

# DST1 Series

## Distributed Safety Terminals That Reduce Wiring.

- Lineup includes four models to accommodate various I/O types and number of I/O points.
- Monitor the safety system from Standard Controllers across the network.
- EN954-1 (Cat.4), ISO13849-1 (PLe), and IEC 61508 SIL3 certification.
- The DST1-XD0808SL-1 also supports logic operation functions for high-speed processing in applications requiring partial stopping of the safety system.



## Ordering Information

### List of Models

Name	No. of I/O points	Model
Safety I/O Terminals	Safety inputs: 12, test outputs: 4	DST1-ID12SL-1
	Safety inputs: 8, safety outputs (semiconductor): 8, test outputs: 4	DST1-MD16SL-1
		DST1-XD0808SL-1 *
	Safety inputs: 4, safety outputs (relay): 4, test outputs: 4	DST1-MRD08SL-1

**Note:** The standard DS1T Safety I/O Terminals are equipped with spring-cage terminal blocks, but screw terminal blocks are available if desired, e.g., to replace previous terminals. Refer to DeviceNet Safety Accessories.

\*Use the Network Configurator Ver. 2.0 or later to make DST1-XD0808SL-1 settings.

## Specifications

### Certified Standards

Certification body	Standard
TÜV Rheinland	EN ISO 13849-1 EN ISO 13849-2 IEC 61508 EN 62061 EN 61131-2 IEC 61326-3-1
UL	UL508 ISA12.12.01 (excluding the DST1-MRD08SL-1) UL1998 IEC 61508-3

### Specifications

Item	Model	DST1-ID12SL-1	DST1-MD16SL-1	DST1-MRD08SL-1	DST1-XD0808SL-1
Communications power supply voltage		11 to 25 VDC supplied via communications connector			
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Current consumption	Communications power supply	24 VDC 100 mA	24 VDC 110 mA	24 VDC 100 mA	24 VDC 110 mA
	I/O power supply *	24 VDC 70 mA	24 VDC 50 mA (Input) 130 mA (Output)	24 VDC 80 mA (Input) 130 mA (Output)	24 VDC 50 mA (Input) 130 mA (Output)
Overvoltage category		II			
Noise immunity		Conforms to IEC61131-2.			
Vibration resistance		10 to 57 Hz: 0.35-mm single amplitude, 57 to 150 Hz: 50 m/s <sup>2</sup>			
Shock resistance		150 m/s <sup>2</sup> , 11 ms		100 m/s <sup>2</sup> , 11 ms	150 m/s <sup>2</sup> , 11 ms
Mounting method		35-mm DIN Track			
Ambient operating temperature		-10 to 55°C			
Ambient operating humidity		10% to 95% (with no condensation)		10% to 85% (with no condensation)	10% to 95% (with no condensation)
Ambient storage temperature		-40 to 70°C			
Degree of protection		IP20			
Weight		420 g		600 g	420 g

\*Not including power consumption for external devices.

### Safety Input Specifications

(Common with the DST1 Series)

Input type	Sinking inputs (PNP)
ON voltage	11 VDC min.
OFF voltage	5 VDC max.
OFF current	1 mA max.
Input current	6 mA

### Safety Output Specifications (Semiconductor output)

(Common with the DST1-MD16SL-1/XD0808SL-1)

Output type	Sourcing outputs (PNP)
Rated output current	0.5 A max./output
ON residual voltage	1.2 V max.
Leakage current	0.1 mA max.

### Test Output Specifications

(Common with the DST1 Series)

Output type	Sourcing outputs (PNP)
Rated output current	0.7 A max./output
ON residual voltage	1.2 V max.
Leakage current	0.1 mA max.

### Safety Output Specifications (Relay Output)

(DST1-MRD08SL-1)

Applicable relays	G7SA-2A2B, EN50205 Class A	
Failure rate P level * (Reference value)	5 VDC, 1 mA	
Rated load (resistive)	2 A at 240 VAC, 2 A at 30 VDC	
Durability	Mechanical	5,000,000 operations min. (at 7,200 operations/h)
	Electrical	100,000 operations min. (at 1,800 operations/h with a resistive load)

\*This value is equivalent to 300 operations/minute.

### CIP Safety on DeviceNet Communications

Safety Slave communications	Max. 4 connections (Max. 2 connections for the DST1-XD0808SL-1)
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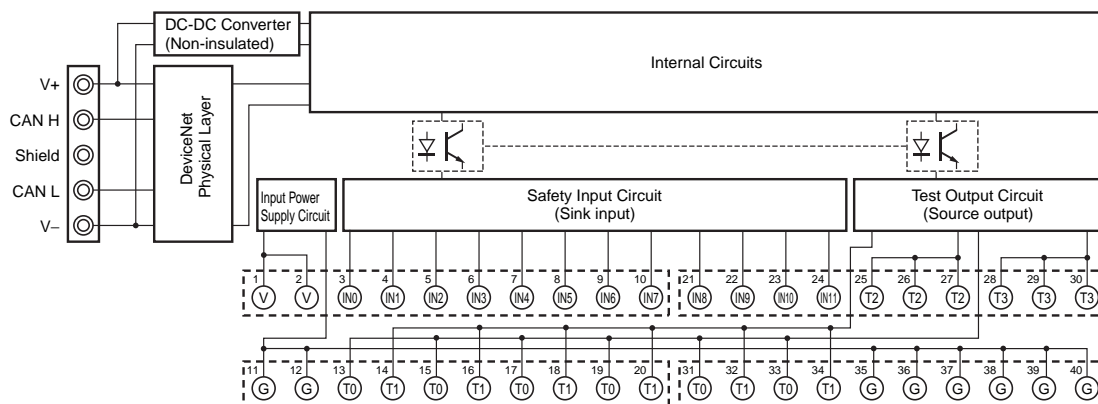
### DeviceNet Slave Communications

(Common with the DST1 Series)

Standard Slave communications	Max. 2 connections
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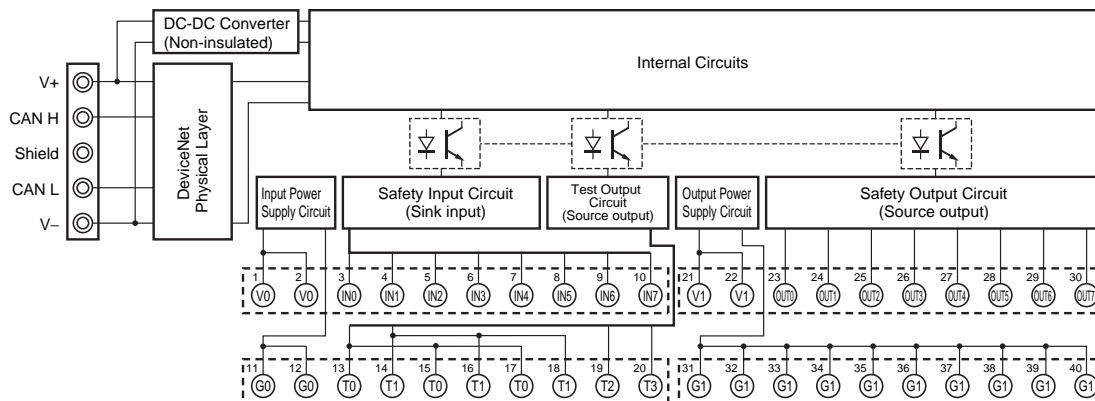
## Internal Circuit Configuration

DST1-ID12SL-1



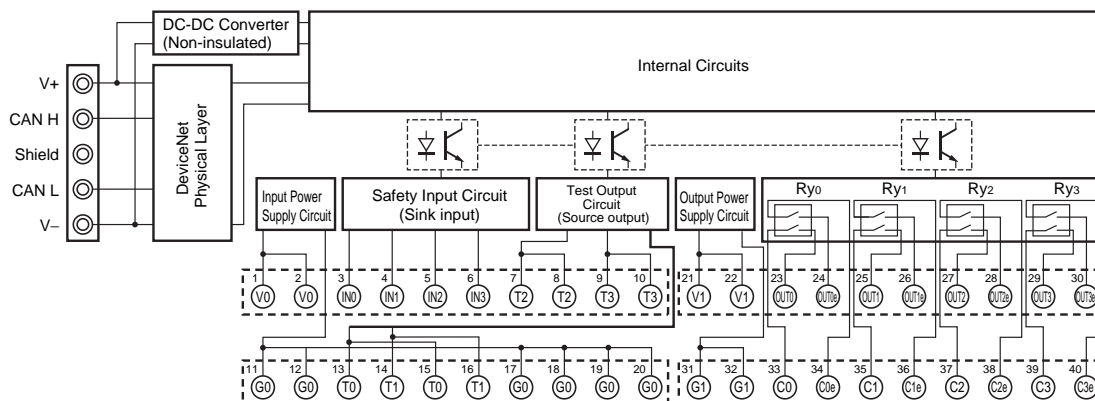
Terminal No.	Name	Function
1, 2	V	Power supply terminal (24 VDC) for input device and test output
11, 12	G	
35 to 40	G	Common terminal (Terminal No. 11, 12 and 35 to 40 are internally connected.)
3 to 10 21 to 24	IN0 to IN11	Safety input terminal
13 to 20 25 to 30 31 to 34	T0 to T3	Test output terminal

## DST1-MD16SL-1 DST1-XD0808SL-1



Terminal No.	Name	Function
1, 2	V0	Power supply terminal (24 VDC) for input device and test output
11, 12	G0	
3 to 10	IN0 to IN7	Safety input terminal
13 to 20	T0 to T3	Test output terminal
21, 22	V1	Power supply terminal (24 VDC) for output device
31, 32	G1	
23 to 30	OUT0 to OUT7	Safety output terminal
33 to 40	G1	Common terminal (Terminal Nos. 31 to 40 are internally connected.)

## DST1-MRD08SL-1

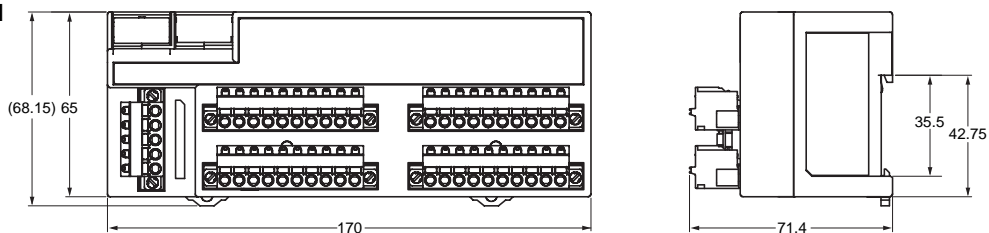


Terminal No.	Name	Function
1, 2	V0	Power supply terminal (24 VDC) for input device, test output, and monitoring the safety relay NC contact of the internal circuit
11, 12	G0	
17 to 20	G0	Common terminal (Terminal Nos. 11, 12 and 17 to 20 are internally connected.)
3 to 6	IN0 to IN3	Safety input terminal
7 to 10 13 to 16	T0 to T3	Test output terminal
21, 22	V1	Power supply terminal (24 VDC) for driving the safety relay of the internal circuit
31, 32	G1	
23 to 30 33 to 40	OUT0 to OUT3 C0 to C3 OUT0e to OUT3e C0e to C3e	Safety output terminal (The outputs of terminal No. 23/33 (OUT0) and 24/34 (OUT0e) are the same.) (The outputs of terminal No. 25/35 (OUT1) and 26/36 (OUT1e) are the same.) (The outputs of terminal No. 27/37 (OUT2) and 28/38 (OUT2e) are the same.) (The outputs of terminal No. 29/39 (OUT3) and 30/40 (OUT3e) are the same.)

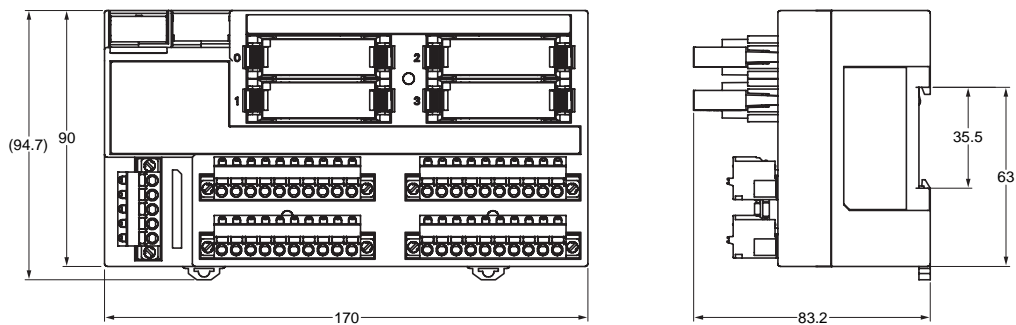
Refer to the *CIP Safety on DeviceNet DST1-series Safety I/O Terminals Operation Manual* (Cat. No. Z904) for wiring examples.

## Dimensions

DST1-ID12SL-1  
 DST1-MD16SL-1  
 DST1-XD0808SL-1



DST1-MRD08SL-1



## Safety Precautions

Refer to the "Safety Precautions for All CIP Safety on DeviceNet Systems" for precautions.  
 Be sure to read the following user's manual for other details required for correct use of the Safety I/O Terminals  
 Safety I/O Terminals User's Manual (Cat. No. Z904)

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