# GT8A Electronic Timers

## A compact, simple solution for space optimization in control boxes

- Universal AC/DC power voltage (12 to 240V AC/DC)
- Slim 17.5mm width (1 contact type and 2 contact type)
- Multiple time functions
- Multiple time ranges including 'permanently on' and 'permanently off'
- Complies with safety standards, UL/c-UL listed
- Complies with EN standards
- Finger-safe IP20 protection

• See website for details on approvals and standards.

## Part Numbers

Quantity: 1

| Contact Configuration | Part No. |
|---|---|
| SPDT | GT8A-1ADF |
| DPDT | GT8A-2ADF |

## General Specifications

| Type | GT8A |
|---|---|
| Operation | Multi mode (see operation charts) |
| Pollution Degree | 2 (IEC 60664-1) |
| Overvoltage Category | III (IEC 60664-1) |
| Rated Voltage | 12 to 240V AC (50/60Hz) / DC |
| Voltage Tolerance | Rated voltage × 90 to 110% |
| Disengaging Value of Input Voltage | Rated voltage × 10% minimum |
| Operating Temperature (*1) | –20 to +50°C (no freezing and condensation) |
| Storage Temperature | –40 to +70°C (no freezing and condensation) |
| Operating Humidity | Up to 85% RH (without condensation) |
| Storage Humidity | Up to 85% RH (without condensation) |
| Altitude | 0 to 2000m (operation) |
| Reset Time | 400ms maximum (AC), 150ms maximum (DC) |
| Repeat Error | ±0.5%, ±2% (1 sec. range only) |
| Voltage Error | ±0.01% / V |
| Temperature Error | ±0.05% / °C |
| Setting Accuracy | ±5%, ±10% (1 sec. range only) |
| Dielectric Strength | Between power and output terminals: 4000V AC<br>Between contact circuits (opposite pole): 2000V AC<br>Between contact circuits: 1000V AC |
| Vibration Resistance | Operating extremes: 10 to 55 Hz, double amplitude 0.35 mm, 10 minutes each in 3 directions |
| Shock Resistance | Operating extremes: 15G, 3 axes, 3 times |
| Degree of Protection | IP20 (IEC 60529) |
| Power Consumption (approx.) | AC: 3.5VA maximum<br>DC: 1.5W maximum |
| Dimensions | 90H × 17.5W × 64.6D mm |
| Weight (approx.) | GT8A-1ADF: 66g, GT8A-2ADF: 73g |

*1: For details, see the allowable current vs temperature derating curve.

## Time Ranges

| Time Range Selector | Time Range |
|---|---|
| 1s | 0.1 to 1 sec. |
| 10s | 1 to 10 sec. |
| 1m | 0.1 to 1 min. |
| 10m | 1 to 10 min. |
| 1h | 0.1 to 1 hour |
| 10h | 1 to 10 hours |
| 1d | 0.1 to 1 day |
| 10d | 1 to 10 days |
| ON | permanent switching on |
| OFF | permanent switching off |

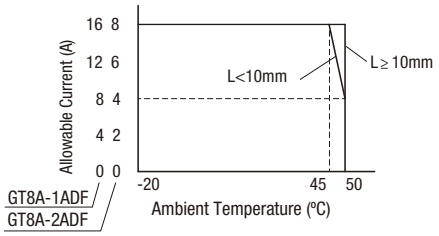
## Contact Ratings

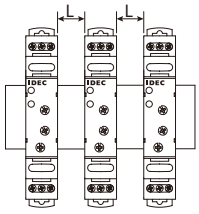
| Part No. | | GT8A-1ADF | GT8A-2ADF |
|---|---|---|---|
| Contact Configuration | | SPDT | DPDT |
| Contact Material | | Ag alloy | |
| Minimum Applicable Load (reference value) | | 1W 10mA | |
| Contact Resistance (Initial value) | | 100mΩ maximum | |
| Allowable Voltage | | 300V AC | |
| Allowable Current (*2) | | 16A | 8A |
| Maximum Permissible Operating Frequency | | 600 cycles per hour | |
| Rated Load | | 250V AC / 24V DC, 16A (Resistive Load)<br>250V DC, 0.3A (Resistive Load) | 250V AC / 24V DC, 8A (Resistive Load)<br>250V DC, 0.3A (Resistive Load) |
| Maximum Breaking Capacity | | 4000VA | 2000VA |
| Life | Electrical (Resistive Load) | 50,000 operations minimum (230V AC, 16A, NO) | 50,000 operations minimum (230V AC, 8A, NO) |
| | Mechanical | 30 million operations minimum | |

*2: For details, see the allowable current vs temperature derating curve.

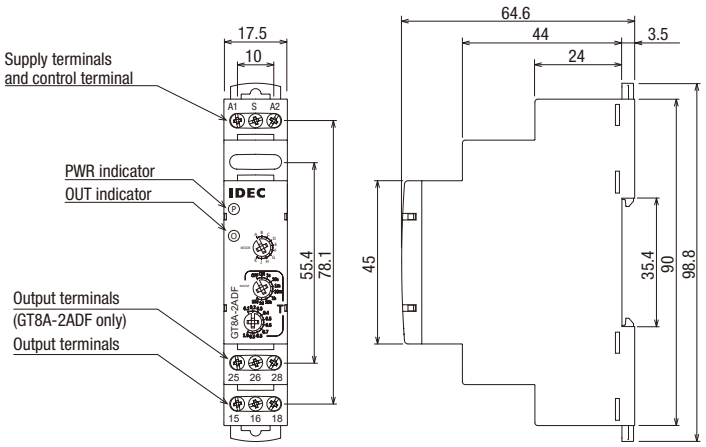
## Allowable Current vs Temperature Derating Curve

When installing more than one GT8A timer as shown below, limit the current and ambient temperature as shown in the derating curve.



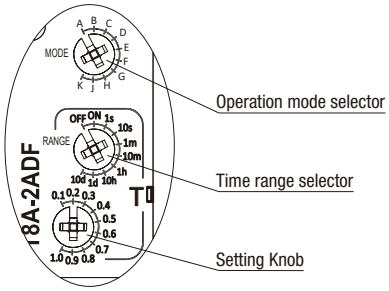



## Dimensions



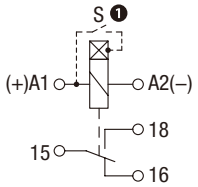

All dimensions in mm.

### Enlarged View of the Time Range Selector

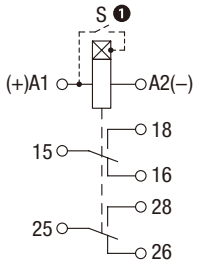



## Internal Connections

### GT8A-1ADF




### GT8A-2ADF




Note: The indicated polarization of the supply refers only to the GT8A relays. The control terminal S is activated by connection to the A1 terminal via the external control contact S❶.

## Operation Charts

### Operation Mode [ A ]: On-delay

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T |
| Power | A1 - A2 | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

On applying the supply voltage the set interval T begins - on-delay of the output relay. After the interval T has lapsed, the output relay switches on and remains on until supply voltage is interrupted.

### Operation Mode [ B ]: Interval on

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T <T T |
| Power | A1 - A2 | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

Applying the supply voltage immediately switches the output relay on for the set interval T. After the interval T has lapsed, the output relay switches off.

### Operation Mode [ C ]: Flicker (OFF start)

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T T T T T |
| Power | A1 - A2 | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

Applying the supply voltage starts the cyclical operation from the interval T - switching the output relay off followed by switching on the output relay for the interval T.
The cyclical operation lasts until the supply voltage is interrupted.

### Operation Mode [ D ]: Flicker ON (ON start)

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T T T T T |
| Power | A1 - A2 | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

Applying the supply voltage starts the cyclical operation from switching on the output relay for the set interval T. After the interval T has lapsed, the output relay switches off for the interval T. The cyclical operation lasts until the supply voltage is interrupted.

### Operation Mode [ E ]: OFF delay with the control contact S

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T <T T |
| Power | A1 - A2 | | |
| Control Signal | S | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

The input of the time relay is supplied with voltage continuously. Closing of the control contact S immediately switches on the output relay. Opening of the control contact S starts the set time of the delayed switching off of the output relay. After the interval T has lapsed, the output relay switches off. If the control contact S is closed during the interval T, the already measured time is reset, and the output relay is switched on again. The OFF delay of the output relay will start when the control contact S is opened again.

## Operation Charts

Operation Mode [ F ]: Single shot for the set interval triggered by closing of the control contact S

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T T |
| Power | A1 - A2 | | |
| Control Contact | S | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

The input of the time relay is supplied with voltage continuously. Closing of the control contact S immediately switches the output relay on for the set interval T. After the interval T has lapsed, the output relay is switched off. In the course of the interval T, any opening of the control contact S does not affect the function to be performed. The output relay may be switched on again for the set interval, after the interval T has lapsed, by closing the control contact S again.

Operation Mode [ G ]: ON for the set interval triggered with the control contact S

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T T |
| Power | A1 - A2 | | |
| Control Contact | S | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

The input of the time relay is supplied with voltage continuously. Closing of the control contact S does not start the interval T, and it does not change the position of the output relay. Opening of the control contact S immediately switches on the output relay for the set time. After the interval T has lapsed, the output relay switches off. Opening and closing of the control contact S in the course of the interval T does not affect the function to be performed. The output relay may be switched on again for the set interval with another closing and opening of the control contact S.

Operation Mode [ H ]: ON and OFF delay with the control contact S

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T T T T |
| Power | A1 - A2 | | |
| Control Contact | S | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

The input of the time relay is supplied with voltage continuously. Closing of the control contact S starts the interval T - on-delay of the output relay. After the interval T has lapsed, the output relay switches on. Opening of the control contact S begins further measurement of the interval T - off-delay of the output relay, and after the interval has lapsed, the output relay switches off. In case the time for which the control contact S is closed in the course of measurement of the on-delay of the output relay is shorter than the set interval T, the output relay will switch on after the set interval T, and the output relay will remain in on position for the interval T. When the output relay is in on position, closing of the control contact S does not affect the function to be performed.

Operation Mode [ J ]: Cyclical operation controlled with closing of the control contact S

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | |
| Power | A1 - A2 | | |
| Control Contact | S | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

The input of the time relay is supplied with voltage continuously. Closing of the control contact S immediately switches on the output relay. Each next closing of the control contact S results in a change of the status of the output relay to an opposite one.

Operation Mode [ K ]: Generation of the 0.5 s pulse after the interval T

| Item | Terminal No. | | Operation |
|---|---|---|---|
| Part No. | GT8A-1ADF | GT8A-2ADF | T 0.5s |
| Power | A1 - A2 | | |
| Output | 15-16 (NC) | 15-16, 25-26 (NC) | |
| | 15-18 (NO) | 15-18, 25-28 (NO) | |
| Indicator | PWR | | |
| | OUT | | |

Applying the supply voltage starts the interval T. After the interval T has lapsed, the output relay switches on for 0.5s (the time of NO contact of the output relay).

Operation Mode Indication [ ON / OFF ] : Permanent switching on / off.

The functions ON and OFF are selected using the time range selector. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the function-adjusting knob is of no significance in these functions, nor is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

## ⚠ Safety Precautions

- Be sure to turn off power before mounting, removal, wiring, maintenance and inspection. Otherwise, electric shock or fire could occur.
- Be sure to use timers within rated specification values. Otherwise, electric shock or fire may occur.
- Be sure to use wires to meet voltage and current requirements and tighten terminal screws. Loose terminal screws may cause abnormal heat and fire.
- Max. cross section of the cables: 1 × 2.5 mm$^2$ (1 × 14 AWG), stripping length: 6.5 mm
- Max. tightening moment for the terminal: 0.5 N·m.

## Instructions

### Time Range Setting

1. The time range is calibrated at its maximum time scale, therefore it is desirable to use the timer at a setting as close to its maximum time scale as possible for accurate time delay.
   For a more accurate time delay, adjust the setting knob by measuring the operating time with an instrument before application.
2. A desired time range and operation mode can be selected using the time range and operation mode selectors on the front surface. Turn the selectors using a Philips or flat head screwdriver until they click. Note that incomplete setting may cause malfunction. The selectors, which do not turn infinitely, should not be turned beyond the limits.
3. The values of time and range are read during timer operation. The set may be modified at any moment, no change of the function mode is possible during timer operation. Any change of the function mode shall be read only after the supply voltage has been switched off and on again.

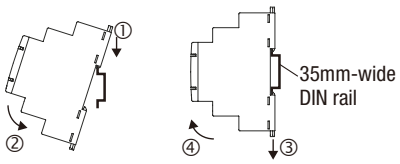
### Mounting

**Mounting on the 35mm-wide DIN rail**

Put the groove (①) on the DIN rail, and press the module to the DIN rail (②). Make sure that the module is fixed to the DIN rail securely.

**Removing from DIN Rail**

Insert a flat screw driver into the slot in the hook. Pull the hook in the direction of the arrow (③), and then remove the relay from the rail (④).




* The product has hooks on the top and bottom. This diagram shows how to mount and remove the product using the bottom hook.

# Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

## 1. Notes on contents of catalogs

(1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions. Also, durability varies depending on the usage environment and usage conditions.

(2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.

(3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.

(4) The content of Catalogs is subject to change without notice.

## 2. Note on applications

(1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.

(2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.

(3) When using IDEC products, be cautious when implementing the following.

i. Use of IDEC products with sufficient allowance for rating and performance

ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails

iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications

(4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.

(5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.

i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health

ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems

iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

## 3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

## 4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

i. The product was handled or used deviating from the conditions / environment listed in the Catalogs

ii. The failure was caused by reasons other than an IDEC product

iii. Modification or repair was performed by a party other than IDEC

iv. The failure was caused by a software program of a party other than IDEC

v. The product was used outside of its original purpose

vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs

vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC

viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)

Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

## 5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

## 6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

(1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.


IDEC CORPORATION

**Head Office** 6-64, Nishi-Miyahara-2-Chome, Yodogawa-ku, Osaka 532-0004, Japan

www.idec.com

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **USA** | IDEC Corporation | **Singapore** | IDEC Izumi Asia Pte. Ltd. | **China** | IDEC (Shanghai) Corporation | **Japan** | IDEC Corporation |
| **EMEA** | APEM SAS | **Thailand** | IDEC Asia (Thailand) Co., Ltd. | | IDEC Hong Kong Co. Ltd. | | |
| | | **India** | IDEC Controls India Private Ltd. | **Taiwan** | IDEC Taiwan Corporation | | |




EP1844-0