

12G/6G/3G/HD/SD/ASI Routing Switcher  
**MFR-4100/6100**

**FOR.A**<sup>®</sup>

**12G-SDI**

**8K** SUPER  
HI-VISION  
**SHV**

**4K** ULTRA  
**HD**

12G/6G/3G/HD/SD/ASI Routing Switcher  
**MFR-4100/6100**



## With 12G-SDI\*<sup>1</sup> 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\*<sup>1</sup>/6G/3G/HD/SD-SDI and DVB-ASI\*<sup>2</sup> 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* <sup>3</sup>	MFR-9SDO12GA	MFR-9SDI* <sup>3</sup>	MFR-9SDO* <sup>4</sup>
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\*<sup>5</sup>

Alerts in the GUI\*<sup>6</sup> 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\*<sup>7</sup>

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\*<sup>8</sup>, 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\*<sup>9</sup> or auto source name tracking for crosspoint switching\*<sup>9</sup>. Routing switcher are also integrated with FOR-A's exclusive interface to our line of HVS production switchers and standalone multi-viewers.

\*<sup>9</sup> MFR-9SDI12GA/MFR-9SDO12GA are required.



- MFR routing switcher crosspoints can be controlled from HVS video switchers.
- Integrated management of source names by MFR, which automatically send source names to HVS and MV multi viewers.

- HVS and MFR exchange tally information with each other.
- Source names and tally linkage between MFR and MV are controlled by TSL protocol.

Support varies by model and function. For details, contact your FOR-A dealer.

## Optional

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

Basic models	<b>MFR-16RUW</b> 	<b>MFR-32RUW</b> 	<b>MFR-64RUW</b> 
Size	1RU	1RU	2RU
Buttons	16 (green)	32 (green)	64 (green)
Features	16 customizable buttons	32 customizable buttons	64 customizable buttons
Standard models	<b>MFR-16RU</b> 	<b>MFR-16RUD</b> 	<b>MFR-40RU</b> 
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	<b>MFR-18RUA</b> 	<b>MFR-39RUA</b> 	<b>MFR-16RUTA</b> 
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"> <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>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>

## 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)
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 <math>\mu</math>s          6G-SDI: Less than 1.0 <math>\mu</math>s          3G-SDI: Less than 1.0 <math>\mu</math>s          HD-SDI: Less than 1.5 <math>\mu</math>s          SD-SDI: Less than 3.0 <math>\mu</math>s</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 <math>\mu</math>s          3G-SDI: Less than 0.5 <math>\mu</math>s          HD-SDI: Less than 0.8 <math>\mu</math>s          SD-SDI: Less than 1.5 <math>\mu</math>s</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, it 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)

### Options

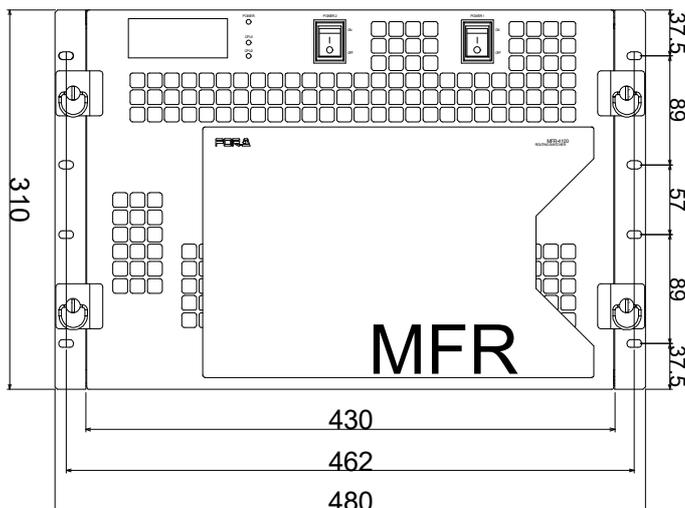
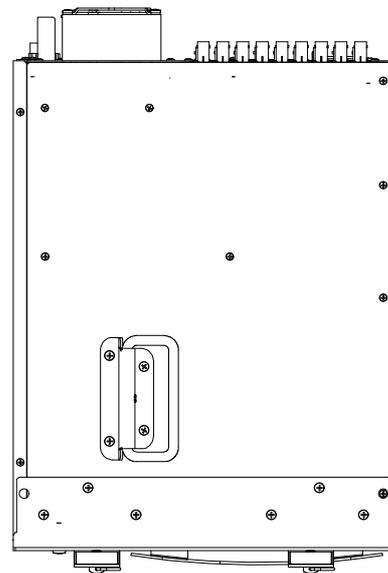
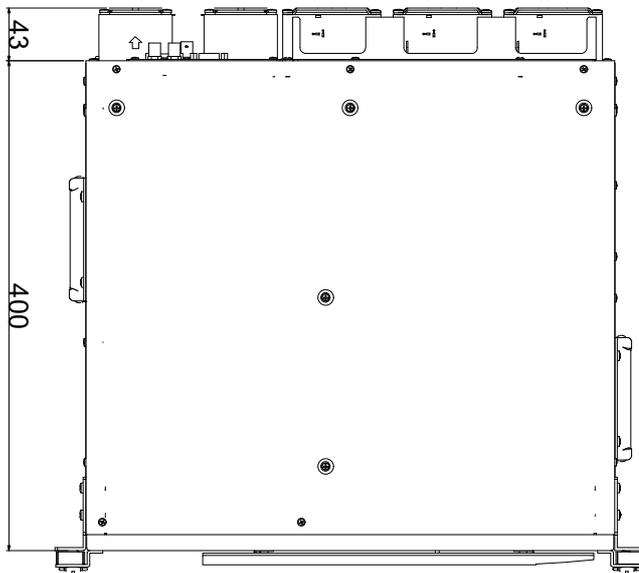
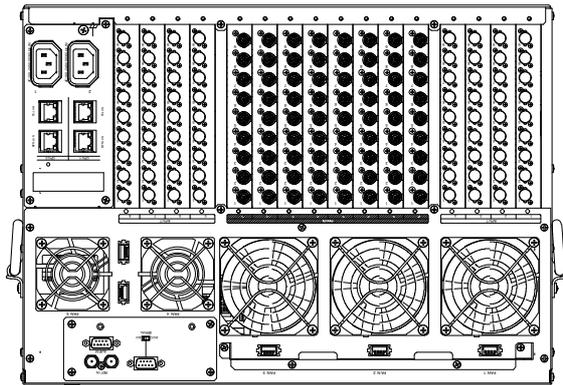
MFR-41CPU	Redundant CPU card
MFR-41PS	Redundant power supply unit (AC cord retainer clip included.)
MFR-18RUA/39RUA/8RUA/40RU MFR-16RU/16RUD/16RUTA MFR-16RUW/32RUW/64RUW	Remote Control Unit
MFR-GPI	Interface Expansion Unit
MFR-TALM	Tally Manager Unit

### Accessories

AC cord 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 $\pm$ 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)
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)
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 <math>\mu</math>s          6G-SDI: Less than 1.0 <math>\mu</math>s          3G-SDI: Less than 1.0 <math>\mu</math>s          HD-SDI: Less than 1.5 <math>\mu</math>s          SD-SDI: Less than 3.0 <math>\mu</math>s</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 <math>\mu</math>s          3G-SDI: Less than 0.5 <math>\mu</math>s          HD-SDI: Less than 0.8 <math>\mu</math>s          SD-SDI: Less than 1.5 <math>\mu</math>s</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)

### Options

MFR-61CPU	Redundant CPU card
MFR-61PS	Redundant power supply unit (AC cord retainer clip included.)
MFR-8RUA/18RUA/39RUA/40RU MFR-16RU/16RUD/16RUTA MFR-16RUW/32RUW/64RUW	Remote Control Unit

### Accessories

AC cord and Quick setup guide

**2. External Dimensions**

(All dimensions in mm.)

