

# Projection Display

## Serial Interface Specification

Version: **1.6**



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## 1. RS232 Setting

Baud rate:	<b>9600</b>
Parity check:	<b>None</b>
Data bit:	<b>8</b>
Stop bit:	<b>1</b>
Flow Control	<b>None</b>

Minimum delay for next command: **1 ms**

## 2. Control Command Structure

The command is structured by the Header code, command code, data code and end code. Most of the commands are structured except some for the compatibility issue with other projectors.

	<b>Header code</b>	<b>Command code</b>	<b>Data code</b>	<b>End code</b>
HEX	7Eh	Command	Data	0Dh
ASCII	'~'	Command	Data	CR

## 3. Control Sequence

The projector may send a return code after it received a command. If the command isn't received correctly, the projector will not send the return code

## 4. Operation Command

The operation commands execute the basic operation setting of this projector.

Operation	ASCII	HEX
Power On	~ P N CR	7Eh 50h 4Eh 0Dh
Power Off	~ P F CR	7Eh 50h 46h 0Dh
Auto Image	~ A I CR	7Eh 41h 49h 0Dh
Input Select RGB	~ S R CR	7Eh 53h 52h 0Dh
Input Select RGB2	~ S G CR	7Eh 53h 47h 0Dh
Input Select DVI	~ S D CR	7Eh 53h 44h 0Dh
Input Select Video	~ S V CR	7Eh 53h 56h 0Dh
Input Select S-Video	~ S S CR	7Eh 53h 53h 0Dh
Input Select Component	~ S Y CR	7Eh 53h 59h 0Dh
Input Select Wireless	~ S W CR	7Eh 53h 57h 0Dh

Power On command will not work for 1 minute after the power off command triggered.

**CR**: Carriage Return.

## 5. Remote Command

The remote commands simulate the code send from IR remote handset.

Button's name	ASCII	HEX
UP arrow	~ r U CR	7Eh 72h 55h 0Dh
DOWN arrow	~ r D CR	7Eh 72h 44h 0Dh
LEFT arrow	~ r L CR	7Eh 72h 4Ch 0Dh
RIGHT arrow	~ r R CR	7Eh 72h 52h 0Dh
POWER	~ r P CR	7Eh 72h 50h 0Dh
EXIT	~ r E CR	7Eh 72h 45h 0Dh
INPUT	~ r I CR	7Eh 72h 49h 0Dh
AUTO	~ r A CR	7Eh 72h 41h 0Dh
KEYSTONE+	~ r K CR	7Eh 72h 4Bh 0Dh
KEYSTONE-	~ r J CR	7Eh 72h 4Ah 0Dh
MENU	~ r M CR	7Eh 72h 4Dh 0Dh
STATUS	~ r S CR	7Eh 72h 53h 0Dh
MUTE	~ r T CR	7Eh 72h 54h 0Dh
ZOOM+	~ r Z CR	7Eh 72h 5Ah 0Dh
ZOOM-	~ r Y CR	7Eh 72h 59h 0Dh
BLANK	~ r B CR	7Eh 72h 42h 0Dh
FREEZE	~ r F CR	7Eh 72h 46h 0Dh
VOLUME+	~ r V CR	7Eh 72h 56h 0Dh
VOLUME-	~ r W CR	7Eh 72h 57h 0Dh
Enter	~ r N CR	7Eh 72h 4Eh 0Dh

## 6. Set Value Command

ITEM	ASCII	HEX
Brightness	~ s B ? CR	7Eh 73h 42h ?h 0Dh
Contrast	~ s C ? CR	7Eh 73h 43h ?h 0Dh
Color	~ s R ? CR	7Eh 73h 52h ?h 0Dh
Tint	~ s N ? CR	7Eh 73h 4Eh ?h 0Dh
Scaling	~ s A ? CR	7Eh 73h 41h ?h 0Dh
Color Temperature	~ s T ? CR	7Eh 73h 54h ?h 0Dh
Projection Mode	~ s J ? CR	7Eh 73h 4Ah ?h 0Dh

? : ASCII Data

## Data Range

ITEM	Set Data Range	Source
Brightness	0 ~ 100	ALL
Contrast	0 ~ 100	ALL
Color	0 ~ 100	Video/S-Video/Component
Tint	0 ~ 100	Video/S-Video/Component
Scaling	0: 4:3 1: 16:9	ALL
Color Temperature	0: Cool 1: Normal 2: Warm	ALL
Projection Mode	0: Front 1: Rear 2: Rear+Ceiling 3: Ceiling	ALL

**Attention: Data range may be different for different models**

Example 1. Adjust Brightness value to 100

Send Command : ~sB100CR

Example 2. Adjust Color Temperature to Warm

Send Command : ~sT2CR

## 7. Query Command

ITEM	ASCII	HEX
Software Version	~qVCR	7Eh 71h 56h 0Dh
Power State	~qPCR	7Eh 71h 50h 0Dh
Input Select	~qSCR	7Eh 71h 53h 0Dh
Lamp Hours	~qLCR	7Eh 71h 4Ch 0Dh
Brightness	~qBCR	7Eh 71h 42h 0Dh
Contrast	~qCCR	7Eh 71h 43h 0Dh
Color (Video)	~qRCR	7Eh 71h 52h 0Dh
Tint (Video)	~qNCR	7Eh 71h 4Eh 0Dh
Scaling	~qACR	7Eh 71h 41h 0Dh
Color Temperature	~qTCR	7Eh 71h 54h 0Dh
Projection Mode	~qJCR	7Eh 71h 4Ah 0Dh

## Response message

ITEM	Response Message examples	
Software Version	.....	
Power State	On Off	
Input Select	RGB DVI Video S-Video Component DVD HDTV	
Lamp Hours	2000	
Brightness	100	
Contrast	100	
Color (Video)	100	
Tint (Video)	100	
Scaling	4:3 16:9	
Color Temperature	Cool Normal Warm User	
Projection Mode	Front Rear+Ceiling Rear Ceiling	

### Example 1. Get Brightness value

Send Command : ~qBCR

Response : 100

### Example 2. Get Color Temperature

Send Command : ~qTCR

Response : Warm

## 8. Hyper Terminal setting guide

8-1 Connect the RS232 Cable between your computer and Projector.

8-2 Open HyperTerminal ,

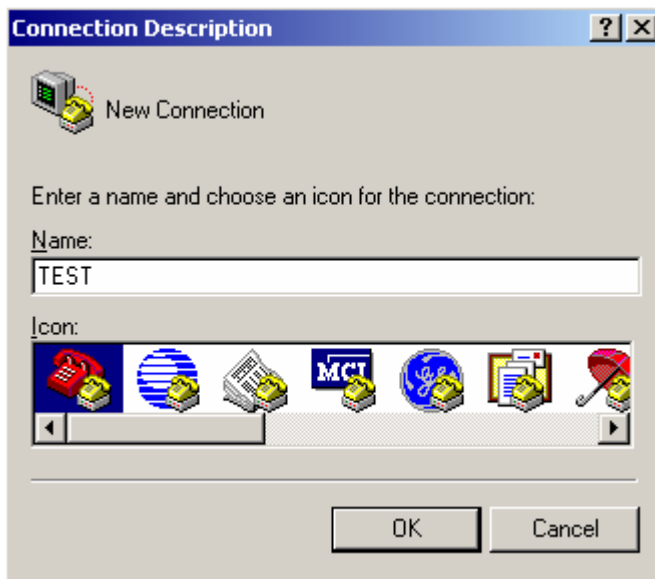
Window2000/XP HyperTerminal path :

Start \ Programs \ Accessories \ Communications \ HyperTerminal.



8-3 Setting the HyperTerminal parameter :

Step 1. Type the connection name .

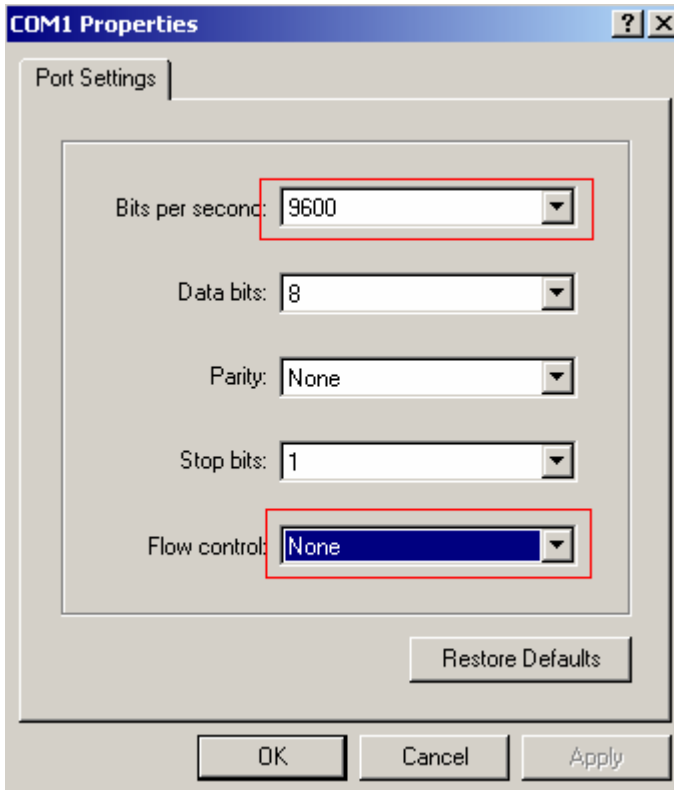




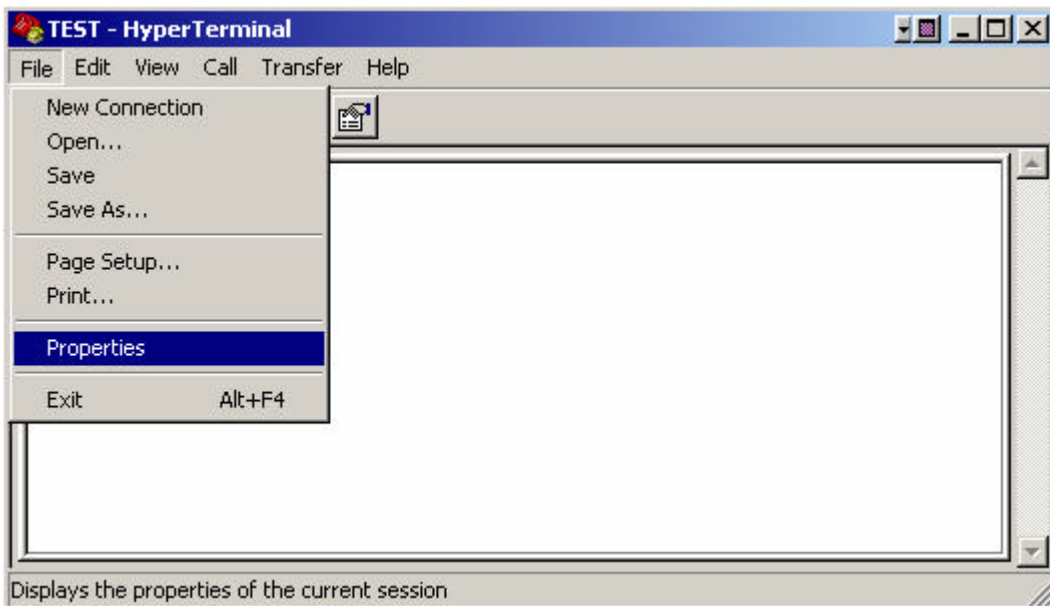
Step2 . Choose the COM port for your RS232 Cable connected to.



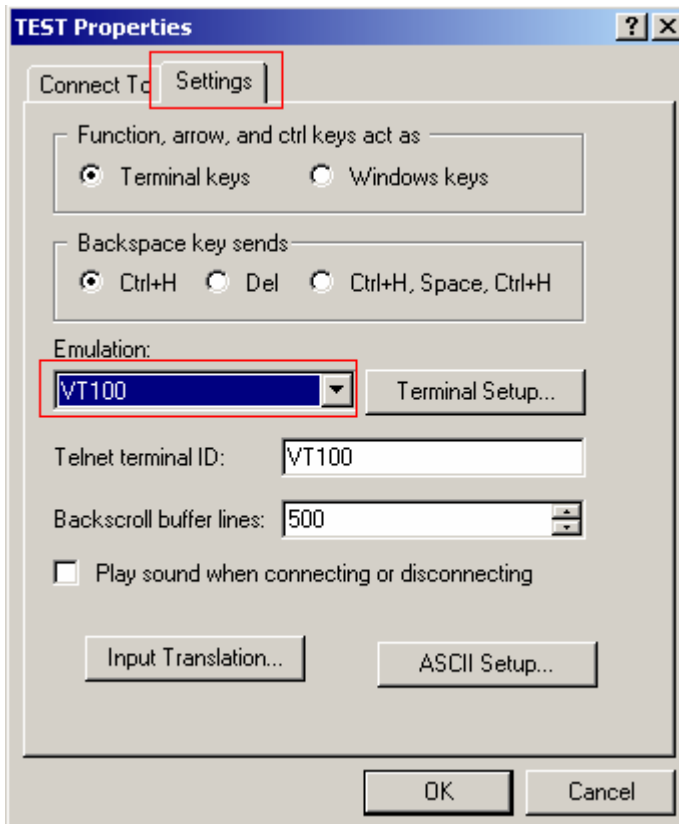
Step3. In Bits per second choose “9600” and in Flow control choose “None”.



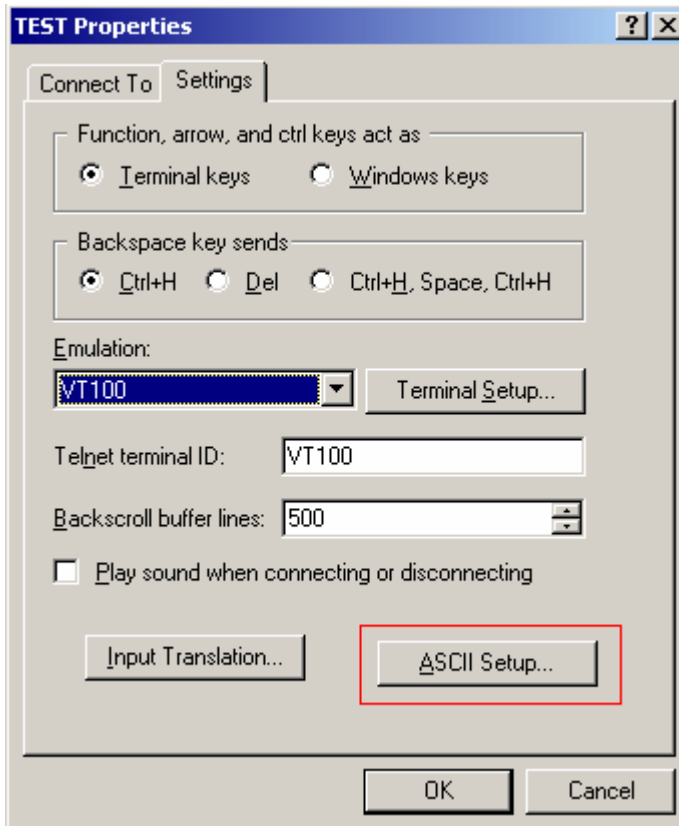
Step4. Click the File and choose Properties to setting Keyboard parameter.



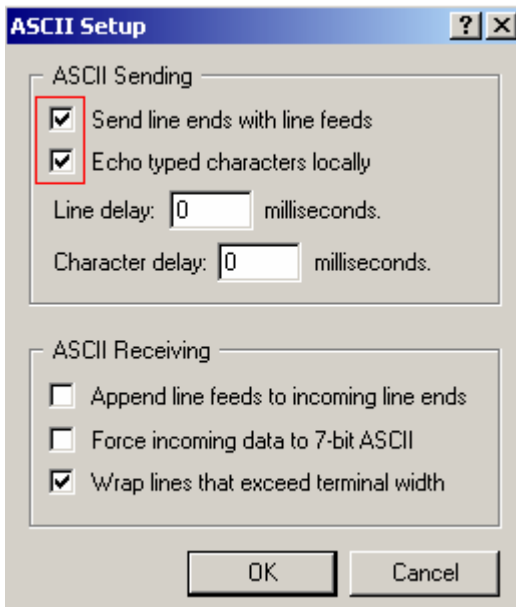
Step5. In Setting page , choose Emulation type for your keyboard.



Step6. Click ASCII Setting icon to setup ASCII code parameter.



Step7. Mark Send Line ends with line feeds and Echo typed characters locally and click OK bottom to complete setting.



## Appendix A (AMX control room console compatibility)

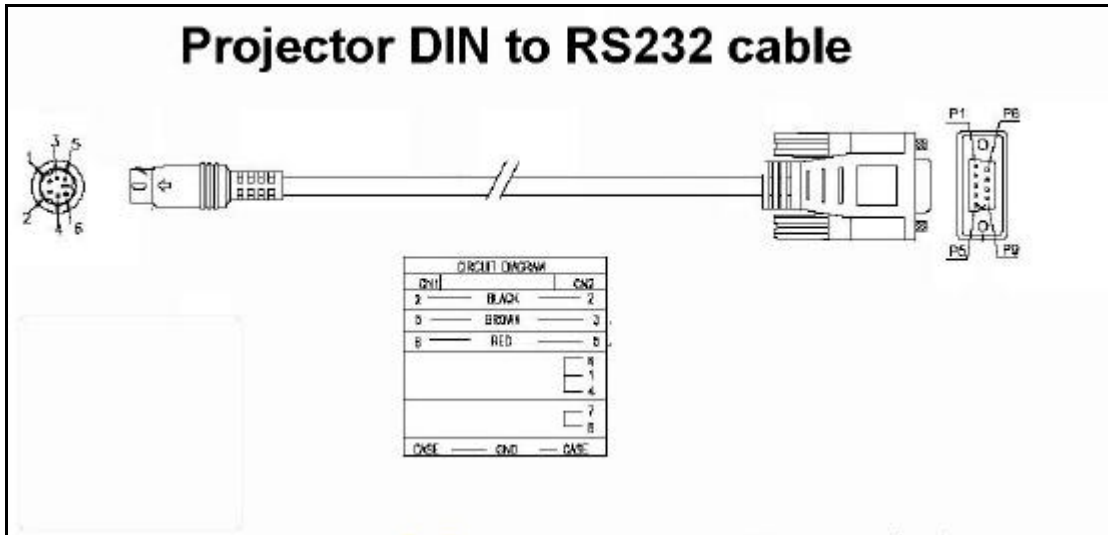
Control room console list

Brand	Device	Baud Range	Max length send	Max length receive
AMX	Axcent	300~38400	64	64
AMX	Axcent 2	300~38400	64	64
AMX	Axcent 3	300~115200	64	64
AMX	AXB-EM232	300~38400	64	64
AMX	AXC-232	300~38400	64	64
AMX	AXC-232++	300~115200	64	64
AMX	AXB-232+	300~38400	64	64
AMX	AXB-232++	300~115200	64	64
AMX	AXB-PCCOM	300~38400	64	64
AMX	NXC-COM2	150~230400	900	196
AMX	NXI	150~230400	900	196
AMX	AXB-MIDI	300~38400	64	64
AMX	AXC-MIDI	300~38400	64	64
AMX	NXC-ME	Ether Net		

*Please check the relative console provider's website for updated product information!*

## Appendix B (DIN to RS232 diagram)

*DIN to RS232 connection diagram (For some projectors with DIN connector)*



**Notes:**