

OPERATION MANUAL

VTG-150




Video Timer

1st Edition - Rev.2



Precautions

Important Safety Warnings




[Power]

 Caution	Operate unit only on the specified supply voltage.
 Stop	Disconnect power cord by connector only. Do not pull on cable portion.
 Stop	Do not place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.




[Grounding]

 Caution	Ensure unit is properly grounded at all times to prevent electrical shock hazard.
 Hazard	Do not ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.


[Operation]

 Hazard	Do not operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.
 Hazard	Do not allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or unit malfunction.
 Stop	If foreign material does enter the unit, turn power off and disconnect power cord immediately . Remove material and contact authorized service representative if damage has occurred.


[Circuitry Access]

 Stop	Do not remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
 Stop	Do not touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after power is disconnected. Capacitors associated with the power supply are especially hazardous. Avoid contact with any capacitors.
 Hazard	Unit should not be operated or stored with cover, panels, and / or casing removed. Operating unit with circuitry exposed could result in electric shock / fire hazards or unit malfunction.


[Potential Hazards]

 Caution	If abnormal smells or noises are noticed coming from the unit, turn power off immediately and disconnect power cord to avoid potentially hazardous conditions. If problems similar to above occur, contact authorized service representative before attempting to again operate unit.
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[Fuse]

 Caution	If this product is equipped with a fuse, fuse replacement should only be performed by qualified personnel. Power off equipment and disconnect power cord prior to replacement. Replace only with fuse of same type, voltage rating, and current rating as specified for the unit.
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[Backup Battery]

 Caution	If this product contains a memory backup battery (either dry cell or rechargeable) and when it is necessary to replace the battery, have work done by the shop where you purchased the product.
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Upon Receipt

Unpacking

VTG-150 units and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings.

Check your received items against the packing lists below.

ITEM	QTY	REMARKS
VTG-150	1	With rear panel
VTG-150 Front Panel	1	
Screw (2.6mm × 6mm)	2	Used to secure the front panel.
Screw (3.0mm × 6mm)	5	Two binding screws (For the rear panel) Three sems screws with washers (For the card)
Operation Manual	1	

Check

Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

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1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing VTG-150 Video Timer you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs.

FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. About the VTG-150

The VTG-150 Video Timer is a plug-in module unit which is installed into the CSF-101, CSF-103, or CSF-110 CCTV system frame. The display is a 24x16 dot matrix display which is easy to read.

Features

- Capability to display year, month, date, hours, minutes, and seconds in a composite display.
- Precision of ± 10 seconds per month (at temperatures of 0°C to 40°C) provided by internal realtime clock
- Time correction function based on external correction pulse and dedicated serial connection
- Capability to synchronize multiple units using master/slave settings
- 12-hour/24-hour time display switching. AM and PM can be displayed in 12-hour display mode.
- 24x16 dot matrix display with edges for easy reading
- 1-line/2-line display format switching
- Internal battery backup circuit allows the time to be updated even if the power is cut off after the clock has started running.

1-3. About This Manual

This manual is intended to help the user easily operate the VTG-150 and make full use of its functions during operations. Before connecting or operating your unit, read this operation manual thoroughly to ensure you understand the product. After reading, it is important to keep this manual in a safe place and available for reference.

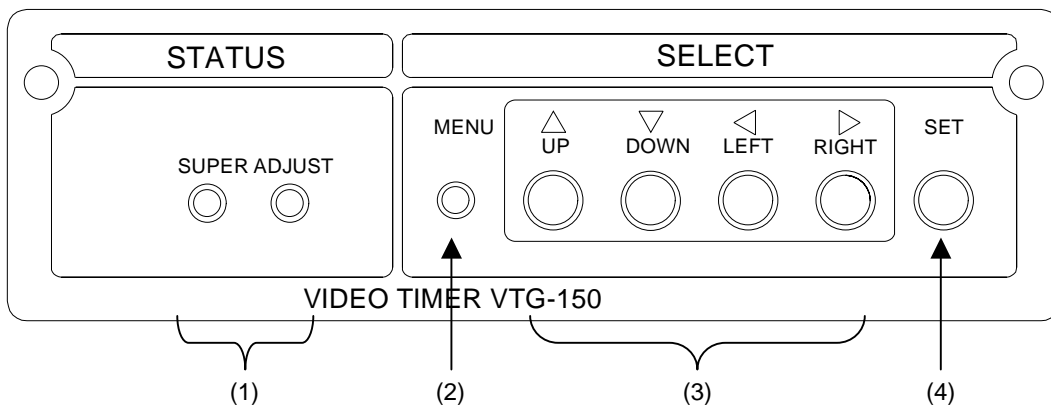
Font Conventions

The following conventions are used through out this manual:

- Boxed text (for example MATT) is used for buttons.
- Shaded text (such as OFF) is used for the setting parameters and values in the menus.

2. Panel Descriptions

2-1. Front Panel



(1) STATUS LED

SUPER SUPER LED will be lit green whenever the time display is set to ON, and unlit when the time display is set to OFF.

ADJUST ADJUST LED will be lit green during the time correction. When the dedicated serial communication is performed properly (When the remote linking operates properly.), the LED will be lit green. Otherwise, the LED will be unlit.

(2) MENU Button

When **MENU** button is pressed, the menu is displayed. Press the button again to return to the normal display.

IMPORTANT

In order to display menu, the video signal must be input to the VTG-150.

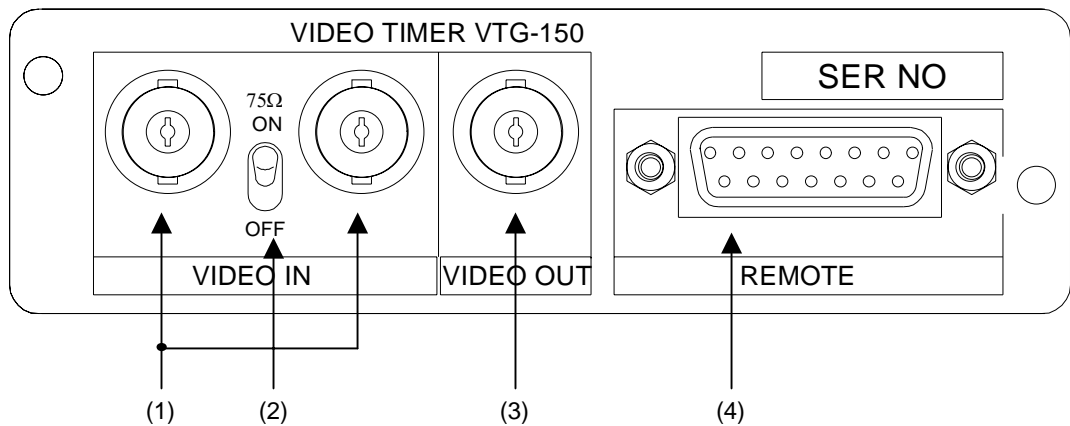
(3) SELECT Buttons (UP, DOWN, LEFT, RIGHT)

Used for the menu settings.

(4) SET Button

Use to make menu settings.

2-2. Rear Panel



(1) VIDEO IN

Used to input composite video signals. The signal can be looped through from the VIDEO IN connector on the right to other device. Turn the 75Ω ON/OFF toggle switch to OFF when looping through the video signal.

(2) 75Ω ON/OFF Switch

Turn this switch to OFF when looping through the video signal.

(3) VIDEO OUT

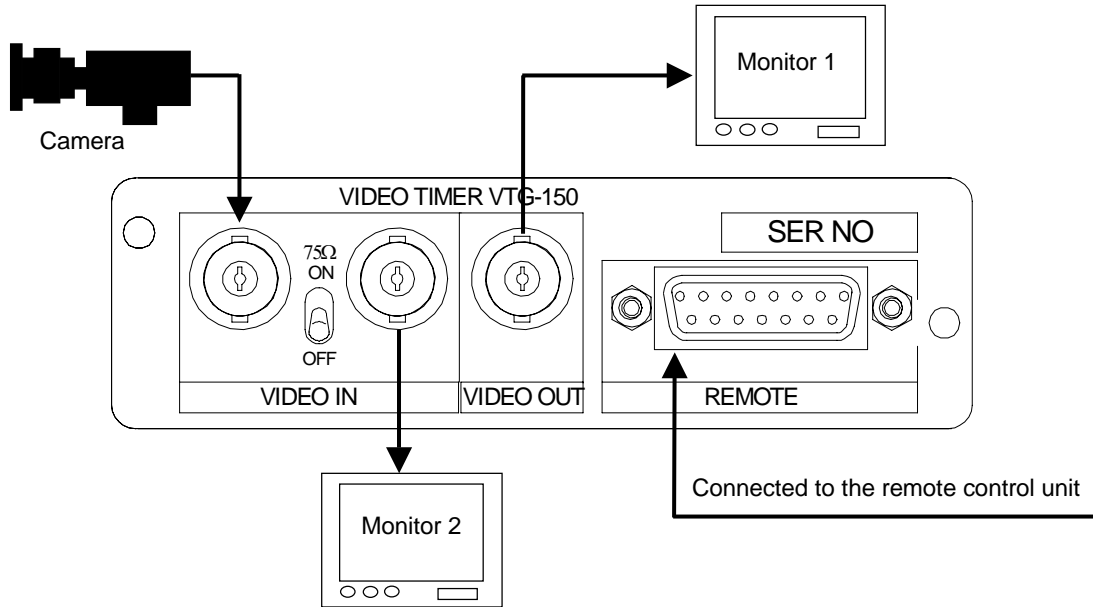
Used to output a composite video signal.

(4) REMOTE

Used for external remote control and time correction pulse input.

3. Connections

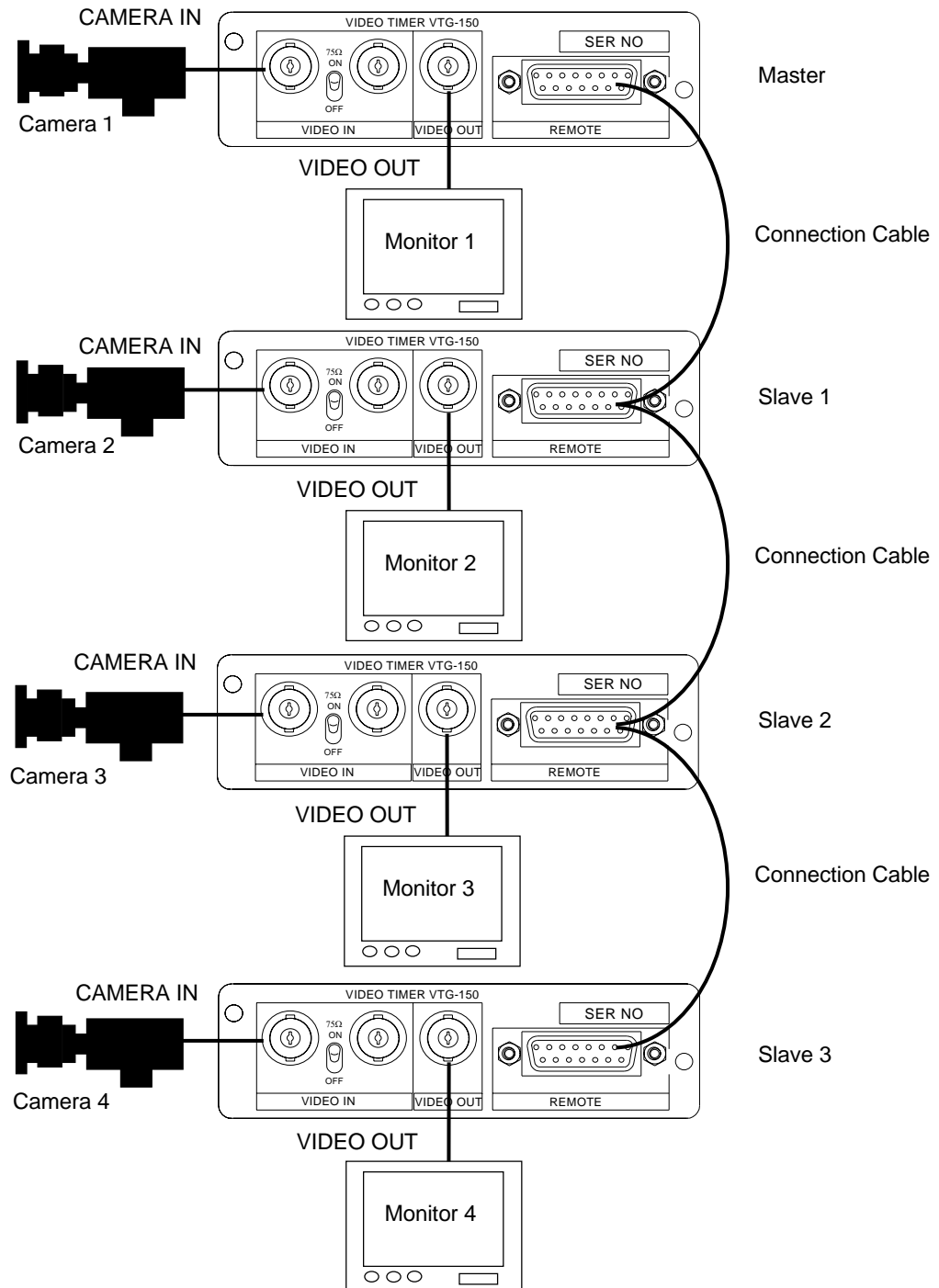
3-1. Connection Example 1: COMPOSITE



3-2. Connection Example 3: Master/Slave

In the VTG-150 system, as many as ten slave units can be linked to a single master unit.

- ◆ Connection example: one master and three slaves



IMPORTANT

Refer to section 7-2-2 "Remote Linking" and 7-2-3 "Connecting with the Dedicated Serial" for more details about how to configure the system.

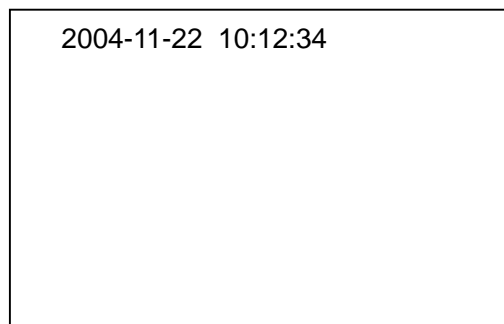
4. Operation

Since the VTG-150 has been configured at the factory for the settings you are most likely to need, it can be used immediately after the shipment. It is not necessary to change the factory default settings unless it is required.

The display position and format can be changed by the menu operation. This section explains about the basic menu operation, time corrections and changing display position and display format. Refer to section 5 “Menu” for more details about the other menus and functions.

4-1. Power ON

Once connecting the video signal cable and turning on the power of the VTG-150, the date and time are displayed on the monitor as shown in the figure below.



Normal display at startup

IMPORTANT

The VTG-150 stores the settings that are made right before the power is turned off. If the power is turned off during the menu mode, the VTG-150 stores the settings that are made right before entering the menu mode.

IMPORTANT

The display date/time data is stored by the lithium battery. The battery life is approximately ten years (at room temperature 25°C).

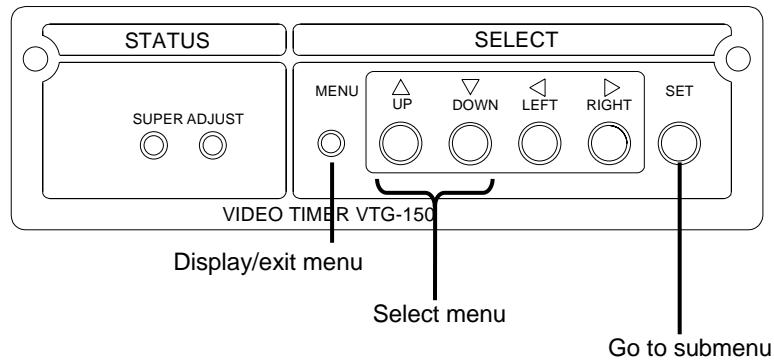
If a backup error occurs, “BACKUP ERROR TIME RESET” message is shown on the monitor. If this message appears, contact your supplier for replacing the battery.

Also, menu setting data except date/time data is stored in the backup memory. The backup memory is tested at startup, and no message is shown when no error occurs. If an error occurs, “BACKUP ERROR” message is shown on the monitor. The VTG-150 is restarted and the menu settings are initialized to the default settings. If this is your case, contact your supplier immediately.

4-2. Menu Operation

4-2-1. Display and Exit Menu

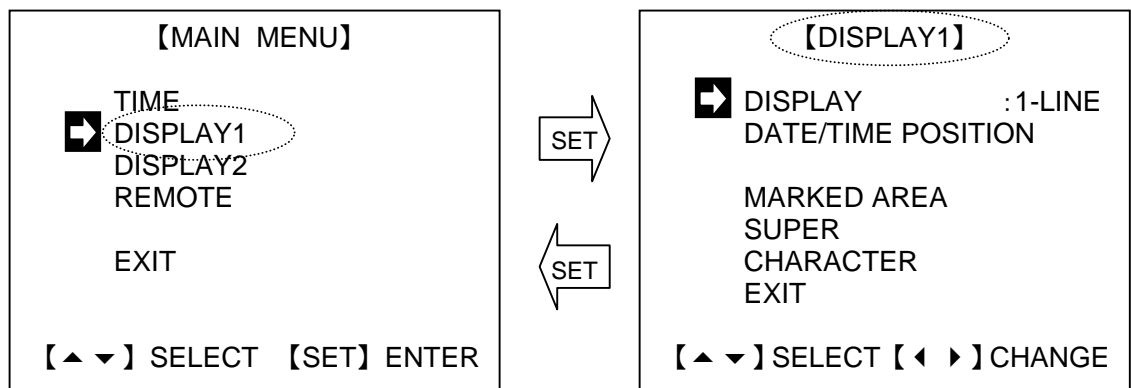
- 1) To display **【MAIN MENU】** on the output monitor, press **MENU** button on the front panel. The output monitor should be connected to the VIDEO OUT connector on the rear panel of the VTG-150.



IMPORTANT

In order to display menu, the video signal must be input to the VTG-150.

- 2) Press SELECT buttons **【▲ ▼】** to select menu. Press **SET** button to go to the selected menu. If there are submenus in the selected menu, repeat the same step.



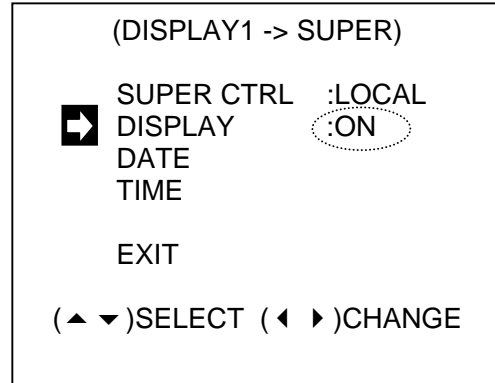
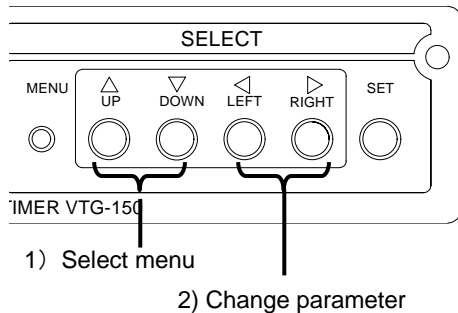
To return to the previous menu select **EXIT** and press **SET** button.

- 3) To exit menu, press **MENU** button.

4-2-2. Changing the Parameter Value

◆ Changing the parameter value

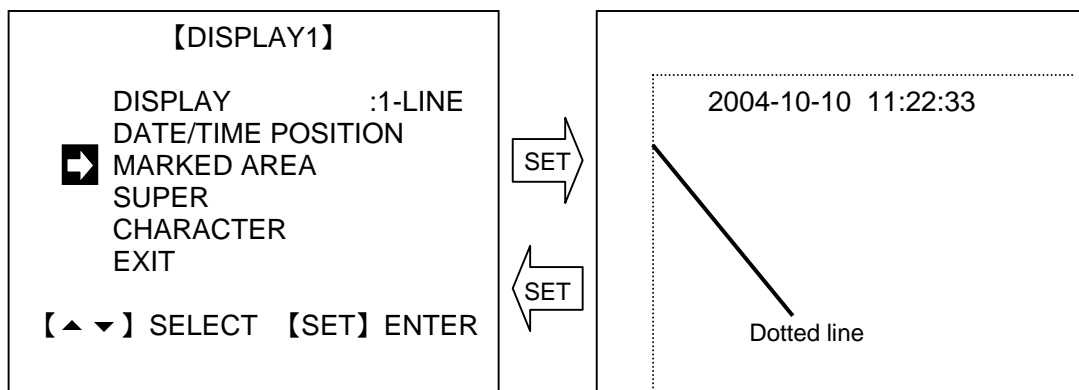
- 1) Press SELECT buttons [▲ ▼] to select the desired parameter and press **SET** button.
- 2) Press SELECT buttons [◀ ▶] to change the parameter value.



◆ Changing the display position (MARKED AREA)

MARKED AREA is used to change the display position.

- 1) Press **MEMU** button to display **【MAIN MENU】**. Move the cursor to **DISPLAY 1** and press **SET** button. **【DISPLAY 1】** menu is displayed.
- 2) Select **MARKED AREA** using [▲ ▼] buttons. **【MARKED AREA】** menu is displayed.
- 3) To see the current display position, press **SET**. The current display position is indicated on the monitor as shown in the figure on the right below. To return to the menu, press the **SET** again.
- 4) Change the marked area (dotted line) using SELECT buttons [▲ ▼ ▶ ▶]. The rectangular area inside the dotted line is the area that the **POSITION** setting can be made on a per-pixel basis.
- 5) Confirm the position and press **SET** to return to the menu.



NOTE

The setting procedure varies depending on the parameter. Refer to the corresponding instructions in this manual.

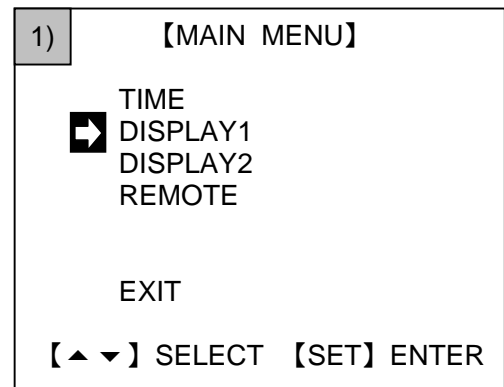
4-3. Changing the Display Format

This section explains how to change the date/time display format. In the VTG-150 factory default setting, the date/time is displayed as shown in the first row of the table below. The following example is instructed to change the display format as shown in the second row of the table below by:

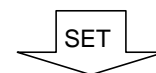
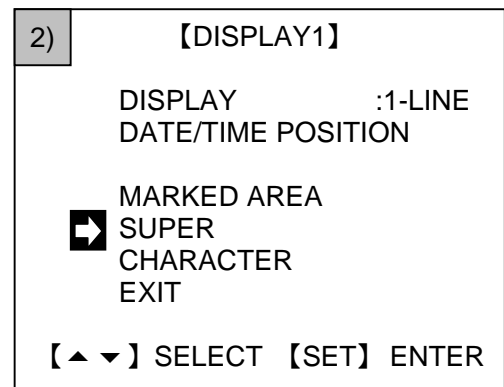
- changing the month display to the alphabetic form
- changing the order of the date/time display
- removing the second display
- adding the day of week display.

Factory default date/time display	2004-11-22 09:34:56
Modified date/time display	NOV-22-2004 (MON) 09:34

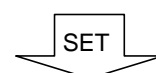
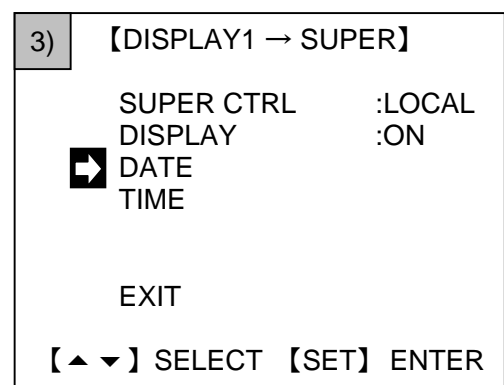
- 1) Press the **MENU** button to display the **【MAIN MENU】**. Move the cursor to **DISPLAY 1** and press **SET** button. **【DISPLAY 1】** menu is displayed on the monitor.



- 2) Select **SUPER** using **SELECT** buttons **【▲ ▼】** and press **SET** button. **【DISPLAY → SUPER】** menu is displayed on the monitor.



- 3) Select **DATE** using **SELECT** buttons **【▲ ▼】** and press **SET** button. **【SUPER → DATE】** menu is displayed on the monitor.



- 4) Move the cursor to **DAY OF WEEK** using SELECT buttons **▲ ▼**. Use **◀ ▶** buttons to change the parameter value to **ON** instead of **OFF**. The day of the week is added to the date display.

Select **EXIT** and press **SET** button to return to **【DISPLAY1 → SUPER】** menu.

Select **TIME** in **【DISPLAY1 → SUPER】** menu and press **SET** button. **【SUPER → TIME】** menu is displayed on the monitor.

4)	【SUPER → DATE】	
	YEAR	:ON
	MONTH	:ON
	DAY	:ON
	▶ DAY OF WEEK	:ON
	EXIT	
	【▲ ▼】 SELECT 【◀ ▶】 CHANGE	



(DISPLAY1->SUPER)



- 5) Move the cursor to **SECOND** using SELECT buttons **▲ ▼**. Use **◀ ▶** buttons to change the parameter value to **OFF** instead of **ON**. The second display disappears from the time display.

Press **MENU** button to exit menu.

5)	【SUPER → TIME】	
	HOUR	:ON
	MINUTE	:ON
	▶ SECOND	:OFF
	AM/PM	:-----
	EXIT	
	【▲ ▼】 SELECT 【◀ ▶】 CHANGE	

- 6) Press **MENU** button again to display **【MAIN MENU】**. Select **DISPLAY2** in **【MAIN MENU】** and press **SET** button. **【DISPLAY2】** menu is displayed on the monitor.

6)	【MAIN MENU】
----	--------------------



- 7) Move the cursor to **DATE FORMAT**. Change the parameter value to **M-D-Y** instead of **Y-M-D** using **◀ ▶** buttons. The display order of the date is changed to month, date, and year.

Next, move the cursor to **MONTH** using **▲ ▼** buttons. Change the parameter value to **JAN-DEC** instead of **01-12** using **◀ ▶** buttons. The month is displayed in the alphabetic format.

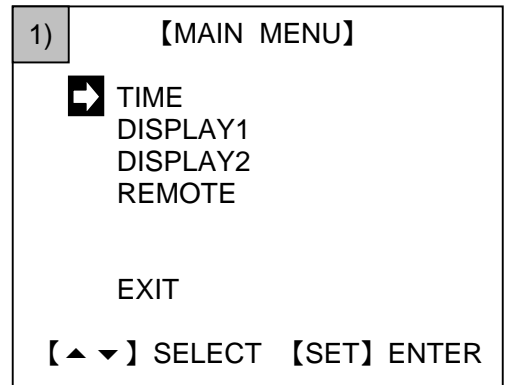
Press **MENU** button to exit menu.

7)	【DISPLAY2】	
	DATE FORMAT	:M-D-Y
	YEAR	:YYYY
	▶ MONTH	:JAN-DEC
	HOUR	:24H
	AM/PM	:-----
	0 SUPPRESS	:OFF
	EXIT	
	【▲ ▼】 SELECT 【◀ ▶】 CHANGE	

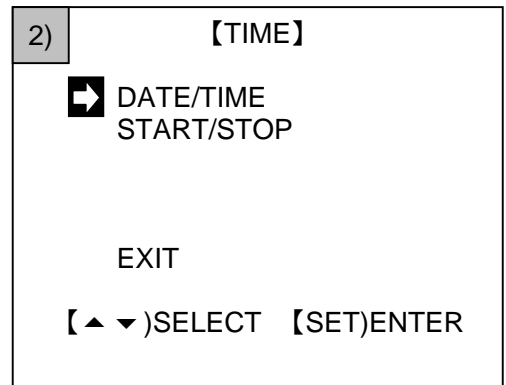
4-4. Correcting DATE/TIME

In the VTG-150, the date/time are corrected in TIME SETUP menu. To display TIME SETUP menu, go to **【MAIN MENU】** → **【TIME】** → **【DATE/TIME】**.

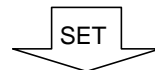
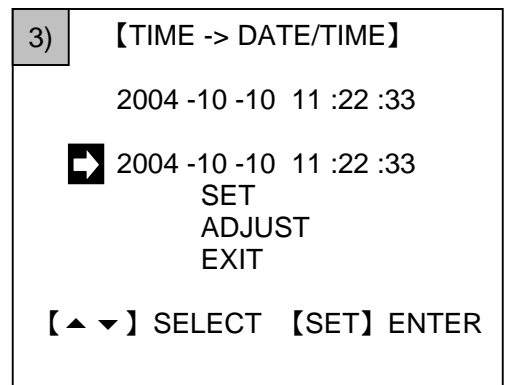
- 1) Press **MENU** button to display **【MAIN MENU】**. Move the cursor to **TIME** and press **SET** button. **【TIME】** menu is displayed on the monitor.



- 2) Move the cursor to **DATE/TIME** and press **SET** button. **【DATE/TIME】** menu is displayed on the monitor.



- 3) Move the cursor to the date/time using **【▲▼】** buttons. Press the **SET** button.



- 4) Move the cursor to the desired parameter. Change the parameter value using **【▲▼】** buttons.

When completed, press **SET** button.

4) **【TIME→DATE/TIME】**

2004 -10 -10 11 :22 :33 ——— Current time

▲▲

2004 -10 -10 11 :23 :00 ——— Point the cursor

SET

ADJUST

EXIT

【SET】ENTER

【▲▼】 CHANGE 【◀▶】 SELECT



- 5) Move the cursor to **SET** in the menu. Press **SET** button.

5) **【TIME→DATE/TIME】**

2004 -10 -10 11 :22 :33 ——— Not changed yet

2004 -10 -10 11 :23 :00

▣ SET

ADJUST

EXIT

【SET】 ENTER

【▲▼】 SELECT



- 6) The current date/time display is updated to the new value. To reset the **SECOND** value to 00, move the cursor to **ADJUST** and press **SET** button.

6) **【TIME→DATE/TIME】**

2004 -10 -10 11 :23 :00 ——— Value changed

2004 -10 -10 11 :23 :00

▣ SET

ADJUST

EXIT

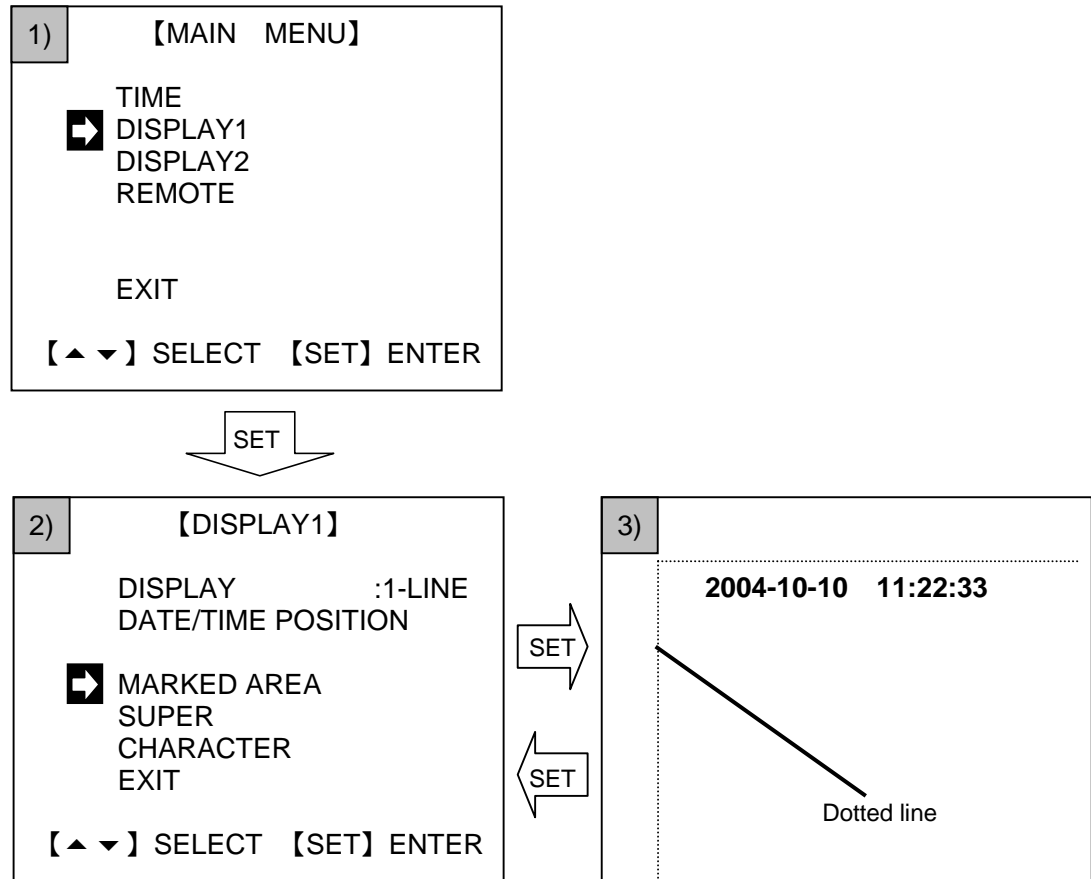
【SET】 ENTER

【▲▼】 SELECT

4-5. Adjusting the Display Position

The date/time display position is adjusted in **【DISPLAY 1】** menu by moving the rectangular area inside dotted line (MARKED AREA), or moving the date/time display itself in the rectangular area (DATE/TIME POSITION). In addition, the date and time can be moved together (1-LINE) or separately (2-LINE).

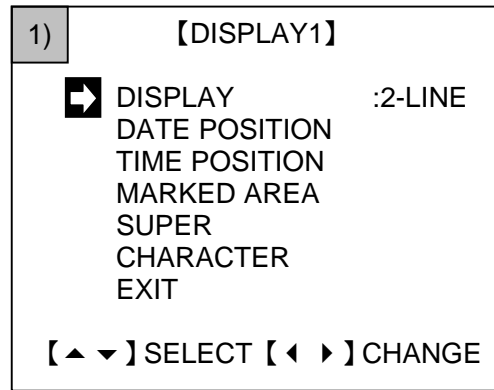
- ◆ Moving the date and time together



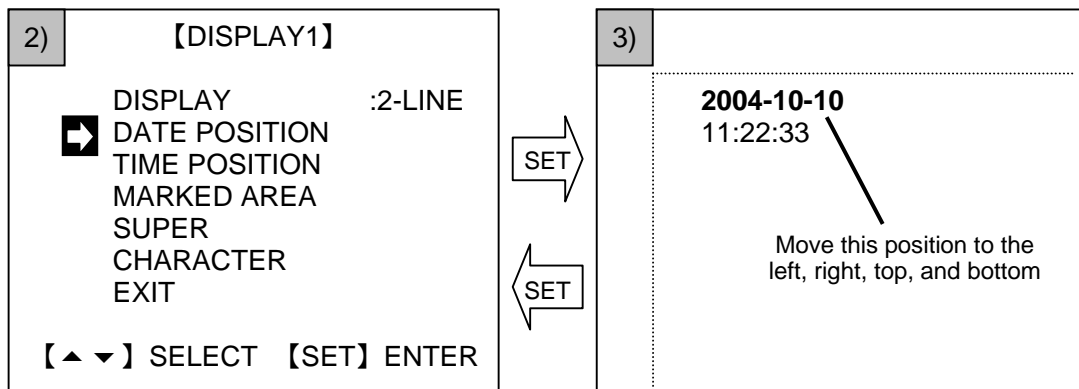
- 1) Press **MEMU** button to display **【MAIN MENU】**. Move the cursor to **DISPLAY 1** and press **SET** button. **【DISPLAY 1】** menu is displayed.
- 2) Select **MARKED AREA** using **【▲ ▼】** buttons. **【MARKED AREA】** menu is displayed.
- 3) To see the current display position, press **SET**. The current display position is indicated on the monitor as shown in the figure (3) above. To return to the menu, press the **SET** again.
- 4) Change the marked area (dotted line) using **SELECT** buttons **【▲ ▼ ◀ ▶】**. The rectangular area inside the dotted line is the area that the **POSITION** setting can be made on a per-pixel basis.
- 5) Confirm the position and press **SET** to return to the menu.

◆ Moving the date and time individually

- 1) Press **【▲▼】** buttons to move the cursor to **DISPLAY** in **【DISPLAY1】** menu. Press **【◀▶】** buttons to change the parameter value to **2-LINE** instead of **1-LINE**. The time/date display appears on two lines.



- 2) Move the cursor to **DATE POSITION** using **【▲▼】** buttons, and then press **SET** button.
- 3) Move the date display position using **【◀▶】** buttons. The date can be moved inside the dotted-lined rectangle on a per-character basis.



- 4) Press **SET** button to apply the setting and return to the menu.
- 5) To change the time display position, select **TIME POSITION** and repeat the steps (3) and (4).

IMPORTANT
<p>If DISPLAY is set to 2-LINE, the date and time display can be moved separately. On the other hand, if set to 1-LINE, both the date and time display move together.</p> <p>If the display position exceeds the display area on the monitor, the date/time display cannot be indicated.</p>

4-6. Menu Settings in Master/Slave Mode

When the master/slave function is used, it is possible to synchronize clock updates and date/time display ON/OFF operations on multiple VTG-150 units. As many as ten slave units can be linked and synchronized to a single master unit. For detailed information on master/slave connections, see section 7-2 "Remote Control Settings."

For information on the connection procedure, see section 3-3 "Connection Example 3: Master/Slave". Connection cables are required for master/slave connections.

VTG-150 units can be synchronized using a dedicated serial signal or using a parallel signal. The connection procedure is the same in both cases, and it is also possible to use serial and parallel signals together. For information on the functions of the REMOTE connector pins, see section 7-1 "REMOTE Connector Pin Assignment."

4-6-1. Linked Operations Based on Correction Pulse

Use the following menu settings to set up a master/slave connection and synchronize clock operations based on a correction pulse signal.

Menu Item		Master Unit Settings	Slave Unit Settings
REMOTE Menu	STATUS	MASTER	SLAVE
	ADJUST	1/DAY, 1/HOUR, 1/MIN	(*1)
	SERIAL LINK	OFF	OFF

(*1) When a unit is set to SLAVE, the ADJUST setting is disabled.

4-6-2. Linked Operations Based on Dedicated Serial

Use the following menu settings to set up a master/slave connection and synchronize clock operations based on a dedicated serial signal.


Menu Item		Master Unit Settings	Slave Unit Settings
REMOTE Menu	STATUS	MASTER	SLAVE
	SERIAL LINK	ON	ON

5. Menu

5-1. MAIN MENU


Press **MENU** button to display **【MAIN MENU】**. To open menu, select the desired menu and press **SET** button.

IMPORTANT
The firmware version is shown at the lower right of the menu display.

【MAIN MENU】
<p>  TIME DISPLAY1 DISPLAY2 REMOTE EXIT VER.01-01 【▲ ▼】 SELECT 【SET】 ENTER </p>

5-2. TIME

【TIME】 menu has two submenus. To open a submenu, select the desired submenu and press **SET** button.

【TIME】
<p>  DATE/TIME START/STOP EXIT 【▲ ▼】 SELECT 【SET】 ENTER </p>

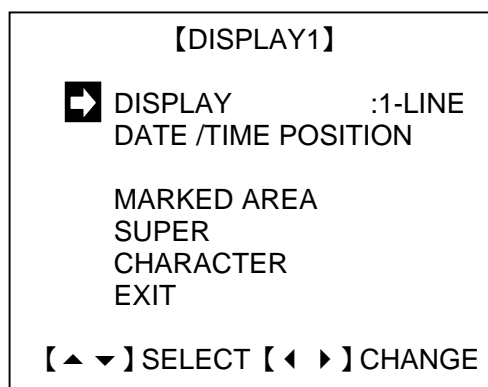
【TIME→DATE/TIME】
2004 -10 -10 11 :22 :33
2004 -10 -10 11 :23 :33
SET
ADJUST
EXIT
【▲ ▼】 SELECT 【SET】 ENTER

【TIME→START/STOP】
2004 -10 -10 11 :23 :33
【SET】 RETURN
【◀】 STOP 【▶】 START

Menu Item	Description	Procedure
DATE/TIME	Changes date and time	See section 4-4 "Correcting DATE/TIME" for more details.
START/STOP	Starts and stops time	Press 【▶】 to start, 【◀】 to stop, and SET button to go to 【TIME】 menu.

5-3. DISPLAY1

As well as 【DISPLAY 2】 menu, 【DISPLAY 1】 menu is used to change the display position and display format. (See Appendix 2 “Date/Time Display Format” for more details.) To display submenus, select the desired menu and press **SET** button.



Menu Item	Description		Ref.	
DISPLAY	Selects 1-line or 2-line display.		5-3-1	
DATE POSITION	Set the date display position.		4-5	
TIME POSITION	Set the time display position.			
MARKED AREA	Set the date/time display area.			
SUPER Menu	SUPER CTRL (*1)	Select LOCAL or REMOTE	5-5	
	DISPLAY	Date/time display ON/OFF	5-3-2	
	DATE Menu	YEAR		Year display ON/OFF
		MONTH		Month display ON/OFF
		DAY		Day display ON/OFF
		DAY OF WEEK		Day of week display ON/OFF
	TIME Menu	HOUR		Hour display ON/OFF
		MINUTE		Minute display ON/OFF
		SECOND		Second display ON/OFF
		AM/PM (*2)	AM/PM display ON/OFF	
CHARACTER Menu	CHARACTER	TYPE1: Standard (Black and white) TYPE2: Transparent		
	EDGE	Edge ON/OFF		
	CHAR LV	Brightness level. Ten levels: level 1 to 10.		
	EDGE LV	Edge brightness level. Ten levels: level 1 to 10. (Available only EDGE is set to ON.)		

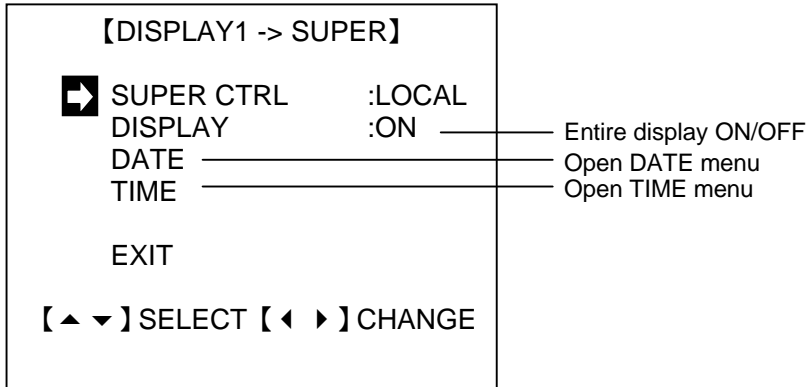
(*1) This menu is the same as SUPER CTRL in REMOTE menu. The value is linked and changes accordingly.

(*2) This menu is the same as AM/PM display ON/OFF in DISPLAY 2 menu. The value is linked and changes accordingly.

5-3-1. 1-LINE/2-LINE (DISPLAY)

DISPLAY in 【DISPLAY 1】 menu is used to change the date/time display to be appeared on one line or two lines. Move the cursor to DISPLAY using 【▲ ▼】 buttons, and select 1-LINE or 2-LINE using 【◀ ▶】 buttons.

5-3-2. Display ON/OFF

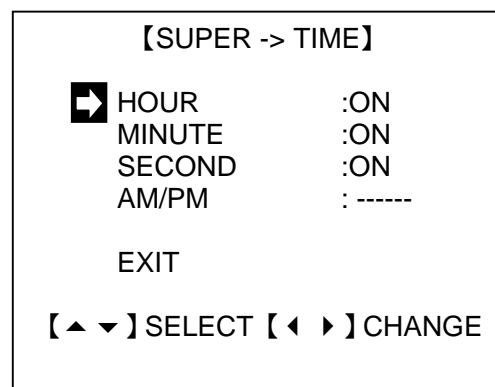
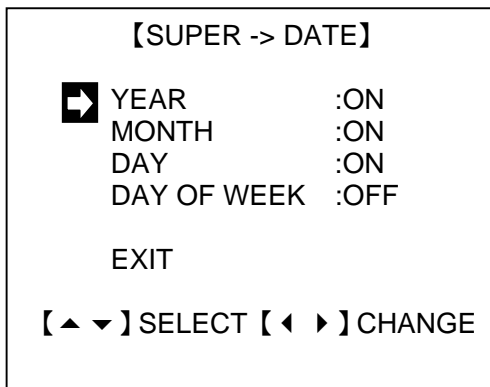


◆ Entire date/timedisplay ON/OFF

In DISPLAY, the entire date/time display can be set to ON/OFF together. DISPLAY is set to ON in the factory default setting. If DISPLAY is set to OFF, neither date nor time are displayed regardless of DISPLAY ON/OFF settings. DISPLAY cannot be set when SUPER CTRL is set to REMOTE.

◆ Year, month, day, day of week, hour, minute, second display ON/OFF

Select DATE or TIME in 【DISPLAY1 → SUPER】 menu and press **SET** button. 【SUPER → DATE】 menu or 【SUPER → TIME】 menu is displayed. Set the parameter value ON/OFF in each menu.



5-4. DISPLAY2

As well as [DISPLAY 1] menu, [DISPLAY 2] menu is used to change the display format. See Appendix 2 "Date/Time Display Format" for more details.

【DISPLAY2】	
▣	DATE FORMAT :Y-M-D
	YEAR :YYYY
	MONTH :01-12
	HOUR :24H
	AM/PM :-----
	0 SUPPRESS :OFF
	EXIT
【▲ ▼】SELECT 【◀ ▶】CHANGE	

Menu Item	Description	Setting Range
DATE FORMAT	Date display order	Y-M-D M-D-Y D-M-Y
YEAR	Year display digit	YYYY (4 digits) YY (2 digits)
MONTH	Month display format	01-12 (numeric format) JAN-DEC (alphabetic format)
HOUR	Selects 24-hour or 12-hour format.	24H 12H
AM/PM	Turns AM/PM display ON/OFF (available only when HOUR is set to 12H.)	ON OFF
0 (zero) SUPPRESS	Used to set zero suppression (eliminates insignificant zeros) ON/OFF. See Appendix 3 "Zero Suppression Display" for more details.	ON OFF

5-5. REMOTE

【REMOTE】 menu is used to set the remote control settings. When setting up remote control, also refer to the information presented in section 7 “Remote Control.”

【REMOTE】	
➡	STATUS :SLAVE
	SUPER CTRL : LOCAL
	SUPER SENSE : -----
	ADJUST : -----
	SERIAL LINK : OFF
	EXIT
【▲ ▼】SELECT 【◀ ▶】CHANGE	

Menu Item	Description	Setting Range
STATUS	Master/slave setting	MASTER (*3) SLAVE
SUPER CTRL (*1)	Local/remote control selection (remote control based on parallel signal)	LOCAL REMOTE
SUPER SENSE	Parallel control input signal	LEVEL (level control) TRG (pulse control)
ADJUST	Time correction output interval setting Once per second, once per hour, once per day (available only on MASTER)	1/MIN (at 00 seconds) 1/HOUR (at 00 minutes, 00 seconds) 1/DAT (at 00 hours, 00, minutes, 00 seconds)
SERIAL LINK	Dedicated serial time linked operations ON/OFF during linked operations (*2)	ON (*3) OFF

(*1) This menu is the same as SUPER CTRL in DISPLAY1 → SUPER menu. The value is linked and changes accordingly.

(*2) A serial signal is sent once per second during dedicated serial linked operations.

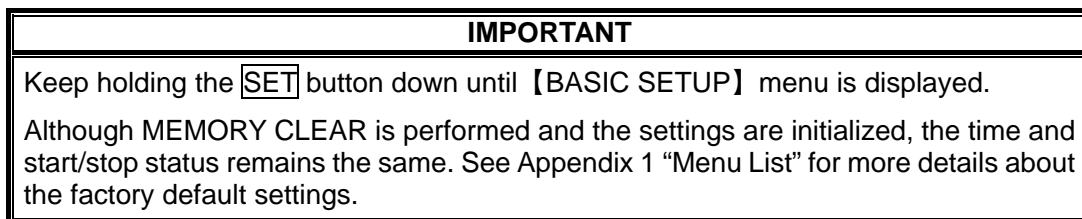
(*3) When SERIAL LINK is set to ON in the master unit, the master unit outputs correction pulses based on both the dedicated serial signal and the parallel signal.

6. MEMORY CLEAR, NTSC/PAL

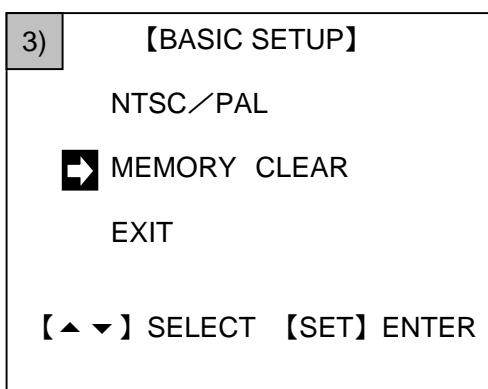
The text data and display format settings can be initialized to the default settings. Follow the procedures below.

■ MEMORY CLEAR (Initialize)

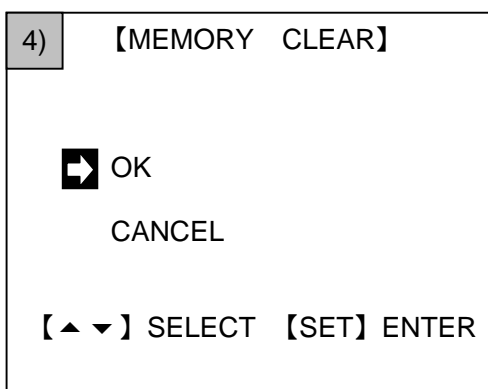
- 1) Hold down the **SET** button on the VTG-150 front panel and turn on the power of the VTG-150.
- 2) **【BASIC SETUP】** menu is displayed.



- 3) Move the cursor to **MEMORY CLEAR** using **【▲▼】** buttons. Press **SET** button to display **【MEMORY CLEAR】**.



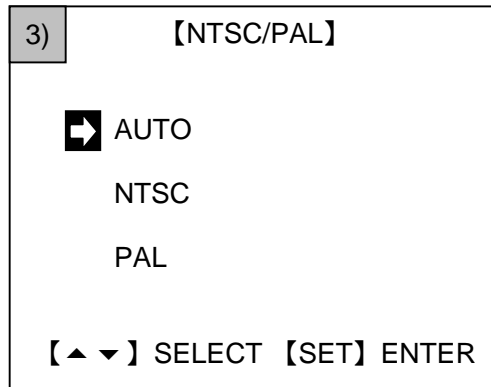
- 4) Move the cursor to **OK** using **【▲▼】** buttons. Press **SET** button to perform MEMORY CLEAR. See Appendix 1 "Menu List" for more details about the factory default settings.



After the initialization, **【BASIC SETUP】** menu is displayed. To return to the normal display, move the cursor to **EXIT** in **【BASIC SETUP】** menu and press **SET** button.

■ Switching between NTSC and PAL

- 1) Hold down the **SET** button on the VTG-150 front panel and turn on the power of the VTG-150.
- 2) **【BASIC SETUP】** menu is displayed.
- 3) Move the cursor to **NTSC/PAL** using **【▲▼】** buttons. Press **SET** button to display **【NTSC/PAL】**.



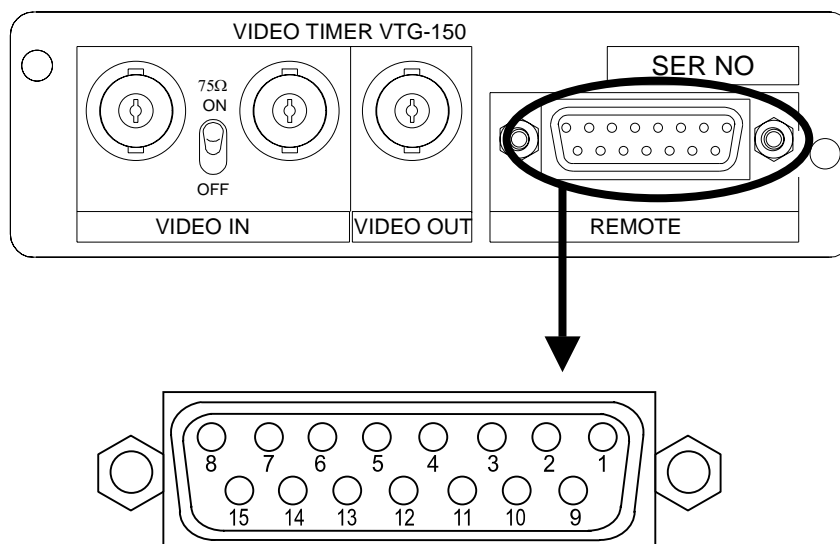
- 4) Select **AUTO**, **NTSC**, or **PAL** using **【▲▼】** buttons. Press **SET** button to apply the setting.

AUTO	Detects the input video signal and automatically recognize NTSC or PAL.
NTSC	Always operates in NTSC irrespective of the input signal format.
PAL	Always operates in PAL irrespective of the input signal format.

【BASIC SETUP】 menu is displayed. To return to the normal display, move the cursor to **EXIT** in **【BASIC SETUP】** menu and press **SET** button.

7. Remote Control

7-1. REMOTE Connector Pin Assignment



Connector (male):	DA-15PF-N (JAE)
Cover:	DA-C4-J10-S1 (JAE)
*Use the inch screw threads.	

REMOTE connector pin assignments (15-pin D-sub female)

Pin No.	Function	Pin No.	Function
1	+5V	9	DATA+
2	ADJ_IN(TTL)	10	DATA+
3	SUPER_IN	11	DATA-
4	START_IN	12	DATA-
5	STOP_IN	13	TERM_A
6	ADJ_OUT	14	TERM_B
7	START_OUT	15	GND
8	STOP_OUT		

7-2. Remote Control Settings

Pin No.	Function	Description
1	+5V	+5V, maximum 200mA supply possible
2	ADJ_IN (TTL)	Time correction input TTL level
3	SUPER_IN	SUPER linked input Level input or trigger input
4	START_IN	START linked input Trigger input
5	STOP_IN	STOP linked input Trigger input
6	ADJ_OUT	Time correction output Open collector output, maximum 40mA
7	START_OUT	START linked output Open collector output, maximum 40mA
8	STOP_OUT	STOP linked output Open collector output Maximum 40mA
9	DATA+	Serial control for linking DATA+
10	DATA+	Serial control for linking DATA+
11	DATA-	Serial control for linking DATA-
12	DATA-	Serial control for linking DATA-
13	TERM_A	Serial control for linking Termination A
14	TERM_B	Serial control for linking Termination B
15	GND	GND

IMPORTANT

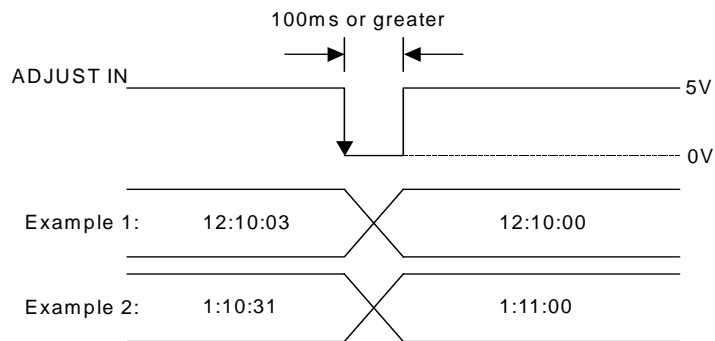
The input signal pulse width is 100ms or more.

- +5V
Power supply usable by remote control BOX, etc. Can supply power up to 200mA.

- ADJ_IN (external time correction input)
The time is corrected as follows when an external pulse signal falls.

Example 1: Seconds display of 1 second to 29 seconds → Seconds display corrected to 0 seconds

Example 2: Seconds display of 3 seconds to 59 seconds → Seconds display corrected to 0 seconds and minutes value increased by 1



IMPORTANT

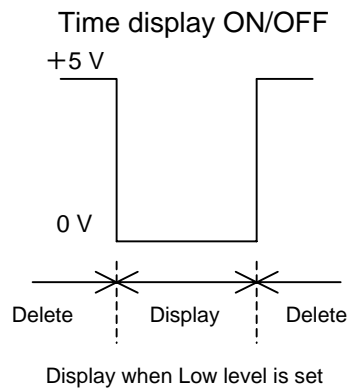
Allow an input pulse interval of at least one second.

- SUPER IN
Trigger reception or level reception can be selected on the menu.

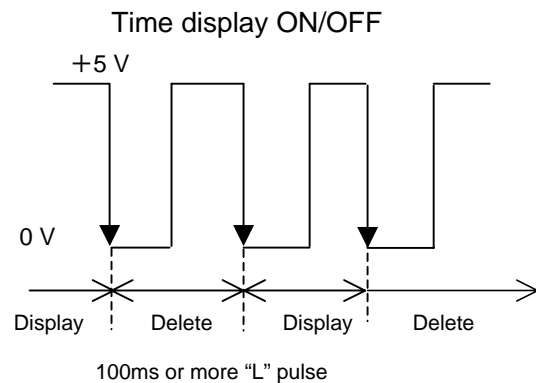
LEVEL	The display is turned on by TTL level negative logic or make-contact.
TRG	The display is toggled ON/OFF by each TTL level negative logic or make-contact.

In this case, a pulse width of 100ms or more is required.

< Input signal: Using level >



< Input signal: Using trigger >



IMPORTANT

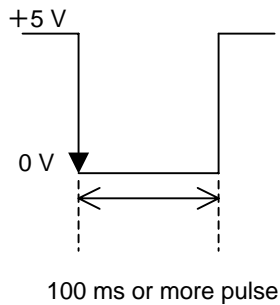
SUPER CTRL on the menu must be set to REMOTE in order to turn the display ON/OFF remotely. In such cases, if remote SUPER_IN is in the open state (e.g., if the remote connector is not connected), the display will be turned off because the power will be pulled up to +5V internally (in the VTG-150). (See section 7-2 "Remote Control Settings.")

Allow an input pulse interval of at least 100ms.

- **START_IN, STOP_IN**

The clock can be started or stopped by TTL level negative logic or make-contact pulse. In these cases, a pulse width of at least 100ms is required.

Time correction, start/stop



IMPORTANT

If START and STOP pulses are input simultaneously, both will be ignored internally. Allow an interval of at least 100ms between each input.

- **ADJ_OUT, START_OUT, STOP_OUT**

ADJ_OUT : Correction pulse output (approximately 500ms width), for master/slave linking

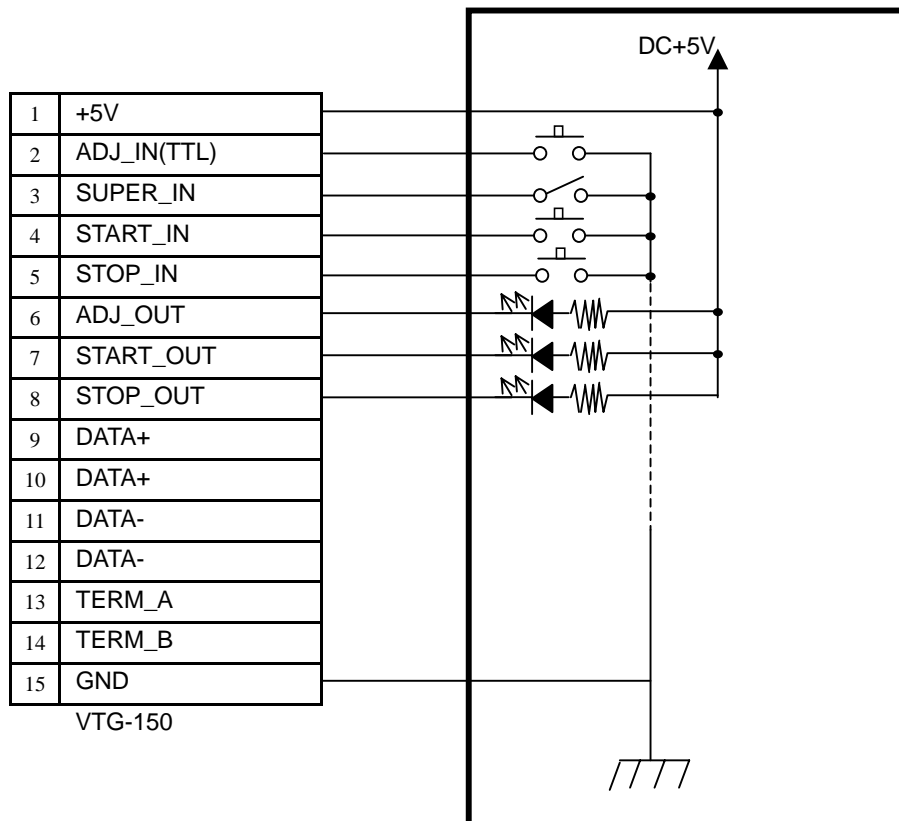
START_OUT : Start level output, for master/slave linking

STOP_OUT : Stop level output, for master/slave linking

Open collector output is used on all three systems. This is equivalent to 74LS06 and ability to control a total maximum load current of 40mA. Use for purposes such as driving an external remote tally LED.

- DATA+, DATA-
VTG-150 dedicated serial linkage ports.
These pins can be used to link VTG-150 units together in a master/slave configuration using dedicated serial signals.
- TERM A, TERM B
Direct connection of TERM A and TERM B terminates the signal and prevents the signal reflections. In a configuration where VTG-150 units are linked using VTG-150 dedicated serial linking, the signal must be terminated at the final slave unit in the connection.

An example of pin connections for connecting to a remote control BOX or other equipment is shown below.



7-2-1. Master/Slave Time Correction/Time Linking Operations

It is possible to link together multiple VTG-150 units, and to synchronize their clock updating operations and date/time display ON/OFF operations to a single master VTG-150 unit (master/slave function).

There are three different clock updating functions:

1. Clock updating based on the crystal oscillator
2. Clock correction by external correction pulse (master/slave) and clock updating by the crystal oscillator
3. Clock linking using dedicated serial connection (master/slave)

The following table summarizes these functions.

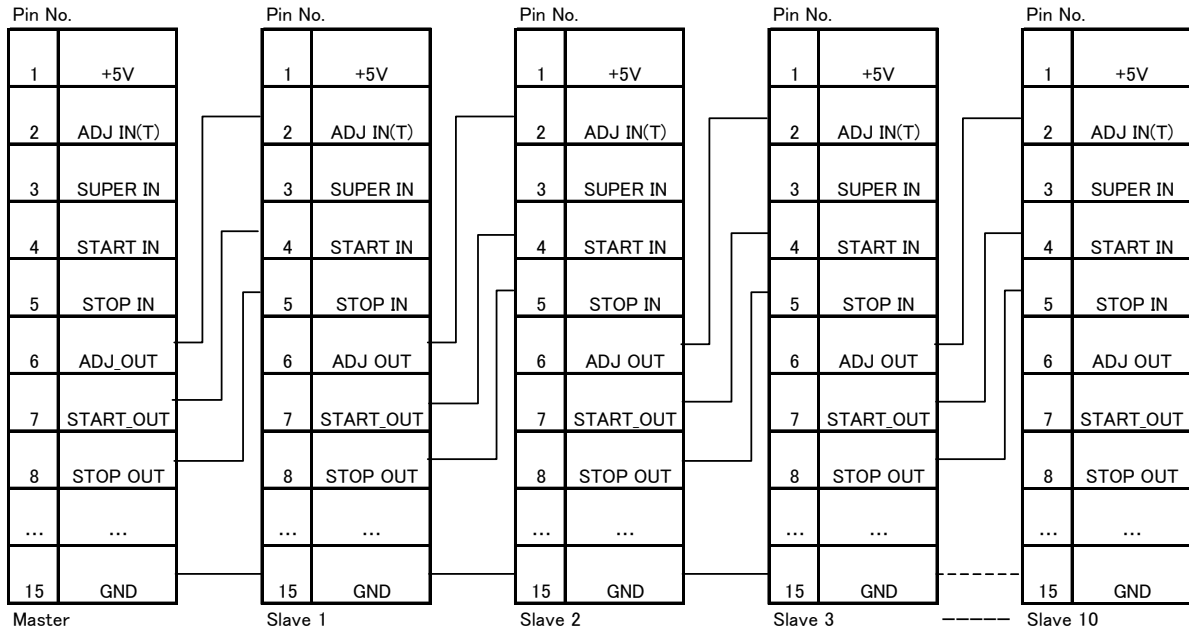
No.	Time error (monthly error)	Correction/linking timing	Other linked functions	Advantages	Disadvantages
1	±10sec (0°C-40°C)	—	—	—	Maximum yearly error of 120 seconds
2	Depends on time error of master VTG-150 master time ±10 seconds (at 0°C to 40°C)	1/min (correction) 1/hour (correction) 1/day (correction)	START STOP SUPER	Makes it easy to configure a system remotely.	If the master unit has a time error, the slave units will also have time errors.
3	Depends on time error of master VTG-150 master time ±10 seconds (at 0°C to 40°C)	1/sec (linking)	Clock only	Makes it easy to configure a system remotely. Can also be used in a wide area system even with a small number of slaves (maximum distance of 100 meters for master and 2 slaves).	If the master unit has a time error, the slave units will also have time errors.

7-2-2. Remote Linking

If multiple VTG-150 units are connected, the slave clocks can be corrected by the master unit. In addition, the operations of the slave units can be linked to the start/stop operation of the master unit. As many as ten slave units can be controlled by a single master unit.

As a rule of thumb, assume that the maximum distance between connected units is 10 meters (if the cables equivalent to AWG26 are used).

< Connection >



IMPORTANT

In the slave units, START OUT or STOP OUT level output is automatically performed, when START IN or START OUT level input is received.

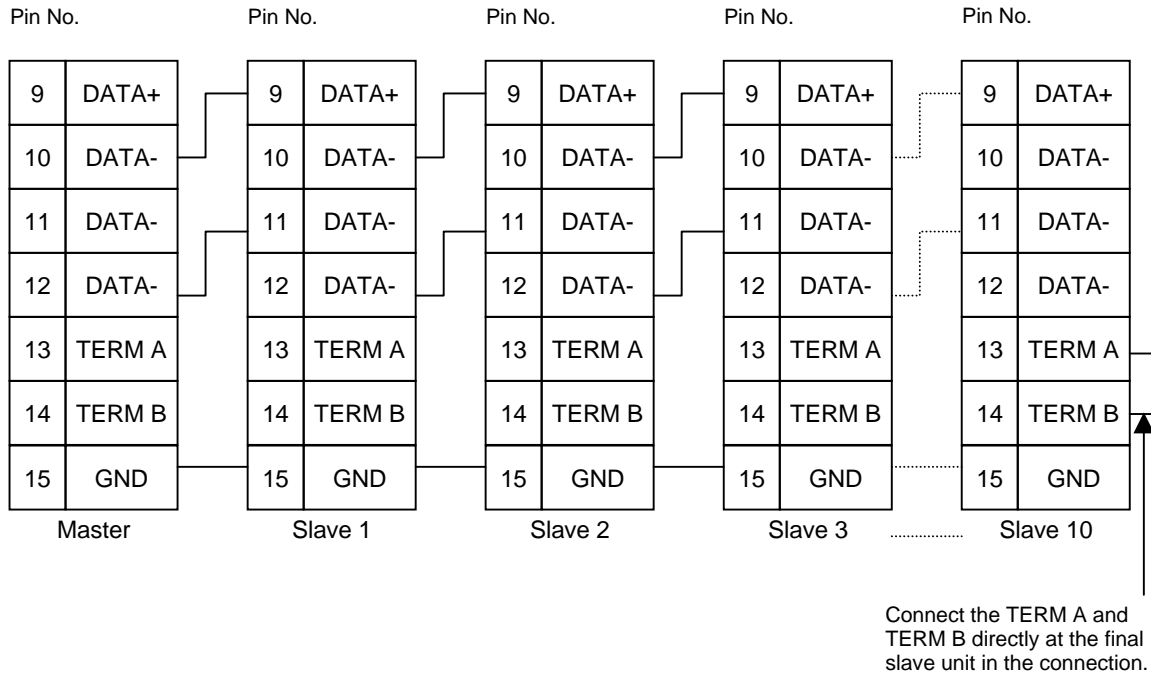
On the other hand, in the master units, START OUT or STOP OUT level output is not automatically performed, when START IN or START OUT level input is received.

7-2-3. Connecting with the Dedicated Serial

If multiple VTG-150 units are connected based on the dedicated serial connection, the slave clocks can be corrected by the master unit. As many as ten slave units can be controlled by a single master unit.

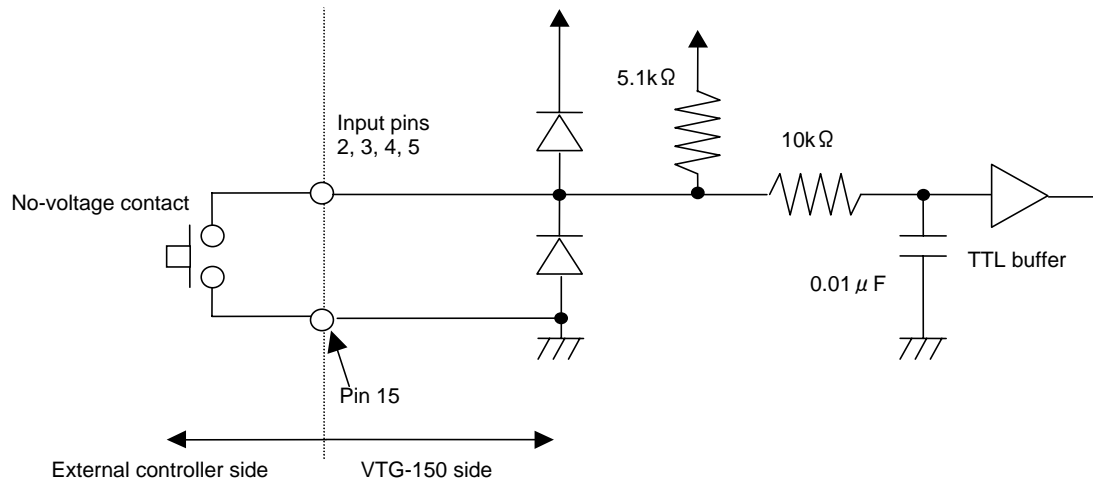
As a rule of thumb, assume that the maximum distance between connected units or the maximum cable length for the whole system is 100 meters (twisted-pair cable equivalent to AWG 26). The operations of the slave units cannot be linked to the start/stop operation of the master unit.

<Connection>

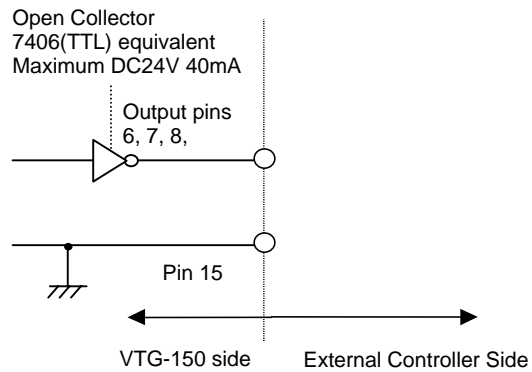


7-3. Remote Input Circuit

(Input terminal: TTL)



(Output terminal)



8. If Problems Occur

Problem	Check	Action
The clock has stopped.	The remote cable might be connected. START/STOP might be set to STOP.	If the remote cable is connected, the stop pulse might be input. Try to input the start pulse (pin 4). Display the STAR/STOP menu and press START [▶] button.
The date/time display moves when the power is turned on.	At startup, is the "BACKUP ERROR TIME RESET" message shown on the monitor?	The battery might have run out. Contact your supplier for replacing the battery.

9. Specifications and Dimensions

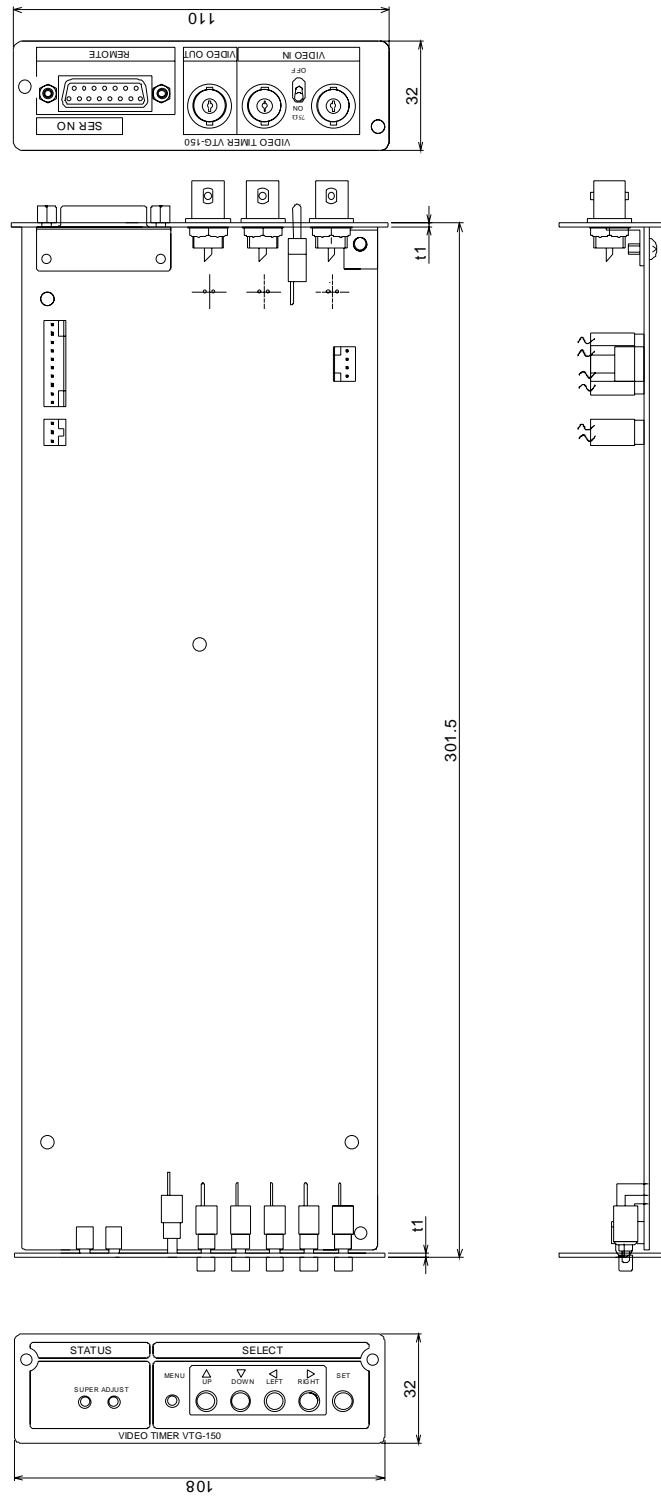
9-1. Unit Specifications

TV Standard	NTSC or PAL (switched in the menu)
Video Inputs	
Analog Composite	1.0V(p-p), Color or black & white 75 Ω termination or loopthru (switched by the toggle switch) , BNC, 1 input
Video Outputs	
Analog Composite	1.0V(p-p), 75 Ω , BNC, 1 output
Characters	
Basic display	YYYY-MM-DD HH:MM:SS (24-hour display) YYYY-MM-DD HH:MM:SS AM (12-hour display) YYYY-MM-DD (DAY OF WEEK)HH:MM:SS
Display controls	Can be changed in the order Year, Month, Day (three formats: Year Month Day; Month Day Year; Day Month, Year) The Year display can be set to 4-digit or 2-digit display (e.g., 2004 or 04). The Month display can be set to 2-digit or 3-leter display (e.g., 12 or DEC). The clock can be set to 12-hour or 24-hour display (if 12-hour display is selected, AM/PM display can be turned ON/OFF). The display can be set as either 1-line or 2-line display. For each of these line modes, the individual fields (Year, Month, Day, Hour, Minute, Second) can be turned ON/OFF. The entire date and time display can be turned ON/OFF. Edges can be turned ON/OFF.
Display position	The screen can be moved about 90% in both the vertical and horizontal directions.
Character/edge brightness	Can be varied among brightness 10 levels.
Font	Font size V : 16H/field, H : approximately 1.8 μ s Format: 24x16 dots
Clock precision	\pm 10 seconds per month for internal crystal oscillator (at 0°C to 40°C)
Time correction input	Correction based on correction pulse from remote connector (can be turned ON/OFF)
Time correction output	Correction timing can be set (once per day, hourly correction or correction every minute selectable)
Master/Slave	Multiple units can be linked together in a master/slave configuration. * As many as ten slave units can be corrected by a single master unit.
Interfaces	
REMOTE Connector	15-pin D-sub connector, female
Remote Input	TTL negative logic pulse or make-contact pulse, pulse width of 100ms or more (START, STOP, SUPER)

Remote Output	TTL negative logic (level output) (START OUT, STOP OUT)	
Time correction input	TTL negative logic pulse (pulse width of 100ms or more), 1 system	
Time correction output	TTL negative logic pulse (pulse width of approximately 500ms), 1 system	
Dedicated serial I/O for linking	1 system	
Temperature	0°C - 40°C	
Humidity	30% - 90% (no condensation)	
Power	DC +5V ± 0.25V (supplied from the CSF frame)	
Consumption	CSF-101	Approx. 11.4VA (Approx. 8.8W) when one VTG-150 unit is installed in the CSF-101.
	CSF-103	Approx. 21.2VA (Approx. 11.8W) when three VTG-150 units are installed in the CSF-103.
	CSF-110	Approx. 45.0VA (Approx. 39.3W) when ten VTG-150 units are installed in the CSF-110.
Backup power supply	Internal lithium battery (For retaining time data.) * EEPROM is used for retaining internal settings.	
Dimensions	110 (W) x 32 (H) x 301.5 (D) mm	

9-2. External Dimensions

(All dimensions in mm.)



Appendix 1. Menu List

Menu Item		Parameter Value	Default	Remote	Ref	
TIME	DATE/TIME	(The date/time is displayed.)	—	ADJUST START/S TOP	11	
	START/STOP		—	✓	P16	
DISPLAY1	DISPLAY	1-LINE 2-LINE	1-LINE		P17	
	DATE/TIME POSITION (When DISPLAY is set to 1-LINE)	—	Monitor area: 90% of the upper center area		P13	
	MARKED AREA	—				
	SUPER	SUPER CTRL	LOCAL REMOTE	LOCAL		P20
		DISPLAY	ON, OFF	ON	✓	
	DATE	YEAR	ON, OFF	ON		P8 P18
		MONTH	ON, OFF	ON		
		DAY	ON, OFF	ON		
		DAY OF WEEK	ON, OFF	OFF		
	TIME	HOUR	ON, OFF	ON		
		MINUTE	ON, OFF	ON		
		SECOND	ON, OFF	ON		
		AM/PM (When HOUR is set to 12H)	ON, OFF	ON		
	CHARACTER	CHARACTER	TYPE1 (-1) TYPE2 (-2)	TYPE1		P17
		EDGE	ON, OFF	ON		
CHAR LV		01-10	10			
EDGE LV (When HOUR is set to 12H)		01-10	01			
DISPLAY2	DATE FORMAT	Y-M-D M-D-Y D-M-Y	Y-M-D		P8 P19	
	YEAR	YYYY YY	YYYY			
	MONTH	01-12 JAN-DEC	01-12			
	HOUR	24H 12H	24H			
	AM/PM (When HOUR is set to 12H)	ON, OFF	ON			
	0 SUPPRESS	ON, OFF	OFF			
REMOTE	STATUS	MASTER SLAVE	SLAVE		P15 P20 P22	
	SUPER CTRL	LOCAL REMOTE	LOCAL			
	SUPER SENSE (Fixed to LEVEL when STATUS is set to SLAVE)	LEVEL TRIGGER	LEVEL			
	ADJUST (Available only when STATUS is set to MASTER.)	1/MIN 1/HOUR 1/DAY	1/MIN			
	SERIAL LINK	ON, OFF	OFF			
	TIME ZONE (ADJUST ON 時)	-12.0H ~ +12.0H	+09.0H			
	RCV MONITOR	Display only				

Appendix 2. Date/Time Display Format

Menu Item			Parameter Value	Display	
DISPLAY1	DISPLAY		1-LINE	2004-11-22 09:34:56	
			2-LINE	2004-11-22 09:34:56	
	SUPER	DISPLAY		ON	2004-11-22 09:34:56
				OFF	(No display)
		DATE	YEAR	ON	2004-11-22 09:34:56
				OFF	11-22 09:34:56
			MONTH	ON	2004-11-22 09:34:56
				OFF	2004 22 09:34:56
			DAY	ON	2004-11-22 09:34:56
				OFF	2004-11 09:34:56
			DAY OF WEEK	ON	2004-11-22 (MON) 09:34:56
				OFF	2004-11-22 09:34:56
		TIME	HOUR	ON	2004-11-22 09:34:56
				OFF	2004-11-22 34:56
			MINUTE	ON	2004-11-22 09:34:56
				OFF	2004-11-22 09 56
	SECOND		ON	2004-11-22 09:34:56	
			OFF	2004-11-22 09:34	
	AM/PM	ON	2004-11-22 09:34:56 PM		
		OFF	2004-11-22 09:34:56		
DISPLAY2	DATE FORMAT		Y-M-D	2004-11-22 09:34:56	
			M-D-Y	11-22-2004 09:34:56	
			D-M-Y	22-11-2004 09:34:56	
	YEAR		YYYY	2004-11-22 09:34:56	
			YY	04-11-22 09:34:56	
	MONTH		01-12	2004-11-22 09:34:56	
			JAN-DEC	2004-NOV-22 09:34:56	
	HOUR (AM/PM is set to OFF)		24H	2004-11-22 21:34:56	
			12H	2004-11-22 09:34:56	
	AM/PM		ON	2004-11-22 09:34:56 PM	
			OFF	2004-11-22 09:34:56	
	0 SUPPRESS		ON	2004-11-22 9:34:56	
OFF			2004-11-22 09:34:56		

Appendix 3. Zero Suppression Display

0 SUPPRESS OFF	0 SUPPRESS ON	Description
Normal Mode		
2004-01-02	2004-1-2	4-digit year display is not suppressed.
04-01-02	04-1-2	2-digit year display is not suppressed.
2004-01-02 03:04:05	2004-1-2 3:04:05	Suppresses the first zeros of the month, and day, and hour display. The first zeros of the minute and second display are not suppressed.
00:00:05	0:00:05	Suppresses the first zeros when hour, minute, and second display only are displayed (hour /minute, minute/second, hour, minute, second).
00:05	0:05	
05	5	

Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.



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