CueServer Pro
I/O Port Specifications

Introduction

This document describes the electrical connections for the various ports on the CueServer Pro (CS-800).

DC Power Input Jack

The CueServer Pro has a 2.1mm DC Power Input Jack. The center pin of this jack is positive and the sleeve is negative. CueServer is typically powered by 12V DC at 800mA minimum, however CueServer will run properly with any input voltage from 6 to 30 VDC.

RS-232 Serial Port

The CueServer Pro has a Female DB-9 RS-232 Serial Port used for connecting to external serial equipment. CueServer can send arbitrary serial strings to external equipment and external equipment may send data or CueScript commands to CueServer over a variety of baud rates from 300 bps to 230,400 bps. The CueServer serial port does not use hardware handshaking signals.

DB-9	Signal
1	-
2	Tx Data
3	Rx Data
4	-
5	Ground
6	-
7	-
8	-
9	*Optional +5V DC*

The optional +5V DC power supplied on Pin 9 can be activated by an internal jumper on the PCB marked “5V-P9”. By default, this jumper is not installed.

Ethernet Jack

The CueServer Pro has a standard RJ45 Ethernet jack. This jack is used to connect to a local Ethernet network.

MIDI Ports

The CueServer Pro has three standard 5-pin Circular-DIN MIDI Ports marked MIDI Input, MIDI Output and MIDI Thru. The MIDI ports can be used to receive and send MIDI messages to external devices, or to receive and synchronize to MIDI Timecode or standard SMPTE Timecode (via a MTC converter).

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Digital I/O Ports

The CueServer Pro uses two 10-position pluggable terminal blocks to gain access to 8 contact closure inputs and 8 digital outputs. The connectors on the back of the CueServer are 10-position 3.81mm Phoenix Headers (PN: 1827949), or similar. Although appropriate pluggable terminal blocks are provided with most all configurations of the CS-800, you can provide your own terminal blocks that mate with Phoenix 1827949.

Position	Input Port	Position	Output Port
1	Ground	1	+5V DC Output
2	Contact 1 Input	2	Digital Output 1
3	Contact 2 Input	3	Digital Output 2
4	Contact 3 Input	4	Digital Output 3
5	Contact 4 Input	5	Digital Output 4
6	Contact 5 Input	6	Digital Output 5
7	Contact 6 Input	7	Digital Output 6
8	Contact 7 Input	8	Digital Output 7
9	Contact 8 Input	9	Digital Output 8
10	Ground	10	Ground

Ground

This is the voltage ground. All I/O signals and +5V power output are referenced from this ground.

Contact Closure Inputs

The Contact Closure inputs on CueServer are designed to accept a dry contact (a simple switch) wired between the input and Ground. The input itself incorporates a weak pull-up to 3.3V. When the switch closes, the voltage on the input drops to 0V (Ground), which triggers the input. Alternately, any relay or transistor output of another device (that pulls to ground) can be directly wired to each of the CueServer inputs. More specifically, the inputs will trigger when the input voltage drops below about 0.9V and disengage when the voltage rises above about 2.3V. Each input may receive any voltage between +/- 36V and are internally de-bounced.

Digital Outputs

The Digital Outputs on CueServer are transistor-based pull-to-ground outputs, which are capable of handing up to 500mA each. When an output is activated, or “on”, it is connected to ground through a transistor. This state can complete a circuit to turn on an indicator LED, a relay, a buzzer or any other small electrical device. When an output is “off”, there is no electrical connection to ground, which turns off any connected electrical device.

+5V DC Output

CueServer Mini provides a regulated +5V DC output, which can be used to power small indicator LEDs or relays attached to the digital output signals. The total current drawn from the +5V output pins is limited to 200mA.

DMX Input / Output Jacks

The CueServer Pro has two 5-pin XLR connectors for DMX Input and DMX Output. These jacks can be directly connected to DMX equipment that uses standard 5-pin XLR cables (or adaptors can be used to connect to hard-wire terminations).

Position	DMX Input	DMX Output
1	Ground	Ground
2	DMX Data -	DMX Data -
3	DMX Data +	DMX Data +
4	-	-
5	-	-

Note that CueServer Pro normally receives DMX data on the Input port, then it buffers and changes the data and retransmits it on the DMX Output port. Normally, this would cause a lighting controller connected to the DMX Input port loose contact with the lighting fixtures when the CueServer is powered off or fails/reboots. CueServer Pro contains an automatic “fail-safe” crossover relay that automatically disconnects the CueServer’s internal processor from the DMX ports and simultaneously bridges them together so the Input is connected to the Output. This crossover circuit can also be engaged by CueScript command, allowing software control of this feature. This provides extra functionality in creating fault-tolerant systems and/or when trying to build automatic backup or override systems.