

FA-1616HB-12G / FA-1616B-12G / FA-1616HB-3G Datasheet

1. Specifications

Basic specifications

Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
Power	AC 100 V to 240 V \pm 10% 50/60 Hz
Consumption	<p>FA-1616HB-12G:</p> <p style="padding-left: 40px;">253 VA (252 W) (at AC 100-120 V) 265 VA (249 W) (at AC 220-240 V)</p> <p style="padding-left: 40px;">Max consumption with options</p> <p style="padding-left: 40px;">381 VA (379 W) (at AC 100-120 V) 375 VA (363 W) (at AC 220-240 V)</p> <p>FA-1616B-12G:</p> <p style="padding-left: 40px;">252 VA (251 W) (at AC 100-120 V) 264 VA (248 W) (at AC 220-240 V)</p> <p style="padding-left: 40px;">Max consumption with options</p> <p style="padding-left: 40px;">378 VA (377 W) (at AC 100-120 V) 398 VA (384 W) (at AC 220-240 V)</p> <p>FA-1616HB-3G:</p> <p style="padding-left: 40px;">242 VA (241 W) (at AC 100 V-120 V) 243 VA (227 W) (at AC 220 V-240 V)</p> <p style="padding-left: 40px;">Max consumption with options</p> <p style="padding-left: 40px;">362 VA (361 W) (at AC 100 V-120 V) 374 VA (361 W) (at AC 220 V-240 V)</p>
Dimensions	430 (W) x 480 (D) x 44 (H) mm 480 (W) (Including rack mount brackets)
Weight	Approx. 11.5 kg (including 2 sets of FA-16MOIP/16MOIP-EX and FA-16ANA-AUD)
Consumables (at 24-hour operation)	Power unit: Recommended replacement period: 5 years Cooling fan: P-1677 (x6), Recommended replacement period: 6 years

Technical specifications

Video format	<p>FA-1616HB-12G/ FA-1616B-12G</p> <p>2160p / 60,59.94, 50 ,30,29.97,25,24,23.98 (Single-Link, Dual-Link, Quad-Link)</p> <p>1080p / 60,59.94, 50, 30,29.97,25,24,23.98 1080psf / 30,29.97,25,24,23.98 1080i / 60,59.94, 50 720p / 60,59.94, 50, 30, 29.97, 25, 24, 23.98</p> <p>FA-1616HB-3G</p> <p>2160p / 60,59.94, 50 (Quad-Link) 2160p /30,29.97,25,24,23.98(Dual-Link, Quad-Link) 1080p / 60,59.94, 50, 30,29.97,25,24,23.98 1080psf / 30,29.97,25,24,23.98 1080i / 60,59.94, 50 720p / 60,59.94, 50, 30, 29.97, 25, 24, 23.98</p>
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Video input/output	
FA-1616HB-12G	Input: 12G/6G/3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)) x 8 3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)) x 8 Output: 12G/6G/3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)) x 8 3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)) x 8
FA-1616B-12G	Input or output: 12G/6G/3G/HD-SDI 75 Ω BNC x 16
FA-1616HB-3G ⁾	Input or output: 3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)) x 32
MoIP input/output (FA-16MOIP)	IP media transmission standard: SMPTE ST 2110, SMPTE ST 2022-6 ^(*) SFP28 MSA 25 GbE(RS-FEC) x 4 (ST2022-7 route redundancy) < SMPTE ST 2110 Input/Output > Send only: HD x 16 / UHD x 4 Receive only: HD x 16 / UHD x 4 Send and Receive: HD x 8 / UHD x 4 Video: ST 2110-20 Audio: ST2110-30, ST2110-31 Level B (2K: 16ch, 4K: 32ch) ANC data: ST 2110-40 < SMPTE ST 2022-6 Input/Output ^(*) > Send and Receive: HD x 16 / 3G x 14 <PTP > Version: PTP v2 (two-step mode) Boundary Clock (network switch) connection available
(FA-16MOIP-EX)	Same as above
Color sampling	YCbCr 4:2:2 10-bit
Genlock	Input: BB (NTSC / PAL) or Tri-level Sync 75 Ω BNC x 1 Output: Select from the following. 75 Ω BNC x 1 Input loop-through BB (NTSC/PAL) tri-level sync Genlock In or BB generated from PTP * If there is no Genlock/PTP input, BB generated from the internal clock.
Timecode	Input: LTC (SMPTE 12M) DIN 1.0/2.3 x 1 Output ^(*) : LTC (SMPTE 12M) DIN 1.0/2.3 x 1
Sync mode	Frame, Line, AVDL, Line (Min)
Converter (optional)	Up-/ Down-/ Cross-converter (FA-16UDC-P2) Color space and dynamic range conversion with 1D LUT. (FA-16HDR-P2) Color space and dynamic range conversion with 3D LUT. (FA-16LUT-P2)
Color processing	Proc Amp: Video level, Chroma Level, Black level, Hue Color Corrector: Balance (RGB) mode, Differential (YCbCr) mode Video Clip: Knee Clip (RGB), YCbCr Clip
SDI audio	Input: 3G/HD-SDI 16-ch 6G-SDI Dual Link 32-ch 12G-SDI 32-ch 48 kHz 16-24 bit Synchronous/Asynchronous audio Output: 3G/HD-SDI 16-ch 6G-SDI Dual Link 32-ch 12G-SDI 32-ch 48 kHz 24 bit Synchronous/Asynchronous audio
AES/EBU audio (FA-16AES-UBL)	BNC x 4 (AES/EBU input or output) 8-ch Input: 32/44.1/48 kHz 24 bit 75 Ω 1.0 V(p-p) unbalanced Output: 48 kHz 24 bitt 75 Ω 1.0 V(p-p) unbalanced

AES/EBU audio (FA-16AES-PNL)	BNC x 4 (AES/EBU input or output) 8-ch Input: 32/44.1/48 kHz 24 bit 75 Ω 1.0 V(p-p) unbalanced Output: 48 kHz 24 bit 75 Ω 1.0 V(p-p) unbalanced * FA-16AES-UBL required
Analog audio (FA-16ANA-AUD)	25-pin D-sub (female) x 1 Input: 4-ch 600 Ω /Hi-Z balanced Output: 4-ch 100 Ω balanced 24 bit 48 kHz (A/D and D/A conversions and internal processing) Input/output level adjustment: +8, +4, 0, -10 dBu Max: +24 dBu Frequency Response (A/D): Within ±0.3dB (50 Hz to 20 kHz) Within ±2.0dB (20 Hz to 50 Hz) Frequency Response (D/A): Within ±0.3dB (20 Hz to 15 kHz) Within ±2.0dB (15 kHz to 20 kHz) Distortion rate: 0.03% or less (1 kHz, +24 dBu) S/N: 90dB or better (at maximum level input)
MADI audio (FA-16MADI)	Input: 56/64-ch (PCM) 32/44.1/48 kHz 16-24 bit 75 Ω Micro BNC (HD-BNC ⁽¹⁾)x 2 56/64-ch (PCM) 32/44.1/48 kHz 16-24 bit SFP x 2 Only one stream is processed within 4 inputs. Output: 56/64-ch (PCM) 48 kHz 24 bit 75 Ω Micro BNC (HD-BNC ⁽¹⁾)x 2 56/64-ch (PCM) 48 kHz 24 bit SFP x 2 Four ports output the same processed audio streams.
Dante audio (FA-16DNT)	1000BASE-T RJ-45 x 2 (Primary/Secondary) Input: Max. 64-ch 44.1/48 kHz 24 bit Output: Max. 64-ch 48 kHz 24 bit
Audio delay adjust	1ms to 1,000ms
Audio process	Sample rate converter, Gain control, Downmix, Monosum, Remap and Mute
Interfaces	
Ethernet & Control protocols	<LAN 1> Web, Ember+ ⁽²⁾ , SNMP v2c (Monitoring only), Remote Control: 100/1000BASE-T RJ-45 x 1 <LAN 2A/2B> (With FA-16MOIP) NMOS control: 100/1000BASE-T RJ-45 x 2 (Teaming available)
GPI	Round connector (7 input/output) FA-16GPI: 25-pin D-sub (female) x 1 (10-input, 10-output) FA-16GPI-PN: 25-pin D-sub (female) x 1 (10-input, 10-output) * FA-16GPI required
Time	Time accuracy per month: ±10 seconds Time keeping: 60 hours Time correction with NTP Server
Remote Control	FA-10RU (Control of some functions is available.) ST2110-31

⁽¹⁾ HD-BNC is a trademark of Amphenol Corporation.

⁽²⁾ Planned for future support

Software Option

ITEM	REMARKS
FA-164K	Option to enable 4K (UHD) signal processing. In addition, the following options can automatically add the FA-164K to the system. FA-16MOIP, FA-16UDC-P2, FA-16HDR-P2, FA-16LUT-P2
FA-16UDC-P2 (*1)	Up-/down-/cross-conversion for 2 processors (PRUs)
FA-16HDR-P2(*2)	Gamut and dynamic range conversion by 1D LUT in units of 2 PRUs is available. FA-16HDR-P2 and FA-16LUT-P2 cannot be assigned to the same BLOCK.
FA-16LUT-P2	Gamut and dynamic range conversion by 3D LUT in units of 2 PRUs is available. FA-16HDR-P2 and FA-16LUT-P2 cannot be assigned to the same BLOCK.

(*1) FA-16UDC-P2 can convert one 2K and 4K video signal with one PRU. When the maximum license is added, conversion of up to 8 channels is possible.

(*2) FA-16HDR-P2 cannot be used on Ver. 3.10.

To use the FA-16HDR-P2, use Ver. 3.02.

In Ver. 3.02, FA-16HDR-P2 cannot be assigned to Block A (BLOCK A PRU1/2,3/4).

Hardware Option (Optional Card and Cable)

ITEM	REMARKS
FA-16MOIP (*1) (*2)	Encapsulation/decapsulation card of ST 2022-6 ^(*) / ST 2110 standards (1 card can be installed.)
FA-16MOIP-EX (*1) (*2)	MoIP input/output expansion card (1 card can be installed.) * FA-16MOIP required
FA-16AES-UBL (*2)	Digital audio (unbalanced) expansion card (Up to 4 cards can be installed.)
FA-16AES-PNL (*2)	Digital audio (unbalanced) input/output expansion card (Up to 2 cards can be installed.) * FA-16AES-UBL required.
FA-16DNT (*2)	Dante audio card (Up to 4 cards can be installed.)
FA-16MADI (*2) (*3)	MADI audio card (Up to 4 cards can be installed.)
FA-16ANA-AUD (*2)	Analog audio (balanced) 4-input / 4-output card (Up to 4 cards can be installed.)
FA-16GPI (*2)	GPI input/output card Up to 4 cards can be installed.)
FA-16GPI-PNL (*2)	GPI input/output expansion panel Up to 2 cards can be installed.) * FA-16GPI required)

(*1) Note that SFP transceiver modules are not equipped with the product. Please prepare appropriate SFP modules by the user.

Factory tested SFP module:

nVIDIA(Mellanox) MMA2P00-AS

PB_MMA2P00-AS_MMA2P00-ASHT_25GbE_SFP28_MMF_Transceiver.pdf (nvidia.com)

nVIDIA (Mellanox) MMA2L20-AR

PB_MMA2L20-AR_25GbE_SFP28_LR_Transceiver.pdf (nvidia.com)

(*2) Cables are not equipped with the product. Please prepare appropriate cables by the user.

(*3) Note that SFP transceiver modules are not equipped with the product. Please prepare appropriate SFP modules by the user.

Factory tested SFP module:

RME (<https://www.rme-audio.de/home.html>)

MADI-SFP-MM

MADI-SFP-SM

APAC Opto Electronics Inc. (<https://www.apacoe.com.tw/ja/>)

LM38-A3S-TC-N

LS38-A3S-TC-N

(*4) To be supported in the future.

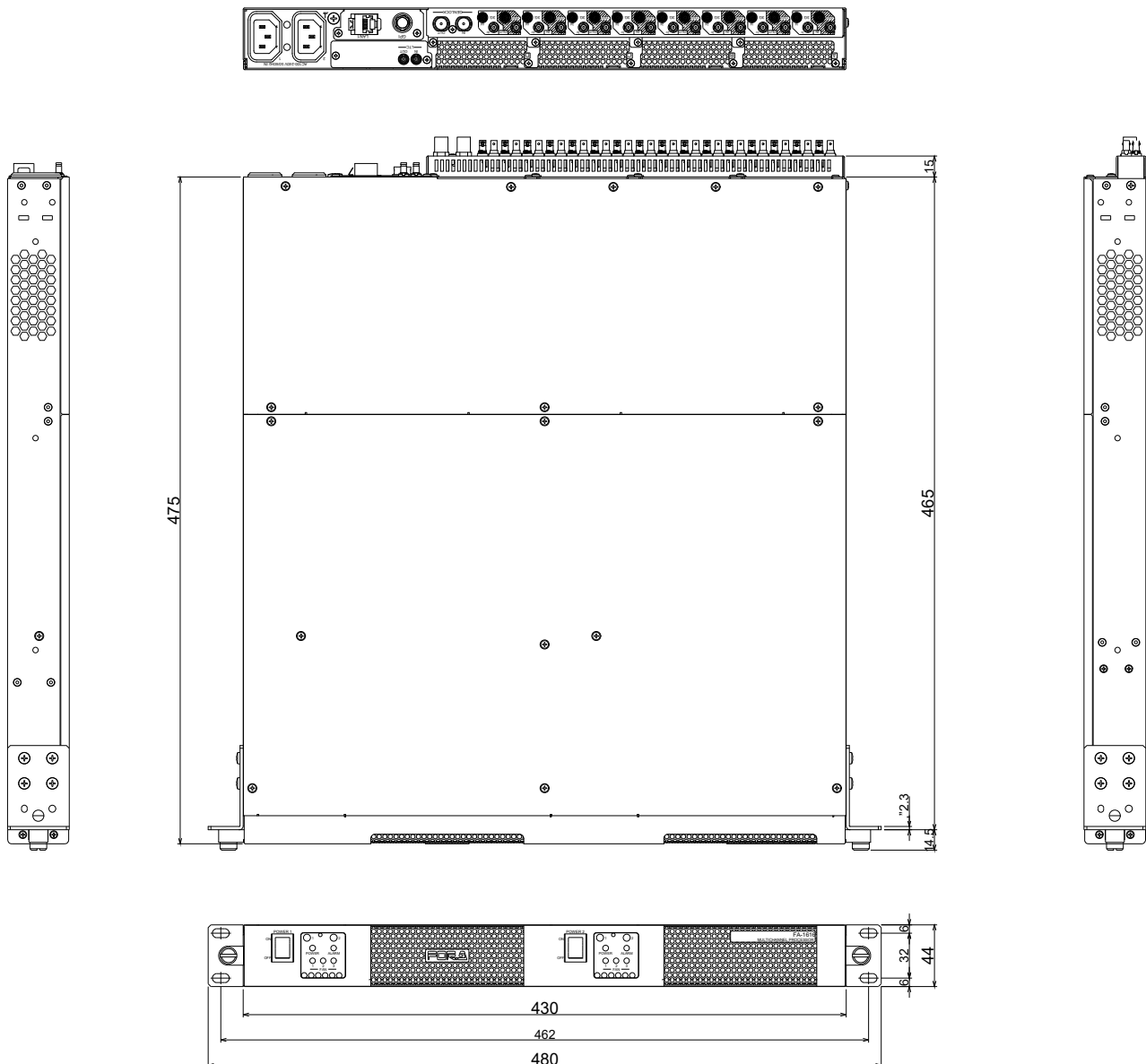
Accessories

AC cord (2 sets), Rubber feet and Packing List sheet

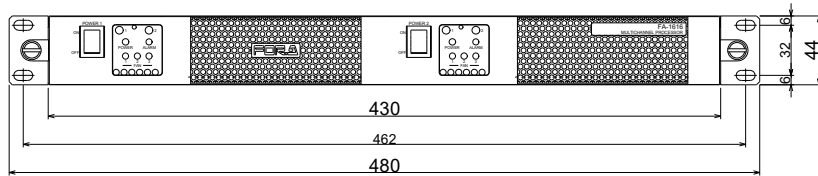
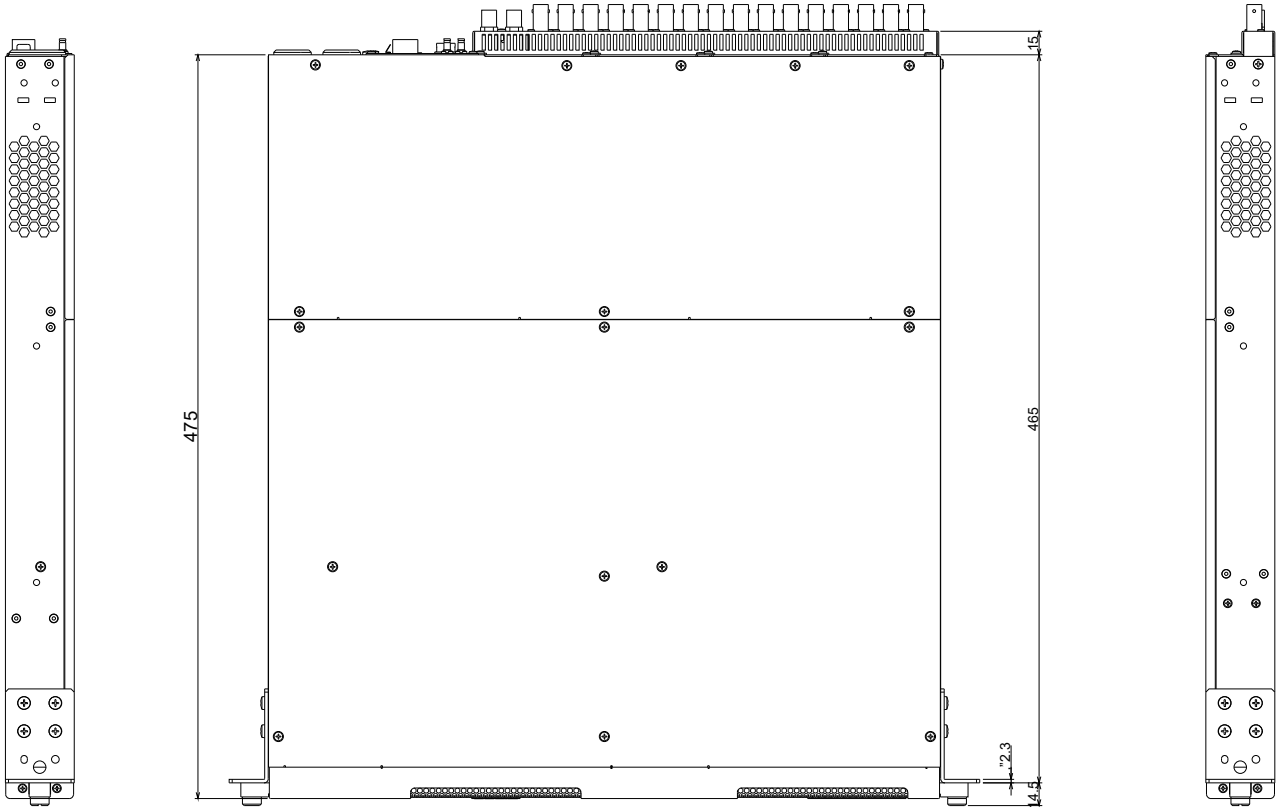
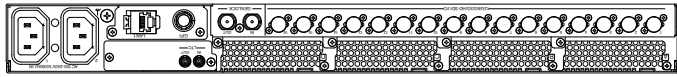
2. External Dimensions

(All dimensions in mm.)

FA-1616HB-12G



FA-1616B-12G



FA-1616HB-3G

