

NP110/115/215/216 Installation Guide

Ceiling Mounted and Desktop

Rev 1.0

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Product Description

Type:	1-chip DLP projector, 0.55" DLP	Brightness:	NP110: 2200 ANSI Lumens NP115: 2500 ANSI Lumens NP215/NP216: 2500 ANSI Lumens
Resolution:	NP110/115: 800 x 600 NP215/NP216: 1024 x 768	Fan Noise:	34dB / 31dB @ 1 meter
Dimensions:	12.2" (W) x 3.7" (H) x 9.7" (D)	Weight:	NP110/115/215: 5.5 lbs NP216: 5.7lbs.
Power Consumption:	242W (max)	BTU's:	825 BTU/hour

Lens Specifications

Throw Ratio:	1.9 – 2.1:1 (for 100" diagonal)	Focal Length:	21.8mm – 24.0mm
Offset Angle:	12.7° - 14.0° (for 100" diagonal)	F/#:	2.41 - 2.55
Screen Sizes:	30" - 300" diagonal (4:3)	Manual Focus/Manual Zoom	

Notes

- For screen sizes not indicated on the projection tables, use the formulas below.
If the figures on the tables do not match the results of formulas, use the figures in the table.
- All calculations are based on a 4:3 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary $\pm 5\%$.

Formulas

The Projection Formulas use the image width for calculation. For proper projection placement, determine the image width for the desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the width for "W" in the Projection Formulas.

Refer to the diagrams and charts for popular screen sizes on page 2:

Definitions:

W = Image Width
H = Image Height (size)
B = Vertical distance between lens center and screen center
C = Throw distance
D = Vertical distance between lens center and screen top
(screen bottom for desktop application)

4:3 Screen Formulas:

W = H x 4/3
H = W x 3/4
Screen Diagonal = W x 5/4

Projection Formulas:

B = 0.487W
C (wide) = 1.94W
C (tele) = 2.165W
D = 0.112W
 α (wide) = \tan^{-1} (B/C(wide))
 α (tele) = \tan^{-1} (B/C(tele))

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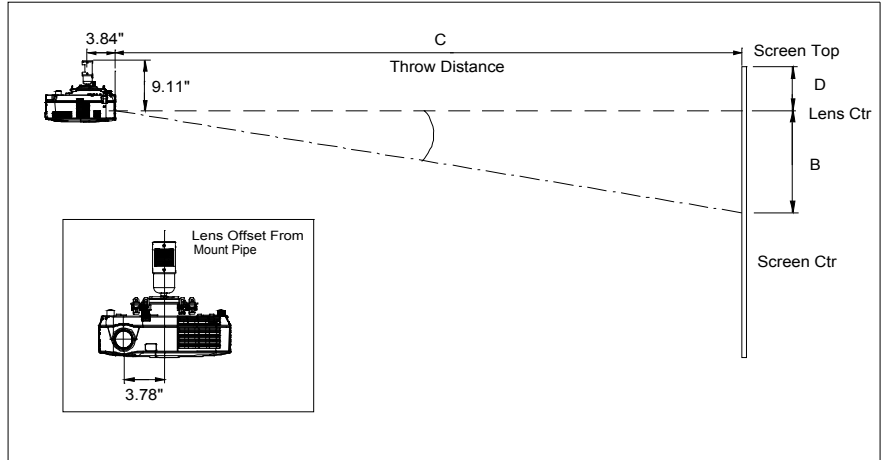
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Diagrams and Distance Charts

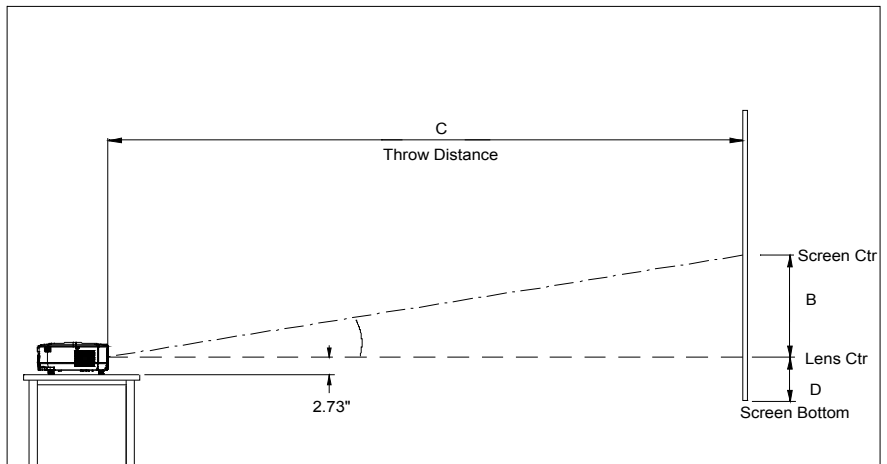
The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distances are in inches. For millimeters multiply by 25.4.

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Desktop



Distance Chart for popular 4:3 screens

Screen Size (4:3)			B	C		D	α	
Diagonal	Width(W)	Height (H)		wide - tele			wide - tele	
inches	inches	inches	inches	inches		inches	degrees	
30	24	18	12	47	- 52	3	14.0	- 12.7
60	48	36	23	93	- 104	5	14.0	- 12.7
67	53.6	40.2	26	104	- 116	6	14.0	- 12.7
72	57.6	43.2	28	112	- 125	7	14.0	- 12.7
84	67.2	50.4	33	130	- 145	8	14.0	- 12.7
90	72	54	35	140	- 156	8	14.0	- 12.7
100	80	60	39	155	- 173	9	14.0	- 12.7
120	96	72	47	186	- 208	11	14.0	- 12.7
150	120	90	59	233	- 260	14	14.0	- 12.7
180	144	108	70	279	- 312	16	14.0	- 12.7
210	168	126	82	326	- 364	19	14.0	- 12.7
240	192	144	94	372	- 416	22	14.0	- 12.7
270	216	162	106	419	- 468	24	14.0	- 12.7
300	240	180	117	466	- 520	27	14.0	- 12.8

Note: For screen sizes not indicated on the projection tables, use the formulas on page 1.

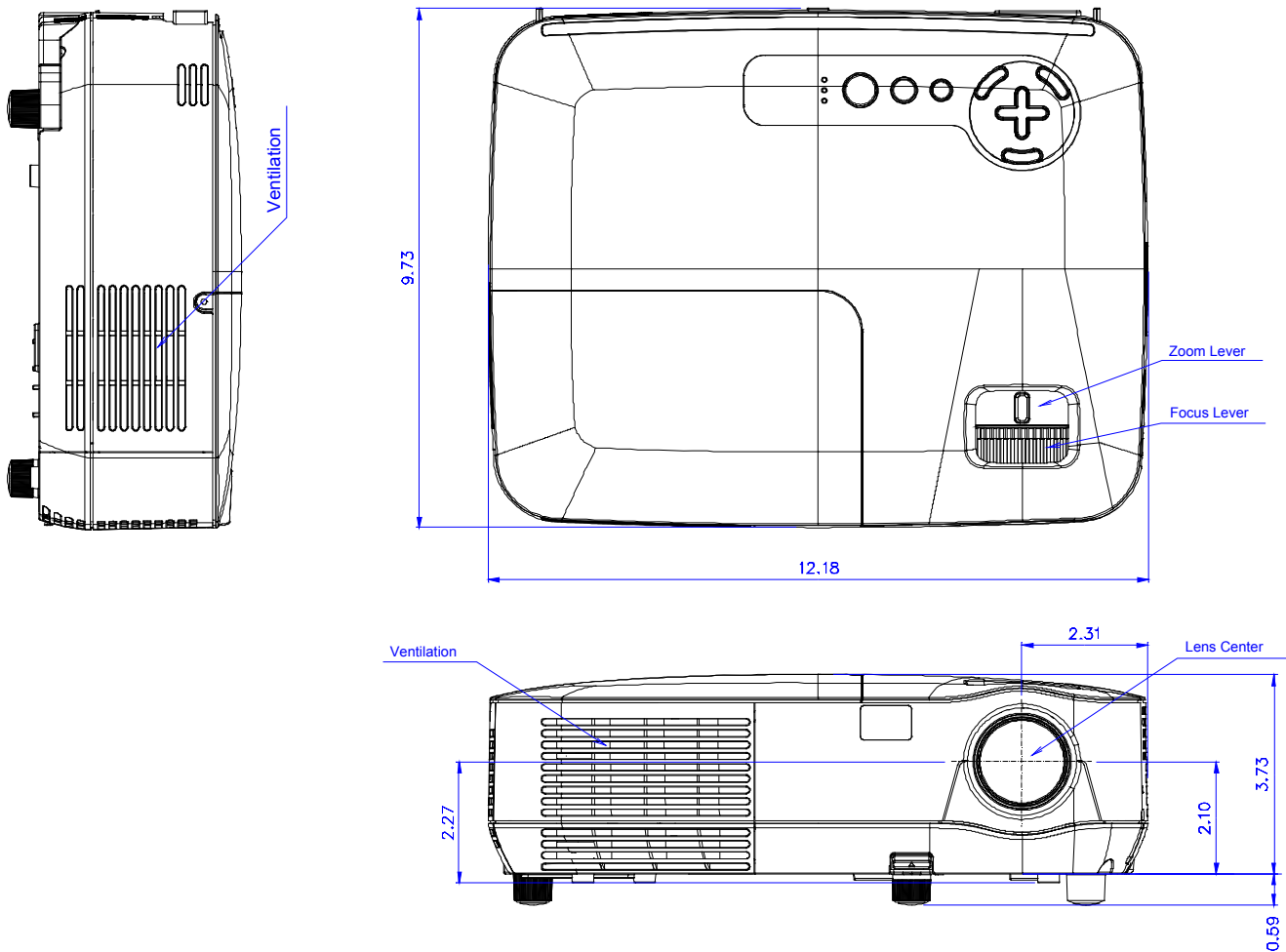
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Cabinet Dimensions

The following drawings show the cabinet dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.



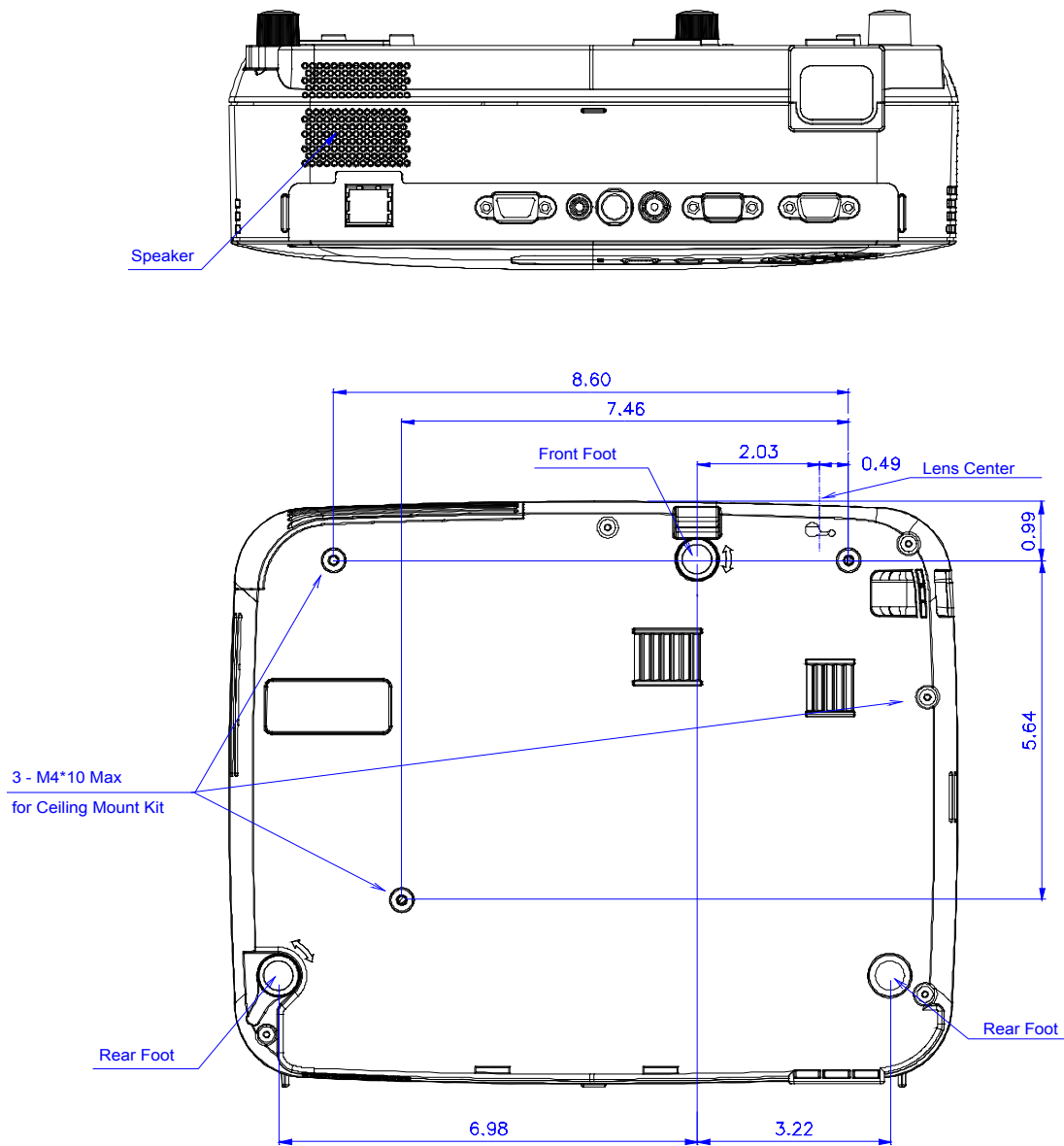
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Cabinet Dimensions (NP110/NP115/NP215)

The following drawings show the cabinet dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.



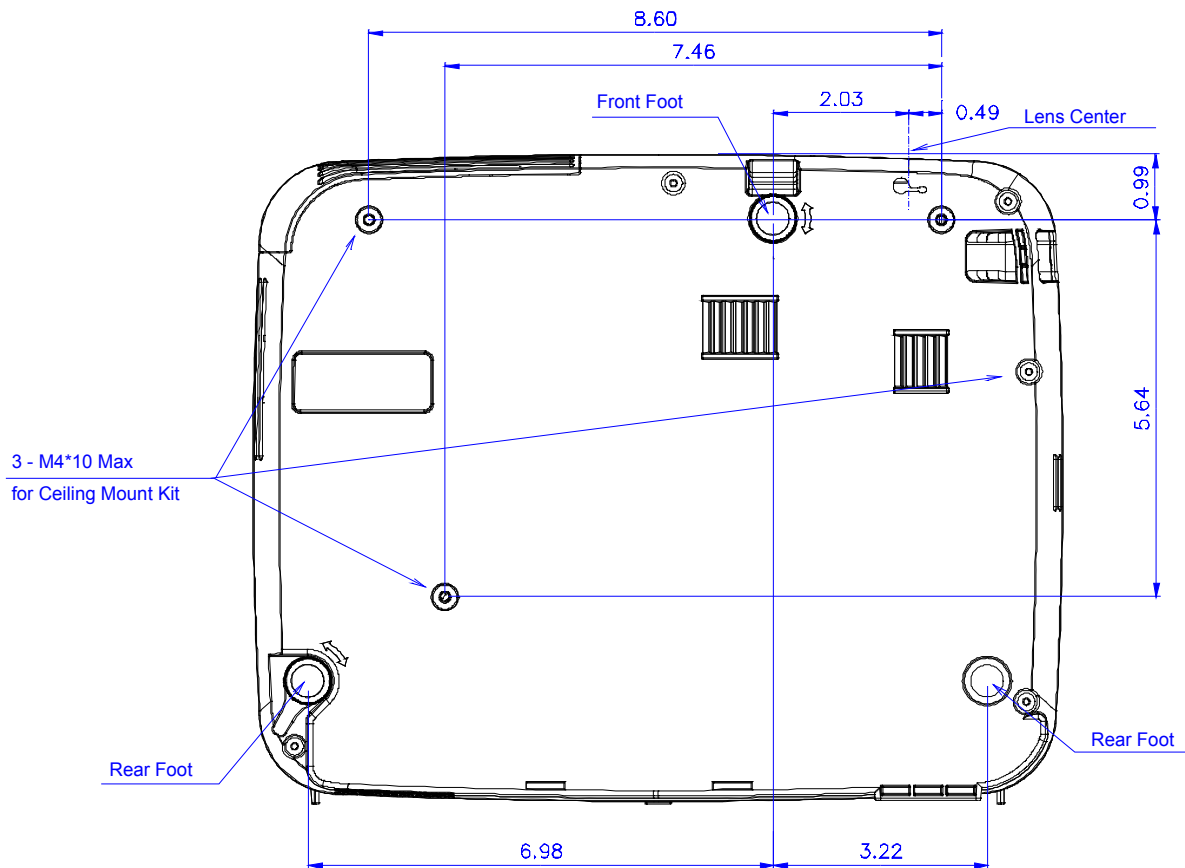
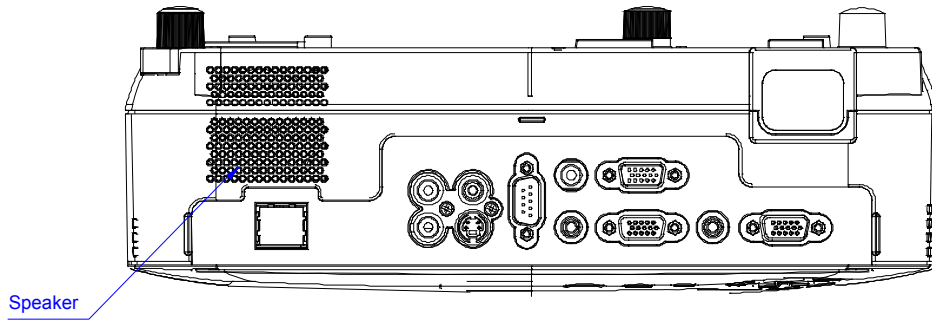
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Cabinet Dimensions (NP216)

The following drawings show the cabinet dimensions. Dimensions are in inches. For millimeters multiply by 25.4.



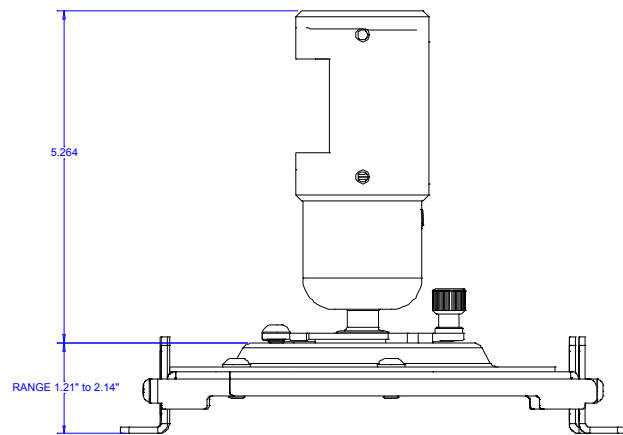
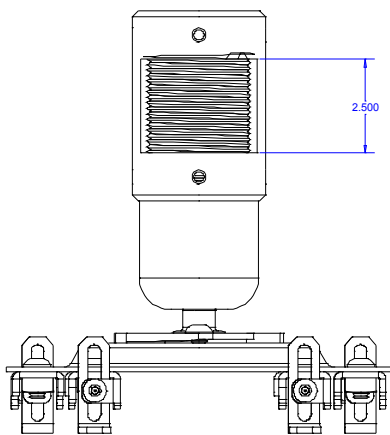
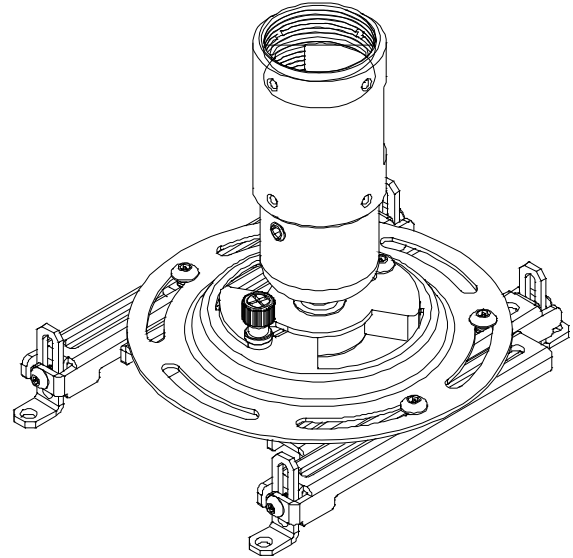
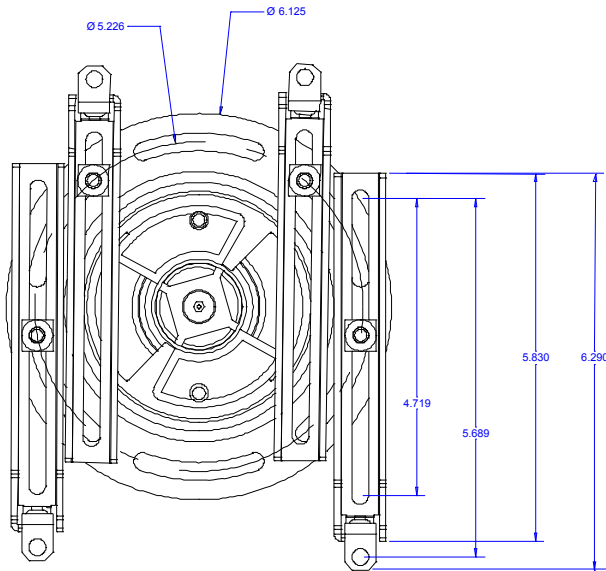
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Optional Ceiling Mount Dimensions (Model #: NP01UCM)

The following drawings show the ceiling mount dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.



Model: NP01UCM

Units: Inches

Scale 1:1

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Input Panel NP110/115



Input Panel NP215



Input Panel NP216



PC Control Codes

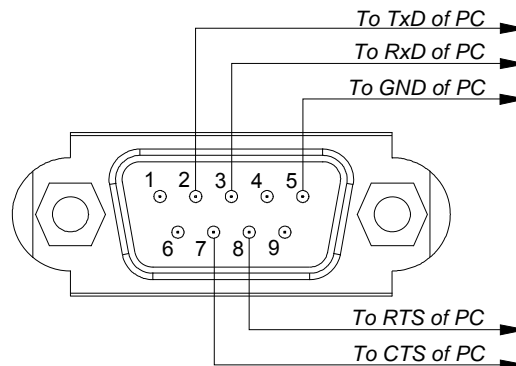
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT COMPUTER2 (NP216 only)	02H 03H 00H 00H 02H 01H 02H 10H
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT S-VIDEO	02H 03H 00H 00H 02H 01H 0BH 13H
PICTURE MUTE ON	02H 10H 00H 00H 00H 12H
PICTURE MUTE OFF	02H 11H 00H 00H 00H 13H
SOUND MUTE ON	02H 12H 00H 00H 00H 14H
SOUND MUTE OFF	02H 13H 00H 00H 00H 15H
PROJECTOR INFORMATION REQUEST	00H BFH 00H 00H 01H 02H C2H
ERROR STATUS REQUEST	00H 88H 00H 00H 00H 88H
INFORMATION REQUEST	03H 8AH 00H 00H 00H 8DH

Note: Contact your NEC rep for codes not listed.

Cable Connection

Communication Protocol:

Baud Rate: 38400 bps
 Data Length: 8 bits
 Parity: No Parity
 Stop Bit: One Bit
 X on/off: None
 Communications: Full duplex



PC Control Connector (D-Sub 9P)

NOTE 1 : Pins 1, 4, 6, and 9 are used inside the projector.

NOTE 2 : For long cable runs it is recommended to set communication speed within the projector to 9600 bps.

NOTE 3 : Jumper "Request to Send" and "Clear to Send" together on both ends of the cable to simplify cable connection.