

9901-UDX » 3G/HD/SD UP/DOWN/CROSS CONVERTER WITH FRAME SYNC

All base models are also available as HD/SD only (for example, 9901-UDX-HD). All other features and specifications remain the same.



Alternate Base Models:

9901-UC

SD to 3G/HD Upconverter with 3G/HD/SD Passthrough

9901-DC

3G/HD to SD Downconverter with 3G/HD/SD Passthrough

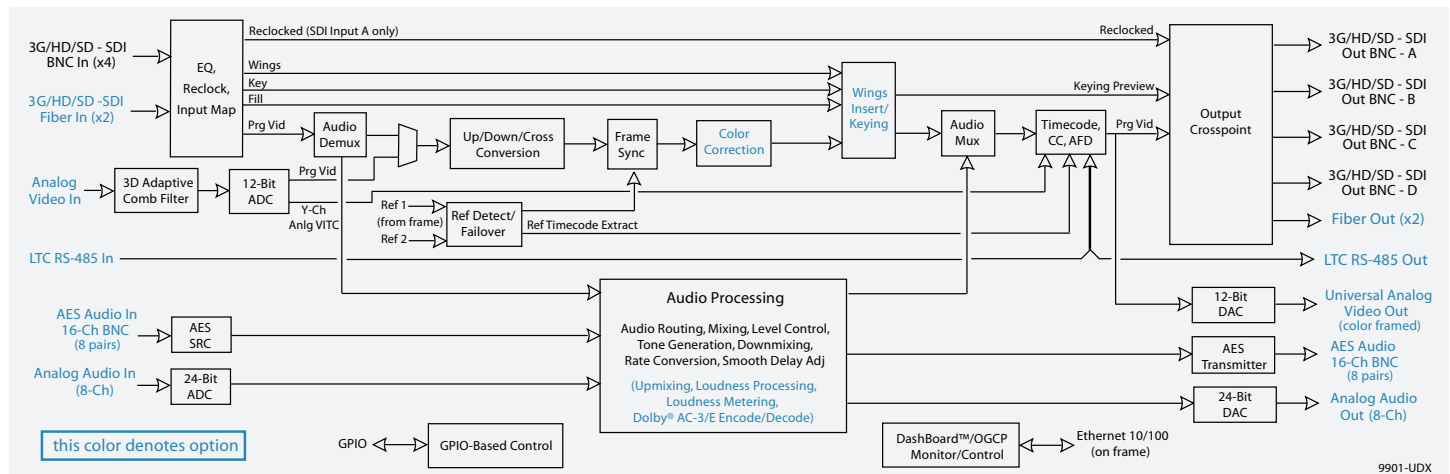
9901-XC

3G/HD to 3G/HD Cross Converter with 3G/HD/SD Passthrough



The award-winning 3G/HD/SD-SDI Fusion3G® 9901-UDX card offers up/down/cross format conversion, frame sync, and advanced audio and ancillary data support, plus many other powerful features. Full audio support includes per-channel audio delay. Remote control is quick and easy with the free DashBoard™ remote control software or the Cobalt OGCP-9000 remote control panels.

You can select from options to add (as inputs and/or outputs) fiber, analog video, AES, and analog audio. This level of integration reduces module count and simplifies the signal chain, as well as providing flexibility for ever-changing requirements, including 3-D TV compliant 1080p. Options also include wings insertion, general purpose keying, color correction, Dolby® E/AC-3 encoding and decoding (with both decode and re-encode on the same card), ITU/ATSC/EBU compliant loudness metering, and Linear Acoustic® upmixing and loudness processing. Where the full conversion capability is not required, the 9901 series is available as the following base model versions (if desired later, any of these versions can be field upgraded to base 9901-UDX functionality using a firmware upgrade without removing the card from its frame).



9901-UDX

» STANDARD FEATURES

Full 3G/HD/SD-SDI support on BNC coax

Advanced up/down/cross format conversions utilizing high-quality, motion-adaptive de-interlacing and video scaling techniques

Preset standard and user-definable ARC w/configurable pan, tilt, & crop controls

HD/SD captioning format translation

Per-channel audio delay with glitchless delay adjustment

Frame sync with reference failover using dual reference inputs on frame

Full SMPTE timecode support with translation between formats. Timecode sources selectable from SDI and analog video inputs, reference, and internally generated.

Advanced audio processing allows routing, gain, delay, and flexible mixing as standard features

GPIO ports with user-definable functions for system automation and monitoring

Centralized GUI remote control using DashBoard™ software and Cobalt OGCP-9000 remote control panels – custom settings saved as presets can be recalled manually, or with GPI or events-based triggering

Five year warranty

» OPTIONAL FEATURES

Fiber 3G/HD/SD inputs/outputs. Fiber ports use blind mating interface, allowing card swapping (including optical transceivers) with no cable disconnection.

Analog audio I/O

Wings insertion and general purpose keying feature

LTC input/out and bi-directional conversion between VBI and LTC on RS-485 or any audio I/O

Relay bypass available from SDI input to SDI output

Universal HD/SD analog I/O. Composite video input sources converted with 3D comb decoder, mitigating common decoding artifacts. Composite video output is color-framed to match reference burst, plus user offset.

AES embedding/de-embedding. AES ports are GUI selectable as input or output. Each input has independent sample rate converter.

Linear Acoustic® loudness processing and automatic upmixer technology

Full Dolby® E / AC-3 encoding and decoding options. Decode + re-encode and multiple AC-3 streaming available on the same card.



LINEAR ACOUSTIC





9901-UDX » OPTIONS

» I/O OPTIONS

16 CHANNEL AUDIO EMBEDDING/DE-EMBEDDING (+AES)

Provides eight (total) AES pair BNC connections that can be GUI-configured as inputs or outputs. Independent SRC for all AES inputs, with auto and manual bypass for non-PCM data.

8-PORT AES OUTPUT EXPANSION (+AES16)

Provides the 16-channel embed/de-embed of option +AES (see above) as well as eight added AES output ports to provide a total complement of AES I/O 1 thru AES I/O 8 and added ports AES OUT 1 thru AES OUT 8. Allows 16 channels of AES embedding and 16 channels of AES de-embedding simultaneously. (Option is not available as a field upgrade and also requires Rear I/O Module RM20-9901-G.)

LTC RS-485/AUDIO INPUT/OUTPUT (+LTC)

Provides LTC input/output and bi-directional conversion between VBI and LTC on RS-485 or any audio I/O.

» VIDEO OPTIONS

WINGS INSERTION (+WINGS)

Provides wings insertion using an independent SDI input provided for wings signal. Provides programmable insertion width.

KEYING (+KEYER)

Provides keying using independent SDI inputs for key and fill signals. A separate preview SDI output is provided for observing key results before applying to program video output.

Alpha Threshold mode allows full-color key/fill using low-cost PC-based graphics host where the same signal provides a shared key/fill input.

» AUDIO OPTIONS

LINEAR ACOUSTIC® LOUDNESS PROCESSING (+LP51/+LP20)*

Featuring Linear Acoustic® AEROMAX® technology and available in 5.1-channel (LP51) and stereo (LP20) configurations. These loudness processors use inputs from any source received by the card, or any mixing setting produced by the card. AEROMAX® algorithms use a sophisticated multi-band approach to loudness processing, and can apply multi-faceted loudness correction specifically targeted to various frequency ranges and other characteristics within the program material, resulting in audio free from abrupt loudness or image shifts while preserving more of the original content than previously possible.

Up to two 5.1 loudness processors can be ordered per card, order as +LP51A and +LP51B. Up to four stereo loudness processors can be ordered per card, order as +LP20A, +LP20B, +LP20C and +LP20D.

LINEAR ACOUSTIC® AUTOMATIC UPMIXER (+UM)*

Featuring Linear Acoustic® UPMAX™ technology, upmixing allows legacy stereo program content to be converted to full 5.1-channel audio. UPMAX™ mode detects 2.0 content and automatically applies upmix mode (with configurable switchover fade-in/fade-out) depending on absence or presence of 5.1 source audio.

Up to two upmixers may be configured on the card, order as +UMA and +UMB.

SOFTWARE LOUDNESS METER (+LM-C)

Cobalt's +LM audio loudness metering option (in conjunction with a Cobalt OGCP-9000 Remote Control Panel with +LM-P option) provides a flexible solution for ingest or on-air loudness metering and assessment in compliance with ITU/ATSC/EBU standards. Easy to use, the +LM offers "true peak" level detection, error tracking and logging, and intuitive interface with touch screen control.

FIBER INPUTS/OUTPUTS (+FRX / +FTX / +FRXTX / +FRXRX / +FTXTX)*

Provides one or two fiber connections per card. Inputs can serve any function in the product, outputs can be assigned from any function in the card. Connector type is dual LC with blind-mate connectors. Cards are fully swappable.

UNIVERSAL ANALOG VIDEO INPUTS/OUTPUTS (+ANV)*

Provides an analog video input and output (CVBS, component, RGB (sync on green))

ANALOG AUDIO INPUTS/OUTPUTS (+ANA)*

Provides up to eight channels (total) of balanced analog audio inputs and outputs

*Requires expansion Rear Module (for example, 9901-UDX+ANV requires RM20-9901-XB expansion Rear Module)

COLOR CORRECTION (+COLOR)

Provides independent RGB channel controls for luma, black, and gamma. Ultra-fast response time. The color correction feature is perfectly suited for use with Cobalt OGCP-9000/CC Remote Control Panel.

UPGRADE TO 3G (+3G)

Upgrades a 9901 HD/SD alternate base model to 3G/HD/SD.

FRAME BUFFER EXPANSION (+MEM)

Increases the independently adjustable audio and video delay buffer capacity to 47 seconds for SD video, 8 seconds for HD video, or 4 seconds for 3G video. (+MEM is a hardware-based option and is not available as a field upgrade. This option is displayed as "+2GB" on the DashBoard card info pane.)

AUDIO FAILOVER (+AFO)

Provides automatic failover to alternate ("secondary") channels to substitute for the primary channels in the event of audio signal loss.

AUTO DOWNMIX (+ADM)

Provides automatic Stereo downmix from selected alternate multi-channel sources if primary Stereo channels lose signal.

DOLBY® DIGITAL/DIGITAL PLUS™ ENCODING (+ENCD)

Provides Dolby® Digital/Digital Plus™ encoding from any combination of audio sources supported by the card. Up to four independent encoders - all on the same card - can be included (+ENCD A thru +ENCD D). This option is available on the same card along with any other Dolby options listed here. See Fusion3G® Dolby Options (page 26) for more information.

DOLBY® E/DIGITAL/DIGITAL PLUS™ DECODING (+DEC)

Decodes Dolby® E, Digital, and Digital Plus™ signals from AES or embedded sources. This option is available on the same card along with any other Dolby options listed here. See Fusion3G® Dolby Options (page 26) for more information.

DOLBY® E ENCODING (+ENCE)

Provides Dolby® E encoding from any combination of audio sources supported by the card. This option is available on the same card along with any other Dolby options listed here. See Fusion3G® Dolby Options (page 26) for more information.

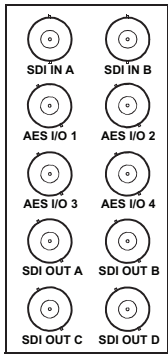
DOLBY® DESCRIPTIVE VIDEO SERVICES® ENCODING (+ENCDSVS)

Provides DVS encoding of secondary narrative audio on cards equipped with Dolby® Digital/Digital Plus(TM) encoding. This option is available on the same card along with any other Dolby options listed here. See Fusion3G® Dolby Options (page 26) for more information.

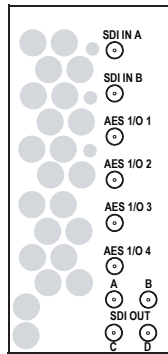
*The following Processing/Upmixing combinations, and their subsets, are available. Contact sales for more information.

- Upmixer, 5.1 Processor, Aux Stereo Processor (+UMA, +LP51A, +LP20A)
- Two stereo processors, Two upmixers (+LP20A, +LP20B, +UMA, +UMB)
- Two 5.1 loudness processors (+LP51A, +LP51B)
- Four stereo loudness processors (+LP20A, +LP20B, +LP20C, +LP20D)

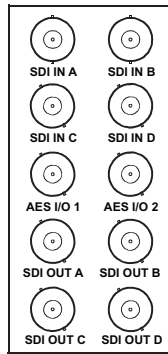
9901-UDX



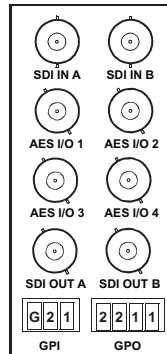
RM20-9901-B



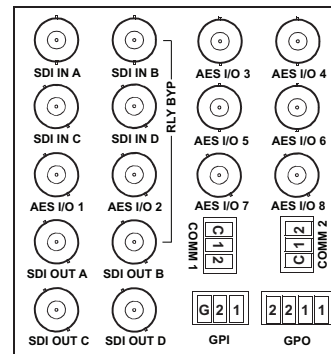
RM20-9901-B-HV



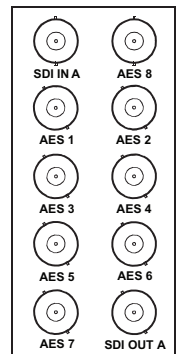
RM20-9901-C



RM20-9901-D

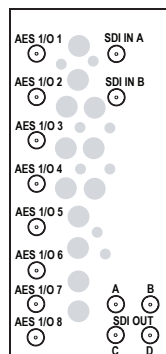


RM20-9901-E

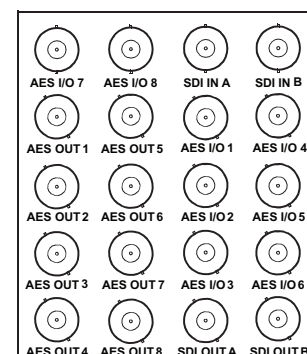


RM20-9901-F

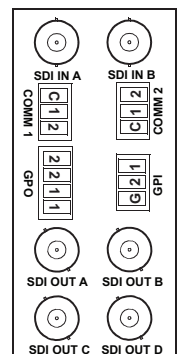
EXPANSION REAR I/O MODULES



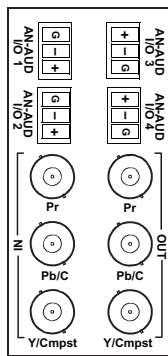
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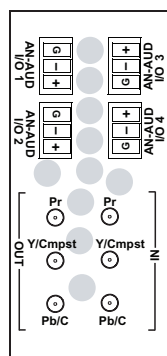
RM20-9901-G



RM20-9901-H

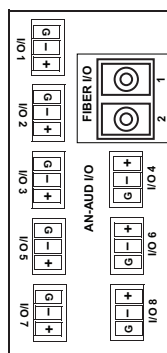


RM20-9901-XB

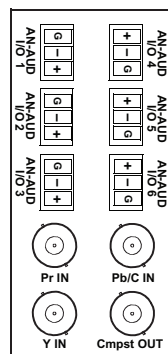


RM20-9901-XB-HV

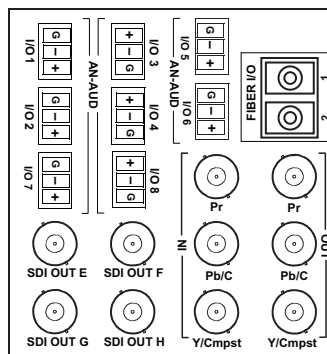
Expansion Rear I/O Modules are required for some video and audio options and fiber connections. These rear modules mate with an Expansion piggyback card that is mounted to the base Fusion3G® card when equipped with these options. Expansion Rear I/O Modules are identified with an "X" in the part number and must be used with a Base Rear I/O Module. See 20-Slot Frame Card Capacity and Rear Modules (pg. 18)



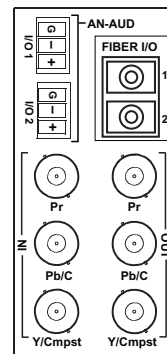
RM20-9901-XC



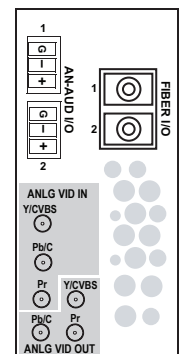
RM20-9901-XD



RM20-9901-XE



RM20-9901-XF



RM20-9901-XF-HV

9901-UDX

» ORDERING INFORMATION

9901-UDX 3G/HD/SD Up/Down/Cross Converter with Frame Sync

9901-UC SD to 3G/HD Upconverter with 3G/HD/SD Passthrough

9901-DC 3G/HD to SD Downconverter with 3G/HD/SD Passthrough

9901-XC 3G/HD to 3G/HD Cross Converter with 3G/HD/SD Passthrough

-HD HD/SD Only Option for any card model listed above (e.g., 9901-UDX-HD)

+UDX Field-upgrade to +UDX option for 9901-UC/9901-DC/9901-XC models
+3G Upgrade of **-HD** alternate model to 3G/HD/SD

BASE REAR I/O MODULES

Base Rear I/O Modules provide connections for standard card BNC video and audio connections, as well as other connections depending on rear module part number. These modules mate directly with the Fusion3G® card.

RM20-9901-B 20-Slot Frame Rear I/O Module (Standard Width) 2 3G/HD/SD-SDI Inputs, 4 AES I/O BNCs, 4 3G/HD/SD-SDI Outputs

RM20-9901-B-HV-HDBNC 20-Slot Frame Rear I/O Module (Standard Width; High Ventilation) 2 3G/HD/SD-SDI Inputs, 4 AES Inputs/Outputs, 4 3G/HD/SD-SDI Outputs (all connectors HDBNC)

RM20-9901-B-HV-DIN 20-Slot Frame Rear I/O Module (Standard Width; High Ventilation) 2 3G/HD/SD-SDI Inputs, 4 AES Inputs/Outputs, 4 3G/HD/SD-SDI Outputs (all connectors DIN 1.0/2.3)

RM20-9901-C 20-Slot Frame Rear I/O Module (Standard Width) 4 3G/HD/SD-SDI Inputs, 2 AES I/O BNCs, 4 3G/HD/SD-SDI Outputs

RM20-9901-D 20-Slot Frame Rear I/O Module (Standard Width) 2 3G/HD/SD-SDI Inputs, 4 AES I/O BNCs, 2 GPIO, 2 3G/HD/SD-SDI Outputs

RM20-9901-E 20-Slot Frame Rear I/O Module (Double Width) 4 3G/HD/SD-SDI Inputs (1 with Relay Bypass), 8 AES I/O BNCs, 2 GPIO, 2 COMM, 4 3G/HD/SD-SDI Outputs

RM20-9901-F 20-Slot Frame Rear I/O Module (Standard Width) 1 3G/HD/SD-SDI Input, 8 AES I/O BNCs, 1 3G/HD/SD-SDI Output

RM20-9901-F-HV-DIN 20-Slot Frame Rear I/O Module (Standard Width; High Ventilation) 2 3G/HD/SD-SDI Inputs, 8 AES Inputs/Outputs, 4 3G/HD/SD-SDI Outputs (all connectors DIN 1.0/2.3)

RM20-9901-F-HV-HDBNC 20-Slot Frame Rear I/O Module (Standard Width; High Ventilation) 2 3G/HD/SD-SDI Inputs, 8 AES Inputs/Outputs, 4 3G/HD/SD-SDI Outputs (all connectors HDBNC)

RM20-9901-G 20-Slot Frame Rear I/O Module (Double Width) 2 3G/HD/SD-SDI Inputs, 8 AES I/O BNCs, 8 additional AES Outputs, 2 3G/HD/SD-SDI Outputs (Available only in conjunction with card option +AES16)

RM20-9901-H 20-Slot Frame Rear I/O Module (Standard Width) 2 3G/HD/SD-SDI BNC Inputs, 2 GPIO, 2 COMM, 4 3G/HD/SD-SDI BNC Outputs

EXPANSION REAR I/O MODULES

Expansion Rear I/O Modules are required for some video and audio options and fiber connections. These rear modules mate with an Expansion piggyback card that is mounted to the base Fusion3G® card when equipped with these options. Expansion Rear I/O Modules are identified with an "-X" in the part number and must be used with a Base Rear I/O Module. See 20-Slot Frame Card Capacity and Rear Modules (pg. 18)

RM20-9901-XB 20-Slot Frame Rear I/O Module (Standard Width) Component In, 4 Analog Audio I/O, Component Out

RM20-9901-XB-HV-HDBNC 20-Slot Frame Rear I/O Module (Standard Width) Component In, 4 Analog Audio I/O, Component Out

RM20-9901-XB-HV-DIN 20-Slot Frame Rear I/O Module (Standard Width) Component In, 4 Analog Audio I/O, Component Out

RM20-9901-XC 20-Slot Frame Rear I/O Module (Standard Width) 2 Fiber I/O, 8 Analog Audio I/O

RM20-9901-XD 20-Slot Frame Rear I/O Module (Standard Width) Component In, 6 Analog Audio I/O, Composite Out

RM20-9901-XE 20-Slot Frame Rear I/O Module (Double Width) Component In, 2 Fiber I/O, 8 Analog Audio I/O, Component Out, 4 3G/HD/SD-SDI Outputs

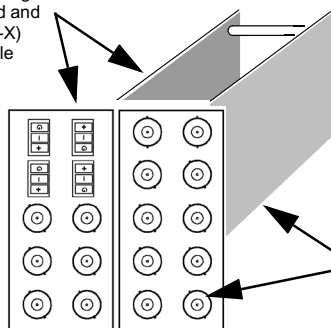
RM20-9901-XF 20-Slot Frame Rear I/O Module (Standard Width) Component In, 2 Fiber I/O, 2 Analog Audio I/O, Component Out

RM20-9901-XF-HV-DIN 20-Slot Frame Rear I/O Module (Standard Width) CVBS/Component In, 2 Fiber I/O, 2 Analog Audio I/O, CVBS/Component Out. (All coaxial connectors are DIN1.0/2.3) This Rear I/O Module must be used with an HV Base Rear I/O Module.

RM20-9901-XF-HV-HDBNC 20-Slot Frame Rear I/O Module (Standard Width) CVBS/Component In, 2 Fiber I/O, 2 Analog Audio I/O, CVBS/Component Out. (All coaxial connectors are HD-BNC) This Rear I/O Module must be used with an HV Base Rear I/O Module.

9901-UDX » ANALOG OPTION OVERVIEW

Fusion3G analog
Expansion card and
Expansion (-X)
Rear Module



Fusion3G Base card
and Base Rear Module

Fusion3G Analog Audio/Video I/O Options and Provisioning Details

All Fusion3G® analog audio and/or video input/output options use an expansion card that interfaces with a base Fusion3G card. This expansion card in turn uses an expansion rear module installed to the left of the base card (when viewed from the rear module connection side (rear of frame). Expansion rear modules are identified with an "X" in the part number, and can be mixed with base card rear modules types as desired.

Option ➔

+Analog Option
Audio (A), Video (V), or Audio/Video (AV)
Input (I), Output (O), or Input/Output (IO)
+ANAVIO

Several choices are available when provisioning analog audio/video options to allow you the flexibility in purchasing and using frame space for only the interfaces you need. Cobalt uses a simple code for analog options which is used also for ordering analog I/O options.

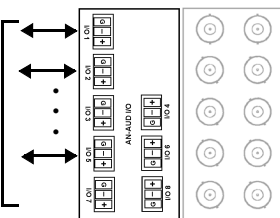
+ANAIO – Analog Audio In/Out

Provides up to eight balanced analog audio ports which can be individually configured as inputs or outputs

Analog audio inputs or outputs via example rear module RM20-9901-XC.

Also usable with expansion rear modules:

RM20-9901	-XB
RM20-9921	-XB-HV
RM20-9931	-XD
RM20-9985	-XE
	-XF
	-XF-HV



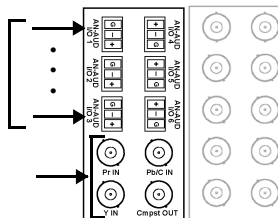
+ANAVI – Analog Audio/Video In

Provides balanced analog audio inputs and component/composite analog video inputs

Analog audio and component/composite video inputs via example rear module RM20-9901-XD

Also usable with expansion rear modules:

RM20-9901	-XB
RM20-9921	-XB-HV
RM20-9931	-XE
RM20-9985	-XF
	-XF-HV



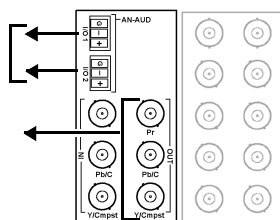
+ANAVO – Analog Audio/Video Out

Provides balanced analog audio outputs and component/composite analog video outputs

Analog audio and component/composite video outputs via example rear module RM20-9901-XF

Also usable with expansion rear modules:

RM20-9901	-XB
RM20-9921	-XB-HV
RM20-9931	-XE
RM20-9985	-XF-HV



+ANAVIO – Analog Audio/Video In/Out

Provides balanced analog audio I/O and component/composite analog video I/O

Analog audio and component/composite video I/O via example rear module RM20-9901-XB

Also usable with expansion rear modules:

RM20-9901	-XB-HV
RM20-9921	-XD
RM20-9931	-XE
RM20-9985	-XF
	-XF-HV

