

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	FA-1616HB-12G: 253 VA (252 W) (at AC 100-120 V) 265 VA (249 W) (at AC 220-240 V) Max consumption with options 381 VA (379 W) (at AC 100-120 V) 375 VA (363 W) (at AC 220-240 V) FA-1616B-12G: 252 VA (251 W) (at AC 100-120 V) 264 VA (248 W) (at AC 220-240 V) Max consumption with options 378 VA (377 W) (at AC 100-120 V) 398 VA (384 W) (at AC 220-240 V) FA-1616HB-3G: 242 VA (241 W) (at AC 100 V-120 V) 243 VA (227 W) (at AC 220 V-240 V) Max consumption with options 362 VA (361 W) (at AC 100 V-120 V) 374 VA (361 W) (at AC 220 V-240 V)
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	FA-1616HB-12G/ FA-1616B-12G 2160p / 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 2160PsF / 30, 29.97, 25, 24, 23.98 (Single-Link, 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 FA-1616HB-3G 2160p / 60, 59.94, 50 (Quad-Link) 2160p / 30, 29.97, 25, 24, 23.98 (Dual-Link, Quad-Link) 2160PsF / 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
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Video input/output	
FA-1616HB-12G	Input: 12G/6G/3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)1)) x 8 3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)1)) x 8 Output: 12G/6G/3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)1)) x 8 3G/HD-SDI 75 Ω Micro BNC (HD-BNC ^(*)1)) 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 ^(*)1)) 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) SFP+ 10GBASE-SR/LR x 4 (ST2022-7 route redundancy) < SMPTE ST 2110 Input/Output> (25GbE SFP) (10GbE SFP) Send only: HD x 16 / UHD x 4 HD x 16 / UHD x 2 Receive only: HD x 16 / UHD x 4 HD x 16 / UHD x 2 Send & Receive HD x 8 / UHD x 4 HD x 8 / UHD x 2 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 > ^{(*)2} Send & Receive: HD x 14 / 3G x 14 (25GbE SFP) Send & Receive: HD x 12 / 3G x 6 (10GbE SFP) <PTP> Version: PTP v2 (two-step mode) Able to connect Boundary Clock / Transparent Clock (E2E) supported network switches. (PTP input to SFP1) * Note that "Transparent Clock" is a trial feature. Therefore, please test it thoroughly before use.
(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: Input loop-through: BB (NTSC/PAL), tri-level sync or BB generated from Genlock In or PTP, 75 Ω BNC x 1 * If there is no Genlock In/PTP, BB generated from the internal clock.
Timecode ^{(*)2}	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
Converter ^{(*)2} (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 bit 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: Within ±0.3dB (20 Hz to 20 kHz) Distortion rate: 0.05% 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 ^(*))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 ^(*))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+ ^(*) , SNMP v2c (Monitoring only), Remote Control: 100BASE-TX RJ-45 x 1 <LAN 2A/2B> (With FA-16MOIP) NMOS control: 100BASE-TX 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.) * FA-10RU-1616 software required. FA-10DCCRU (Control of some functions is available.) * FA-10DCCRU-1616 software required.

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

^(*) Some functions can be controlled.

Software Option

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. 3.40. If you need FA-16HDR-P2, consult your FOR-A reseller.

Hardware Option (Optional Card and Cable)

ITEM	QTY	REMARKS
FA-16MOIP ^{(*)1} ^{(*)2}	1	Encapsulation/decapsulation of ST2022-6 and ST2110 standards
FA-16MOIP-EX ^{(*)1} ^{(*)2}	1	MoIP input/output expansion card * FA-16MOIP required
FA-16AES-UBL ^{(*)2}	1-4	Digital audio (unbalanced) expansion card
FA-16AES-PNL ^{(*)2}	1-2	Digital audio (unbalanced) input/output expansion card * FA-16AES-UBL required
FA-16DNT ^{(*)2}	1-4	Dante audio card
FA-16MADI ^{(*)2} ^{(*)3}	1-4	MADI audio card
FA-16ANA-AUD ^{(*)2}	1-4	Analog audio (balanced) 4-input / 4-output card
FA-16GPI ^{(*)2}	1-4	GPI input/output card
FA-16GPI-PNL ^{(*)2}	1-2	GPI input/output expansion panel * 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 25GbE 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)

Factory tested 10GbE SFP module:

Coherent (II-VI) FTLX8574D3BCL

Coherent (II-VI) FTLX1475D3BCL

* All SFP modules installed in the FA-16MOIP card should be the same speed.

All SFP modules installed in the FA-16MOIP-EX card should be the same speed.

^{(*)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

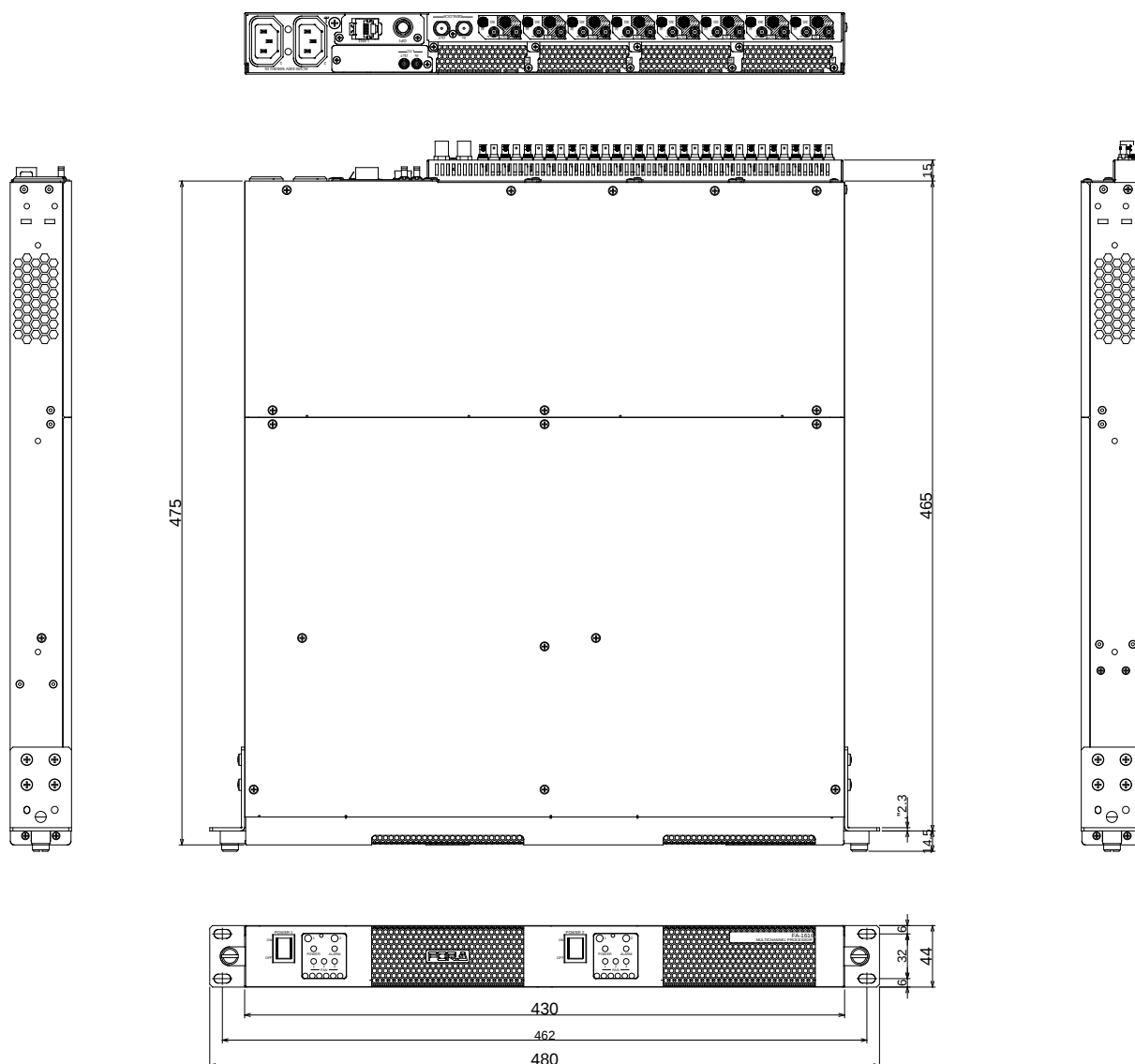
Accessories

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

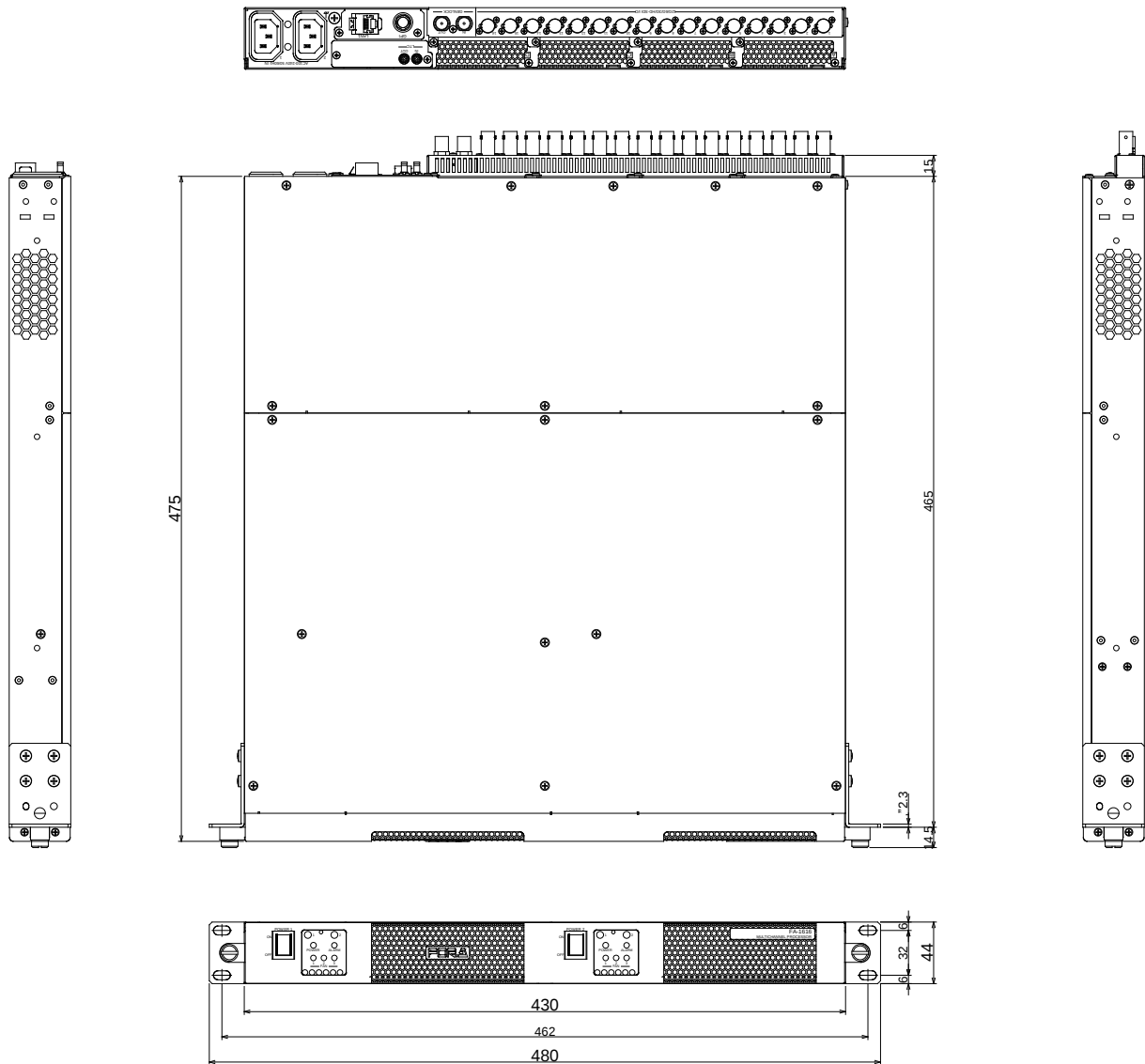
2. External Dimensions

(All dimensions in mm.)

FA-1616HB-12G



FA-1616B-12G



FA-1616HB-3G

