

Digital Time Switch H5S

Easier, More Convenient Time Switches, with New 4-circuit Output and Yearly Models in Addition to 2-circuit Weekly Models



- Independent Day Keys provide easier operation.
- Temporary holiday setting function makes it easy to turn OFF output for holidays and non-operating days.
- Settings can be made even with the Time Switch turned OFF.
- Test mode enables easy program checking.
- Complies with EMC Directives, UL/CSA, and other safety standards.
- Includes summer time (DST) adjustment. Yearly models also offer automatic switching to DST.
- Set value can be changed both upward and downward for speedier setting.
- Integrated temperature compensation circuit helps keep accurate time over a wide temperature range. (See note 1.)
- Includes time counter and total counter functions with alarm indicator. (See note 2.)
- Bank function allows program switching by an external input. (See note 3.)
- New 4-circuit output models with a compact, 72 × 72-mm DIN size added to the series.

Note: 1. Available only on yearly models.
2. Available only on 2-circuit models.
3. Available only on weekly models.



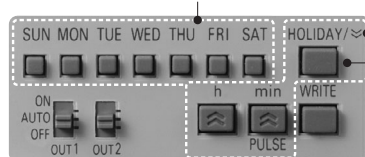
NEW

Features

Easier and More Convenient to Use

Simple Setting

Independent Day Keys make setting easy.



Up/down set value changing for speedy setting.

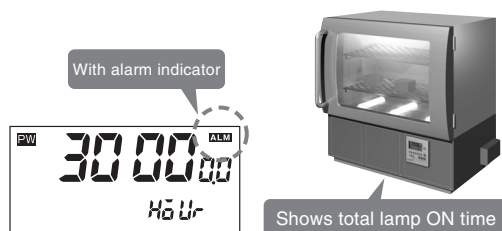
Temporary holidays (non-operating days) are also easy to set.

Weekly models: Specify the day.
Yearly models: Specify the date.

Convenient Functions

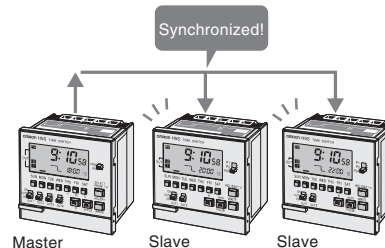
Time Counter/Total Counter Functions (See note.)

This function makes it possible to monitor the total time that a load has been applied, or the total number of operating cycles. It allows the Time Switch to be used for managing maintenance.



Time Adjustment Function (See note.)

The time can be set to 00 min 00 s by using an external input. The times on multiple Time Switches can also be easily synchronized.



Note: Equipped on 2-circuit models.

More Applications on New Series Models

Yearly Models **NEW**

Automatic Program Switching by Seasons

The yearly operation can be set to automatically change the weekly program depending on the season. (See note.)

Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Spring			Summer			Autumn			Winter		
Season (See note 2.)		Spring		Summer		Autumn		Winter			
Program example		17:30 ON ▼ 21:00 OFF		19:00 ON ▼ 22:00 OFF		18:00 ON ▼ 21:00 OFF		17:00 ON ▼ 21:00 OFF			

Note: Up to four seasons can be set for 4-circuit models, and up to two seasons for 2-circuit models.

Temperature Compensation Circuit Maintains Accurate Time

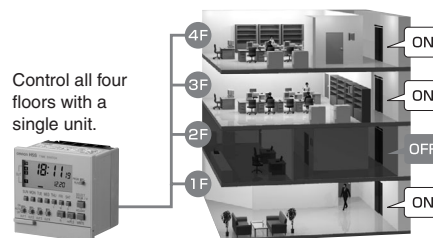
A temperature compensation circuit is provided in the yearly models to maintain accurate time keeping even when the ambient temperature varies greatly. This ensures precise operation with minimal time lags all year round, regardless of temperature changes.



4-circuit Models **NEW**

Space-saving, Economical 4-circuit Models Added to the Series

The new 4-circuit models are 72 × 72-mm DIN size. Their space-saving size allows use in more applications.



Model Number Structure

Model Number Legend

Note: This model number legend includes combinations that are not available. Please check the "List of Models" for availability.

H5S- -

1 2 3 4 5 6

1. Control cycle

W: Weekly

Y: Yearly

2. Mounting method

None: Flush mounting

F: Surface mounting/track mounting

3. Panel language

B: English

A: Japanese

4. Number of outputs

2: 2 circuits

4: 4 circuits

5. Supply voltage

None: 100 to 240 VAC

D: 24 VDC

6. Time accuracy

None: Standard

X: With temperature compensation

Ordering Information

List of Models

Control cycle	Number of outputs	Mounting method	Supply voltage	Models
Weekly	2 circuits	Flush mounting	100 to 240 VAC	H5S-WB2
			24 VDC	H5S-WB2D
		Surface mounting/ track mounting	100 to 240 VAC	H5S-WFB2
			24 VDC	H5S-WFB2D
Yearly	2 circuits	Flush mounting	100 to 240 VAC	H5S-YB2-X
			24 VDC	H5S-YB2D-X
		Surface mounting/ track mounting	100 to 240 VAC	H5S-YFB2-X
			24 VDC	H5S-YFB2D-X
	4 circuits	Flush mounting	100 to 240 VAC	H5S-YB4-X
			24 VDC	H5S-YB4D-X
		Surface mounting/ track mounting	100 to 240 VAC	H5S-YFB4-X
			24 VDC	H5S-YFB4D-X

Accessories (Order Separately)

Name	Model
Large Terminal Cover (in pairs)	Y92A-72H
Protective Cover	Y92A-72C
Track Mounting Base	Y92F-90

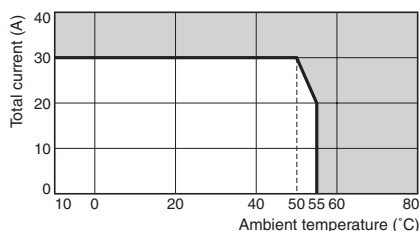
Specifications

Ratings

Item		Weekly 2-circuit Models (H5S-W□2)	Yearly 2-circuit Models (H5S-Y□2)	Yearly 4-circuit Models (H5S-Y□4)
Rated supply voltage		100 to 240 VAC (50/60 Hz), 24 VDC (See note 1.)		
Operating voltage range		AC: 85% to 110% rated supply voltage DC: 85% to 120% rated supply voltage		
Power consumption		Approx. 2.9 VA at 264 VAC 60 Hz Approx. 0.8 W at 28.8 VDC	Approx. 3.2 VA at 264 VAC 60 Hz Approx. 0.9 W at 28.8 VDC	Approx. 3.5 VA at 264 VAC 60 Hz Approx. 1.0 W at 28.8 VDC
Control outputs	Number of circuits	SPST-NO × 2 circuits		SPST-NO × 4 circuits
	Circuits	Power supply circuit and other (no-voltage) circuit		
	Capacity	Resistive load ($\cos\phi = 1$)		3 A at 250 VAC
		Inductive load		2 A at 250 VAC ($\cos\phi = 0.4$)
Ambient operating temperature		-10 to 55°C (with no icing or condensation)		
Ambient operating humidity		25 to 85%		
Storage temperature		-25 to 65°C (with no icing or condensation)		
Case color		Light gray (Munsell 5Y7/1)		

Note: 1. Do not use inverter output as a power supply. For details, refer to *Precautions for Safe Use*, item 24, on page 12.

2. The capacity is 15 A per circuit, but derating of the total current for two circuits is required as shown below depending on the ambient temperature.



Note: 1. The total error including the repeat accuracy, setting error, variation due to voltage change, and variation due to temperature change is $\pm 0.01\% \pm 0.05$ s max.

2. The total time when power is not being supplied.

■ Operation

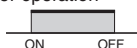
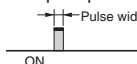
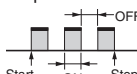
Item		Weekly 2-circuit Models (H5S-W□2)	Yearly 2-circuit Models (H5S-Y□2)	Yearly 4-circuit Models (H5S-Y□4)
Operation method		Digital quartz		
Operation period		1 week (7 days)	1 year (with integrated calendar to 2099)	
Display		• Day, hrs (switchable between 24-hr indication and a.m./p.m. 12-hr indication), minutes, seconds (0.00 to 23:59, 0.00 to 11:59 a.m., 0.00 to 11:59 p.m.) • Digital indication by LCD (character height: 10 mm) • Digital display of operation schedule during operation • Timing chart display of operation schedule during operation		
Min. setting unit		1 min		
Number of steps that can be set	Weekly program (See note 1.)	40 steps/circuit	48 steps/circuit (See note 2.) 24 steps/circuit (See note 3.)	48 steps/circuit (See note 2.) 12 steps/circuit (See note 3.)
	Yearly program	---	4 yearly programs/circuit	
	Number of settable yearly temporary holiday settings	---	16	

Note: 1. Depending the operation, the following steps can be used for weekly programs.

- Timer operation: 2 steps
- Pulse-output operation: 1 step
- Cyclic operation: 4 steps

- 2. When the season switching setting is not being used.
- 3. When the season switching setting is being used.

■ Operation Functions

Item	Weekly 2-circuit Models (H5S-W□2)	Yearly 2-circuit Models (H5S-Y□2)	Yearly 4-circuit Models (H5S-Y□4)
Weekly timer operation	Timer operation 	Controls the output according to the set time of ON and OFF. • Min. setting unit: 1 min • Multiple-day operation also possible.	
Weekly pulse-output operation	Pulse output operation 	Output turns ON for a fixed period (pulse width) at the set ON time. • Pulse width: 1 to 59 s (in 1-s increments), or 1 to 60 min (in 1-min increments) • The pulse width can be set for each step.	
Weekly cyclic operation	Cyclic operation 	Repeatedly turns ON and OFF during the period from the cyclic start time to the stop time. Independent ON- and OFF-time settings are possible. • Min. setting unit: 1 min	
Yearly timer operation	---	Adds a yearly timer operation to the weekly timer program. For details, refer to <i>About Yearly Programs</i> on page 18.	
Yearly pulse-output operation	---	Adds a yearly pulse-output operation to the weekly pulse-output program. For details, refer to <i>About Yearly Programs</i> on page 18.	
Temporary holiday setting	Sets temporary holidays (non-operating days) without having to revise the existing program. For details, refer to <i>Setting Temporary Holidays (Weekly)</i> and <i>Setting Temporary Holidays (Yearly)</i> on page 20.		
Day override operation	Executes the operation for one day temporarily on another day in the 7-day period starting from the current day. For details, refer to <i>Day Override Operation</i> on page 21.	---	
Program check	Consecutively displays the days and times when the output is set to turn ON and OFF over the course of one week in the sequence in which the Time Switch is to operate. For details, refer to <i>Program Check Function</i> on page 21.		

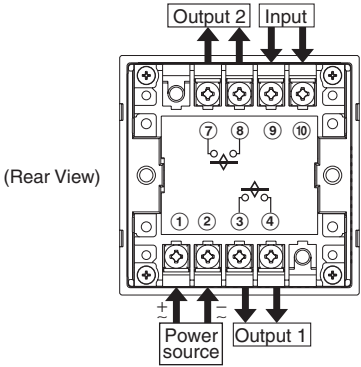
Item	Weekly 2-circuit Models (H5S-W□2)	Yearly 2-circuit Models (H5S-Y□2)	Yearly 4-circuit Models (H5S-Y□4)
Checking the settings	Consecutively displays the times when the output is set to turn ON and OFF for one day in the sequence in which the Time Switch is to operate. For details, refer to <i>Checking the Settings</i> on page 21.		
Forced ON/OFF operation	Allows the output to be forcibly turned ON/OFF by the Output ON/OFF Switch regardless of the control output setting.		
Override and automatic return operation	Allows the control output to be maintained in the ON (or OFF) state until the next OFF (or ON) time. This operation is controlled by using the Output ON/OFF Switch and Write Key. When completed, the Time Switch automatically resumes the previously set operation. For details, refer to <i>Override and Automatic Return Operation</i> on page 22.		
Summertime (DST) adjustment	Switches the current time from “current time” to “current time + 1 h” for daylight savings time. Yearly models also offer automatic switching to daylight savings time. For details, refer to <i>Manual Summertime (DST) Adjustment</i> on page 21.		
Time counter/total counter display	Displays the total elapsed time and total count of external input. It also displays a warning when a set value is entered. For details, refer to <i>Total Time/Count Display</i> on page 23.		---
Time adjustment input	Allows the time to be set to 00 min 00 s at the same time as an external input is applied. For details, refer to <i>Time Adjustment Input Function</i> on page 24.		---
Manual operation on recovery from power failure	Allows the output state to be specified following recovery from a power failure. For details, refer to <i>Manual Operation on Recovery from Power Failure</i> on page 24.		---
Bank switching	Allows two groups (banks) of programs to be registered and switched by external input. For details, refer to <i>Bank Switching</i> on page 24.	---	
Season switching	---	Allows weekly programs to be automatically switched in response to seasons throughout the year. For details, refer to <i>Season Switching</i> on page 24.	
Power OFF settings	Allows the display to remain lit even when the power is turned OFF, and settings to be made for all functions except Override and Automatic Return Operation. • The display illumination will turn OFF when there has been no operation for 2 min. The display will light again when any key other than a slide switch is pressed for at least 1 s. • No output will be generated.		

Connections

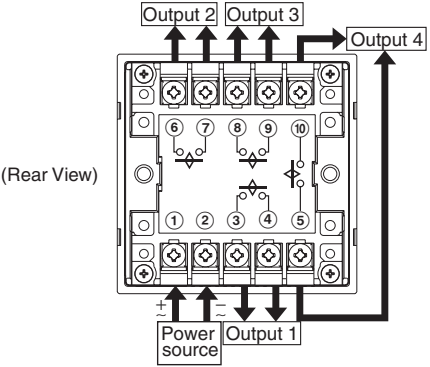
■ Terminal Arrangement

H5S-□A□/-□B□ Flush Mounting Models

(2-circuit models)

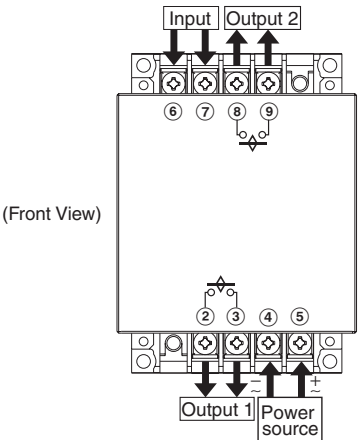


(4-circuit models)

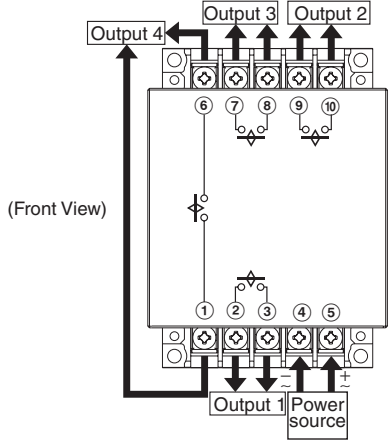


H5S-□FA□/-□FB□ Surface Mounting Models

(2-circuit models)



(4-circuit models)



Note: 1. The Time Switch output uses a no-voltage contact. An external power supply is required for applications in which a load is driven.
2. The output contact ratings are different for 2-circuit and 4-circuit models.

■ Input Connection (2-circuit Models Only)

Use a switch or relay as the input contact.
Use a contact that is capable of operating with 5 V, 0.1 A (with a minimum signal input width of 100 ms).

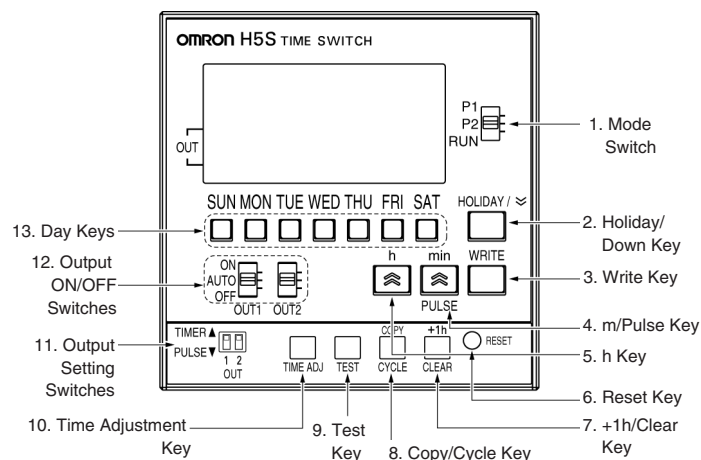
Flush mounting models (H5S-□A2□/-□B2□)	9	10
Surface mounting models (H5S-□FA2□/-□FB2□)	6	7

Note: Input must be selected using the “F2: Input selection” step of initial setting mode. For details, refer to *Using Advanced Functions* on page 23.

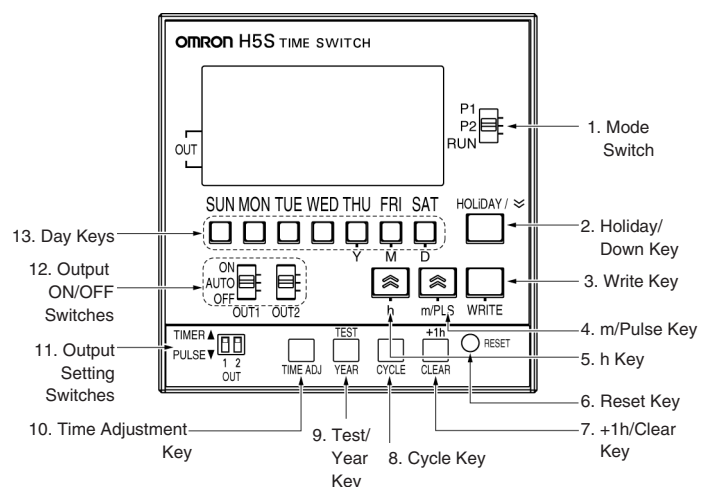
Nomenclature

Front Panel (with Cover Open)

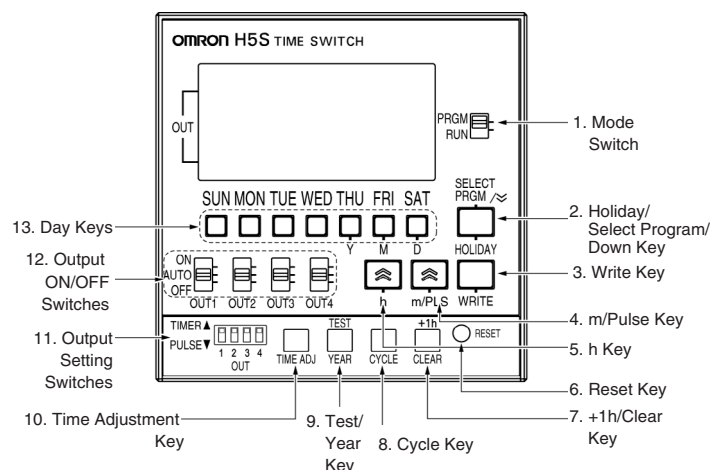
(Weekly 2-circuit models)



(Yearly 2-circuit models)



(Yearly 4-circuit models)

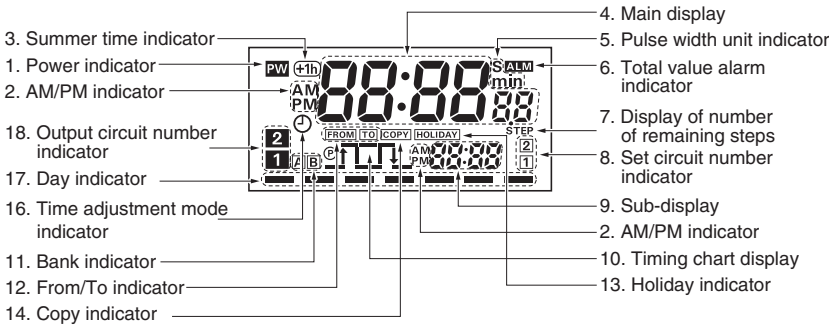


Key Operations

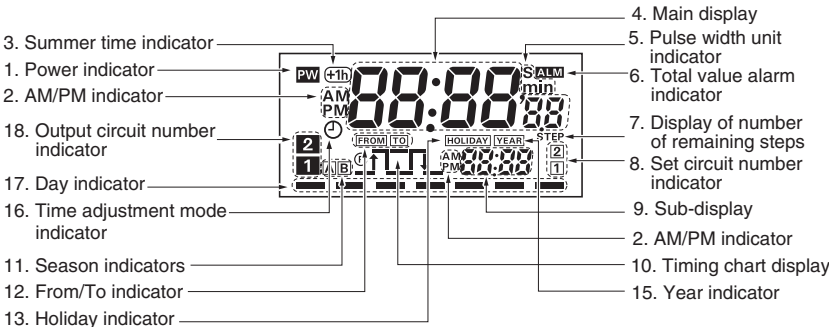
No.	Functions
1	(2-circuit models) P1: Circuit (output) 1 Setting mode P2: Circuit (output) 2 Setting mode RUN: RUN mode (4-circuit models) PRGM: Setting mode (allows use of the Select Program Key to set the circuit (output) number) RUN: RUN mode
2	(2-circuit models) In RUN mode, this key shifts the Time Switch to the Holiday Setting mode. In Setting mode or Time Adjustment mode, this key decrements the value for the operation just completed. (4-circuit models) In RUN mode, this key shifts the Time Switch to the Holiday Setting mode. When selecting the output, this key is used to set the circuit (output) number. In Setting mode or Time Adjustment mode, this key decrements the value for the operation just completed.
3	Sets parameters.
4	Used to set the current time, ON/OFF time, or pulse width.
5	
6	Used to reset all parameters, including the current time.
7	In RUN mode, this key sets or cancels summer time (+1 h) In Setting mode, this key clears the parameter.
8	In RUN mode (weekly models only), this key shifts the Time Switch to the Day Override operation setting mode. In Setting mode, this key shifts the Time Switch to cyclic operation setting.
9	In RUN mode, this key shifts the Time Switch to the Program Check mode. In Setting mode (yearly models only), this key is used to set the yearly program.
10	This key shifts the Time Switch to the time adjustment mode.
11	TIMER: Executes a timer or cyclic operation. PULSE: Executes a pulse-output operation.
12	ON: Turns ON the output regardless of the setting. AUTO: Executes automatic operation as specified by these settings. OFF: Turns OFF the output regardless of the setting.
13	- Used to set the current day, operating day, etc. - Used to specify the date (yearly models only) - In RUN mode, these keys are used to shift the Time Switch to the Checking the Settings mode.

Display

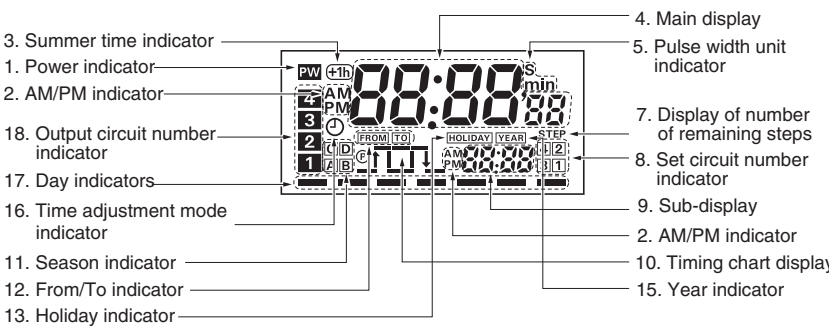
(Weekly 2-circuit models)



(Yearly 2-circuit models)



(Yearly 4-circuit models)



Display Description

No.	Function
1	Lights when power is supplied to the Time Switch.
2	When 12-hour display is selected, either AM or PM lights. (24-hour display is the default.)
3	Lights when summer time (+1 h) is activated.
4	Displays the current time and other values.
5	Displays the unit for the pulse width.
6	Lights when the total time or count value exceeds the alarm setting.
7	Displays the number of remaining steps for programming in setting mode.
8	Displays the number of the circuit (output) that has been set.
9	Displays the time for the next operation, the date (yearly models only), and other values.
10	Displays the next operation and other information in chart form.
11	Displays the bank name (weekly models) or season name (yearly models).
12	Lights when setting the ON/OFF time or when setting a day override operation.
13	Lit during the temporary holiday operation or when setting a temporary holiday.
14	Lit during the day override operation or when setting a day override operation.
15	Lit during setting a yearly program.
16	Flashes during the Time Adjustment mode.
17	Displays the current day or the day set for an operation.
18	Displays the number of the circuit (output) for which output is ON.

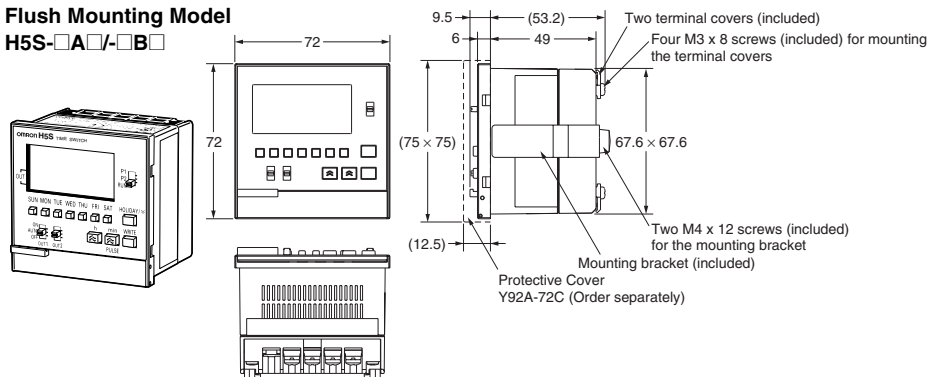
Dimensions

Note: All units are in millimeters unless otherwise indicated.

Digital Time Switch

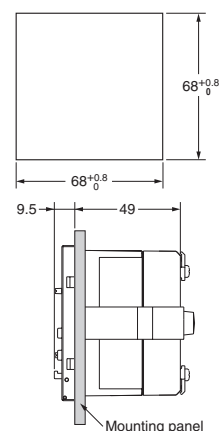
Flush Mounting Model

H5S-□A□/-□B□



- Note:** 1. The terminal screws are M3.5.
2. This illustration shows a 2-circuit model. The 4-circuit model has the same dimensions.

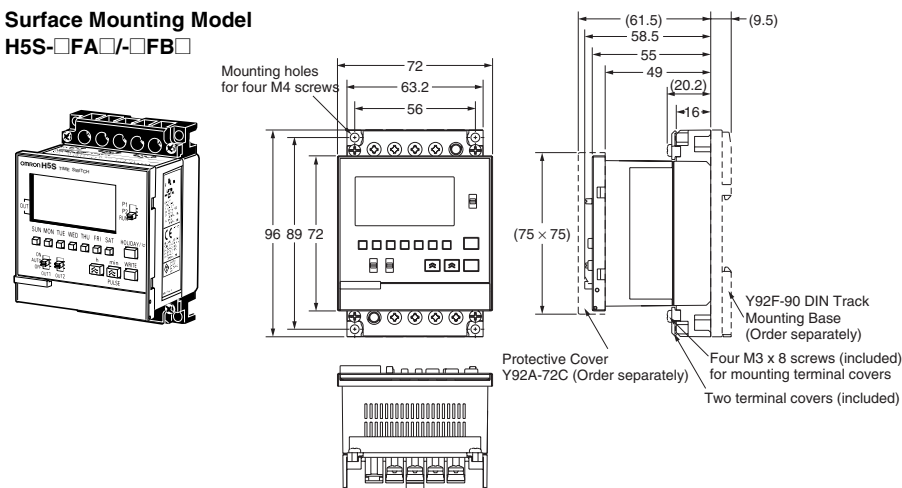
Panel Cutout



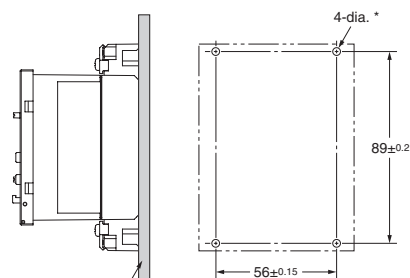
Note: Panel thickness: 1 to 5 mm

Surface Mounting Model

H5S-□FA□/-□FB□



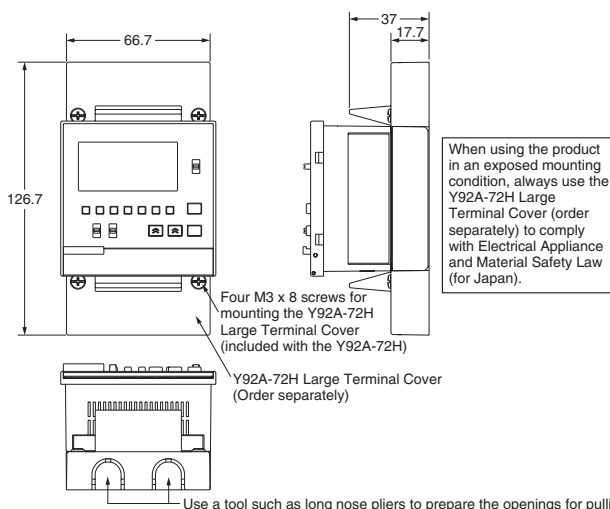
(Surface mounted) Mounting holes



*Diameter of pilot holes for included M4 tapping screws (guideline)

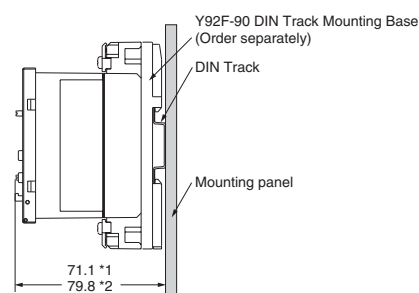
Panel thickness t	0.8 to 1.2	1.6 to 4
Hole diameter	3.6	3.7

(With the large terminal cover (order separately) attached)



- Note:** 1. The terminal screws are M3.5.
2. This illustration shows a 2-circuit model. The 4-circuit model has the same dimensions.

(DIN track mounted)

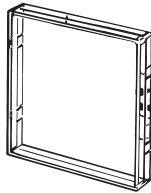


- Note:** 1. Using a PFP-50N or PFP-100N Mounting Track.
2. Using a PFP-100N2 Mounting Track.

■ Accessories (Order Separately)

Protective Cover

Y92A-72C



DIN Track Mounting Base

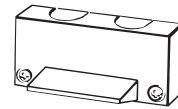
Y92F-90



Note: The DIN Track Mounting Base can be used only with the surface mounting models (H5S-□FA□/-□FB□).

Large Terminal Covers

Y92A-72H (two per set)

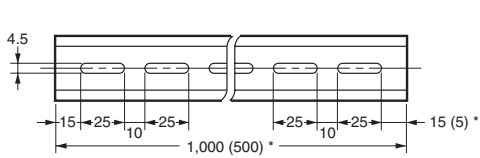
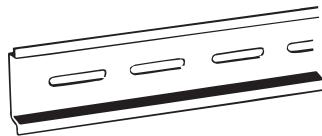


Note: The Large Terminal Cover can be used only with the surface mounting models (H5S-□FA□/-□FB□).

■ Track Mounting Accessories (Order Separately)

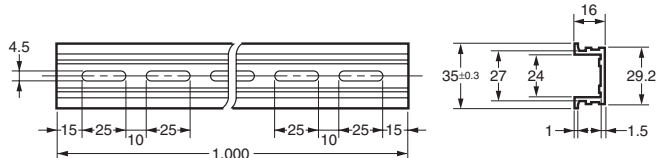
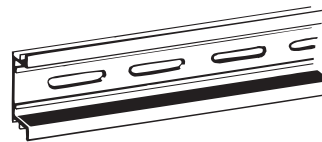
Mounting Track

PFP-100N
PFP-50N



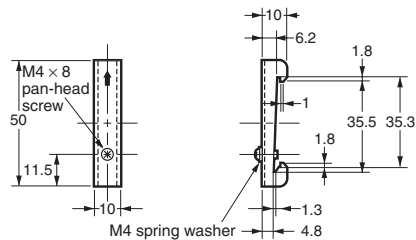
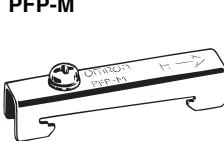
* The numbers in parentheses () are dimensions for the PFP-50N

PFP-100N2



End Plate

PFP-M



Spacer

PFP-S

