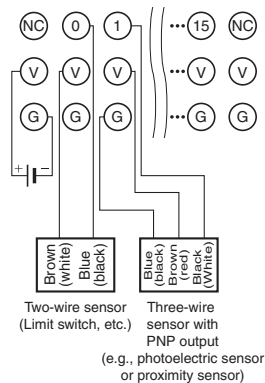


Wiring Diagrams

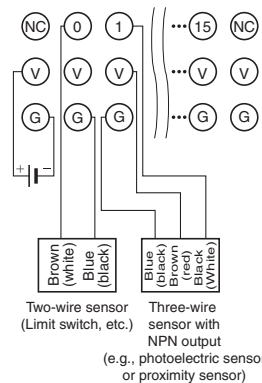
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 (NPN)



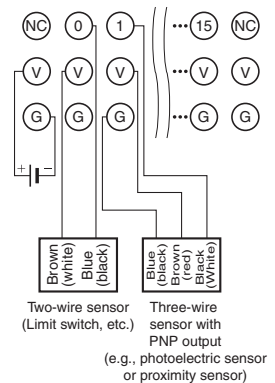
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 (PNP)



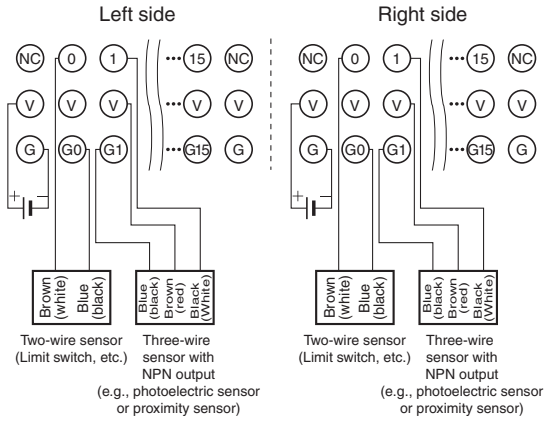
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 (NPN)



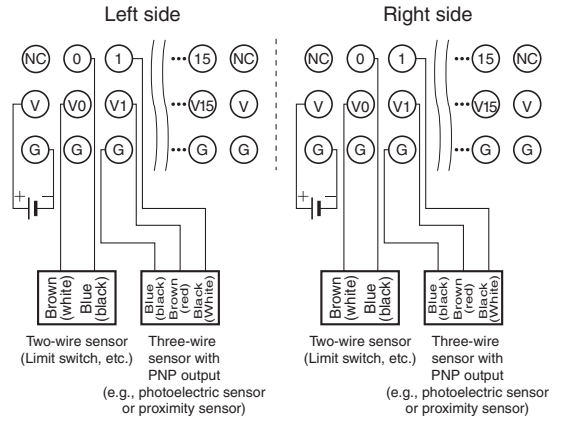
DRT2-ID16SLH-1  
 (PNP)



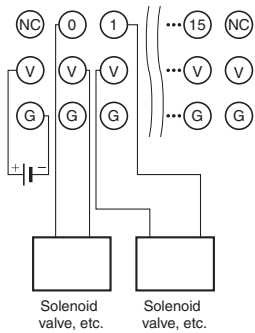
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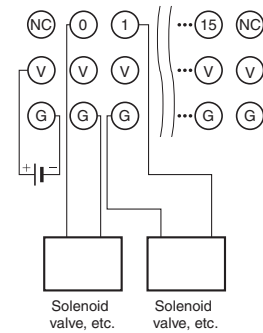
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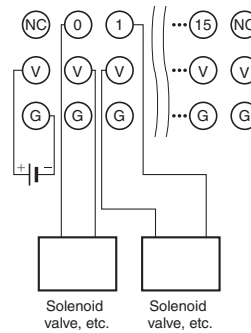
**DRT2-OD16SL (NPN)**



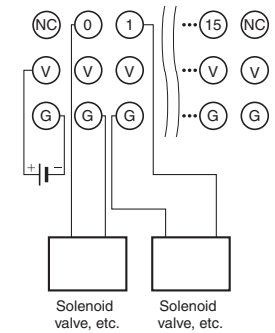
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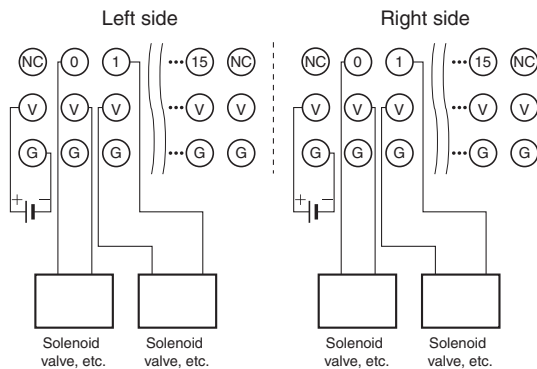
**DRT2-OD16SLH (NPN)**



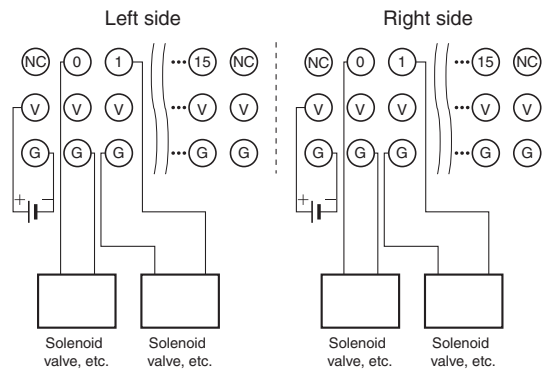
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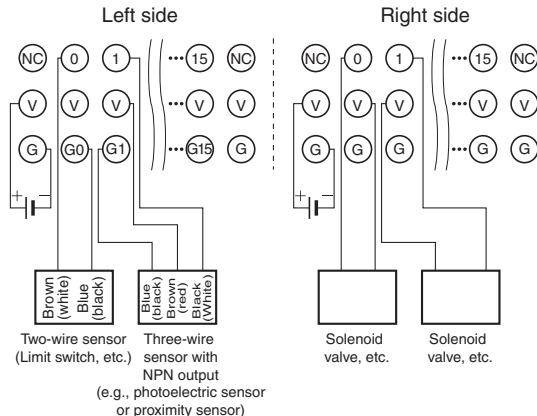
**DRT2-OD32SLH (NPN)**



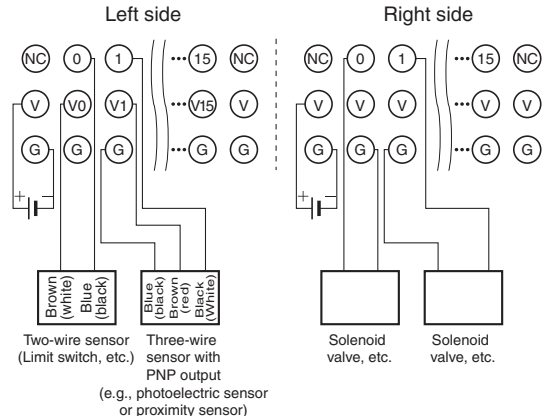
**DRT2-OD32SLH-1 (PNP)**



**DRT2-MD32SLH (NPN)**



**DRT2-MD32SLH-1 (PNP)**



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