Solid State Relays

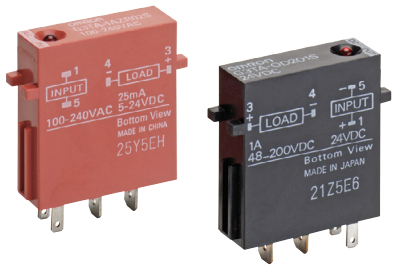
# G3TA

CSM_G3TA_DS_E_2_1

## I/O SSRs That Mount to OMRON's G7TC I/O Block

- Input and output modules are available in wide variety.
- Snaps easily into P7TF I/O Terminals and can be used together with G7T I/O relays.
- Operation of each SSR can be monitored easily through an LED indicator.
- Certified by UL and CSA.

⚠ Refer to *Safety Precautions for All Solid State Relays.*




# Model Number Structure

## ■ Model Number Legend

G3TA□□□□□□□-□
1 2 3 4 5 6 7 8 9 10

1. **Basic Model Name**
   G3T: I/O Solid State Relay
2. **Structure**
   A: Socket type for PCB
3. **I/O**
   I: Input models
   O: Output models
4. **Type**
   A: Input models: AC input
   Output models: AC output
   D: Input models: DC input
   Output models: DC output
5. **Rated Load Power Supply Voltage**
   2: 200 VAC/200 VDC
   X: 50 to 100 V
   Z: 26 V max.
6. **Rated Load Current**
   01: 1 A
   02: 2 A
   R02: 25 mA
7. **Terminal Type**
   S: Plug-in terminals
8. **Zero Cross Function**
   Blank: DC output models
   Z: Equipped with zero cross function
   L: Not equipped with zero cross function
9. **Operation Indicator**
   Blank: Equipped with operation indicator
   M: Not equipped with operation indicator
10. **Certification**
    US: Certified by UL and CSA

# Ordering Information

## ■ List of Models

### Input Modules

| Isolation | Indicator | Logic level | | Rated input voltage | Model |
|---|---|---|---|---|---|
| | | Supply voltage | Supply current | | |
| Photocoupler | Yes | 4 to 32 VDC | 25 mA | 100 to 240 VAC | G3TA-IAZR02S-US |
| | | | | 5 to 24 VDC | G3TA-IDZR02S-US |
| | No | | | 4 to 24 VDC | G3TA-IDZR02SM-US |

**Note:** When ordering, specify the rated input voltage.

## Output Modules

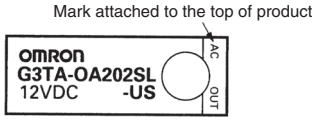
| Isolation | Zero cross function | Indicator | Rated output load | Rated input voltage | Model |
|---|---|---|---|---|---|
| Phototriac | Yes | Yes | 2 A at 100 to 240 VAC at 60°C | 12 VDC | G3TA-OA202SZ-US |
| | | | | 24 VDC | |
| | No | | | 12 VDC | G3TA-OA202SL-US |
| | | | | 24 VDC | |
| Photocoupler | --- | | 2 A at 5 to 48 VDC at 60°C | 12 VDC | G3TA-ODX02S-US |
| | | | | 24 VDC | |
| | | | 1 A at 48 to 200 VDC at 40°C | 12 VDC | G3TA-OD201S-US |
| | | | | 24 VDC | |

**Note: 1.** For information on products that are certified for international standards, consult your OMRON sales representatives.

**2.** Input Modules are mainly suitable for signal input to PLCs. For load switching, consider using an Output Module.

## I/O Indication

The modules are classified as Input Modules and Output Modules according to the main application of the Module.
I/O module classification and AC/DC use are indicated on the mark affixed to the top of the product.




| Mark indication | Specification |
|---|---|
| AC IN | Input module, AC input |
| DC IN | Input module, DC input |
| AC OUT | Output module, AC output |
| DC OUT | Output module, DC output |

# ■ Accessories (Order Separately)

## Connecting Socket

| I/O classification | Rated voltage | Model |
|---|---|---|
| Input (NPN, – common) | 12 VDC | P7TF-IS16 |
| | 24 VDC | |
| | 100/110 VDC | |
| | 100/110 VAC | |
| | 200/220 VAC | |
| Output (NPN, + common) | 12 VDC | P7TF-OS16 |
| | 24 VDC | |
| Output (PNP, – common) | 12 VDC | P7TF-OS16-1 |
| | 24 VDC | |
| Output (NPN, + common) | 12 VDC | P7TF-OS08 |
| | 24 VDC | |
| --- | --- | P7TF-05 |

# Specifications

## ■ Ratings (at an Ambient Temperature of 25°C)

### Input Module

#### Input

| Model | Rated voltage | Operating voltage | Input current | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| G3TA-IAZR02S-US | 100 to 240 VAC | 80 to 264 VAC | 5 mA max. | 80 VAC max. | 10 VAC min. |
| G3TA-IDZR02S-US | 5 to 24 VDC | 4 to 32 VDC | | 4 VDC max. | 1 VDC min. |
| G3TA-IDZR02SM-US | 4 to 24 VDC | 3 to 32 VDC | | 3 VDC max. | |

#### Output

| Model | Logic level supply voltage | Output breakdown voltage | Output current | Output current (load current) |
|---|---|---|---|---|
| G3TA-IAZR02S-US | 4 to 32 VDC | 32 VDC max. | 25 mA max. | 0.1 to 25 mA |
| G3TA-IDZR02S-US | | | | |
| G3TA-IDZR02SM-US | | | | |

### Output Module

#### Input

| Model | Rated voltage | Operating voltage | Input impedance | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| G3TA-OA202SZ-US | 12 VDC | 9.6 to 13.2 VDC | 0.9 kΩ±20% | 9.6 VDC max. | 2 VDC min. |
| | 24 VDC | 19.2 to 26.4 VDC | 1.7 kΩ±20% | 19.2 VDC max. | |
| G3TA-OA202SL-US | 12 VDC | 9.6 to 13.2 VDC | 0.9 kΩ±20% | 9.6 VDC max. | |
| | 24 VDC | 19.2 to 26.4 VDC | 1.7 kΩ±20% | 19.2 VDC max. | |
| G3TA-ODX02S-US | 12 VDC | 9.6 to 13.2 VDC | 3.5 kΩ±20% | 9.6 VDC max. | |
| | 24 VDC | 19.2 to 26.4 VDC | 6.5 kΩ±20% | 19.2 VDC max. | |
| G3TA-OD201S-US | 12 VDC | 9.6 to 13.2 VDC | 3.6 kΩ±20% | 9.6 VDC max. | |
| | 24 VDC | 19.2 to 26.4 VDC | 6.4 kΩ±20% | 19.2 VDC max. | |

#### Output

| Model | Applicable load | | | |
|---|---|---|---|---|
| | Rated load voltage | Load voltage range | Load current (See note.) | Inrush current |
| G3TA-OA202SZ-US | 100 to 240 VAC | 75 to 264 VAC | 0.05 to 2 A | 30 A (60 Hz, 1 cycle) |
| G3TA-OA202SL-US | 100 to 240 VAC | 75 to 264 VAC | | |
| G3TA-ODX02S-US | 5 to 48 VDC | 4 to 60 VDC | 0.01 to 2 A | 12 A (10 ms) |
| G3TA-OD201S-US | 48 to 200 VDC | 40 to 200 VDC | 0.01 to 1 A | 6 A (10 ms) |

**Note:** The minimum current value is measured at 10°C min.

# ■ Characteristics

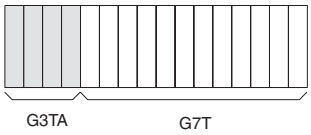
## Input Module

| Item | G3TA-IAZR02S-US | G3TA-IDZR02S-US | G3TA-IDZR02SM-US |
|---|---|---|---|
| **Operate time** | 20 ms max. | 0.5 ms max. | |
| **Release time** | 20 ms max. | 0.5 ms max. | |
| **Output ON voltage drop** | 1.6 V max. | 1.6 V max. | |
| **Leakage current** | 5 μA max. | | |
| **Insulation resistance** | 100 MΩ min. (at 500 VDC) | | |
| **Dielectric strength** | 4,000 VAC, 50/60 Hz for 1 min between input and output | | |
| **Vibration resistance** | Malfunction: 10 to 55 to 10 Hz, 0.75-mm single amplitude | | |
| **Shock resistance** | Malfunction: 1,000 $m/s^2$ | | |
| **Ambient temperature** | Operating: –30°C to 80°C (with no icing or condensation)<br>Storage: –30°C to 100°C (with no icing or condensation) | | |
| **Ambient humidity** | Operating: 45% to 85% | | |
| **Certified standards** | UL508 file No. E64562/CSA C22.2 (No. 0, No. 14) file No. LR35535 | | |
| **Weight** | Approx. 16 g | | |

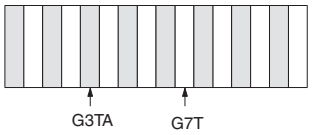
## Output Module

| Item | G3TA-OA202SZ-US | G3TA-OA202SL-US | G3TA-ODX02S-US | G3TA-OD201S-US |
|---|---|---|---|---|
| **Operate time** | 1/2 of load power source cycle + 1 ms max. | 1 ms max. | 0.5 ms max. | 2 ms max. |
| **Release time** | 1/2 of load power source cycle + 1 ms max. | | 2 ms max. | 2 ms max. |
| **Output ON voltage drop** | 1.6 V rms max. | | 1.6 V max. | 2.5 V max. |
| **Leakage current** | 5 mA max. (at 200 VAC) | | 1 mA max. | |
| **Insulation resistance** | 100 MΩ min. (at 500 VDC) | | | |
| **Dielectric strength** | 4,000 VAC, 50/60 Hz for 1 min between input and output | | | |
| **Vibration resistance** | Malfunction: 10 to 55 to 10 Hz, 0.75-mm single amplitude | | | |
| **Shock resistance** | Malfunction: 1,000 $m/s^2$ | | | |
| **Ambient temperature** | Operating: –30°C to 80°C (with no icing or condensation)<br>Storage: –30°C to 100°C (with no icing or condensation) | | | |
| **Ambient humidity** | Operating: 45% to 85% | | | |
| **Certified standards** | UL508 file No. E64562, CSA C22.2 (No. 14) file No. LR3553 | | | |
| **Weight** | Approx. 23 g | | | |

With up to four G3TA SSRs mounted before G7T Relays, switching is possible at the rated load current for each Relay.



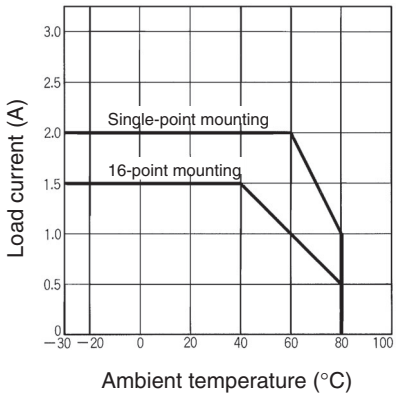

With G3TA SSRs mounted before every other G7T Relays, switching is possible at the rated load current for each Relay.



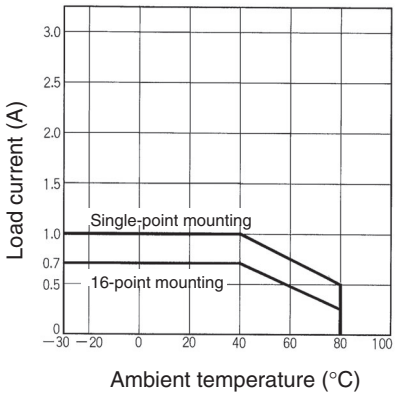
# Engineering Data

## Load Current vs. Ambient Temperature Characteristics

**G3TA-OA202SZ/OA202SL/ODX02S-US**



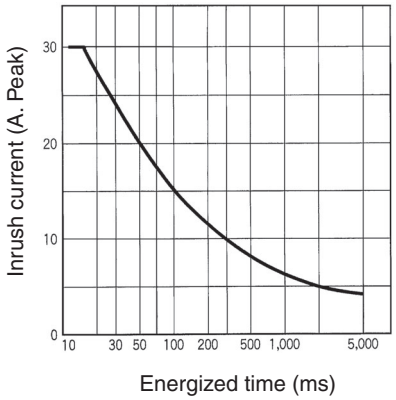

**G3TA-OD201S-US**



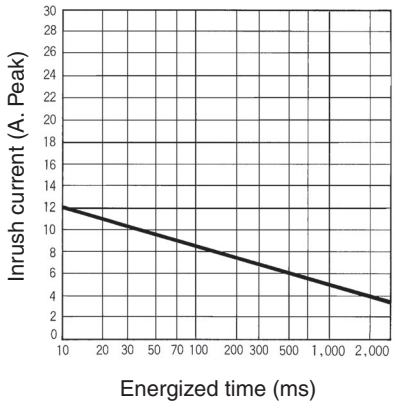

## One Cycle Surge Current: Non-repetitive

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

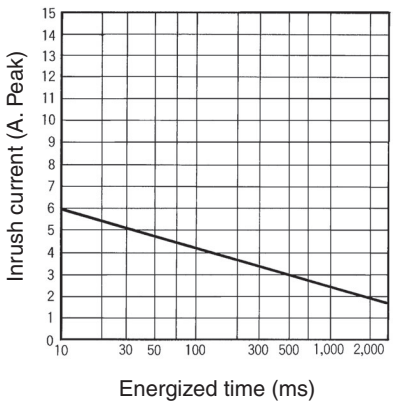
**G3TA-OA202SZ/OA202SL-US**




**G3TA-ODX02S-US**



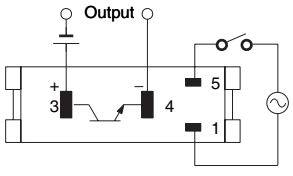

**G3TA-OD201S-US**



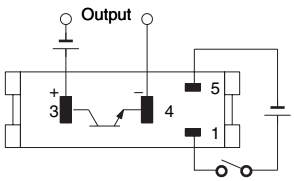

# Connections

## ■ External Connections (Bottom View)

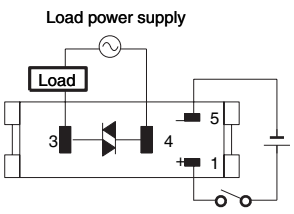
**G3TA-IAZR02S**



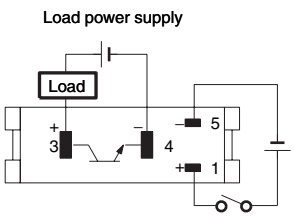

**G3TA-IDZR02S/IDZR02SM**



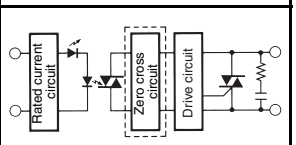
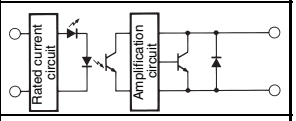
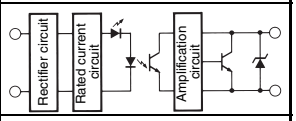
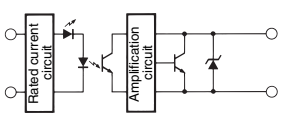

**G3TA-OA**




**G3TA-OD**

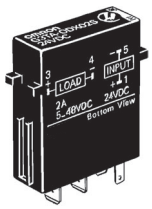


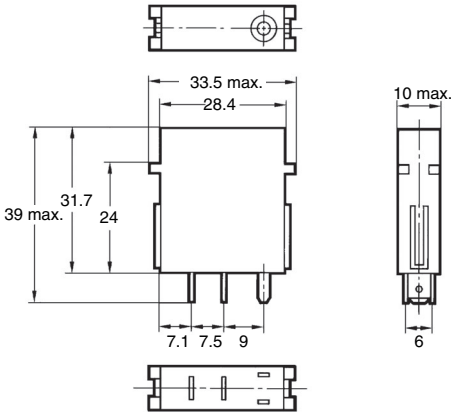

## ■ Circuit Configurations

| | Model | Case color | Operation indicator | Circuit |
|---|---|---|---|---|
| AC output | G3TA-OA202SZ (with zero cross)<br>G3TA-OA202SL (without zero cross) | Black | yes |  |
| DC output | G3TA-ODX02S<br>G3TA-OD201S | Black | yes |  |
| AC input | G3TA-IAZR02S | Red | yes |  |
| DC input | G3TA-IDZR02S | Green | yes |  |
| | G3TA-IDZR02SM | | No | |

# Dimensions

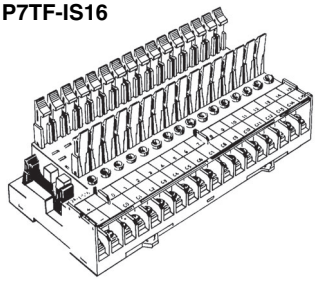
**Note:** All units are in millimeters unless otherwise indicated.

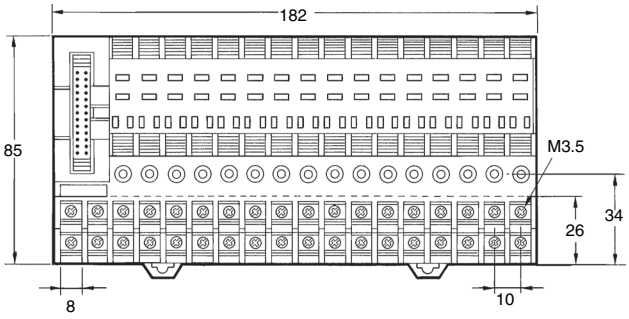


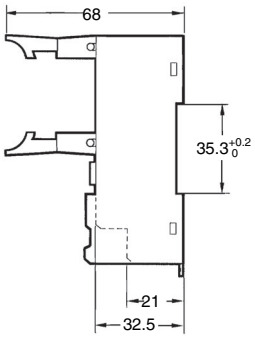




**Connecting Sockets**

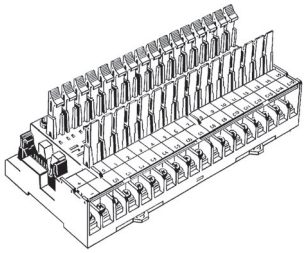
**For Input (NPN, - Common)**
**P7TF-IS16**

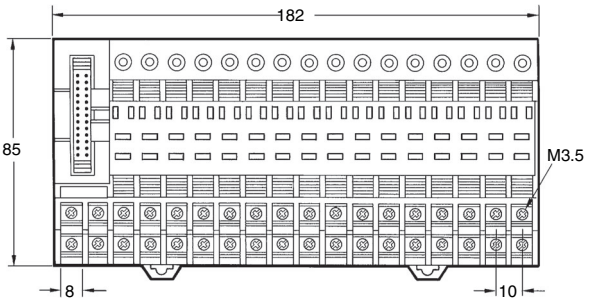


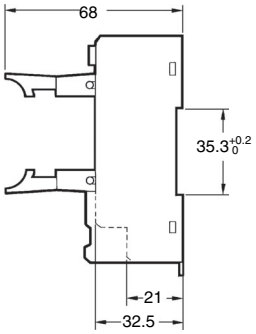


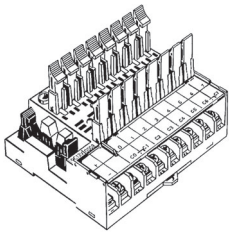
**For Output (NPN, + Common)**
**P7TF-OS16**

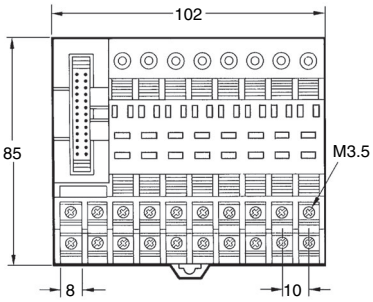


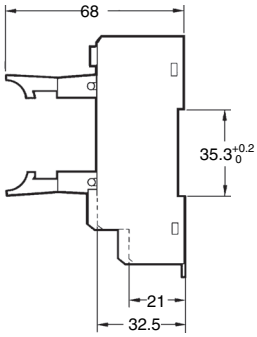


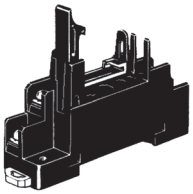

**For Output (PNP, + Common)**
**P7TF-OS08**

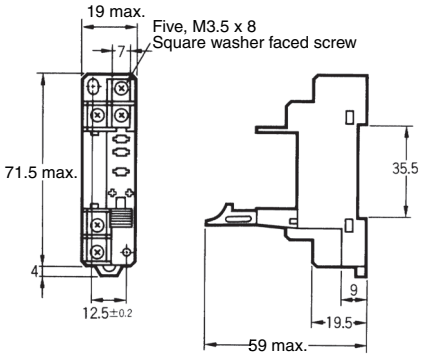





**P7TF-O5**






# Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

## ■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

### Connection

With the SSR for DC switching, the load can be connected to either positive or negative output terminal of the SSR.

### Protective Component

Since the SSR does not incorporate an overvoltage absorption component, be sure to connect an overvoltage absorption component when using the SSR under an inductive load.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

### LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

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## Application Considerations

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The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

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- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

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### PROGRAMMABLE PRODUCTS

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## Disclaimers

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### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### PERFORMANCE DATA

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### ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

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**In the interest of product improvement, specifications are subject to change without notice.**

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