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# 3M

# MP8780 Multimedia Projector

## Operator's Guide

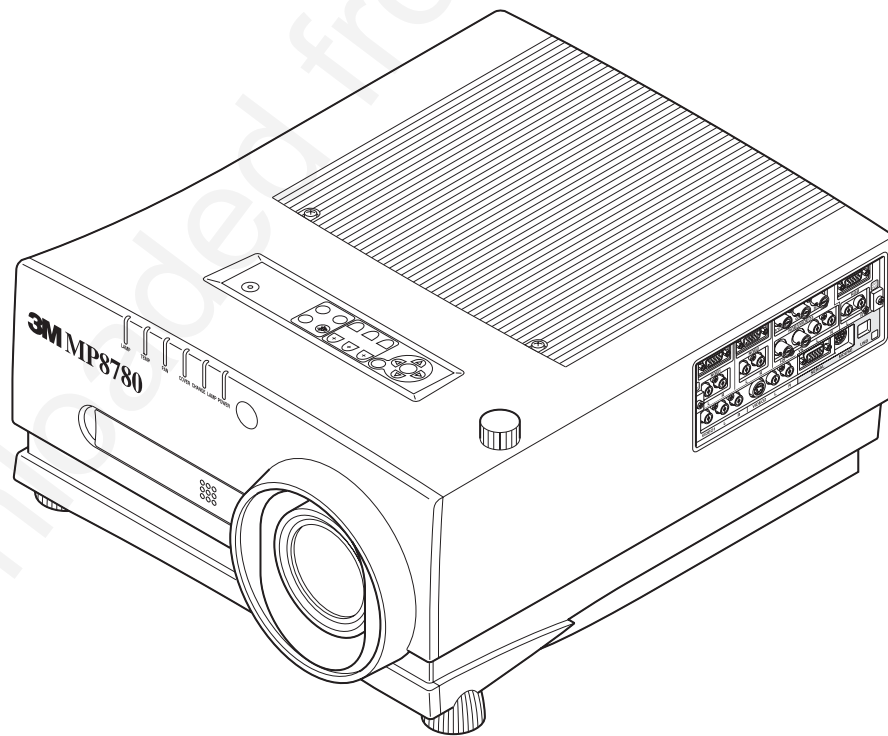*MP8780 Projecteur multimédia Guide de l'opérateur*

*MP8780 Multimedia-Projektor Benutzerhandbuch*

*Proyector de Multimedia MP8780 Manual del Usuario*

*MP8780 Proiettore Multimediale Manuale dell'operatore*

*MP8780 Bruksanvisning för multimediaprojektor*

*MP8780 Multimedia Projector Gebruiksaanwijzing*

# MP8780 Table of Contents

# Safeguards

## INTENDED USE

Before operating the machine, please read the entire manual thoroughly.  The 3M™ Multimedia Projector 8780 was designed, built and tested for use indoors, using 3M™ brand lamps, 3M™ brand ceiling mount hardware and nominal local voltages. This projector is not intended for household use. The use of other replacement lamps, outdoor operation or different voltages has not been tested and could damage the projector or peripheral equipment and/or create a potentially unsafe operating condition.

## IMPORTANT SAFEGUARDS

1.  Read and understand all instructions before using.
    Pay particular attention to areas where this  symbol is shown.

**⚠ WARNING** - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **Caution** - Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

✔ **Note** - Used to emphasize important conditions or details.

2.  Close supervision is necessary when any appliance is used by or near children.  Do not leave appliance unattended while in use.

3.  Never look directly into the projector lens when the lamp is on. The high pressure mercury lamp produces a strong light which could damage your eyesight.

4.  Care must be taken as burns can occur from touching hot parts.

5.  Do not operate appliance with a damaged cord or if the appliance has been dropped or damaged – until it has been examined by a qualified service technician.

6.  Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.

7.  If any extension cord is necessary, a cord with a current rating at least equal to that of the appliance should be used. Cords rated for less amperage than the appliance may overheat.

8.  Always unplug appliance from electrical outlet before cleaning and servicing and when not in use.  Grasp plug and pull to disconnect.

9.  To reduce the risk of electric shock, do not immerse this appliance in water or other liquids.

10. To reduce the risk of electric shock, do not disassemble this appliance, but take it to a qualified technician when service or repair work is required. Incorrect assembly can cause electric shock when the appliance is subsequently used.

11. Connect this appliance to a grounded outlet.

12. Do not expose this projector to direct sunlight, or use it outside.

13. Keep all ventilation openings free of any obstructions.

14. Always open the lens shutter or remove lens cap when the projection lamp is on.

15. Do not look directly into light beam of laser pointer. The pointer produces a strong light which could damage your eyesight.

16. The projection lamp contains mercury. Always dispose of it in a proper manner according to local regulations.

17. To avoid premature lamp failure, do not change the mounting position of the projector
    (desktop ⟹ ceiling mount or ceiling ⟹ desktop mount) and continue to use the same lamp.

18. Always operate machine on a flat, sturdy surface.

# LOCATION OF PRODUCT SAFETY LABELS

Safety labels are used on or within the 8780 projector to alert you to items or areas requiring your attention.

DO NOT REMOVE SCREWS EXCEPT USER SERVICE SCREWS "⬇"

**HIGH TEMPERATURE**
MAY CAUSE BURNS.
REPLACE THE LAMP UNIT ONLY AFTER IT HAS COOLED.
REPLACE WITH THE SAME LAMP UNIT.

**HIGH VOLTAGE**
MAY CAUSE AN ELECTRIC SHOCK AND ULTRAVIOLET. REPLACE
THE LAMP AFTER FIRST REMOVING THE POWER PLUG FROM
THE OUTLET. THIS COVER IS PROVIDED WITH AN INTERLOCK.
DON'T DEFEAT THIS INTERLOCK.

DO NOT BLOCK THE VENTILATION HOLES (SIDE AND UNDERNEATH)
OF THE UNIT. THIS MAY CAUSE A FAILURE.

**3M**
Visual Systems Division
Austin, TX 78726-9000
**LCD PROJECTOR**
**MOD NO. MP8780**
AC100-240V
6.5A-2.7A
50/60HZ
MADE IN JAPAN

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference,
and (2) this device must accept any interference
received, including interference that may cause
undesired operation.

CE    c(UL)us    **UL 1950**
LISTED    685Z    **E73930**

⚠ CAUTION
ATTENTION

**HIGH TEMPERATURE**
MAY CAUSE BURNS.
REPLACE THE LAMP UNIT ONLY AFTER IT HAS COOLED.

**EXPLOSION**
THE LAMP MAY EXPLODE WHILE IT IS LIT.
HANDLE THE LAMP CAREFULLY SO AS NOT TO DAMAGE IT.

**Important**
This projection lamp contains mercury.
Consult your local hazardous waste
regulations and **dispose of this lamp
in a proper manner**.

**WARNING**
DO NOT STARE DIRECTLY
INTO THE PROJECTION LENS.
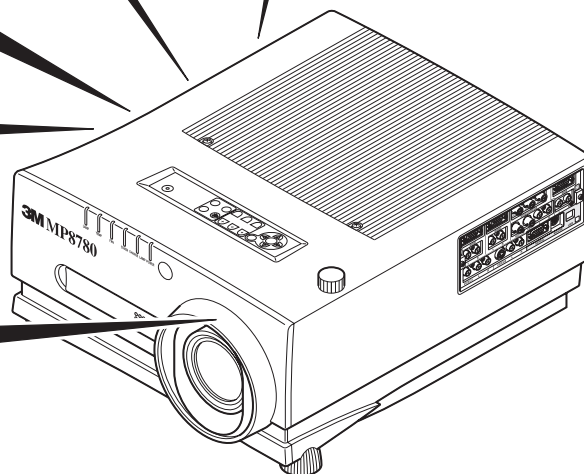
# SAVE THESE INSTRUCTIONS

The information contained in this manual will help you operate and maintain your 3M MP8780 Multimedia Projector.

## LIMITED WARRANTY

3M warrants this product against any defects in material and workmanship, under normal usage and storage, for a period of two years from date of purchase. Proof of purchase date will be required with any warranty claim. In the event this product is found to be defective within the warranty period, 3M's only obligation and your exclusive remedy shall be replacement of any defective parts (labor included).

To obtain warranty service, immediately notify the dealer from which you purchased the product of any defects. In the USA call 1-800-328-1371 for warranty or repair service.

## LIMITATION OF LIABILITY

**THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND 3M SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTIBILITY AND FITNESS. 3M SHALL NOT BE LIABLE FOR ANY DAMAGES, DIRECT, CONSEQUENTIAL, OR INCIDENTAL, ARISING OUT OF THE USE OR INABILITY TO USE THIS PRODUCT.**

**Important:** The above warranty shall be void if the customer fails to operate product in accordance with 3M's written instruction.This warranty gives you specific legal rights and you may have other rights which vary from state to state.

**FCC STATEMENT - CLASS A:** This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for a Class "A" computing device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his/her own expense will be required to take whatever measures may be required to correct the interference.

**EEC STATEMENT:** This machine was tested against the 89/336/EEC (European Economic Community) for EMC (Electro Magnetic Compatibility) and fulfills these requirements.

**Video Signal Cables:** Double shielded coaxial cables (FCC shield cable) must be used and the outer shield must be connected to the ground. If normal coaxial cables are used, the cable must be enclosed in metal pipes or in a similar way to reduce the interference noise radiation.

**Video Inputs:** The input signal amplitude must not exceed the specified level.

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# Section 1: Unpack

## 1.1   Contents of Shipping Box

The 3M™ MP8780 Multimedia Projector is shipped with the necessary cables required for standard VCR, PC, MAC™ II or laptop computer connections.  Carefully unpack and verify that you have all of the items shown below in Figure 1.1. If any of these items are missing, please contact your place of purchase.

| | | | |
|---|---|---|---|
| **MP8780 Multimedia Projector** | **Remote Control Transmitter** | **Lens Cap** | **MAC Adaptor** |
| **3-Conductor Video/Audio Cable** | **VGA Cable (15-15 pin M/M)** | **Video Cable (S-Video mini DIN4-pin)** | **Power Cord US, UK, Europe** | **Serial Mouse Cable** |
| **ADB Adapter Cable** | **PS/2 Adapter Cable** | **RCA to Stereo Mini Jack** | |
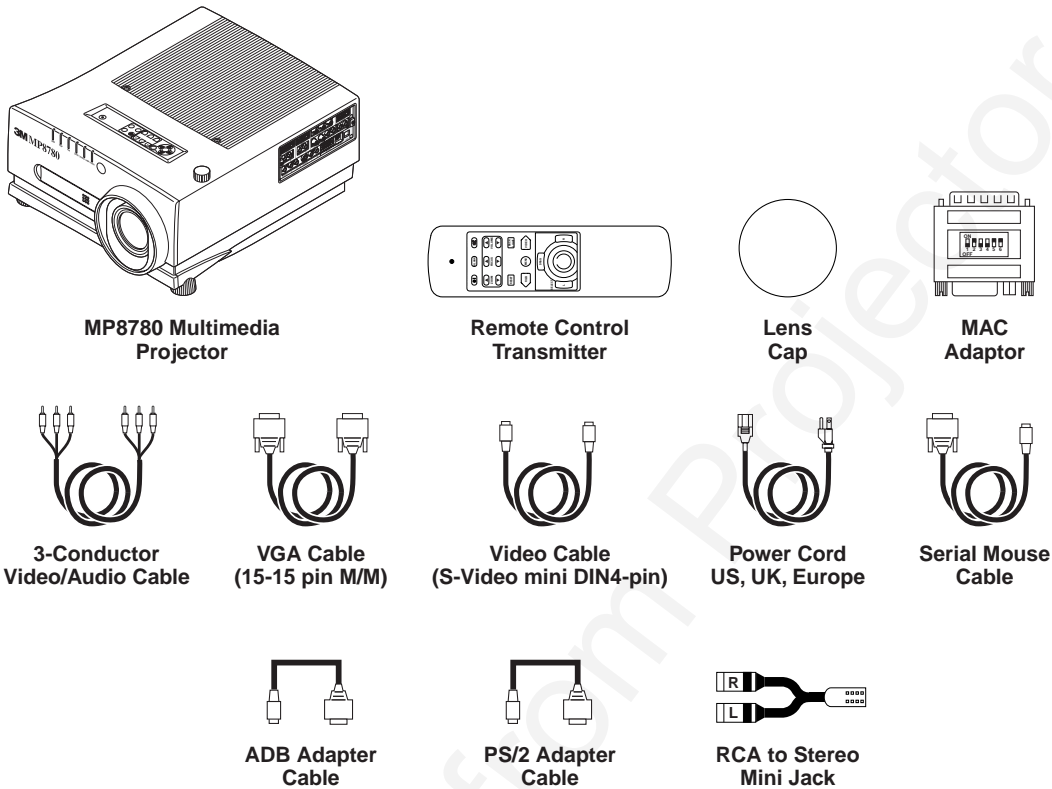
*Figure 1.1  Inventory of Shipping Box*

## 1.2   Optional Accessories

- RS-232 control cable ···················································· (1)

- Gender Change SVGA MAC Monitor Adaptor ··········· (1)

- USB mouse cable ························································· (1)

## 1.3   Keep Your Packing Materials

#### ✔ Important

Save the shipping box and packing materials in the event the MP8780 should require shipping to a 3M Service Center for repair.

## 1.4   What's Next?

After you have unpacked the MP8780 system and identified all the parts, you are ready to set up the projector.

We hope you will enjoy using this high performance product in your meetings, presentations and training sessions.

This product has been produced in accordance with 3M's highest quality and safety standards to ensure smooth and trouble free use in the years to come.

# Section 2: Product Description

## 2.1  Machine Characteristics

The  MP8780 Multimedia Projector integrates ultra-high bright lamp and polysilicon LCD display technology into a single unit.  It accepts input from three different computer sources and three video/audio sources and projects a bright, super crisp image.  Switching your presentation from a computer input to a video input, and then back to a computer input simply requires the push of a button on the remote control keypad or control panel keypad.

The MP8780 Multimedia Projector offers the following features:

- Ultra-high brightness projection lamp
- Real XGA (1.8 inch XGA HTPS LCD panels with high aperture ratio)
- Intelligent scaling for UXGA, SXGA,XGA, SVGA, VGA
- Automatic optimum source selection display
- USB, Serial, PS/2 and Apple Desktop Bus (ADB) mouse emulation
- Manual lens shift without keystone correction
- Power zoom and focus
- Freeze and  Magnify Functions
- Picture-in-picture (PIP)
- Timer function
- Two internal stereo speakers (3W x 2)
- Three computer inputs: RGB1, RGB2, RGB3 (BNC)

- Three video inputs: Video1, Video2, Video3
- Easy to set up and use
- Ability to display 16.7 million colors
- Digital Gamma Correction
- High resolution and component video compatible
- Higher resolution for video by de-interlacing
- Full function remote control
- Volume control for external speakers
- RS-232 control capability
- Horizontal and vertical image inverting
- Horizontal and vertical image position control
- Automatic keystone correction
- On screen menus in seven languages
- IR remote control sensor in front/rear
- Color balance control for data/video
- Optional ceiling mount kit

---

### ✔ Note

The MP8780 is one of the brightest projectors in the marketplace. The brightness of your machine will vary depending on the ambient room conditions and contrast/brightness settings.

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## 2.2 Part Identification List
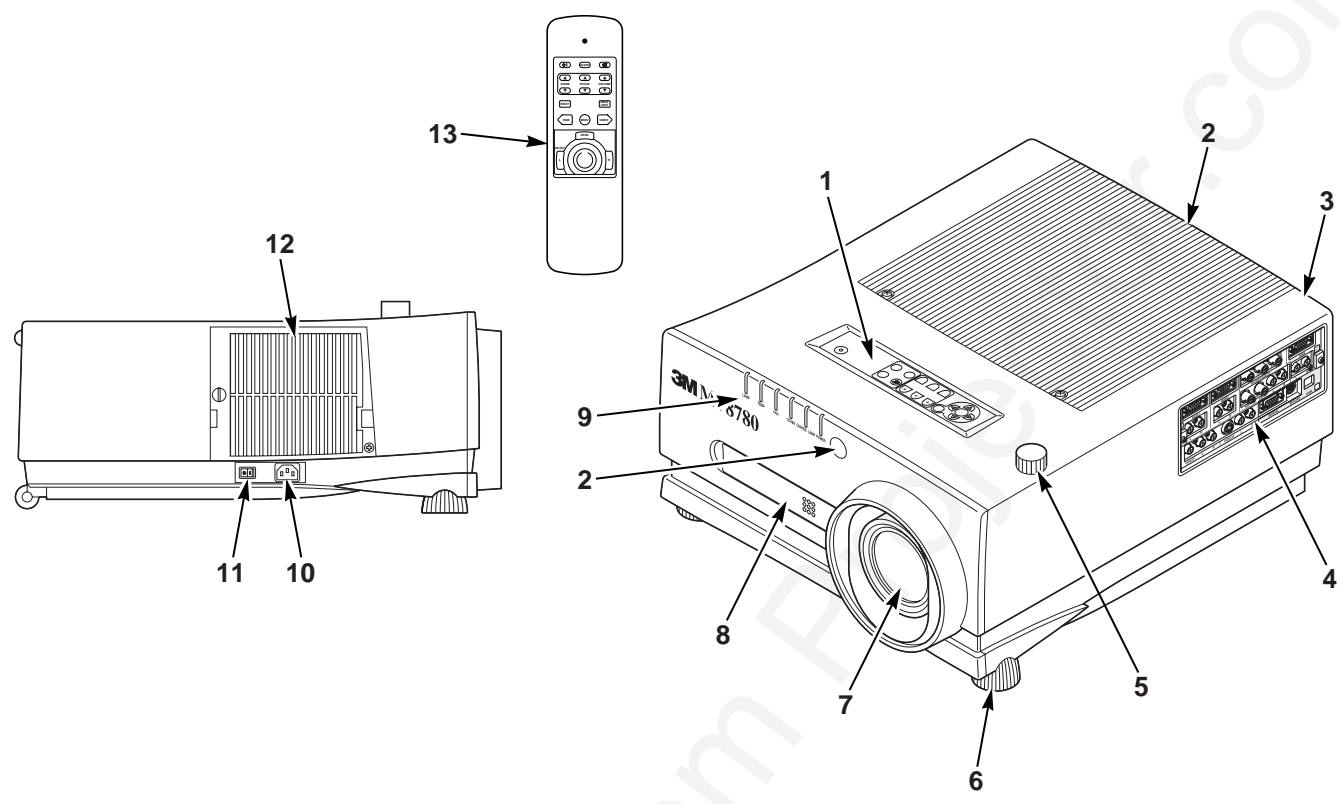


*Figure 2.2 Identifying MP8780 Parts*

1.  Operation Panel
    a) STANDBY/ON button
    b) Input Source: RGB/Video
    c) Mute, Blank, Volume, Zoom, Focus
    d) Display Menu (On/Off)
    e) Select button (select displayed value)
    f) Arrow Direction buttons (left/right or up/down)

2.  Remote Control Sensors (front/back)

3.  Stereo Speakers

4.  Terminal Connection Panels
    a) S-Video, Video, Audio inputs
    b) RGB1, RGB2 and RGB3 inputs
    c) RGB output
    d) Audio L/R input, Audio output (RCA jack)
    e) RS-232 Control
    f) UBS Port
    g) Mouse control port (serial/PS/2/ADB)
    h) RGB3 or component video (BNC)

5.  Image Shift Control

6.  Height Adjustment Feet

7.  Projection lens

8.  Carry Handle

9.  LED Indicators
    a) Lamp
    b) Temperature
    c) Fan
    d) Cover open
    e) Change lamp
    f) Power On

10. AC Power Cord Input

11. Main Power Switch (On/Off)

12. Lamp Access Door

13. Remote Control Transmitter

3M™ Multimedia Projector MP8780

## 2.3  System Setup - Connecting Various Equipment

ENGLISH

It only takes a few minutes to connect the 3M™ Multimadia Projector MP8780 to your computer, VCR, or other device. Always disconnect the projector power before connecting any cables.

### Connection Terminals

RGB1   RGB2   RGB3/VIDEO3   RGB
R/Y(CV)   B/V
L  R    L  R    HS  VS    L  R    L  R
VIDEO1  L  R   VIDEO2  L  R   SERIAL   MOUSE  USB

### Computer Connections

PC
MONITOR PORT
OUT
OUT

MAC Adaptor
MONITOR PORT
OUT
OUT
MAC

IN    IN
RGB1   RGB2
L  R    L  R
IN IN   IN IN

Audio Left
Audio Right
Audio Right
Audio Left

IN
RGB
IN  IN
RGB OUT
Audio Right  OUT
Audio Left  OUT
CRT Display

SERIAL  MOUSE  USB
IN    IN
OUT   PC
PS/2 or SERIAL PORT

### Video Connections

VIDEO1  L  R
IN  IN  IN
Audio L/R Video
OUT OUT OUT
YEL WHT RED
VCR

VIDEO2  L  R
IN  IN  IN
S-VHS
Audio Left
Audio Right
OUT OUT OUT
WHT RED
Laser Disc

### BNC Connections

R/Y(CV)   G/U   B/V
RGB3/VIDEO3
HS   VS   L   R

---

### ⚠ Caution

Turn power off to all devices before making connections. Never plug anything into the projector or computer while any device is in operation.
The MP8780 must be powered down when making connections.  The mouse emulation (except USB) may not work if the unit is not powered down before the mouse cable connections are made.

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Downloaded from 3M Projector.com

# 2.3 System Setup - Connecting Various Equipment (continued)

## BNC Connections

There are four kinds of usage for BNC connectors:

| | Purpose | Usage of BNC | | | | | Menu Selection | |
|---|---|---|---|---|---|---|---|---|
| | | R/Y(CV) | G/U | B/V | HS | VS | Selection1 | Selection2 |
| Usage 1 | RGB Input | Red | Green | Blue | HS | VS | RGB3 | |
| Usage 2 | Component Input | Y | U | V | NC | NC | VIDEO3 | YUV |
| Usage 3 | CV | CV | NC | NC | NC | NC | VIDEO3 | CV/S |
| Usage 4 | S-video | Y | C | NC | NC | NC | VIDEO3 | CV/S |

(Note): NC No Connection

**Usage 1:** Selecting "RGB" determines the usage of BNC as RGB Input.

**Usage 2**: Selecting "VIDEO3" and "YUV" determines the usage of BNC as Component Input.

**Usage 3/4**: Selecting "VIDEO3" and "CV/S" determines the usage of BNC as CV or S. Usage of BNC as CV or S is determined automatically by detecting input signal by the projector.

On the above table, "Selecting 1" is done by direct "RGB" or "VIDEO" button of Oeration Panel or Remote Controller. Selection 2 is done by "MENU" button and selecting "OPTION"-1st layer, "BNC"-2nd layer and "YUV/CV/S"-3rd layer.

**Apple™ Desktop Mouse** - The Macintosh operating system should recognize the MP8780 as a mouse without any drivers being loaded.

**VirtualMouse for PC Computer** - For IBM™ compatible computers, the operating systems will need to be set to "Serial Mouse," "PS/2 Mouse" or "USB Mouse" to recognize the projector as a mouse pointer device.

Change mouse driver information to "Serial Mouse", "PS/2 Mouse" or "USB Mouse".

   a) *Windows™ 95/Windows™ 98* - Click "Start;" select "Settings;" select "Control Panel." Click on "Mouse;" select the "General" tab; (see what driver is currently loaded and make note of it); select "Change;" select "Show all devices;" (make note of the current Manufacturer and Model); select "Standard Mouse Type" for Manufacturer; then select "Standard Serial Mouse" or "Standard PS/2 Mouse". Click OK to change and apply the new driver. Restart Windows if prompted.

   b) *Windows™ 3.1* - From "Program Manager" click "Main;" then click "Windows Setup," (make note of what the current mouse driver is); Click "Options;" then "Change Systems Settings." Choose "Mouse." It should be listed as "Microsoft or IBM PS/2."

---

### ✔ Note

For proper mouse operation, always turn the projector power on first and then power up the computer.

For some laptop computers you may need to disable the internal pointing device (IPD). This is done through the BIOS level set up of the particular machine, or it could be listed in a "Utilities" program group, i.e., "Toshiba Utilities™," or "Thinkpad Features™."

---

# 2.4　Remote Control Transmitter Identification

**STANDBY/ON**

Set main power switch to ON. Press STANDBY/ON button to begin projection mode (lamp on) To turn lamp off, press STAND/ON then select YES on Shut Down screen. Select NO to continue running.

**BLANK**

Press button to turn ON/OFF the screen blanking function.

**ZOOM**

Press (+) to increase or (-) to decrease the size of the displayed image

**RGB**

Press the RGB button to select the input source. Press again to select the next source (RGB1 - RGB2 - RGB3 - RGB1).

**TIMER**

Press button to turn the menu screen timer ON/OFF. *The timer does not display when the blank function is active.* Second press stops timer. Third press deletes timer from screen display.

**FREEZE**

Press button to turn ON/OFF the freeze image function. Allow background to refresh in PIP Mode1.

**DRAG**

In mouse mode, press button to hold, reposition and drop an object on the screen. In MAGNIFY mode, press MAGNIFY button then press the DRAG button and change the magnifying position by moving the MINI-JOY stick.

**L-SELECT**

Press for left mouse button function, Mouse Mode. Press for select function, Menu Mode. Press for magnify function, Magnify Mode.

**MUTE**

Press button to turn the mute function (speaker sound) ON/OFF.

**FOCUS**

Press (+) or (-) to adjust the image sharpness.

**VOLUME**

Press (+) to increase or (-) to decrease speaker volume.

**VIDEO**

Press the VIDEO button to select the input source. Press again to select the next source (Video1 - Video2 - Video3 - Video1).

**MENU**

Press to display the menu screen.

**MAGNIFY**

Press to enter the Magnify Mode. Operate mini-joy stick or press L or R button to control magnify function.

**R**

Press for right mouse button function, Mouse Mode. Press to reduce size of magnified image, Magnify Mode.

**MINI-JOY STICK**

Operate for normal mouse functions, Mouse Mode, Operate for select function, Menu Mode. Operate to change the image area to be magnified, Magnify Mode.

# Section 3: Basic Operations

## 3.1 Projector Startup



*Figure 3.1 Projector Controls*

1. **Make all cable connections and line hookups with the power off.**

2. **Turn the POWER SWITCH** [O I] **of the projector on.** The ON indicator will light up orange.

3. **Press the STANDBY/ON button** ⊙ *Standby/On* **.** The ON indicator blinks (green) and then lights (green). The ON indicator will blink green during warm-up and lamp ignition. When power is turned off, there is a 90 second reset period before the STANDBY/ON button will function again.

4. **Adjust the screen size by pressing the ZOOM +/- button.**

5. **Adjust the sharpness by pressing the FOCUS +/- button.**

6. **Turn on all connected equipment.** Refer to section 2.3.

7. **Press the RGB/VIDEO button on the projector or remote to select the source of the signal to be projected on the screen.** The selected signal input is displayed at the top right of the screen. The display will show the **last selected input source** before power was turned off.

## 3.2 Projector Shutdown

1. **In projection mode, press the STANDBY/ON** ⊙ *Standby/On* **button.** The Shut Down screen will display. Select the YES option (press arrow button or mini-joy stick) to turn off. The fan will continue to run for approximately 90 seconds.

2. Turn the **MAIN POWER SWITCH** [O I] of the projector off.

---

### ⚠ Caution

Do not turn off the POWER SWITCH before pressing the STANDBY/ON button. After the STANDBY/ON button is pressed, the fan rotates for about 90 seconds to cool the projector.

---

3. **Attach lens cap to protect projection lens.**

4. **Disconnect cables if moving projector to new location.**

# Section 4: Adjustments and Functions

## 4.1 Menu Navigation
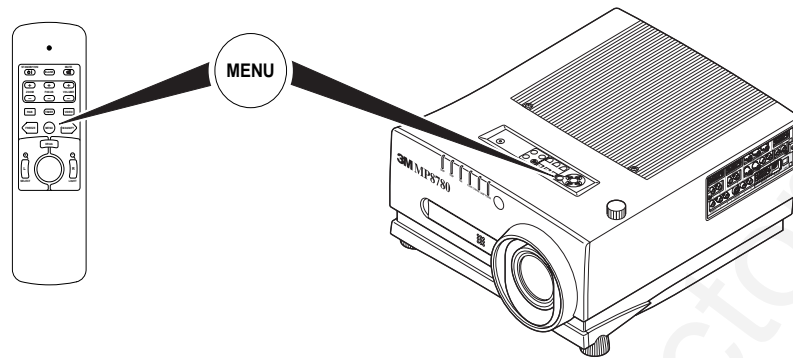


*Figure 4.1 Menu Button*

1.  **Press MENU button on projector or remote control.**
    On-screen menus are displayed on the screen.

2.  **Select the sub-menu (SETUP, IMAGE, OPTION) to be adjusted using the SELECT ( ◀ ▶ ) buttons or MINI-JOY STICK**. Selected Menu is highlighted.

3.  **Select the sub-menu item to be adjusted using the SELECT ( ▲ ▼ ◀ ▶ ) buttons or MINI-JOY STICK.** Highlighted items may be adjusted.

---

#### ✔ Note

Separate settings are provided for the VIDEO1, VIDEO2, RGB1, RGB2 and RGB3 input terminals. Adjustments are saved after power off.

---

## 4.2 How To Use Height Adjustment Feet

Adjust the image elevation using the height adjustment at the front of the projector.

1.  Raise the front end of the projector so the feet are not touching the table top.

2.  Rotate or retract each foot to the desired height.



*Figure 4.3 Height Adjustment*

---

# 4.3 SETUP

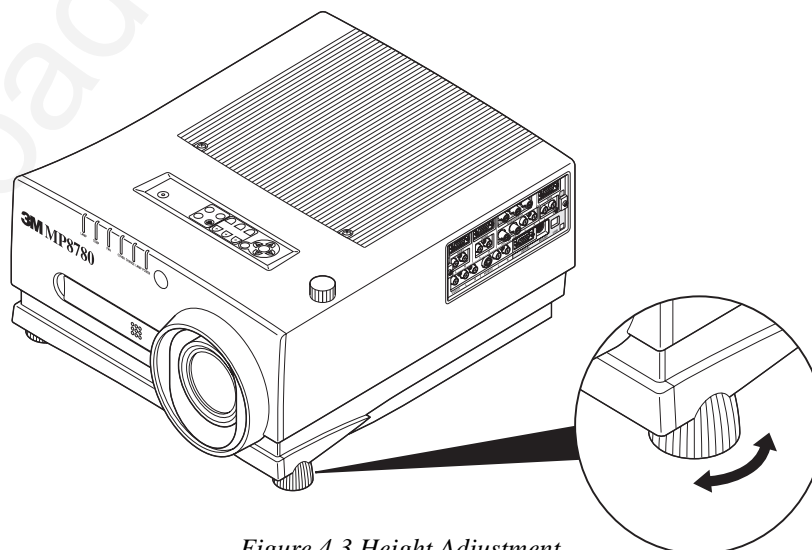The SETUP sub-menu is used to adjust and move the image position. The projector will display either the RGB (Figure 4.4) or Video (Figure 4.5) menu according to the input source being projected.
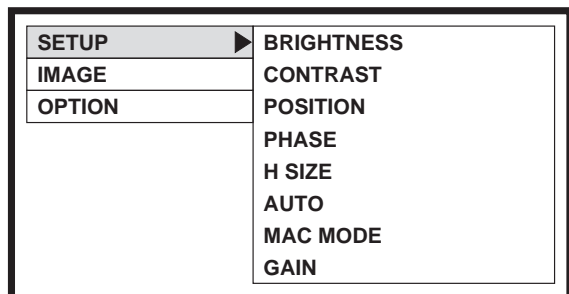
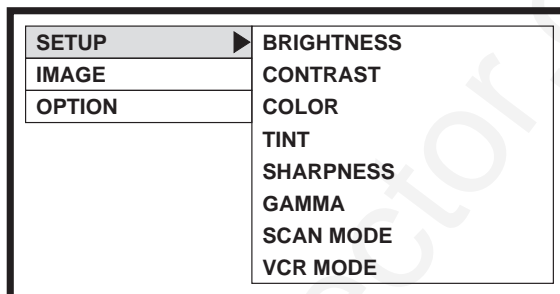| SETUP ▶ | BRIGHTNESS |
|---------|------------|
| IMAGE | CONTRAST |
| OPTION | POSITION |
| | PHASE |
| | H SIZE |
| | AUTO |
| | MAC MODE |
| | GAIN |

*Figure 4.4 RGB Signal*

| SETUP ▶ | BRIGHTNESS |
|---------|------------|
| IMAGE | CONTRAST |
| OPTION | COLOR |
| | TINT |
| | SHARPNESS |
| | GAMMA |
| | SCAN MODE |
| | VCR MODE |

*Figure 4.5 Video Signal*

## Set Menu - RGB Input/Video Input

| RGB Screen | Video Screen | Value/Position | Factory Setting |
|------------|-------------|----------------|-----------------|
| BRIGHTNESS | BRIGHTNESS | ±00 \|——\|——\| (-10~+10) | ±00 |
| CONTRAST | CONTRAST | ±00 \|——\|——\| (-10~+10) | ±00 |
| POSITION | | H±000 (±127) | ±000 |
| | | V±000 (±127) | ±000 |
| PHASE | | 00 (0~19) | 00 |
| H SIZE | | ±00 (±64) | ±00 |
| AUTO | | ✔ H SIZE | yes |
| | | ✔ POSITION | yes |
| | | ✔ PHASE | yes |
| | | GAIN | no |
| MAC MODE | | On=MAC has priority | off |
| | | Off=VESA has priority | |
| GAIN | | R ±00 (±64) | R ±00 |
| | | G ±00 (±64) | G ±00 |
| | | B ±00 (±64) | R ±00 |
| | COLOR | ±00 \|——\|——\| (-10~+10) | ±00 |
| | TINT | ±00 \|——\|——\| (-10~+10) | ±00 |
| | SHARPNESS | ±00 \|——\|——\| (-10~+10) | ±00 |
| | GAMMA | ±00 \|——\|——\| (-10~+10) | ±00 |
| | SCAN MODE | Movie (video) | movie |
| | | Photo (still photo) | |
| | VCR MODE | On (VCR mode) | Off |
| | | Off (normal) | |

#### ✔ Note
- TINT cannot be adjusted with a PAL, M-PAL or SECAM video signal input.
- TINT, COLOR and SHARPNESS cannot be adjusted with an RGB signal input.
- V. POSIT, H. POSIT, H. PHASE and H. SIZE cannot be adjusted with a VIDEO signal input.
- Menu operation is not possible during magnify or freeze functions.

3M™ Multimedia Projector MP8780    © 3M 1999

# 4.4  IMAGE

The IMAGE sub-menu is used to change the image characteristics.

```
SETUP          PIP
IMAGE      ▶   MIRROR
OPTION         MESSAGE
               COLOR TEMP
```

```
SETUP          PIP
IMAGE      ▶   MIRROR
OPTION         MESSAGE
               COLOR TEMP
```

```
SETUP          PIP
IMAGE      ▶   MIRROR
OPTION         MESSAGE
               COLOR TEMP
```

```
SETUP          PIP
IMAGE      ▶   MIRROR
OPTION         MESSAGE
               COLOR TEMP
```

```
SETUP          PIP
IMAGE      ▶   MIRROR
OPTION         MESSAGE
               COLOR TEMP
```
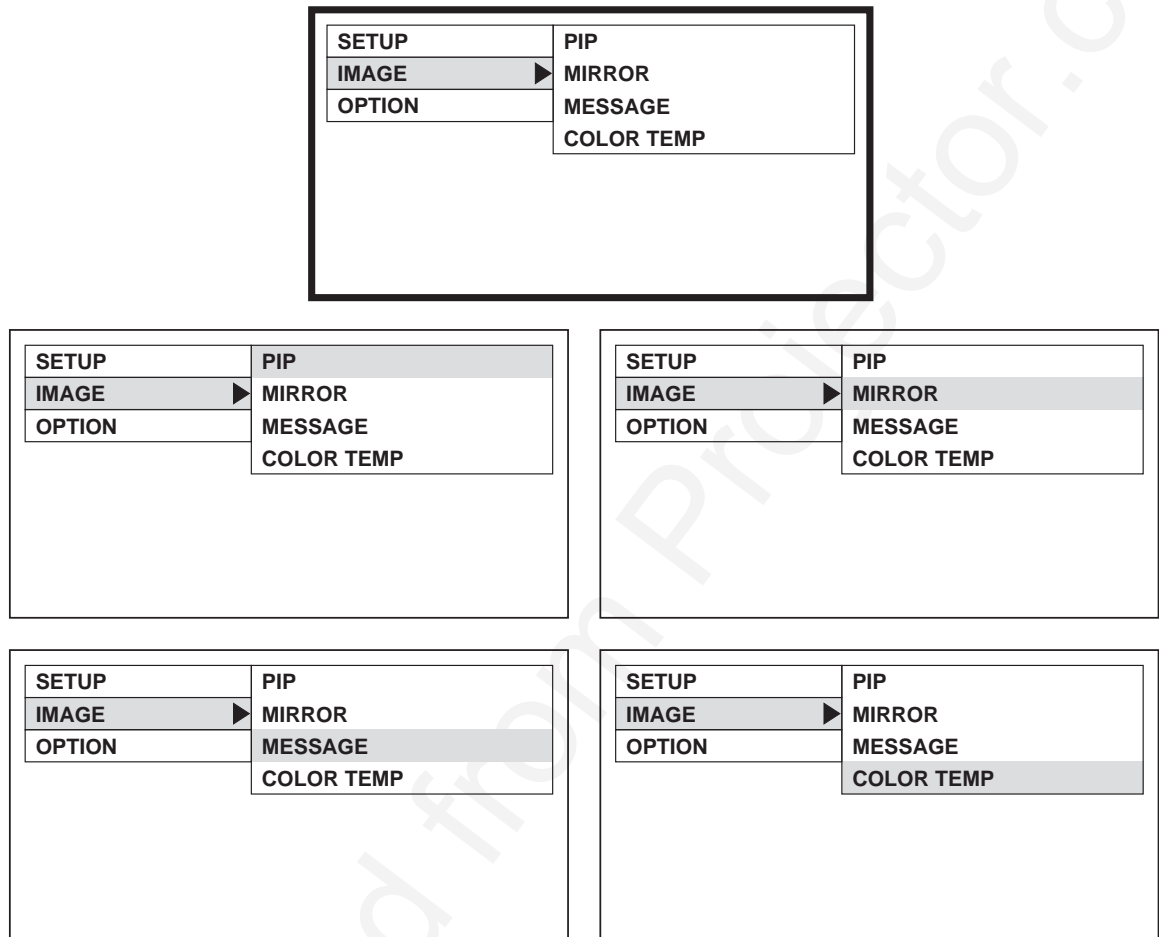
*Figure 4.6 Image Adjustment Screens*

**IMAGE MENU**

| Adjustment Screen | Value        Description | Default |
|---|---|---|
| **PIP** | OFF – Reset PIP mode <br> ON1 – Computer input frozen, no screen updates occur <br> ON2 – Screen Refreshed | OFF |
| **MIRROR** | NORMAL – Standard tabletop projection (no inversion) <br> H INVERT – Rear projection application | NORMAL |
| **MESSAGE** | ON – display messages <br> OFF – do not display messages | ON |
| **COLOR TEMP** | NATIVE - Maxiun brightness <br> COOL - High temperature <br> MEDIUM - Medium temperature <br> WARM - Low temperature | COMPUTER: NATIVE <br> VIDEO: MEDIUM |

# 4.5 OPTION

The OPT. sub-menu allows you to control communication function.

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | **RESET** |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | **LANGUAGE** |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | **TIMER** |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | **AUTO OFF** |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | **REMOTE** |
| | LAMP TIMER |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | **LAMP TIMER** |
| | BNC |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | **BNC** |
| | SPECIAL |

| SETUP | RESET |
|---|---|
| IMAGE | LANGUAGE |
| OPTION ▶ | TIMER |
| | AUTO OFF |
| | REMOTE |
| | LAMP TIMER |
| | BNC |
| | **SPECIAL** |

*Figure 4.7 OPTION Adjustment Screens*

3M™ Multimedia Projector MP8780

# 4.5 OPTION (continued)

**OPTION MENU**

| Adjustment Screen | Value          Description | Default |
|---|---|---|
| **RESET** | DEFAULT – Reset to factory default settings | |
| | LAMP TIMER – Reset lamp timer hours to zero | |
| **LANGUAGE** | ENGLISH | |
| | FRANCAIS | |
| | DEUTSCH | |
| | HOLLANDS (NEDERLANDS) | ENGLISH |
| | DUTCH | |
| | ITALIANO | |
| | SVENSKA | |
| **TIMER** | POSITION 1 – Display timer in lower right of screen | POSITION 1 |
| | POSITION2 – Display timer in center of screen | |
| **AUTO OFF** | YES – automatic power off after 10 minutes of no input | NO |
| | NO – manual power off | |
| **REMOTE** | Both – Enable front & rear sensors | |
| | FRONT – Enable front sensor only | BOTH |
| | REAR – Enable rear sensor only | |
| | OFF – Turns off sensors | |
| **LAMP TIMER** | CURRENT TIMER – Displays current lamp operating hours | |
| **BNC** | YUV – Selects component video | YUV |
| | CV/S – Selects composite or S-video | |
| **SPECIAL** | FIRMWARE REV – Display revision level of Firmware, Input type, horizontal/vertical frequency | |

# Section 5: Maintenance

## 5.1    Cleaning the Air Filter

### ✔ Note

Clean the air filter about every 50 hours, if air is restricted due to dust accumulation on filter, the projector may shut down due to overheating.

1.    Turn off the **MAIN POWER** switch of the projector and pull out power cord. Let cool for 20 minutes.

2.    Remove the air filter from the bottom of projector. Push down on tabs **(1)**, open cover **(2)** and slide cover off **(3)**.

3.    Turn cover over and carefully remove foam air filter screen **(4)**.

4.    Clean foam screen and metal screen using a vacuum cleaner.

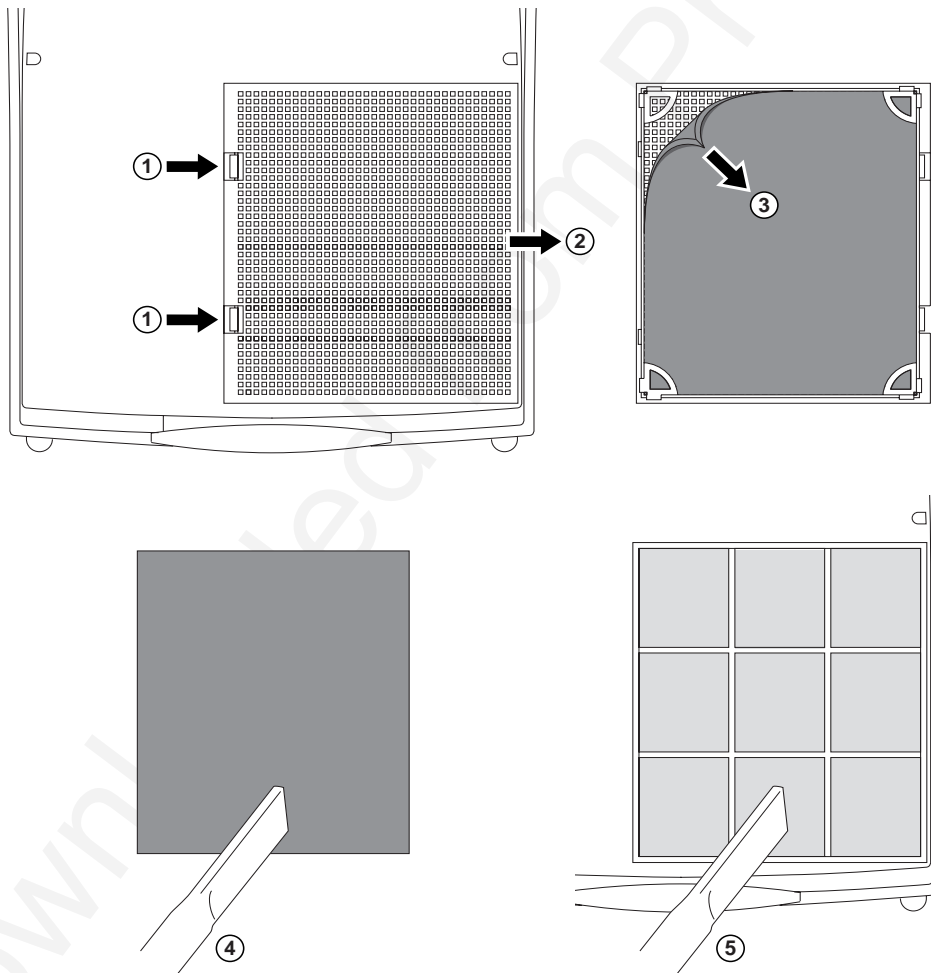5.    Re-install air filter and replace air filter door.



*Figure 5.1 Remove Air Filter*

# Section 6: Lamp

## 6.1  Lamp

**The following symptoms may indicate a lamp in need of replacement:**

- LAMP indicator lights up red.

- "CHANGE THE LAMP" message appears on the screen.

---

✔ **Note**

This lamp contains mercury. Consult your local hazardous waste regulations and **dispose of this lamp in a proper manner.**

---

## 6.2  Display Lamp Operation Hours

The lamp operating hours will display when the projector is powered up.

When the lamp operating hours reach 950 hours, the message "CHANGE LAMP" will display and the change lamp indicator will flash red. When the operating hours exceed 1000 hours, the message "CHANGE LAMP NO LIFE" will display and the projector power will automatically turn off after 10 minutes.

---

✔ **Note**

After normal lamp operating time has expired, the projector will only run for 10 minute intervals when restarted until the lamp is replaced and the lamp timer is reset. The message "CHANGE LAMP" will display in red at projector start up to remind you to change the lamp.

---

## 6.3 Replacing the Lamp

| ⚠ WARNING |
|---|
| To reduce the risk of electrical shock, always turn off projector and disconnect power cord before changing lamp. |

| ⚠ Caution |
|---|
| To reduce the risk of severe burns, allow the projector to cool for at least 45 minutes before replacing the lamp.<br>To reduce the risk of cuts to fingers and damage to internal components, use caution when removing lamp glass that has failed and shattered into sharp pieces. |

---

✔ **Note**

For maximum lamp life, do not apply shock, handle or scratch the lamp glass when it is hot. Also, do not use an old or previously used lamp as a replacement lamp.

---

1. **Loosen cover retaining screws:** The lamp access cover is located on the side of the projector. Use a screwdriver to uncrew the retaining screws **(1)** on the left and right side of the cover.

2. **Remove lamp cover:** Press the spring tabs on each side of the cover and gently remove the lamp cover **(3)**.

3. **Loosen lamp retaining screws:** Use a screwdriver to unscrew the lamp module retaining screws **(4)**.

4. **Remove lamp module:** Carefully slide the lamp module out **(5)** of the projector.

| ⚠ Caution |
|---|
| To reduce the risk of cuts to fingers and/or decreasing image quality by touching the lens, do not insert hand into the empty lamp compartment when the lamp has been removed. |

5. **Insert lamp module:** Carefully insert the new lamp module **(5)**. Ensure that it is fully seated. Tighten the lamp module retaining screws **(4)** to secure the lamp module in place.

6. **Insert lamp cover:** Position the lamp cover and depress the spring tabs **(2)** on each side of the cover to lock it in place.

7. **Tighten retaining screw:** Tighten the cover retaining screws **(1)** to the cover. After replacing the projection lamp, always reset the lamp operation hours to zero.
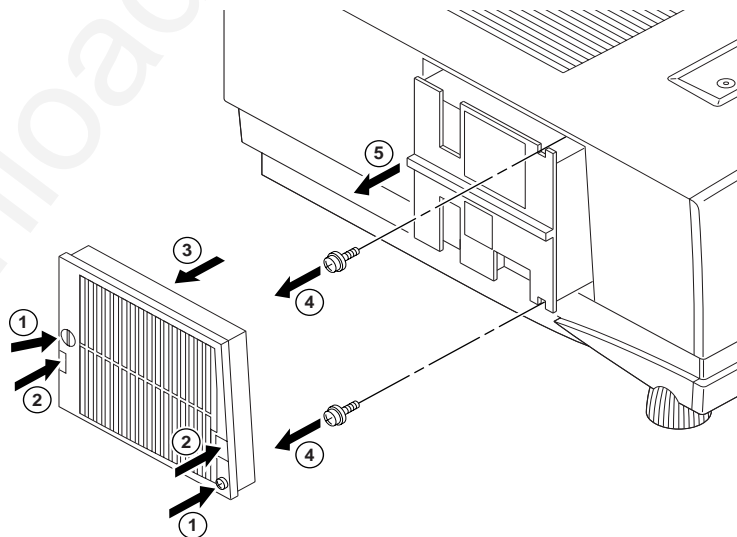


*Figure 6.1 Lamp Module*

3M™ Multimedia Projector MP8780

# Section 7: Troubleshooting

## 7.1 Symptom/Solution Table

| Symptom | Cause | Solution |
|---|---|---|
| Power cannot be turned on. | • The Main power is not turned on.<br>• The power cord is disconnected.<br>• 90 seconds have not elapsed since the power was turned off. | • Turn the MAIN POWER switch on.<br>• Insert the power cord into an AC socket.<br>• Wait 90 seconds before turning on power. |
| No picture and sound. | • The setting of the input source is not correct.<br>• RGB/Video/Audio wiring to projector is not correct. | • Set the correct input using the input select button of the projector or the remote control.<br>• Connect the cable to correct input/output source. |
| Sound is heard with no picture. | • RGB/Video/Audio wiring to projector is not correct.<br>• Lens cap is on. | • Connect the cable to correct input/output source.<br>• Remove lens cap. |
| Picture is displayed with no sound. | • Audio wiring to projector is not correct.<br>• The volume is set to minimum.<br>• The unit is muted. | • Connect the cable to correct input/output source.<br>• Press the VOL button to increase Volume.<br>• Press the MUTE button. |
| Color is weak and tint is incorrect. | • The color and tint have been adjusted incorrectly. | • Adjust the color and tint correctly. |
| Picture is dark. | • The brightness and contrast has not been adjusted incorrectly.<br>• The lamp needs to be replaced. | • Adjust the brightness and contrast correctly.<br>• Replace the lamp with a new one. |
| Picture is not clear | • Projector is out of focus. | • Adjust the focus and PHASE. |
| LAMP indicator lights red. | • Lamp will not ignite. | • Turn off power and let cool for 20 minutes, then restart.<br>• If problem persists call your dealer. |
| Cover indicator red. | • Air filter door on bottom of case is open. | • Ensure air filter door is closed. |
| TEMP indicator red. | • Temperature inside projector is too hot. | • Clear blocked ventilation holes.<br>• Clean air filter. |

## 7.2 Message/Solution Table

| Error Message Displays | Cause | Solution |
|---|---|---|
| NO SIGNAL IS DETECTED. | The projector is not detecting a signal. | Check cable connections to input device. Input device not connected to this input mode, switch to next mode. |
| INVALID. | The horizontal frequency of input signal exceeds projector capability. | Switch projector to correct resolution.<br>See Appendix A.5 |
| CHANGE THE LAMP. LIFE: 50 HS | Lamp operation time is greater than 950 hours. | Change the projector lamp and reset the lamp operation hours to zero. |
| CHANGE THE LAMP. NO LIFE. | Lamp operation time is greater than 1,000 | Change the projection lamp and reset the lamp operation hours to zero. |

# Section 8: Accessories

## 8.1  Service Information

For product information, product assistance, service information, or to order accessories, please call:

In U.S. or Canada:  **1-800-328-1371**
In other locations, contact your local 3M Sales office.

### -Accessories                                                    Part Number

| | |
|---|---|
| Metal Halide lamp module, 440 W ························· | 78-6969-8958-7 |
| Power cord (US)·································· | DY-0205-1356-9 |
| Power cord (UK) ································ | DY-0205-1355-1 |
| Power cord (Germany)······························ | DY-0205-1354-4 |
| VGA cable ···································· | 78-8118-3401-5 |
| MAC adapter ·································· | 78-8118-3391-8 |
| S-video cable ································· | 78-8118-3238-1 |
| 3-conductor video/audio cable ······················· | 78-8118-3234-0 |
| Serial mouse cable ······························· | 78-8118-3243-1 |
| PS/2 mouse cable ······························· | 78-8118-3387-6 |
| ADB mouse cable ····························· | 78-8118-3388-4 |
| Remote Control ······························· | 78-8118-3649-9 |
| Gender changer······························· | 78-8118-3239-9 |

### Not Included with Basic Packet                         Part Number

| | |
|---|---|
| Ceiling mount ································· | 78-6969-8921-5 |
| Adjustable height suspension······················ | 78-6969-8312-7 |
| Shipping case ································· | 78-6969-8955-3 |
| RS-232 control cable ···························· | 78-8118-3312-4 |
| USB mouse cable ······························· | 78-8118-8186-7 |

### How to Order

Please order these parts through your dealer, or contact 3M Customer Service at the following number:

In U.S. or Canada: **1-800-328-1371**
In other locations, contact your 3M Sales office.

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# Appendix:  Technical Information

## Table of Contents

## A.1    Technical Specifications

✔ Note

All specifications are subject to change without notice.

| | | |
|---|---|---|
| Product name | | Multimedia projector |
| Model Name | | MP8780 |
| Display system | | 3 LCD panels, strip pixel configuration. |
| Liquid crystal panel | Panel size | 46 mm (1.8 in.) |
| | Drive system | TFT active matrix |
| | Number of pixels | 786,432 pixels (V768 × H1024) per panel.    2.36 million total pixels with 3 panels. |
| Lens | | F/Number:  F/2.7 – F/3.4          Focal Length:  F = 72 – 108 mm  (2.8 in. – 4.3 in.) |
| Lamp | | Metal Halide lamp 440W |
| Speaker (stereo) | | 2 x 3 watt |
| Power supply | | AC100 ~ 240V, 6.5A ~ 2.9A, 50/60 Hz (Automatic) |
| Power consumption | | 630W typical |
| Operating temperature range | | 32° ~ 95°F  (0° ~ 35°C) |
| Dimensions | | 17.2 in. (W) x 8.9 in. (H) x 19.8 in. (D)<br>430 mm (W) x 222 mm (H) x 495 mm (D) |
| Weight | | 16.0 kg (35 lbs.) |
| Input/Output terminal | video signal input terminal | S VIDEO :  Mini DIN 4pin terminal<br>VIDEO    :  RCA Jack termina + BNC<br>AUDIO    :  RCA Jack terminal |
| | RGB input/output signal terminal | RGB signal : D-sub 15pin (Female)<br>AUDIO       : RCA Jack + BNC |
| | Control terminal | D-sub 9pin (Male) |
| | Mouse | MD 9pin (serial/PS2/ADB) |
| | USB | 4pin |

**TECHNICAL**

## A.2 Dimensions

**520 mm**
**(20.8 in.)**

**495 mm**
**(19.8 in.)**

**430 mm**
**(17.2 in.)**

**3M MP8780**

**222 mm**
**(8.9 in.)**

3M™ Multimedia Projector MP8780
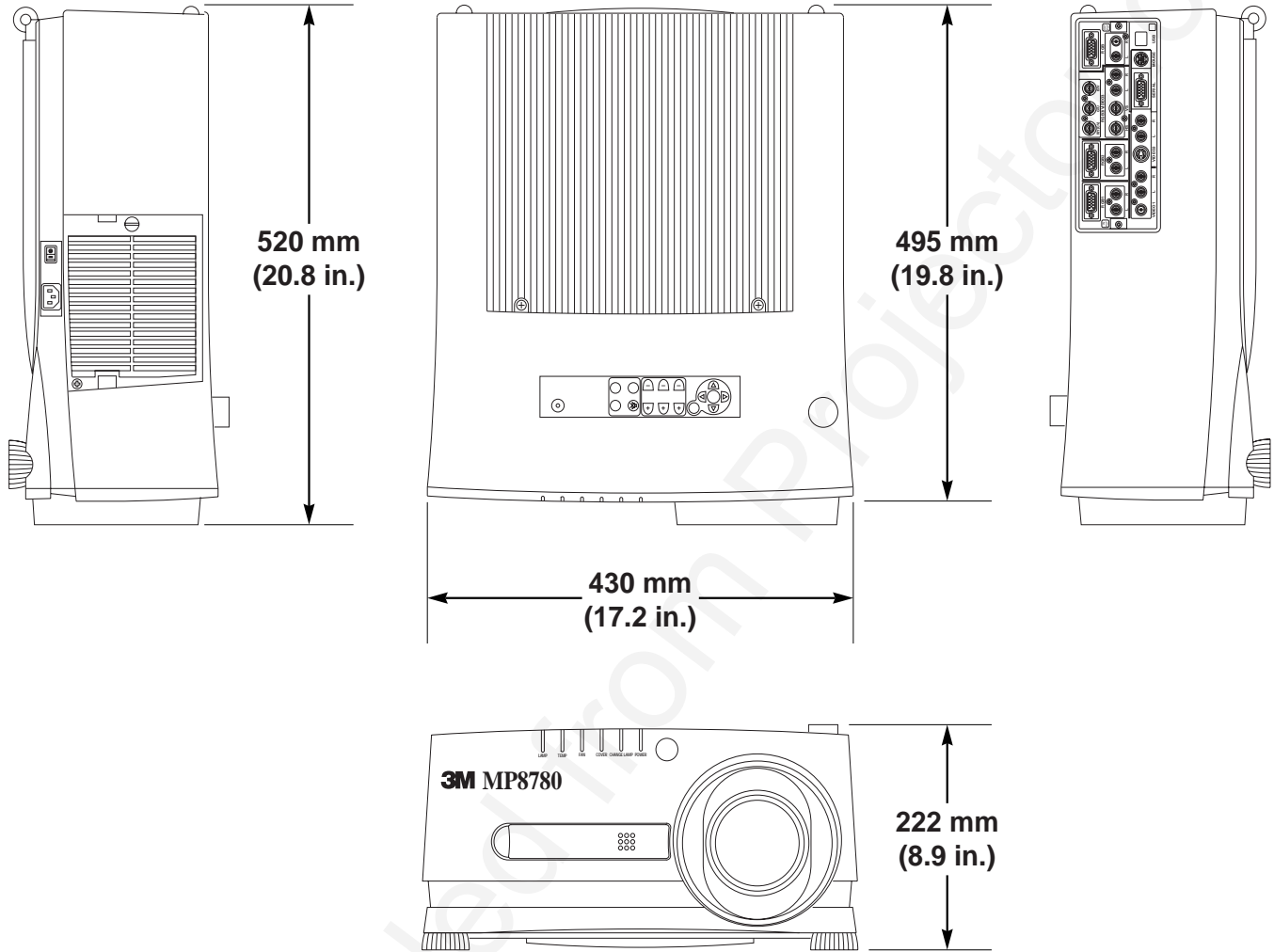
## A.3 Projector-to-Screen Distance

Example of the Multimedia projector and screen installation. Determine picture size and projection distance as shown below.

| Screen Size | | | Distance to Screen | |
|---|---|---|---|---|
| **Width** | **Height** | **Diagonal** | **Minimum** | **Maximum** |
| 81 cm | 61 cm | 102 cm | 145 cm | 226 cm |
| (32 in.) | (24 in.) | (40 in.) | (4.7 ft) | (7.4 ft) |
| 130 cm | 91 cm | 152 cm | 226 cm | 347 cm |
| (48 in.) | (36 in.) | (60 in.) | (7.4 ft) | (11.4 ft) |
| 180 cm | 122 cm | 203 cm | 306 cm | 468 cm |
| (64 in.) | (48 in.) | (80 in.) | (10 ft) | (15.3 ft) |
| 230 cm | 152 cm | 254 cm | 386 cm | 588 cm |
| (80 in.) | (60 in.) | (100 in.) | (12.7 ft) | (19.3 ft) |
| 280 cm | 183 cm | 305 cm | 467 cm | 709 cm |
| (96 in.) | (72 in.) | (120 in.) | (15.3 ft) | (23.3 ft) |
| 354 cm | 229 cm | 381 cm | 587 cm | 890 cm |
| (120 in.) | (90 in) | (150 in.) | (19.3 ft) | (29.2 ft) |
| 179 cm | 305 cm | 508 cm | 788 cm | 1193 cm |
| (160 in.) | (120 in.) | (200 in.) | (25.8 ft) | (39.1 ft) |
| 728 cm | 457 cm | 762 cm | 1190 cm | 1197 cm |
| (287 in.) | (180 in.) | (300 in.) | (39 ft) | (58.9 ft) |

---

**✔ Note**

These sizes are ± 1%. This is due to variations in the manufacture of the lens. If you are close to one of the endpoints you should verify with your unit that the image is the proper size at the proper distance.

---

The image can be shifted up or down without distortion (keystoning) by turning the Image Shift Control knob on the top of the projector.



**Image Shift Control**

**Shift Up**

**Normal**

**Shift Down (Ceiling Mount)**

TECHNICAL
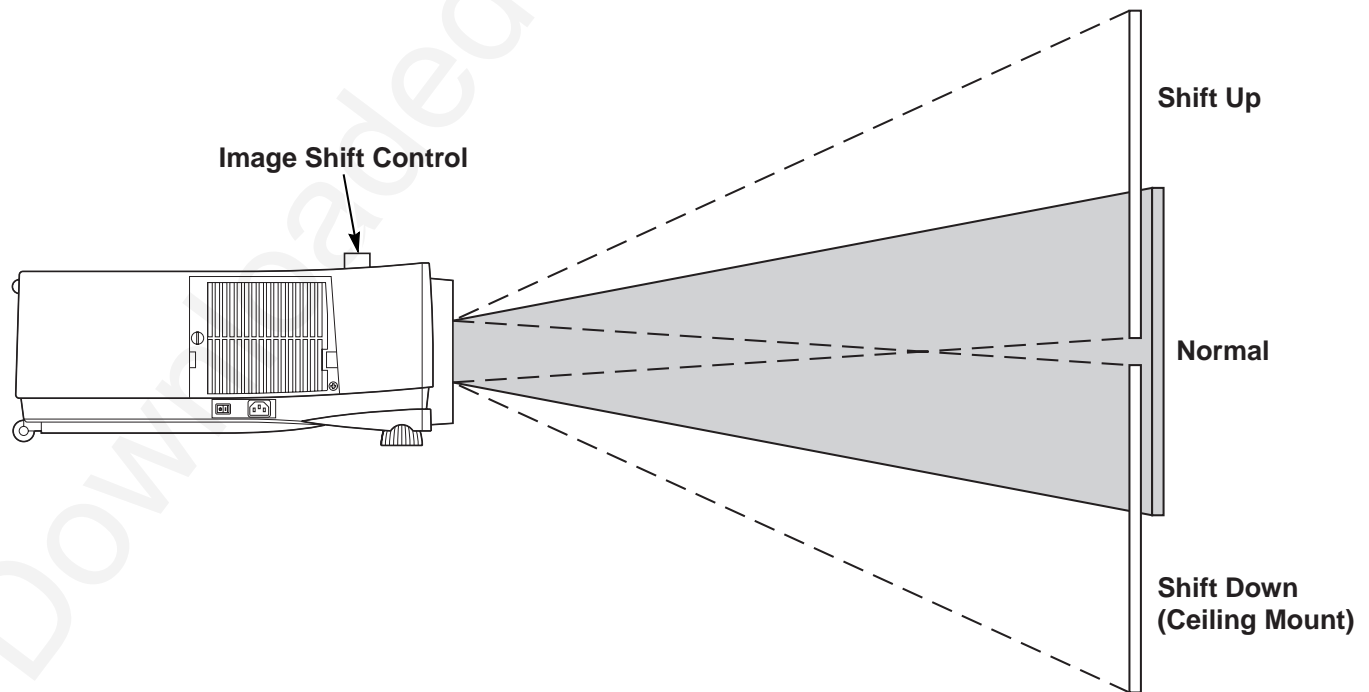
# A.4 Connection to the Video Signal Terminal

**a)      Input signal**

| | | | |
|---|---|---|---|
| S-VIDEO signal | | Luminance signal | 1.0Vp-p, 75 $\Omega$ termination |
| | | Chrominance signal | 0.286Vp-p (burst signal), 75 $\Omega$ termination |
| VIDEO signal | | | 1.0Vp-p, 75 $\Omega$ termination |
| AUDIO signal | Input | | 140mVrms, 46 k $\Omega$ (MAX 7.0Vp-p) |
| | Output | | 0-140mVrms, 680 $\Omega$ |

**b)      Signal input terminal**

Chrominance signal        Luminance signal

Ground        Ground

S VIDEO input (Mini DIN 4pin)
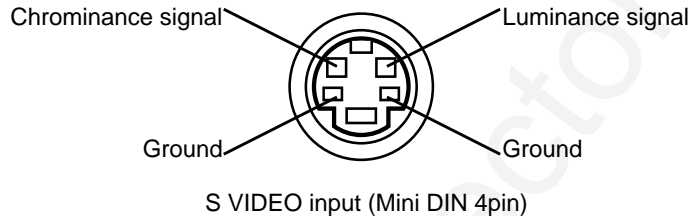
✔ **Note**

Video input signal terminals have priority in the following order:
1.  S-VIDEO input terminal
2.  RCA jack (composite) input terminal

Audio sound from input devices is output to the RGB/Video out jack.

# A.5 Connection to the RGB Signal Terminal

**a)      Input signal / Output signal**

| | | |
|---|---|---|
| Video signal | | Analog 0.7Vp-p 75 $\Omega$ termination (Positive polarity) |
| Horizontal sync signal | | TTL level (Positive/negative polarity) |
| Vertical sync signal | | TTL level (Positive/negative polarity) |
| Composite sync signal | | TTL level (Negative polarity) |
| Audio signal | Input | 140mVrms, 46k $\Omega$ (MAX 7.0Vp-p) |
| | Output | 0 ~ 140mVrms, 680 $\Omega$ |

**b)      Signal input terminal / output terminal**

| | | | |
|---|---|---|---|
| 1 | Video signal (Red) | 9 | No Connection |
| 2 | Video signal (Green) | 10 | Ground |
| 3 | Video signal (Blue) | 11 | Ground |
| 4 | No Connection | 12 | No Connection |
| 5 | Ground | 13 | Horizontal/Composite sync signal |
| 6 | Ground (for R) | 14 | Vertical sync signal |
| 7 | Ground (for G) | 15 | No Connection |
| 8 | Ground (for B) | | |

## c)     Example of computer signal

**Scan Frequency**

| Mode No. | H-Size | Resolution | H (kHz) | V (Hz) | Dot Clock (MHz) | Computer | |
|---|---|---|---|---|---|---|---|
| 1 | 780 | 320x480i | 15.7 | 59.9 | 12.270 | NTSC(RGB) | RGB-NTSC |
| 2 | 940 | 384x576i | 15.6 | 50.0 | 14.687 | PAL(RGB) | RGB-PAL |
| 3 | 848 | 640x400 | 24.8 | 56.4 | 21.053 | 640X400 | TEXT56 |
| 4 | 900 | 720x400 | 31.5 | 70.1 | 28.322 | 720X400 | TEXT70 |
| 4 | 800 | 640x400 | 31.5 | 70.1 | 25.175 | 720X400 | TEXT70 |
| 4 | 800 | 640x350 | 31.5 | 70.1 | 25.175 | 720X400 | TEXT70 |
| 5 | 936 | 720x400 | 37.9 | 85.0 | 35.500 | 720X400 | TEXT85 |
| 5 | 832 | 640x400 | 37.9 | 85.1 | 31.500 | 720X400 | TEXT85 |
| 5 | 832 | 640x350 | 37.9 | 85.1 | 31.500 | 720X400 | TEXT85 |
| 6 | 800 | 640x480 | 31.5 | 59.9 | 25.175 | 640X480 | VGA60 |
| 7 | 896 | 640x480 | 35.0 | 66.6 | 31.334 | MAC13 | MAC13 |
| 8 | 832 | 640x480 | 37.9 | 72.8 | 31.500 | 640X480 | VGA72 |
| 9 | 840 | 640x480 | 37.5 | 75.0 | 31.500 | 640X480 | VGA75 |
| 10 | 832 | 640x480 | 43.3 | 85.0 | 36.000 | 640X480 | VGA85 |
| 11 | 1024 | 800x600 | 35.2 | 56.3 | 36.000 | 800X600 | SVGA56 |
| 12 | 1056 | 800x600 | 37.9 | 60.3 | 40.000 | 800X600 | SVGA60 |
| 13 | 1040 | 800x600 | 48.1 | 72.2 | 50.000 | 800X600 | SVGA72 |
| 14 | 1056 | 800x600 | 46.9 | 75.0 | 49.500 | 800X600 | SVGA75 |
| 15 | 1048 | 800x600 | 53.7 | 85.1 | 56.250 | 800X600 | SVGA85 |
| 16 | 1152 | 832x624 | 49.7 | 74.6 | 57.283 | MAC16 | MAC16 |
| 17 | 1344 | 1024x768 | 48.4 | 60.0 | 65.000 | 1024X768 | XGA60 |
| 18 | 1328 | 1024x768 | 56.5 | 70.1 | 75.000 | 1024X768 | XGA70 |
| 19 | 1312 | 1024x768 | 60.0 | 75.0 | 78.750 | 1024X768 | XGA75 |
| 20 | 1376 | 1024x768 | 68.7 | 85.0 | 94.500 | 1024X768 | XGA85 |
| 21 | 1312 | 1024x768 | 48.8 | 60.0 | 64.000 | MAC19A | MAC19A |
| 22 | 1328 | 1024x768 | 60.2 | 74.9 | 80.000 | MAC19B | MAC19B |
| 23 | 1264 | 1024x768i | 35.5 | 87.0 | 44.900 | 1024X768I | XGAi |
| 24 | 1472 | 1152x864 | 54.1 | 60.1 | 79.648 | 1152X864 | |
| 25 | 1472 | 1152x864 | 64.0 | 70.0 | 94.178 | 1152X864 | |
| 26 | 1600 | 1152x864 | 67.5 | 75.0 | 108.000 | 1152X864 | |
| 27 | 1568 | 1152x864 | 77.3 | 84.9 | 121.268 | 1152X864 | |
| 28 | 1456 | 1152x870 | 68.6 | 75.0 | 99.931 | MAC21 | MAC21 |
| 29 | 1500 | 1152x900 | 61.8 | 66.0 | 92.707 | 1152X900 | SUN |
| 30 | 1800 | 1280x960 | 60.0 | 60.0 | 108.000 | 1280X960 | |
| 31 | 1680 | 1280x960 | 75.0 | 75.0 | 126.000 | 1280X960 | |
| 32 | 1728 | 1280x960 | 85.9 | 85.0 | 148.500 | 1280X960 | |
| 33 | 1688 | 1280x1024 | 64.0 | 60.0 | 108.000 | 1280X1024 | SXGA60 |
| 34 | 1688 | 1280x1024 | 80.0 | 75.0 | 135.000 | 1280X1024 | SXGA75 |
| 35 | 1728 | 1280x1024 | 91.1 | 85.0 | 157.500 | 1280X1024 | SXGA85 |
| 36 | 1688 | 1280x1024i | 47.7 | 88.8 | 80.534 | 1280X1024I | SXGAi |
| 37 | 2160 | 1600x1200 | 75.0 | 60.0 | 162.000 | 1600X1200 | UXGA60 |
| 38 | 2160 | 1600x1200 | 81.3 | 65.0 | 175.500 | 1600X1200 | UXGA65 |
| 39 | 2200 | 1920x1080i | 33.7 | 59.9 | 74.176 | HDTV1080I | HDTV1080 |
| 39 | 1100 | 960x1034i | 33.5 | 59.0 | 36.851 | HDTV1080I | HDTV1034 |
| 40 | 1650 | 1280x720 | 45.0 | 59.9 | 74.176 | HDTV720P | HDTV720P |
| 41 | 2200 | 1920x1080 | 67.4 | 59.9 | 148.352 | HDTV1080P | HDTV1080P |

**TECHNICAL**

**c)    Example of computer signal (continued)**

**Note 1:  MAC adapter is necessary to set the resolution mode.
            Projector is compatible with 13 inch mode and 16 inch mode.**

   **Set all dip switches OFF except those indicated below.**

   **MAC 13" mode = switch 1 and 2 are ON
   MAC 16" mode = switch 2 and 4 are ON**
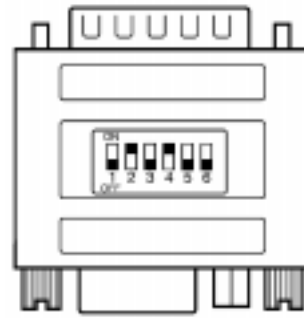
(Example of 16 inch mode)

**Note 2:  Some input sources may not be displayed properly because they are not compatible with the
            projector.**

## A.6    Indicator Status

The indicators lamps will light or flash to indicate the following operating conditions:

| POWER | CHANGE LAMP | COVER | FAN | TEMP | LAMP | Meaning | Remedy |
|---|---|---|---|---|---|---|---|
| Lights Orange | Off | Off | Off | Off | Off | Standby mode | Normal |
| Flashes Green | Off | Off | Off | Off | Off | During warm up | Normal |
| Lights Green | Off | Off | Off | Off | Off | During operation | Normal |
| | Flash RED | Off | Off | Off | Off | The lamp operating hours have reached 950 hours or more | Replace lamp |
| | Lights RED | Off | Off | Off | Off | The lamp operating hours have reached 1000 hours or more | Replace lamp |
| Lights Orange | Off | Lights RED | Off | Off | Off | Bottom cover is open | Attach the Bottom cover |
| | Off | Off | Lightd RED | Off | Off | Cooling fan not operating | Contact your dealer |
| | Off | Off | Off | Flashes RED | Off | Operating temperature is above normal range | Check the air filter. Remove any objects blocking ventilation. Lower the ambient temperature. Contact your dealer |
| | Off | Off | Off | Lights RED | Off | Operating temperature is above normal range and projector has overheated | |
| | Off | Off | Off | Off | Lights RED | Lamp or internal power failure | Change lamp. Contact your dealer |

When the LAMP indicator lights or flashes, turn the power off.  If the problem persists, contact your dealer.

## A.7 Connection to the Control Signal Terminal

### a) Mouse emulation

(1) While the projector and computer are turned OFF, connect the projector and the mouse terminal of computer using an appropriate cable (PS/2, Serial or ADB).

(2) Turn ON the projector.

(3) Turn ON the computer.

(4) Select the correct mouse driver for the application.  See computer's User Manual for this procedure.

---

✔ **Note**

In some Notebook computers with an internal pointing device, mouse emulation will not work unless the internal pointing device is disabled.  In this case, disable the internal pointing device in BIOS setting.  Check the computer's manual for procedure to follow to disable internal pointing device in BIOS setting.

---

⚠ **Caution**

Turn off the power to both the projector and computer before connecting. Connect the computer to the control terminal of the projector using the appropriate cable.

**PS/2 mouse**
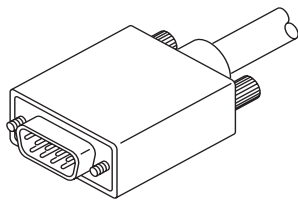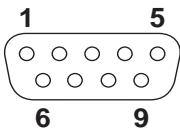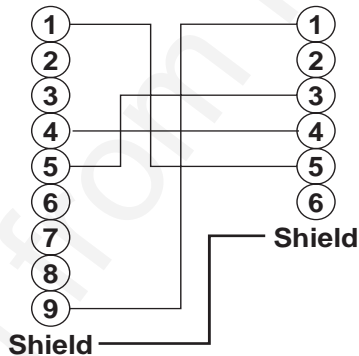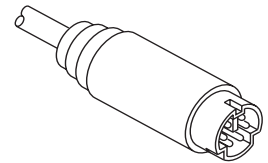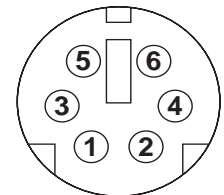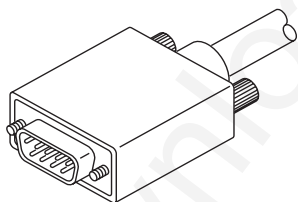


**ADB mouse**
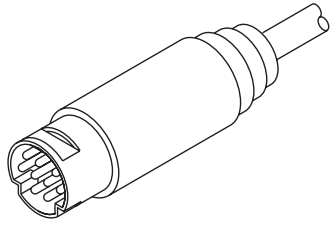
TECHNICAL
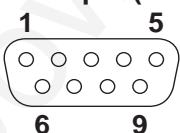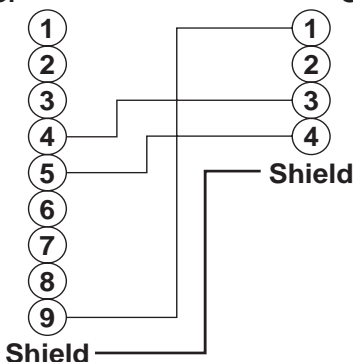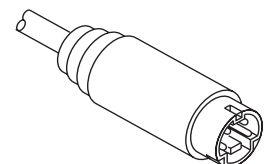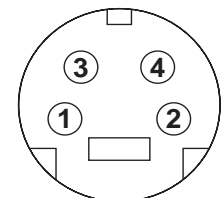
# A.7  Connection to the Control Signal Terminal  (continued)

**Serial  mouse**

**Mini Din 9-pin (Male)**

**Projector**

1
2
3
4
5
6
7
8
9

**Computer**

1
2
3
4
5
6
7
8
9

Shield ——————— Shield

7 8 9
3 4 5 6
1 2

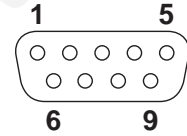**D-sub 9-pin (Female)**

1          5

6          9
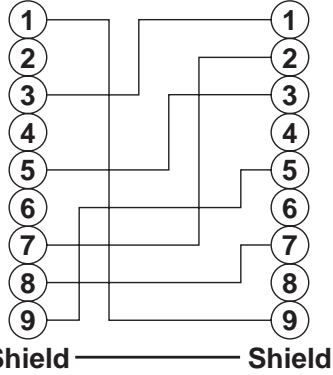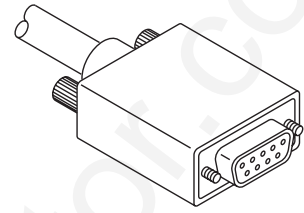
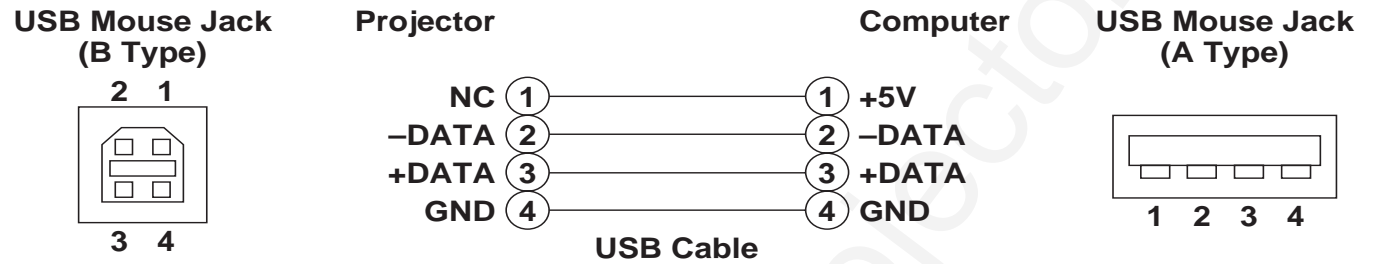## RS-232 Control Cable  (not included with basic packout)

This cable is used to directly control the projector without using the Remote Control or Operator's Panel.

**Not available
for this printing.**

# A.7   Connection to the Control Signal Terminal  (continued)

## USB Mouse Cable

This cable is used to connect the projector and computer to allow computer mouse control via the projector's remote control buttons. Connect the cable, select the input source where the computer is to be connected and start the mouse functions.

**USB Mouse Jack (B Type)**

```
  2   1
┌─────────┐
│ ┌─────┐ │
│ │ ▭ ▭ │ │
│ │ ▭ ▭ │ │
│ └─────┘ │
└─────────┘
  3   4
```

**Projector**

NC (1) ———————— (1) +5V
−DATA (2) ———————— (2) −DATA
+DATA (3) ———————— (3) +DATA
GND (4) ———————— (4) GND

**USB Cable**

**Computer**

**USB Mouse Jack (A Type)**

```
┌───────────────┐
│ ┌──┐┌──┐┌──┐┌──┐ │
└───────────────┘
  1   2   3   4
```

---

### ✔ Note

Some laptop computers with a built-in pointing device (track ball) may not recognize the external mouse. In this case, change the BIOS (system setup) so that an external mouse can be selected. Some computers may not have the necessary utility program to operate a mouse. Refer to the computer hardware manual.

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TECHNICAL

# A.8 Serial Inferface Command Codes

## Command Code Formats

All codes in this document are in ASCII Text.  In order to get this to work you must send at the same communication setting as the projector.

*This should be 9600 8N1*.

For the rest of this document CR is a carriage return which is code 13.

There are two types of commands that can be sent to the projector.  They are Write or Read commands.

## Write Command Format

User:

| Code | CR |
|------|----|

Projector (if it worked):

| O | K | CR |
|---|---|----|

Projector (if it did not work):

| N | G | CR |
|---|---|----|

## Read Command Format

User:

| Code | CR |
|------|----|

Projector (if it worked):

| Data | O | K | CR |
|------|---|---|----|

Projector (if it did not work):

| N | G | CR |
|---|---|----|

3M™ Multimedia Projector MP8780

TECHNICAL

# A.8   Serial Inferface Command Codes (continued)

| Function | Code | Meaning |
|---|---|---|
| Power On/Off | Write Codes<br>D00W00<br>D00W01<br><br>Read Codes<br>D00R | <br>Power On<br>Power Off<br><br>Returns:<br>00 - Standby<br>01 - Power on but no lamp<br>02 - Power on and lamp<br>03 - Power off but fan running |
| Source Selection | Write Codes<br>D02W01<br>D02W02<br>D02W03<br>D02W11<br>D02W12<br>D02W13<br>D03W00<br><br>Read Codes<br>D02R | <br>RGB 1<br>RGB 2<br>RGB 3<br>Video 1<br>Video 2<br>Video 3<br>Shows what input is selected on-screen<br><br>Returns:<br>01 – RGB 1<br>02 – RGB 2<br>03 – RGB 3<br>11 – Video 1<br>12 – Video 2<br>13 – Video 3 |
| Volume Control | Write Codes<br>D04W00 to<br>D04W14<br><br>Read Codes<br>D04R | Sets volume level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings.<br><br>Returns:<br>00 to 14 hex |
| Focus Control | Write Codes<br>D05W00<br>D05W01<br>D05W10<br>D05W11<br>D05W20 | <br>300ms Clockwise<br>300ms Counterclockwis<br>Continuous Clockwise<br>Continuous Counterclockwise<br>Turn off motor |
| Zoom | Write Codes<br>D06W00<br>D06W01<br>D06W10<br>D06W11<br>D06W20 | <br>300ms Clockwise<br>300ms Counterclockwise<br>Continuous Clockwise<br>Continuous Counterclockwise<br>Turn off motor |
| Mute | Write Codes<br>D07W00<br>D07W01<br><br>Read Codes<br>D07R | <br>Mute off<br>Mute on<br><br>Returns:<br>00 - mute is off<br>01 - mute is on |
| Blank | Write Codes<br>D08W00<br>D08W01<br><br>Read Codes<br>D08R | <br>Blank is off - image is shown<br>Blank is on - black screen is shown<br><br>Returns:<br>00 - off<br>01 - on |

TECHNICAL

# A.8  Serial Inferface Command Codes (continued)

| Function | Code | Meaning |
|---|---|---|
| Contrast | Write Codes<br>D12W00 to D12W14 | Set contrast level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings. |
| | Read Codes<br>D12R | Returns:<br>00 to 14 hex |
| Brightness | Write Codes<br>D13W00 to D13W14 | Sets brightness level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings. |
| | Read Codes<br>D13R | Returns:<br>00 to 14 hex |
| Tint (Hue) | Write Codes<br>D14W00 to D14W14 | Sets tint (hue) level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings. |
| | Read Codes<br>D14R | Returns:<br>00 to 14 hex |
| Color (Saturation) | Write Codes<br>D15W00 to D15W14 | Sets color (saturation) level to a value between 00 and 14 hex. This corresponds to 20 possible settings. |
| | Read Codes<br>D15R | Returns:<br>00 to 14 hex |
| Sharpness | Write Codes<br>D16W00 to D16W14 | Sets sharpness level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings. |
| | Read Codes<br>D16R | Returns:<br>00 to 14 hex |
| Gamma | Write Codes<br>D17W00 to D17W14 | Sets sharpness level to a value between 00 and 14 hex.<br>This corresponds to 20 possible settings. |
| | Read Codes<br>D17R | Returns:<br>00 to 14 hex |
| PC Mode | Read Codes<br>D30R | Returns:<br>0 to 41 hex<br>See Computer (RGB) Signal Connection (Section A–5)<br>00-Shows no input |
| MAC Mode | Write Codes<br>D32W00<br>D32W01 | <br>MAC MODE "OFF"<br>MAC MODE "ON"<br>   Default is "OFF" |
| | Read Codes<br>D32R | Returns:<br>00-MAC MODE is OFF<br>01-MAC MODE is ON |
| Phase | Write Codes<br>D34W00 to D34W13<br>D35W00 | Set phase to a value in the range of 00 to 13 hex.<br>Reset phase to default |
| | Read Codes<br>D34R | Returns:<br>00 to 13 hex |

TECHNICAL

3M™ Multimedia Projector MP8780

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# A.8 Serial Inferface Command Codes (continued)

| Function | Code | Meaning |
|---|---|---|
| Display Position | Write Codes | |
| | D36W00 to D36WFE | Change vertical display position (up/down) from reset position by 00 to FE. |
| | D37W00 to D37WFE | Change horizontal display position (left/right) from reset position by 00 to FE. |
| | D38W00 | Resets display position |
| | Read Codes | Returns: |
| | D36R | 00 to FE vertical position |
| | D37R | 00 to FE horizontal position |
| H-Size | Write Codes | The 00 to 80 denotes the deviation of clock numbers from |
| | D39W00 to D39W80 | the standard in one horizontal period. "40" is zero, "00" is -64 and "80" is +64 decimal. Default value is "40" |
| | Read Codes | Returns: |
| | D39R | 00 to 80 hex |
| On–Screen Displays | Write Codes | |
| | D51W00 | Disables on–screen display except "WARNING" |
| | D51W01 | Enables on–screen display |
| | Read Codes | 00-On–screen display is disabled |
| | D51R | 01-On–screen display is enabled |
| Language Selection | Write Codes | |
| | D52W00 | English |
| | D52W01 | French |
| | D52W02 | Spanish |
| | D52W03 | German |
| | D52W04 | Dutch |
| | D52W05 | Italian |
| | D52W06 | Swedish |
| | Read Codes | Returns: |
| | D52R | 00 - English |
| | | 01 - French |
| | | 02 - Spanish |
| | | 03 - German |
| | | 04 – Dutch |
| | | 05 – Italian |
| | | 06 - Swedish |
| Mirror (H/V Inversion) | Write Codes | |
| | D53W00 | NORMAL |
| | D53W01 | H–INVERT |
| | D53W02 | V–INVERT |
| | D53W03 | H&V–INVERT |
| | Read Codes | Returns: |
| | D53R | 00-NORMAL |
| | | 01-H–INVERT |
| | | 02-V–INVERT |
| | | 03-H&V–INVERT |
| Auto Off | Write Codes | |
| | D55W00 | Disables auto off |
| | D55W01 | Enables auto off |
| | | Default is "NO" auto off |
| | Read Codes | Returns: |
| | D55R | 00-Auto off is disabled |
| | | 01-Auto off is enabled |

TECHNICAL

| Function | Code | Meaning |
|---|---|---|
| IR receiver selection | Write Codes<br>D5AW00<br>D5AW01<br>D5AW02<br><br>Read Codes<br>D5AR | <br>Selects Front and Rear IR Receiver<br>Selects Front IR Receiver<br>Selects Rear IR Receiver<br><br>Returns:<br>00-Front and Rear Receiver is selected<br>01-Front receiver is selected<br>02-Rear receiver is selected |
| Magnify | Write Codes<br>D5BW00<br>D5BW01XY to<br>  D5BW07XY<br>Read Codes<br>D5BR | <br><br>01:x1, 02:x2, 03:x4, 04:x8, 05:x16, 06:x32, 07:x64<br>XYdenotes magnifying portion (00 to FF)<br><br>00 – Off<br>01 to 07 |
| PIP | Write Codes<br>D5CW00<br>D5CW01<br>D5CW02<br>D5CW03<br><br>Read Codes<br>D5CR | <br>Off<br>ON1<br>ON2<br>Refreshes the background for ON1<br><br>Returns:<br>00 – Off<br>01 – ON1<br>02 – ON2 |
| Lamp Timer Reset | Write Codes<br>D60W00<br><br>Read Codes<br>D60R | <br>Resets the lamp timer<br><br>Returns:<br>xxxx-shows lamp operating time in hours (decimal) |
| Temperature | Read Codes<br>D61R | Returns:<br>Shows the status of internal temperature<br>00-Temperature  level 0<br>01-Temperature  level 1<br>02-Temperature  level 2<br>03-Temperature  level 3<br>04-Temperature  level 4 (Warning)<br>05-Temperature  level 5 (Power Off) |
| Error Status | Read Codes<br>D01R | Returns:<br>00-No error<br>01-Interlock error<br>02-Lamp error<br>04-Temperature error<br>08-Fan error<br>10-Memory error<br><br>*Note: If there is more than one error, the resulting read code will be the sum f the error codes listed above.  Example: For Interlock-01 and Lamp-02, resulting read code is 03.* |

**800-328-1371**

**http://www.3m.com/meetings
e-mail: meetings@mmm.com**

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