Serial Ports

Purpose

This application note provides a definitive explanation of the serial ports found on Alcorn McBride products. Audio, video, show control and lighting products support two different serial port configurations so connections can be made with simple cables. This type of cable is referred to as a 1-to-1 or straight-though cable type and it is usually “WHITE or BEIGE” in color when supplied by Alcorn McBride.

At times it may be necessary to connect ports with the same pin configuration and this requires a cable known as a “Null Modem” or “Cross-over” cable. This cable has wires 2 and 3 reversed (crossed over) internally. This cable is usually “BLACK” in color, when supplied by Alcorn McBride, to distinguish it from the straight-through cable type.

Warning! History Lesson Follows

Why do we support two different port configurations on our products? The answer is because there are two different pinouts supported in the industry. This answer does not describe how and where they are used. To understand that question requires a history lesson. We will need to go back to the Teletype/Modem days before computers were small enough to fit in a room. Teletypes were type writer machines that were used as input devices and had a printer to supply a hard copy output. These devices require a special unit that would translate the serial IO to a signal format that could be transmitted over the telephone lines. The connection from these devices to the modem was a 25 pin connector that had many control signal pairs RTS/CTS, DTR/DSR as well as the two data lines, TX/RX just to mention a few. These signal pairs had to be connected together for communications to work. The pinouts were defined by the function of the unit DTE and DCE. The Teletype was a Data Terminal Equipment device, so are computer RS232 ports and the modem is a Data Communications Equipment device as are most of the serial ports on the Alcorn McBride devices.

Back to the Real World

The standard was needed because a simple cable (1 to 1) was to be used between the two units and that means the pinouts on the units had to be reversed. The result is a computer port and a modem port that could be connected together by a straight-though cable. In some cases, the connector gender was also reversed to designate the configuration type. As technology advanced, modems are rarely found and many of the signals are no longer used but the legacy of the port differences remains to this day.

Alcorn McBride Ports

The control ports of all the Alcorn McBride Audio/Video players are the opposite of the PC so a simple control cable can be used. These units include MP3, AM4, DVM7400, DVM8400, 8Traxx and future units that will continue to support the serial control port.

The Digital Binloop, Video Binloop and Binloop HD have two serial ports. The “Program” port is used for programming and control and the “Show Control” port is used to control other devices down line from the Binloop.

V16 Pro, V16+, V4+, V2+ InterActivator, DMX Machine and other show control products all have multiple serial ports so they can control devices further down line. These units have both types of ports. One is labeled “Programmer” and is the opposite of the PC serial port so straight-through cables can be used. The others are labeled as “Port 1 – 16” or “Show Control” (if present on the unit) and looks like a PC port. These ports are configured this way so they can connect to other Alcorn McBride devices with the standard straight-through cable.

Cable Types

Unit	Port	Connecting to	Cable
Binloop (All)	Programmer	PC	STD
	Show Control	Programmer	STD
	Show Control	PC	Null Modem
	Show Control	Port 1-16	Null Modem
DVM8400	RS232	PC	STD
	RS232	Port 1-16	STD
DVM7400	RS232	PC	STD
	RS232	Port 1-16	STD
AM4	RS232	PC	STD
	RS232	Port 1-16	STD
Show Controllers	Programmer	PC	STD
	Port 1-16	RS232	STD
	Port 1-16	Programmer	STD
	Port 1-16	PC	Null Modem
	Port 1-16	Port 1-16	Null Modem
InterActivator	Programmer	PC	STD
	Port 1-2	RS232	STD
	Port 1-2	Port 1-16	Null Modem
DMX	Programmer	PC	STD
	Port 1	RS232	STD
	Port 1	Programmer	STD
	Port 1	PC	Null Modem
IO64	Host	PC	STD
	Remote	RS232	STD
	Remote	PC	Null Modem
	Remote	Port 1-16	Null Modem
SMPTE	Programmer	PC	STD
	Port 1	RS232	STD
	Port 1	Port 1-16	Null Modem
Webster	RS232	Programmer	STD
	RS232	Port	STD
	RS232	RS232	Null Modem

Binloop Port Pinouts

Program

Pin	Signal
1	N/C
2	TXD
3	RXD
4	N/C
5	GND
6 - 9	Not Used

Show Control

Pin	Signal
1	N/C
2	RXD
3	TXD
4	N/C
5	GND
6 - 9	Not Used

DVM8400, DVM7400, AM4, and MP3

RS232

Pin	Signal
2	TXD
3	RXD
5	GND

V16 Pro, V16+, V4+

Programmer

Pin	Signal
2	TXD
3	RXD
5	GND
8	+12-volt Pull Up

Ports 1-4: RS-232 or RS-485

Pin	RS-232 Connection	RS-485 Connection
2	RS-232 RXD	RS-485 RX+
3	RS-232 TXD	RS-485 TX+
4	+12V Pull up	+12V Pull up
5	GND	GND
6	N/C	RS-485 RX-
7	+12V Pull up	+12V Pull up
9	N/C	RS-485 TX-

Ports 5-15: RS-232

Pin	Connection
2	RS-232 RXD
3	RS-232 TXD
4	+12V Pull Up
5	GND
7	+12V Pull Up

V2+, InterActivator

Programmer

Pin	Signal
2	TXD
3	RXD
5	GND
8	+12-volt Pull Up

Ports 1, 2: RS-232

Pin	Connection
2	RS-232 RXD
3	RS-232 TXD
4	+12V Pull Up
5	GND
7	+12V Pull Up

IO64

Host

Pin	Signal
2	TXD
3	RXD
5	GND

Remote, MIDI

Pin	RS-232 Connection	RS-485 Connection
2	RS-232 RXD	N/C
3	RS-232 TXD	N/C
5	GND	GND
6	N/C	RS-485 TX+
7	N/C	RS-485 TX-
8	N/C	RS-485 RX+
9	N/C	RS-485 RX-

DMX Machine

Programmer

Pin	Signal
2	RS-232 TXD
3	RS-232 RXD
5	GND

Port 1

Pin	Signal
2	RS-232 RXD
3	RS-232 TXD
5	GND

SMPTE Machine

Programmer

Pin	Signal
2	RS-232 TXD
3	RS-232 RXD
5	GND
8	+12-volt Pull Up

Port 1, 2

Pin	Signal
2	RS-232 RXD
3	RS-232 TXD
4	+12-volt Pull Up
5	GND
7	+12-volt Pull Up

Webster

RS232

Pin	Signal
2	TXD
3	RXD
5	GND