API Guide for RS232

RS232 Connection:

Port Settings: Bps 9600, Data bits 8, Parity None, Stop Bits 1, Flow Control None

Communication Protocol: The protocol has 3 formats as below. It is sent as ASCII Code and not processed back (no feedback results)

[x]v[y]. Connect Input "x" with Output "y"

[x]v[y],[z]. Connect Input "x" with Output "y" and "z"

[x]All. Connect Input "x" with all Outputs

Examples:

1v2. Input 1 to Output 2

1v2,3,4,5. Input 1 to Outputs 2,3,4,5

5All. Input 5 to All Outputs

All#. All channels correspond one by one

- All instructions must end with a "."

- With the "v" format multiple outputs can be assigned to a single input

- "All" always represents Output Channels

- Only one Input can be routed with each command line

Configuration and Control API Guide for LAN

Description: This document describes the Matrix Switch Configuration and Control API (OMSCC API). The API uses HTTP UDP packet transmissions utilizing both broadcast and unicast addresses.

All Matrix Switchers are shipped with the OMSCC API pre-installed. This API can be used in C++, C#, Java, IOS, etc. There is a full C# example application that can be complied in Microsoft Visual Studio at the end of this User Guide.

Locating a Switcher on the Network

Method: UDP Broadcast

Packet Format: a5 6c 14 00 81 ff 01 00 00 00 00 00 00 00 00 00 ff a5 03 ae

Destination Address: Broadcast 255.255.255.255

Destination Port: 7000

Return:

a5 6c 23 00 82 ff 01 00 00 00 00 00 00 00 00 00 ff 00 4d 53 53 30 38 31 31 2d 10 2d 43 04 31 55 a9 06 ae (hex)

The above red marked 82 indicate the device type 0x82, means matrix switcher.

The above red marked 00 indicate data return succeed.

The above green marked 4D 53 53 30 38 31 31 2D 10 2D 43 04 31 55 indicates that this is the 8x8 Matrix Switcher. Different matrix switcher will return different codes.

Configuring Output Ports

Description:

The following commands configure the output ports to output based on the configured input port.

Method: UDP Unicast

Destination Address: IP address of the matrix switcher

Destination Port: 7000

Commands Table: All commands must be sent as ASCII code to the IP address of the matrix switch on port 7000.

[x]v[y]. Connect Input "x" with Output "y"

[x]v[y],[z]. Connect Input "x" with Output "y" and "z"

[x]All. Connect Input "x" with all Outputs

Examples:

1v2. Input 1 to Output 2

1v2,3,4,5. Input 1 to Outputs 2,3,4,5

5All. Input 5 to All Outputs

All#. All channels correspond one by one

 - All instructions must end with a "."

 - With the "v" format multiple outputs can be assigned to a single input

 - "All" always represents Output Channels

- Only one Input can be routed with each command line

- Return – none

Query Status of Ports

Description:

The following commands obtains the status of each of the output ports, LCD, IP, and the device name.

Method: UDP Unicast

Destination Address: IP address of the matrix switcher

Destination Port: 7000

Packet Format of Protocol Mode

Send from PC to Switcher

Data Packet	Value (hex)	Byte Length	Description
Packet Header	0xa5 0x6c	2	The beginning of data packet
Data Length	0x0000~0x0420	2	The length of the entire data packet from packet header to end (including header and end). The lower byte stays head.
Device Type	0x00~0xff	1	Definition of device type, 0xff means broadcast.
Device ID	0x00~0xff	1	A distinguishing of the device when there are several devices in a same LAN at same time. OXFF means broadcast.
Interface Type	0x00~0xff	1	0x00:UART (serial port) 0x01: LAN
Reserve	0x00	9	For reserve.
Command	0x00~0xff	1	Command for each function.
Packet Data	………..	Variable length	<= 1024
Checksum	0x0000~0xffff	2	The algebraic sum of all bytes from packet header to checksum (including the packet header but excluding the checksum). Take 2 bytes, other parts omitted. The lower byte stays ahead.
Packet End	0xae	1	The end of the packet.

Response from Switcher to PC

Data Packet	Value (hex)	Byte Length	Description
Packet Header	0xa5 0x6c	2	The beginning of data packet.
Data Length	0x0000~0xffff	2	The length of the entire data packet from packet header to end (including the packet header and end). The lower byte stays ahead.
Device Type	0x00~0xff	1	Definition of device type, OXFF means broadcast.
Device ID	0x00~0xff	1	A distinguishing of the device when there are several devices in a same LAN at same time. OXFF means broadcast.
Interface Type	0x00~0xff	1	0x00: UART (serial port); 0x01: LAN
Reserve	0x00	9	Reserve. This device is not reserved.
Command	0x00~0xff	1	Command for each function.
Response Status	0x00 ~ 0xff	1	0x00: Succeed; 0x01: Error; Other data undefined.
Response Content		Variable length	Reserve. The length of response content is variable when backward reading command, and it is consistent with the format of "packet data".
Checksum	0x0000~0xffff	2	The algebraic sum of all bytes from packet header to checksum (including the packet header but excluding the checksum). Take 2 bytes, other parts omitted. The lower byte stays ahead.
Packet End	0xae	1	The end of the packet.

Note: Send = CMD + data; Return = CMD + status + data

Function & Command

Device type: 0x03

Command List

| Function	Command (hex)	Description
Read Status of Switcher	0x53	Read the current status of switcher, including IP status, input and output information, and device name.
Read Status of LCD	0x50	Read the current status of LCD information, including LCD backlight time and LCD brightness.
Setting Device Name	0x0f	Send the device name (max 16 character) by Unicode
Setting LCD Backlight Time	0x51	0: 15s Dim 1: 60s Dim 2: 15s Off 3: 60s Off 4: Always On
Setting LCD Brightness	0x52	Set the LCD brightness between 10-100. (Device type: 0x03)
Setting IP between Static and Dynamic	0x05	The 13th byte of the data bit 0x01: Dynamic IP; 0x00: Static IP

Examples

1) Read Current Status of Switcher
Send:
a5 6c 14 00 82 01 01 00 00 00 00 00 00 00 00 00 53 fc 01 ae
Return:
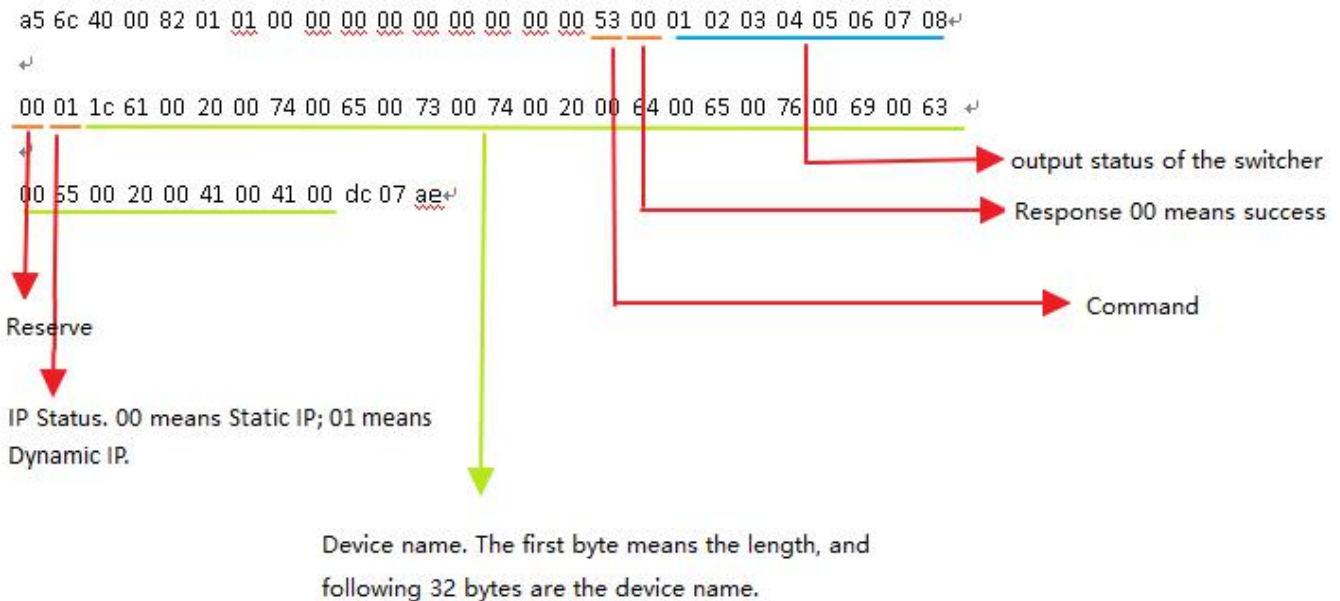
2) Read Status of LCD
Send:
a5 6c 14 00 03 01 01 00 00 00 00 00 00 00 00 00 50 7a 01 ae
Return:
a5 6c 17 00 03 01 02 00 00 00 00 00 00 00 00 00 50 00 00 2b a9 01 ae
Note:
00 indicates the current LCD Backlight Time is 15s Dim; 2b indicates the current LCD Brightness is 43.

3) Set Device Name to "this is a matrix"
Send:
a5 6c 34 00 82 ff 01 00 00 00 00 00 00 00 00 00 0f 74 00 68 00 69 00 73 00 20 00 69 00 73 00 20 00 61 00 20 00 6d 00 61 00 74 00 72 00 69 00 78 00 c0 08 ae
Return:
a5 6c 15 00 82 ff 01 00 00 00 00 00 00 00 00 00 0f 00 b7 02 ae

4) Set LCD Backlight Time to "Always On"
Send:
a5 6c 15 00 03 ff 01 00 00 00 00 00 00 00 00 00 51 04 7e 02 ae
Return:
a5 6c 15 00 03 01 02 00 00 00 00 00 00 00 00 00 52 00 7e 01 ae
Note: When setting LCD, the response command always 0x52.

5) Set LCD Brightness to 100
Send:
a5 6c 15 00 03 ff 01 00 00 00 00 00 00 00 00 00 52 64 df 02 ae
Return:
a5 6c 15 00 03 01 02 00 00 00 00 00 00 00 00 00 52 00 7e 01 ae

6) Set Network to Static IP, and set IP Address to 192.168.1.219
Note: The static IP address and computer's IP address should be in a same network segment.
Send:
a5 6c 21 00 82 ff 01 00 00 00 00 00 00 00 00 00 05 c0 a8 01 db ff ff ff 00 c0 a8 01 01 00 64 09 ae
Blue words indicate the current IP address, sub-net mask, default gateway.
Green words indicate the connection method.
0x00 means static IP, and blue words are the new IP information want to set.
0x01 means dynamic IP(DHCP), and blue words are meaningless.
Return:
a5 6c 15 00 82 ff 01 00 00 00 00 00 00 00 00 00 05 00 ad 02 ae