

12G/3G/HD/SD/ASI Routing Switcher

**MFR-4000/6000**

**12G-SDI**

**8K** SUPER  
Hi-VISUAL  
SHV

**4K** ULTRA  
HD

**FOR.A**<sup>®</sup>

12G/3G/HD/SD/ASI ROUTING SWITCHER  
**MFR-4000/6000**



## Powerful 4K and 8K routing with 4K-UHD conversion and 12G-SDI compatibility across all inputs and outputs.

The MFR-4000 supports up to 72 in/72 out and the MFR-6000 supports up to 144 in/144 out. Building on solid MFR series performance, those units inspire confidence in management through redundancy and easy maintenance. What's more, when adding a 4K matrix with 3G-SDI routers, 12G-SDI support enables single-cable transfer of 4K video without complex cabling and fewer channels. Take advantage of the space saved by reducing cables.

### Lineup

#### MFR-4000

- Max. 72 in/72 out matrix in 6 RU frame
- Up to 8 I/O cards, with nine channels per card

#### MFR-6000

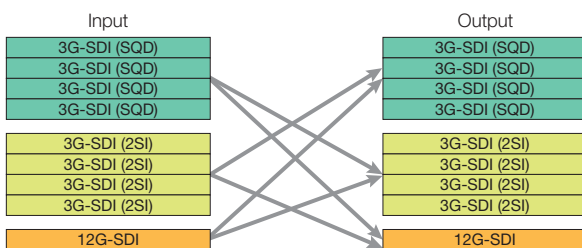
- Max. 144 in/144 out matrix in 13 RU frame
- Up to 16 I/O cards, with nine channels per card

### 12G-SDI Support

Conventional 3G-SDI routing switchers require 4 crosspoints to input and output 4K video. 12G-SDI cabling allows 4K to be carried over a single crosspoint. Units also determine the type of SDI input automatically—no need to worry about what signals are supplied.



### Gearbox Functionality



#### 4K conversion (12G-SDI/quad link 3G-SDI, 2SI/SQD)

Add optional MFR-2SDIGB and MFR-2SDOGB cards to convert video (quad link 3G-SDI/12G-SDI) and mapping (2SI/SQD) formats, opening the door to previously incompatible 12G-SDI equipment, and build your systems around this new specification.

### Solid Performance in Seven Features

#### Multi-format video input and output

Support for 12G/3G/HD/SD-SDI and DVB-ASI input and output. No need to worry about signal formats, thanks to auto signal detection.

#### Outstanding redundancy

As core system components, incorporating redundancy allows FOR-A routing switchers to remain operational in case of problems.

- Redundant CPU board (optional MFR-CPUA)
- Redundant power supply (optional MFR-PSA)
- Router linkage: Parallel operation of two routing switchers ensures matrix redundancy, and allow for quadruple power supply and CPU board redundancy.

#### GUI-based configuration

Built-in webserver enables immediate setup without the necessity of installing software onto external devices. Via this interface, settings can also be configured in an offline environment.

#### Versatile crosspoint control

Besides typical crosspoint switching, the unit enables a variety of crosspoint control.

- Salvo ■ Take ■ Link ■ Error-proofing (Inhibit, Lock)

#### SNMP monitoring

Can be integrated into an SNMP monitoring system. Enables monitoring of various operational states, such as power, fan, and CPU status, SDI signal input or output, and crosspoint errors. If system failure and recovery occur, SNMP traps are sent to managers.

#### Interface expansion units

Three types of interface expansion units are available to suit specific applications.

- MFR-TALM: Tally Manager
- MFR-RULINK: Remote Control Relay Unit
- MFR-GPI: GPI Unit

#### Connectivity with other products

Remote-controllable through the Ethernet or serial ports. Compatibility with common protocols such as TSL and Harris enables tally linkage or auto source name tracking for crosspoint switching. As well as our exclusive interface to the FOR-A line of HVS production switchers and standalone multi viewers.




## Optional




### Video I/O Cards



	Input Cards		
	MFR-9SDI12G	MFR-8SDIEX	MFR-2SDIGB
Supported formats	12G/3G/HD/SD/DVB-ASI	3G/HD/SD/DVB-ASI	12G/3G
BNC	9	8	8
Ports supporting 12G-SDI	9	0	2
Gearbox (12G/3G-SDI interconversion)	0	0	2



	Output Cards		
	MFR-9SDO12G	MFR-8SDOEX	MFR-2SDOGB
Supported formats	12G/3G/HD/SD/DVB-ASI	3G/HD/SD/DVB-ASI	12G/3G
BNC	9	8	8
Ports supporting 12G-SDI	9	0	2
Gearbox (12G/3G-SDI interconversion)	0	0	2

### Remote Control Units

Basic models	MFR-16RUW	MFR-32RUW	MFR-64RUW
			
Size	1RU	1RU	2RU
Buttons	16 (green)	32 (green)	64 (green)
Features	16 customizable buttons	32 customizable buttons	64 customizable buttons

Standard models	MFR-16RU	MFR-16RUD	MFR-40RU
			
Size	1RU	1RU	1RU
Buttons	16 (green)	16 (green)	40 (red/green/orange)
Features	16 customizable buttons	<ul style="list-style-type: none"> <li>16 customizable buttons</li> <li>Equipped with a status/setting menu display</li> </ul>	<ul style="list-style-type: none"> <li>All buttons are customizable</li> <li>Redundant power supply (AC adapter)</li> </ul>

Full-featured models with display	MFR-8RUA	MFR-18RUA
		
Size	Half RU	1RU
Buttons	8 (red/green/orange)	18 (red/green/orange)
Features	<ul style="list-style-type: none"> <li>Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)</li> <li>All buttons are customizable</li> <li>Redundant power supply (AC adapter)</li> </ul>	<ul style="list-style-type: none"> <li>Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)</li> <li>All buttons are customizable</li> <li>Redundant power supply (AC adapter)</li> </ul>

Full-featured models with display	MFR-39RUA	MFR-16RUTA
		
Size	2RU	2RU half tabletop
Buttons	39 (13 x 3 rows)	16 (red/green/orange)
Features	<ul style="list-style-type: none"> <li>Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)</li> <li>6 customizable function buttons (3 colors: R, G, Or) separate from main buttons</li> <li>Equipped with a display showing information on current sources, destinations, and pages</li> <li>Ideal as a main control unit covering the entire crosspoint setup</li> <li>Redundant power supply (AC adapter)</li> </ul>	<ul style="list-style-type: none"> <li>16 customizable buttons</li> <li>Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)</li> </ul>

# Specifications

	MFR-4000	MFR-6000
Video formats	12G-SDI: 2160/59.94p, 2160/50p	
	3G-SDI: 1080/60p, 1080/59.94p, 1080/50p	
	HD-SDI : 1080/60i, 1080/59.94i, 1080/50i, 1080/30p, 1080/30PsF, 1080/29.97p, 1080/29.97PsF, 1080/23.98p, 1080/23.98PsF, 1080/25p, 1080/25PsF, 1080/24p, 1080/24PsF, 720/60p, 720/59.94p, 720/50p	
	SD-SDI : 525/60, 625/50	
Matrix size	Min. 9 x 9 - Max. 72 x 72, expandable in 9-I/O increments	Min. 9 x 9 - Max. 144 x 144, expandable in 9-I/O increments
Video inputs (optional)	Digital video input compliant with the following (75Ω, BNC)	
	MFR-9SDI12G	SDI Input Card: BNC x 9 (8 cards Max.) - Complies with the following standards: SMPTE ST 2082-10 (12G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), DVB-ASI - Cable Equalization: 12G-SDI: 100 m (L-5.5CUHD cable, Belden 4794R), 3G/HD-SDI: 100 m (5C-FB cable, Belden 1694A)
	MFR-8SDIEX	SDI Input Card: BNC x 8 (8 cards Max.) - Complies with the following standards: SMPTE 424M (2.97 Gbps, 2.97/1.001 Gbps), SMPTE 292M (1.485 Gbps, 1.485/1.001 Gbps), SMPTE 259M (270 Mbps), DVB-ASI - Cable Equalization: 3G/HD-SDI: 100 m (5C-FB cable, Belden 1694A), SD-SDI: 200 m (5C-2V cable, Belden 8281)
	MFR-2SDIGB	SDI Input Card: BNC x 2 (12G-SDI or 3G-SDI) or BNC x 6 (3G-SDI) - Complies with the following standards: SMPTE ST 2082-10 (12G-SDI), SMPTE ST 425-5 (Quad link 3G-SDI) - I/O delay selection: Delay (H) (0.3H-1H), 1 frame, 1 frame+ Delay (H)
Video outputs (optional)	Digital video output compliant with the following (75Ω, BNC, with auto relocking)	
	MFR-9SDO12G	SDI Output Card: BNC x 9 (8 cards Max.) - Complies with the following standards (Auto relocking): SMPTE ST 2082-10 (12G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), DVB-ASI - Cable Equalization: 12G-SDI: 100m (L-5.5CUHD cable), 3G/HD-SDI: 100m (5C-FB cable)
	MFR-8SDOEX	SDI Output Card: BNC x 8 (8 cards Max.) - Complies with the following standards (Auto relocking): SMPTE 424M (2.97 Gbps, 2.97/1.001 Gbps), SMPTE 292M (1.485 Gbps, 1.485/1.001 Gbps), SMPTE 259M (270 Mbps), DVB-ASI - Cable Equalization: 3G/HD-SDI: 100m (5C-FB cable), SD-SDI: 200m (5C-2V cable)
	MFR-2SDOGB	SDI Output Card: BNC x 2 (12G-SDI or 3G-SDI ) or BNC x 6 (3G-SDI) - Complies with the following standards: SMPTE ST 2082-10 (12G-SDI), SMPTE ST 425-5 (Quad Link 3G-SDI) - I/O delay selection: Delay (H) (0.3H-1H), 1 frame, 1 frame+ Delay (H)
Genlock input	BB: NTSC 0.429 V (p-p)/PAL: 0.45 V (p-p) or Tri-sync: 0.6 V (p-p), 75Ω, BNC x 1, with loop-through (to be terminated with 75Ω terminator, if unused)	
Interfaces	MFR-LAN	10/100BASE-TX, RJ-45 x 2 (max. Second LAN port used in redundant CPU configuration) (Connected to MFR series products. Up to 128 units can be connected.)
	PC-LAN	10/100/1000BASE-T, RJ-45 x 2 (max. Second LAN port used in redundant CPU configuration) (Connected to a computer or external device)
	SERIAL	RS-422 9-pin D-sub (male) x 1 (can be ordered as RS-232C, using an internal switch)
	ALARM	9-pin D-sub (female) x 1 (Input: Reset, Output: Power, Fan Alarm)
Temperature/humidity	0 °C to 40 °C/30 % to 85 % (no condensation)	
Power	100 V to 240 V AC ±10 %, 50/60 Hz x 2	
Consumption	12G-SDI, in a 72 x 72 configuration with a redundant CPU and power supply: 650 V AC (611 W) (at AC 100 V to 120 V) 660 V AC (501 W) (at AC 220 V to 240 V)	12G-SDI, in a 144 x 144 configuration with a redundant CPU and power supply: 800 V AC (at AC 100 V to 120 V) The power consumption may increase up to the following maximum value depends on the performance: 810 V AC (at AC 220 V to 240 V)
	Dimensions/weight	482 (W) x 265 (H) x 400 (D) mm, EIA 6 RU/35 kg (with all options installed)
Included accessories	Operation manual (CD-ROM), AC cord, AC cord retaining clip	
Consumables	Power unit: Replace every 5 years	Fans (P-1578, P-1579, P-1580 and P-1581): Replace every 4 years
Options* <sup>1</sup>	MFR-GPI: GPI unit	MFR-TALM: Tally manager
	MFR-CPUA: Redundant CPU card	MFR-PSA: Redundant power supply unit

\*1 See "Options" for details on remote control units and video I/O cards.



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