

## MFR-5000 Datasheet

### 1. Specifications

#### Basic specifications

Temperature	0°C to 40°C
Humidity	30% to 85% (no condensation)
Power	100 VAC to 240 VAC $\pm$ 10%, 50/60Hz IN x 2
Consumption	128 x 128 input/output, Dual CPU/Redundant Power Unit (Maximum Configuration): 100 V AC to 120 V AC: 380 VA (380 W) 220 V AC to 240 V AC: 462 VA (438 W) * The power consumption may increase up to the following maximum value if performing different signal routing such as video and audio routing. 100 V AC to 120 V AC: 1000 VA (982 W) 220 V AC to 240 V AC: 946 VA (938 W)
Dimensions	429 (W) x 354 (H) x 402 (D) mm, EIA 8 RU 480 (W) (Including rack mount brackets)
Weight	50 kg (with full options)
Consumables (at 24-hour operation)	Power supply unit: Replace every 5 years Fans: P-1426, P-1429, P-1656, P-1657 Replace every 4 years

#### Technical specifications

Video Formats	
4K UHD (12G-SDI) (3G-SDI)	2160/59.94p, 50p (W/ MFR-16SDIGB / 16SDOGB) Single Link 12G-SDI (SMPTE 2082-10) Quad Link 3G-SDI (SMPTE ST 425-5)
HD (3G-SDI)	1080/60p, 59.94p, 50p (SMPTE 424M)
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 (SMPTE 292M)
SD (SD-SDI)	525/59.94i, 625/50i (SMPTE 259M)
DVB-ASI	Compliant to EN 50083-9
Matrix Size	Min. 16 x 16 to Max. 128 x 128 + Monitor OUT x 4 Number of input slots: 8 Number of output slots: 8 (Expandable on a 16-channel basis)
Video Input	
MFR-16SDI/ 16SDIA	3G/HD/SD-SDI Input Card (Max. 8 cards) - 75-ohm BNC x 16 Cable Equalization 3G/HD-SDI: 100 m (5C-FB cable) SD-SDI: 200 m (5C-2V cable)
MFR-16SDIB (as video input)	3G/HD/SD-SDI Input Card (Max. 8 cards) - 75-ohm BNC x 16 Cable Equalization 3G/HD-SDI: 100 m (5C-FB cable) SD-SDI: 200 m (5C-2V cable)

MFR-16SDIGB	<p>12G/3G-SDI Input Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 4 (12G-SDI or 3G-SDI)</li> <li>- 75-ohm BNC x 12 (3G-SDI)</li> </ul> <p>I/O delay selection Delay (H) (0.3H-1H), 1 frame, 1 frame+ Delay (H)</p>
Video Output	
MFR-16SDO	<p>3G/HD/SD-SDI Output Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 16 (Auto reclocking)</li> </ul>
MFR-16SDOGB	<p>12G/3G-SDI Output Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 4 (12G-SDI or 3G-SDI)</li> <li>- 75-ohm BNC x 12 (3G-SDI)</li> </ul> <p>I/O delay selection Delay (H) (0.3H-1H), 1 frame, 1 frame+ Delay (H)</p>
Monitoring Output	3G/HD/SD-SDI, DVB-ASI: 75-ohm BNC x 4 (Auto reclocking not supported)
Audio Input	
MFR-16ADI	<p>AES/EBU Audio Input Card with SRC (Max. 4 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 16 (16 stereo pairs, 32 channels)</li> <li>- 32kHz, 44.1kHz, 48kHz, 96kHz</li> </ul>
MFR-16AAI	<p>Analog Audio Input Card with A/D converter (Max. 4 cards)</p> <ul style="list-style-type: none"> <li>- 25-pin D-sub (female) x 4 (16 stereo pairs, 32 channels)</li> <li>- Balanced or unbalanced, 600-ohm or high impedance</li> <li>- A/D conversion: 48kHz / 24bit</li> </ul>
MFR-16AAIEX	<p>Analog Audio Input Card with A/D converter (Max. 4 cards)</p> <ul style="list-style-type: none"> <li>- 25-pin D-sub (female) x 4 (16 stereo pairs, 32 channels)</li> <li>- Balanced or unbalanced, 600-ohm or high impedance</li> <li>- A/D conversion: 48kHz / 24bit</li> </ul>
MFR-16AESI	<p>AES/EBU Audio Input Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 16 (16 stereo pairs, 32 channels)</li> <li>- 48kHz / 24bit (No limitation for MFR-16AESO)</li> </ul>
MFR-16SDIB (as audio input)	<p>MADI Audio Input Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm, BNC x 16 (MADI x 16)</li> <li>- MADI: 64-channel, 48kHz / 24bit</li> </ul>
Audio Output	
MFR-16AAOEX	<p>Analog Audio Output Card with D/A converter (Max. 4 cards)</p> <ul style="list-style-type: none"> <li>- 25-pin D-sub (female) x 4 (16 stereo pairs, 32 channels)</li> <li>- Balanced or unbalanced, less than 100-ohm</li> <li>- D/A conversion: 48kHz / 24bit</li> </ul>
MFR-16ADAO	<p>Embedded/AES/Analog Audio Output Card (Max. 8 cards)</p> <p>AES/EBU (Synchronous only)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 8 (8 stereo pairs. 16 channels)</li> <li>- 48 kHz / 24bit</li> </ul> <p>Embedded audio (1080/59.94i or 1080/60i)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 2 (8 stereo pairs. 16 channels),</li> <li>- Unbalanced, 48 kHz / 24bit</li> </ul> <p>Analog audio</p> <ul style="list-style-type: none"> <li>- 25-pin D-sub (female) x 1 (4 stereo pairs. 8 channels),</li> <li>- Balanced or unbalanced, less than 100-ohm, / 24bit</li> </ul>
MFR-16AESO	<p>AES/EBU Audio Output Card (Max. 8 cards)</p> <ul style="list-style-type: none"> <li>- 75-ohm BNC x 16 (16 stereo pairs. 32 channels)</li> <li>- 48kHz / 24bit (No limitation for MFR-16AESI)</li> </ul>

MFR-16MADIPO	MADI/SDI Output Card (Max. 8 cards) - 75-ohm BNC x 16 (MADI/SDI x 16) - 48 kHz / 24bit - Output delay time: 1 ms or less Video Output - 3G-SDI: 1080/59.94p, 1080/50p - HD-SDI: 1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/23.98PsF, 720/59.94p - Additional delay time: I/O delay selection Delay (H) (0.2H-1H)
MFR-16AESPO	AES/EBU Audio Output Card (Max. 8 cards) - 75-ohm BNC x 16 (16 stereo pairs. 32 channels) - 48 kHz / 24bit - Output delay: 1 ms or less
RS-422 data input/output	
MFR-16DTIO	RS-422 data Input / Output Card (Max. 8 cards) Data rate: Max. 115.2 kbps 9-pin D-sub (female) x 16
Reference Input	BB: 0.429 Vp-p (NTSC)/0.45 Vp-p (PAL) or Tri-level Sync: $\pm 0.3$ Vp-p 75-ohm BNC x 2, loop-through (Terminate with 75-ohm terminator, if unused.)
Interfaces	
MFR-LAN	10/100/1000 Base-T, RJ-45 x 2 (For connecting up to 128 RU/GPI units.) (Second LAN port used in redundant CPU configuration)
PC-LAN	10/100 Base-TX, RJ-45 x 2 (for PC operation) (Second LAN port used in redundant CPU configuration)
SERIAL	RS-232C/RS-422 (Internal switch), 9-pin D-sub (male) x 1
ALARM	9-pin D-sub (female) x 1 (Input: Reset, Output: Power, Fan Alarm)

### Options

MFR-CPU	Redundant CPU card
MFR-PS	Redundant power supply unit
MFR-8RUA/18RUA/39RUA 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
MFR-RULINK	Remote Control Relay Unit

### Accessories

AC cord, Power switch faceplate, CD-ROM, and Quick setup guide

**2. External Dimensions**

(All dimensions in mm.)

