5 TROUBLESHOOTING

This section helps you resolve problems you may encounter while setting up or using your MultiSync MT810 LCD Projector.

Status Light Messages

Condition	Status
OFF	■ Normal
On Continually	■ The projector lamp has exceeded 2000 hours of operation and should be replaced.
Blinking very rapidly (On and off in a cycle of 1 sec.)	■ Either the lamp cover or filter panel is not fastened properly. Check each and reattach them if necessary.
Blinking rapidly (On and off in a cycle of 4 sec.)	■ The projector is overheated. • If there is insufficient ventilation around the projector or if the room where you're presenting is particularly warm, move the projector to a cooler location. • Check the filter and clean it if necessary. • If the problem persists, contact your NEC dealer for service.
Blinking Slowly (On and off in a cycle of 8 sec.)	■ The cooling fan has stopped. Contact your NEC dealer for service.
Blinking very slowly (On and off in a cycle of 12 sec.)	■ The lamp is not turned on. • The projector was turned off and back on too quickly. Turn off the projector, wait one minute, then turn the projector back on. Or the lamp is burnt.

Common Problems & Solutions

Problem	Check These Items
Does not turn on	• Check that the cord is plugged in and that the power switch on the back panel is on. • Ensure that the air filter and filter panel are installed correctly. (See page 64.) • Check the status light to see if the projector has overheated or the lamp usage exceeds 2100 hours.
No picture	• Use the menu icons to select your source (Video, S-Video, RGB1 or 2). (See pages 51 and 52.) • Ensure your cables are connected properly. • Use icons to adjust the brightness and contrast. • Remove the lens cap.
Image isn't square to the screen	• Reposition the projector to improve its angle to the screen.
Picture is blurred	• Adjust the focus. (See page 20 or 28.) • Reposition the projector to improve its angle to the screen. • Ensure that the distance between the projector and screen is within the adjustment range of the lens.

Problem	Check These Items
Image is scrolling vertically, horizontally or both	• Use icons to select the source you want to input.
Remote control does not work	• Install new batteries. (See page 64.) • Make sure there are no obstacles between you and the projector. • Stand within 23 feet (7m) of the projector.
Status indicator is lit or blinking	See the Status Light message chart on pages 69 and 70.
Cross color in RGB mode	If "Auto Picture" is off, turn it on. If "Auto Picture" is on, turn it off and balance the image with the Picture Adjustment icon and Fine Picture Adjustment icon.

To Contact Your NEC Service Representative, Call 1-800-836-0655

6 SPECIFICATIONS

This section provides technical information about the MultiSync MT810 LCD Projector's performance.

Optical

LCD Panel	1.3", p-Si TFT active-matrix, 800 × 600 dots
Lens	Power zoom, power focus F 2.5 f =52 – 68 mm
Lamp	Metal halide lamp 250 W (Guaranteed life span: 2,000 hours or 6 months from date of purchase, whichever comes first.)
Image Size	20-300 inches diagonal
Projection Distance	3.28 – 40.03 ft (1.0 – 12.2 m)
Light Output	550 ANSI lumens
Contrast Ratio	Greater than 200 : 1
Color Temperature	8,500 ± 1500 Kelvin

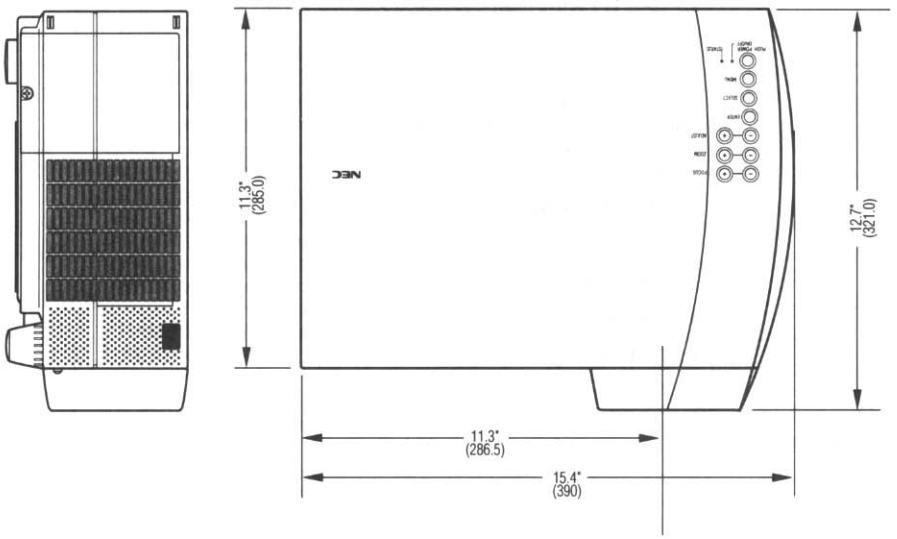
Electrical

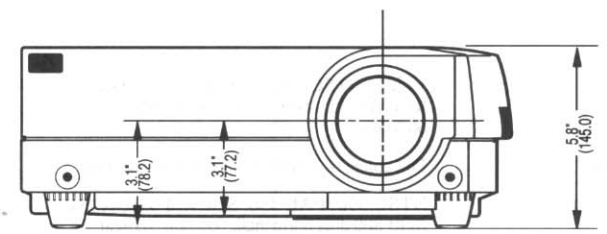
Inputs	Video (NTSC / PAL / SECAM / NTSC4.43) RGB (H : 15 – 60 kHz, V : 50 – 85 Hz)
Video Bandwidth	60 MHz
Color Reproduction	Full color, 16.7 million colors simultaneously.
Horizontal Resolution	NTSC 550, PAL 350, SECAM 350, NTSC4.43 350, TV lines RGB 800 dots horizontal, 600 dots vertical
Power Requirement	100 – 120 / 220 – 240 VAC, 50 / 60 Hz
Input Current	5.8 A

Mechanical

Dimensions	15.4" (W) × 5.8" (H) × 12.7" (D) 39.0 cm (W) × 14.5 cm (H) × 32.1 cm (D)
Net Weight	15.6 lbs / 7.1 kg
Operational Temperatures	LCD projector: 32° – 104°F(0° to 40°C), 20 – 80% humidity Remote control: 32° – 140°F (0° to 60°C) Remote mouse receiver: 32° – 140°F (0° to 60°C)
Regulations	UL Approved (UL 1950, CSA 950) Meets DOC Canada requirements Meets FCC Class A requirements

Cabinet Dimensions





Unit : inch (mm)

75

SPECIFICATIONS 76

D-Sub Pin Assignments

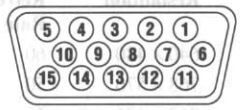
PC 15-Pin mini D-Sub

Pin No.	Signal to be connected
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	No Connection
10	Digital GND
11	GND
12	No Connection
13	Horizontal Sync
14	Vertical Sync
15	No Connection

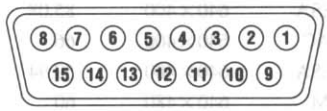
Macintosh 15-Pin D-Sub

Pin No	Signal to be connected
1	Red GND
2	Red
3	Horizontal Sync
4	GND
5	Green
6	Green GND
7	No Connection
8	No Connection
9	Blue
10	No Connection
11	GND
12	Vertical Sync
13	Blue GND
14	No Connection
15	No Connection

PC 15-Pin mini D-Sub



Macintosh 15-Pin D-Sub



Timing Chart

Y/N	Signal	Resolution	Refresh Rate (Hz)	F.H. (kHz)	Dot Clk(MHz)
Y	NTSC	640×480	60	15.734	-
Y	PAL	768×576	50	15.625	-
Y	SECAM	768×576	50	15.625	-
Y	VESA	640×350	85.08	37.86	31.5
Y	IBM	640×400	70	31.47	25.175
Y	VESA	640×400	85.08	37.86	31.5
Y	MAC	640×400	66	35	30.24
Y	VESA	640×480	59.94	31.47	25.175
Y	IBM	640×480	60	31.47	25.175
Y	MAC	640×480	60	31.47	25.175
Y	MAC	640×480	66.7	34.97	31.334
Y	MAC	640×480	66.67	35	30.24
Y	VESA	640×480	72.81	37.86	31.5
Y	VESA	640×480	75	37.5	31.5
Y	IBM	640×480	75	39.375	31.49
Y	VESA	640×480	85.01	43.269	36
Y	IBM	720×350	70.09	31.469	28.322
Y	IBM	720×400	70.09	31.4469	28.322
Y	VESA	720×400	85.04	37.927	40
Y	IBM	720×350	87.85	39.44	35.5
Y	IBM	720×400	87.7	39.375	35.5
Y	VESA	800×600	56.25	35.16	36
Y	VESA	800×600	60.32	37.879	40
Y	VESA	800×600	72.19	48.077	50
Y	VESA	800×600	75	46.88	49.5
Y	VESA	800×600	85.06	53.674	56.25
Y	MAC	832×624	74.55	49.725	57.283
N	VESA	1024×768	43interlace	35.5	44.9
#	VESA	1024×768	60	48.363	65
#	VESA	1024×768	70.07	57.476	75
#	IBM	1024×768	72.03	58.131	79
#	MAC	1024×768	74.93	60.241	80
#	VESA	1024×768	75.03	60.023	78.75
N	VESA	1024×768	85	68.677	94.5

Incompatible signals are listed "N" and hatched. # 1024x768 and 832x624 images are compressed into 800x600.

PC Control Command Reference

Command Codes

No.	Function	Code	Data	Description
01	Video	03H	No	Same as remote
02	RGB1	04H	No	Same as remote
03	RGB2	05H	No	Same as remote
04	S-VIDEO	C6H	No	Same as remote
05	Power On	08H	No	Same as remote (See NOTE on page 86.)
06	Power Off	14H	No	Same as remote
07	Picture Mute	47H	No	Same as remote
08	Audio Mute	45H	No	
09	Onscreen Mute	11H	No	
10	Power Zoom W	09H	No	Same as remote
11	Power Zoom T	0AH	No	Same as remote
12	Power Focus +	0BH	No	Same as remote
13	Power Focus –	0CH	No	Same as remote
14	Reset	43H	No	(Resets immediately after returning ACK)
15	D Up	DEH	No	Same as remote
16	D Down	DFH	No	Same as remote
17	D Right	DCH	No	Same as remote
18	D Left	DDH	No	Same as remote
19	Freeze	4CH	No	Same as remote
20	Slide +	4BH	No	Same as remote
21	Slide -	20H	No	Same as remote
22	Front Floor	33H	No	
23	Front Ceiling	34H	No	
24	Rear Floor	35H	No	
25	Rear Ceiling	36H	No	
26	Auto Start On	19H	No	
27	Auto Start Off	1AH	No	
28	Auto Picture On	1BH	No	
29	Auto Picture Off	1CH	No	

Command Codes (continued)

No.	Function	Code	Data	Description
30	Image mode Doc Cam	1DH	No	
31	Image mode Normal	1EH	No	
32	Image mode Natural	1FH	No	
33	Power Management On	15H	No	
34	Power Management Off	16H	No	
35	Digital Zoom W	89H	No	Same as remote
36	Digital Zoom T	8AH	No	Same as remote
37	Brightness	60H	Yes	0 to 63
38	Contrast	62H	Yes	0 to 63
39	Color	64H	Yes	0 to 63
40	Tint	66H	Yes	-32 to +31(E0 to 1F)
41	Sharpness	68H	Yes	0 to 3
42	Audio Volume	6AH	Yes	0 to 63
43	Picture Adj	70H	Yes	768 to 1279
44	Fine Picture	6EH	Yes	0 to 31
45	H Position	72H	Yes	-64 to 63 (C0 to 3F)
46	V Position	74H	Yes	-32 to +31(E0 to 1F)

NOTE: These commands are subject to change without notice.

47	D Right Up	21H	No	Same as remote
48	D Left Up	22H	No	Same as remote
49	D Right Down	23H	No	Same as remote
50	D Left Down	24H	No	Same as remote
51	Lamp Reset	27H	No	
52	Language Select	3DH	Yes	00 : English 01 : German 02 : French 03 : Italian 04 : Spanish 05 : Swedish

83

SPECIFICATIONS 84

Cable Connection

Communication Protocol

Baud rate:	**9600 bps**
Data length:	**8 bits**
Parity:	**No parity**
Stop bit:	**One bit**
X on/off:	**None**
Communications procedure:	**Full duplex**

If the CPU of the LCD projector has received the data correctly, it returns an ACK(C5H). If the received data is not correct, the CPU returns a NAK(CAH), then the following status:

Receiving success:	**C5**
Receiving failure:	**CA Err**
Err 01:	**Command Error (command nor supported)**
Err 02:	**Checksum Error**
Err 03:	**Busy (command not acceptable)**

85

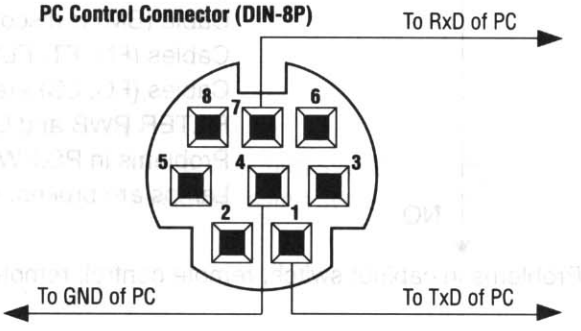
Err 04: **Parameter Error (parameter data abnormal)**

NOTE: If failing in powering-on, the CPU returns the following NAKs:

CA Err 1

Err 1 8X (Apply the corresponding bit.)

Bit 0: Either filter panel or lamp cover is not attached correctly
Bit 1: Fan stoppage
Bit 2: Overheated
Bit 3: Lamp lighting failure



TROUBLESHOOTING

1. Operation check

A certain degree of judgment can be performed for a problem, through operation check in normally operating state.
Prior to removing the top cover, make the following confirmation:

- Is the POWER indicator lit in orange color under the condition of standby?

NO → The power cord is disconnected.
The POWER switch is in OFF position.
Fuse (F1) of PS PWB has blown out.
Cable (PL) is disconnected.
Fuses (F5101 ~ 3) of MAIN PWB have blown out.

YES → Problem in CPU-related circuit of MAIN PWB.

- Is the POWER indicator lit in green color with power ON?

YES → Lamp's life expired (STATUS indicator lit).
I/O PWB or MAIN PWB defect.
Cables (MI, FR, FG, FB) are disconnected.
LC panel is defective.

NO

- Is the STATUS indicator flashing?

YES → Failure in lamp's lighting. (Blinks in 1/12 Hz.)
Fan cover or lamp cover is displaced. (Blinks in 1Hz.)
There is net clogging in the air filter. (Blinks in 1/4 Hz.)
Deviation of working ambient temperature. (Blinks in 1/4 Hz.)
Fan error or fan stop due to foreign substance. (Blinks 1/8 Hz.)
Cable (LM) is disconnected. (Blinks in 1/12 Hz.)
Cable (BM) is disconnected. (Blinks in 1/4 Hz.)
Cables (FN, FT, FL) are disconnected. (Blinks in 1/8 Hz.)
Cables (FC, LC) are disconnected. (Blinks in 1 Hz.)
FILTER PWB and LAMP PWB are defective. (Blinks in 1 Hz.)
Problems in PS PWB, BALLAST PWB, and CPU peripheral.
Lamps are broken. (Blinks in 1/12 Hz.)

NO

- Problems in cabinet switch, remote control, remote control receiver, and CPU peripheral circuits.

2. Power supply block

Problems in power-related blocks can cause no picture generation, no supply of power to each PWB, no lighting of lamps, no turning of fans, no operation of power zoom/power focus, and other problems.
When a problem arises, examine if it is in the power supply, then check PS and BALLAST in this order.

*** PS PWB**

- Is there AC input at CP1?
  NO → Poor connections around AC input terminals or CP1 connector.

- Is F1 open?
  YES → Replace the fuse.

- Is there a DC output of about 300V (280V ~ 320V) at W1 (Connected to CP1 of BALLAST PWB)?
  NO → Problems in IC1, CR1.

- Are posistors R3 and R4 open?
  YES → Replace the posistors.

- Are the following output voltage available at each connector?
  NO → Problem in PS PWB.

CP101 (Connected to CP3 of BALLAST PWB)

PIN No.	Standby	Power ON	Related circuits
1	GND	GND	+18V system GND
2	+18V	+18V	BALLAST PWB control system
4	+12V	+12V	BALLAST PWB control system
5	GND	GND	12V system GND

NO → Problem in PS PWB.

CP51 (Connected to PL of MAIN PWB)

PIN No.	Standby	Power ON	Related circuits
1	+3.3V	+3.3V	G/A, VRAM
2	—	+5V	VIDEO signal processing system, LC driving system
3	—	+5V	VIDEO signal processing system, LC driving system
4	GND	GND	AGND
5	GND	GND	DGND
6	GND	GND	DGND
7	+5V	+5V	CPU, CPU peripheral, RADMIC
8	GND	GND	DGND
9	—	–5V	LC driving system
10	GND	GND	AGND

NO → Problem in PS PWB.

CP52 (Connected to PM of MAIN PWB)

PIN No.	Standby	Power ON	Related circuits
1	—	+10V	POWER ON control
2	GND	GND	AGND
3	GND	GND	AGND
4	—	+17.5V	LC driving system
5	—	+12V	VIDEO signal processing system, LC driving system, external power supply

6	+10V	+10V	Fan
7	GND	GND	AGND

NO → Problem in PS PWB.

- Problems in other there is only one PS PWB.
  Poor soldering and/or cracks in PWB

*** BALLAST PWB**

- Is there ignition sound generated when lighting lamps?
  YES → Problems other than BALLAST PWB (Lamp may be defective.)

- Is there a DC input of about 300V (280V ~ 320V) at CP1?
  NO → Poor connections in CP1 connectors. Problems in PS PWB.

- Are the following input voltages available at CP3 (connected to CP101 of PS PWB)?
  NO → Problem in CP3 connector connections. Problem in PS PWB.

PIN No.	Standby	Power ON	Related circuits
1	GND	GND	+12V system GND
2	+12V	+12V	BALLAST PWB control system
3	—	—	NC
4	—	—	NC
5	+18V	+18V	BALLAST PWB control system
6	GND	GND	+18V system GND

NO → Problem in CP3 connector connections. Problem in PS PWB.

- Are the following I/O voltages present at CP2 (connected to LM of MAIN PWB)?
  NO → Poor connections in CP2 connector. Problems in BALLAST PWB and MAIN PWB.

PIN No.	Standby	Power ON	Related circuits
1	GND	GND	GND
2	0V	+1V	Lamp lighting circuit
3	GND	GND	GND
4	+5V	0V	Detection of no lamp lighting

NO → Poor connections in CP2 connector. Problems in BALLAST PWB and MAIN PWB.

- Other problems in BALLAST PWB.
  Poor soldering and/or cracks in PWB

3. MAIN PWB

- Are any of F5101, F5102, F5103 open?
  YES → Replace the broken fuse(s).

- Are the following input signals present at MI (connected to IM of I/O PWB)? (See waveform diagrams.)
  NO → Poor connections in MI connector. Problem in BALLAST PWB.

PIN No.	For VIDEO input	For S-VIDEO input	For RGB input
2	Video signal (1Vpp)	—	—
4	—	Y-signal (0.7Vpp)	—
6	—	C-signal (0.3Vp-p)	—
9	—	—	R-signal (0.7Vp-p)
11	—	—	G-signal (0.7Vp-p)
13	—	—	B-signal (0.7Vp-p)
25	—	—	Vertical sync signal (5V)
27	—	—	Horizontal sync signal (5V)

  NO → Poor connections in MI connector. Problem in BALLAST PWB.

- Are the following output signals present at FR, FG, and FB (connected to LC panel)? (See waveform diagrams.)
  YES → Problem in LC panel.

PIN No.	Output signal
1, 30	Y-shift register start pulse (DY)
2~3	Y-shift register transfer clock
5	Pre-charge timing signal
6, 25	Flicker adjusting electrode
7, 17	X-shift register start pulse
8~15	X-shift register transfer clock
19~24	6-phase decoding video signal
26~27	Pre-charge level signal

  YES → Problem in LC panel.

- Problems in other there is only one MAIN PWB
  Poor soldering and/or cracks in PWB

4. I/O PWB

- Are the following input voltages present at MI (connected to MI of MAIN PWB)?

  NO → Poor connections in IM connector. Problems in MAIN PWB and PS PWB.

PIN No.	Standby	Power ON	Related circuits
1	GND	GND	AGND
2	—	+12V	External power supply
3	—	+12V	External power supply
4	GND	GND	AGND
5	GND	GND	AGND
6	—	+5V	VIDEO signal processing system
7	GND	GND	AGND
8	+5V	+5V	Remote control, plug, and play
9	GND	GND	AGND
10	—	+12V	VIDEO signal processing system
11	—	+12V	VIDEO signal processing system
12	GND	GND	AGND

  NO → Poor connections in IM connector. Problems in MAIN PWB and PS PWB.

- Are the following output signals present at IM (connected to MI of MAIN PWB)? (See waveform diagrams.)

  NO → Problem in I/O PWB.

PIN No.	For VIDEO input	For S-VIDEO input	For RGB input
49	Video signal (1Vpp)	—	—
47	—	Y-signal (0.7Vpp)	—
45	—	C-signal (0.3Vp-p)	—
42	—	—	R-signal (0.7Vp-p)
40	—	—	G-signal (0.7Vp-p)
38	—	—	B-signal (0.7Vp-p)
26	—	—	Vertical sync signal (5V)
24	—	—	Horizontal sync signal (5V)

  NO → Problem in I/O PWB.

- Problems in other I/O PWBs

  Poor soldering and/or cracks in PWB