

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

**MFR-4100/6100**

**12G-SDI**

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

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

**FOR.A**<sup>®</sup>

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\*<sup>2</sup>-SDI and DVB-ASI\*<sup>3</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                       | MFR-9SDO12GA                       | MFR-9SDI* <sup>4</sup>                                 | MFR-9SDO* <sup>4</sup>                                 |
| Supported formats | 12G/6G/3G/HD/SD* <sup>2</sup> -SDI | 12G/6G/3G/HD/SD* <sup>2</sup> -SDI | 6G/3G/HD/SD* <sup>2</sup> -SDI/<br>DVB-ASI/AES10(MADI) | 6G/3G/HD/SD* <sup>2</sup> -SDI/<br>DVB-ASI/AES10(MADI) |
| BNC               | 9                                  | 9                                  | 9  | 9  |

\*1 MFR-9SDI12GA and MFR-9SDO12GA are required \*2 Planned for future support \*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.

\*<sup>5</sup> When equipped with MFR-9SDI12GA \*<sup>6</sup> 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.

\*<sup>7</sup> 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.

\*<sup>8</sup> 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

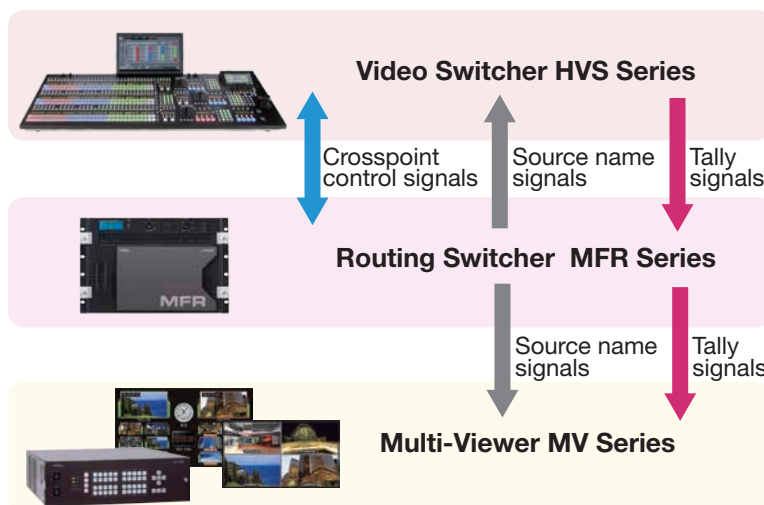
Two types of interface expansion units are available:

- 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 or auto source name tracking for crosspoint switching. Routing switcher are also integrated with FOR-A's exclusive interface to our line of HVS production switchers and standalone multi-viewers.

- 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-16RUD  | MFR-40RU  |
|-----------------|--|---|
|                 |  |   |
| Size            | 1RU  | 1RU   |
| Buttons         | 16 (green)   | 40 (red/green/orange)   |
| Features        | <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 <Preliminary>

|                          | MFR-4100  | MFR-6100  |
|--------------------------|---|---|
| Video formats            | 12G-SDI: 2160/59.94p, 2160/50p (UHD: 3840x2160p, Full 4K: 4096x2160p)<br>6G-SDI: 2160/29.97p, 2160/25p<br>3G-SDI: 1080/60p, 1080/59.94p, 1080/50p<br>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<br>SD-SDI*1: 525/59.94i, 625/50i |   |
| Matrix size              | Min. 9 x 9 - Max. 72 x 72, expandable in 9-I/O increments   |   |
| Video inputs (optional)  | Digital video input compliant with the following (75Ω, BNC)   |   |
| MFR-9SDI12GA             | SDI Input Card: BNC x 9 (MFR-4100: up to 8 cards, MFR-6100: up to 16 cards)<br>- Complies with the following standards: SMPTE ST 2082-1 (12G-SDI), SMPTE ST 2081-1 (6G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI)*1<br>- Cable Equalization: 12G-SDI: 70 m (L-5.5CUHD cable, Belden 4794R), 3G/HD-SDI: 100 m (5C-FB cable, Belden 1694A)                   |   |
| MFR-9SDI*2               | SDI Input Card: BNC x 9 (MFR-4100: up to 8 cards, MFR-6100: up to 16 cards)<br>- Complies with the following standards: SMPTE ST 2081-1 (6G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI)*1, DVB-ASI, AES10 (MADI)<br>- Cable Equalization: 3G/HD-SDI: 100 m (5C-FB cable, Belden 1694A), SD-SDI: 200 m (5C-2V cable, Belden 8281)                            |   |
| Video outputs (optional) | Digital video output compliant with the following (75Ω, BNC, with auto reclocking)  |   |
| MFR-9SDO12GA             | SDI Output Card: BNC x 9 (MFR-4100: up to 8 cards, MFR-6100: up to 16 cards)<br>- Complies with the following standards (Auto reclocking): SMPTE ST 2082-1 (12G-SDI), SMPTE ST 2081-1 (6G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI)*1   |   |
| MFR-9SDO*2               | SDI Output Card: BNC x 9 (MFR-4100: up to 8 cards, MFR-6100: up to 16 cards)<br>- Complies with the following standards (Auto reclocking): SMPTE ST 2081-1 (6G-SDI), SMPTE 424M (3G-SDI), SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI)*1, DVB-ASI, AES10 (MADI)   |   |
| I/O delay                | When MFR-9SDI12GA and MFR-9SDO12GA installed  |   |
|                          | - 12G-SDI: 1.0usec or less<br>- 6G-SDI: 1.0usec or less<br>- 3G-SDI: 1.0usec or less<br>- HD-SDI: 1.5usec or less<br>- SD-SDI*1: 3.0usec or less  |   |
| Genlock input            | BB: 525/59.94i: 0.429 V (p-p)/ 625/50i: 0.45 V (p-p) or Tri-sync: 0.6 V (p-p), 75Ω, BNC x 2, 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)<br>(Connected to RU/GPI units. 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)<br>(Connected to a computer or external device)   |
|                          | SERIAL  | RS-232C/422 (internal switch) 9-pin D-sub (male) x 1  |
|                          | ALARM   | 9-pin D-sub (female) x 1 (Input: Reset, Output: Power, Fan Alarm, CPU changeover, Secondary CPU alarm, Cross point error)   |
| 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 (MFR-9SDI12GA x 8, MFR-9SDO12GA x 8) with a redundant CPU and power supply:<br>900 V AC (891 W) (at AC 100 V to 120 V)<br>946 V AC (841 W) (at AC 220 V to 240 V)   | 12G-SDI, in a 144 x 144 configuration (MFR-9SDI12GA x 16, MFR-9SDO12GA x 16) with a redundant CPU and power supply:<br>1400 V AC (1400 W) (at AC 100 V to 120 V)<br>1496 V AC (1466 W) (at AC 220 V to 240 V) |
| Dimensions/weight        | 430 (W) x 310 (H) x 400 (D) mm, EIA 7 RU/49.1 kg (with all options installed)   | 430 (W) x 576 (H) x 400 (D) mm, EIA 13 RU/88.8 kg (with all options installed)  |
| Included accessories     | Operation manual (CD-ROM), AC cord, AC cord retaining clip  |   |
| Consumables              | Power unit: Replace every 5 years<br>Fan 1-3 (P-1651): Replace every 4 years<br>Fan 4-5 (P-1650): Replace every 4 years   | Power unit: Replace every 5 years<br>Fan 1-2 (P-1648): Replace every 4 years<br>Fan 3-6 (P-1649): Replace every 4 years   |
| Options*3                | MFR-GPI: GPI unit<br>MFR-TALM: Tally manager<br>MFR-41CPU: Redundant CPU card<br>MFR-41PS: Redundant power supply unit  | MFR-GPI: GPI unit<br>MFR-TALM: Tally manager<br>MFR-61CPU: Redundant CPU card<br>MFR-61PS: Redundant power supply unit  |

\*1 Planned for future support \*2 To be released \*3 See "Optional" for details on remote control units.



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