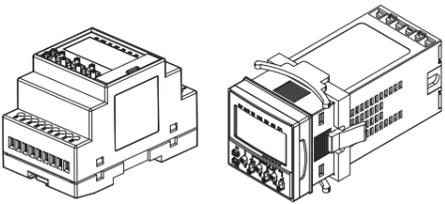


TS-4848 Digital Time Switch



- Provides basic mode (BSC) and advanced mode (ADV) for selection;
- Provides two independent output circuits;
- 20 banks (groups) of operation times can be set for each circuit;
- Provides cyclic operation (CYCLIC) and pulse operation (PULSE);
- The operation time for each group (bank) can be set with random operation date;
- Temporary holiday settings function makes output ON/OFF conveniently on holidays;
- Provides summer time (DST) adjustment;
- Allows manual operation to control output ON/OFF directly;
- Provides Override and automatic return function
- Provides key protection function;
- The data information can be reserved for more than five years in case of power failure;

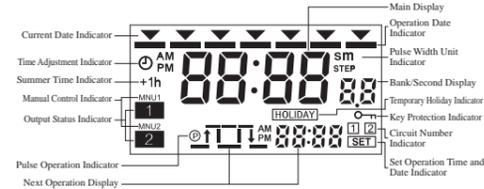
Safety Precautions

- **Limitations:**
When this product is used for the equipment with special safety requirements or on the important occasions, please pay attention especially to the safety of whole system and devices. If it is necessary, please install the safety device to do extra check and timing test and other safety precautions.
- **Cautions**
1. Minor injury by electric shock may occasionally occur. Do not touch any of the terminals while power is being supplied. Be sure to mount the terminal cover after wiring.
2. Do not use the product in locations subject to flammable or explosive gas, or there may occasionally be a risk of explosion.
3. Minor electric shock, fire or malfunction may occasionally occur. Never attempt to disassemble, modify, or repair the product or touch any of the internal parts.
4. Before changing times or other settings when power is being supplied, either turn OFF the power on the load side or force the output ON/OFF switch to be OFF and confirm the safety of the system.
5. Minor electric shock, fire, or malfunction may occasionally occur. Do not allow metal fragments, lead wire scraps, or shavings from installation work to fall inside the Time Switch.
6. If the output relay is used beyond its life expectancy, its contacts may become fused or there may be a risk of burning. Use the product within its rated load and electrical life expectancy. The life expectancy of the output relay varies considerably according to its capacity and operating conditions.
7. Serious injury may occasionally occur due to fire or explosion of a battery, or leakage from a battery. Never attempt to short the positive and negative terminals, recharge, disassemble, deform the product by applying excessive pressure or to expose the battery to fire.
8. Make sure to wire the terminals correctly and use the correct polarity, or damages may occur to the product.
9. Make sure the power is off before wiring, moving or mounting the product, or electric shock may occur.
10. Fire, malfunction may occasionally occur. Use the Time Switch within the specified ratings for operating temperature, humidity, voltage, mounting method etc.
11. Unusual heating, smoking may occasionally occur. Screw the wires tightly.
12. Use the Time Switch within the specified ratings for vibration and shock.
13. Install the Time Switch away from any sources of excessive static electricity, such as chemical compounds, powders, or pipes transporting liquids.
14. Do not use organic solvents (such as paint thinner), strong alkaline, or strong acids to clean the product, because they will cause the damage to the external case.
15. Do not use the Time Switch in locations subject to sudden or extreme changes in temperature or where high humidity may result in condensation.
16. Store the Time Switch within the specified ratings. If the Time switch has been stored at temperature of -10°C or lower, let it stay at room temperature for three hours or longer before turning ON the power supply.
17. Do not leave the Time Switch for long periods at a high temperature with output current in ON state, or it may result in the premature deterioration of internal components (e.g., electrolytic capacitors). So please use this product with a relay and avoid the situation that the output of Time Switch is kept in ON state for more than one month.

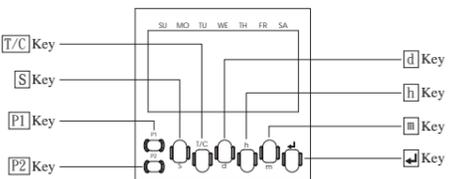
Operation

1. Nomenclature

<<Display>>

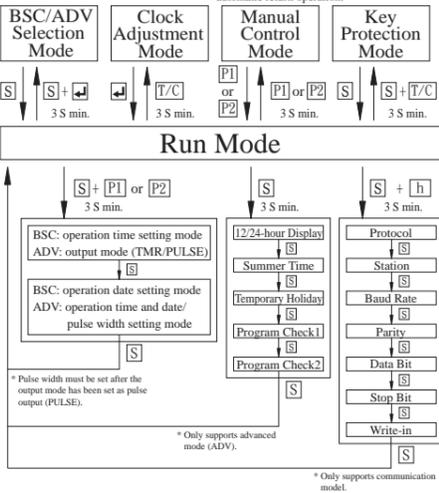


<<Front Panel>>



2. Mode Selection

- Basic mode (BSC) and advanced mode (ADV) settings.
- Adjust current time (0:00 to 23:59) and date (Sunday to Saturday).
- Select manual control to force output ON/OFF, or automation control (Auto), or override and automatic return operation.
- Set key protection to prevent accidental operation.



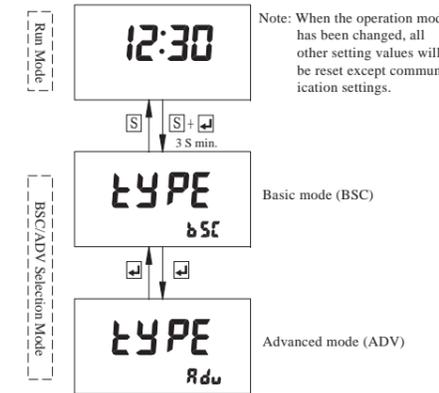
3. Current Time Settings

[Example] Set the current time to Thursday 15:20.

- Enter into Clock Adjustment Mode.**
Press and hold **T/C** key for more than 3 seconds under the run mode, the icon will become flashing at this time.
- Adjust current time.**
Use **d** key to adjust the date to Thursday; Use **h** key adjust the hour to 15 hours; Use **m** key to adjust the minute to 20 minutes.
- Save Settings.**
Press **d** key to save the current time and return to the run mode automatically.

<Note> If it is not necessary to input the set time after the date, hour, minute have been set, press **T/C** key to return to the run mode directly without changing the current settings for the clock.

4. Operation Mode Selection



Note: When the operation mode has been changed, all other setting values will be reset except communication settings.

5. Basic Mode (BSC) Operation

5.1. Basic Operation (ON/OFF)

[Example 1] From Monday to Friday, it will be ON at every 8:20 in the morning, and it will be OFF at every 17:30 in the afternoon. (Circuit 1)

-
- Enter into operation time setting mode for circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.
 - Set ON time.**
Use **h** and **m** keys to set ON time to 8:20.

- Enter into OFF time setting.**
Press **d** key.

- Set OFF time.**
Use **h** and **m** keys to set OFF time to 17:30.

- Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.

- Enter into operation date setting mode.**
Press **S** key to enter into Operation Date Setting Mode.

- Set operation date.**
Use **d** and **T/C** keys to set operation date from Monday to Friday.

- Save operation date.**
Press **S** key to save operation date setting and return to the run mode.

[Example 2] From Monday to Friday, it will be ON at every 22:00 in the evening, and it will be OFF at 6:00 in the next morning. (Circuit 2)

-
- Enter into operation time setting mode for circuit 2.**
Press and hold **S** + **P2** for 3 seconds simultaneously under the run mode.
 - Set ON time.**
Use **h** and **m** keys to set ON time to 22:00.
 - Enter into OFF time setting.**
Press **d** key.
 - Set OFF time.**
Use **h** and **m** keys to set OFF time to 6:00.
 - Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.
 - Enter into operation date setting mode.**
Press **S** key to enter into Operation Date Setting Mode.
 - Set operation date.**
Use **d** and **T/C** keys to set operation date from Monday to Friday.
 - Save operation date.**
Press **S** key to save operation date setting and return to the run mode.

- <Note 1> It will be saved only when both ON and OFF times have been set successfully.
<Note 2> If several set values are needed, please repeat from step2 to step5.
<Note 3> Set times of different banks (groups) should not be overlapped, or the setting will fail.
<Note 4> When the setting fails, Hour, Minute, SET, STEP and Timing Chart Display will become flashing continuously. At this time, press **d** key to set again from ON time.
<Note 5> Press **d** key in the operation time setting mode, then the set time for all banks (groups) of selected circuit can be checked.

5.2. Cyclic Operation (CYCLIC)

[Example] ON for 5 minutes and OFF for 25 minutes repeatedly from 8:00 to 17:00 on Monday (Circuit 1)

-
- Enter into operation time setting mode for circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.

- Select cyclic operation.**
Press **T/C** key to set the cyclic operation for the current bank (group).

- Set cyclic start time.**
Set the start time to 8:00 with **h** and **m** keys, and press **d** key to confirm.

- Set cyclic stop time.**
Set the stop time to 17:00 with **h** and **m** keys, and press **d** key to confirm.

- Set cyclic ON time period.**
Set the ON time period to 0:05 with **h** and **m** keys, and press **d** key to confirm.

- Set cyclic OFF time period.**
Set the OFF time period to 0:25 with **h** and **m** keys, and if it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.

- Enter into operation date setting mode.**
Press **S** key to enter into operation date setting mode.

- Set operation date.**
Use **d** and **T/C** keys to set operation date to Monday.

- Save operation date**
Press **S** key to save operation date setting and return to the run mode.

5.3 Clearing Settings

[Example 1] Clear the operation time settings of bank6 (group6). (Circuit 1)

- Enter into operation time setting mode for circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.
- Switch to bank6 (group6) settings.**
Press **d** key continuously till the bank6 (group6) setting is displayed.
- Clear bank6 (group6) settings.**
All bank6 (group6) settings will be cleared immediately after pressing **P1** key.
- Return to the run mode.**
Press **S** key twice to return to the run mode directly.

<Note> When the set values have been cleared after pressing **P1** key, the program will execute depending on the new set values at once.

[Example 2] Clear operation time and date settings of all banks (1-20). (Circuit 2)

- Enter into operation time setting mode for circuit 2.**
Press and hold **S** + **P2** for 3 seconds simultaneously under the run mode.
- Clear all settings in an entire circuit 2.**
Press and hold **P1** key for more than 3 seconds till flashing "CLR" displays, and all the time and date settings in the circuit 2 will be cleared automatically.
- Check the settings.**
Press **d** key continuously to check whether all the settings have been cleared.
- Return to the run mode.**
Press **S** key twice to return to the run mode directly.

- <Note 1> When all the time and date settings of all banks (groups) have been cleared, the program will execute depending on the new set values at once.
<Note 2> Clearing the time of all banks (groups) and date settings can be executed under operation date setting mode.

6. Advanced Mode (ADV) Operation

6.1. Timer operation (TMR)

[Example 1] From Monday to Friday, it will be ON at every 9:30 in the morning, and it will be OFF at every 17:30 in the afternoon. (Circuit 1)



- Enter into output mode (TMR/PULSE) setting in circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.
- Select the timer output mode.**
Set it to "TMR" with **d** key, and press **S** key to enter into operation time and date settings.
- Set ON time and date.**
Use **h** and **m** to set ON time to 9:30, and set ON date from Monday to Friday with **d** and **T/C** keys.
- Enter into OFF time and date settings.**
Press **d** key.
- Set OFF time and date.**
Use **h** and **m** to set OFF time to 17:30, and set OFF date from Monday to Friday with **d** and **T/C** keys.
- Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.
- Return to the run mode.**
Press **S** key to return to the run mode directly.

[Example 2] It will be ON at 22:00 from Monday to Friday, and OFF at 6:00 each following morning. (Circuit 2)



- Enter into output mode (TMR/PULSE) setting in circuit 2.**
Press and hold **S** + **P2** for 3 seconds simultaneously under the run mode.
- Select the timer output mode.**
Set it to "TMR" with **d** key, and press **S** key to enter into operation time and date settings.
- Set ON time and date.**
Use **h** and **m** to set ON time to 22:00, and set ON date from Monday to Friday with **d** and **T/C** keys.
- Enter into OFF time and date settings.**
Press **d** key.
- Set OFF time and date.**
Use **h** and **m** to set OFF time to 6:00, and set OFF date from Tuesday to Saturday with **d** and **T/C** keys.
- Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.
- Return to the run mode**
Press **S** key to return to the run mode directly.

[Example 3] It will be ON continuously from 08:30AM on Monday to 17:30PM on Friday (Circuit 1)



- Enter into output mode (TMR/PULSE) setting in circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.

- Select the timer output mode.**
Set it to "TMR" with **d** key, and press **S** key to enter into operation time and date settings.

- Set ON time and date.**
Use **h** and **m** to set ON time to 8:30, and set ON date to Monday with **d** and **T/C** keys.

- Enter into OFF time and date settings.**
Press **d** key.

- Set OFF time and date.**
Use **h** and **m** to set OFF time to 17:30, and set OFF date to Friday with **d** and **T/C** keys.

- Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.

- Return to the run mode.**
Press **S** key to return to the run mode directly.

- <Note 1> It will be saved only when both ON and OFF times have been set successfully.
<Note 2> If several set values are needed, please repeat from step3 to step6.
<Note 3> If the output mode is changed (TMR/PULSE), all settings will be cleared.
<Note 4> The timer settings or pulse settings of all banks (groups) for the selected circuit can be checked by pressing **d** key in operation time and date setting mode.

6.2. Pulse Operation (PULSE)

[Example] Start output for 30 seconds at 9:15 in the morning from Monday to Saturday. (Circuit 1)



- Enter into output mode (TMR/PULSE) setting in circuit 1.**
Press and hold **S** + **P1** for 3 seconds simultaneously under the run mode.
- Select the pulse output mode.**
Set it to pulse operation "PULSE" with **d** key.
- Enter into pulse width setting mode.**
Press **S** key.
- Set pulse width.**
Set pulse width as 30 seconds with **m** key.
- Enter into operation time and date setting mode.**
Input pulse width and press **d** key to enter into operation time and date setting mode.
- Set operation time and date.**
Use **h** and **m** to set time to 9:15, and set date from Monday to Saturday with **d** and **T/C** keys.
- Save settings.**
If it is set successfully, press **d** key, then the current setting will be saved and enter into the next bank (group) setting.
- Return to the run mode.**
Press **S** key to return to the run mode directly.

- <Note 1> If multiple settings are needed, please repeat from step5 to step7.
<Note 2> If the output mode (TMR/PULSE) is changed, all settings will be cleared.
<Note 3> The timer settings or pulse setting of all banks (groups) for the selected circuit can be checked by pressing **d** key in operation time and date setting mode.

6.3. Clearing Settings

[Example 1] Clear the operation time settings for bank6 (group6) in timer operation (TMR). (Circuit 1)

- Enter into output mode (TMR/PULSE) setting in circuit 1.**
Press and hold [S]+[P1] for 3 seconds simultaneously under the run mode.
- Enter into operation time and date settings.**
Press [S] key to enter into operation time and date settings.
- Switch to bank6 (group6) settings.**
Press [6] key continuously till the bank6 (group6) settings are displayed.
- Clear bank6 (group6) settings.**
All bank6 (group6) settings will be cleared immediately after pressing [P1] key.
- Return to the run mode.**
Press [S] key to return to the run mode directly.

<Note> When the settings have been cleared after pressing [P1] key, the program will execute depending on the new set values at once.

[Example 2] Clear operation time and date settings of all banks (group1-20) in timer operation (TMR). (Circuit 2)

- Enter into output mode (TMR/PULSE) setting in circuit 2.**
Press and hold [S]+[P2] for 3 seconds simultaneously under the run mode.
- Enter into operation time and date settings.**
Press [S] key to enter into operation time and date settings.
- Clear all settings in entire circuit 2.**
Press and hold [P1] key for more than 3 seconds till flashing "CLR" displays, and all the time and date settings in the circuit 2 will be cleared automatically.
- Check the settings.**
Press [6] key continuously to check whether all the settings have been cleared.
- Return to the run mode.**
Press [S] key to return to the run mode directly.

<Note> When all the time and date settings of all banks (groups) have been cleared, the program will execute depending on the new set values at once.

6.4 Output Method for Overlapping Settings

- Timer Operation Mode (TMR):**
- Bank 1 :
- Bank 2 :
- Output :
- <Note> If the ON time and OFF time overlap, the settings for this overlapping time are invalid.

- Pulse Operation Mode (PULSE):**
- Bank 1 :
- Bank 2 :
- Output :

6.5. Next Operation Display Switching

The next operation settings within 24-hour of circuit1 or circuit2 can be selected to display. Press and hold [6] for more than 3 seconds under the run mode, then the display switches between the next operation for circuit1 and circuit2.



6.6. Setting 12-hour and 24-hour Display

Set 12-hour or 24-hour display (including current time, current time setting and next operation time/date settings.)

- [Example] Set 12-hour display.
- Enter into 12/24-hour display setting mode.**
Press and hold [S] key for more than 3 seconds under the run mode.
 - Adjust it to 12-hour display.**
Adjust the set value to "12" with [6] key.
 - Return to the run mode.**
Press [S] five times to return to the run mode.

6.7. Summer Time (DST) Settings

When summer time has set, the time becomes the current time + 1 hour.

[Example] Set summer time.

- Enter into 12/24-hour display setting mode.**
Press and hold [S] key for more than 3 seconds under the run mode.
- Enter into summer time setting mode.**
Press [S] key one time.
- Adjust the set value.**
Set the value to "ON" with [6] key. ON: Summer time (+ 1 hour) OFF: Non-summer time
- Return to the run mode.**
Press [S] key four times to return to the run mode ("1h" will be displayed at this time).

6.8. Temporary Holiday Settings

Temporary holidays (non-operating days) can be easily set. Because the settings are automatically cleared after the set holiday has passed, temporary holidays are easily set without changing other settings.

[Example] Friday and Saturday in the current week are set as holidays (non-operating days). The Time Switch will operate according to the ordinary (previous) settings from the following weeks.

- Enter into 12/24-hour display setting mode.**
Press and hold [S] key for more than 3 seconds under the run mode.
- Enter into temporary holiday setting mode.**
Press [S] key twice.
- Adjust the set value.**
Adjust the bars at the positions of Friday and Saturday to be OFF with [6] and [T/C] keys.
- Return to the run mode.**
Press [S] key four times to return to the run mode.

- <Note1> Any day in the 7-day period starting from the current day can be set as a holiday (non-operating day).
- <Note2> When the current time reaches the set holiday, the [Holiday] will be displayed. The settings are automatically cleared after the set holiday has passed.
- <Note3> All ON operations are cancelled on the holiday. (OFF operations still remain effective.)
- <Note4> The set holidays are valid for all the output circuits.
- <Note5> If the current date of the week is changed, the holiday settings will be cleared.
- <Note6> If the temporary holiday setting needs to be canceled, press [P1] key under the temporary holiday setting mode to clear the settings directly.

6.9. Program Check Function

All effective output times and dates of circuit1 or circuit2 within one week from the current day can be checked.

[Example1] Check the time and date of all effective operations in circuit 2 within one week from the current day.

- Enter into 12/24-hour display setting mode.**
Press and hold [S] key for more than 3 seconds under the run mode.

- Enter into program check mode.**
Press [S] key four times.
- Check the output settings within one week from the current day.**
Check the time and date of next output in sequence with [6] key, and "End" will display when it is finished.
- Return to the run mode.**
Press [S] key to return to the run mode.

6.10. Override and Automatic Return Operation

It helps to cope with sudden schedule changes without having to revise the existing program. This function can force the output to be ON/OFF, and the program will return to the automatic operation (Auto) automatically when the next ON/OFF time occurs.

- Override and automatic return _timer operation (TMR):**
- [Example1] Timer operation settings: 8:00 ON; 17:00 OFF; Override (OFF) and automatic return is set at 15:00 Monday. (Circuit1)



- Enter into the manual operation mode in circuit 1 at 15:00 Monday.**
Press and hold [P1] key for 3 seconds under the run mode.
- Adjust the set value.**
Adjust the value to OF_R with [6] key. (Override (OFF) and automatic return)
- Save settings.**
Press [P1] key to save the settings and return to the run mode. At this time, the output in circuit1 is forcibly turned OFF, and the "MNU1" becomes flashing continuously. The Time Switch will automatically return to automatic operation (Auto) when it reaches at 8:00 Tuesday, and the "MNU1" will stop flashing.

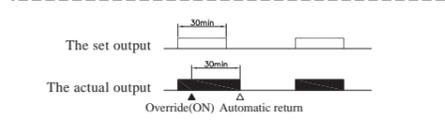
[Example2] Timer operation settings: 8:00 ON (Everyday); 17:00 OFF (Everyday); Override (OFF) and automatic return is set at 7:00 Monday. (Circuit2)



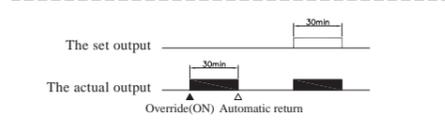
- Enter into the manual operation mode in circuit 2 at 7:00 Monday.**
Press and hold [P2] key for 3 seconds under the run mode.
- Adjust the set value.**
Adjust the value to ON_R with [6] key. (Override (ON) and automatic return)
- Save settings.**
Press [P1] key to save the settings and return to the run mode. At this time, the output in circuit2 is forcibly turned ON, and the "MNU2" becomes flashing continuously. The Time Switch will automatically return to automatic operation (Auto) when it reaches at 17:00 Monday, and the "MNU2" will stop flashing.

- Override and automatic return _pulse operation (PULSE):**

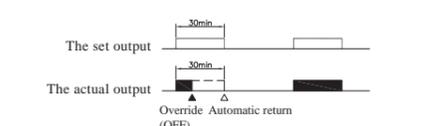
[Example1] When the output is ON, set the override and automation return as ON (pulse width: 30 minutes).



[Example2] When the output is OFF, set the override and automation return as ON (pulse width: 30 minutes).



[Example3] When the output is ON, set the override and automation return as OFF (pulse width: 30 minutes).



7. Forced ON/OFF Output Operation

It allows the output to be forcibly turned ON/OFF without changing the original program.

[Example1] Force the output to be ON without changing the original program in circuit 1.

- Enter into manual control mode in circuit 1.**
Press and hold [P1] key for 3 seconds under the run mode.
- Set the output in circuit1 forcibly to be ON.**
Fore the output to be ON in circuit1 with [6] key.
- Save Settings**
Press [P1] key to save the settings and return to the run mode. The output in circuit1 is forcibly turned ON at this time, and the "MNU1" becomes flashing continuously.

8. Key Protection Settings

[Example] Enable key protection function.

- Enter into key protection mode.**
Press and hold [S]+[T/C] for 3 seconds simultaneously under the run mode.
- Enable key protection function.**
Set it ON with [6] key. ON: key protection function is enabled. OFF: key protection function is disabled.
- Save settings**
Press [S] key to save the settings and return to the run mode. At this time, the icon will be displayed.

<Note> When the key protection function is enabled, except the operation of pressing and holding [S]+[T/C] for 3 seconds is effective, any other key pressing operation will become invalid.

9. Communication Settings

[Example] Set the communication format as: Protocol: ASC/Station :01/ Baud rate : 9600bps/Data bit : 8/ Parity : n/Stop bit : 1/Write-in-on (Enabled)

- Enter into communication setting mode.**
Press and hold [S]+[6] keys for 3 seconds simultaneously under the run mode.
- Set communication protocol.**
Set the value to "ASC" with [6] key. Press [S] key to enter into station address setting.
- Set station address.**
Set the value to "001" with [6] key. Press [S] key to enter into baud rate setting.
- Set baud rate.**
Set the value to "96" with [6] key. Press [S] key to enter into parity check setting.
- Set parity check.**
Set the value to "none" with [6] key. Press [S] key to enter into data bit setting.
- Set data bit.**
Set the value to "8" with [6] key. Press [S] key to enter into stop bit setting.
- Set stop bit.**
Set the value to "1" with [6] key. Press [S] key to enter into communication input setting.
- Set write-in enable.**
Set the value to "on" with [6] key. Press [S] key to return to the run mode. ON: Write-in is enabled. OFF: Write-in is disabled.

- Return to the run mode.**
Press [S] key to return to the run mode.
- <Note1> The communication format function is not performed for the model without communication function.
<Note2> Support Modus ASCII/RTU function codes: 0x01, 0x03, 0x06, 0x10.
<Note3> The function code 0x10 can support 8 words at most.
<Note4> The operation time of circuit1 or circuit2 can be saved only when the banks have been set successfully.

Parameters	Support Type		Default Value
	Modbus	RTU / ASC	
Protocol	1-255		1
Station	1-255		1
Baud Rate	1200/2400/4800/9600/14400/19200/28800/38400/57600/115200		9600
Parity	n / o / e		n
Data Bit	7 / 8		8
Stop Bit	1 / 2		1
Write-in	ON / OFF		ON

Communication Address

Address	Description	Range	Property	
			BSC	ADV
00017	Output status in circuit 1	0: OFF, 1: ON	R	R
00018	Output status in circuit 2	0: OFF, 1: ON	R	R
40201	Next operation for circuit 1	H: Hour(0-23), L: Minute(0-59)	X	R
40203	Next operation for circuit 2	H: Hour(0-23), L: Minute(0-59)	X	R
40211	Module Name 1	0x4848: TS-4848 Series	R	R
40212	Module Name 2	0x0000	R	R
40213	Version 1	0x010a : V10A	R	R
40214	Version 2	0x0000	R	R
40250	Current time (week)	0: Sunday, 1: Monday, ..., 6: Saturday	R/W	R/W
40251	Current time (hour)	0 - 23 hours	R/W	R/W
40252	Current time (Minute)	0 - 59 minutes	R/W	R/W
40253	Current time (Second)	0 - 59 seconds	R/W	R/W
40260	Mode selection	0: Basic mode, 1: Advanced mode	R/W	R/W
40261	Key protection	0: OFF, 1: ON	R/W	R/W
40262	Manual control for circuit1 output	Basic mode: 0-2, Advanced mode: 0-4 0: Automatic (Auto) 1: Forced OFF output (OFF) 2: Forced ON output (ON) 3: Override and automatic return (OFF_R) 4: Override and automatic return (ON_R)	R/W	R/W
40263	Manual control for circuit2 output	Basic mode: 0-2, Advanced mode: 0-4 0: Automatic (Auto) 1: Forced OFF output (OFF) 2: Forced ON output (ON) 3: Override and automatic return (OFF_R) 4: Override and automatic return (ON_R)	R/W	R/W
40270	Operation date of circuit 1	Bit_6(Sunday),Bit_5(Monday) ... Bit_0(Saturday)	R/W	X
40271	Operation date of circuit 2	Bit_6(Sunday),Bit_5(Monday) ... Bit_0(Saturday)	R/W	X
40272	Pulse width of circuit 1	H: Unit0Sec, L: Min, L: Value(Sec:1-59, Min:1-60)	X	R/W
40273	Pulse width of circuit 2	H: Unit0Sec, L: Min, L: Value(Sec:1-59, Min:1-60)	X	R/W
40280	Output mode of circuit 1	0:Timer output (TMR), 1:Pulse output (PULSE)	X	R/W
40281	Output mode of circuit 2	0:Timer output (TMR), 1:Pulse output (PULSE)	X	R/W
40282	12/24-hour display	0: 12-hour, 1: 24-hour	X	R/W
40283	Summer time (DST)	0: OFF, 1: ON (+1h)	X	R/W
40284	Temporary holiday	Bit_6(Sunday),Bit_5(Monday) ... Bit_0(Saturday)	X	R/W
40285	Display switching	0: Display the next operation of P1, 1: Display the next operation of P2	X	R/W

Address	Basic mode (BSC)		Advanced mode (ADV)		Property
	Description	Range	Description	Range	
Circuit 1					
40385	Setting mode_Bank1	0: 0/OFF 1: Cyclic	Output mode_Bank1	0: TMR 1: PULSE	R/W
40386	ON time_Bank1	H: 0-23 L: 0-59	ON time_Bank1	H: 0-23 L: 0-59	R/W
40387	OFF time_Bank1	H: 0-23 L: 0-59	ON date_Bank1	Bit6(Sun)-Bit0(Sat)	R/W
40388	ON period_Bank1	H: 0-11 L: 0-59	OFF time_Bank1	H: 0-23 L: 0-59	R/W
40389	OFF period_Bank1	H: 0-11 L: 0-59	OFF date_Bank1	Bit6(Sun)-Bit0(Sat)	R/W
40390-40392	Reserved				
40393	Setting mode_Bank2	0: 0/OFF 1: Cyclic	Output mode_Bank2	0: TMR 1: PULSE	R/W
40394	ON time_Bank2	H: 0-23 L: 0-59	ON time_Bank2	H: 0-23 L: 0-59	R/W
40395	OFF time_Bank2	H: 0-23 L: 0-59	ON date_Bank2	Bit6(Sun)-Bit0(Sat)	R/W
40396	ON period_Bank2	H: 0-11 L: 0-59	OFF time_Bank2	H: 0-23 L: 0-59	R/W
40397	OFF period_Bank2	H: 0-11 L: 0-59	OFF date_Bank2	Bit6(Sun)-Bit0(Sat)	R/W
40398-40400	Reserved				
Circuit 2					
40545	Setting mode_Bank1	0: 0/OFF 1: Cyclic	Output mode_Bank1	0: TMR 1: PULSE	R/W
40546	ON time_Bank1	H: 0-23 L: 0-59	ON time_Bank1	H: 0-23 L: 0-59	R/W
40547	OFF time_Bank1	H: 0-23 L: 0-59	ON date_Bank1	Bit6(Sun)-Bit0(Sat)	R/W
40548	ON period_Bank1	H: 0-11 L: 0-59	OFF time_Bank1	H: 0-23 L: 0-59	R/W
40549	OFF period_Bank1	H: 0-11 L: 0-59	OFF date_Bank1	Bit6(Sun)-Bit0(Sat)	R/W
40550-40552	Reserved				
40553	Setting mode_Bank2	0: 0/OFF 1: Cyclic	Output mode_Bank2	0: TMR 1: PULSE	R/W
40554	ON time_Bank2	H: 0-23 L: 0-59	ON time_Bank2	H: 0-23 L: 0-59	R/W
40555	OFF time_Bank2	H: 0-23 L: 0-59	ON date_Bank2	Bit6(Sun)-Bit0(Sat)	R/W
40556	ON period_Bank2	H: 0-11 L: 0-59	OFF time_Bank2	H: 0-23 L: 0-59	R/W
40557	OFF period_Bank2	H: 0-11 L: 0-59	OFF date_Bank2	Bit6(Sun)-Bit0(Sat)	R/W
40558-40560	Reserved				
Circuit 3					
40697	Setting mode_Bank20	0: 0/OFF 1: Cyclic	Output mode_Bank20	0: TMR 1: PULSE	R/W
40698	ON time_Bank20	H: 0-23 L: 0-59	ON time_Bank20	H: 0-23 L: 0-59	R/W
40699	OFF time_Bank20	H: 0-23 L: 0-59	ON date_Bank20	Bit6(Sun)-Bit0(Sat)	R/W
40700	ON period_Bank20	H: 0-11 L: 0-59	OFF time_Bank20	H: 0-23 L: 0-59	R/W
40701	OFF period_Bank20	H: 0-11 L: 0-59	OFF date_Bank20	Bit6(Sun)-Bit0(Sat)	R/W
405702-40704	Reserved				

- * The time range can not be set overlapped when setting Basic Mode (BSC), or the setting will become invalid.
- * The ON/OFF period must be more than 0 when setting Cycle.
- * It will be saved only when all settings of the bank have been set successfully.

Mounting Method

1. Model & Specifications

- Model Number Legend**
- TS-4848

□	□	□	□
1	2	3	4
- 1. Communication: S: Standard (No communication), C: Communication
- 2. Output: R: Relay output
- 3. Input power: AC: 100-240 VAC, DC: 24 VDC
- 4. Mounting method: None: Flush mounting, D: DIN-rail mounting

Specifications

Item	TS-4848SRAC	TS-4848CRAC-D	TS-4848SRDC	TS-4848CRDC-D
Supply voltage	100 ~ 240VAC (50/60HZ)	24VDC		
Voltage range	85% ~ 110% rated supply voltage	85% ~ 120% rated supply voltage		
Control outputs	Capacity: SPDT contact output: 5A at 250VAC, resistive load (cos φ=1) Transistor output: NPN, max. 100mA at 30VDC Residual voltage: Max. 1.5VDC (about 1V)			
Storage temperature	-25 ~ 65°C (with no icing or condensation)			
Number operating temperature	-10 ~ 55°C (with no icing or condensation)			
Ambient operating humidity	25% ~ 85%			
Case color	Black			
Power consumption(max)	2.4W		0.96W	
Weight	about 152g		about 144g	

Order Information

Finish	Output method		Communication interface	Model
	Relay output (1x 2)	Input power		
Flush mounting	100-240 VAC 50/60Hz	24 VDC	None	TS-4848SRAC
	100-240 VAC 50/60Hz	24 VDC	RS-232/485/422	TS-4848SRDC
DIN-rail mounting	100-240 VAC 50/60Hz	24 VDC	None	TS-4848CRAC-D
	100-240 VAC 50/60Hz	24 VDC	RS-232/485/422	TS-4848CRDC-D

Note: The DIN-rail model with communication function must be used with cable (CAB-090B232/CAB-090B485/CAB-090B422).

Accessories (Order Separately)

Name	Model
9-pin Female D-sub cable for RS-232 connector, 1.5m Cable	CAB-090B232
9-pin Female D-sub cable for RS-485 connector, 1.5m Cable	CAB-090B485
9-pin Female D-sub cable for RS-422 connector, 1.5m Cable	CAB-090B422
9-pin male D-sub cable for CAB-090B232/CAB-090B485/CAB-090B422	ADP-090401

2. Pin Assignment