FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

MV-40F(A)

Multi Viewer

2nd Edition

S/N 9075301 - Higher

FOR-A COMPANY LIMITED

Precautions

Important Safety Warnings

[Power]

 Caution	Operate unit **only** on the specified supply voltage.
	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.
	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]

	**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.

[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.

[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.

Upon Receipt

Unpacking

The MV-40F is fully inspected and adjusted prior to shipment and can be operated immediately upon completing all required connections and operational settings.

Check your received items against the packing list below.

ITEM	QTY	REMARKS
MV-40F	1	NTSC or PAL user selectable
AC Cable	1	For unit power supply
Operation Manual	1	This manual

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 the MV-40F you have entered the world of FOR.A and our 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 production 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 MV-40F

The MV-40F is a flexible and economical composite input multi viewer with a wide range of convenient functions. Features include; built-in title generator to identify each source input, four video inputs with loop thru, one VTR input and output to monitor display recorded material and one dedicated monitor output. Sequentially freeze video for observation purposes. Ideal for security monitoring, manufacturing observation, or any application requiring multi viewing of different locations or different areas within one location.

Features

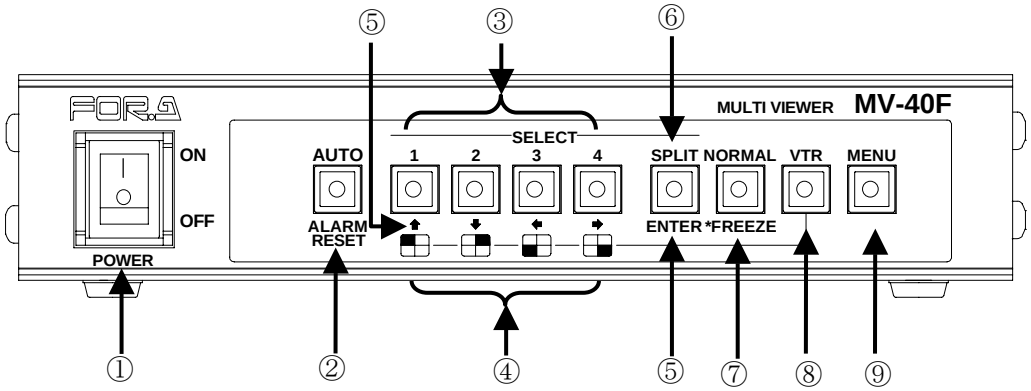
- Accepts and loops thru 4 ea. color or B/W asynchronous composite video signals.
- Display camera inputs full screen, 2-split, 3-split, 4-split, or P-in-P.
- Split display H or V selectable.
- 3-split display H or V selectable. 2 one side/1 to other.
- 3 P-in-P modes, 1 camera full screen + 1, 2 or 3 inset P-in-P displayed.
- Input positioning adjustable all display modes except full and quad screen.
- Auto sequence between inputs and alarm/lost video detection functions.
- Input up to 8 characters per camera channel title, title positionable.
- Freeze camera input views as necessary, 2 x zoom views on playback.
- All operational parameters on-screen menu set at observation monitor.
- Alarm, video loss indications monitor displayed as they occur.
- Record video channels in multiple view format modes.
- Convenient EIA 1RU half width size.

1-3. About This Manual

This manual is intended to help the user easily operate the MV-40F 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 future reference.

2. Panel Descriptions

2-1. Front Panel



① Power switch and indicator
Used to turn unit power ON / OFF.

② AUTO / ALARM RESET

AUTO: Used to switch between full screen displayed channels. When lit, auto sequencing between full screen displayed channels will commence according to the set dwell time. See sec. '5-2. Time Setup' for details on setting dwell time. Manual switching can also be performed by pushing this switch.

ALARM RESET: Switch indicator light flashes when alarm is in progress. Push to turn off alarm buzzer. See important note below concerning external alarms.

IMPORTANT

This switch can not be used to reset alarm status when ALARM MODE is set to LEVEL.

③ Select 1 - 4
Used to select camera inputs for full screen display when in NORMAL mode. Used to set freeze operation ON/OFF for corresponding input when in FREEZE mode..

④
Used to zoom in on VTR playback material. See sec. '4-5-12. Zoom Display' for details.

⑤ ENTER
Used to scroll through menu lists and make menu selections.

⑥ SPLIT
Used to turn split mode ON/OFF. Switch indicator lights when SPLIT mode is ON. Split mode display type (2 split, 3 split, Quad and P-in-P) can be selected by menu operations. See sec. '5-5. Display' for details.

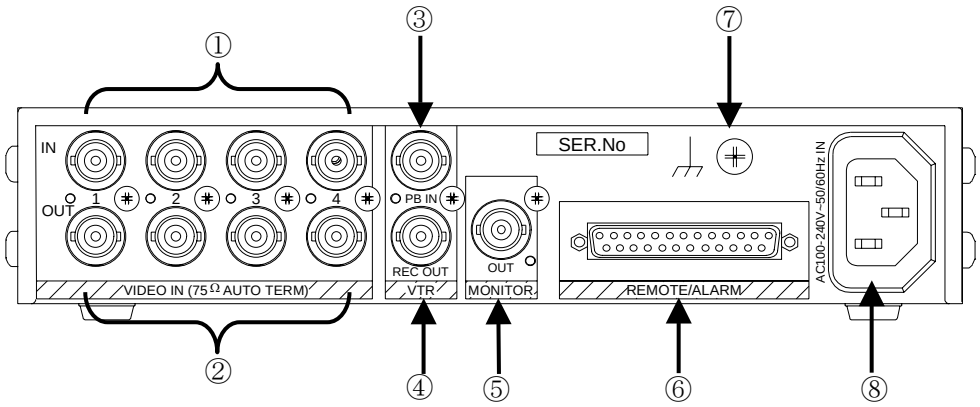
⑦ NORMAL / FREEZE
Used to set unit to NORMAL or FREEZE mode operation. Switch indicator lights when FREEZE mode selected. See sec. '4-5-9. Freeze Select' for details.

⑧ VTR
Used for playing back and viewing previously recorded VTR video. Switch indicator lights when VTR mode selected. See sec. '4-5-11. VTR Record / Playback' for details.

(Continued following page.)

⑨ MENU
Used to access menu mode for setting unit parameters such as title, position, character type, etc. Switch indicator lights when MENU mode selected. See sec. '5. Main Menu' for details.

2-2. Rear Panel



① VIDEO IN 1 - 4
Used for input of composite video. BNC type connectors.

② VIDEO OUT 1 - 4
Used for output of loopthrough composite video 1-4 inputs (①). These connectors will 75Ω auto terminate when no loopthrough connection to other system equipment is made. BNC type connectors.

③ VTR PB IN
Used to input previously recorded VTR material for output to display monitor (MONITOR OUT).

④ VTR REC OUT
Used to output video to VTR for record purposes. Output mode can be set to always quad or the same mode with the monitor output.

⑤ MONITOR OUT
Used to monitor display selected camera or playback video.

⑥ REMOTE/ALARM connector
Used for remote control connection of a user fabricated remote control device.
Or used for remote control connection to computer.
Also used for external alarm signal input device connection.

⑦ Ground Terminal
Used to ground unit to protect operators against static electricity and / or electrical shock.

⑧ AC IN
Used for connection to AC power source via supplied accessory cord.

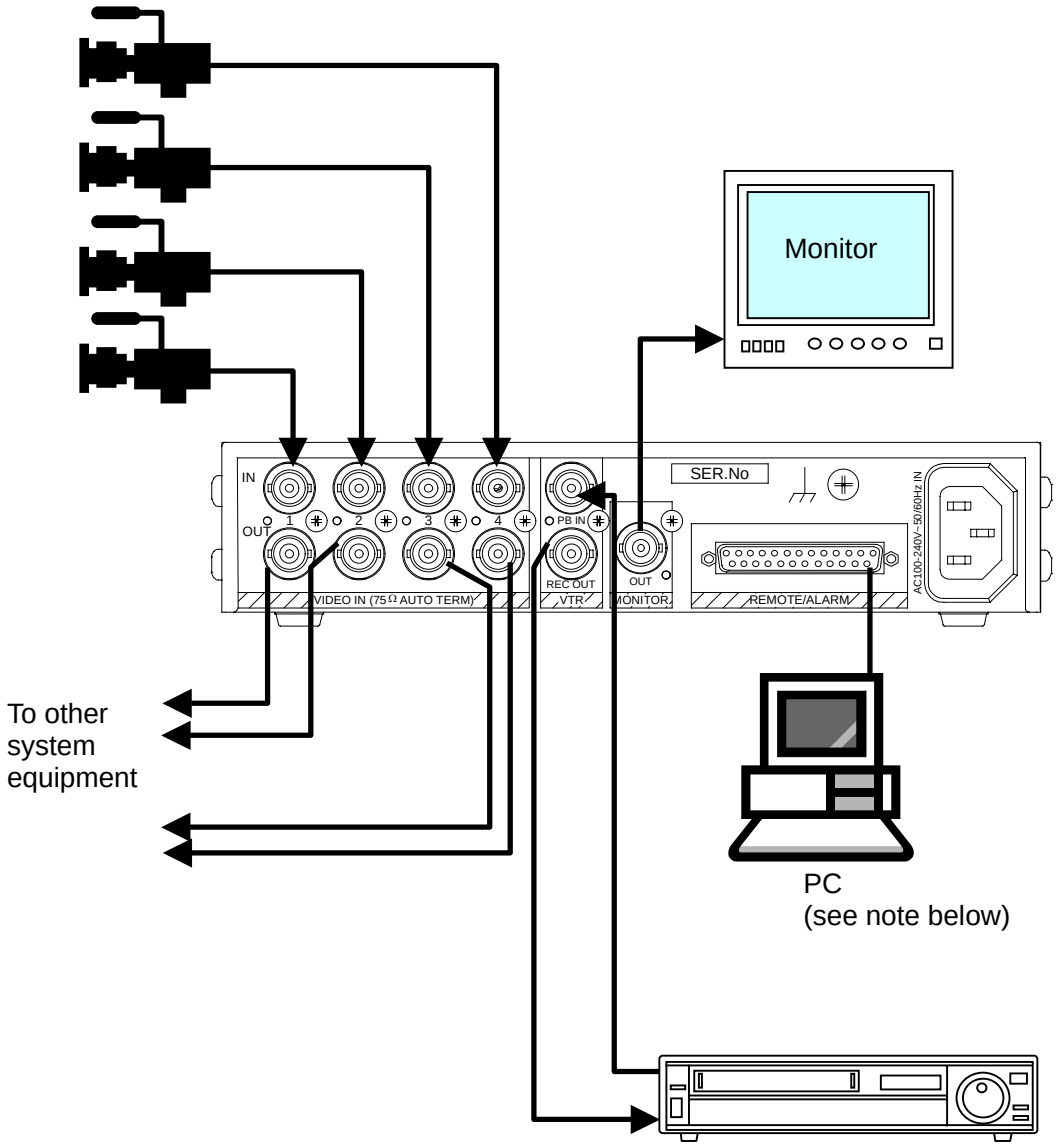
IMPORTANT

Unit circuitry is **not fuse protected**. Unit power cable **must not** be directly connected to your power source. Instead, connect to a power connection unit having either an installed fuse or breaker that can be easily reached in an emergency.

3. Connection Example

3-1. Computer Control

Basic RS-232C interface connection example is given in the figure below.

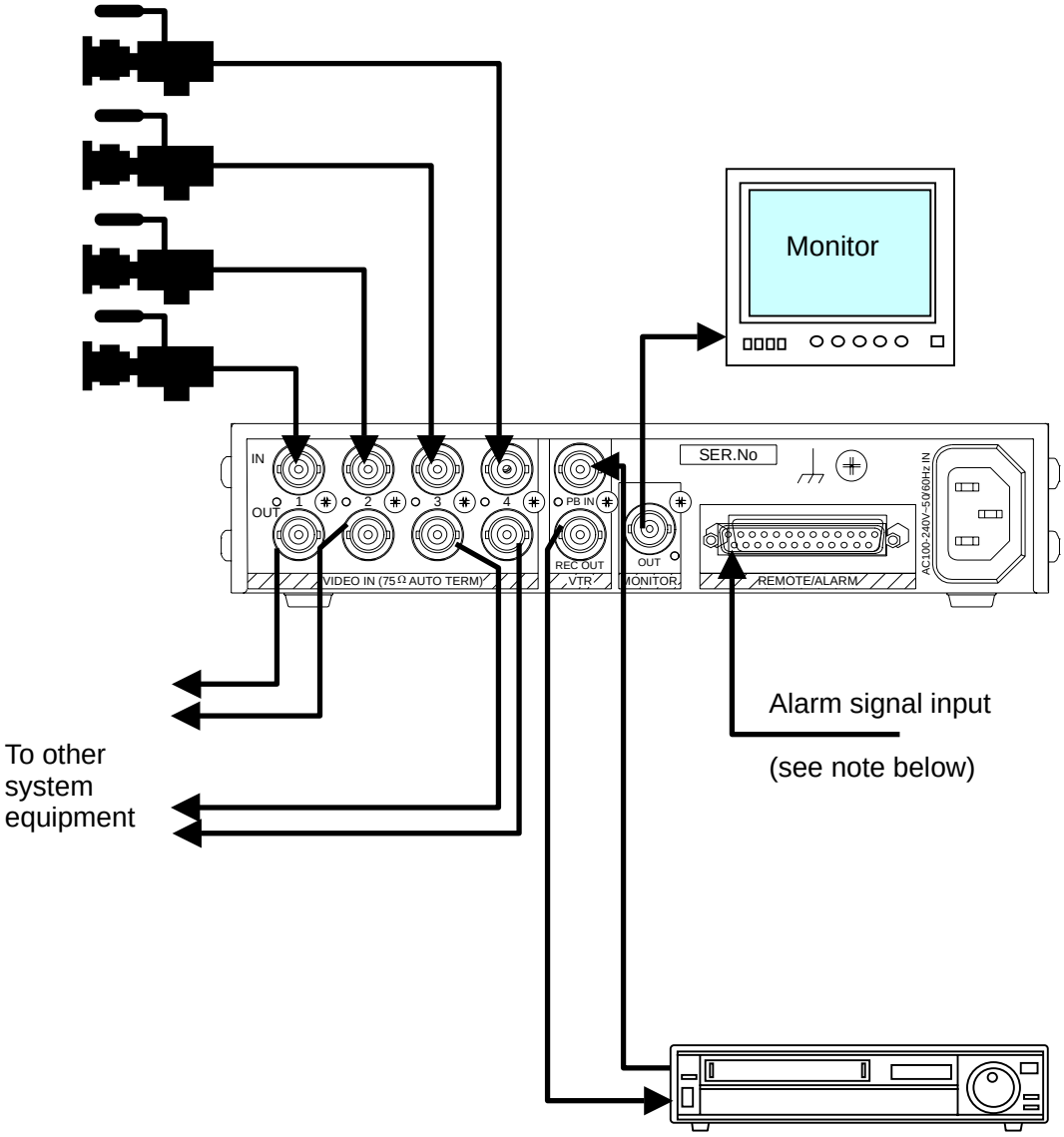


NOTE

See sec. '3-3. Remote / Alarm Connector' following for REMOTE/ALARM connector and alarm circuit information.

3-2. External Alarm Input

Basic alarm connection example is given in the figure below.

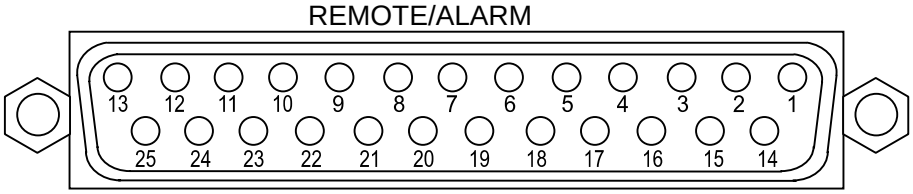


NOTE

See sec. '3-3. Remote / Alarm Connector' following for REMOTE/ALARM connector and alarm circuit information.

3-3. Remote / Alarm Connector

Connector appearance and pin assignments are as below.



25-pin D-sub (female)

◆ **Pin Assignment Table**

PIN No	SIGNAL	PIN No	SIGNAL
1	REMOTE AUTO/RST	14	ALARM MAKE
2	REMOTE CH1	15	ALARM COM
3	REMOTE CH2	16	ALARM BREAK
4	REMOTE CH3	17	NOT USED
5	REMOTE CH4	18	RS-232C TXD
6	REMOTE NOR/FRZ	19	RS-232C RXD
7	REMOTE SPLIT	20	RS-232C DTR
8	REMOTE VTR	21	RS-232C DSR
9	ALARM CH1	22	RS-232C RTS
10	ALARM CH2	23	RS-232C CTS
11	ALARM CH3	24	GND
12	ALARM CH4	25	GND
13	ADJUST IN		

◆ **Pin Functions**

Pin no. 1 – 8: Remote Control Operations
Pin no. 9 – 12: Alarm Inputs
Pin no. 13: External Time Correction Input
Pin no. 14 – 16: Alarm Outputs
Pin no. 18 – 23: RS-232C Interface Control Signals

◆ **To fabricate connection cable for Remote / Alarm Connector:**

Use 25-pin D-sub (male) connector assembly.

Assembly part numbers are as given below.

Backshell: D-C4-J11-S1 (JAE)

Connector Core: DB-25PF-N (JAE)

3-4. Remote Control

Remote control functions enable switch operations from a remote box are as shown below.

Remote Control Functions

Pin No.	SIGNAL	Function
1	REMOTE AUTO/RST	Same as front panel AUTO/ALARM RESET switch
2	REMOTE CH1	Same as front panel SELECT1 switch
3	REMOTE CH2	Same as front panel SELECT2 switch
4	REMOTE CH3	Same as front panel SELECT3 switch
5	REMOTE CH4	Same as front panel SELECT4 switch
6	REMOTE NOR/FRZ	Same as front panel NORMAL/FREEZE switch
7	REMOTE SPLIT	Same as front panel SPLIT switch
8	REMOTE VTR	Same as front panel VTR switch

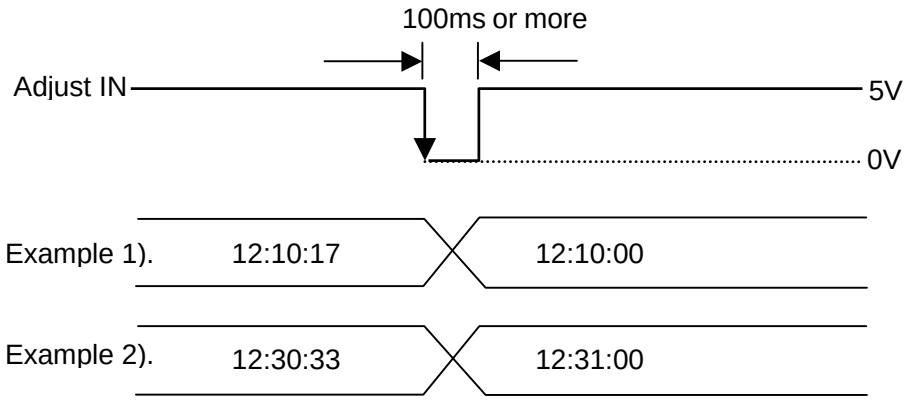
3-4-1. External Time Correction Input

Time can be corrected by an external minute pulse signal.

When time correction pulse signal received:

If clock indication is between 1 - 29 seconds, clock is reset to 0 second.

If clock indication is between 30 - 59 seconds, clock is reset to 0 second plus 1 minute.



3-4-2. Remote Control Circuit Diagram

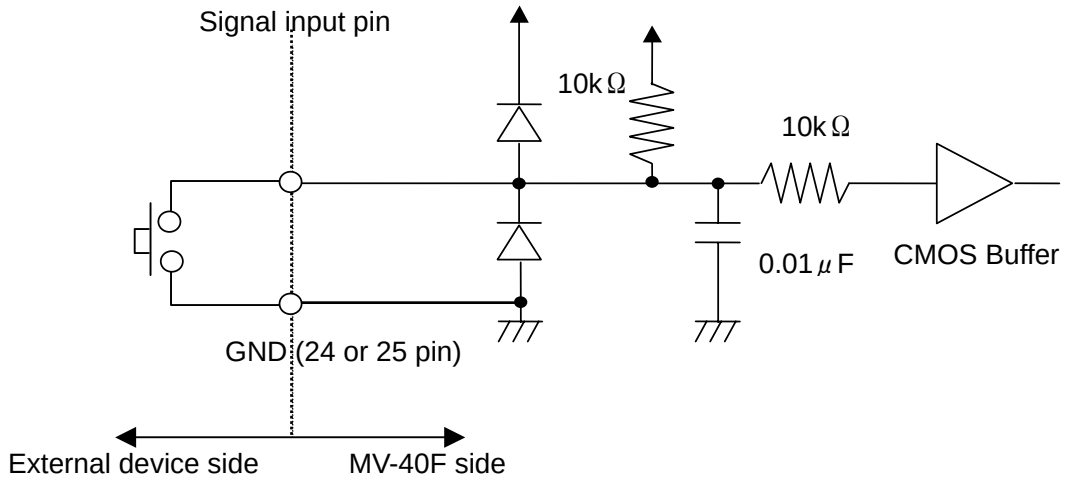
Remote control circuit is shown as below with external device examples. See sec. '3-3. Remote / Alarm Connector' for details on pin assignments.

NOTE

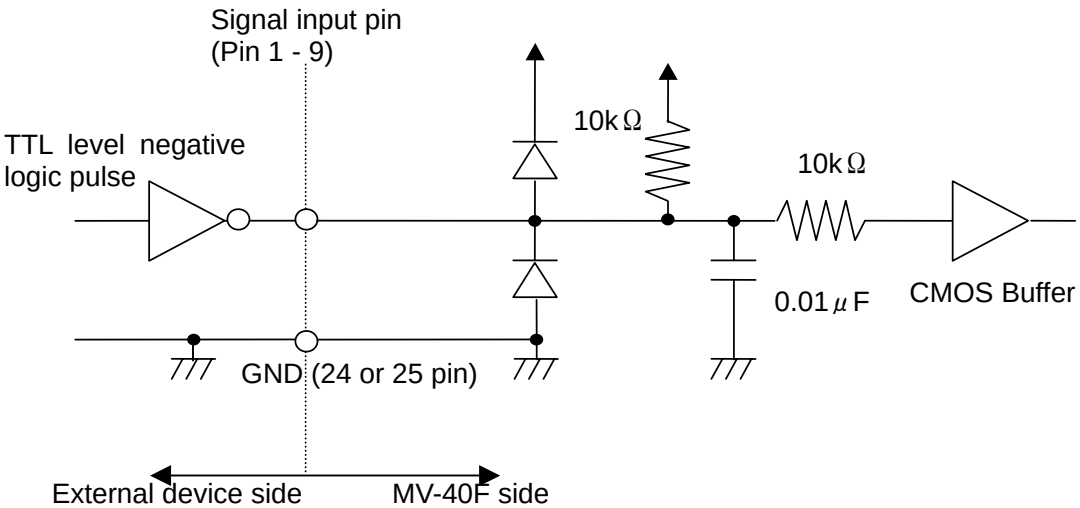
Remote operation is initiated by TTL level negative logic pulse more than 100ms pulse width.

A delay of more than 100ms between signal inputs is required for proper remote control operation.

◆ **Simple switch as external input device**



◆ **TTL level negative logic circuit as external input device**

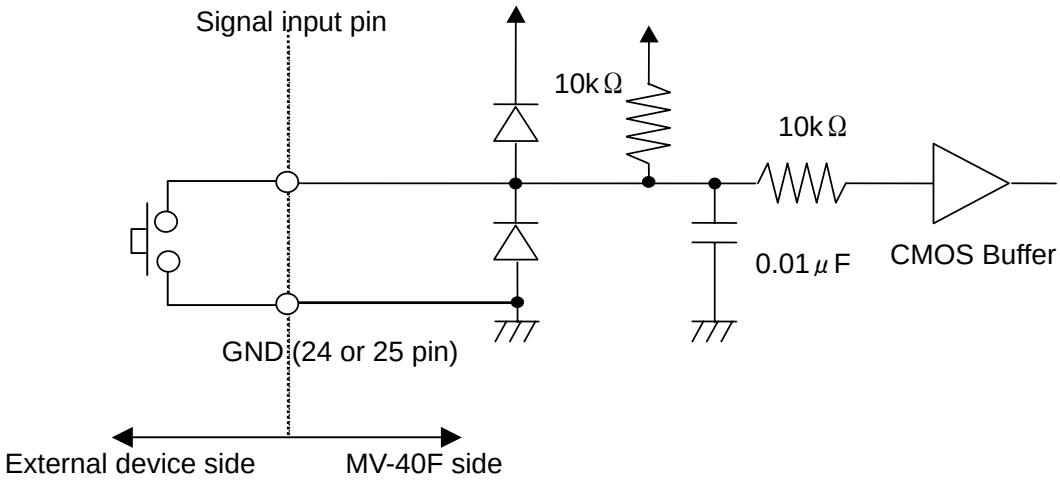


3-5. Alarm Circuit

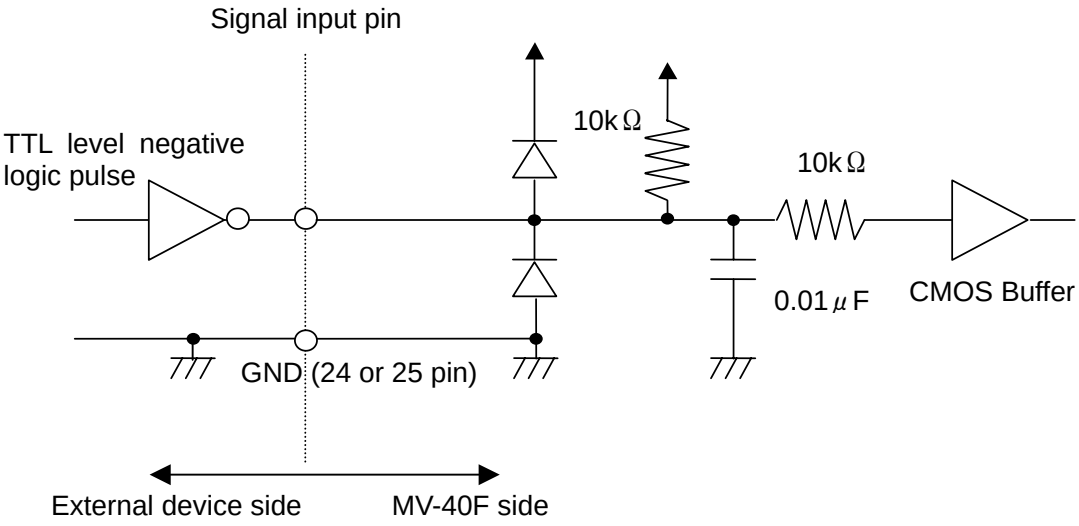
Alarm input and output circuits with external input device examples are as shown below. See sec. '3-3. Remote / Alarm Connector' for details on pin assignments.

NOTE
larm initiated by TTL negative logic level signal if menu alarm set to LEVEL.
Alarm initiated by TTL negative logic pulse signal if menu alarm set to TRIG (trigger). Pulse width must be more than 100 ms. See sec '5-3. Alarm / Video Loss' following.

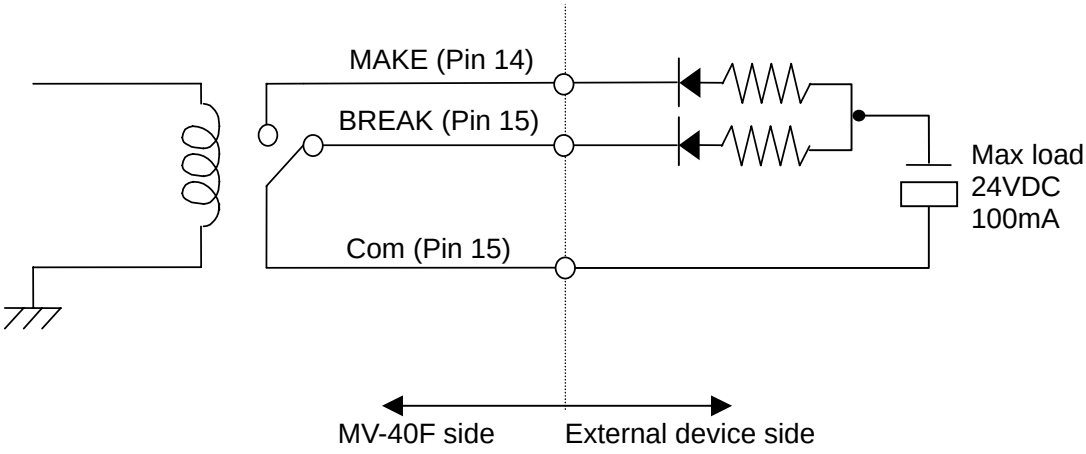
◆ **Alarm input circuit with simple switch as external input device**



◆ **Alarm input circuit with TTL negative logic circuit as external input device**



◆ **Alarm output circuit with external display device example**



NOTE
Maximum load: 24VDC 100mA or lower

Alarm output signals

Normal condition	BREAK and COM shorted, MAKE is open.
Alarm condition	MAKE and COM shorted, BREAK open.

4. Operation

4-1. Prior to Operation

Before operating MV-40F, verify the following points:

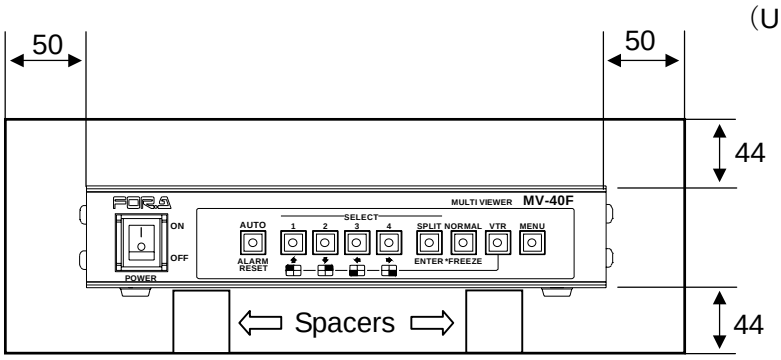
- Verify all cabling connections are securely made.
- Verify unit is properly grounded for use in your system.

4-2. Installation Precautions

When mounting multiple units be sure not to locate any other electrical unit closer than the dimensions shown below. If other units are located closer than 44mm, unit temperature may rise possibly causing operational problems.

◆ Multiple unit installation requirements

（Unit:mm）

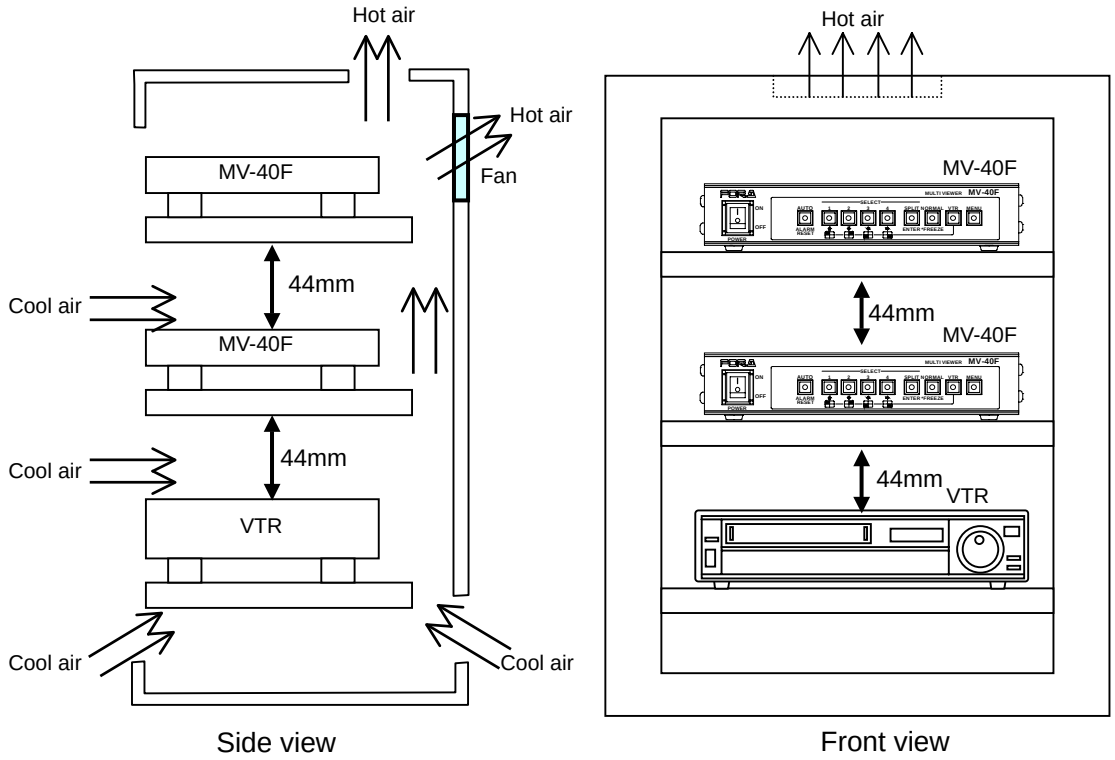


◆ Rack mounting instructions

① When rack mounting multiple units, install a fan at the top of the rack (as shown below) to keep operation temperature stable.

② Leave an open space of at least 44mm above each unit.

③ When unit not in use, turn power supply OFF



4-3. Memory Backup

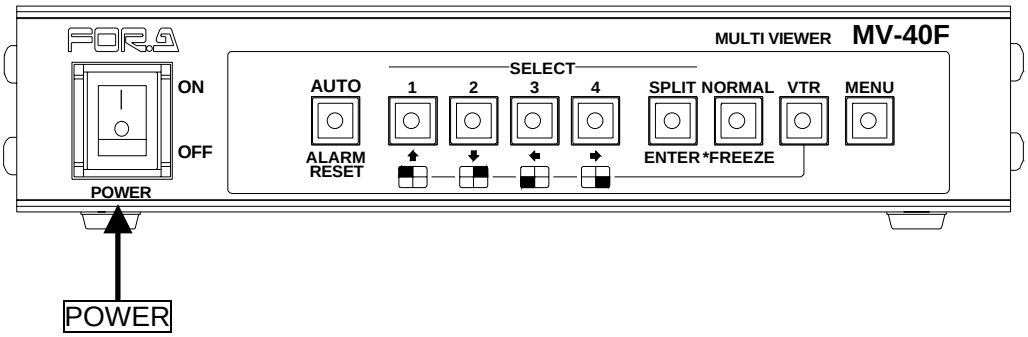
Date and time data as well as user settings are backed up by lithium battery. The service life of the battery is about 5-years when unit is used at normal room temperature (around 25 degrees).

When the backup battery needs replacement, 'BACKUP ERROR TIME RESET' will be monitor displayed. Contact your FOR-A supplier for battery replacement procedures.

4-4. Power ON

When power is turned on, the last screen setup is monitor displayed. If MENU screen was monitor displayed or alarm was in progress when power was turned OFF, the previous screen before the MENU screen or alarm in progress screen will be displayed at power ON.

If first time power ON, initial view will be factory default setting, Quad display.



NOTE

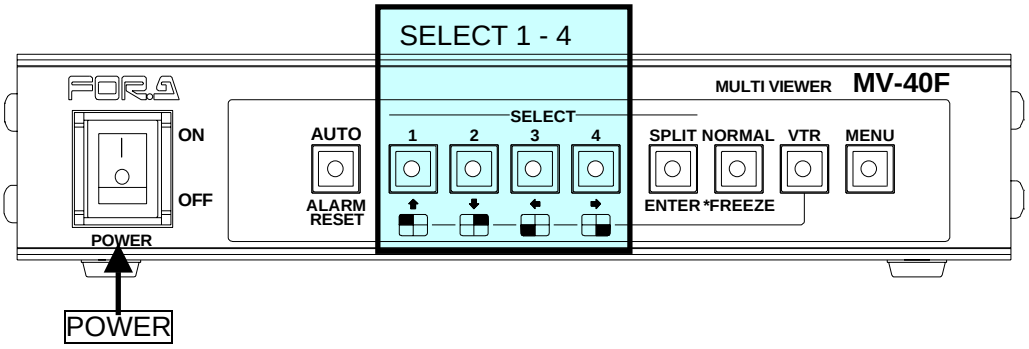
Data and time as well as previous user settings will be memory protected if power switched OFF or loss.

4-5. Front Panel Controls

The MV-40F front panel controls can be used to select and change operational settings, levels, parameters and views as well as to make other settings in the operational menu.

4-5-1. NTSC / PAL Select

You can set your MV-40F to either NTSC or PAL format as shown below.



To Set NTSC format:

① With unit power OFF, push and hold SELECT switches 1 **and** 2.

② Switch unit power ON.

③ Buzzer will sound, release SELECT switches 1 **and** 2. NTSC will be monitor displayed and unit will be set for NTSC operation.

To Set PAL format:

① With unit power OFF, push and hold SELECT switches 3 **and** 4.

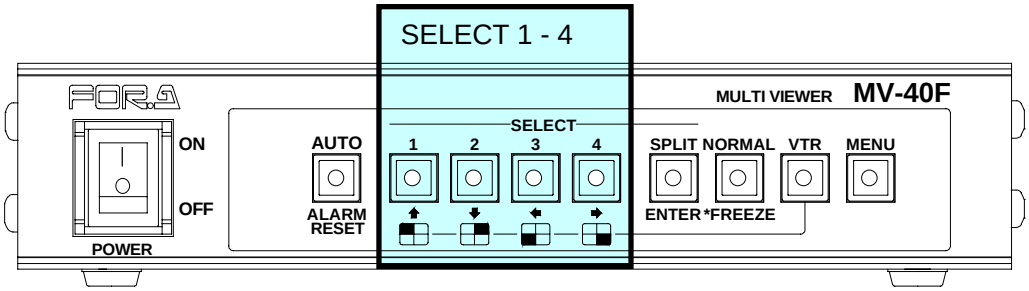
② Switch unit power ON.

③ Buzzer will sound, release SELECT switches 3 **and** 4. PAL will be monitor displayed and unit will be set for PAL operation.

NOTE
When you change your unit from/to NTSC or PAL format, all user settings except date/time will be initialized.

4-5-2. Full Screen Mode

SELECT switches 1 - 4 are used to full screen monitor display one screen image at a time. For example, if SELECT switch 3 is pushed and video is present at input 3, channel 3 video will be monitor displayed.

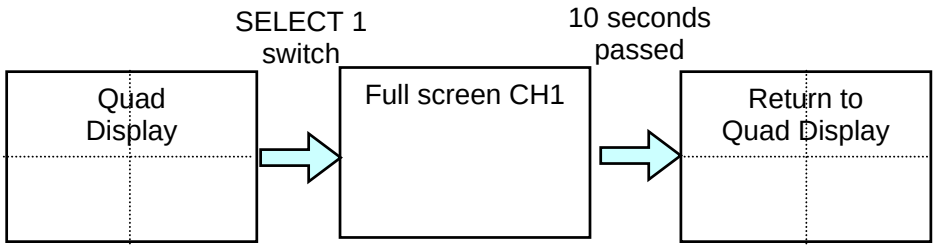


IMPORTANT

If a channel without an input connection is selected, the corresponding screen will go to black.

If VTR or FREEZE operations are in progress, full screen select can not be performed. In this case, push VTR or FREEZE switch to cancel VTR or FREEZE operation, then push, SELECT 1 - 4 switches to view full screen display.

When FULL DISPLAY timer is not set to OFF, for example, 10s (10 seconds), full screen display automatically goes back to split display in 10 seconds, as shown below. Factory default value of FULL DISPLAY timer is OFF. See sec. '5-2. Time Setup' for FULL DISPLAY timer value settings.

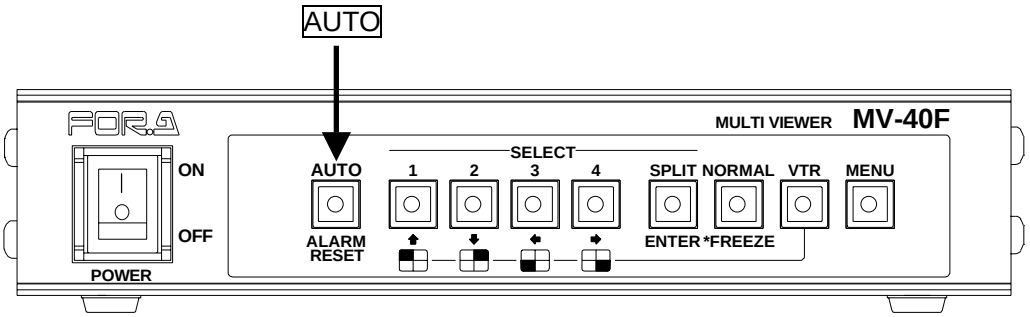


NOTE

If FULL DISPLAY timer is set to 10s and power is turned OFF while in full screen display, the initial view is full screen display when the power is turned ON again, and FULL DISPLAY timer will be reset to the beginning. The view will return to split view 10 seconds later.

4-5-3. Full Screen Auto

Full screen channels can be automatically switched between to sequentially view all inputs by pushing AUTO switch when operating in full screen mode. Channels without a video input connected will be auto skipped. Dwell time between channel switching can be user set. See AUTO SEQ TIME parameter in sec. '5-2. Time Setup' for details. Pushing SELECT 1 – 4 or SPLIT switch will cancel Full Screen Auto Display.



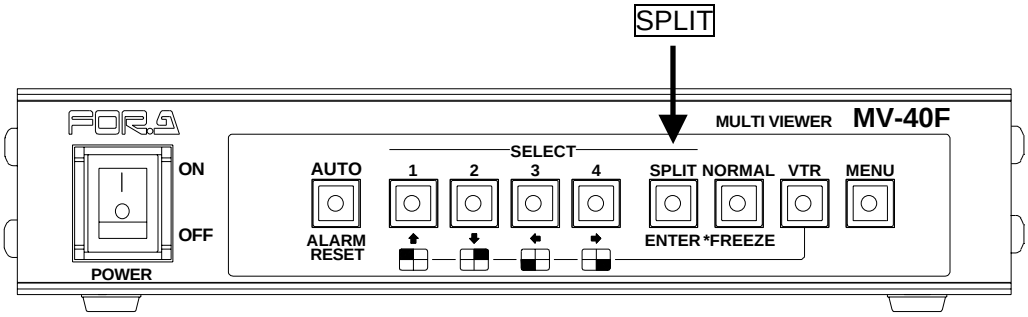
IMPORTANT

If input video signals are not synchronized, noise may appear when switching between channels.

Auto channel select is not available in split screen mode

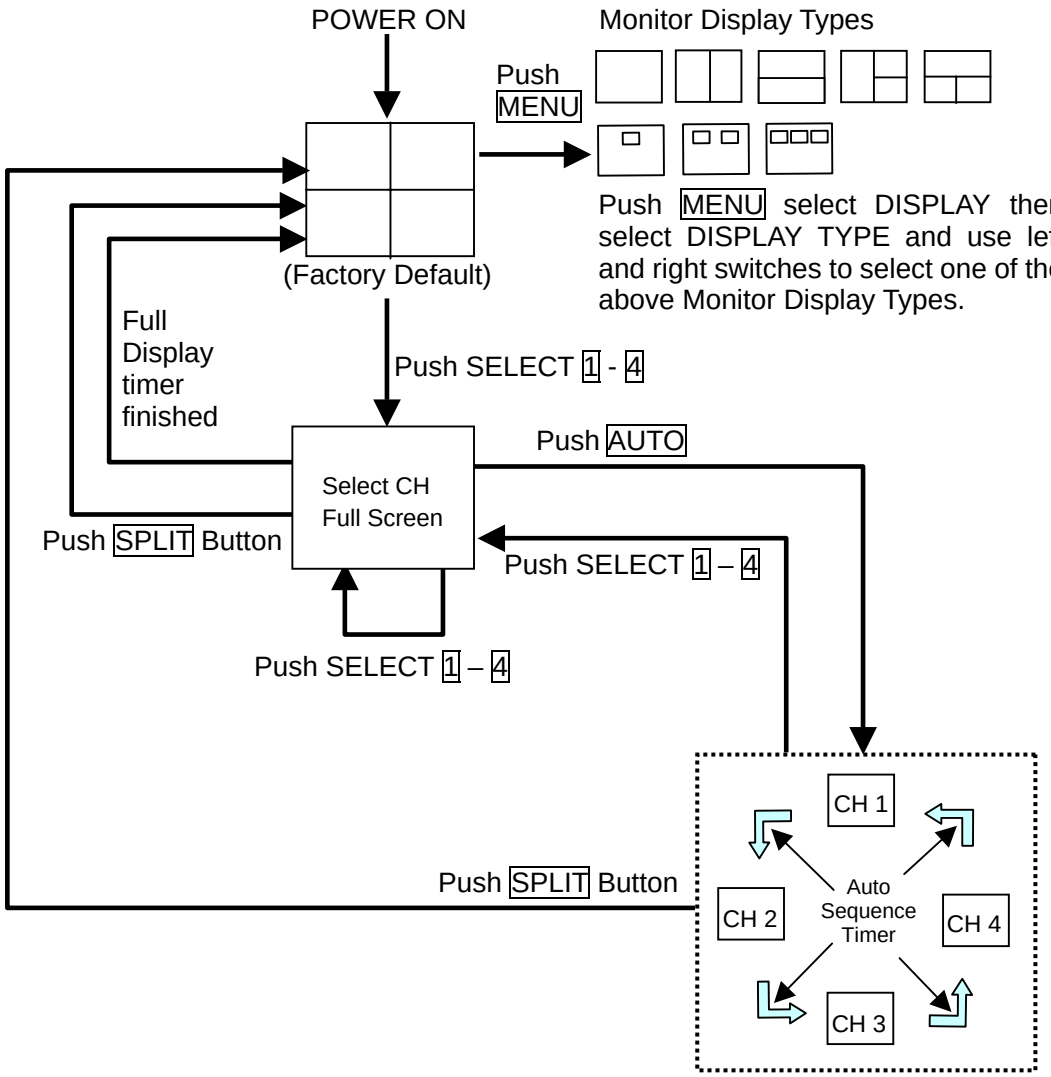
4-5-4. Split Screen Mode

To change display to split screen mode, push SPLIT switch. Monitor view in split screen mode must be selected in DISPLAY TYPE menu. See sec. '4-5-6. Selecting Split Screen Display' for details on setting split screen.



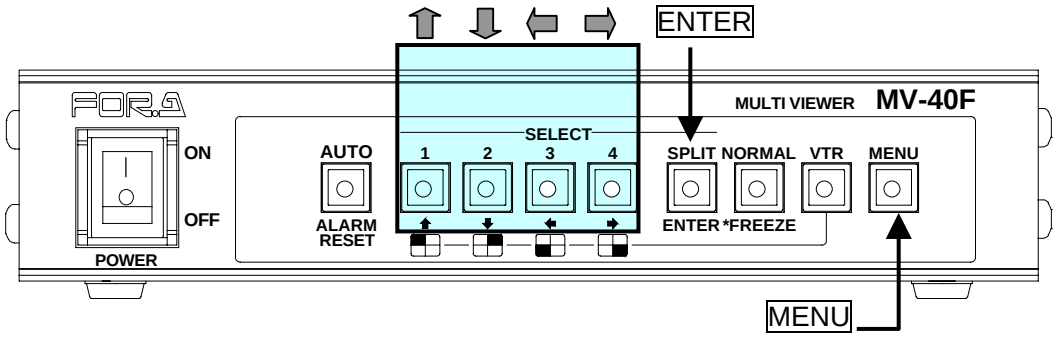
4-5-5. Display Mode Quick Reference Chart

The following quick reference chart is designed to help the operator thoroughly understand and use the Display functions of the MV-40F.



4-5-6. Selecting Split Screen Display

The MV-40F display split screen mode is set in the Display menu. The procedure to do this is following.



① Push MENU switch, use up ⇑ and down ⇓ switch to move cursor to DISPLAY and press ENTER switch.

② In DISPLAY TYPE use left ⇐ and right ⇒ switch to cycle through available displays:
QUAD: 4 split displays
PIP1: P-in-P 1 (1 full screen and 1 inset screen)
PIP2: P-in-P 2 (1 full screen and 2 inset screens)
PIP3: P-in-P 3 (1 full screen and 3 inset screens)
V2 : Vertical split 2 channels
H2 : Horizontal split 2 channels
V3 : Vertical tri-split, 1 channel left, 2 channels right
H3 : Horizontal tri-split, 1 channel top, 2 channels bottom

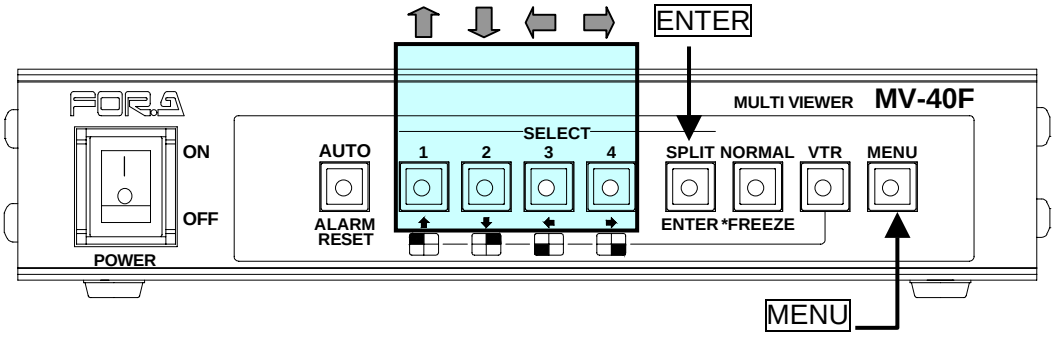
③ After making a selection, push MENU switch twice to return to operation mode.

NOTE

For more information see sec ‘5. Main Menu’ and sec. ‘5-5. Display.

4-5-7.Setting Screen Position

Settings can be made to adjust where P-in-P screen(s) are positioned or to pan / tilt the picture in split 2 or split 3 screen mode.



P-in-P mode

When in P-in-P mode, user can change the display positions of P-in-P inset screens when corresponding title is flashing.

① Push MENU switch, use up ⇑ and down ⇓ switch to move cursor to DISPLAY and press ENTER switch.

② Use up ⇑ and down ⇓ switch to move cursor to DISPLAY TYPE. Then use left ⇐ and right ⇒ switch to set DISPLAY TYPE to PinP1, PinP2, or PinP3 then push ENTER switch to go to DISPLAY SET menu.

③ When inset screen title is flashing, you can change the display position using up ⇑ and down ⇓, left ⇐ and right ⇒ switch.

④ Push ENTER switch to select a different P-in-P inset screen (title flashing) to change the display position.

⑤ Push MENU switch to finish making P-in-P inset screen display position changes and to return to DISPLAY screen.

⑥ Push MENU switch twice to return to operation mode.

NOTE

For more information see sec '5. Main Menu' and sec. '5-6. Display Set'.

Split 2 or 3 mode

When in V2, H2, V3 or H3 mode, only half sized screen view can be adjusted by tilt up/down or pan left/right. Also when in V2 or H2 mode, the view of title flashing screen can only be adjusted.

① Push MENU switch, use up ⇑ and down ⇓ switch to move cursor to DISPLAY and press ENTER switch.

② Use up ⇑ and down ⇓ switch to move cursor to DISPLAY TYPE. Then use left ⇐ and right ⇒ switch to set DISPLAY TYPE to V2, H2, V3, H3 mode, then push ENTER switch to go to DISPLAY SET menu.

③ When screen title is flashing, you can pan/tilt the display position using up ⇑ and down ⇓ , left ⇐ and right ⇒ switch.

(Continued following page.)

④ Push ENTER switch to select a different half size screen (title flashing) in H2 or V2 mode to change the display position.

⑤ Push MENU switch to finish making split 2 or split 3 screen display position changes and to return to DISPLAY screen.

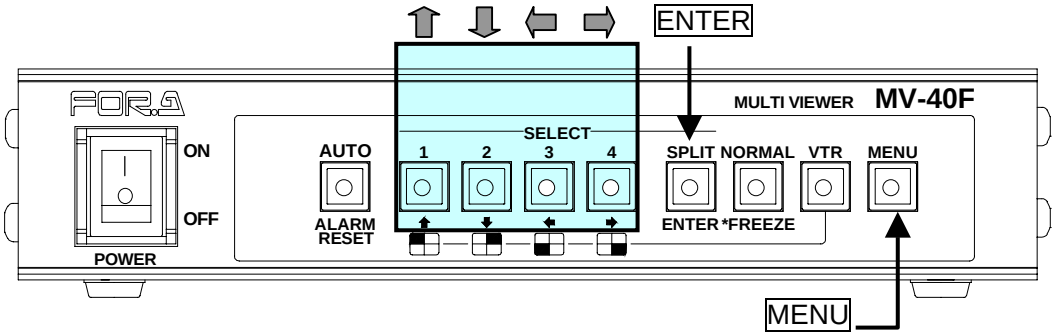
⑥ After making settings, push MENU switch to return to operation mode.

NOTE

For more information see sec '5. Main Menu' and sec. '5-6. Display Set'.

4-5-8. Setting Channel Assign

You can assign a channel to each split view as follows.



① Push MENU switch, use up ↑ and down ↓ switch to move cursor to DISPLAY and press ENTER switch.

② In DISPLAY TYPE use left ← and right → switch to cycle through available settings:
PIP1: P-in-P 1 (1 full screen and 1 inset screen)
PIP2: P-in-P 2 (1 full screen and 2 inset screens)
PIP3: P-in-P 3 (1 full screen and 3 inset screens)
V2 : Vertical split 2 channels
H2 : Horizontal split 2 channels
V3 : Vertical tri-split, 1 channel left, 2 channels right
H3 : Horizontal tri-split, 1 channel top, 2 channels bottom

③ While in DISPLAY TYPE menu, push FREEZE switch to enter CH ASSIGN mode.

④ Use left ← and right → switch to cycle through channels on screen with title flashing.

⑤ Push ENTER to select a different screen (title flashing) to assign a new channel.

⑥ Push MENU switch to finish making channel selection and to return to DISPLAY screen.

⑦ Push MENU switch twice to return to operation mode.

NOTE

For more information see sec '5. Main Menu' and sec. '5-6-3. Channel Assign'.

4-5-9. Freeze Select

Freeze screen operation is used to pause the image(s) on the desired channel(s).

NOTE

If a frozen channel loses video input, Freeze is automatically interrupted.

◆ **To freeze a video display in full screen mode:**

① Push SELECT 1 – 4 switch to select which channel you wish to freeze.

② Push FREEZE switch to lit to freeze.

③ Push FREEZE switch again to unfreeze the channel.

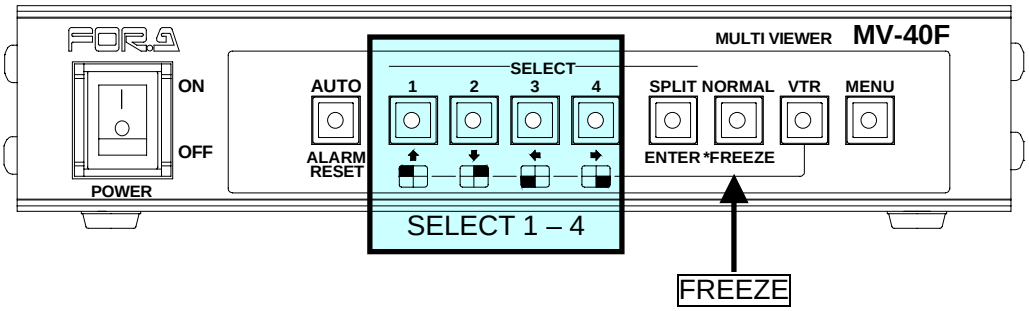
◆ **To freeze a video display in split and P-in-P screen mode:**

① Push FREEZE switch to lit to select freeze operation.

② Push SELECT 1 – 4 switch to select which channel(s) in display you wish to freeze.

③ Selected channels will freeze and FREEZE will be monitor displayed at each frozen channel.

④ Push SELECT 1 – 4 switch again to unfreeze that channel or FREEZE switch to unfreeze all frozen channels.



◆ **To Freeze All displayed Video in split and P-in-P screen mode:**

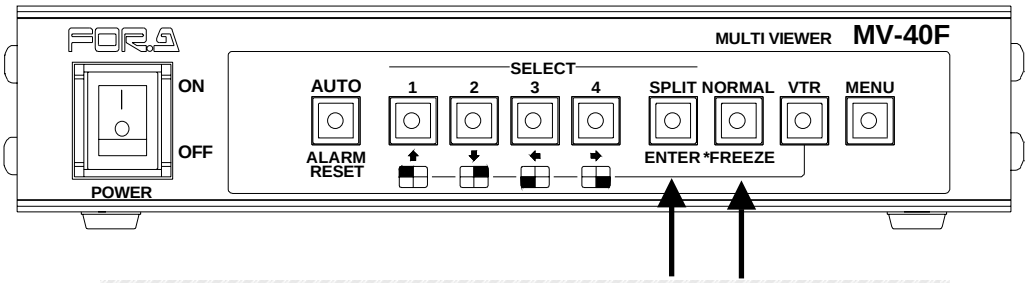
① Push FREEZE switch to lit to select freeze operation.

② Push SPLIT switch to freeze all displayed channels.

③ All channels will freeze and FREEZE will be monitor displayed at all frozen channels.

④ Push SPLIT switch to unfreeze all displayed channels, or push SELECT 1 – 4 switch to unfreeze each channel.

⑤ Push FREEZE switch again to return to normal operation.



SPLIT FREEZE

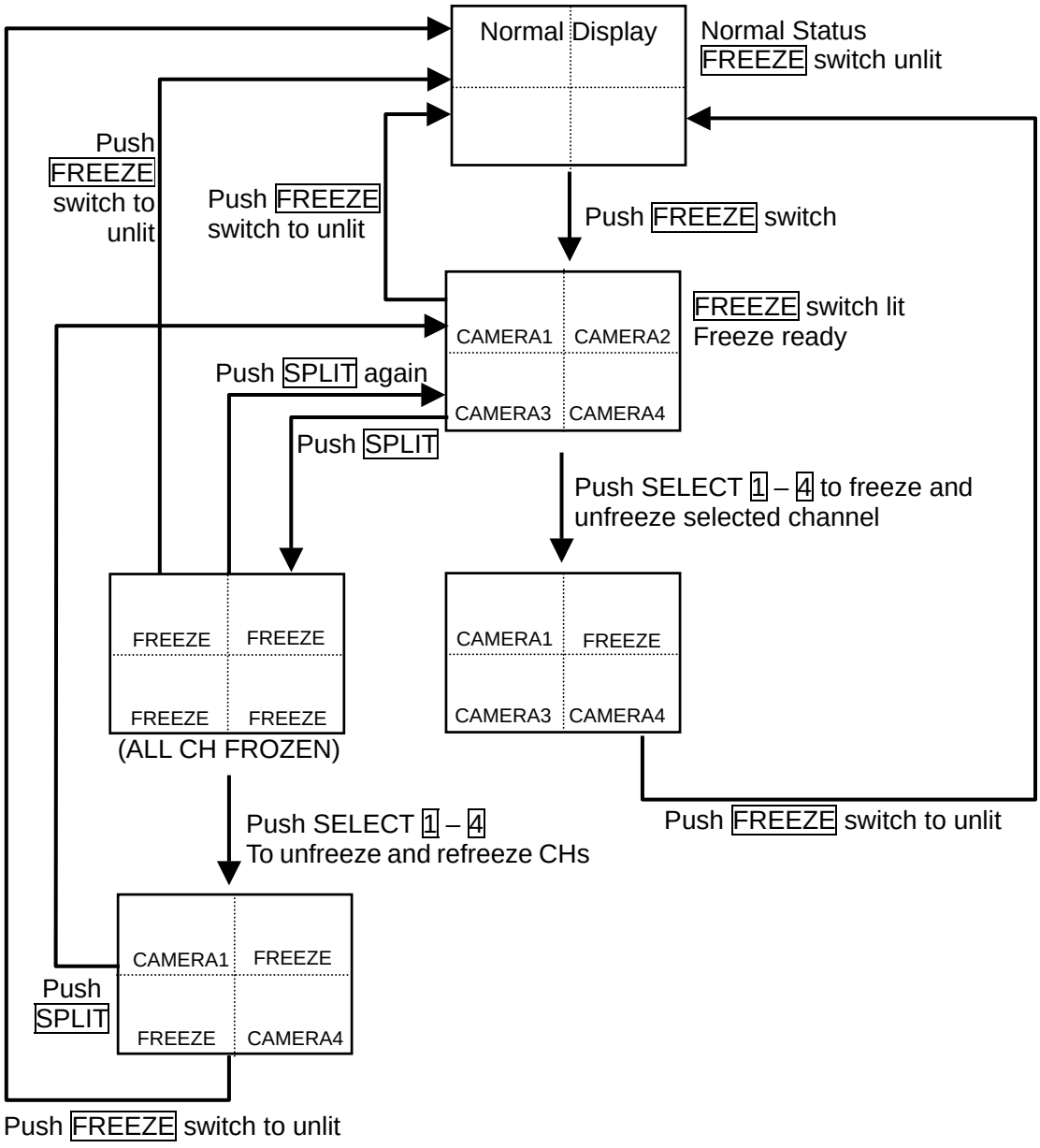
NOTE

On screen display FREEZE message on frozen display channels can be set ON / OFF by MARK parameter. See sec '5-5. Display' for more information.

If video loss or alarm occurs on any channel while in FREEZE mode, Freeze operation is automatically terminated and video loss or alarm operation is started.

4-5-10. Freeze Mode Quick Reference Chart

The following quick reference chart is designed to help the operator thoroughly understand the FREEZE functions of the MV-40F.



4-5-11. VTR Record / Playback

Previously recorded video material can be played back and viewed when material is input to the VTR PB IN terminal. VTR mode is selected and playback video is output to monitor via MONITOR OUT connector. While in VTR playback mode, played back images can be twice zoomed. See sec '4-5-12. Zoom Display' following for details.

IMPORTANT

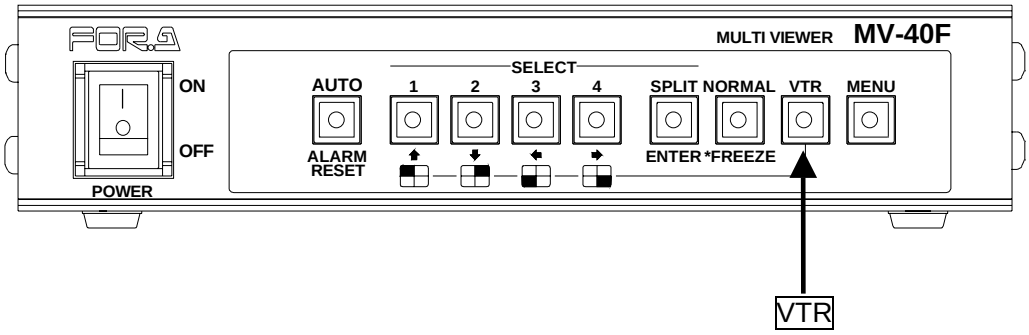
If no signal is connected to VTR PB connector, PB NO SIGNAL is monitor displayed while in VTR mode. In this case, check the signal connections.

While in VTR mode no images are output from VTR REC OUT terminal.

◆ **To View Playback Video:**

① Push the VTR switch to lit indication to monitor display previously recorded video.

② Push VTR switch again or SPLIT switch to quit this function and return to live view.



4-5-12. Zoom Display

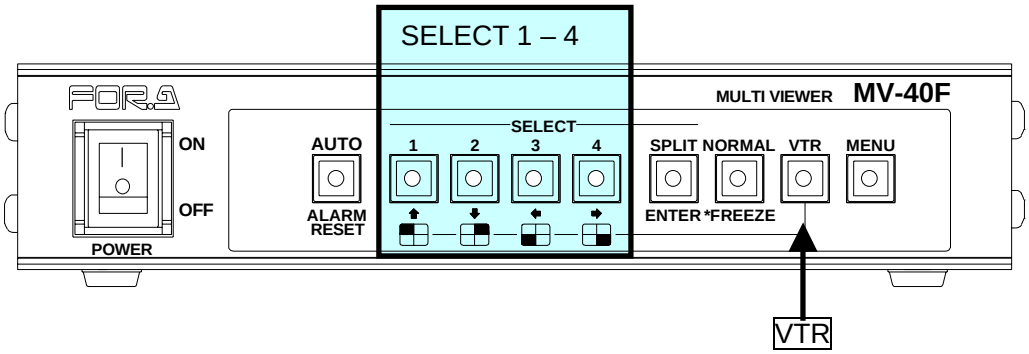
While in VTR playback mode, the image being played back can be twice zoomed as below.

◆ **To Zoom Playback Video:**

① Push VTR switch to lit,

② Push SELECT 1 – 4 switch one time to twice zoom in on that image channel.

③ Push the corresponding switch again to return channel to normal view.



4-5-13. Unit Reset

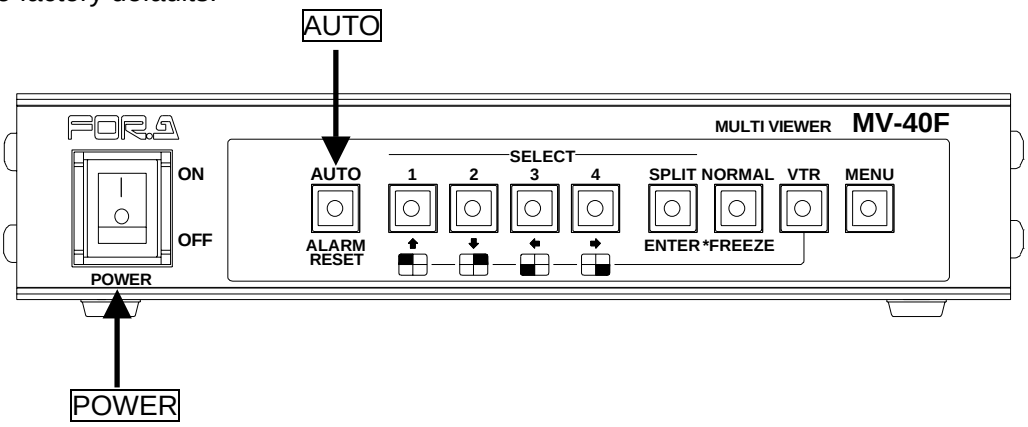
MV-40F operation parameters including 'Date/Time' settings can be returned to factory defaults by the following procedures.

◆ **To initialize unit**

① With unit power OFF, push and hold AUTO switch.

② While holding AUTO switch, turn unit power switch ON.

③ MEMORY CLEAR message will be monitor displayed and the unit should now be reset to factory defaults.



NOTE

See sec. '5-2. Time Setup' for details on setting Date / Time after resetting unit.

To reset unit without losing Date /Time see sec. '5-7. Other'

4-6. External Alarm Function

An external alarm device can be used to input an alarm signal to the MV-40F rear panel REMOTE/ALARM connector. Input signal will initiate alarm operation at MV-40F.

NOTES

If ALARM is set to OFF in the setup menu, alarm input will be ignored and alarm operation will not occur. Refer to sec. '5-3. Alarm / Video Loss' for details.

Alarms input while unit is in menu mode will be ignored regardless of menu ALARM ON/OFF setting.

Alarm duration depends on which ALARM MODE is selected;

LEVEL, alarm duration continues as long as external alarm signal is input.

TRIG, alarm duration is determined by ALARM RST TIME settings.

Alarm operation of MV-40F can be cancelled so that unit returns to normal operation by pushing ALARM REST switch if ALARM MODE is set to TRIG.

Refer to sec. '5-3. Alarm / Video Loss' for ALARM MODE details and sec. '5-2. Time Setup' for ALARM RST TIME respectively.

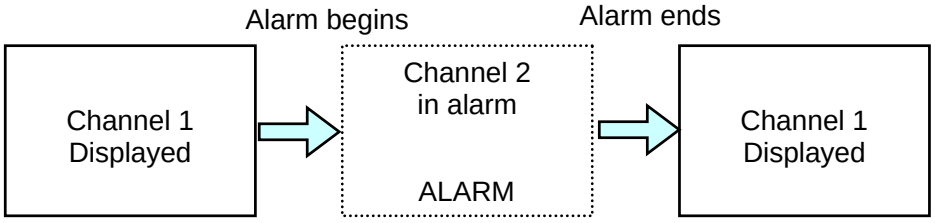
◆ **Alarm operation will be as follows based on how alarms occur:**

If alarm occurs in only one channel while in full screen mode;

① Full screen display changes to alarm channel displayed in full screen. 'ALARM' flashes for alarm duration if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF). ALARM buzzer sounds for alarm duration if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' to set BUZZER ON/OFF.)

② Alarm signal is output via the REMOTE/ALARM connector on the rear panel if ALARM OUT is set to ON. See sec. '5-3. Alarm / Video Loss' for ALARM OUT ON/OFF.

③ After alarm duration ends, alarm signal output at REMOTE/ALARM connector will go OFF, buzzer stops and unit automatically returns to previous operation.



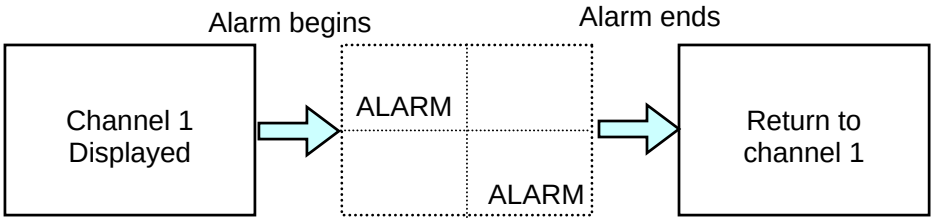
If alarm occurs in 2 or more channels simultaneously while in full screen mode;

① Screen display automatically splits to Quad display. 'ALARM' flashes on display of all channels in alarm if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF). ALARM buzzer sounds for alarm duration if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' to set BUZZER ON/OFF.)

② Alarm signal is output via the REMOTE/ALARM connector on the rear panel if ALARM OUT is set to ON. See sec. '5-3. Alarm / Video Loss' for ALARM OUT ON/OFF.

(Continued following page.)

③ After alarm duration ends, alarm signal output at REMOTE/ALARM connector will go OFF, buzzer stops and unit automatically returns to previous operation.

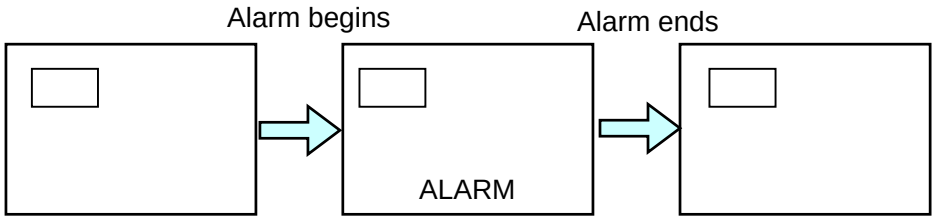


If alarm occurs in currently displayed channel while in P in P, split 2 or 3 mode;

① 'ALARM' flashes on display of all channels in alarm if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF). ALARM buzzer sounds for alarm duration if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' to set BUZZER ON/OFF.)

② Alarm signal is output via the REMOTE/ALARM connector on the rear panel if ALARM OUT is set to ON. See sec. '5-3. Alarm / Video Loss' for ALARM OUT ON/OFF.

③ After alarm duration ends, alarm signal output at REMOTE/ALARM connector will go OFF and buzzer stops.

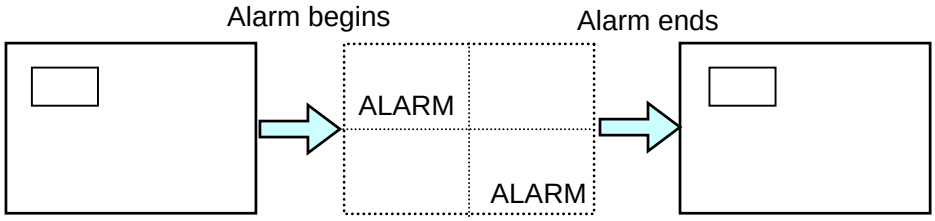


If alarm occurs in channel not currently displayed, while in P in P, split 2 or 3 mode;

① Screen display automatically splits to Quad display. 'ALARM' flashes on display of all channels in alarm if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF). ALARM buzzer sounds for alarm duration if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' to set BUZZER ON/OFF.)

② Alarm signal is output via the REMOTE/ALARM connector on the rear panel if ALARM OUT is set to ON. See sec. '5-3. Alarm / Video Loss' for ALARM OUT ON/OFF.

③ After alarm duration ends, alarm signal output at REMOTE/ALARM connector will go OFF, buzzer stops and unit automatically returns to previous operation.



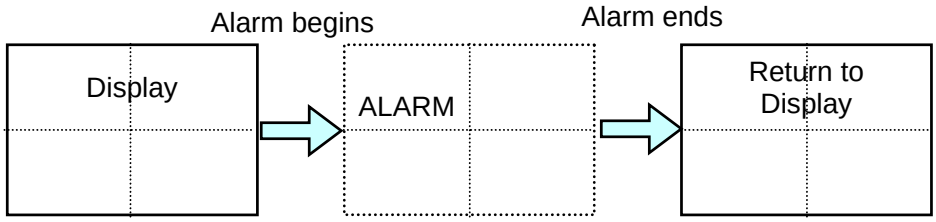
(Continued following page.)

If alarm occurs while in Quad mode;

① 'ALARM' flashes on display of all channels in alarm if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF). ALARM buzzer sounds for alarm duration if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' to set BUZZER ON/OFF.)

② Alarm signal is output via the REMOTE/ALARM connector on the rear panel if ALARM OUT is set to ON. See sec. '5-3. Alarm / Video Loss' for ALARM OUT ON/OFF.

③ After alarm duration ends, alarm signal output at REMOTE/ALARM connector will go OFF and buzzer stops.



4-7. Video Loss Alarm

The MV-40F can be set to go to video loss alarm operation whenever channel input is suddenly lost.

NOTE

If LOSS is set to OFF in the setup menu, video loss will be ignored and video loss alarm operation will not occur. Refer to sec. '5-3. Alarm / Video Loss' for details.
If input video signal is not connected when power is ON, video loss alarm operation will not occur.

Video loss while unit is in menu mode will be ignored regardless of menu LOSS ON/OFF setting. If video signal is still lost when exit menu mode to normal operation and if LOSS set to ON, video loss alarm operation will be initiated.

The LOSS RST TIME timer can be reset by pushing ALARM RESET switch in the explanation below.

◆ **Video loss alarm operation will be as follows based on how video loss alarms occur:**

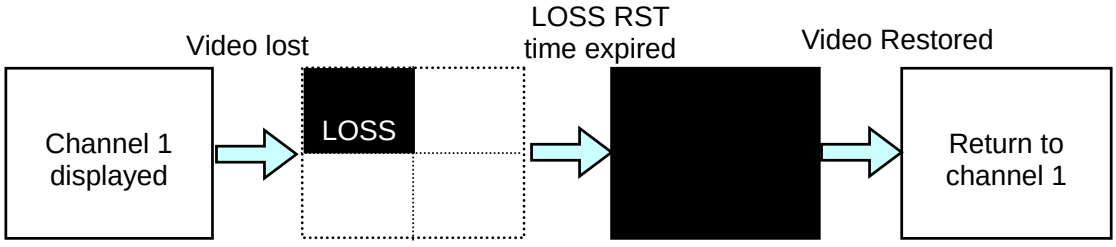
If video loss occurs in currently displayed channel while in full screen mode;

① Full screen display changes to Quad display. Lost signal channel will appear black and display flashing 'LOSS' if MARK superimpose set to ON. (See sec. '5-5. Display' for MARK ON/OFF.) Buzzer sounds if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss' for BUZZER ON/OFF.)

② Video loss alarm signal is output via REMOTE/ALARM connector on the rear panel if LOSS ALM OUT is set to ON. Refer to '5-3. Alarm / Video Loss' for LOSS ALM OUT ON/OFF.

③ When LOSS RST TIME timer expires, unit will automatically return to full screen mode, buzzer stops beep and video loss alarm signal output at REMOTE/ALARM connector goes OFF. Full screen remains black.

④ When video signal input restored in this channel, live video is restored.

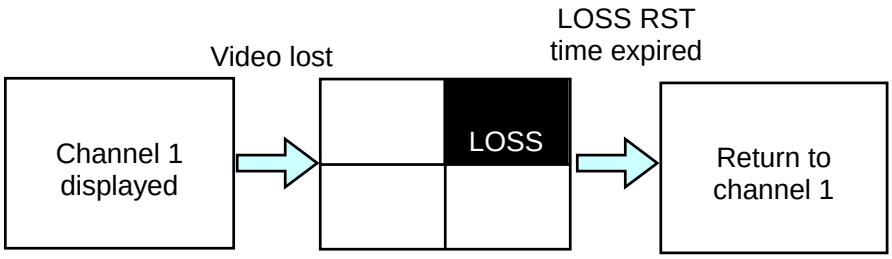


If video loss occurs in channel not currently displayed, while in full screen mode;

① Full screen display changes to Quad display. Lost signal channel will appear black and display flashing 'LOSS' if MARK superimpose set to ON. (See sec. ‘5-5. Display’ for MARK ON/OFF.) Buzzer sounds if BUZZER set to ON. (See sec. '5-3. Alarm / Video Loss’ for BUZZER ON/OFF.)

② Video loss alarm signal is output via REMOTE/ALARM connector on the rear panel if LOSS ALM OUT is set to ON. Refer to '5-3. Alarm / Video Loss’ for LOSS ALM OUT ON/OFF.

③ When LOSS RST TIME timer expires, unit will automatically return to previous full screen mode, buzzer stops and video loss alarm signal output at REMOTE/ALARM connector goes OFF.



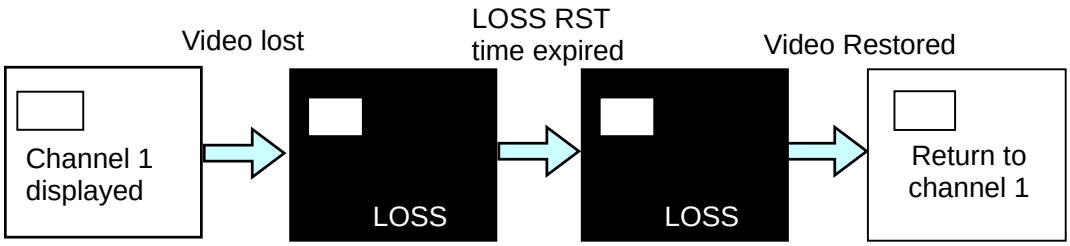
If video loss occurs in currently displayed channel while in P in P, 2 or 3 split mode;

① All lost signal channels will appear black and display flashing 'LOSS' if MARK superimpose set to ON. (See sec. ‘5-5. Display’ for MARK ON/OFF.) Buzzer sounds for alarm duration if BUZZER is set to ON. (See sec. '5-3. Alarm / Video Loss’ for BUZZER ON/OFF.)

② Video loss alarm signal is output via REMOTE/ALARM connector on the rear panel if LOSS ALM OUT is set to ON. Refer to '5-3. Alarm / Video Loss’ for LOSS ALM OUT ON/OFF.

③ When LOSS RST TIME timer expires, buzzer stops beep and video loss alarm signal output at REMOTE/ALARM connector is OFF. All lost signal channels will remain black and 'LOSS' will continue flashing on each lost signal channels.

④ When video signal input restored, live video is restored and flashing 'LOSS' is cleared.

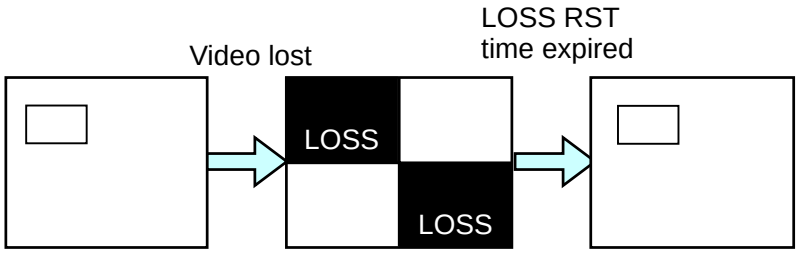


If video loss occurs in channel not currently displayed while in P in P, 2 or 3 split mode;

① Current display changes to Quad display. All lost signal channels will appear black and display flashing 'LOSS' if MARK superimpose set to ON. (See sec. ‘5-5. Display’ for MARK ON/OFF.) Buzzer sounds for alarm duration if BUZZER is set to ON. (See sec. '5-3. Alarm / Video Loss’ for BUZZER ON/OFF.)

② Video loss alarm signal is output via REMOTE/ALARM connector on the rear panel if LOSS ALM OUT is set to ON. Refer to '5-3. Alarm / Video Loss’ for LOSS ALM OUT ON/OFF.

③ When LOSS RST TIME timer expires, unit will automatically return to previous operation, buzzer stops and video loss alarm signal output at REMOTE/ALARM connector goes OFF.



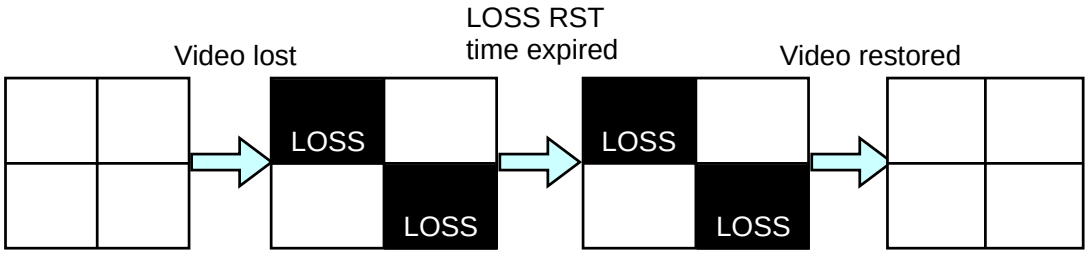
If video loss occurs while in Quad mode;

① All lost signal channels will appear black and display flashing 'LOSS' if MARK superimpose set to ON. (See sec. ‘5-5. Display’ for MARK ON/OFF.) Buzzer beeps for alarm duration if BUZZER is set to ON. (See sec. '5-3. Alarm / Video Loss’ for BUZZER ON/OFF.)

② Video loss alarm signal is output via the REMOTE/ALARM connector on the rear panel if LOSS ALM OUT is set to ON. Refer to '5-3. Alarm / Video Loss’ for LOSS ALM OUT ON/OFF.

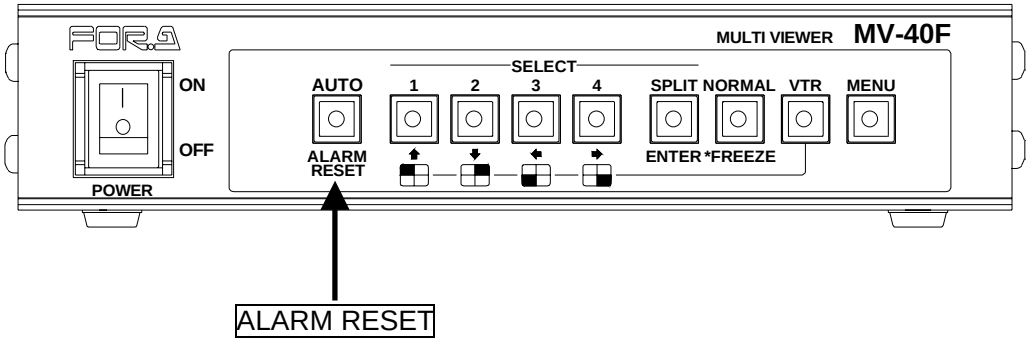
③ When LOSS RST TIME timer expires, buzzer stops beep and video loss alarm signal output at REMOTE/ALARM connector is OFF. All lost signal channels will remain black and 'LOSS' will continue flashing on each lost signal channels.

④ When video signal input restored, live video is restored and flashing 'LOSS' is cleared.



4-8. Alarm Reset

It is possible to manually stop alarm operation or to reset LOSS RST TIME timer to zero by pushing the front panel ALARM RESET switch.



NOTE

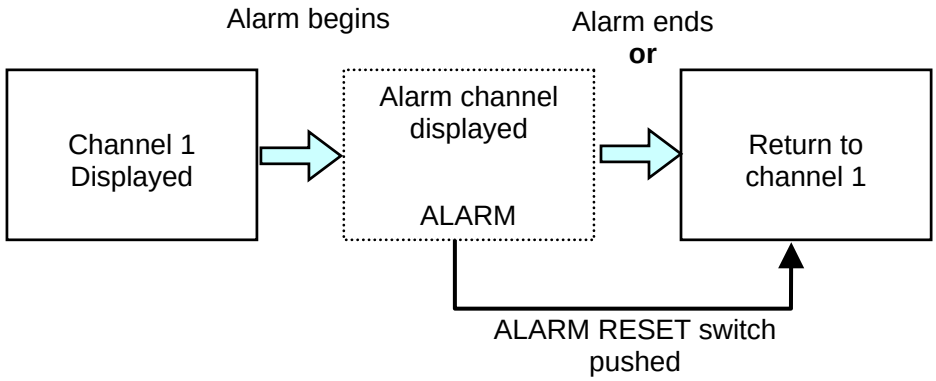
Alarm operation can be manually stopped only when ALARM MODE is set to TRIG.

Alarm operation can not be manually stopped when ALARM MODE is set to LEVEL and the alarm will stop when external alarm signal input is OFF.

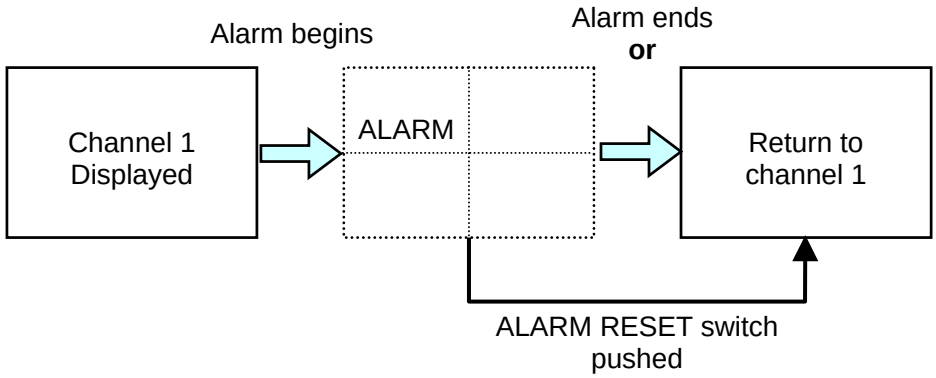
4-9. Alarm Quick Reference Chart

Alarm operations are summarized for your reference. Note that ALARM RESET switch can be used only when ALARM MODE is set to TRIG.

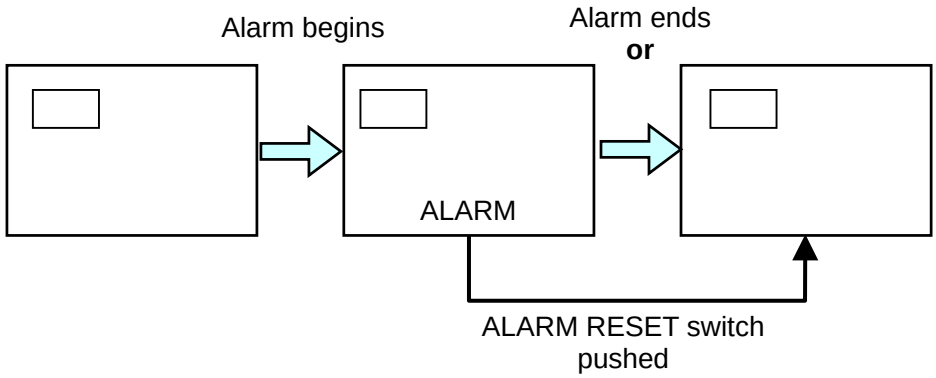
If alarm occurs in only one channel while in full screen mode;



If alarm occurs in 2 or more channels simultaneously while in full screen mode;

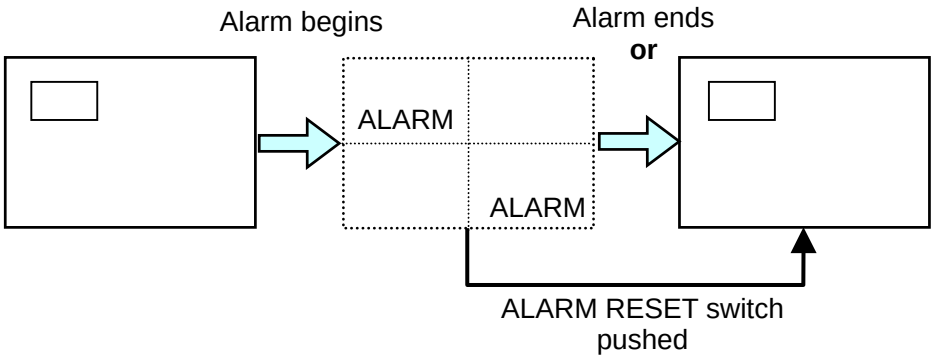


If alarm occurs in currently displayed channel while in P in P, split 2 or 3 mode;

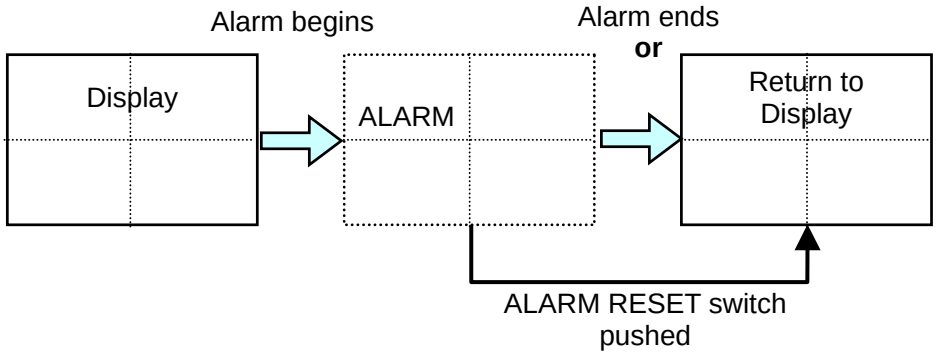


(Continued following page.)

If alarm occurs in channel not currently displayed, while in P in P, split 2 or 3 mode;



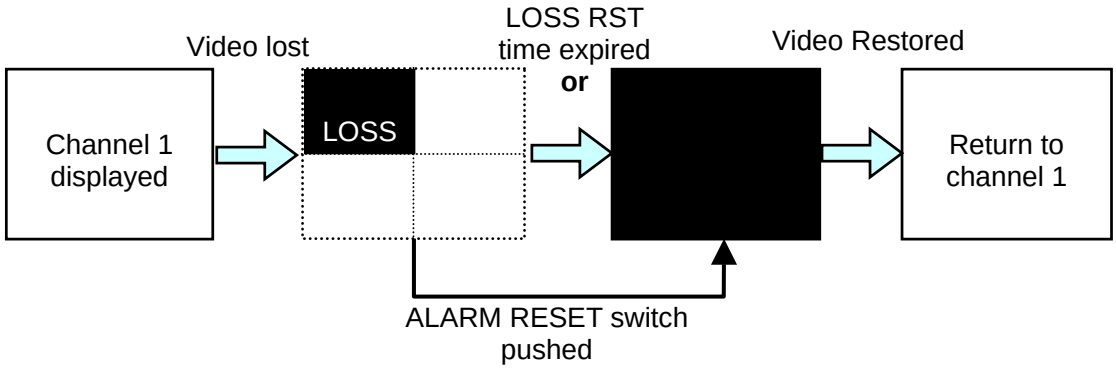
If alarm occurs while in Quad mode;



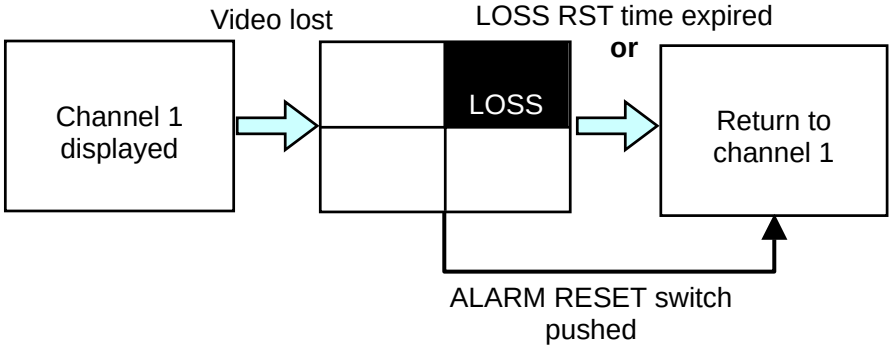
4-10. Video Loss Quick Reference Chart

Video loss alarms are summarized below for your reference.

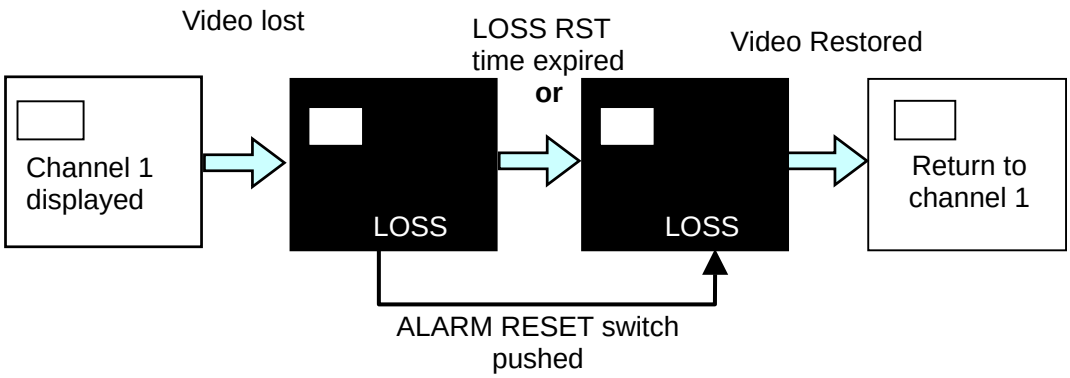
If video loss occurs in currently displayed channel while in full screen mode;



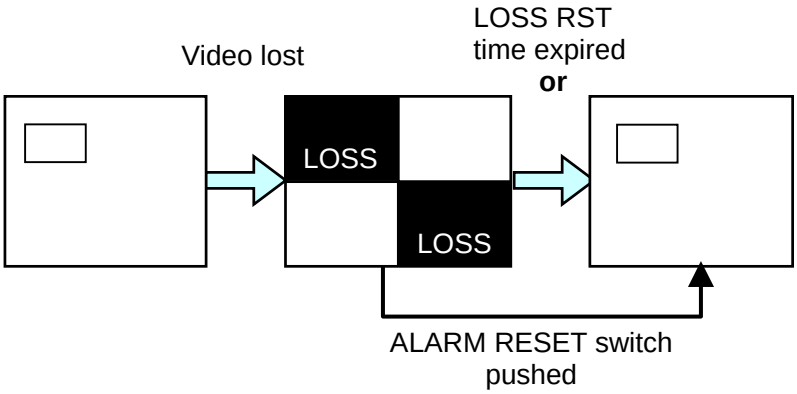
If video loss occurs in channel not currently displayed, while in full screen mode;



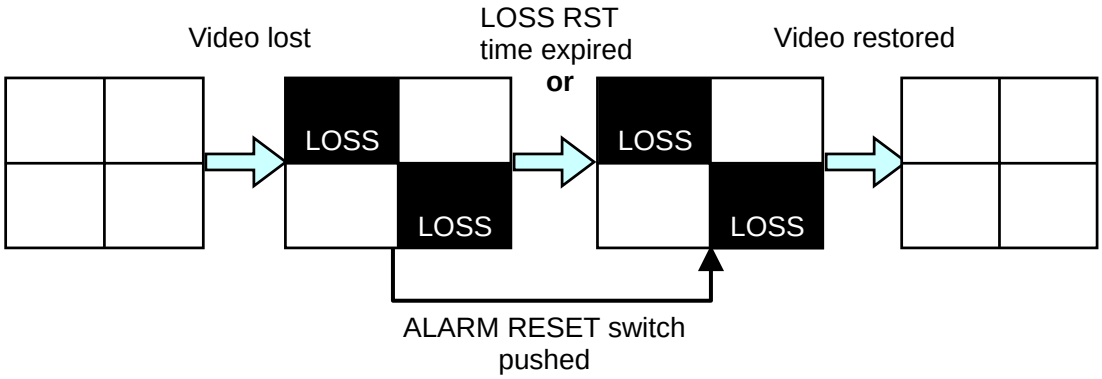
If video loss occurs in currently displayed channel while in P in P, split 2 or 3 mode;



If video loss occurs in channel not currently displayed while in P in P, split 2 or 3 mode;



If video loss occurs while in Quad mode;



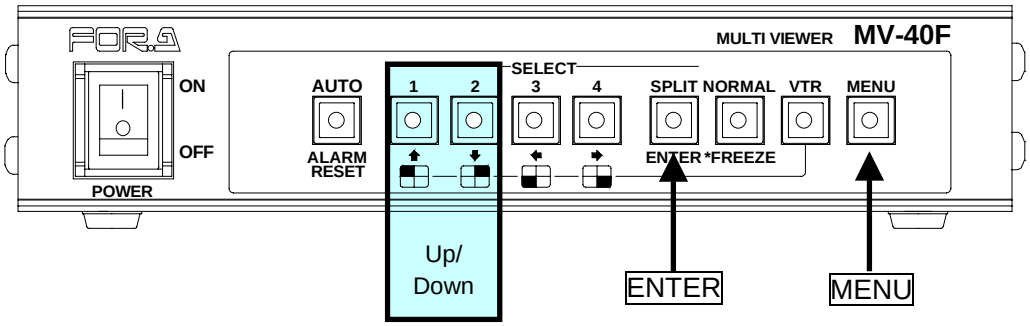
5. Main Menu

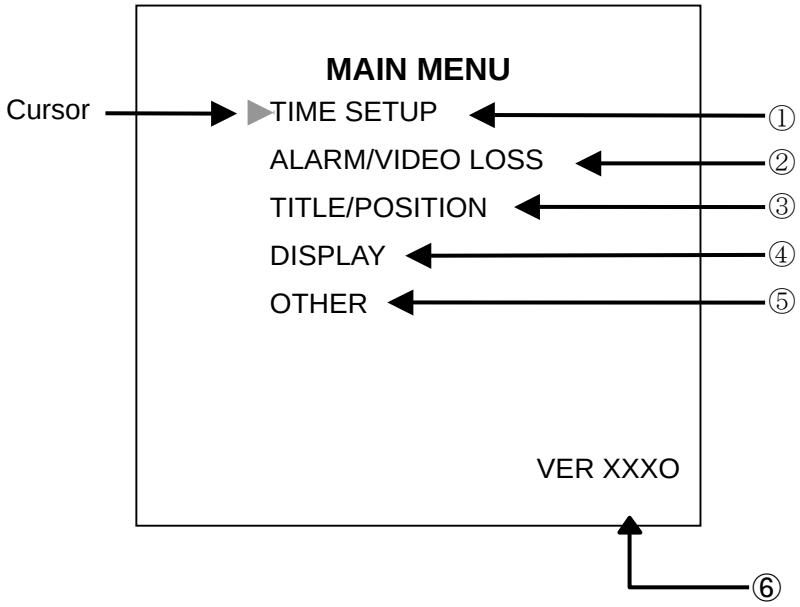
Menus can be accessed and settings made as below.

◆ **To access main menu:**

Settings that can be made in the main menu are as follows;

Push MENU switch to lit indication. The main menu will be monitor displayed. Scroll cursor up or down using up ⇧ and down ⇩ switch shown below. Move the cursor to the needed menu item and push ENTER switch. The item currently selected will be visible in the menu display.





(Continued following page.)

Where

Item	Information	Reference
① TIME SETUP	Date and time setting	Sec. ‘5-2. Time Setup’
	Automatic switching timer setting	
	Automatic screen switching timer setting	
	Alarm auto-reset timer setting	
	Video loss auto-reset timer setting	
② ALARM/VIDEO LOSS	Alarm ON/OFF	Sec. ‘5-3. Alarm / Video Loss’
	Video Loss ON/OFF	
	Alarm mode Level/Trigger	
	Alarm output ON/OFF	
	Video loss output ON/OFF	
	Buzzer ON/OFF	
③ TITLE/POSITION	Channel title setup	Sec. ‘5-4. Title/Position’
	Title position	
	Date/time position	
④ DISPLAY	Split screen settings	Sec. ‘5-5. Display’
	REC OUT settings	
	Titles ON/OFF	
	Mark ON/OFF	
	Date ON/OFF	
	Time ON/OFF	
⑤ OTHER	Memory clear	Sec. ‘5-7. Other’
⑥ Software version	Shows current software version	Sec. ‘5. Main Menu’

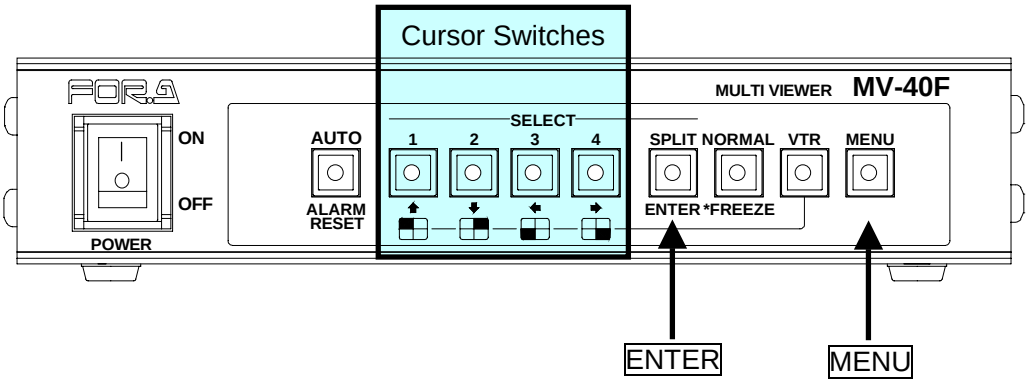
5-1. Accessing and Changing Menus

The MAIN Menu and related Sub Menus are used to make all general operational settings and to display related settings.

◆ Changing Menu Parameter Settings

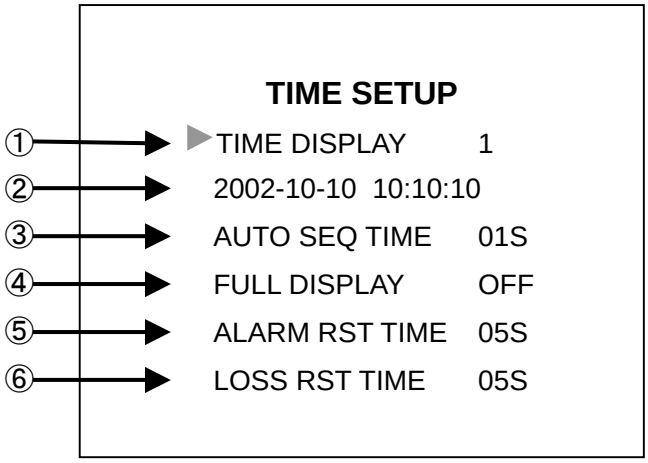
To select and modify settings in this type of menu use the front panel controls. Standard switch use is as listed in the following chart.

Control	Result
↑	Moves cursor up.
↓	Moves cursor down.
→	Moves forward through settings.
←	Moves reverse through settings.
ENTER	The following actions occur: Begin setting. Establish input setting and/or move cursor to next setting.
MENU	Return to previous menu / operation.



5-2. Time Setup

Settings that can be made in the Time Setup screen are as follows. From MAIN MENU use up ⇑ and down ⇓ switch to move cursor to TIME SETUP and press ENTER switch. The display below should appear.



◆ **Time Setup menu settings**

Use up ⇑ and down ⇓ switch to move cursor to desired item. Except for Date and Time adjust, push left ← and right → switch to change selection and push up ⇑ and down ⇓ switch to go to next item. Push MENU switch at any time to return to MAIN MENU.

Item	Description
① TIME DISPLAY	Date can be displayed in three different ways: 1: YYYY-MM-DD 2: MM-DD-YYYY 3: DD-MM-YYYY Factory default is 2 for NTSC and 3 for PAL. When changing TV format, date format is automatically reset to 2 (NTSC) or 3 (PAL).
② Date and Time	Adjust date and time. (See next page for adjustment procedures.) Display format is set in TIME DISPLAY above.
③ AUTO SEQ TIME	Switching time of Full Screen Auto. Setting range 1 sec. to 60 sec., 1 sec. interval. Factory default is 1 sec.
④ FULL DISPLAY	Return timer from full screen mode to split mode automatically when full screen mode is selected. Setting range OFF, 1 sec. to 60 sec., 1 sec. step. When OFF, full screen mode does not return to split mode automatically.
⑤ ALARM RST TIME	Alarm reset time. Alarm status is cleared if this timer expires only when ALARM mode is set to TRIG (trigger). This timer is not effective when ALARM MODE is set to LEVEL. Factory default is 5 sec.
⑥ LOSS RST TIME	Video loss reset time. Setting range 1 sec. to 60 sec., 1 sec. step. Factory default is 5 sec.

Adjusting Date and Time

Use up ⇑ and down ⇓ switch to move cursor to date and time display ② and push ENTER switch. Date and time display should appear as below with year numbers flashing. (Hatched area shows flashing figures below.)

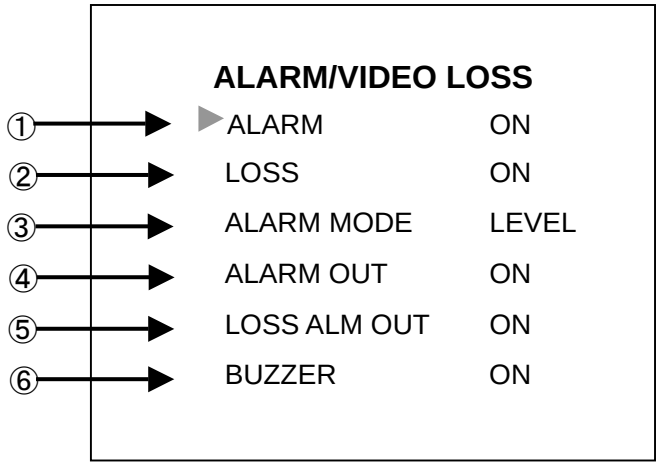
Date format example shown below is TIME DISPLAY default 2 (NTSC). If TIME DISPLAY is set to default 3 (PAL), date format will appear as DD-MM-YYYY and YYYY-MM-DD if set to default 1.

Use left ← or right → switch to change month and push ENTER switch to move to next setting day.	10-29-2002 11:36:10
Use left ← or right → switch to change day and push ENTER switch to move to next setting (year).	10-29-2002 11:36:10
Use left ← or right → switch to change year and push ENTER switch to move to next setting (hour).	10-29-2002 11:36:10
Use left ← or right → switch to change hour and push ENTER switch to move to next setting (minute).	10-29-2002 11:36:10
Use left ← or right → switch to change minutes and push ENTER switch to finish date and time setting.※	10-29-2002 11:36:10

※Pushing ENTER switch makes internal clock reset to 00 second and starts the clock. Date and Time flashing numbers stop flashing and cursor remains on Date and Time. Push up ⇑ and down ⇓ switch to move cursor to other line item or push MENU switch to return to MAIN MENU.

5-3. Alarm / Video Loss

Settings that can be made in the ALARM/VIDEO LOSS screen are as follows. From MAIN MENU, use up ⇑ and down ⇓ switch to move cursor to ALARM/VIDEO LOSS and press ENTER switch. The display below should appear.



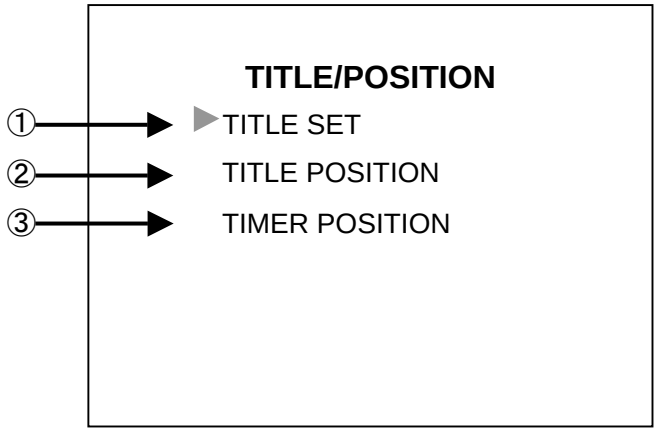
Alarm/Video Loss menu settings

Use up ⇑ and down ⇓ switch to move cursor to desired item. Push left ← and right → switch to change selection. Then push up ⇑ and down ⇓ switch again to go to next item. Push MENU switch at any time to return to MAIN MENU.

Item	Description
① ALARM	ALARM operation ON (enabled) or OFF (disabled) If set to OFF, ALARM operation will not occur even if alarm input signal is ON. Factory default is ON.
② LOSS	Video loss alarm operation ON (enabled) or OFF disabled) If set to OFF, video loss alarm operation will not occur even if input video signal is lost. Factory default is ON.
③ ALARM MODE	Alarm signal mode TRIG (trigger) or LEVEL (level) TRIG: When set to trigger, alarm operation occurs when input alarm signal becomes LOW from HIGH. Alarm status is cleared when ALARM RST TIME timer expires. LEVEL: When set to level, alarm operation occurs when input alarm signal becomes LOW from HIGH. Alarm status is cleared when input alarm signal returns to HIGH. In this case, ALARM RST TIME timer has no effect to clear alarm status. Factory default is LEVEL.
④ ALARM OUT	Alarm signal output from REMOTE/ALARM connector ON or OFF Factory default is ON.
⑤ LOSS ALM OUT	Video loss alarm signal output from REMOTE/ALARM connector ON/OFF. Factory default is ON.
⑥ BUZZER	Buzzer ON or OFF when alarm or video loss alarm occurs If set to OFF, buzzer does not sound even if alarm situation occurs. Factory default is ON.

5-4. Title/Position

Settings that can be made in the Title/Position screen are as follows. From MAIN MENU, use up ⇑ and down ⇓ switch to move cursor to TITLE/POSITION and press ENTER switch. The display below should appear.

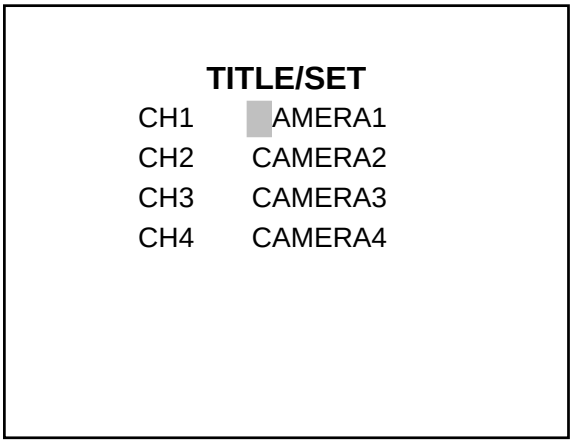


Title/Position menu settings
Use up ⇑ and down ⇓ switch to move cursor to desired item and push ENTER switch to go to each sub menu. Push MENU switch at any time to return to MAIN MENU.

Item	Description
① TITLE SET	Camera titles
② TITLE POSITION	Title position
③ TIMER POSITION	Timer position top or bottom

5-4-1. Title / Set

From TITLE/POSITION menu, use up ⇑ and down ⇓ switch to move cursor to TITLE/SET and push ENTER switch. The display below should appear with flashing cursor on the first line (CH1). (Hatched square area shows flashing cursor below.)



(Continued following page.)

Inputting characters

① Use left ← and right → switch to move cursor forward and backward in a line.

② Use up ↑ and down ↓ switch to change character selection. Character selection sequence is shown on the table below.

③ Push ENTER switch to input the currently displayed character and to move cursor to the next line.

④ Push MENU switch at any time when finished inputting characters, to return to TITLE/POSITION menu.

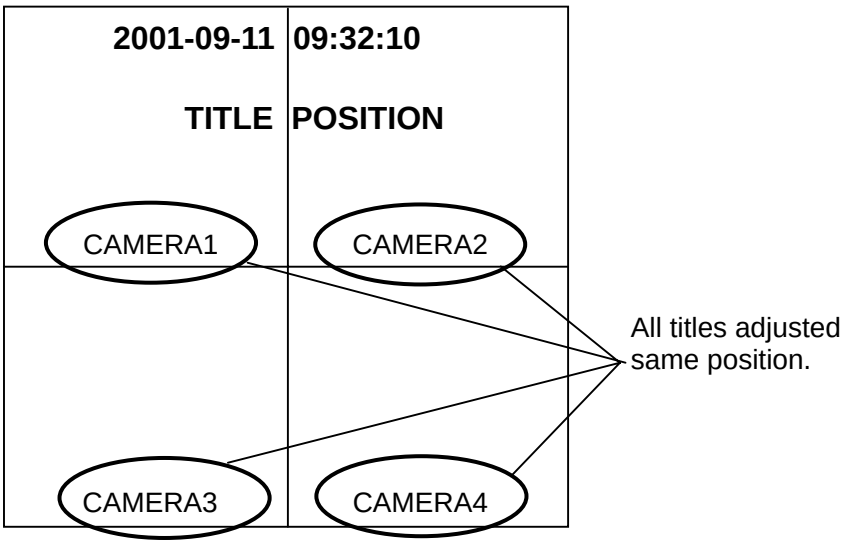
Settings list

The following letters, alphabet letters, numbers and symbols appear in this sequence. Up to 8 characters can be set in one line.

Numbers	0, 1, 2, 3, 4, 5, 6, 7, 8, 9
Alphabet Letters	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
Symbols	？：！（）＋/・－space

5-4-2. Title Position

From TITLE/POSITION menu, use up ↑ and down ↓ switch to move cursor to TITLE POSITION and push ENTER switch. The display below should appear.



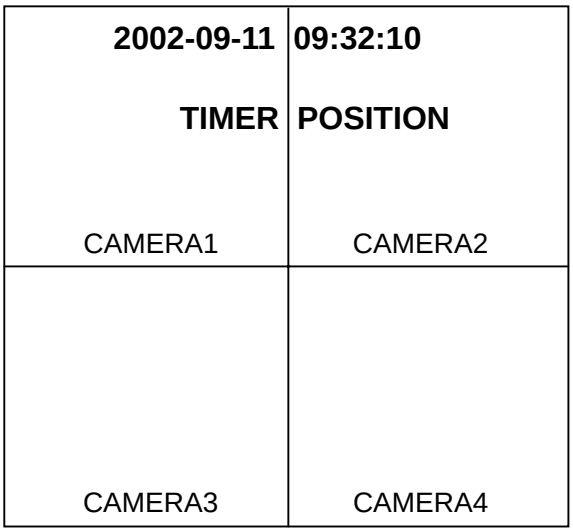
Title position is applied to ALL titles and titles are moved by using up ↑, down ↓, left ← and right → switch. Push MENU switch to go back to TITLE/POSITION menu.

IMPORTANT

Title position applies to full screen view, Quad view (4 split screen) and the full screen during P in P view.
Title position can not be changed in 2 split, 3 split, and P in P inset screens.
Title position cannot overlap date/time display position.

5-4-3. Timer Position

From TITLE/POSITION menu, use up ⇧ and down ⇩ switch to move cursor to TIMER POSITION and push ENTER switch. The display below should appear.



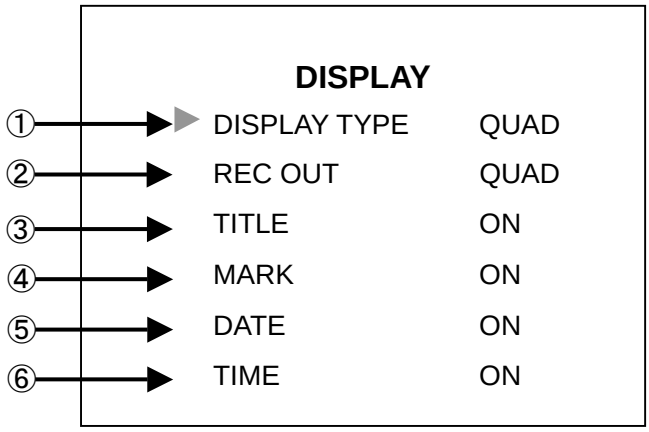
Press either up ⇧ or down ⇩ switch to move Timer Position to either the top or the bottom of the screen. For example, if Timer Position is at the top of the screen pressing either up ⇧ or down ⇩ switch will change Timer Position to the bottom. Push MENU switch to go back to TITLE/POSITION menu.

NOTE

Factory default time display position is shown above.

5-5. Display

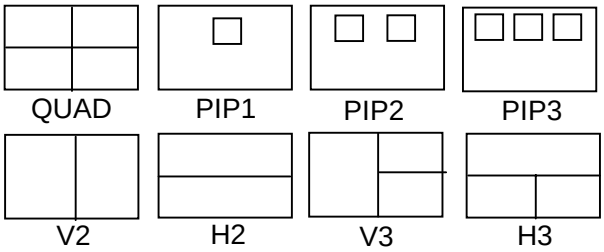
From MAIN MENU, use up ⇑ and down ⇓ switch to move cursor to DISPLAY and push ENTER switch. The display below should appear. Push MENU switch to return to main menu.



Settings in DISPLAY menu are shown in the table below. DISPLAY TYPE submenu has it's own submenu (DISPLAY SET) to adjust inset screen position of P-in-P, half sized screen view of 2 split or 3 split and channel assignment. See sec. '5-6. Display Set' following for details.

IMPORTANT

Settings made in DISPLAY set menu also affect how video is monitor displayed and recorded.

Item	Description
① DISPLAY TYPE	Use cursor ← → switches to select type of screen displayed when SPLIT switch is pushed: QUAD: 4 split displays PIP1: P-in-P 1 (1 full screen and 1 inset screen) PIP2: P-in-P 2 (1 full screen and 2 inset screens) PIP3: P-in-P 3 (1 full screen and 3 inset screens) V2 : Vertical split 2 channels H2 : Horizontal split 2 channels V3 : Vertical tri-split, 1 channel left, 2 channels right H3 : Horizontal tri-split, 1 channel top, 2 channels bottom 
② REC OUT	Sets video mode for the output from REC OUT terminal. QUAD: Always displays video in quad screen mode. MONITOR: Displays video in the same screen mode with the monitor.

(Continued following page.)

Item	Description
③ TITLE	Sets TITLE display ON / OFF. Use cursor ← → switches to select.
④ MARK	Sets ALARM, LOSS and FREEZE display ON / OFF. Use cursor ← → switches to select.
⑤ DATE	Sets date display ON / OFF. Use cursor ← → switches to select.
⑥ TIME	Sets time display ON / OFF. Use cursor ← → switches to select.

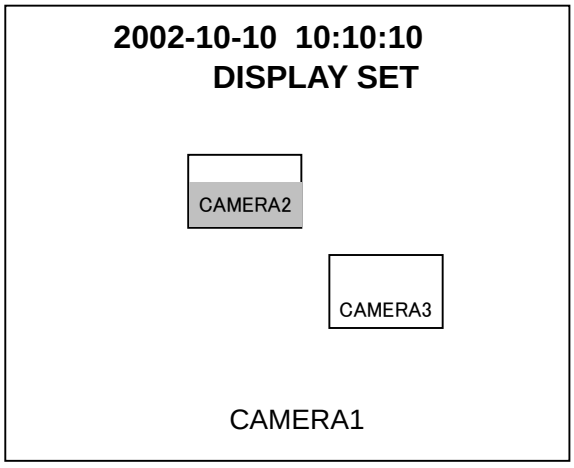
5-6. Display Set

Settings can be made to adjust where P-in-P inset screen(s) are positioned or to pan / tilt the picture in split 2 or split 3 mode. Open MAIN MENU use up ↑ and down ↓ switch to move cursor to DISPLAY and push ENTER switch. The DISPLAY menu should appear. Use up ↑ and down ↓ switch to move cursor to DISPLAY TYPE. Then use left ← and right → switch to set DISPLAY TYPE to one of PinP1, PinP2, PinP3, V2, H2, V3 or H3, next push ENTER switch. DISPLAY SET menu should appear as below.

NOTE

QUAD screen display does not support this DISPLAY SET menu.

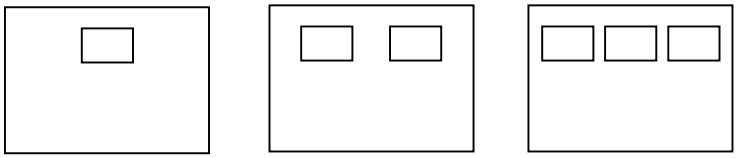
Pushing the FREEZE switch while in DISPLAY SET with P-in-P mode selected will enable Channel Assign function. See sec. '5-6-3. Channel Assign' for details



5-6-1. P-in-P mode

When in P-in-P mode, you can change the display positions of P-in-P inset screen when the title is flashing.

Factory default P-in-P inset screen positions are as shown below.

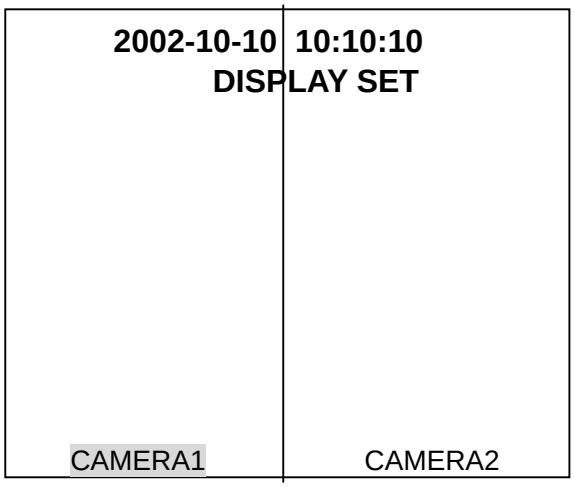


P-in-P1 P-in-P2 P-in-P3

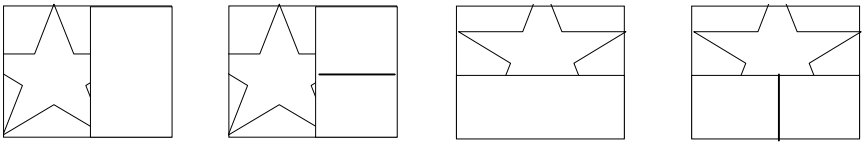
The following table shows how to adjust P-in-P inset screen position.

Control	Result
↑	Moves selected screen up
↓	Moves selected screen down
→	Moves selected screen right
←	Moves selected screen left
ENTER	Changes selected screen (flashing when selected)
FREEZE	Go to CH ASSIGN menu. See sec. ‘5-6-3. Channel Assign’.
MENU	Return to DISPLAY menu

5-6-2. Split 2 or 3 Mode



When in V2, H2, V3 or H3 mode, only half sized screen view can be adjusted by tilt up/down or pan left/right. Also when in V2 or H2 mode, only the title flashing screen view can be adjusted. Factory default screen view settings are shown below.



V2 V3 H2 H3

NOTE

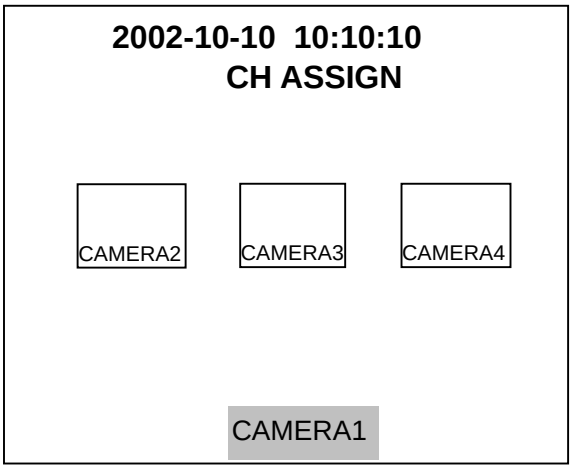
All screen views are factory default set to center view. Reinitializing unit or memory clearing will return unit to factory default settings from user made settings.

The table below shows how to adjust screen view.

Control	Result
↑	Selected screen view is tilted up (H2 and H3)
↓	Selected screen view is tilted down (H2 and H3)
→	Selected screen view is panned right (V2 and V3)
←	Selected screen view is panned left (V2 and V3)
ENTER	Changes selected screen (flashing when selected in V2 and H2 only)
FREEZE	CH ASSIGN (split screen channel set)
MENU	Return to DISPLAY Screen

5-6-3. Channel Assign

While in DISPLAY SET menu, push FREEZE switch to go to CH ASSIGN menu shown as below.



Factory default P-in-P3 channel assignment is shown above for example. Title flashing screen channel can only be assigned (hatched in the figure above). The table below shows how to assign channels.

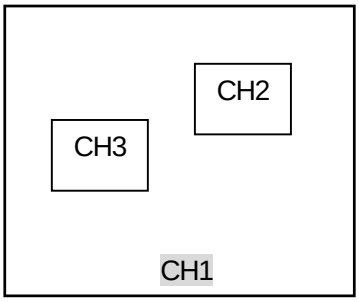
Control	Result
→	Moves channels forward through channel order
←	Moves channels reverse through channel order
ENTER	Change selected screen to be channel adjusted
FREEZE	Return to DISPLAY SET menu
MENU	Return to DISPLAY menu

NOTE

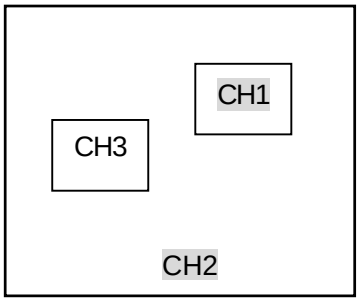
One channel cannot be displayed on more than one screen at a time.

When re-assigning a channel currently displayed to another screen, the channel currently displayed on that screen will change to another channel as shown below.

(Continued following page.)

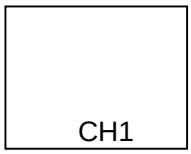


Assigning CH2 to full screen.

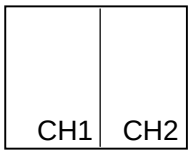


When CH2 is assigned to full screen from P–in-P inset screen, the previous full screen channel is displayed in the P–in-P inset screen where CH2 was previously displayed.

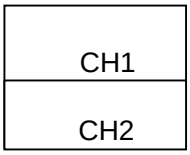
Factory default channel assignments are shown below.



Full screen

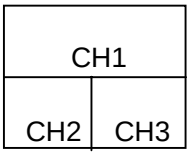


V2

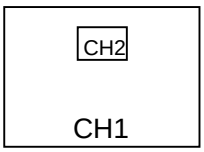


H2

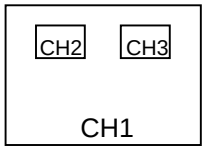
V3



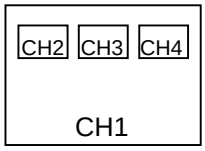
H3



PinP1



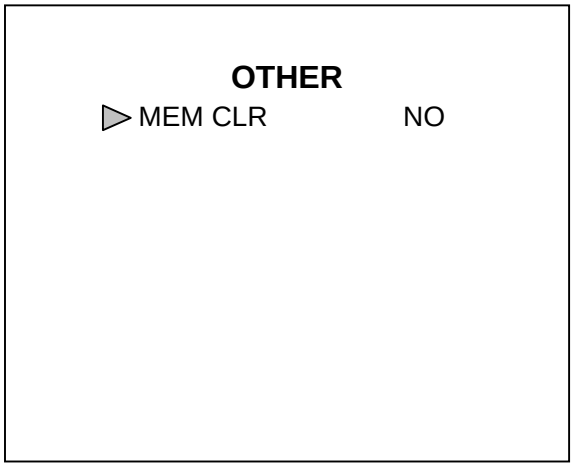
PinP2



PinP3

5-7. Other

Settings can be made here allows the user to reset all settings (except Date and Time) to factory defaults. From Main Menu use up ⇧ and down ⇩ switch to move cursor to OTHER and press ENTER switch. The display below should appear.



Push MENU switch to return to MAIN MENU.
To reset all settings, use left ⇦ and right ⇨ switch to change NO to YES and push ENTER switch. Memory clear screen shown below will be displayed. After memory clear has finished the buzzer will sound and display will automatically return to OTHER screen.

NOTE

Memory clear requires about 7 or 8 seconds to be performed.

All user made settings except Date and Time will be reset to factory defaults.

6. RS-232C Remote Control

Personal computer can be connected for RS-232C control to REMOTE/ALARM connector of MV-40F. For REMOTE/ALARM connector pin assignment, see sec. '3-3. Remote / Alarm Connector'.

6-1. Connection

Connection cable between personal computer and MV-40F is specified below.

MV-40F side

Pin No.	Signal
1-17	Not Used
18	RXD
19	TXD
20	DTR
21	DSR
22	RTS
23	CTS
24	GND
25	GND

25-pin D-sub (male) connector

Personal Computer

Pin No.	Signal
1	DCD
2	RXD
3	TXD
4	DTR
5	SG
6	DSR
7	RTS
8	CTS
9	Not Used

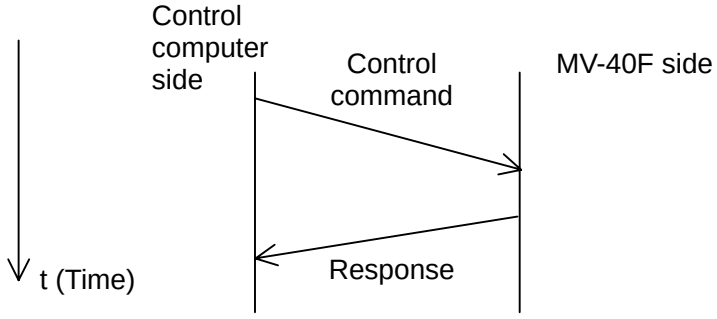
9-pin D-sub (female) connector

6-2. Communication Parameters

When controlling units via personal computer command, set communication parameters as shown below.

Baud rate	9600
Data bits	8
Start bit	1
Stop bit	1
Parity	None
X parameter (flow control)	None
Synchronization	Start-stop (asynchronous)

6-3 Protocol Flow



6-4. Computer Transmit

Personal computer transmits control commands using the format as shown below. It starts with STX code (value 02H), command contents in ASCII code, and ends with ETX code (value 03H).

STX	02H
Variable data (Command)	See sec '7. RS-232C Control Commands' following for details.
ETX	03H

6-5. MV-40F Reply

① When command is properly received, ACK (06H) reply is returned.
② When command is not properly received, NAK (15H) reply is returned.
③ If command is received during alarm operations or video loss alarm operations, NAK (15H) reply is returned.
④ If command is received while menu is accessed, NAK (15H)reply is returned.

7. RS-232C Control Commands

All command contents are transmitted in ASCII code. Note that commands cannot be processed while either in menu operation or during alarm / video loss alarm operation. If command is received while in menu operation or during alarm / video loss alarm operation, MV-40F sends NAK (15H) reply.

7-1. Display

Used to set display selection. Available commands are listed in the table below. Regardless of which display selection currently set, display selection changes directly as specified by this command.

Function	Command
Full screen CH1	SF1
Full screen CH2	SF2
Full screen CH3	SF3
Full screen CH4	SF4
Full screen auto switching	SAF
2 split V2	SD1
2 split H2	SD2
3 split V3	ST1
3 split H3	ST2
4 split	S4
P-in-P1	SP1
P-in-P2	SP2
P-in-P3	SP3

NOTE

When one of above commands is received while in freeze or VTR mode, MV-40F will go to normal display mode finishing freeze or VTR mode.

7-2. Freeze Commands

Function		Command
All channels Freeze ON	*1	FMO
All channels Freeze OFF	*1	FMF
CH1 Freeze ON	*1	FMO1
CH2 Freeze ON	*1	FMO2
CH3 Freeze ON	*1	FMO3
CH4 Freeze ON	*1	FMO4
CH1 Freeze OFF	*1	FMF1
CH2 Freeze OFF	*1	FMF2
CH3 Freeze OFF	*1	FMF3
CH4 Freeze OFF	*1	FMF4
Full screen freeze ON	*2	FMOF
Full screen freeze OFF	*2	FMFF

*1 Available for split displays (quad, P-in-P, 2-split and 3-split).

*2 Available for full screen display.

7-3. VTR Mode Commands

VTR mode commands are listed in the table below. All commands except for VTR mode ON command can be accepted when MV-40F is in VTR mode. When MV-40F receives VTR mode command (other than VTR mode ON command) while it is not in VTR mode, it replies NAK (15H).

Function	Command
VTR mode ON	VMO
VTR mode OFF	VMF
Zoom1	VZO1
Zoom2	VZO2
Zoom3	VZO3
Zoom4	VZO4
Zoom mode OFF	VZF

7-4. Alarm Functions

Alarm function commands are listed in the table below.

Function	Command
Buzzer OFF	BF
Buzzer ON	BO
Alarm Reset	AR

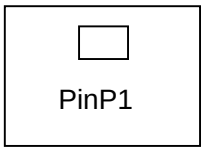
NOTE

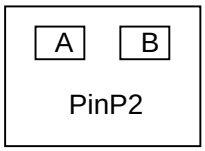
When ALARM MODE is set to 'LEVEL' by menu setting and Alarm Reset command ‘AR’ is received, MV-40F replies NAK (15H).

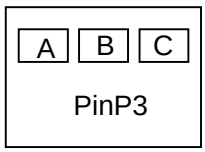
7-5. P-in-P Inset Screen Positioning Commands

P-in-P inset screen positioning commands are listed below.

Function	Command	Default Position (NTSC and PAL)
P-in-P1 inset screen positioning	P1Axxyy	1804
P-in-P2 inset screen positioning, left side inset screen default setting (A)	P2Axxyy	0904
P-in-P2 inset screen positioning, right side inset screen default setting (B)	P2Bxxyy	2604
P-in-P3 inset screen positioning, left side inset screen default setting (A)	P3Axxyy	0504
P-in-P3 inset screen positioning, center inset screen default setting (B)	P3Bxxyy	1804
P-in-P3 inset screen positioning, right side inset screen default setting (C)	P3Cxxyy	3104







xx: Horizontal positioning parameters; Range 01-34 (NTSC and PAL)
yy: Vertical positioning parameters; Range 01-18 (NTSC) Range 01-22 (PAL)

NOTE

Each position parameter is transmitted in ASCII code.
When a parameter outside the range is received, NAK (15H) is returned.
When a command which does not match the present screen setup (DISPLAY TYPE) is received, NAK (15H) is returned.
When a command to overlap P-in-P screens is received, NAK (15H) is returned.

7-6. Split Screen 2 and 3 Positioning

Half size screen view of split 2 (V2 or H2) and split 3 (V3 or H3) can be set using commands listed below.

Function	Command	Default view setting	
		NTSC	PAL
V2 view setting	DM1xxxx	4646	4646
H2 view setting	DM2yyyy	3131	3838
V3 view setting	TM1xx	46	46
H3 view setting	TM2yy	31	38

xx: Horizontal positioning parameters; Range 01-88 (NTSC) and 01-88 (PAL)
yy: Vertical positioning parameters; Range 01-60 (NTSC) Range 01-72 (PAL)

DM1xxxx
**¤¤
**: Left side half size screen view pan setting
¤¤: Right side half size screen view pan setting

DM2yyyy
**¤¤
**: Upper side half size screen view tilt setting
¤¤: Lower side half size screen view tilt setting

TM1xx
Split V3 view has only one half size screen, just one pan setting.

TM2yy
Split H3 view has only one half size screen, just one tilt setting.

NOTE

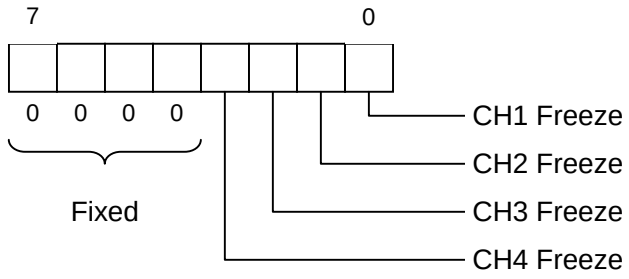
Each position parameter is transmitted in ASCII code.
When a parameter outside the range is received, NAK (15H) is returned.
When a command which does not match the present screen setup is received, NAK (15H) is returned.
When a command to overlap P-in-P screens is received, NAK (15H) is returned.

7-7. Display Status Request and Reply

Display status request command is ?G and replies are listed in the table below. MV-40F replies with one of the messages below.

Reply Message	Reply Meaning
SF1	Full screen CH1
SF2	Full screen CH2
SF3	Full screen CH3
SF4	Full screen CH4
SAF	Full screen, automatic channel switching
S4	4 Split (Quad)
SP1	P-in-P1, (full screen and 1 inset screen)
SP2	P-in-P2 (full screen and 2 inset screens)
SP3	P-in-P3 (full screen and 3 inset screens)
SD1	2 Split, V2
SD2	2 Split, H2
ST1	3 Split, V3
ST2	3 Split, H3
FMx*[1]	Channel(s) Frozen in split display
FMOF	Channel Frozen in full screen display
VMO	VTR mode ON
VZO1	Zoom 1
VZO2	Zoom 2
VZO3	Zoom 3
VZO4	Zoom 4

*1 When at least one channel is frozen, MV-40F replies frozen channel(s) using FMx reply message but does not reply which display type is currently used.
In FMx reply, x is binary expression to show frozen channel as shown below.



7-8. Operation Mode Request and Reply

Operating Mode Request command is ?M and replies are listed in the table below. MV-40F replies with one of the messages below.

Reply Message	Reply Meaning
MA	in alarm or video loss alarm operation mode
MS	in menu operation mode
MD	in normal operation
MF	In FREEZE mode
MV	in VTR mode

7-9. P-in-P Inset Screen Position Request and Reply

There are 3 commands used for P-in-P inset screen position request depending on which display type is currently being used. Commands and their replies are listed in the table below.

Request Command	Function	Reply Message
?P1	PinP1 inset screen position request	P1xxyy
?P2	PinP2 inset screens position request	P2xxyyxxyy
?P3	PinP3 inset screens position request	P3xxyyxxyyxxyy

xx: Horizontal positioning parameters; Range 01-34 (NTSC and PAL)
yy: Vertical positioning parameters; Range 01-18 (NTSC) Range 01-22 (PAL)

P2xxyyxxyy
****¤¤¤¤
**** : factory default left side inset screen position
¤¤¤¤ : factory default right side inset screen position

P3xxyyxxyyxxyy
****¤¤¤¤====
**** : factory default left side inset screen position
¤¤¤¤ : factory default center inset screen position
==== : factory default right side inset screen position

NOTE

Command and reply are all in ASCII code notation.
When a request command which does not match the present screen setup (DISPLAY TYPE), NAK (15H) is returned.

7-10. Split 2 or Split 3 Screen Request and Reply

In split 2 (V2 or H2) or split 3 (V3 or H3) display, only half sized screens have view setting parameters.
There are 4 commands used for split view settings request depending on which display type is currently being used. Commands and their replies are listed in the table below.

Request Command	Function	Reply Message
?D1	V2 view setting request	D1xxxx
?D2	H2 view setting request	D2yyyy
?T1	V3 view setting request	T1xx
?T1	H3 view setting request	T2yy

xx: Horizontal positioning parameters; Range 01-88 (NTSC) and 01-88 (PAL)
yy: Vertical positioning parameters; Range 01-66 (NTSC) Range 01-72 (PAL)

D1xxxx
**¤¤
**: Left side half screen view setting
¤¤: Right side half screen view setting

(Continued following page.)

D2yyyy
**¤¤
**: Upper side half screen view setting
¤¤: Lower side half screen view setting

T1xx
Split V3 view has only one half size screen, just one pan setting.

T2yy
Split H3 view has only one half size screen, just one tilt setting.

NOTE

Command and reply are all in ASCII code notation. When a request command which does not match the present screen setup (DISPLAY TYPE), NAK (15H) is returned

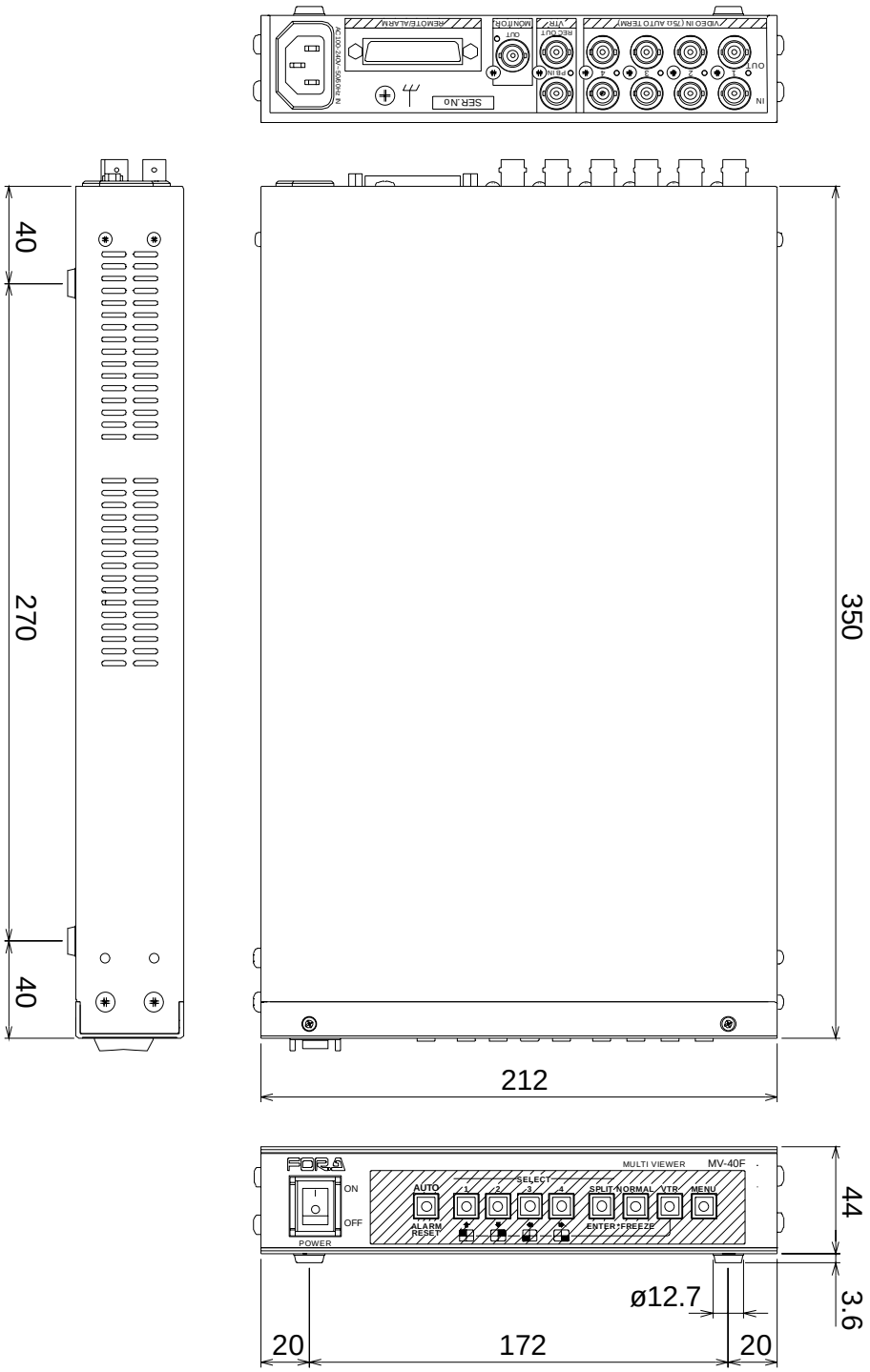
8. Specifications & Dimensions

8-1. Specifications

Standard	525/60 (NTSC) or 625/50 (PAL)
Video Inputs	1.0Vp-p color or B/W (59.94Hz), 75Ω or loopthru auto terminated, 4 ea., BNC
VTR Input	VTR generated 1.0Vp-p, 75Ω, 1 ea., BNC
Monitor Output	1.0Vp-p±0.1V, 1 ea., BNC, Full screen view or split screen view
VTR OUT	1.0Vp-p±0.1V,1 ea., Quad or the same screen view with monitor.
Interface	Remote / RS-232C / Alarm input & output, D-sub 25 pin (female)
Remote	TTL negative logic pulse (more than 100ms width)
Time Adjust	TTL negative logic pulse (more than 100ms width), minute signal
Alarm Input	TTL negative logic, pulse (more than 100ms width) or level
Alarm Output	Make break contact, max. 24VDC 100mA
Screen Display Types	Full, Quad, P-in-P 1-3 (1 full screen and between 1-3 inset screens), 2 split and 3 split vertical, 2 split and 3 split horizontal (VTR playback allows Quad screens to be individually zoomed, P-in-P screens can be user positioned and half size screen view of split 2 or split 3 can be user adjusted)
Character Display	
Camera Title	Alphabet, numbers, symbols, 8 characters / 1 line max, positionable
Date / Time	MM-DD-YYYY, H:M:S (24 hour indication) for NTSC, DD-MM-YYYY H:M:S for PAL as factory default. Date format YYYY-MM-DD (default 1) can also be selected.
Warnings	
ALARM	When an Alarm occurs, ALARM is displayed on the alarm channel screen.
LOSS	When camera signal is lost, LOSS is displayed on the lost channel screen.
FREEZE	When freeze is user selected, FREEZE will be displayed on all channels currently in freeze.
Data Backup	Menu made settings and date/time. Backup battery life approx. 5 years.
Power	100VAC to 240VAC ±10%, 50/ 60Hz
Consumption	Approx. 16VA (10W) at 100VAC; Approx. 22VA (12W) at 220VAC
Temperature	0°C – 40°C
Humidity	30% – 90%（no condensation）
Dimensions	215 (W) x 44 (H) x 350 (D) mm
Weight	Approx. 1.9 kg
Options	(1) Single Unit Rack Mount Kit (2) Dual Unit Rack Mount Kit

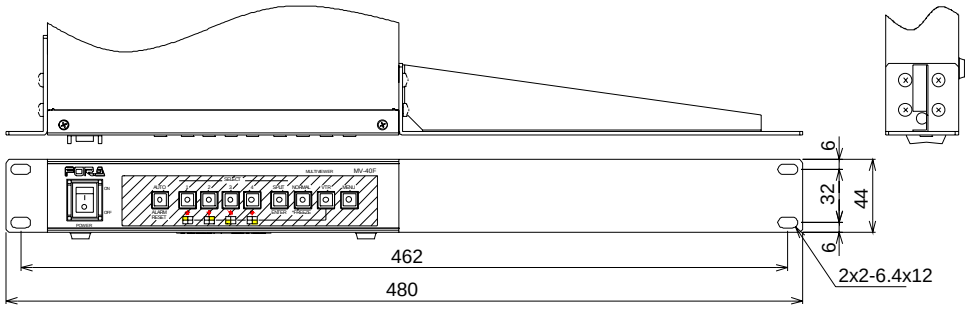
8-2. External Dimensions

(All dimensions in mm)



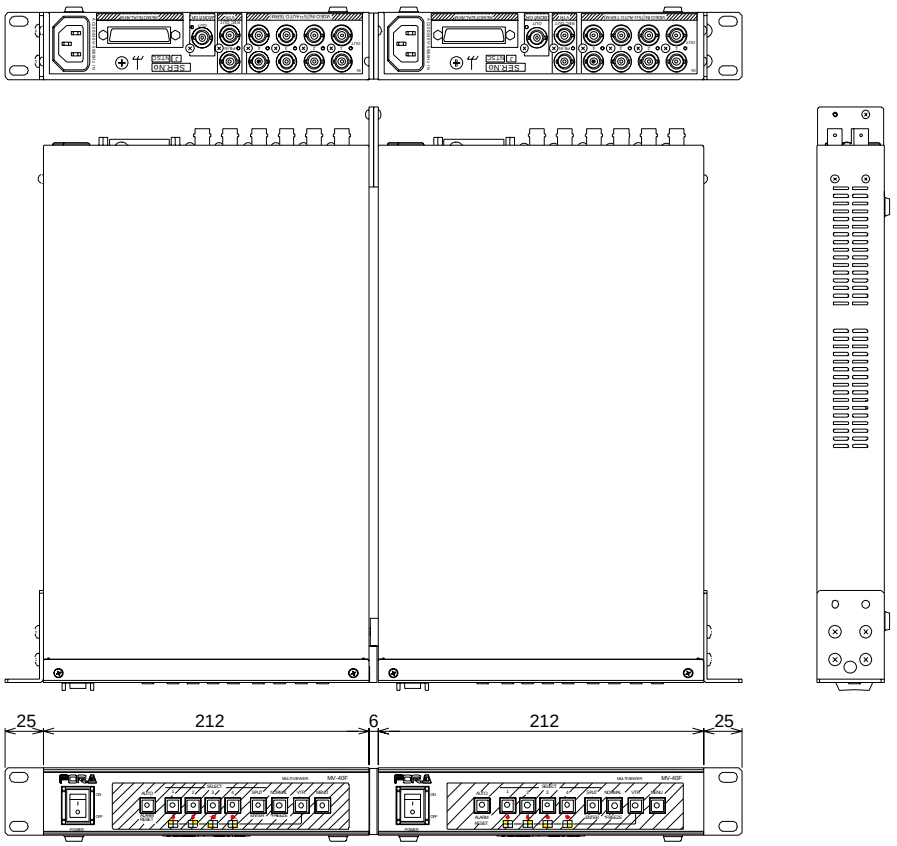
8-2-1. Single Unit Rack Mounting

(All dimensions in mm)



8-2-2. Dual Unit Rack Mounting

(All dimensions in mm)



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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