

12G/6G/3G/HD/SD/ASI Routing Switcher

MFR-4100/6100

12G-SDI

8K SHV
SUPER
HI-VISION

4K HD
ULTRA

FOR.A[®]

12G/6G/3G/HD/SD/ASI ROUTING SWITCHER
MFR-4100/6100



With 12G-SDI*¹ or 6G-SDI compatibility across all inputs and outputs, the MFR-4100/6100 brings powerful support to 4K routing.

The MFR-4100 supports up to 72 inputs/72 outputs and the MFR-6100 supports up to 144 inputs/144 outputs. Building on the solid MFR series performance, those units inspire confidence thanks to their redundant design. With 12G-SDI support, 4K signals are carried over a single cable, resulting in less space needed for equipment and easier setup.

Lineup

MFR-4100

- Max. 72 in/72 out matrix in a 7 RU frame
- Up to 8 input cards and 8 output cards, with nine channels per card

MFR-6100

- Max. 144 in/144 out matrix in a 13 RU frame
- Up to 16 input cards and 16 output cards, with nine channels per card

Multi-format video input and output

Support for 12G*¹/6G/3G/HD/SD-SDI and DVB-ASI*² input and output. With auto signal detection, there's no need to worry about signal formats.

Video I/O Cards

	12G-SDI support		6G-SDI support	
	MFR-9SDI12GA* ³	MFR-9SDO12GA	MFR-9SDI* ³	MFR-9SDO* ⁴
Supported formats	12G/6G/3G/HD/SD-SDI	12G/6G/3G/HD/SD-SDI	6G/3G/HD/SD-SDI/DVB-ASI	6G/3G/HD/SD-SDI/DVB-ASI
BNC	9	9	9	9

*1 MFR-9SDI12GA and MFR-9SDO12GA are required *2 The number of installed cards are limited when the MFR-9SDI12GA and the MFR-9SDI are installed together *3 MFR-9SDI and MFR-9SDO are required *4 To be released

Features to maintain a stable system

SDI input signal error detection*⁵

Alerts in the GUI*⁶ inform the user of any SDI input signal errors (CRC/TRS). This supports solid operation as a 12G-SDI system.

*5 When equipped with MFR-9SDI12GA *6 To check error details, use a waveform monitor.

Jitter cleaning*⁷

Reduce jitter in SDI signals to ensure stable signals sent to downstream equipment.

*7 MFR-9SDI12GA/MFR-9SDO12GA are required

Front control panel

Equipped with a control panel for menu display. Error display possible, when needed.

SNMP support

Can be integrated into an SNMP monitoring system. Enables monitoring of various operational status, such as power, fan, and CPU status, SDI signal input*⁸, and crosspoint errors. If system failure and recovery occur, SNMP traps are sent to managers.

*8 MFR-9SDI12GA required

Outstanding redundancy

Can be configured with redundant CPUs and power supplies (optional). As core system components, FOR-A routing switchers can incorporate redundancy to ensure nonstop operation in case of problems.

Improved usability

Matrix partition capability

One routing switcher can be virtually partitioned to build any theoretical hierarchy, creating possibilities for use in various operations.

Application Examples

■ 4K/8K switcher (supporting crosspoint)

4K and 8K signal switching with coordinated control of multiple crosspoints

■ 4K/HD simul-switcher

Simulcast operations involving separate or simultaneous control of 4K and HD material

■ Fully independent switching

Use a single enclosure as multiple routing switchers by partitioning a configuration. Ideal for operation equivalent to multiple units without sharing sources.

■ V/Key linking switcher

Divide the matrix into two partitions for coordinated control of video and key signals.

GUI-based configuration

A built-in webserver enables immediate setup without installing software on external devices.

Versatile crosspoint control

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

■ Salvo ■ Take ■ Link ■ Level ■ Chop

Interface expansion units

Two types of interface expansion units are available:

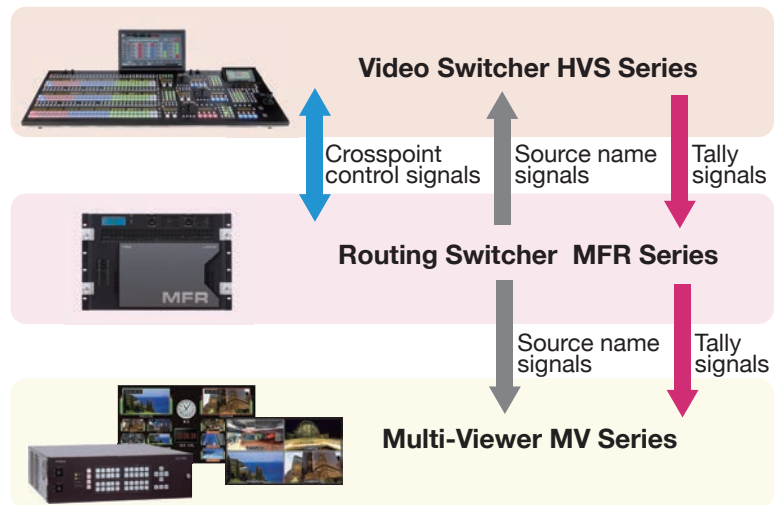
■ MFR-TALM: Tally Manager
 ■ MFR-GPI: GPI Unit

Connectivity with other products

Can be remote-controlled through the Ethernet or serial ports. Compatibility with common protocols such as TSL and HARRIS, which enables tally linkage*⁹ or auto source name tracking for crosspoint switching*⁹. Routing switcher are also integrated with FOR-A's exclusive interface to our line of HVS production switchers and standalone multi-viewers.

*⁹ MFR-9SDI12GA/MFR-9SDO12GA are required

- Offers integrated management of source name signals from MFR routing switchers, which automatically send source names to HVS Series switchers and MV Series multi-viewers.
- HVS switcher tally signals are automatically sent to MFR routing switchers and MV multi-viewers for coordinated display.
- Crosspoint control from both HVS switchers and MFR routing switchers.



Optional

Remote Control Units (Up to 127 units can be connected)

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"> • 16 customizable buttons • Equipped with a status/setting menu display 	<ul style="list-style-type: none"> • All buttons are customizable • Redundant power supply (AC adapter)
Full-featured models with display	MFR-18RUA 	MFR-39RUA 	MFR-16RUTA
Size	1RU	2RU	2RU half tabletop
Buttons	18 (red/green/orange)	39 (13 x 3 rows)	16 (red/green/orange)
Features	<ul style="list-style-type: none"> • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B) • All buttons are customizable • Redundant power supply (AC adapter) 	<ul style="list-style-type: none"> • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B) • customizable function buttons (3 colors: R, G, Or) separate from main buttons • Equipped with a display showing information on current sources, destinations, and pages • Ideal as a main control unit covering the entire crosspoint setup • Redundant power supply (AC adapter) 	<ul style="list-style-type: none"> • 16 customizable buttons • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)

Accessoris

MFR-4100

- AC cord, CD-ROM(operation manual(PDF)), quick setup guide.

MFR-6100

- AC cord, CD-ROM(operation manual(PDF)), quick setup guide.



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MFR-4100 Datasheet

1. Specifications

Basic specifications

Temperature / Humidity	0°C to 40°C / 30% to 85% (no condensation)
Power	100 VAC to 240 VAC ±10%, 50/60Hz IN
Consumption	SDI 72 x 72, Dual CPU/Redundant Power Unit (Maximum Configuration) 100 V AC to 120 V AC: 900 VA (891 W) 220 V AC to 240 V AC: 946 VA (841 W)
Dimensions	430 (W) x 310 (H) x 400 (D) mm EIA 7RU 480 (W) (Including rack mount brackets)
Weight	50.0 kg (Including all options)
Consumables	Power supply unit: Replace every 5 years. FAN1-3 (P-1651): Replace every 4 years. FAN4-5 (P-1650): Replace every 4 years.

Technical specifications

Video format	
UHD 4K (12G-SDI)	2160/59.94p, 50p (SMPTE ST 2082-1)
(6G-SDI)	2160/30p, 29.97p, 25p, 24p, 23.98p (SMPTE ST 2081-1)
HD (3G-SDI)	1080/60p, 59.94p, 50p (SMPTE424M)
HD (HD-SDI)	1080/60i, 59.94i, 50i, 30p, 30PsF, 29.97p, 29.97PsF, 23.98p, 23.98PsF, 25p, 25PsF, 24PsF, 24p, 720/60p, 59.94p, 50p (SMPTE292M)
SD (SD-SDI)	525/59.94i, 625/50i (SMPTE259M-C, SMPTE259M)
Matrix Size	Min. 9 x 9 to Max. 72 x 72 (Expandable on a 9-channel basis) Number of input slots: 8 Number of output slots: 8
Video input	
MFR-9SDI12GA	12G/6G/3G/HD/SD-SDI Input Card (8 cards Max.) 75-ohm BNC x 9
MFR-9SDI	6G/3G/HD/SD-SDI Input Card (8 cards Max.) 75-ohm BNC x 9
Video output	
MFR-9SDO12GA	12G/6G/3G/HD/SD-SDI Output Card (8 cards Max.) 75-ohm BNC x 9 (Auto reclocking)
MFR-9SDO	6G/3G/HD/SD-SDI Output Card (8 cards Max.) 75-ohm BNC x 9 (Auto reclocking)

Process Delay	<p>When MFR-9SDI12GA and MFR-9SDO12GA cards are installed.</p> <p>12G-SDI: Less than 1.0 μs 6G-SDI: Less than 1.0 μs 3G-SDI: Less than 1.0 μs HD-SDI: Less than 1.5 μs SD-SDI: Less than 3.0 μs</p> <p>When MFR-9SDI and MFR-9SDO12GA cards are installed. When MFR-9SDI12GA and MFR-9SDO cards are installed.</p> <p>6G-SDI: Less than 0.5 μs 3G-SDI: Less than 0.5 μs HD-SDI: Less than 0.8 μs SD-SDI: Less than 1.5 μs</p>
Reference Input	BB: NTSC: 0.429Vp-p/PAL: 0.45Vp-p or Tri-level Sync: 0.6V(p-p) 75-ohm BNC x 2, loop-through (Terminate with 75-ohm terminator, if unused.)
Interfaces	
MFR-LAN	10/100 BASE-TX, RJ-45 x 2 (For connecting up to 128 RU/GPI units.) (Second LAN port used in redundant CPU configuration)
PC-LAN	10/100/1000 BASE-T, RJ-45 x 2 (for PC operation) (Second LAN port used in redundant CPU configuration)
SERIAL	RS-232C/RS-422 (Selectable), 9-pin D-sub (male) x 1
ALARM	9-pin D-sub 9 (female) x1 (Output: Power, Fan Alarm, Crosspoint Error, CPU changeover, Secondary CPU Error, MTX Alarm)

MFR-4100 Options

MFR-41CPU	Redundant CPU card
MFR-41PS	Redundant power supply unit (AC cord retainer clip included.)

Other Options

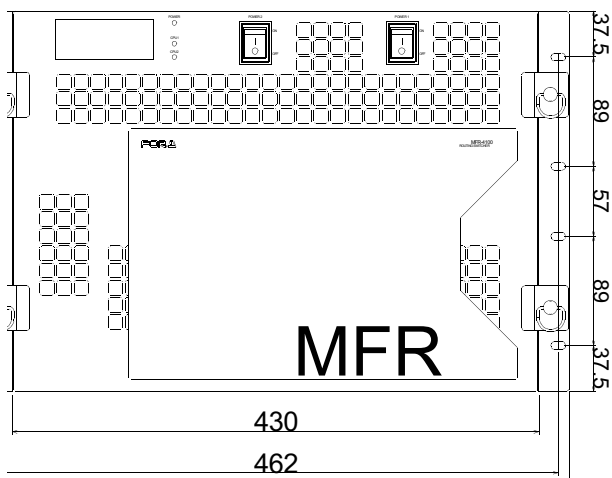
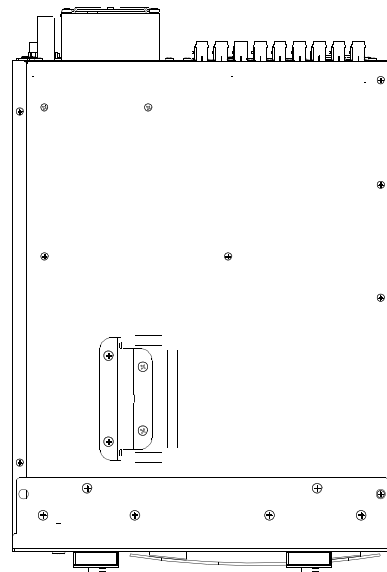
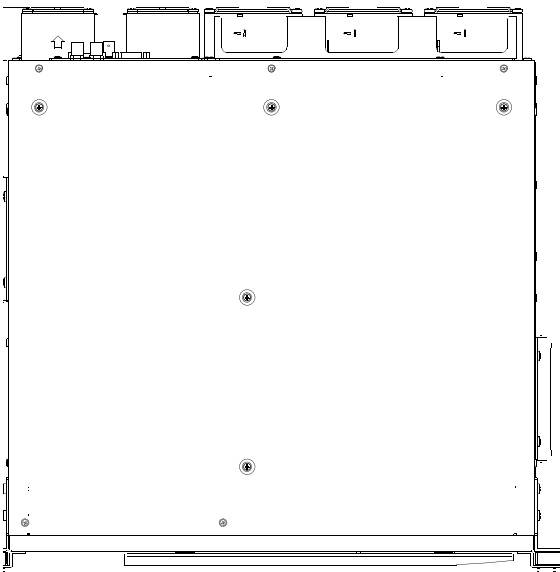
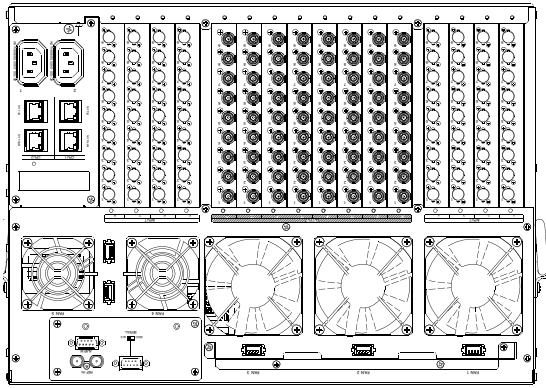
MFR-18RUA/39RUA/8RUA MFR-39RU/40RU/18RU MFR-16RU/16RUD/16RUTA MFR-16/32/64RUW	Remote Control Unit
MFR-GPI	Interface Expansion Unit
MFR-TALM	Tally Manager Unit

Accessories

AC cord, CD-ROM, and Quick setup guide

2. External Dimensions

(All dimensions in mm.)



MFR-6100 Datasheet

1. Specifications

Basic specifications

Temperature / Humidity	0°C to 40°C / 30% to 85% (no condensation)
Power	100 VAC to 240 VAC ±10%, 50/60Hz IN
Consumption	SDI 144 x 144, Dual CPU/Redundant Power Unit (Maximum Configuration) 100 V AC to 120 V AC: 1500 VA (1500 W) 220 V AC to 240 V AC: 1584 VA (1457 W)
Dimensions	430 (W) x 576 (H) x 400 (D) mm, EIA 13 RU 480 (W) (Including rack mount brackets)
Weight	88.8 kg (Including all options)
Consumables	Power supply unit: Replace every 5 years FAN1-4 (P-1649): Replace every 4 years. FAN5-6 (P-1648): Replace every 4 years.

Technical specifications

Video Formats	
UHD 4K (12G-SDI)	2160/59.94p, 50p (SMPTE ST 2082-1)
(6G-SDI)	2160/30p, 29.97p, 25p, 24p, 23.98p (SMPTE ST 2081-1)
HD (3G-SDI)	1080/60p, 59.94p, 50p (SMPTE424M)
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SD (SD-SDI)	525/59.94i, 625/50i (SMPTE259M-C, SMPTE259M)
Matrix Size	Min. 9 x 9 to Max. 144 x 144 (Expandable on a 9-channel basis) Number of input slots: 16 Number of output slots: 16
Video Input	
MFR-9SDI12GA	12G/6G/3G/HD/SD-SDI Input Card (16 cards Max.) 75-ohm BNC x 9
MFR-9SDI	6G/3G/HD/SD-SDI Input Card (16 cards Max.) 75-ohm BNC x 9
Video Output	
MFR-9SDO12GA	12G/6G/3G/HD/SD-SDI Output Card (16 cards Max.) 75-ohm BNC x 9 (Auto reclocking)
MFR-9SDO	6G/3G/HD/SD-SDI Output Card (16 cards Max.) 75-ohm BNC x 9 (Auto reclocking)

Process Delay	<p>When MFR-9SDI12GA and MFR-9SDO12GA cards are installed.</p> <p>12G-SDI: Less than 1.0 μs 6G-SDI: Less than 1.0 μs 3G-SDI: Less than 1.0 μs HD-SDI: Less than 1.5 μs SD-SDI: Less than 3.0 μs</p> <p>When MFR-9SDI and MFR-9SDO12GA cards are installed. When MFR-9SDI12GA and MFR-9SDO cards are installed.</p> <p>6G-SDI: Less than 0.5 μs 3G-SDI: Less than 0.5 μs HD-SDI: Less than 0.8 μs SD-SDI: Less than 1.5 μs</p>
Reference Input	BB: 0.429 Vp-p (NTSC) / 0.45 Vp-p (PAL) or Tri-level Sync: 0.6 Vp-p 75-ohm BNC x 2, loop-through (Terminate with 75-ohm terminator, if unused.)
Interfaces	
MFR-LAN	10/100 BASE-TX, RJ-45 x 2 (For connecting up to 128 RU/GPI units.) (Second LAN port used in redundant CPU configuration)
PC-LAN	10/100/1000 BASE-T, RJ-45 x 2 (for PC operation) (Second LAN port used in redundant CPU configuration)
SERIAL	RS-232C/RS-422 (Selectable), 9-pin D-sub (male) x 1
ALARM	9-pin D-sub 9 (female) x1 (Output: Power, Fan Alarm, Crosspoint Error, CPU changeover, Secondary CPU Error, MTX Alarm)

MFR-6100 Options

MFR-61CPU	Redundant CPU card
MFR-61PS	Redundant power supply unit (AC cord retainer clip included.)

Other Options

MFR-18RUA/39RUA/8RUA MFR-39RU/40RU/18RU MFR-16RU/16RUD/16RUTA MFR-16/32/64RUW	Remote Control Unit
MFR-GPI	Interface Expansion Unit
MFR-TALM	Tally Manager Unit

Accessories

AC cord, CD-ROM, and Quick setup guide

2. External Dimensions

(All dimensions in mm.)

