Color/B&W Duplex Multiplexer
MP1600/BMP1600

USER'S MANUAL

Safety Precautions

TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

ATTENTION:
POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

This symbol is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Operating Safety

- Use only the factory supplied (5VDC 8.0A) power adapter to operate the system.
- Do not try to force the system's plug into a power outlet. It has one blade that is wider than the other for safety purposes.
- If any liquid or solid object falls into the cabinet, unplug the system and have it checked by a qualified technician before operating it again.
- Do not block the ventilation opening. The openings keep the system from overheating.
- Do not install the system in a hot or humid place, or where there is excessive dust or vibration.

Owner's Record

The model and serial numbers are located at the bottom of the system. Record these numbers in the spaces provided below. Refer to them whenever you call technical support regarding this product.

Model Number: _____

Serial Number: _____

FCC Compliance Statement

User/Installer Caution: Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part 15 of the FCC rules.

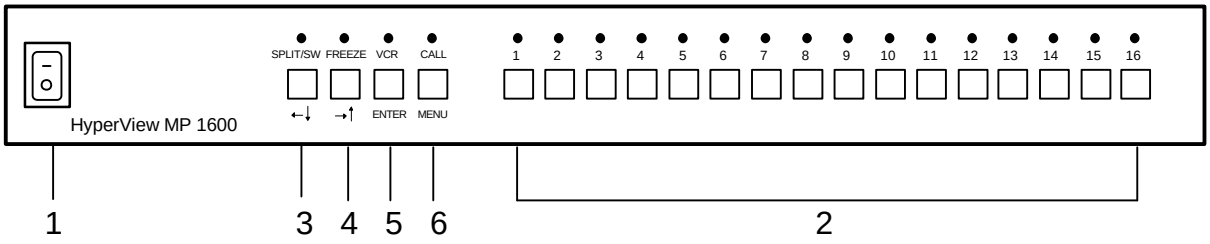
Note: this equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment 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 that the user will be required to correct at his or her own expense.

This digital apparatus does not exceed the Class A limit for radio noise emissions from digital apparatus set out in the radio interference regulations of Canada.

Contents

System Controls and Connectors

Front Panel Controls



1. **Power Switch** p. 7
   Turns the MP1600/BMP1600 on and off.

2. **Video Selector** p. 7
   Selects a camera input to be displayed in full-screen mode to the main monitor output.

3. **SPLIT/SW Selector** p. 7
   Selects a preset multi-screen mode and the multi-screen/full-screen switching mode's main monitor output.
   ? ? **Function** p. 12
   The SPLIT/SW button provides down and left navigation while in user setup mode.

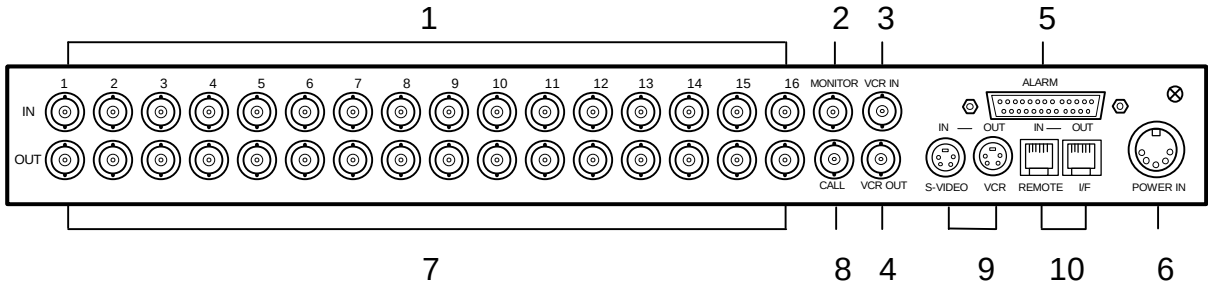
4. **FREEZE Button**
   Freezes the currently selected video input's main monitor output or returns to normal video.
   ? ? **Function** p. 12
   The FREEZE button provides up and right navigation while in user setup mode.

5. **PLAYBACK Button** p. 9
   Selects a VCR input to be displayed to main monitor output. This button does not affect the VCR output during duplex operation.
   ENTER Function p. 12
   The PLAYBACK button acts as the ENTER button while in user setup mode.

6. **CALL Button** p. 10
   If this pressed for less than three seconds, this button will enable or disable call monitor select mode.
   MENU Function p. 11
   If pressed for longer than three seconds, the MP1600/BMP1600 will enter user setup mode.

System Controls and Connectors

Back Panel Connectors



1. Video Input
Connects to the video output of up to 16 cameras.

2. Main Monitor Output
Connects to the video input of a video monitor.

3. VCR Input
Connects to the video output of a VCR or time-lapse recorder.

4. VCR Output
Connects to the video input of a VCR or time-lapse recorder.

5. Alarm Input/Output
Connects to the alarm input sources and output targets.

6. Power Input
Connects to the factory supplied AC/DC power adapter.

7. Loop Thru Output
Connects to the video inputs of other video systems.

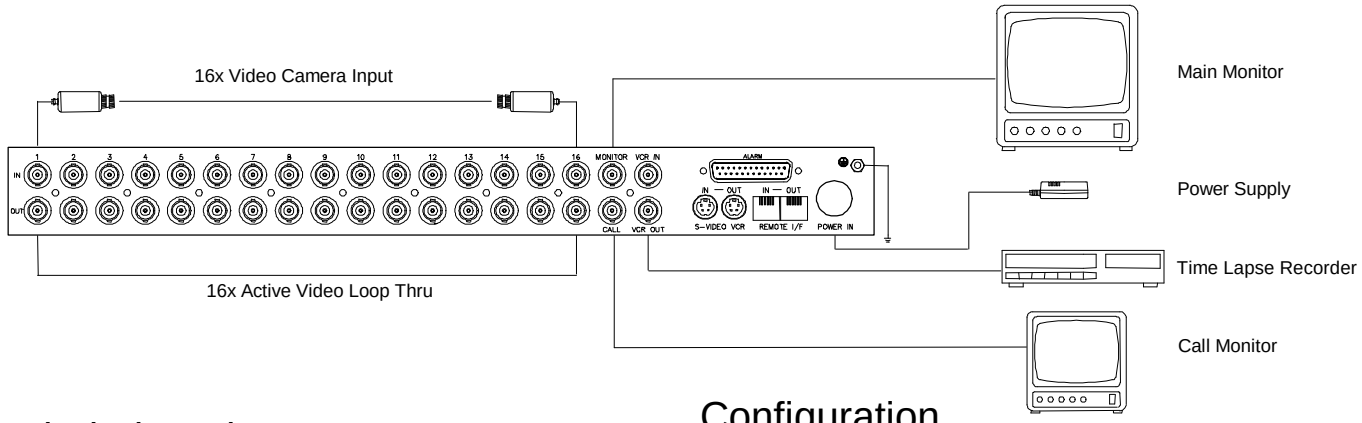
8. Call Monitor Output
Connects to the video input of a secondary video monitor.

9. S-Video VCR Input/Output
Connects to the S-Video output/input of an S-Video VCR or time-lapse recorder.

10. Remote Interface Input
Connects to an MP1600/BMP1600 compatible system control device or to a computer using an optional IBM PC interface cable.

Basic System Setup

Typical System Configuration Diagram



Included Equipment

- Multiplexer Unit
- AC/DC Power Supply
- Operating Instructions
- AC Power Cord

Recommended Equipment

- Video Monitor
- Video Tape Recorder
- Video Cameras
- Coaxial BNC Cables

Configuration

Video Cameras
Connect up to 16 cameras to the 16 video inputs using coaxial cable.

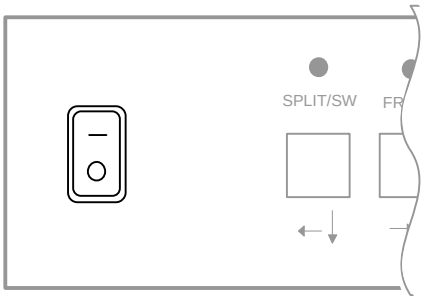
Main Monitor
Connect the main monitor output with the video input connector on a video monitor using coaxial cable.

Call Monitor
Connect the call monitor output with the video input connector on a video monitor using coaxial cable.

Video Tape Recorder
Connect the VCR input with the video output on a VCR or a time-lapse tape recorder using coaxial cable.
Connect the VCR output with the video input on a VCR or a time-lapse tape recorder using coaxial cable.

Power Supply
Make sure the power switch is off before connecting the power supply. Once the power is off, connect the factory supplied AC power supply with the DC plug on the MP1600/BMP1600 and an AC power outlet.

Power Switch



Basic Buttons

Power Switch

Turning Power On

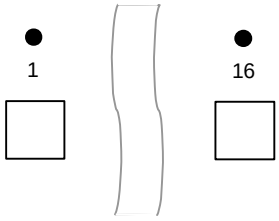
To turn power on, press the top half of the power switch marked “-”.

Turning Power Off

To turn the power off, press the bottom half of the power switch marked “0”.

Caution: Make sure the power switch is set to the off position when connecting the AC/DC adapter to the POWER IN connector on the MP1600/BMP1600 and the AC outlet.

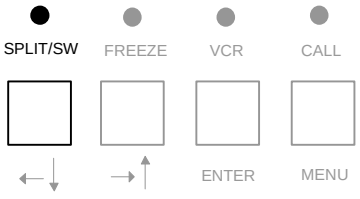
Full-Screen Mode Video Selector



Full-Screen Mode

To select a desired camera input to be displayed, press the button number corresponding to the camera’s number.
For example, press button 2 to display the input from camera 2 on the main monitor.

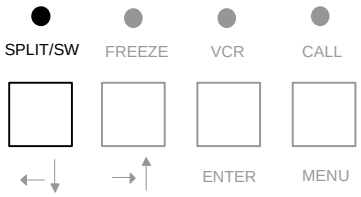
SPLIT/SW Button



Split-Screen Mode

Press the SPLIT/SW button for less than three seconds from any full-screen or preset-screen mode. p. 15

SPLIT/SW Button



Video Switching Mode

Multi-screen or Full-Screen Switching Mode

Press the SPLIT/SW button for more than three seconds to select switching mode. Pressing the SPLIT/SW button for less than three seconds will activate the split mode.

Activating Full-Screen Switching

Press the SPLIT/SW button while the screen is in full-screen mode.

Activating Quad-Screen Switching

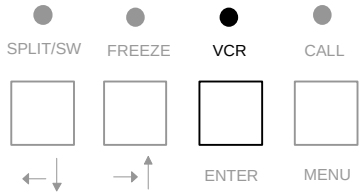
Press the SPLIT/SW button while in quad-screen mode (2x2). Dwell time can be set for cameras 1, 2, 3 and 4.

Activating Preset-Mode Switching

Press the SPLIT/SW button while in any multi-screen mode, except quad mode (2x2). Dwell time can be set for A, B, C and D.

*Note: The SPLIT/SW button is a preset-screen selection button. Each time this button is pressed, the system will switch between each preset mode. Video switch and customized video modes **are not available** in VCR playback mode.*

PLAYBACK Button



VCR Playback Mode

Entering VCR Playback Mode

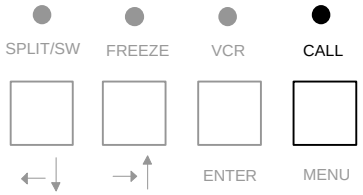
Press the VCR button from any video mode to display the VCR input (VCR IN) on the main monitor. The VCR output will remain unchanged.

Returning to Live Mode

Press the VCR button in VCR playback mode to restore the mode prior to VCR playback mode.

Note: Pressing MENU button in VCR playback mode will select a bypass mode (p. 28) or tracking adjustment (p. 29).

CALL Button



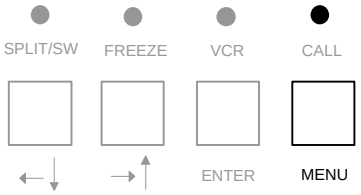
Call Monitor

Activating Call Monitor

1. Press the CALL button for less than three seconds to enter call-monitor select mode – a press longer than three seconds will activate the MAIN MENU.
2. The call light will blink to indicate that the MP1600/BMP1600 is in call monitor select mode.
3. Select the desired call monitor by pressing the number of the desired camera on the front panel.
4. The light will go off to indicate the completion of the call monitor selection.

When the alarm inputs are enabled and triggered, their corresponding video inputs are displayed to the call monitor. In the event of multiple alarm triggers, the call monitor will switch between video inputs in one-second intervals for the duration defined in the user setup menu.

MENU Function



User Setup Mode

User Setup Mode Description

The user setup menu allows for the programming of various system operations from within a menu-based interface. This interface consists of an on-screen menu, a three-button select, and modify operations.

Entering User Setup Menu

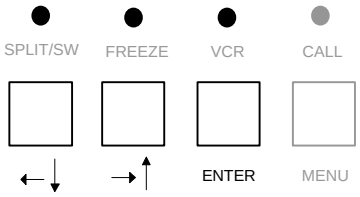
Press the MENU button for longer than three seconds from any live video mode to display the main setup menu on screen.

Exiting User Setup Menu

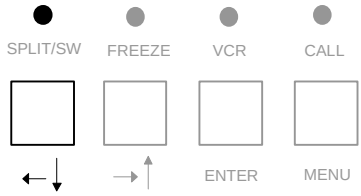
Press the MENU button for longer than three seconds while in the user setup menu to exit the user setup menu.

Note: The alarm will not operate while the MP1600/BMP1600 is in user setup mode.

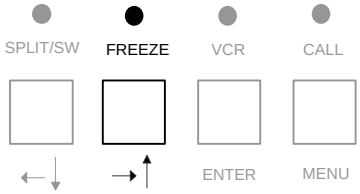
Menu Buttons



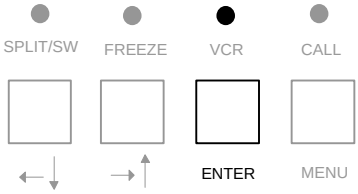
? ? (left /down) Function



? ? (right/up) Function



ENTER Function



Menu Buttons

The three buttons to the left of the MENU button are used to control the cursors and select items in each menu screen while the MP1600/BMP1600 is in user setup mode. The alternative functions of these three buttons are marked below the buttons as shown on the diagram.

? ? (left /down) Function

This button moves the cursor to the left or down. When an item is selected, this button changes (or decreases) the value of the selected item.

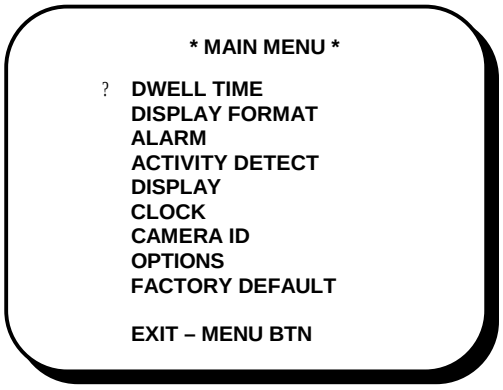
? ? (right/up) Function

This button moves the cursor to the right or up. When an item is selected, this button changes (or increases) the value of the selected item.

ENTER Function

This button selects the item that is currently pointed to by the cursor. If this button is pressed while an item is selected, the current value and setting will be saved. To discard the changes, press the MENU button instead of the ENTER button.

Main Menu



The MAIN MENU is the first screen you will see when the MENU button is pressed for longer than three seconds. The currently selected sub-menu is denoted with a "? " on the left of the sub-menu item.

Advancing to a Sub-Menu

1 Use the ? ? or ? ? button to move the cursor to the item of interest. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
2. Select the item using the ENTER button. The ENTER button acts as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
3. A new sub-menu screen will appear.

Press the MENU button for longer than three seconds to exit the MAIN MENU.

DWELL TIME p. 14
Causes the MP1600/BMP1600 to spend a set amount time on each camera during video switching mode.

DISPLAY FORMAT p.15
Allows configuration of four user configurable split screens.

ALARM p. 19
Enables or disables the alarm inputs and configure actions upon alarm trigger.

ACTIVITY DETECT p.20
Enable, disable, or set up activity detection for each camera input.

DISPLAY p. 21
Allows configuration of the various on-screen displays of the date, time, and camera identification.

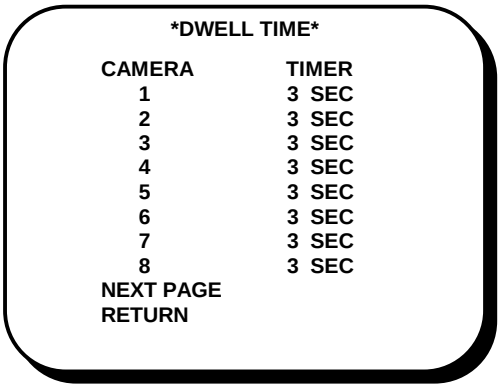
CLOCK p. 22
Allows current time and date to be set.

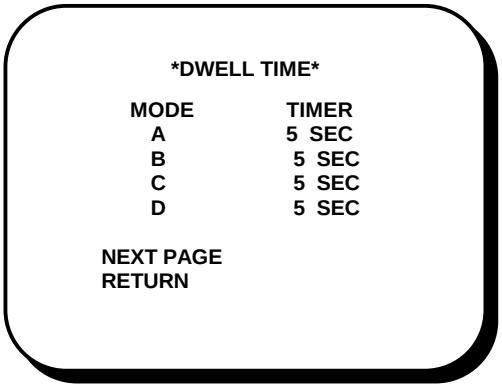
CAMERA ID p. 22
Allows each camera to be given an identification name of up to 12 characters per camera.

OPTIONS p. 23
Allows configuration of various options available on the MP1600/BMP1600.

FACTORY DEFAULT p. 24
Reset all system values to the factory default values.

Dwell Time





The MP1600/BMP1600 is capable of allowing each camera's dwell time to be set independently.

Changing Dwell Time

1. Select DWELL TIME from the MAIN MENU. Move the cursor to the camera whose dwell time is to be changed using the ? ? or ? ? button. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600 /BMP1600 is in user setup mode.
2. Select the camera to be changed using the ENTER button. The PLAYBACK button becomes the ENTER button when the MP1600/BMP1600 is in user setup mode.
3. Press the ? ? button to decrease or the ? ? button to increase the dwell time to the desired time.
4. Save the setting by pressing the ENTER button.

You may repeat steps two through five above for each camera that requires changes to dwell time.

Quad Mode Switching

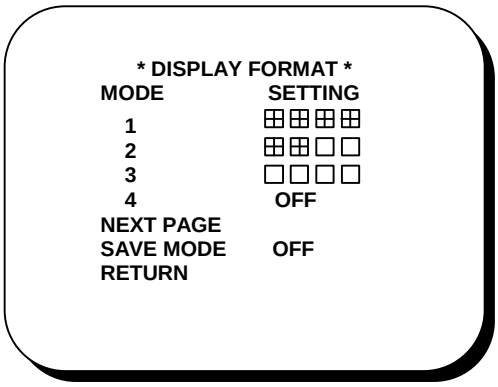
In quad switching mode, the dwell times of cameras 1, 2, 3 and 4 are used for the dwell time of the 1st, 2nd, 3rd and 4th page of the quad-screen, respectively.

Preset Mode Switching

In preset mode, dwell time can be set four different ways and then saved in presets A, B, C, or D.

See page 15 for more details on different split-screen modes.

Display Formats



The MP1600/BMP1600 is capable of having four different preset screens configured.

Each mode setting can be configured by the user.

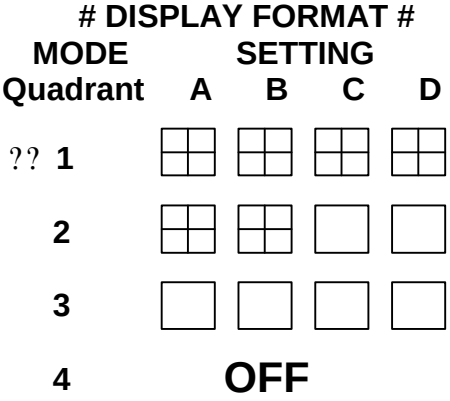
Once you have set up the preset screens, you can select the desired preset screen by pressing the SPLIT/SW button.

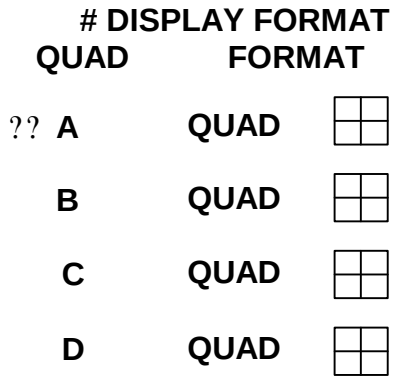
Display Save Mode

Save mode allows you to save the last screen you were in before turning off the system.

Saving a Mode

1. Select SAVE MODE from DISPLAY FORMAT.
2. Use the ? ? or ? ? button to change the setting to ON or OFF. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Save the setting by pressing the ENTER button. The PLAYBACK button becomes the ENTER button when the MP1600/BMP1600 is in user setup mode.





Display Formats

Mode

The numbers represent the preset modes. The four mode settings are broken down into quadrants A, B, C and D.

Changing the Mode Setting

1. Use the ? ? or ? ? button to move the cursor to the mode that is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
2. Select the mode using ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.

Screen Sizes

The MP1600/BMP1600 is capable of allowing each camera's screen size (1/4, 1/8 or 1/16) to be set independently.

Changing Screen Mode

1. Select MODE from DISPLAY FORMAT.
2. Use the ? ? or ? ? button to move the cursor to quadrant, shown above, to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Select the quadrant using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
4. Press ? ? or ? ? button to change to the desired FORMAT setting.
5. Save the setting by pressing the ENTER button.

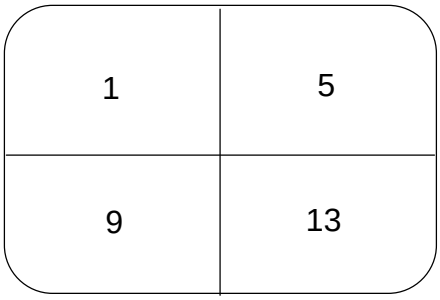
You may repeat steps two through five above for each quadrant that requires changes to its screen setting.

Standard Split-Screen Types

The MP1600/BMP1600 allows the selection and configuration of up to four standard custom screen displays. You may select the desired screen by pressing the SPLIT/SW button, which will allow you to toggle through your four preset-screen settings.

Standard Split-Screen Layouts

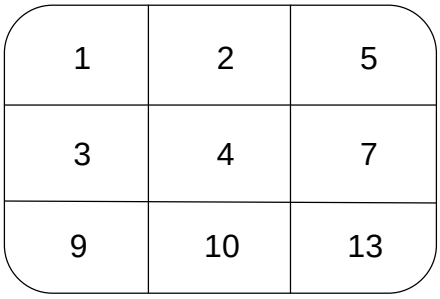
2x2



2x2 Mode

Four-camera mode allows you to view cameras 1, 5, 9 and 13.

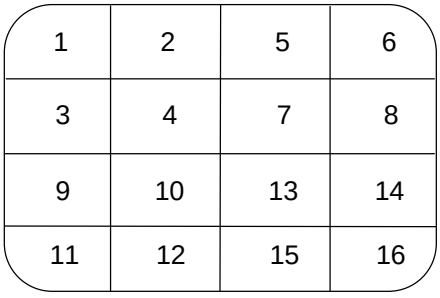
3x3



3x3 Mode

Nine-camera mode allows you to view cameras 1, 2, 3, 4, 5, 7, 9, 10 and 13.

4x4

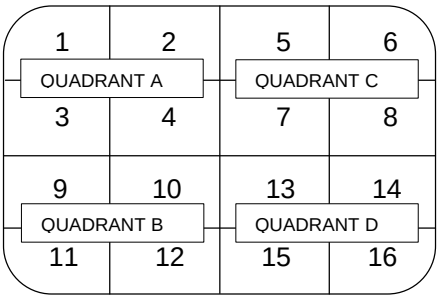


4x4 Mode

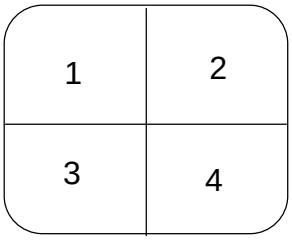
Sixteen-camera mode allows you to view all sixteen cameras.

Custom Split-Screen Layouts

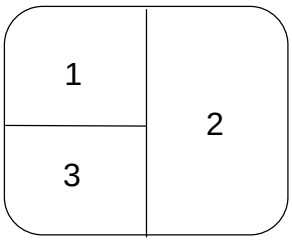
Quadrant Layout



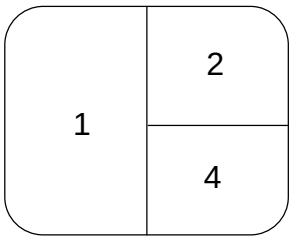
Quad Screen



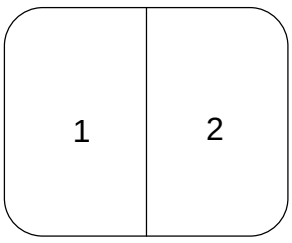
Triple A Screen



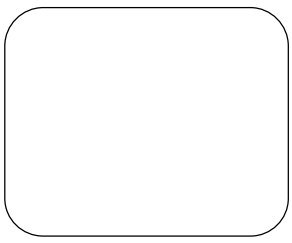
Triple B Screen



Dual Screen



Full Screen



Custom Split-Screen Types

The MP1600/BMP1600's screen is split up into four separate quadrants (A, B, C and D). Each quadrant can be split up to display up to four cameras in the formats described below. This will allow you to fully configure a multi-screen display.

Quad Screen

Each of the four camera inputs will be displayed in one of the four quadrants.

Triple A Screen

Cameras 1 (5, 9 or 13) and 3 (7, 11 or 15) are displayed in one of the two left quadrants while the right half of the camera 2 (6, 10 or 14) input is displayed on the right half of the screen.

Triple B Screen

Cameras 2 (6, 10 or 14) and 4 (8, 12 or 16) are displayed in one of the two right quadrants while the left half of the camera 1 (5, 9 or 13) input is displayed on the left half of the screen.

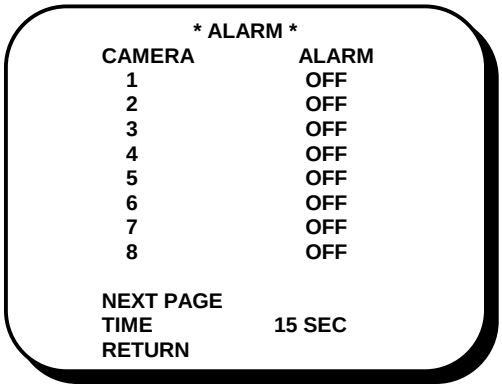
Dual Screen

Cameras 1 (5, 9 or 13) and 2 (6, 10 or 14) are displayed in the left and the right half of the screen, respectively.

Full Screen

Camera 1 (5, 9 or 13) is displayed in full.

Alarm Settings



Each alarm input to the MP1600/BMP1600 can be configured independently.

Changing Alarm Settings

1. Select ALARM from MAIN MENU.
2. Use the ? ? or ? ? button to move the cursor to the camera whose alarm setting is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Select the desired camera using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
4. Press ? ? or ? ? button to change the alarm setting.
5. Save the setting by pressing the ENTER button.

You may repeat steps two through five above for each camera that requires changes to the alarm set up.

Select NEXT PAGE to choose cameras 9 through 16.

Available Alarm Settings

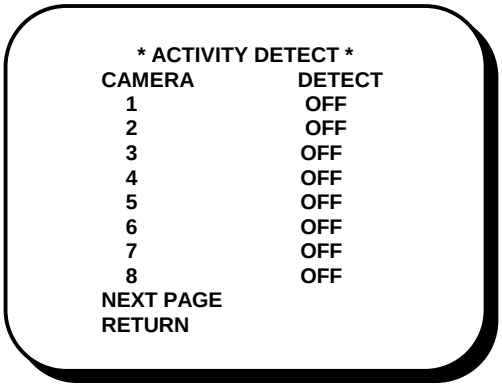
OFF Alarm is off, so the MP1600/BMP1600 will not respond to the alarm inputs.

BEEP The MP1600/BMP1600 will sound an alarm, a beeping noise, to alert when it is triggered by an alarm input.

VIDEO The MP1600/BMP1600 will display a magenta frame around the affected video on both the MAIN MONITOR and the VCR OUT when it is triggered by an alarm input.

V+B The MP1600/BMP1600 will sound an alarm, a beeping noise, and display a message on the monitor when it is triggered by an alarm input.

Activity Detection



Each alarm input to the MP1600/BMP1600 can be configured independently by changing its respective camera activity detection setting.

Changing Activity Detection Settings

1. Select ACTIVITY DETECT from the MAIN MENU.
2. Use the ? ? or ? ? button to move the cursor to the camera whose activity detection setting is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Select the desired camera using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
4. Press ? ? or ? ? button to change the camera's alarm setting.
5. Save the setting by pressing the ENTER button.

You may repeat steps two through five above for each camera that requires changes to set up an alarm.
Select NEXT PAGE to choose cameras 9 through 16.

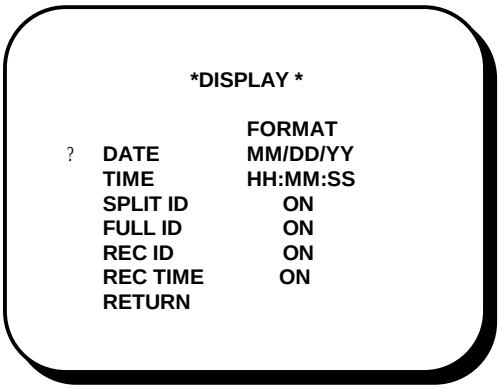
Available Detection Settings

OFF
Activity detect is off, so the MP1600/BMP1600 will not respond to any activity.

MIN TO MAX
The lower the number the more movement is required to activate the Activity Detection. Determine the desired setting by experimenting with different degrees of sensitivity.

Note: The alarm setting must be active on its corresponding camera in order for activity detection to work. For example, if you wish to have activity detection on camera 1, select the setting under the ACTIVITY DETECT MENU for camera 1 and also select the setting under the ALARM MENU for camera 1.

Display Settings



Changing Display Settings

1. Select DISPLAY from the MAIN MENU.
2. Use the ? ? or ? ? button to move the cursor to the item whose setting is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/ BMP1600 is in user setup mode.
3. Select the item using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/ BMP1600 is in user setup mode.
4. Use the ? ? or ? ? button to change the setting.
5. Save the setting by pressing the ENTER button.

Available Date Settings

OFF	No date information is displayed.
MM/DD/YY	Month/Day/Year
DD/MM/YY	Day/Month/Year
DD/MM	Day/Month

Available Time Settings

OFF	No time information is displayed.
HH:MM	Hour:Minute
HH:MM:SS	Hour:Minute:Second

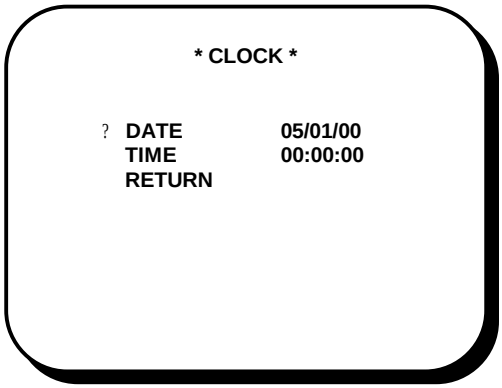
SPLIT ID Enable or disable the display of the camera number in split-screen mode.

FULL ID Enable or disable the display of camera identification in the full-screen or full-screen switching modes.

REC ID Enable or disable the display of camera identification in VCR recording.

REC TIME Enable or disable the display of the date and time in VCR recording.

System Clock

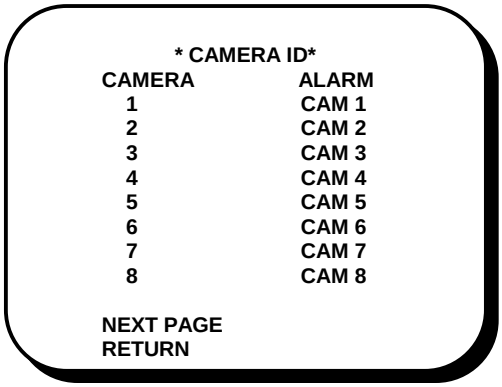


Setting the Current Date and Time

1. Select CLOCK from the MAIN MENU.
2. Use the ? ? or ? ? button to move the cursor to the DATE or TIME whose setting is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Select the item using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/ BMP1600 is in user setup mode.
4. The currently selected field will blink.
5. Press the ? ? or ? ? button to change the value.
6. Confirm the setting by pressing the ENTER button. The cursor will automatically advance to the next field.
7. Repeat steps 4 and 5 until the last field is reached.

The new settings will be saved, and they will take effect when the last field is entered.

Camera ID



The MP1600/BMP1600 provides up to twelve characters for camera identification.

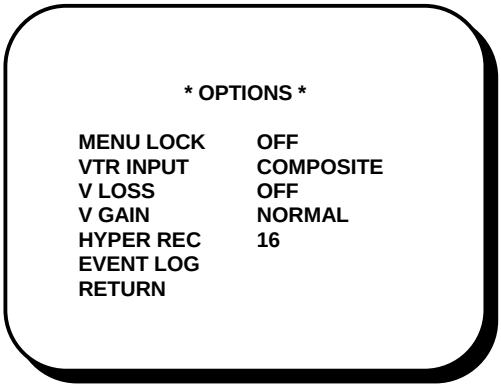
Changing the Camera ID

1. Select CAMERA ID from the MAIN MENU.
2. Use the ? ? or ? ? button to move the cursor to the camera whose identification is to be changed. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.
3. Select the desired camera using the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
4. The currently selected field will blink.
5. Press the ? ? or ? ? button to change the character.
6. Confirm the settings by pressing the ENTER button. The cursor will automatically advance to the next field.
7. Repeat steps five and six until the last field is reached.

The new settings will be saved and will take effect when the last field is entered.

Select NEXT PAGE to change cameras 9 through 16.

Options



Menu Lock
Menu lock allows you to lock the MAIN MENU. Once the menu is locked, the system password must be used to access the MAIN MENU.

Note: The MP1600/BMP1600 has a pre-selected password: **1227**.

To access the locked MAIN MENU, enter the system password using the numbers on the buttons normally used for camera selection.

VTR Input
Select the input and output type of the VCR or time-lapse recorder. This can be set to S-Video or composite.

V Loss
Select the type of alarm to be sounded in case of a loss of video, OFF, BEEP, or V-B.

V Gain
Reset or adjust input video gains.

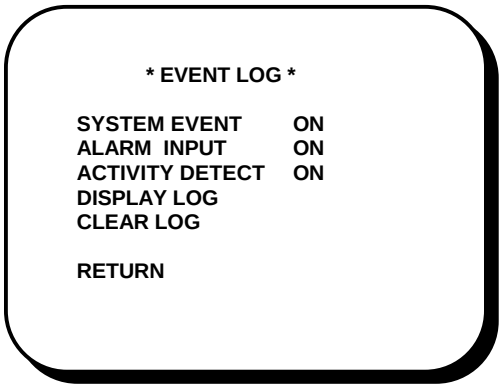
Hyper Recording
Hyper recording allows you to select the number of cameras you wish to record. This will allow you to take advantage of the faster recording speed and better quality of nine-camera recording. You may view as many cameras as you wish in LIVE mode, but the MP1600/BMP1600 will only record the pre-selected number of cameras.

16 CAMERAS MODE (default mode)
Record – All 16 cameras are recorded.
Playback – All 16 cameras are displayed.

9 CAMERAS MODE
Record – Only 9 cameras, numbers 1,2,3,4,5,7,9,10 and 13, will be recorded.
Playback – Displayed in 3x3 mode with nine recorded cameras, the only option in the SPLT/SW mode. Press the SPLT/SW button to select between dual and quad pages. Press camera number to bring up full-screen mode.

EVENT LOG
Reset or review event log.

Event Log



System Event
When enabled, the times when the system is turned on and off and when the menu is accessed are recorded in the log.

Alarm Input
When enabled, alarms triggered by the external alarm inputs are recorded in the log.

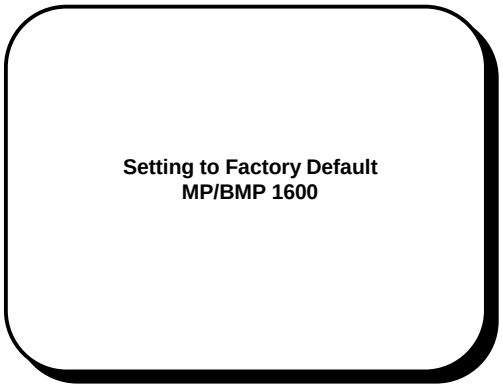
Activity Detect
When enabled, alarms triggered by activity detection are recorded in the log.

Display Log
Displays the event log on screen. Use the ? ? and ? ? buttons to scroll. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.

Clear Log
Clear all events in the log.

The event log is capable of recording up to 256 events. Once 256 events are reached, the oldest log entry is overwritten when new events are logged.

Factory Default Reset

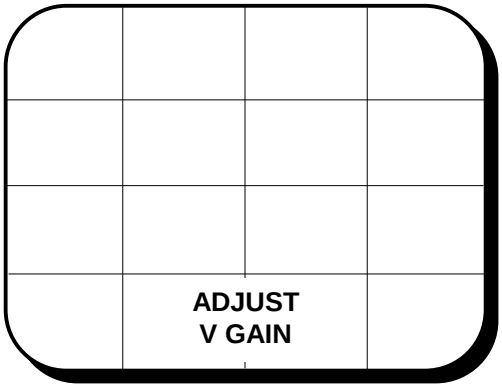


Resetting System Values to Factory Defaults

1. Move the cursor to FACTORY DEFAULT in the MAIN MENU.
2. Select FACTORY DEFAULT by pressing the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
3. The menu screen will disappear momentarily and then reappear. When this is complete, the factory default settings are restored.

Date, time, and event log settings will not be affected by execution of factory default.

Video Gain Control



Gain Modes

Normal: Automatic gain control of the input video is enabled. This mode should be used when normal video input signals are fed to the MP1600/BMP1600.

Manual: Automatic gain control is disabled. The previous settings for the gain are used to increase or decrease the input video signal.

Reset: Reset the settings for the gain to the factory default values. Use of this option is recommended the first time MANUAL gain mode is enabled or when the manual adjustment goes out of control. After resetting the gain, the MP1600/BMP1600 will automatically proceed to the ADJUSTMENT screen for review of the settings. See page 26 for details.

Adjust: Enter the ADJUSTMENT screen to adjust the gain for each video input. See page 26 for details.

Proper installation and use of standard video equipment will maximize the capabilities of the MP1600/BMP1600. However, in certain installations or with the use of non-standard video equipment, it is possible the MP1600/BMP1600 will receive unusually strong or weak input signals. In most conditions, the MP1600/BMP1600 can stabilize video input signals. In extreme conditions, it may be necessary to manually adjust the video input signals using the manual video gain control.

Entering Video Gain Control Setup

1. Move the cursor to V Gain in the options menu. Select V Gain by pressing the ENTER button. The ENTER button is the same as the PLAYBACK button when the MP1600/BMP1600 is in user setup mode.
2. The previously selected mode will flash.
3. Use the ? ? or ? ? button to select one of the four available modes. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.

Video Gain Adjustment Screen

When RESET or ADJUST mode are selected, the MP1600/BMP1600 will enter the ADJUSTMENT screen. In the ADJUSTMENT screen, 16-camera split-screen (4x4) mode will be displayed. The currently selected video input for adjustment will be boxed in cyan.

Selecting the Video Input for Adjustment

Select the desired camera to adjust using the video selector buttons on the front panel. The selected video will be boxed in cyan.

Adjusting the Gain

Use the ? ? or ? ? button to increase or decrease the gain. The ? ? and ? ? buttons are the SPLIT/SW and FREEZE buttons, respectively, while the MP1600/BMP1600 is in user setup mode.

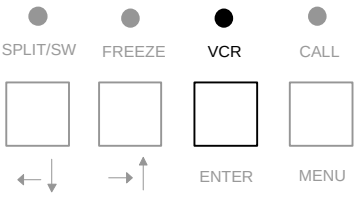
Exiting the Adjustment Screen

Press ENTER or MENU button to exit. These are the PLAYBACK and CALL buttons, respectively, while the MP1600/BMP1600 is in user setup mode.

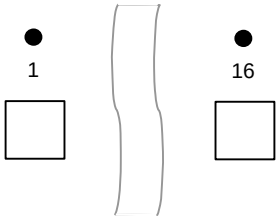
Note: These adjustments affect both the main video output and VCR output. Make sure to check for the proper operation of VCR output when MANUAL mode is selected.

VCR Playback

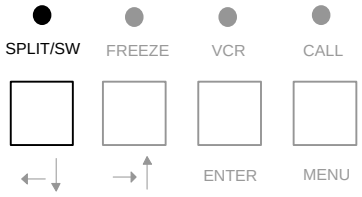
PLAYBACK Button



Video Selector



Split-Screen Selector



VCR Playback Mode

Enabling VCR Playback

Press the PLAYBACK button from any video mode. The VCR input (VCR IN) will be displayed on the main monitor. The VCR output will remain unchanged.

Returning to Live Mode

Press the PLAYBACK button in VCR playback mode. The mode prior to VCR playback mode will be restored.

Note: The MENU button in VCR playback mode will select a VCR bypass (see p. 28) or a VCR tracking adjustment (see p. 29).

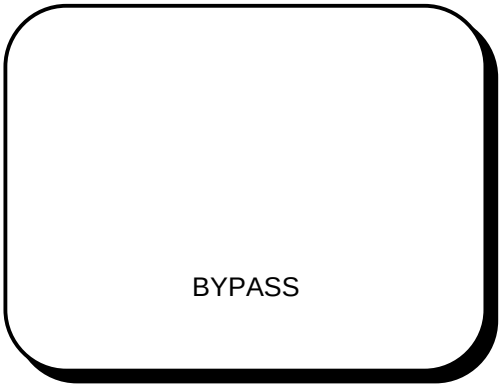
Full-Screen Mode

To select a desired camera input to be displayed, press the button number corresponding to the camera's number.
For example, press button 2 to display the input from camera 2 on the main monitor.

Split-Screen Mode

Press the SPLIT/SW button for less than three seconds from any full-screen or split screen mode.

Bypass Mode



The MP1600/BMP1600 has a unique feature that allows the monitoring of VCR input without de-multiplexing. This feature is useful for verifying correct operation of VCR output on the MP1600/BMP1600 and for diagnosing VCR playback related problems.

Entering Bypass Mode

1. While in VCR playback mode, press the CALL button for less than three seconds. The word "BYPASS" will appear on the bottom of the screen.
2. There are three bypass modes: interlaced mode, odd only mode, and even only mode.
3. Each press of the MENU button will change the mode to the next mode and will return to the normal VCR playback mode after the last bypass mode.

Monitoring VCR Recording

By entering VCR bypass mode, the actual video images being recorded by the MP1600/BMP1600 can be monitored. Due to the fact that the MP1600/BMP1600 records either 9 or 16 cameras at once by switching rapidly from one camera to the next, the video images displayed in this mode may not be recognizable. This is normal.

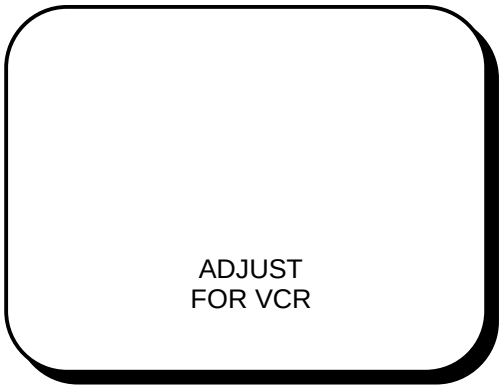
Diagnosing VCR Playback Problems

Most VCR playback problems arise because of improper system installation or because of VCR problems. By entering VCR bypass mode, the video images recorded by the VCR can be observed.

VCR Menu Setup

The video signal generated by VCR in the VCR setup menu may not be recognized by the de-multiplexing circuitry of MP1600/BMP1600. To view video produced by the VCR setup menu, use VCR bypass mode.

Tracking Adjustment



The MP1600/BMP1600 allows you to enhance the tracking capabilities of certain VCRs that do not conform to standard video.

Entering Tracking Adjustment

Press the MENU button from any VCR playback mode. "ADJUST FOR VCR" will appear on the bottom of screen adjustment mode.

Enhancing the Tracking

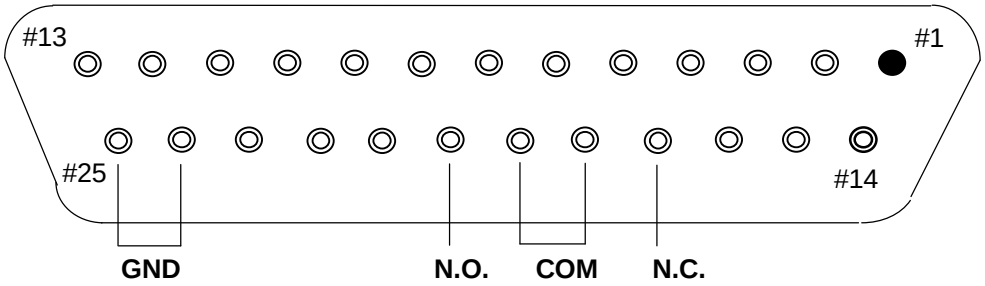
1. Use the ? ? or ? ? button to adjust the tracking while the MP1600/BMP1600 is in user setup mode.
2. Confirm the settings by pressing the ENTER button.
3. Press EXIT button to exit VCR Tracking Adjustment Mode.

The new setting will be saved and take effect immediately.

Tip: If you see a line or noise between screens during playback, use the ? ? or ? ? button while in the VCR TRACKING ADJUSTMENT mode to adjust the tracking and line up the screens. This will ensure the best possible playback quality.

Alarm Setup

Alarm Setup and Installation



The MP1600/BMP1600 provides an interface to external alarm inputs and outputs through a 25-pin D-SUB connector on the rear panel. Authorized dealers supply a mating connector to this for the MP1600/BMP1600.

Pin Definitions

1 to 16 Alarm inputs for each corresponding camera. Each alarm can be either a normally open or a normally closed type. The alarm input type is automatically detected by the MP1600/BMP1600.

GND Ground. Should be connected to the ground reference of the alarm detection device.

N.O. Normally Open alarm output. This can be connected to a VCR or time-lapse recorder alarm input that requires a normally open alarm input.

N.C. Normally Closed alarm output. This can be connected to VCR or time-lapse recorder alarm input that requires a normally closed alarm input.

COM COMmon alarm output. This can be connected to a VCR or time-lapse recorder alarm common port.

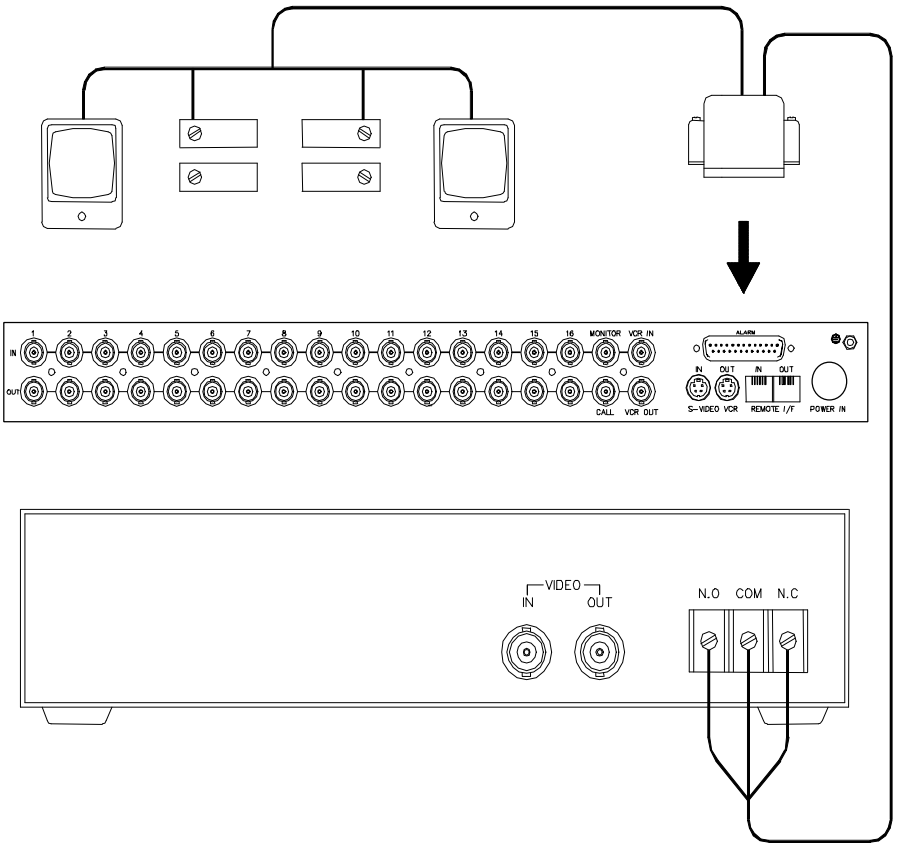
Alarm Setup

Typical Alarm Configuration Diagram

Alarm Input Type

The MP1600/BMP1600's innovative design allows it to auto-detect the alarm input type; therefore, either a normally open or normally closed type of alarm device can be used with the MP1600/BMP1600.

Note: Because the type of alarm is detected whenever the MP1600/BMP1600 is powered on, make sure all the alarm inputs are normal – not triggered – when the MP1600/BMP1600 is powered on.

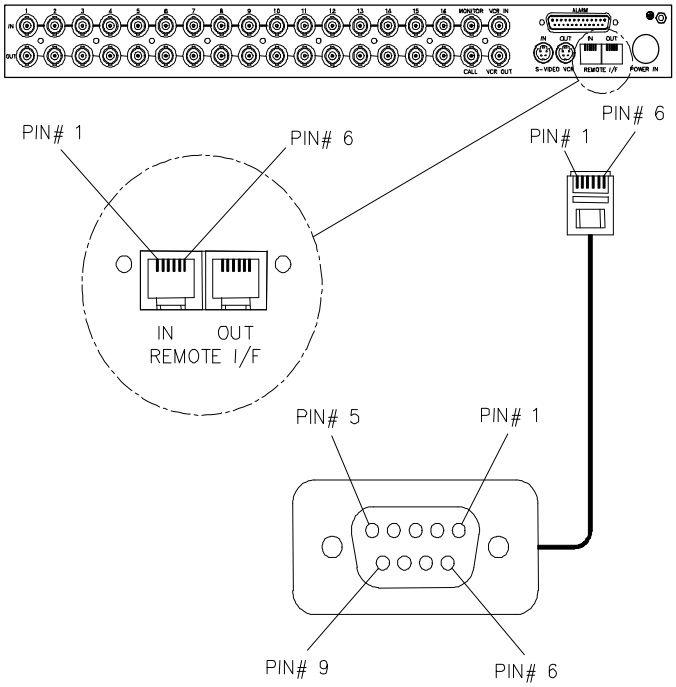


Remote I/F

Remote Interface Diagram

The MP1600/BMP1600's remote interface allows the remote control of MP1600/BMP1600 with a standard 6-conductor cable that is terminated with a 6-conductor RJ45 cable. With its use of the industry standard RS232 protocol, the MP1600/BMP1600 can be interfaced to any system that supports an RS232 interface, although optional software is required.

Interfacing with PC compatible RS232 ports.



WIRING CHART

MP900/1600 RJ-11 Conn.	**PC Comp.** DB-9 Conn. (Female)
1 to 3	N/C
4 (Rx)	3
5 (Tx)	2
6 (GND)	5
N/C	1,4,6,7,8,9

RS232 Interface Setup

Baud rate:	1200 bps
Parity:	None
No of Bits:	8
No of Stop bits:	1

Remote Interface

MP/BMP1600 Series Remote Interface Command Set

Command Set

Main Code	Secondary Code	Functions
a	0 1	Set Main Monitor output to CAM1
b	0 2	Set Main Monitor output to CAM2
c	0 3	Set Main Monitor output to CAM3
d	0 4	Set Main Monitor output to CAM4
e	0 5	Set Main Monitor output to CAM5
f	0 6	Set Main Monitor output to CAM6
g	0 7	Set Main Monitor output to CAM7
h	0 8	Set Main Monitor output to CAM8
i	0 9	Set Main Monitor output to CAM9
j	1 0	Set Main Monitor output to CAM10
k	1 1	Set Main Monitor output to CAM11
l	1 2	Set Main Monitor output to CAM12
m	1 3	Set Main Monitor output to CAM13
n	1 4	Set Main Monitor output to CAM14
o	1 5	Set Main Monitor output to CAM15
p	1 6	Set Main Monitor output to CAM16
/		-Set to Split Screen Mode (Cursor - Down in Menu Mode)
*	?	-Set/Reset Freeze Mode (Cursor - Up in Menu Mode)
-		-Toggle Live/VCR Modes (Select in Menu Mode)
+		-Enter/Exit Menu Setup Mode
V a		-Set to Live Mode
V b		-Set to VCR Mode
v d		-Split Screen Mode
v e		-Sequence Mode

Main Code	Secondary Code	Functions
A	. 0 1	Set Call Monitor output to CAM1
B	. 0 2	Set Call Monitor output to CAM2
C	. 0 3	Set Call Monitor output to CAM3
D	. 0 4	Set Call Monitor output to CAM4
E	. 0 5	Set Call Monitor output to CAM5
F	. 0 6	Set Call Monitor output to CAM6
G	. 0 7	Set Call Monitor output to CAM7
H	. 0 8	Set Call Monitor output to CAM8
I	. 0 9	Set Call Monitor output to CAM9
J	. 1 0	Set Call Monitor output to CAM10
K	. 1 1	Set Call Monitor output to CAM11
L	. 1 2	Set Call Monitor output to CAM12
M	. 1 3	Set Call Monitor output to CAM13
N	. 1 4	Set Call Monitor output to CAM14
O	. 1 5	Set Call Monitor output to CAM15
P	. 1 6	Set Call Monitor output to CAM16

Specifications

Video Inputs	
Video Standards	NTSC or PAL (depending on model)
Signals	
Video Inputs	Composite, 1.0V P-P, 75 ohms terminated (16-channels)
VCR Input	Composite, 1.0V P-P, 75 ohms terminated Components, S-Video Standards, 75 ohms terminated
Video Outputs	
Video Standards	NTSC or PAL (depending on model)
Signals	
Loop-back	Active, Composite, approx. 95% of input signal
Call Monitor	Active, Composite, approx. 95% of input signal *(not a roll-free switching output)*
Main Monitor	Composite, 1.0V P-P
VCR Output	Composite, 1.0V P-P Components, S-Video Standards (Y-C)
Video Processing	
Video Formats	
Video Decoding & Encoding	NTSC CCIR601 (858x525 native res.) PAL CCIR601 (864x625 native res.)
Video Processing	Fully Digital
Main Monitor	8 channel parallel processing
VCR Output	4 channel semi-parallel processing
Onscreen Display	
Camera Identification	User selectable, 12-characters per camera
Date/Time	5 date formats, 3 time formats
Switcher Dwell Time	Individually controlled (0-59 sec per camera) Roll-free switching
Alarm Processing	
Inputs	NO/NC Auto-detection (at power-on)
Outputs	Normally Open and Normally Closed 1.0A Max @24V Resistive or 0.25A Max @120/240VAC Resistive
Remote Interface	RS232 Standard, RJ45 Proprietary pinout
Power	
System	6A @5V Max
AC Adapter	90-264 VAC, 50-60Hz, 1.7A Max
Dimension	17”(w) x 13”(d) x 1.75”(h)

*Specifications are subject to change without notice.