NEC

NEC Display Solutions of America, Inc.

NP510WS Installation Guide
Ceiling Mounted and Desktop   Rev 1.3

Contents

Product Description

Type:	3 panel LCD projector, 0.59" p-Si TFT w/MLA	Dimensions:	12.1" (W) x 5.4" (H) x 11.9" (D)
		Weight:	7.3 lbs
Resolution:	1280 x 800 (16:10) / 1066 x 800 (4:3)	Brightness:	2100 Lumens
Fan Noise:	35 dB / 29dB @ 1 meter	Network Ready:	RJ45
Power Consumption:	312W (max)	BTU's:	1065 BTU/hour

Lens Specifications

Throw Ratio:	0.74:1 (for 94" diagonal)	Focal Length:	9.7mm
Offset Angle:	29.1° (for 94" diagonal)	F/#:	2.3
Screen Sizes:	57" - 104" diagonal (16:10)	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 16:10 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±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)

16:10 Screen Formulas:

W = H x 16/10

H = W x 10/16

Screen Diagonal = W x 18.868/16

Projection Formulas:

B = 0.418W

C = 0.74W

D = 0.1W

α = $\tan^{-1}$ (B/C)
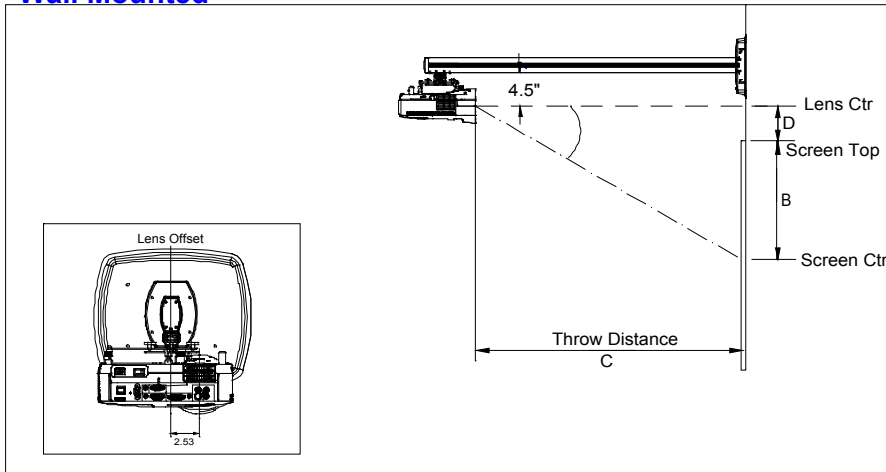
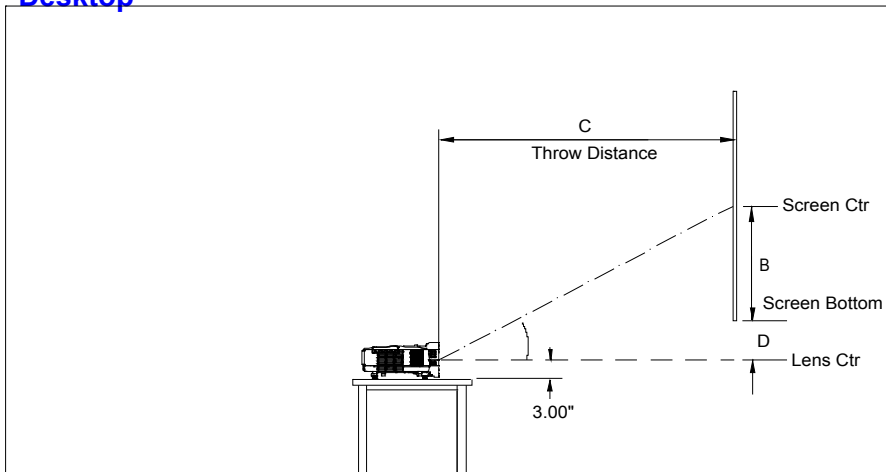## Diagrams and Distance Charts

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.

Wall Mounted

Desktop

Distance Chart for popular 16:10 screens

Popular Interactive White Board screen size highlighted in Blue

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

| Image Size (16:10) on a (16:10) screen			B	C	D	α
Diagonal	Width(W)	Height (H)				
inches	inches	inches	inches	inches	inches	degrees
57	48	30	20	36	5	29.3
66	56	35	23	41	6	29.3
68	58	36	24	43	6	29.3
75	64	40	27	47	6	29.2
79	67	42	28	50	7	29.2
85	72	45	30	53	7	29.1
87	**74**	**46**	**31**	**54**	**7**	**29.1**
92	78	49	33	58	8	29.1
94	80	50	33	59	8	29.1
104	88	55	37	65	9	29.1

NP510WS Installation Guide
Ceiling Mounted and Desktop

Cabinet Dimensions

The following drawings show the cabinet dimensions.
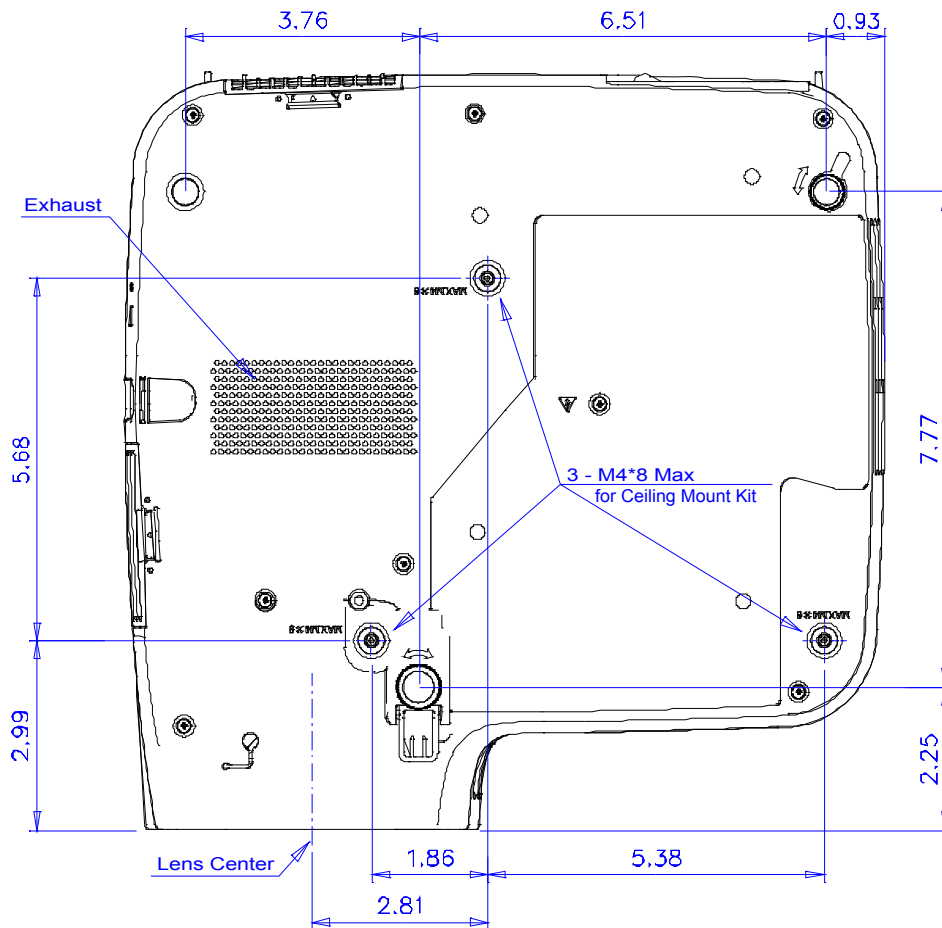Dimensions are in inches. For millimeters multiply by 25.4.
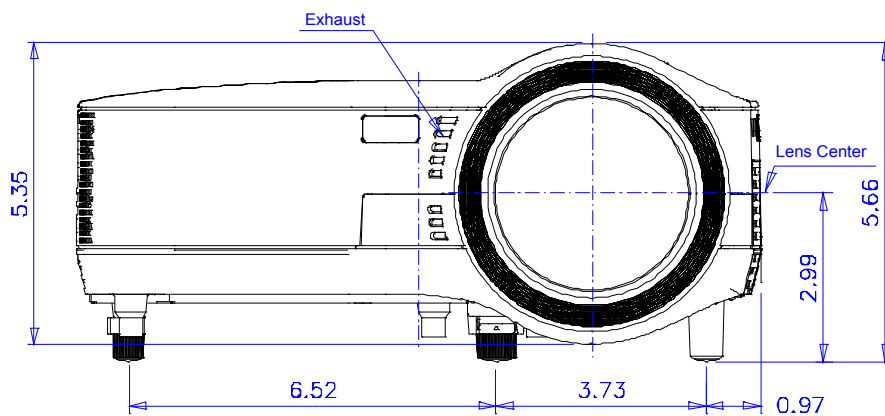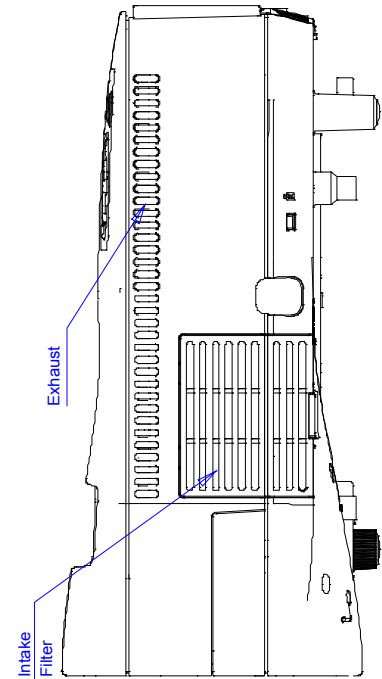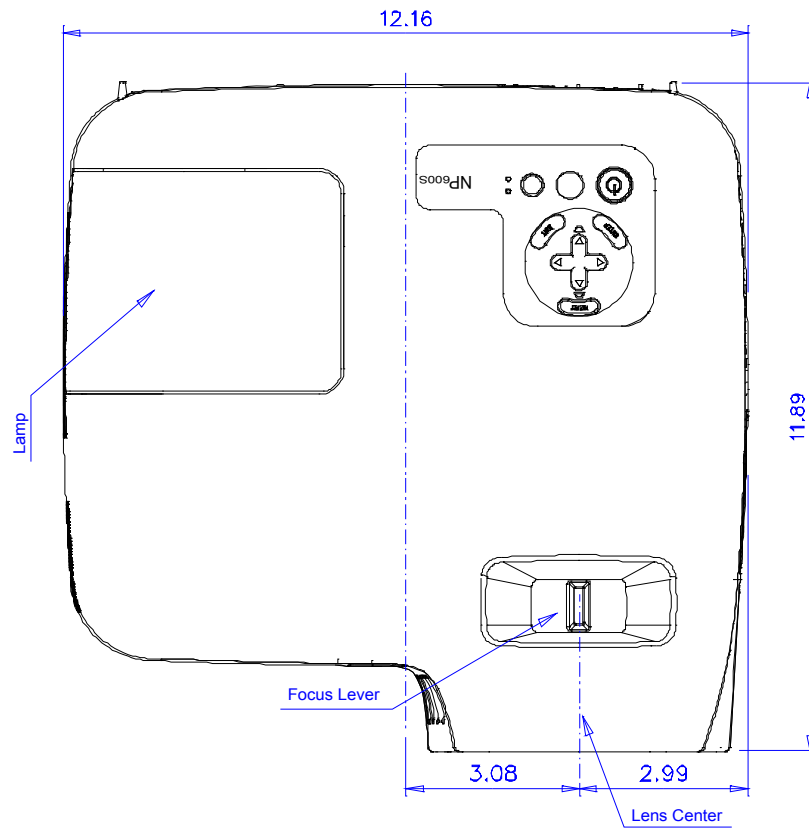
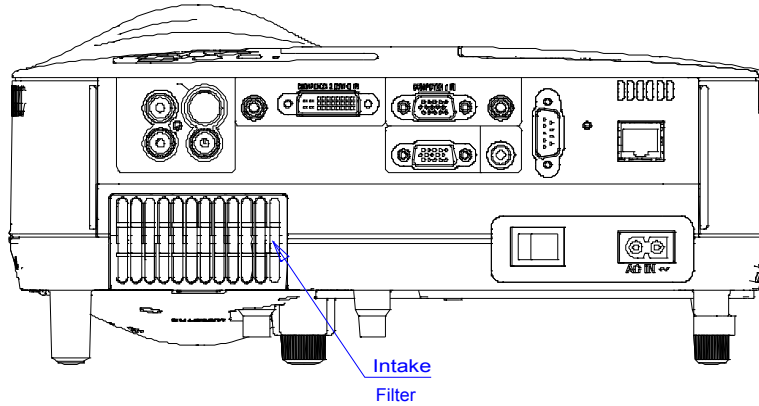# NP510WS Installation Guide
Ceiling Mounted and Desktop

Cabinet Dimensions (continued)

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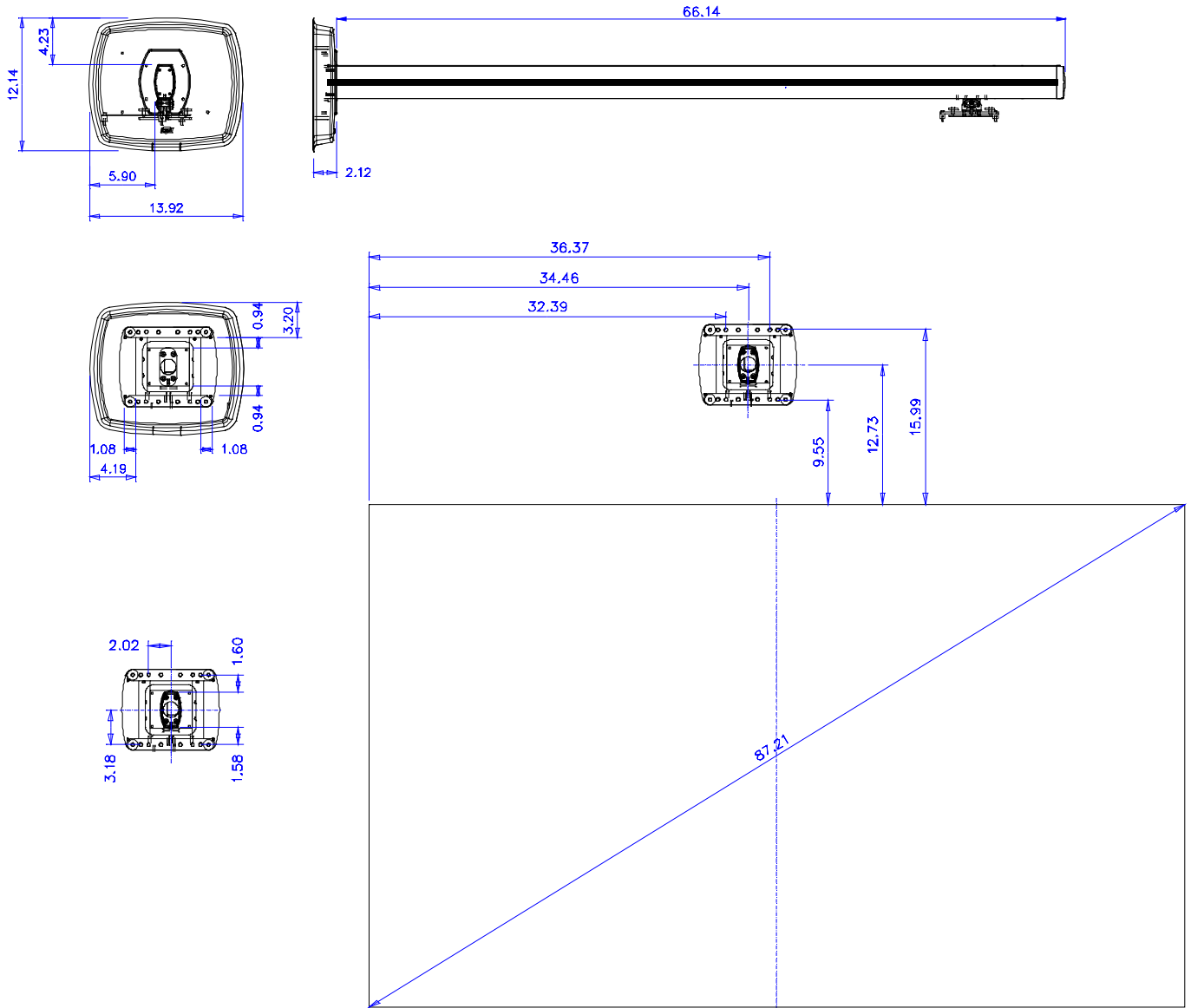Dimensions are in inches. For millimeters multiply by 25.4.

Intake
Filter

3.76   6.51   0.93

Exhaust

5.68

2.99

7.77

3 - M4*8 Max
for Ceiling Mount Kit

2.25

Lens Center

1.86   5.38

2.81

NP510WS Installation Guide
Ceiling Mounted and Desktop

Optional Wall Mount Dimensions (Model #: NPSTWM)
The following drawings show the ceiling mount dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.

NP510WS Installation Guide
Ceiling Mounted and Desktop

Optional Ceiling Mount Dimensions (Model #: NP600CM)

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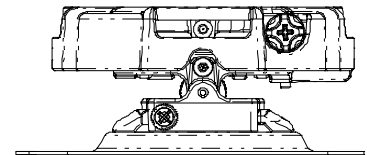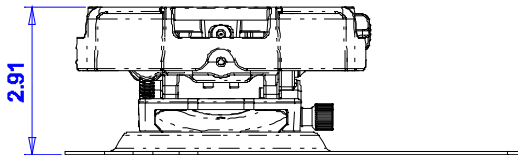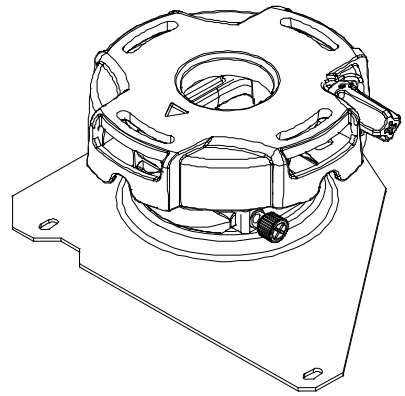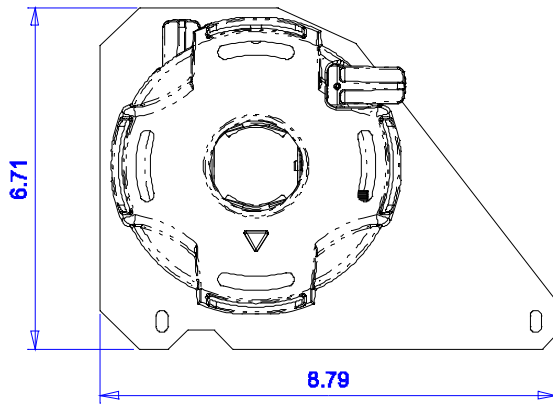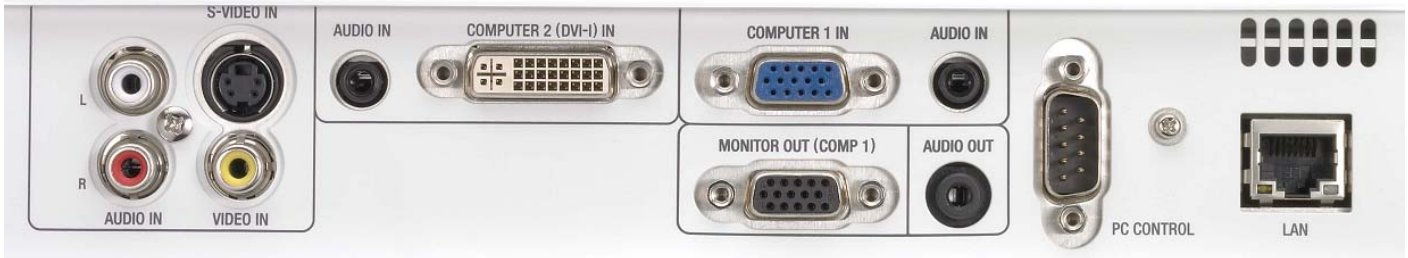Dimensions are in inches. For millimeters multiply by 25.4.

Input /Output Panel

PC Control Codes

Function	Code Data						
POWER ON	02H	00H	00H	00H	00H	02H	
POWER OFF	02H	01H	00H	00H	00H	03H	
INPUT SELECT COMPUTER	02H	03H	00H	00H	02H	01H	01H	09H
INPUT SELECT VIDEO	02H	03H	00H	00H	02H	01H	06H	0EH
INPUT SELECT S-VIDEO	02H	03H	00H	00H	02H	01H	0BH	13H
INPUT SELECT DVI (DIGITAL)	02H	03H	00H	00H	02H	01H	1AH	22H
INPUT SELECT DVI (ANALOG)	02H	03H	00H	00H	02H	01H	02H	0AH
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:	19200 bps
Data Length:	8 bits
Parity:	No Parity
Stop Bit:	One Bit
X on/off:	None
Communications:	Full duplex

To TxD of PC
To RxD of PC
To GND of PC

1 2 3 4 5
6 7 8 9

To RTS of PC
To CTS of PC
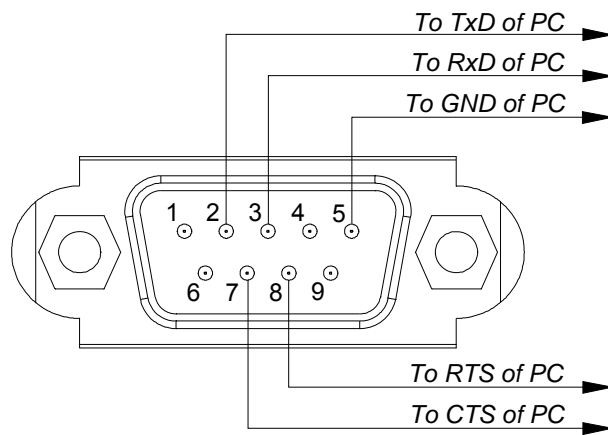
PC Control Connector (D-Sub 9P

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.