

Master Control Switcher MS-6016HD

APC Control specifications

2004/10/05

1. Protocol

(1) Communications Signal

- a) Asynchronous bit serial, word serial
- b) Conforms to EIA RS-422
- c) Full duplex communications channel
- d) Transfer rate: 38400bps

(2) Bit configuration

- a) 1 start bit (space)
- b) 8 data bit
- c) 1 parity bit (odd)
- d) 1 stop bit (mark)
- e) Byte time = 0.286 ms

2. Packet structure

(1) COMMAND message (2-256 Bytes)

- 1) STX: Start of Transmission Code (0x02)
- 2) Byte 1,2. BC: Byte Count, Binary format count number from BC to Checksum
- 3) Byte 3. MID: Machine ID Code (0x51)
- 4) Byte 4. CMD-1: Command 1 consists of two nibbles; a command type nibble and a unit address nibble, which defines the address of a subsystem within a device. The unit address will not be used by the system.
- 5) Byte 5. CMD-2: Command code, it identifies the syntax of the data
- 6) DATA: The number of data bytes is determined by the command.
The value of DATA is given with ASCII code.
- 7) Checksum: Logical products of 0x7F and summing data from MID to DATA n.

STX	Byte Count1	Byte Count2	MID	CMD-1	CMD-2	DATA 1	DATA 2	DATA n	Checksum
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(2) COMMAND Execution

- 1) The machine should respond the COMMAND within 6msec after received it.
- 2) The machine should not request the status within the frame.
- 3) The machine should be requested the status,
if the machine was not respond within 100ms.

3. COMMAND Specifications

■ 20.01; Request Transition/Take

Executes Transition as Preset (20.03).

DATA 1 contains the ID for execution.

- 0 (30) On-Air the Preset Channel and reports the Status Change (30.01).
- 1 (31) Drop the On-Air Over level.
- 2 (32) Drop the On-Air Key level.

Return (20.81): OK ('O' = 0x4f) or Not OK ('N' = 0x4e)

■ 20.02; Request Direct Program Channel Change

Change the Program Source directly as following Channel.

DATA 1-2 contains On-Air Video channel number, two Hexadecimal digits. (ex. 0x30.0x31)

DATA 3-4 contains On-Air Audio Channel number, two Hexadecimal digits. (ex. 0x30.0x31)

All DSK and Audio Over are made Off-air if DSK and Audio Over are On-air insides when this command is executed.

Return (20.82): OK ('O') or Not OK ('N')

■ 20.03; Request Preset

Preset the Preset Bus, Transition Type, Transition Rate

DATA 1-2 contains Preset Video channel or DSK channel number, two Hexadecimal digits.

DATA 3-4 contains Preset Audio channel or DSK channel number, two Hexadecimal digits.

DATA 5 contains Transition Type.

- 'T' (0x54) Cut-out and cut-in
- 'M' (0x4d) Dissolve or Mix
- 'F' (0x46) Fade-out
- '>' (0x3e) Fade-out and Cut-in
- '<' (0x3c) Cut-out and Fade-in
- 'K' (0x4b) Select DSK channel as DATA 1-2

DATA 6 contains Transition Rate.

- 'C' (0x43) Cut
- 'F' (0x46) Fast transition rate
- 'M' (0x4d) Middle transition rate
- 'S' (0x53) Slow transition rate

Return (20.83): OK ('O') or Not OK ('N')

■ 20.04; Request Over Direct In/Out

Execute Over In or Out directly and reports the Status Change (30.01).

DATA 1 is 0 to Over In, 1 to Over out. (0x30 or 0x31)

DATA 2-3 contains Over Channel number. (0x30.0x31 or 0x30.0x32)

DATA 4 contains Transition Type, must be 'O' only. (0x4f)

DATA 5 contains Transition Rate.

'F' (0x46)	Fast transition rate
'C' (0x43)	Cut In or Cut out

Return (20.84): OK ('O') or Not OK ('N')

■ **20.05; Request Key Direct In/Out**

Execute Key In or Key Out directly and reports the Status Change (30.01).

DATA 1 is 0 to Key In, 2 to Key Out. (0x30 or 0x32)

DATA 2-3 contains Key Channel number. (0x30.0x31, 0x30.0x32 or 0x30.0x33)

DATA 4 contains Transition Type, must be 'K' only. (0x4b)

DATA 5 contains Transition Rate.

'F' (0x46)	Fast transition rate
'C' (0x43)	Cut In or Cut out.

Return (20.85): OK ('O') or Not OK ('N')

■ **20.10; Request Machine Status**

Send the Machine Status.

DATA 1 contains ID for the Request.

'0' (0x30)	Send All Status of On-Air and Preset
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Return (20.90); Report Machine Status

DATA 1-2 contains On-Air Video Channel number, two Hexadecimal digits.

DATA 3-4 contains On-Air Audio Channel number, two Hexadecimal digits.

DATA 5-6 contains DSK Key In Channel number.

'63' (0x36.0x33)	All DSK are Key Out
'01' (0x30.0x31)	DSK1 is Key In
'02' (0x30.0x32)	DSK2 is Key In
'03' (0x30.0x33)	DSK3 is Key In
'04' (0x30.0x34)	DSK1 and 2 are Key In
'05' (0x30.0x35)	DSK1 and 3 are Key In
'06' (0x30.0x36)	DSK2 and 3 are Key In
'07' (0x30.0x37)	DSK1, 2 and 3 are Key In

DATA 7-8 contains Audio Over Channel number.

'63' (0x36.0x33)	All Over are off
'01' (0x30.0x31)	EXT1 Audio Over
'02' (0x30.0x32)	EXT2 Audio Over

DATA 9-10 contains Preset Video channel or DSK channel number, two Hexadecimal digits.

DATA 11-12 contains Preset Audio channel or DSK channel number, two Hexadecimal digits.

DATA 13 contains Preset Transition Type.

'T' (0x54)	Cut-out and cut-in
'M' (0x4d)	Dissolve or Mix
'F' (0x46)	Fade-out

VIDEOTRON

'>' (0x3e)	Fade-out and Cut-in
'<' (0x3c)	Cut-out and Fade-in
'K' (0x4b)	DSK channel is selected as DATA 9-10.

DATA 14 contains Transition Rate.

'C' (0x43)	Cut
'F' (0x46)	Fast transition rate
'M' (0x4d)	Middle transition rate
'S' (0x53)	Slow transition rate

■ 30.01; Report Status Change

The Switcher should report the Status when Interrupt is occurred.

DATA 1 contains Show Interrupt.

'0' (0x30)	No Change.
'1' (0x31)	Show Interrupt is occurred.

DATA 2 contains End of Transition Interrupt.

'0' (0x30)	No Change
'1' (0x31)	End of Transition Interrupt is occurred.

DATA 3 contains Bottom Interrupt.

'0' (0x30)	No Change
'1' (0x31)	Button Interrupt is occurred.

Button Interrupt occurring switches: PGM - black,1 ~ 16,back color/color bar
OVER - ext1, ext2, fade, cut
DSK(1 ~ 3) - fade, cut, take

■ 40.01; Communication Error Status

The switcher should report the Status when communication error is occurred.

DATA 1 contains communication error.

'01' (0x01)	STX error; could not find STX code in the received word.
'02' (0x02)	Checksum error; received checksum code is not coincide with calculated checksum.
'04' (0x04)	Data error; received data is not defined or over value etc.
'08' (0x08)	Counter error; received data in byte count is zero.

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- Video/Audio channel number is indicated in two Hexadecimal digits.

'00' (0x30,0x30)	:black video
'01' (0x30,0x31) ~ '16' (0x31,0x30)	:input channel number
'17' (0x31,0x31)	:back color or color bar video
