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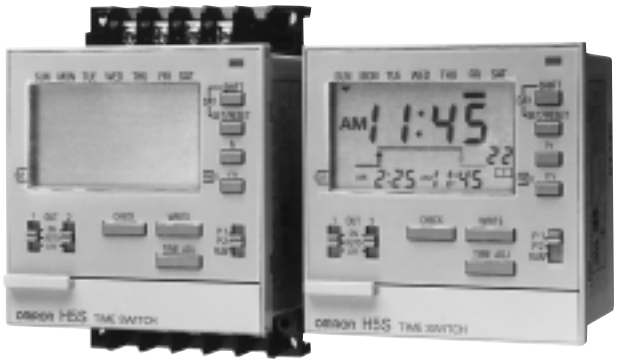
OMRON

# Weekly Timer

# H5S

## Timer Provides Prompted Programming, Flexibility in Programs Within the Week

- AM/PM display
- 24 program steps
- A different program possible each day
- Over midnight settings possible
- Two independent 15 A control circuits with manual override
- Automatic or manual operation following power failure
- Field-adjustable ON/OFF, cycle and pulse output
- Easy-to-use prompted programming
- Wide supply voltage range
- Battery backup for memory protection
- Protective cover and other accessories may be ordered separately



## Ordering Information

### ■ TIMERS

| | | |
|---|---|---|
| Timing function | ON/OFF and cycle operations up to one week | |
| Contact type | Two SPST-NO time limit contacts with manual override switches | |
| Terminal form | Screw terminals | |
| Mounting | Panel mounting | Surface or track mounting |
| **Part number** | **H5S-B** | **H5S-FB** |
| Supply voltage | 100 to 240 VAC, 50/60 Hz | |

### ■ TIME RANGES

| | |
|---|---|
| Time setting range | 00:00 a.m. to 11:59 p.m. |
| Program capacity | 24 steps: ON = 1 step, OFF = 1 step, CYCLE = 4 steps, PULSE = 1 step |
| Cycle length | From 1 minute up to a full week |
| Display time division | 1 minute |
| Operation | Weekly operation (multiple-day operation possible)<br>Cycle operation<br>Pulse-out operation (pulse width can be set in units of 1 second from 1 to 59 seconds and in units of 1 minute from 1 to 60 minutes)<br>Day override operation (operation for one day can be also executed on any other day)<br>Forced ON/OFF operation<br>Manual or automatic operation selectable on recovery from power failure |

### ■ ACCESSORIES

| Description | | Part number |
|---|---|---|
| Hard plastic cover | | **Y92A-72C** |
| Track mounting adapter for H5S-FB | | **Y92F-90** |
| Mounting track | 50 cm (1.64 ft) length | **PFP-50N** |
| | 1 m (3.28 ft) length | **PFP-100N** |
| | End plate | **PFP-M** |

# Specifications

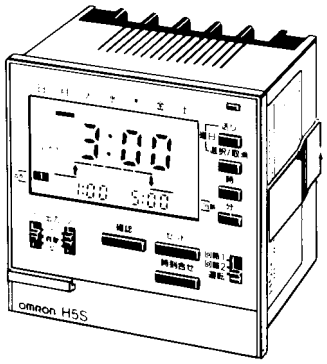
| Part number | | | H5S-B | H5S-FB |
|---|---|---|---|---|
| Supply voltage | | AC | 100 to 240 V, 50/60 Hz | |
| | | DC | – | |
| Operating voltage | | | 85 to 110% of rated voltage (85 to 264 VAC), 50/60 Hz | |
| Power consumption | | AC | 10 VA | |
| | | DC | – | |
| Timing functions | | | ON and OFF programming | |
| Reset (boot) input | | | No-voltage, 0.2 sec minimum | |
| Control output | Type | Time limit | SPST-NO x 2 circuits | |
| | | Pulse | 1 sec to 59 seconds or 1 min to 60 min | |
| | Max. load | | 15 A, 250 VAC resistive load | |
| | Min. load | | 100 mA, 5 VDC | |
| Repeat accuracy | | | ±0.01%, ±0.05 second max. | |
| Long-term error | | | ±15 seconds per month at 25°C (77°F); ±4 seconds/week, ±1 minute/4 months | |
| Setting error | | | Included in "Repeat Accuracy" | |
| Indicators | | | 10 mm LCD; day, hours (a.m., p.m.), minutes (0:00 to 11:59 a.m., 0:00 to 11:59 p.m.)<br>Digital display of program steps during operation<br>Timing chart display of program steps during operation | |
| Materials | | | Plastic | |
| Mounting | | | Panel | Surface and track with adapter |
| Connections | | | Terminal screws | |
| Weight | | | 200 g (7 oz.) | |
| Approvals | | | UL/CSA/SEV | |
| Operating ambient temperature | | | -10° to 55°C (14° to 131°F) | |
| Humidity | | | 35 to 85% RH | |
| Vibration | Mechanical durability | | 10 to 55 Hz, 0.75 mm (0.03 in) double amplitude | |
| | Malfunction durability | | 10 to 55 Hz, 0.5 mm (0.02 in) double amplitude | |
| Shock | Mechanical durability | | 30 G | |
| | Malfunction durability | | 10 G | |
| Variation due to voltage change | | | Included in "Repeat accuracy" | |
| Variation due to temperature change | | | Included in "Repeat accuracy" | |
| Insulation resistance | | | 100 MΩ minimum between current-carrying terminals and non-current-carrying metal parts; operation circuit and contact control output circuit; non-continuous contacts | |
| Dielectric strength | | | 2,000 VAC, 50/60 Hz for 1 minute between current-carrying terminals and non-current-carrying metal parts, and operation circuit and contact control output circuit.<br>1,000 VAC, 50/60 Hz for 1 minute between non-continuous contacts | |
| Service life | Electrical | | 50,000 operations minimum, 15 A, 250 VAC, resistive load<br>50,000 operations minimum, 1 HP, 250 VAC, motor load<br>50,000 operations minimum, 10 A, 250 VAC, inductive load (p.f.=0.7)<br>50,000 operations minimum, 100 W, 100 VAC, lamp load<br>10,000 operations minimum, 300 W, 100 VAC, lamp load | |

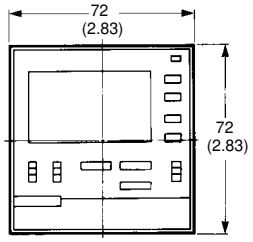
# Dimensions

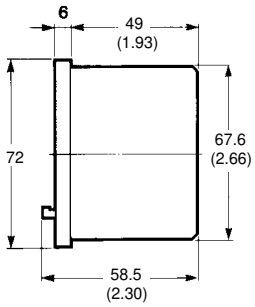
Unit: mm (inch)

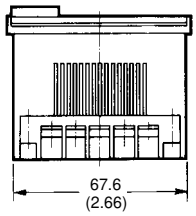
## ■ TIMERS

### H5S-B Panel-Mounting Type

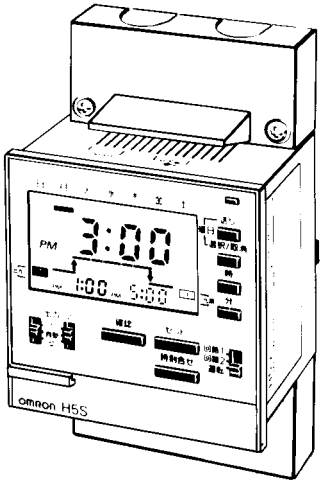


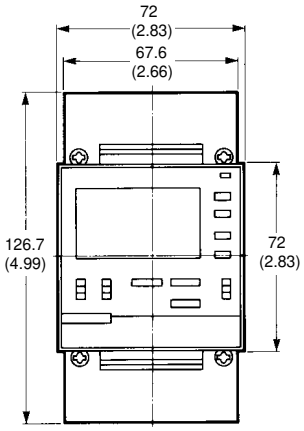


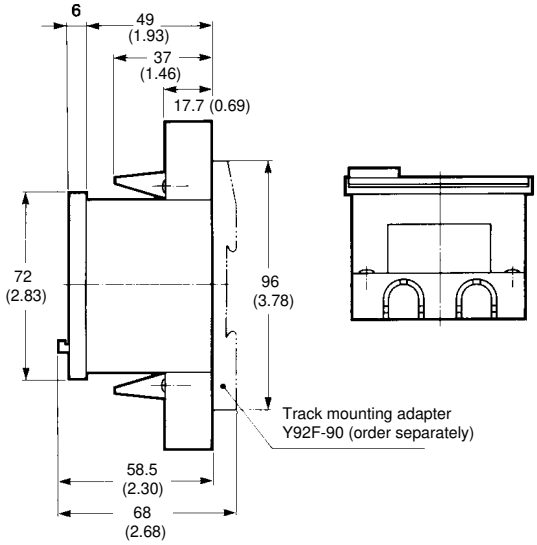




### H5S-FB Surface-Mounting Type

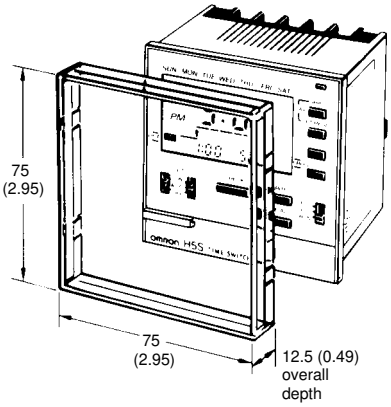





## ■ PROTECTIVE COVER

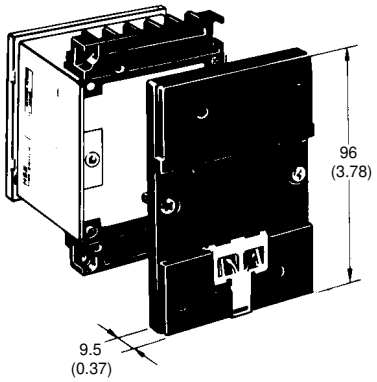
**Y92A-72C**




The hard plastic protective cover prevents accidental resetting. It also shields the front panel from dirt and water. The cover is intended for use in areas where unusual service conditions do not exist.

## ■ TRACK MOUNTING ADAPTER

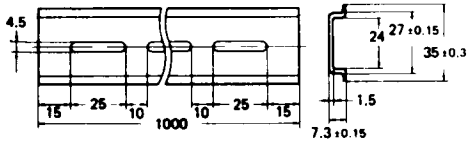
**Y92F-90**



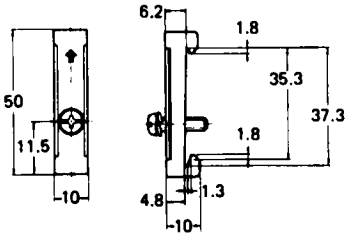

The H5S-FB timer can be mounted on DIN rail track using the Y92F-90 adapter. Two screws supplied with the timer fasten the adapter to the timer.

## ■ MOUNTING TRACK AND ACCESSORIES

**PFP-100N/PFP-50N DIN Rail**



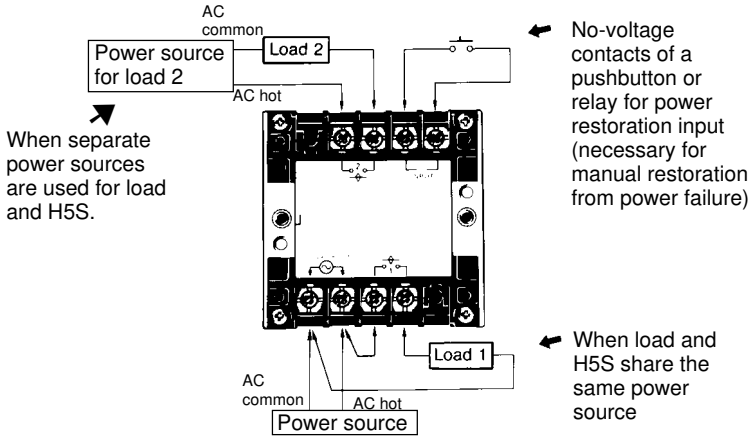

**PFP-M End Plate**




# Connections

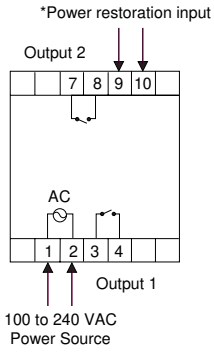
## ■ H5S-B PANEL MOUNTING TYPE

**(Rear view)**



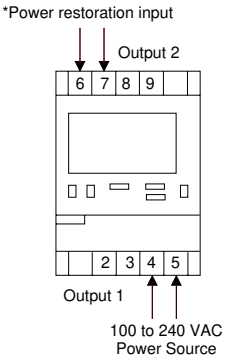

## ■ H5S-B PANEL MOUNTING TYPE

**(Rear view)**



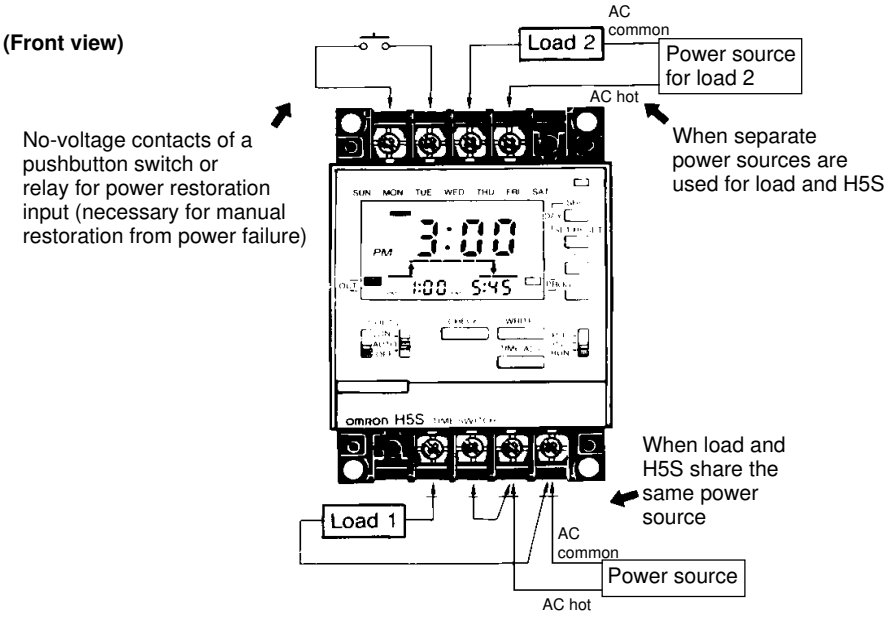

## ■ H5S-FB SURFACE MOUNTING TYPE

**(Front view)**



## ■ H5S-FB SURFACE MOUNTING TYPE

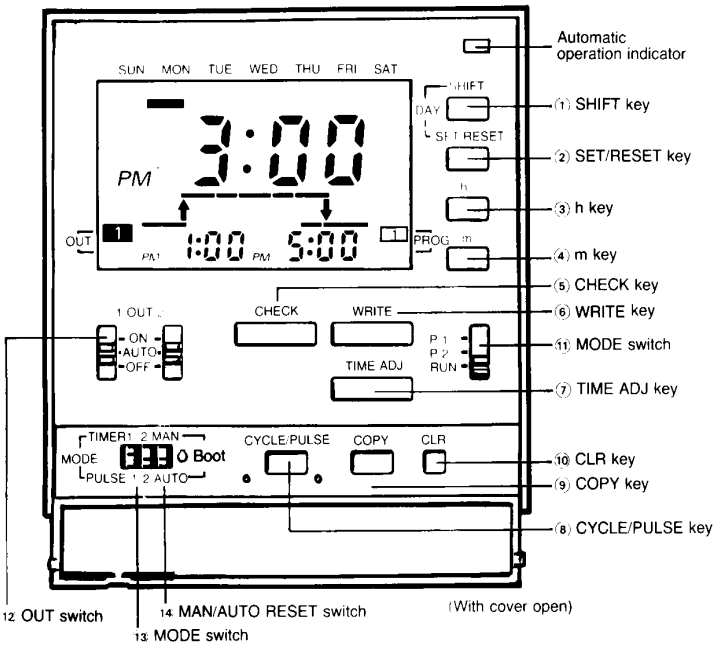
**(Front view)**



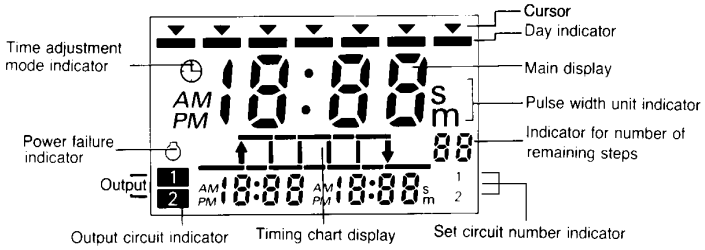

# Operation

## ■ NOMENCLATURE

### Front Panel with Cover Open



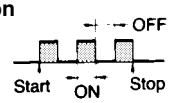
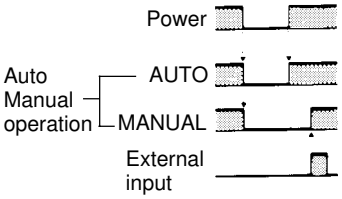

### Display




### Key Operations

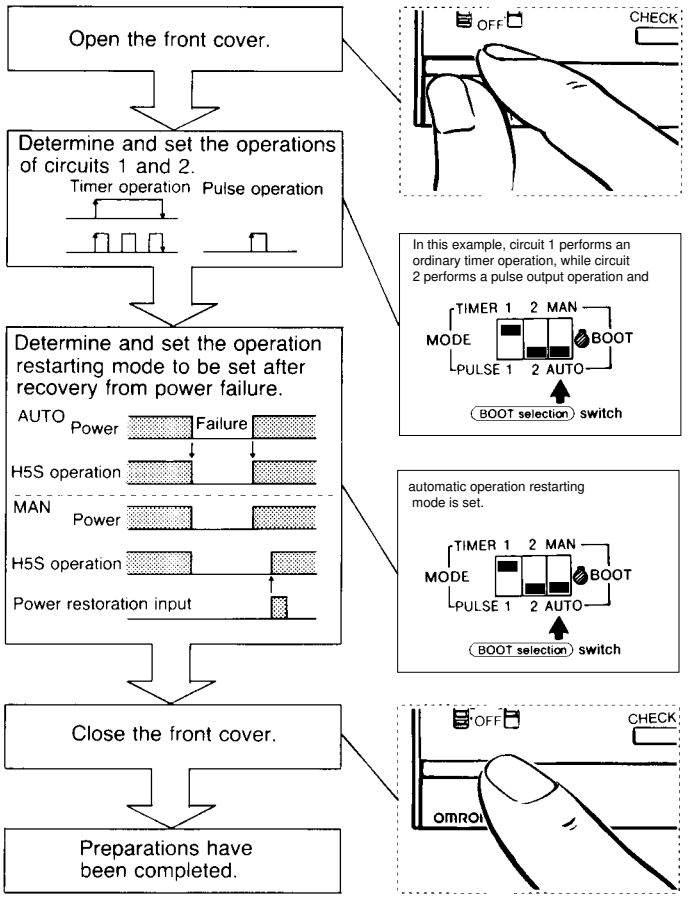
| No. | Function |
|---|---|
| ① | Shifts the cursor (▼) specifying a day to the right. |
| ② | Sets or cancels a specified day. |
| ③ ④ | Sets a time or ON/OFF time width. |
| ⑤ | Monitors the parameters set for an operation during an operation. |
| ⑥ | Sets parameters. |
| ⑦ | Sets a time adjustment mode. |
| ⑧ | Specifies a cyclic operation, or sets a pulse width. |
| ⑨ | Specifies a day substitution operation. |
| ⑩ | Cancels the parameters set for each circuit, or a day substitution operation. |
| ⑪ | P1: Circuit 1 programming mode<br>P2: Circuit 2 programming mode<br>RUN: RUN mode |
| ⑫ | ON: Turns on the output regardless of the program.<br>AUTO: Executes according to the program.<br>OFF: Turns off the output regardless of the program. |
| ⑬ | TIMER: Executes an ordinary timer or cyclic operation.<br>PULSE: Executes a pulse-output operation. |
| ⑭ | Specifies automatic or manual operation following a power failure. |

## ■ OPERATING FUNCTIONS

| | |
|---|---|
| **Timer Operation**<br>  | Controls the output according to the set time of ON and OFF (the time can be set in units of 1 minute) |
| **Pulse-0utput operation**<br>  | Produces the output for a fixed duration at the set ON (pulse width: 1 to 59 seconds, or 1 minute to 59 minutes). The pulse width can be set in units of 1 second or 1 minute. |
| **Cycle operation**<br>  | Repeatedly performs an ON/OFF operation during a specific period, which can be set in units of 1 minute |
| **Forced ON/OFF operation** | Forcibly turns ON/OFF the output by a slide switch |
| **Operation on power restoration**<br>  | AUTO: Operation is automatically started on power recovery<br>MANUAL: Operation is started by applying an external no-voltage signal of 0.2 sec minimum after power recovery.<br><br>Note that the signal must be a low to high transition (open to closed switching). |
| **Day override operation** | Executes a day's operation on another day. The specified new operation is performed only for one week. This could be used for holidays. |

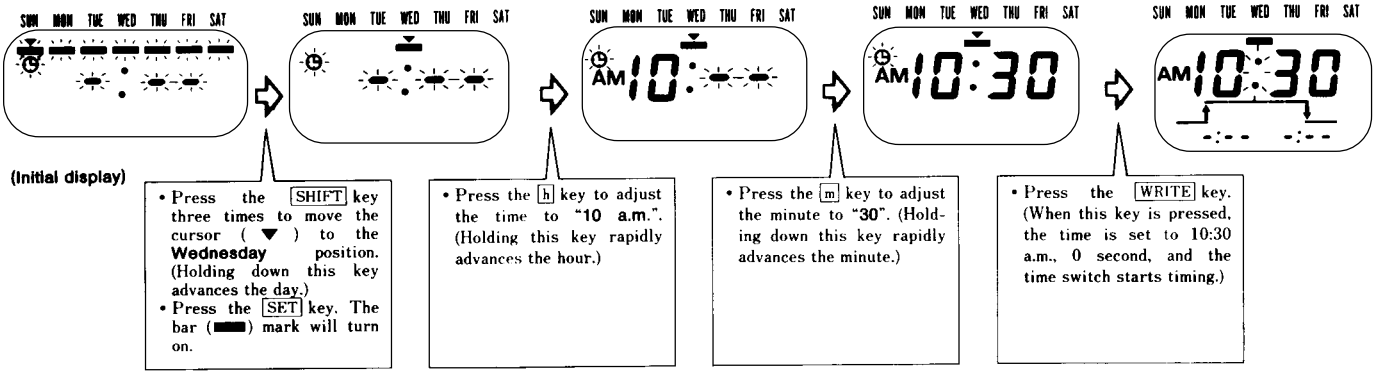
## ■ PROGRAMMING

Before setting the parameters necessary for each operation, the operation of circuits (outputs 1 and 2) must be determined. Also, specify whether the operation is restarted automatically or manually after power failure recovery.

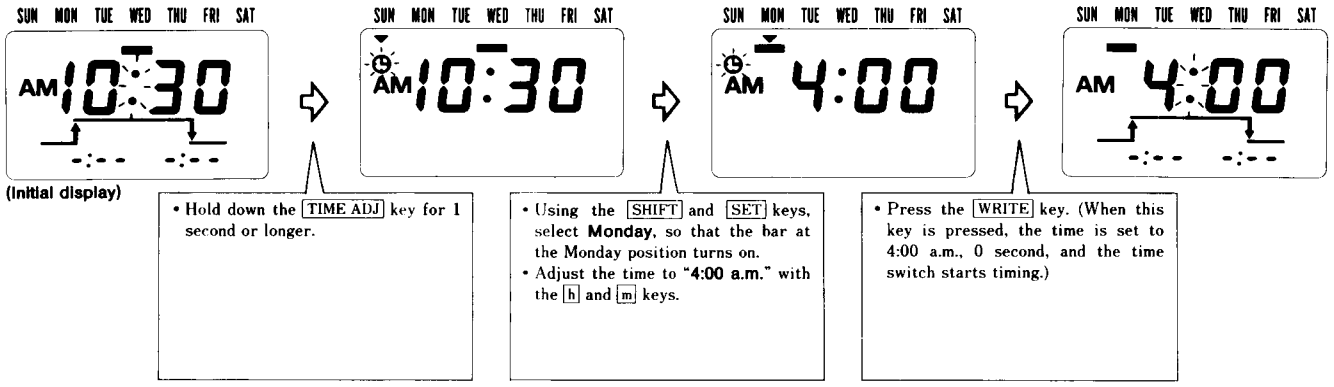


## Time Adjustment

The following figures show how to set the time to 10:30 a.m., Wednesday. Mode selector switch should be in RUN position.

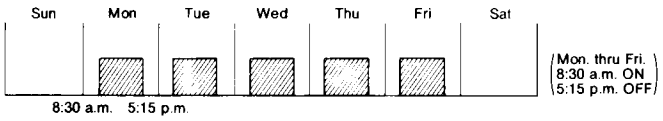


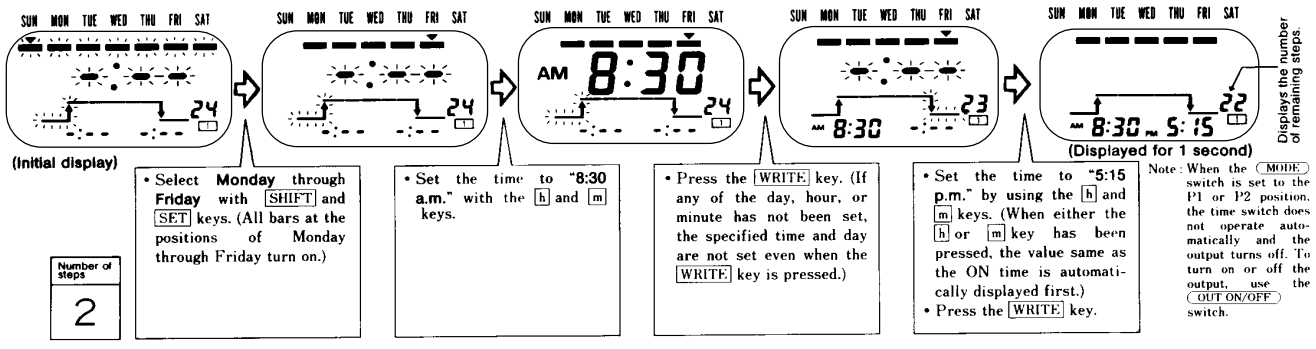

The time and day can also be adjusted or changed while the timer is operating. In the following example, the current set time, 10:30 a.m., Wednesday, is changed to 4:00 a.m., Monday.




## Ordinary Timer Operation

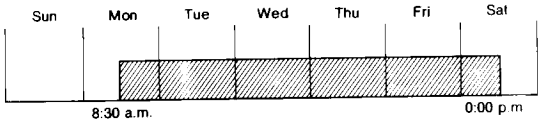
In this example, circuit 1 is set to operate at 8:30 a.m. and stop at 5:15 p.m., from Monday through Friday. Set mode switch to P1.

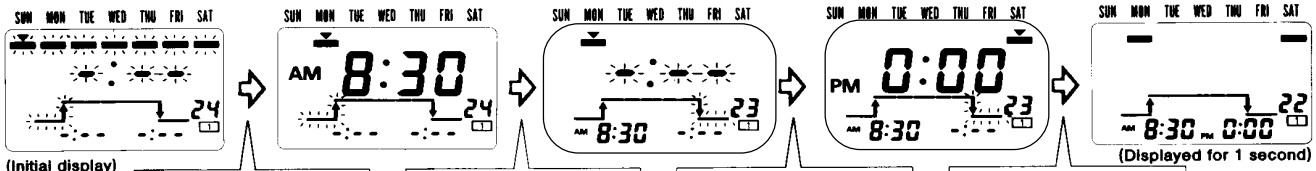


## Multiple-Day Operation

The timer turns ON circuit 1 at 8:30 a.m. on Monday, and turns it OFF at 0:00 p.m. on Saturday. Set mode selector to P1.




Number of steps: 2

- Select **Monday** with the SHIFT and SET keys.
- Set the time to "**8:30 a.m.**" with the h and m keys.

- Press the WRITE key.

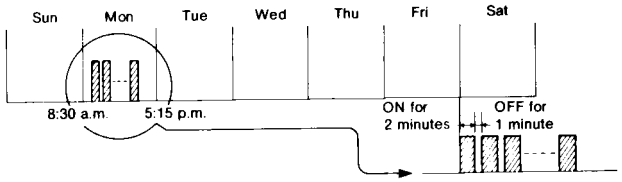
- Cancel **Monday** with the RESET key.
- Select **Saturday** with the SHIFT and SET keys.
- Set the time to "**0:00 p.m.**" with the h and m keys.

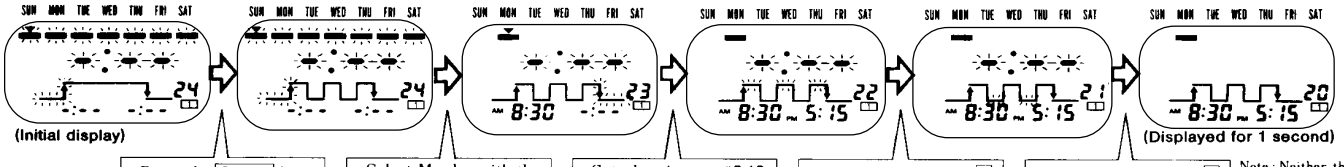
- Press the WRITE key.

---

## Cycle Operation

Circuit 1 is set to turn ON for 2 minutes and OFF for 1 minute repeatedly, from 8:30 a.m. to 5:15 p.m. on Monday. Set mode selector to P1.




Number of steps: 4

- Press the CYCLE key.

- Select Monday with the SHIFT and SET keys.
- Set the time to "**8:30 a.m.**" with the h and m keys.
- Press the WRITE key.

- Set the time to "**5:15 p.m.**" with the h and m keys.
- Press the WRITE key.

- Set "**0:02**" with the h and m keys.
- Press the WRITE key.

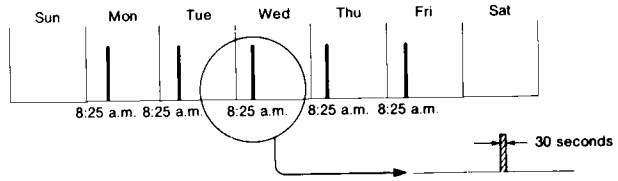
- Set "**0:01**" with the h and m keys.
- Press the WRITE key.

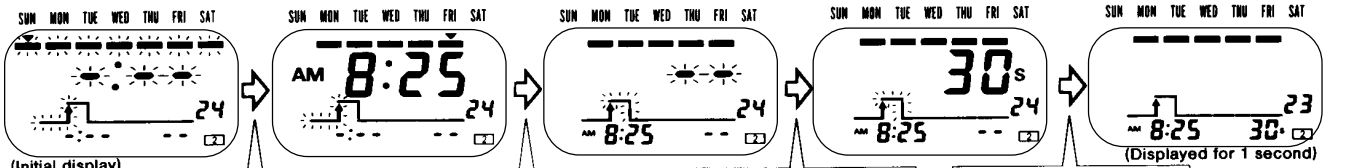
Note: Neither the ON nor the OFF time can be set to "0:00".

---

## Pulse Output Operation

Circuit 2 is turned ON for 30 seconds at 8:25 a.m., Monday through Friday. Set mode selector to P2.




Number of steps: 1

- Select **Monday** through **Friday** with the SHIFT and SET keys.
- Set the time to "**8:25 a.m.**" with the h and m keys.

- Press the WRITE key.

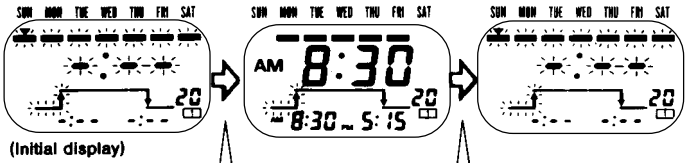
- Press the PULSE key to set "**30s**". (Holding down this key rapidly advances the second.)

- Press the WRITE key.

Note: If the pulse width (i.e., the second) was set previously, that pulse width is displayed.

## Checking the Set Time

The set times can be checked and, if necessary, changed in the sequence they were set. In this example, the times set for circuit 1 are checked. Set mode selector switch to P1.



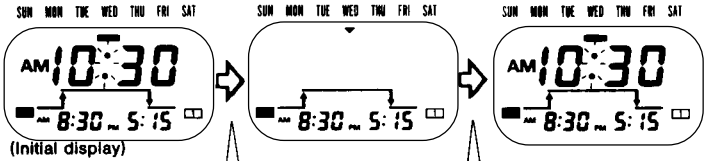

(Initial display)

- Press the WRITE key. If it is necessary to change the setting, do so with the necessary keys and press the WRITE key. (Each time the WRITE key is pressed, the subsequent set times are displayed in the sequence they were set.)

- Press the WRITE key. After all the set times have been displayed, the first set time is displayed again.

Note: When the MODE switch is set to the P1 (or P2) position, the output is turned off. To turn on the output, use the OUT ON/OFF switch.

The set times can be checked in the sequence the timer is to operate. In the following example, the times set for today are checked. Set mode selector switch to RUN.



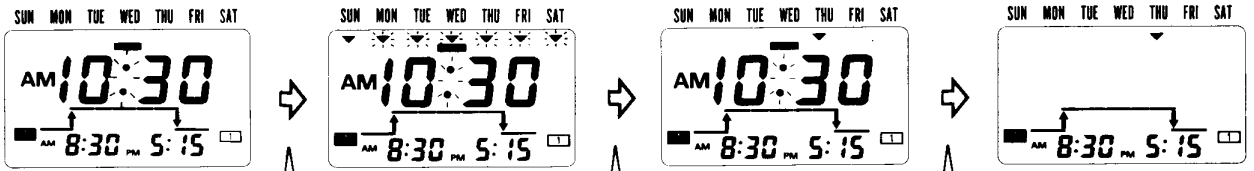

(Initial display)

- Press the CHECK key.
  - Each time this key is pressed, the operation schedule is displayed in the time sequence.
  - First, the ON times and OFF times set for circuit 1 are displayed starting from the earliest ON time. Then the times set for circuit 2 are displayed.

- Press the CHECK key. After all the set times have been displayed, the first set time is displayed again.

Note:
If the time switch is left untouched for 20 seconds during checking, the display automatically returns to the RUN mode. If the timer is set to perform cyclic operation, press the CHECK key twice to check one operation.

It is also possible to check the timing operations in the sequence they are to be executed. The operations to be performed Thursday are checked. Mode selector switch is in RUN.




(Initial display)

- Press the SHIFT key.

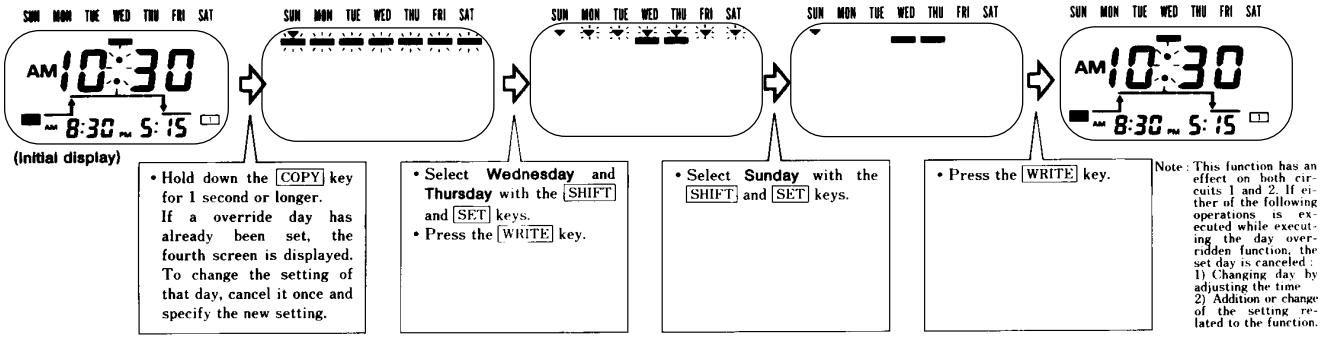
- Press the SHIFT key to stop the blinking of the cursor (▼) at the **Thursday** position.
- Press the SET key.

- Press the CHECK key.
(Each time this key is pressed, the operation schedule is displayed in the sequence the operations are to be executed. The ON times and OFF times set for circuit 1 are first displayed, starting from the earliest ON time. Then the times set for circuit 2 are displayed. After all the set times of both the circuits have been displayed, the time switch enters the RUN state display.)

Note: If the time switch is left untouched for 20 seconds during checking, the display automatically returns to the RUN mode. If the timer is set to perform cyclic operation, press the CHECK key twice to check one operation.

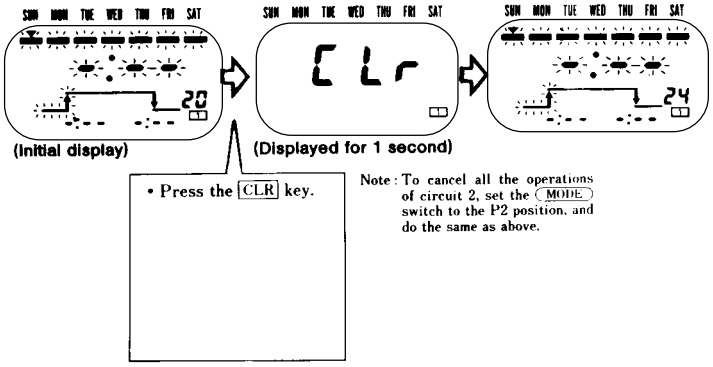
## Day Override

Wednesday and Thursday are holidays in the next week, the operations set for Sunday will be executed on these days. (The time switch executes the new program for only one week from the day next to when the program is set. After the one week, the timer operates according to the previous program.)

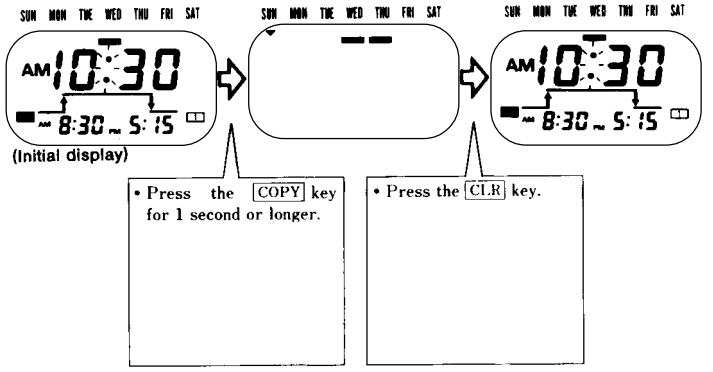



## Canceling the Setting

All the operations of circuit 1 or 2 can be cancelled. In the following example, all the operations of circuit 1 are cancelled. Set mode selector switch to P1.



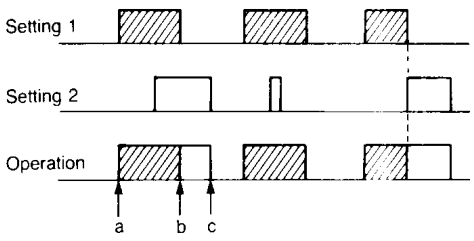

In the next example an overriden operation is cancelled. Set mode selector to RUN.




## ■ PRECAUTIONS

### Ordinary Timer Operation

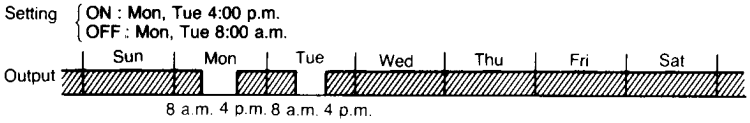
The earlier ON time takes precedence.




If both settings 1 and 2 are for an ON/OFF or pulse operation, the output is continuously produced without being interrupted. For example, if setting 1 is for cyclic operation, and 2 is set for an ON/OFF operation, the cyclic operation is performed during period of a to b, and the ON/OFF operation is performed from b to c.

### Multiple-Day Operation

If more than one day is specified and when the output is turned on, it is turned off on the day when the first OFF time is set.



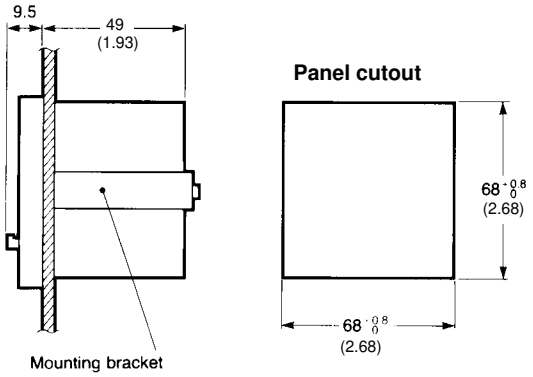

If an ON and an OFF have been set at the same time of the same day (such setting is possible), no operation is performed.

If the MODE switch is set to the P1 (or P2) position, no output is produced. Therefore, after setting has been done, set the MODE switch to the RUN position and confirm that the automatic operation indicator lights.

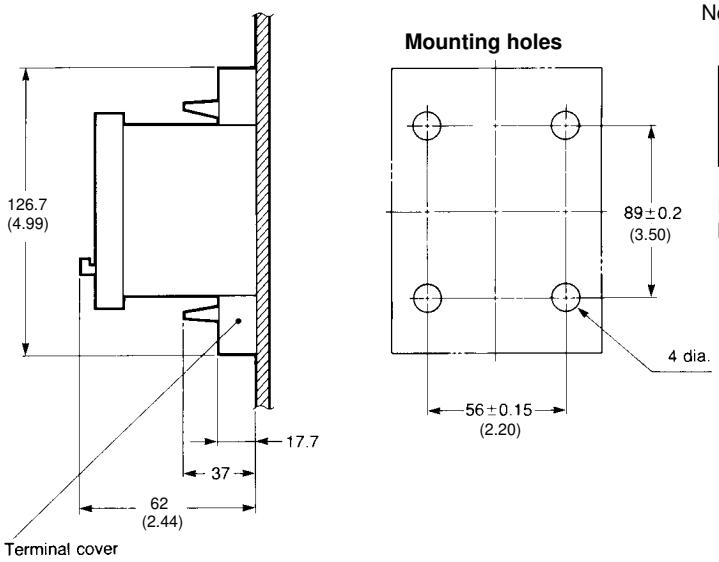
The set data may be erased if the OUT switch is moved between the TIMER and PULSE positions after the data has been set.

# Mounting

## ■ PANEL MOUNTING H5S-B




## ■ SURFACE MOUNTING H5S-FB



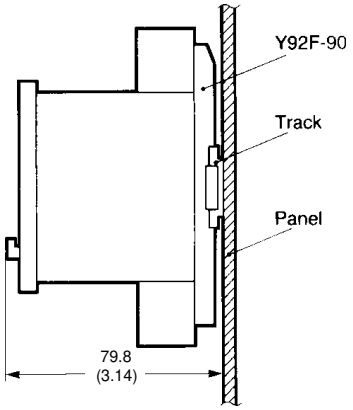

Note: Mounting hole diameter varies with the panel thickness and material. The table below is for soft iron panel.

| Panel thickness | 0.8 to 1.2 mm (0.03 to 0.05 in) | 1.6 to 4.0 mm (0.06 to 0.16 in) |
|---|---|---|
| Hole diameter | 3.6 mm (0.12 in) | (3.7 mm (0.146 in) |

For diecast aluminum panels, the hole diameter should be larger, 4 mm (0.157 in) diameter as shown.

## ■ TRACK MOUNTING H5S-FB

**Use Y92F-90 Track Mounting Base**




**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS. To convert millimeters into inches divide by 25.4.**

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