

W 11 × H 22 mm 16-segment Display Units

D1AA Series INSTRUCTION MANUAL

TCD210088AA

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 | D1AA-RN | D1AA-GN |
| Display method | 16-segment LED (red) | 16-segment LED (green) |
| Power supply | 12 - 24 VDC≐ | |
| Allowable voltage range | 90 to 110 % of power supply | |
| Current consumption | ≤ 32 mA | |
| Size | W 11 × H 22 mm | |
| Display character | 61 characters and symbols (0 to 9, A to Z, 24 symbols, decimal point) | |
| Input | Parallel: Parallel 6 bits data, LATCH, decimal point Serial: Serial 6 / 7 bits data, CLOCK, LATCH, decimal point ⁽⁰¹⁾ | |
| Input resistance | 20 kΩ | |
| Input level | High: 4.5 - 24 VDC≐, Low: 0 - 1.2 VDC≐ | |
| Max. Clock ⁽⁰²⁾ | ≤ 3 kHz | |
| Output | Data output (serial input) | |
| Input logic | Positive logic (PNP), negative logic (NPN) selectable (by inner soldering) | |
| Noise immunity | ± 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 6 bits input.

02) Max. Clock is for 1:1 of duty ratio (ON, OFF ratio).

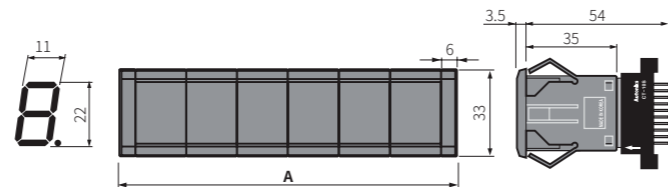
03) The package weight is based on four.

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

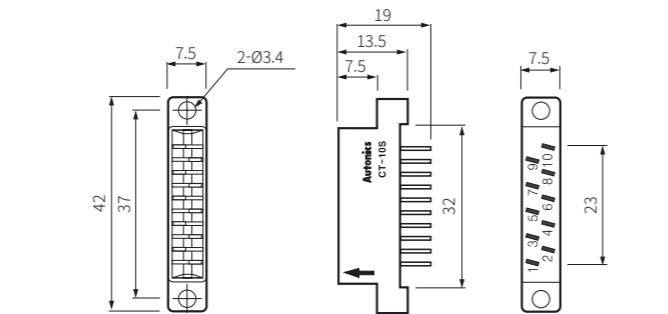
- Unit: mm, For the detailed drawings, follow the Autonics website.



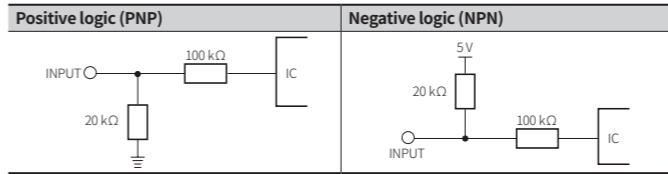
Panel cut-out

| 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

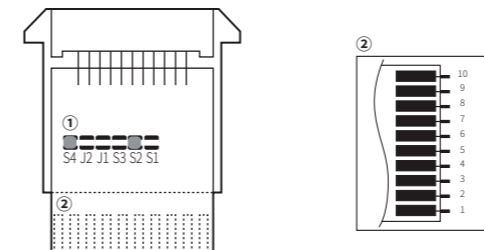


Input Data Chart

- Blank: Though entering the data, it will not display.
- Based on the positive logic (PNP) input.

| Upper 2 bits | | | | | | | | Lower 4 bits | | | |
|--------------|----|----|----|-------|----|----|----|--------------|----|----|----|
| D5 | D4 | D5 | D4 | D5 | D4 | D5 | D4 | D3 | D2 | D1 | D0 |
| L | L | L | H | H | L | H | H | | | | |
| Blank | | P | | Blank | | 0 | | L | L | L | L |
| A | | Q | | Blank | | 1 | | L | L | L | H |
| B | | R | | " | | 2 | | L | L | H | L |
| C | | S | | ⊗ | | 3 | | L | L | H | H |
| D | | T | | ⊙ | | 4 | | L | H | L | L |
| E | | U | | ⊘ | | 5 | | L | H | L | H |
| F | | V | | Blank | | 6 | | L | H | H | L |
| G | | W | | ' | | 7 | | L | H | H | H |
| H | | X | | : | | 8 | | H | L | L | L |
| I | | Y | | : | | 9 | | H | L | L | H |
| J | | Z | | * | | ⊃ | | H | L | H | L |
| K | | [| | + | | ⊆ | | H | L | H | H |
| L | | \ | | ⊆ | | ⊆ | | H | H | L | L |
| M | |] | | - | | = | | H | H | L | H |
| N | | ^ | | ⊃ | | ⊆ | | H | H | H | L |
| O | | ⋈ | | / | | ? | | H | H | H | H |

Unit Descriptions



① Function set switches

- Open OFF / Short ON

| No. | ON | OFF | Function | Default |
|-----|----------------------|----------------------|------------------------------------|---------------------|
| S1 | - | - | - | OFF |
| S2 | Parallel | Serial | Input | ON |
| S3 | 7 bits | 6 bits | Select serial input | OFF |
| J1 | Use | Not used | Serial data output ⁽⁰¹⁾ | OFF |
| J2 | - | - | - | OFF ⁽⁰²⁾ |
| S4 | Negative logic (NPN) | Positive logic (PNP) | Input logic | ON |

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

02) Do not change the soldering. (OFF fixed)

② I/O terminal

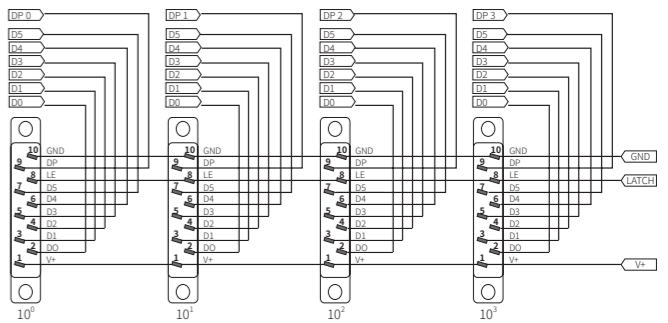
| Terminal | Input | | Serial input | |
|----------|-------|---------------------|--------------|---------------------|
| | Code | Function | Code | Function |
| 1 | VCC | 12 - 24 VDC≐ | VCC | 12 - 24 VDC≐ |
| 2 | D0 | Data input | N · C | - |
| 3 | D1 | | CK | Clock input |
| 4 | D2 | | DI | Data input |
| 5 | D3 | | DO | Data output |
| 6 | D4 | | N · C | - |
| 7 | D5 | N · C | - | |
| 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

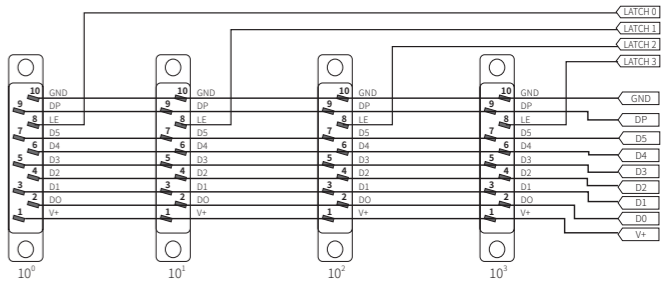
- Based on 4-digit, connection of rear part of the product.

■ Parallel input

- Static Parallel



- Dynamic Parallel



■ Serial input

