

# **HDTV/SDTV MASTER CONTROL SWITCHER MS-6416 SPECIFICATIONS**



**VIDEOTRON CORP.**

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Specifications may be subject to change.

The MS-6416 is a master control switcher that enables you to perform switching operation allowing 16 channels of video signals and embedded audio signals. Three channels of DSK superimpose at the program output. The three liquid crystal level meters allow you to monitor the volume of the Preset, Program, and On-Air at the same time. A breakaway function that performs switching of sound and video separately is also included. There are three models according to the signal; MS-6416HD, MS-6416SD and MS-6416HD/SD. And provides optionally AES/EBU audio input and machine control for six devices.

#### VIDEO Features

- ✧ Inputs 16 channels of HDTV or SDTV video signals.
- ✧ Each input provided with 1 line AVDL enabling you to match the switch timing.
- ✧ Three kinds of switch specify the transition speed, which allows you to preset.
- ✧ The switch row selects the background color signal and color bar signal.
- ✧ Displays signal name on the 4-digit alphanumeric LED.
- ✧ Picture monitors on the panel, three LCD display PST, PGM and On-air picture. (option)
- ✧ DSK gives you three kinds of superimpose.
- ✧ The preview of DSK allows you to monitor by selecting necessary channels.
- ✧ Adjustable DSK key level.
- ✧ One AUXiliary bus.
- ✧ The Video Only allows switching, separating the sound.
- ✧ Compatible with the 1080i and 720p form (but not accept at the same time).

#### AUDIO Features

- ✧ Inputs 16 channels of embedded audio signals.
- ✧ Option for AES (SMPTE276M) signal Inputs.
- ✧ Embedded or AES is assignable as audio for each channel.
- ✧ Process 48kHz sampling and 24 bits signal.
- ✧ Controls so that no noise is generated at the switching point.
- ✧ The Audio Only allowed to switch separating from video.
- ✧ The three LCD bar graph meters monitor the sound level of the PST, PGM and On-Air.
- ✧ The level meter serves for the display of VU and PPM by switching alternately.
- ✧ The adjustment of the sound level allows presetting at every channel.
- ✧ Voice-Over mixing of 2 channels of external input sounds.
- ✧ Tone generator.
- ✧ An AES (SMPTE276M) input for the On-Air monitor.
- ✧ 4 channels and 2 groups AES (SMPTE276M) outputs for the sound monitor.

#### General Features

- ✧ Dual power supply for the main chassis and the operation panel.
- ✧ Build in the Machine Control for six devices (optional).
- ✧ The liquid crystal display allows a variety of presets.
- ✧ Alarm outputs for the fan and the power supply.
- ✧ The fan and the power supplies are in modules for easy maintenance.
- ✧ GPI inputs and Tallies output for DSK.
- ✧ External APC control via RS422 (optional).

## Specifications

### (1) MS-6416HD/SD main chassis

#### Input signals

LINE	HD-SDI* or SD-SDI**	BNC	16 Channels
DSK FILL	HD-SDI* or SD-SDI**	BNC	3 Channels
DSK KEY	HD-SDI* or SD-SDI**	BNC	3 Channels
Reference	Tri-level SYNC 0.6Vp-p/75	or BBS 0.45Vp-p/75	
		BNC	1 Channel
			(Loop through output)
AUDIO OVER	AES SMPTE-276M	BNC	2 Channels
ONAIR1/2,3/4,5/6,7/8ch	AES SMPTE-276M	BNC	1 Channel each
Time Code (option)	LTC SMTPE-12M	3-pin XLR female	1 Channel

#### Output signals

CLEAN	HD-SDI* or SD -SDI**	BNC	2 Channels
DSK1	HD-SDI* or SD -SDI**	BNC	2 Channels
DSK2	HD-SDI* or SD -SDI**	BNC	2 Channels
DSK3	HD-SDI* or SD -SDI**	BNC	2 Channels
DSK PVW	HD-SDI* or SD -SDI**	BNC	1 Channel
PST	HD-SDI* or SD -SDI**	BNC	2 Channels
AUX	HD-SDI* or SD -SDI**	BNC	1 Channel
MONITOR1	AES SMPTE-276M	BNC	4 Channels
MONITOR2	AES SMPTE-276M	BNC	4 Channels

#### Video format

*:HD-SDI	SMPTE-292M
1080i	1920 × 1080i (59.94Hz)
720p	1280 × 720p (59.94Hz)
** :SD-SDI	SMPTE-259M-C
480i	720 × 487i (59.94Hz)

\* HD and SD format must not be intermingled at inputs, and output format follow the input format.

#### Control / Tally

FAN&POWER ALARM	MAKE contact D-sub 9-pin female	1 Channel
ON-AIR TALLY	MAKE contact D-sub 25-pin female	1 Channel
GPI	MAKE contact D-sub 25-pin female	
	(for future extension)	1 Channel
OPE panel	BNC	
LAN	RJ-45 (for future extension)	1 Channel
Serial ports	RS-422 D-sub9-pin female	1 Channel

Machine Control (option)	
VTR1 ~ 6	RS-422 D-sub9-pin female 6 Channels
Power	AC90 ~ 230V 50/60Hz
Dimensions	420W × 221H × 500D(mm) (excluding projections)
Weight	30kg
Operating Temperature	0 ~ 40

## (2) Audio Breakout(option)

Input signals	
INPUT 1/2,3/4,5/6,7/8ch	AES SMPTE-276M BNC 16 Channels each
Output signals	
CLEAN 1/2,3/4,5/6,7/8ch	AES SMPTE-276M BNC 1 Channel each
PGM 1/2,3/4,5/6,7/8ch	AES SMPTE-276M BNC 1 Channel each
PST 1/2,3/4,5/6,7/8ch	AES SMPTE-276M BNC 1 Channel each
AUX 1/2,3/4,5/6,7/8ch	AES SMPTE-276M BNC 1 Channel each

## (3) MS-6416 Operating panel

Control / Tally	
CONT	BNC 1 Channel
GPI	MAKE contact D-sub 9-pin female 1 Channel
Power	AC90 ~ 230V 50/60Hz
Dimensions	704W × 95H × 399D(mm) (excluding projections)
Weight	15kg
Operating Temperature	0 ~ 40

**Performance**

## (1) LINE input signals

Sampling frequency	74.18MHz (59.94Hz) or 13.5MHz (59.94Hz)
Resolution	10bit
Delay ME	1H
KEY	1H
Pull-in range	-0.7 ~ +0.2H

## (2) DSK FILL and DSK KEY signals

Sampling frequency	74.18MHz (59.94Hz) or 13.5MHz (59.94Hz)
Delay DSK	1H
Pull-in range	-0.7 ~ +0.2H

## (3) Audio signals

Sampling frequency	48kHz
Resolution	24bit
Delay	2.5mS

**Functions****(1) Switcher**

Inputs	LINE1 ~ 16, BLACK, BACK COLOR/COLOR BAR
Transition	Fade, Mix, Cut
Dissolve, Wipe Speed	5 ~ 300 Frames

**(2) BACK COLOR**

Preset	One color in SETUP menu
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**(3) DSK**

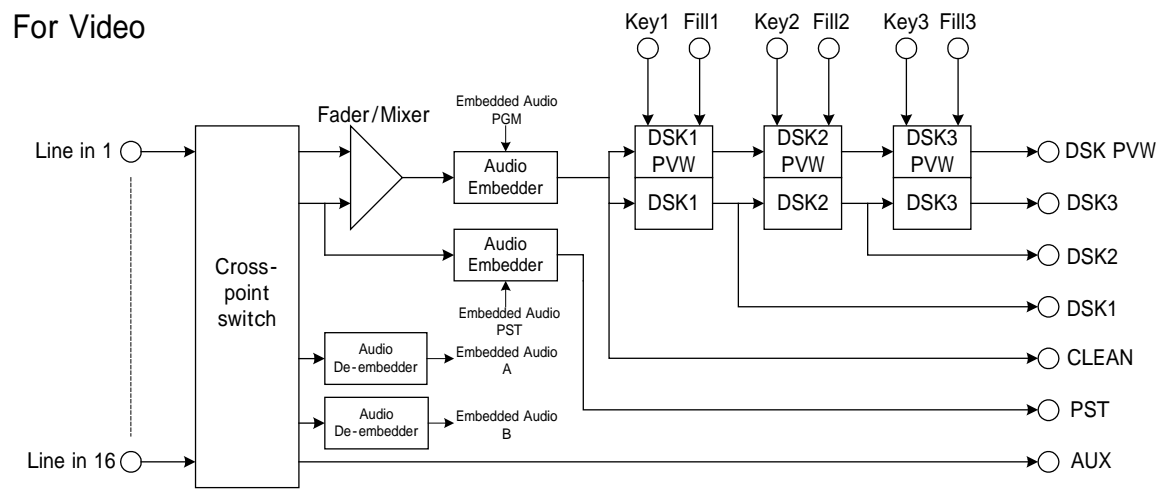
Transition	Fade, Cut
Dissolve speed	5 ~ 300 Frames

**(4) Audio**

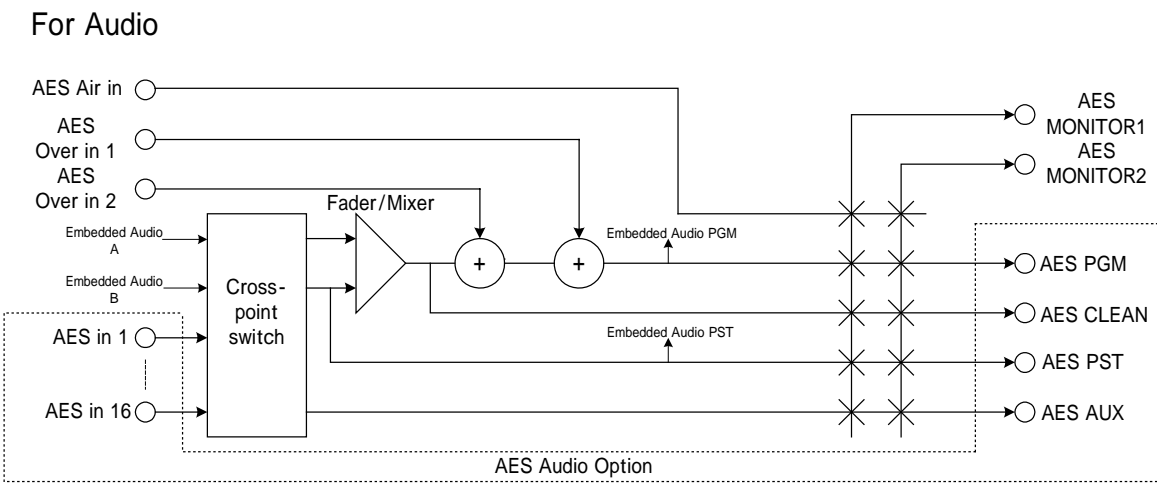
Transition	Fade, Mix, Cut
Mixing	2 external stereo inputs

Block Diagram

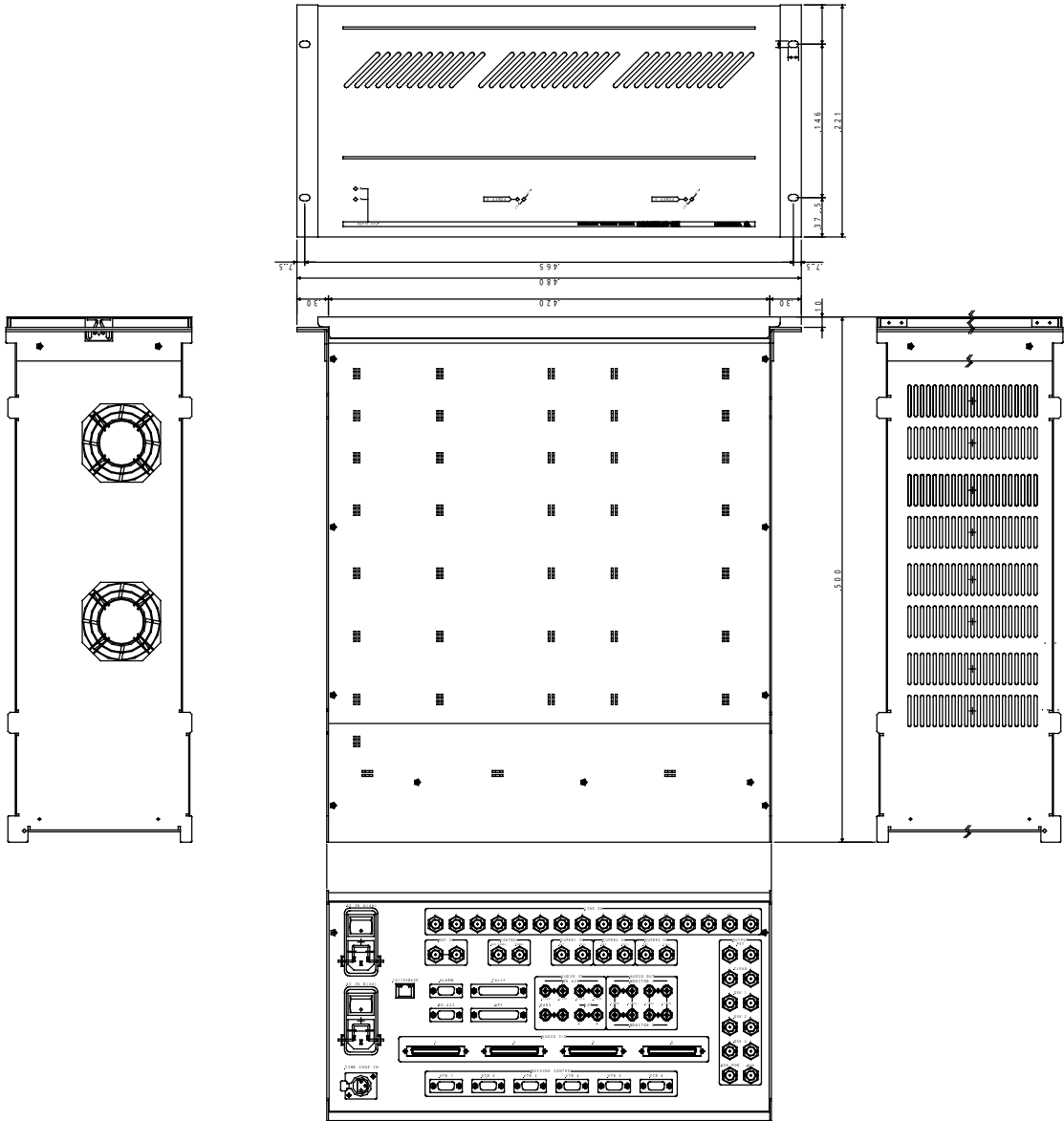
For Video



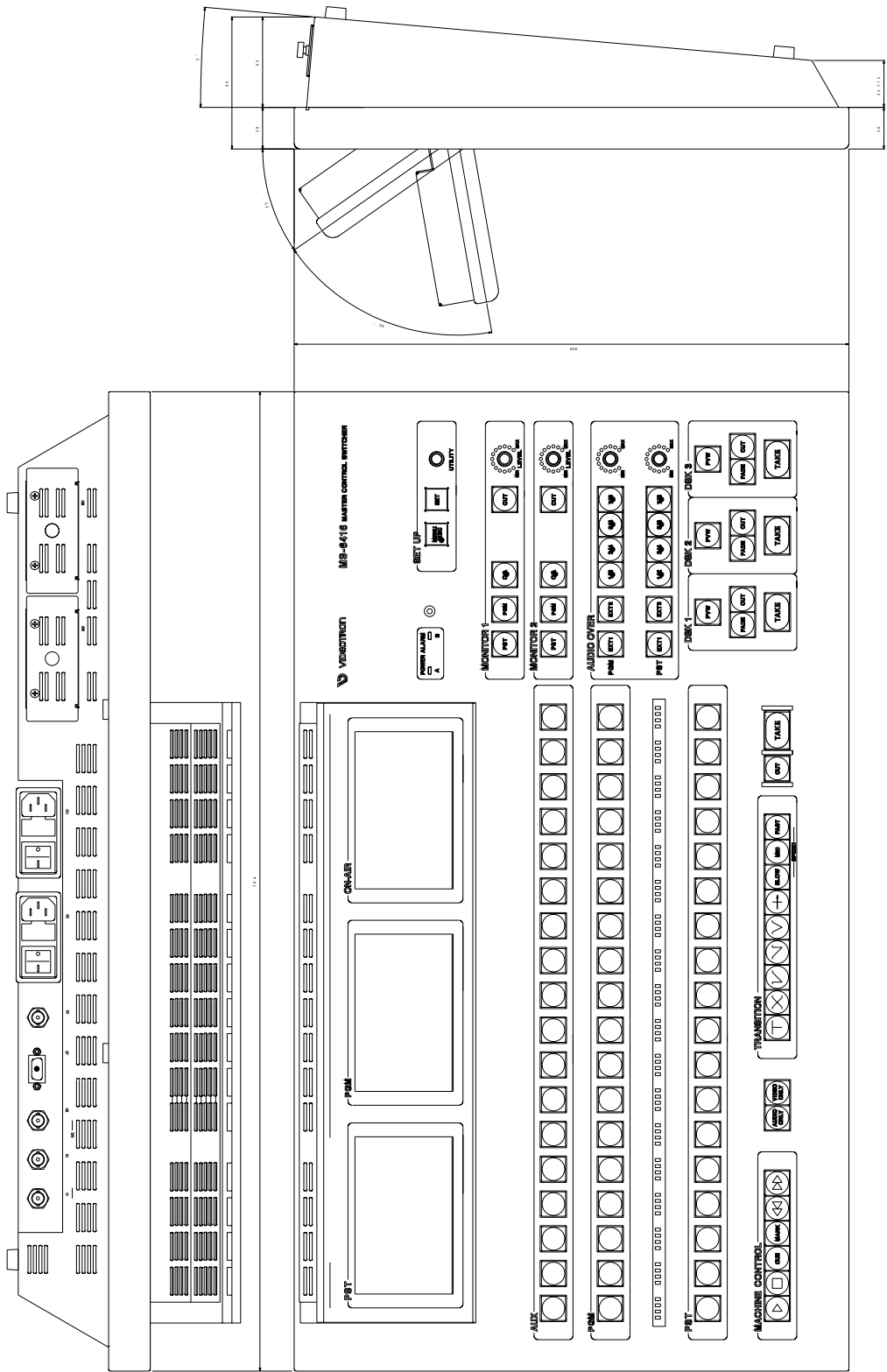
For Audio



Main chassis

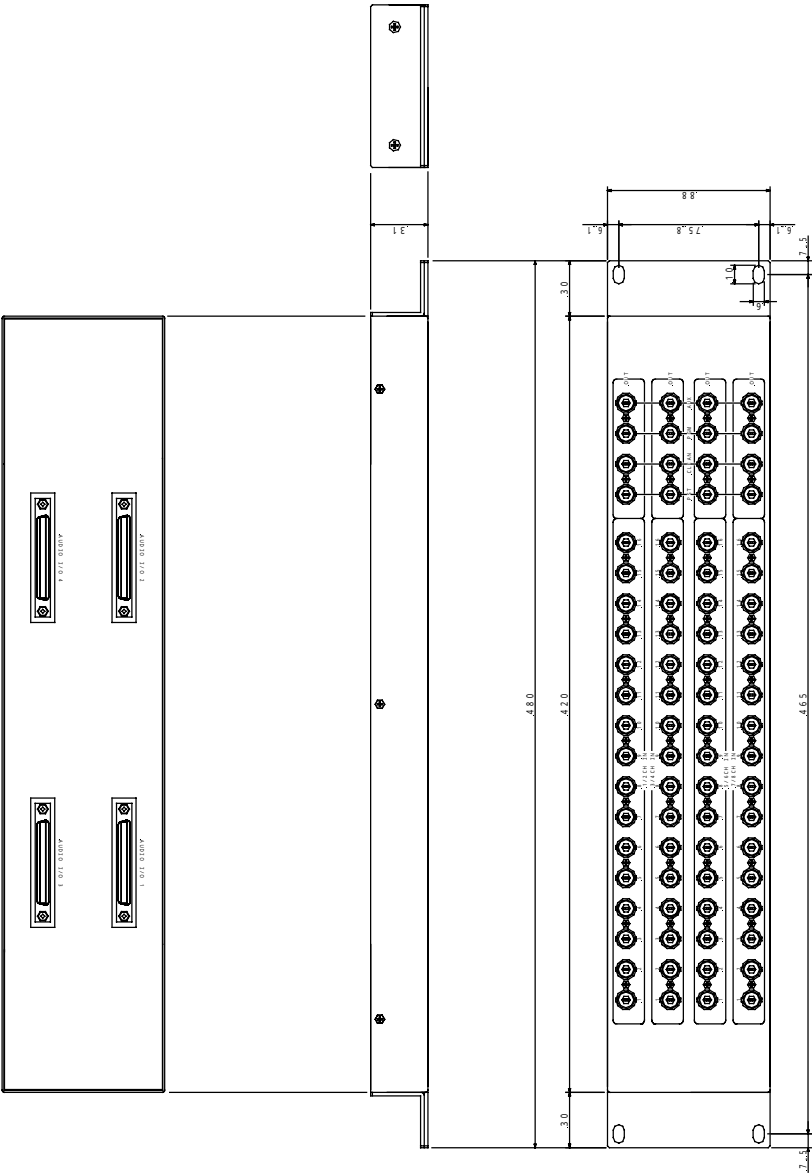


Operation Panel





Audio Breakout (option)



## Four channels master control switcher blockdiagram

