W 11 × H 22 mm 7-segment Display Units

D1SA Series

INSTRUCTION MANUAL

DRW201174AB

Autonics

Thank you for choosing our Autonics product.
Read and understand the instruction manual and manual thoroughly before using the product.
For your safety, read and follow the below safety considerations before using.
For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.(e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.
Failure to follow this instruction may result in explosion or fire.
03. Install on a device panel to use.
Failure to follow this instruction may result in fire.
04. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire.
05. Check 'Unit description and function setting' before wiring.
Failure to follow this instruction may result in fire.
06. Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
02. Use a dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in fire.
03. Keep the product away from metal chip, dust, and wire residue which flow into the unit.
Failure to follow this instruction may result in fire or product damage.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 12 - 24 VDC⎓ model power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
  Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category I

Specifications

Model	D1SA-RN	D1SA-GN
Display method	7-segment LED (red)	7-segment LED (green)
Power supply	12 - 24 VDC⎓	
Allowable voltage range	90 to 110 % of power supply	
Current consumption	≤ 35 mA	
Size	W 11 × H 22 mm	
Display character	Decimal number: 0 to 9, decimal point Hexadecimal number: 0 to 9, A to F, decimal point	
Input	Parallel: Parallel 4-bit data, LATCH, Zero Blanking, decimal point Serial: Serial 4 / 5-bit data, CLOCK, Zero Blanking, LATCH, decimal point 01)	
Input resistance	20 kΩ	
Input level	High: 4.5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓	
Max. Cock 02)	≤ 3 kHz	
Output	Data output (serial input), Zero Blanking output	
Input logic	Positive logic (PNP), negative logic (NPN) selectable (function set switches)	
Noise immunity	Between power terminals or input terminals : ± 300 V the square wave noise (pulse width: 1 μs) by the noise simulator	
Ambient temperature	0 to 60 °C, storage: -10 to 85 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH (no freezing or condensation)	
Accessory	Connector (CT-10S)	
Approval	EAC	
Weight (packaged) 03)	≈ 16 g (≈ 131 g)	

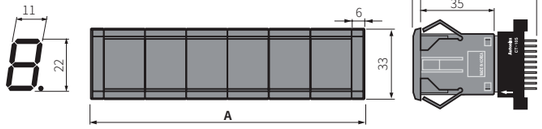
01) When applying the serial 4-bit input.
02) Max. Clock is for 1:1 of duty ratio (ON, OFF ratio).
03) The package weight is based on four.

Sold Separately

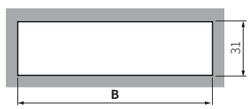
- Caps: DAR (L)-R (1 set - left and right, D1SA-RN dedicated)
- Caps: DAR (L)-BL (1 set - left and right, D1SA-GN dedicated)

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

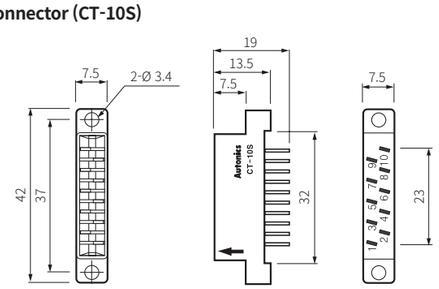


■ Panel cut-out

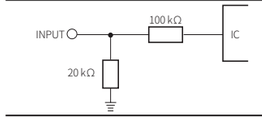
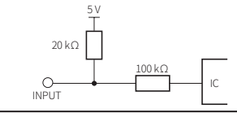


Digit (N)	Size A (20×N+12)	Size B (20×N+10)
1	32	30 ± 0.1
2	52	50 ± 0.1
3	72	70 ± 0.1
4	92	90 ± 0.1
5	112	110 ± 0.1
6	132	130 ± 0.1
7	152	150 ± 0.1
8	172	170 ± 0.1

■ Connector (CT-10S)



Input Circuit

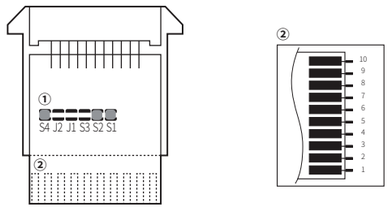
Positive logic (PNP)	Negative logic (NPN)
	

Input Data Chart

- Blank: Though entering the data, it will not display.

7-seg Display		Negative logic (NPN) input				Positive logic (PNP) input			
Hex.	Dec.	D3	D2	D1	D0	D3	D2	D1	D0
0	0	H	H	H	H	L	L	L	L
1	1	H	H	H	L	L	L	L	H
2	2	H	H	L	H	L	L	H	L
3	3	H	H	L	L	L	L	H	H
4	4	H	L	H	H	L	H	L	L
5	5	H	L	H	L	L	H	L	H
6	6	H	L	L	H	L	H	H	L
7	7	H	L	L	L	L	H	H	H
8	8	L	H	H	H	H	L	L	L
9	9	L	H	H	L	H	L	L	H
A	Blank	L	H	L	H	H	L	H	L
b	Blank	L	H	L	L	H	L	H	H
C	Blank	L	L	H	H	H	H	L	L
d	Blank	L	L	H	L	H	H	L	H
E	Blank	L	L	L	H	H	H	H	L
F	Blank	L	L	L	L	H	H	H	H

Unit Descriptions



① Function set switches

- Open ⇌ OFF / Short ⏚ ON

No.	ON	OFF	Function	Default
S1	Decimal number	Hexadecimal number	Display characters	ON
S2	Parallel	Serial	Input	ON
S3	5 bits	4 bits	Select serial input	OFF
J1	Use	Not used	Serial data output 01)	OFF
J2	Use	Not used	Zero Blanking	OFF
S4	Negative logic (NPN)	Positive logic (PNP)	Input logic	ON

01) Set as ON in serial input, as OFF in parallel input.

② I/O terminal

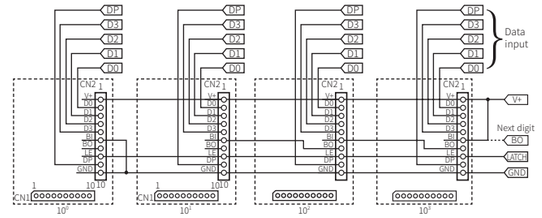
Terminal \ Input	Parallel input		Serial input	
	Code	Function	Code	Function
1	V+	12 - 24 VDC⎓	VCC	12 - 24 VDC⎓
2	D0	Data input	N·C	-
3	D1		CK	Clock input
4	D2		DI	Data input
5	D3		DO	Data output
6	BI	Zero Blanking input	BI	Zero Blanking input
7	BO	Zero Blanking output	BO	Zero Blanking output
8	LE	LATCH input	LE	LATCH input
9	DP	Decimal point input	DP	Decimal point input
10	GND	0 V	GND	0 V

Multi-stage Connection

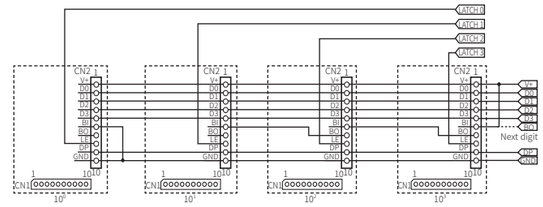
- Based on the reversed order of pin, 4-digit, connection of rear part of the product, use Zero Blanking.

■ Parallel input

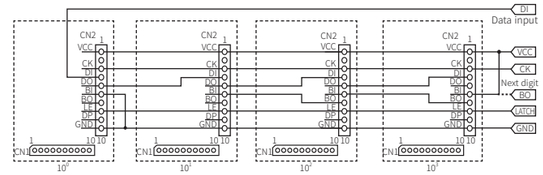
- Static Parallel



- Dynamic Parallel



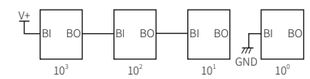
■ Serial input



Zero Blanking

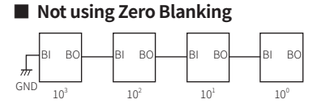
- This function removes '0' that is no meaning when displaying the data in the multi-stage connection.
- Set J2 (Zero Blanking) as ON.
- Set 10^0 as OFF to display '0'. Connect BI terminal to GND for deactivating Zero Blanking.

■ Using Zero Blanking



- Display e.g.: 10

■ Not using Zero Blanking



- Display e.g.: 10

18, Bansong-ro 513Beon-gil, Haeundae-gu, Busan, Republic of Korea, 48002
www.autonics.com | +82-51-519-3232 | sales@autonics.com

Autonics