



PROYECTO DE
VIDEOCONFERENCIA
UTN

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PROYECTO DE VIDEOCONFERENCIA UTN

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INTRODUCCIÓN

La videoconferencia abre grandes oportunidades en la educación, ya que permite mantener una completa comunicación entre sitios distantes. Esta comunicación permite la interacción permanente y en tiempo real de los participantes por medio de la compartición de imagen, sonido y datos, haciendo posible que diferentes profesores, alumnos y entidades educativas participen en el proceso de comunicación sin desplazamiento alguno.

El sistema de videoconferencia además puede trabajar de forma integrada con el sistema de video bajo demanda (VoD), ya que todos los contenidos multimedia generados en las videoconferencias pueden ser almacenadas para ser luego ser accedidos de forma personalizada. Los usuarios podrán acceder en cualquier momento a un menú de los contenidos disponibles, acceder a uno específico y tener completo control de la reproducción.

Este estudio pretende que la Universidad Técnica del Norte sea parte activa de esta nueva tendencia mundial y aproveche las nuevas metodologías de enseñanza que la tecnología actual nos brinda.

La comunicación puede realizarse tanto entre los lugares que forman parte de la misma red universitaria, así como hacia sitios externos.

1. DEFINICIÓN DE NECESIDADES FUNCIONALES

Como primera parte del proyecto se analizan las necesidades funcionales requeridas en la Universidad.

1.1 Necesidades Específicas

La siguiente tabla muestra los lugares donde se requiere implementación de videoconferencia, se llegó a esta definición luego de varias reuniones con el personal del Departamento de Informática de la Universidad y las autoridades de cada Facultad.

	Sala	Ubicación
1)	HCU Sala de reuniones del Honorable Concejo Universitario	Edificio de Administración Central
2)	Auditorio José Martí	Edificio de Administración Central
3)	Auditorio del Instituto de Tecnología y Proyectos	Edificio de Administración Central
4)	Canal de Televisión	Edificio de Administración Central
5)	Auditorio Agustín Cueva	Auditorio Agustín Cueva
6)	Auditorio FICA	Facultad de Ciencias Aplicadas

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7)	Auditorio FICAYA	Facultad de Ingeniería en Ciencias Agropecuarias y Ambientales
8)	Auditorio FECYT	Facultad de Educación, Ciencia y Tecnología
9)	Auditorio FACAE	Facultad de Ciencias Administrativas y Económicas
10)	Auditorio FCS	Facultad de Ciencias de la Salud (adecuación)
11)	Laboratorio	Facultad de Ciencias de la Salud
12)	Auditorio	Colegio Universitario
13)	Auditorio	Hospital San Vicente de Paúl
14)	Laboratorio	Hospital San Vicente de Paúl
15)	Auditorio	Granja La Pradera
16)	Auditorio	Edificio de Postgrados (en construcción)

Tabla 1.1: Salas de videoconferencia

Las especificaciones de aplicaciones necesarias en cada lugar se muestran en el Anexo 1¹.

1.2 Necesidades Globales

A continuación se describen de forma general las necesidades globales de la Universidad:

- Videoconferencia entre las salas de la Universidad que se indicaron en la Tabla 1.1 y con otros sitios externos (que manejen protocolos de videoconferencia estandarizados).
- Las señales audiovisuales generadas desde las salas que requieren ser transmitidas directamente al Canal de Televisión Universitario, deben mantener la mejor calidad posible.
- Manejo de protocolos de videoconferencia estandarizados que faciliten la intercomunicación con otras instituciones educativas dentro y fuera del país.
- Realización simultánea de dos videoconferencias²:
 - Una videoconferencia entre una sala de la Universidad con un sitio remoto.
 - Una videoconferencia entre salas internos a la Universidad.
- Grabación y edición de las videoconferencias realizadas, para que luego puedan ser distribuidas como VoD.
- Almacenamiento continuo y simultáneo de 2 señales audiovisuales³.
- Manejo de dos diferentes calidades de almacenamiento para VoD, una para usuarios de la Red Universitaria y otra para usuarios de Internet.

¹ Anexo 1: Necesidades Específicas

² Basado en análisis realizado en Anexo 1.

³ Basado en análisis realizado en Anexo 1.



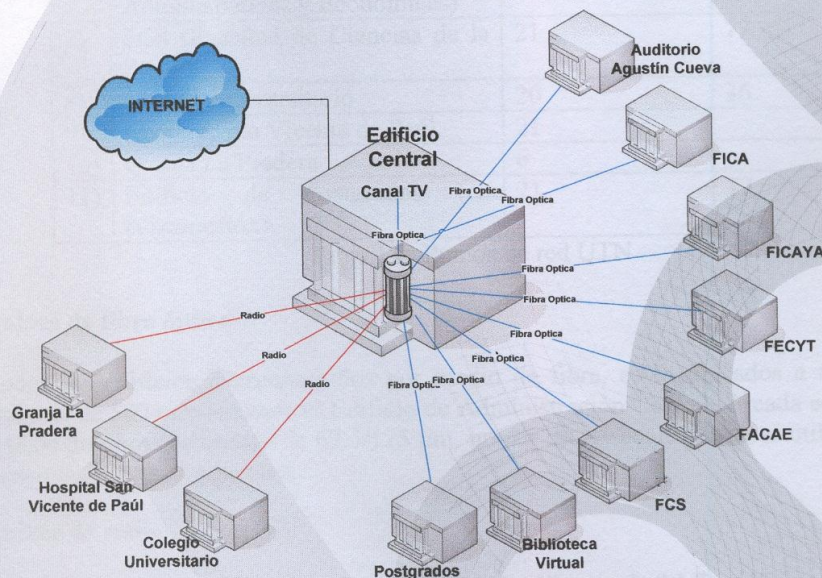
- Máximo de 50 usuarios simultáneos para VoD y/o señal en directo, desde la Red Universitaria e Internet.
- Administración de videos disponibles bajo demanda y de acceso a usuarios autorizados.
- Mínimo 300 horas de almacenamiento de video (en dos diferentes calidades).¹

2. ANÁLISIS DE LA SITUACIÓN ACTUAL

En este punto se realiza un análisis de la situación actual con respecto a dispositivos de interconexión de red y recursos existentes para videoconferencia.

2.1 Interconexión de la Red Universitaria

Como parte del proyecto de Actualización y Modernización Tecnológica de la UTN se pretende tener el siguiente tipo de interconexión entre los diferentes edificios que forman parte de la Universidad.



En el Edificio de Administración Central, se ubican los dispositivos de red centrales (concentrador) a los cuales se conectarán los dispositivos de seguridad y los switches de las

¹ Basado en análisis realizado en Anexo 1.



diferentes facultades; a través de enlaces GigaEthernet por medio de fibra óptica y con enlace de 10 Mbps por medio de radio.

El switch concentrador central y al igual que todos los switches de las facultades, tendrán la capacidad de ofrecer QoS (Quality of Service), lo que permite manejar niveles de servicio dependiendo de la aplicación.

A continuación se muestra una tabla con el número total de puntos de red que se tendrá en cada facultad, tanto en la parte administrativa como en laboratorios:

	Facultad	Administrativos	Laboratorios
1)	Edificio de Administración Central	35	
2)	Auditorio Agustín Cueva	10	
3)	FICA (Facultad de Ciencias Aplicadas)	35	81
4)	FICAYA (Facultad de Ingeniería en Ciencias Agropecuarias y Ambientales)	18	68
5)	FECYT (Facultad de Educación, Ciencia y Tecnología)	25	25
6)	FACAE (Facultad de Ciencias Administrativas y Económicas)	21	77
7)	FCS (Facultad de Ciencias de la Salud)	21	77
8)	Colegio Universitario	20	36
9)	Hospital San Vicente de Paúl	21	
10)	Granja La Pradera	6	
11)	Edificio de Postgrados (en construcción)	21	77

Tabla 1.2: Puntos de red UTN

Enlace de fibra óptica

Todos los edificios interconectados por medio de fibra, están ubicados a una distancia máxima de 500 metros desde el Edificio de Administración Central. A cada edificio llegan 6 hilos de fibra multimodo de 62.5/125 μm , un par de los cuales va a ser utilizado para la transmisión de audio y video.

Enlace de radio

El enlace de radio es de 10 Mbps, de los cuales se dispone de 2 Mbps para transmisión y 2 Mbps para recepción de audio y video.

El diseño posterior para videoconferencia se basa en esta interconexión de red.



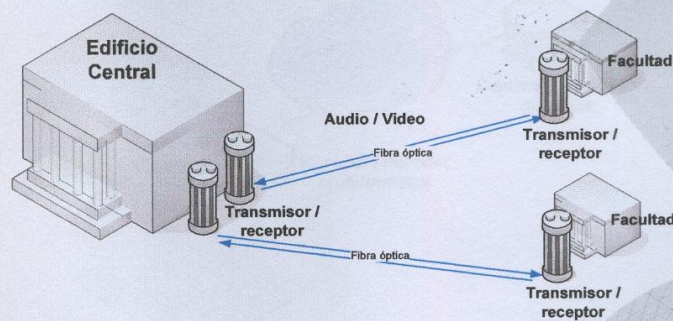
2.2 Recursos disponibles para videoconferencia

Actualmente no existe ningún tipo de implementación para video conferencia o VoD, únicamente los recursos disponibles que puede ser utilizado son los proyectores de video y computadores de usuario final.

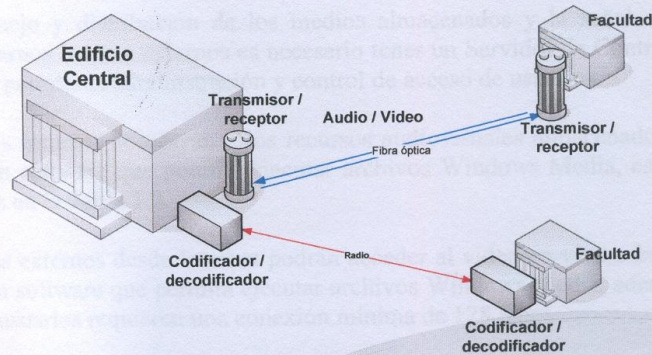
3. DISEÑO

3.1 Descripción general

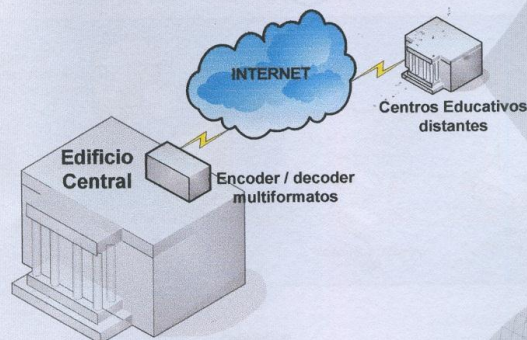
Para garantizar la calidad del contenido audiovisual generado en las videoconferencias realizadas entre los edificios enlazados mediante fibra óptica, lo ideal es utilizar dos pares de fibra para transmitir y recibir la señal de audiovisual sin comprimir hasta el Edificio de Administración Central, para desde ahí distribuirla hasta donde sea necesario. Esto es de especial importancia cuando se requiere que la videoconferencia pueda ser transmitida directamente al Canal de Televisión Universitario.



Para realizar video conferencia con uno de los sitios conectados al Edificio de Administración Central por medio de radio enlace, es necesario un codificador/decodificador que permita comprimir la señal para que pueda ser transmitida por los 2Mbps disponibles.



Las video conferencias a realizarse con otros lugares externos a la red universitaria requieren un codificador/decodificador multiformato que se ubicará en el Edificio de Administración Central, el que permita manejar protocolos estándar para videoconferencia como H.323¹ y SIP² los que son utilizados en otros Centros Educativos.



Las señales que llegan hasta el Edificio de Administración Central podrán ser almacenadas en un Servidor de Almacenamiento de VoD en dos diferentes calidades para que luego puedan ser distribuidas bajo demanda tanto a usuarios de la red universitaria como a usuarios de Internet (máximo 50 usuarios simultáneos). El formato de los medios almacenados debe permitir aprovechar la capacidad de almacenamiento y optimizar el uso del ancho de banda disponible para la distribución, el formato que mejor cumple con estos requerimientos es Windows Media (este formato además facilita la distribución del video a los usuarios finales por la gran difusión de WM Players).

¹ H.323: Recomendación de la ITU-T para manejo de videoconferencia sobre redes LAN e Internet, Anexo 3.

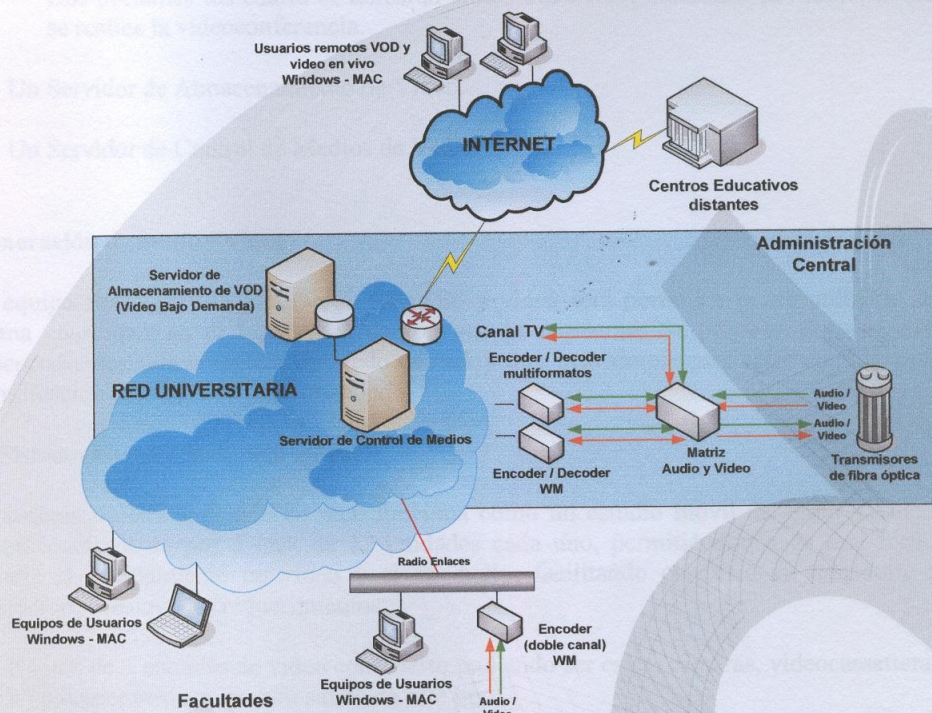
² SIP: Session Initiation Protocol, RFC 3261.



Para el manejo y distribución de los medios almacenados y la señal en vivo, tanto a usuarios internos como a externos es necesario tener un Servidor de Control de Medios, el que además permita la administración y control de acceso de usuarios.

Los usuarios internos accederán a los recursos audiovisuales almacenados o en vivo por medio de un software que permita ejecutar archivos Windows Media, estos usuarios son los descritos en la Tabla 1.2.

Los usuarios externos desde Internet podrán acceder al video en vivo o bajo demanda por medio de un software que permita ejecutar archivos Windows Media, además cabe indicar que dichos usuarios requieren una conexión mínima de 128 Kbps.



3.2 Descripción específica

Edificio de Administración Central

Para optimización de recursos y presupuesto asignado de forma general se plantea utilizar los siguientes equipos:

- Una matriz de video 16x16 (16 entradas y salidas). Con este equipo se podrá enlutar las diversas señales de video que convergen desde cualquiera de los sitios que se genere

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una video conferencia y se podrá enviar esta señal a cualquier sitio para establecer una comunicación en los dos sentidos.

- Cuatro transmisores/receptores de fibra óptica .
 - Dos fijos en el Edificio de Administración Central.
 - Dos portátiles los cuales se ubicaran en las Facultades donde se realice la videoconferencia.
- Tres codificadores Windows Media doble canal (manejo de diferentes calidades de codificación)
 - Uno ubicado en el Edificio de Administración Central.
 - Dos portátiles los cuales se ubicarán en las Facultades enlazadas por radio, donde se realice la videoconferencia.
- Un Servidor de Almacenamiento de Video.
- Un Servidor de Control de Medios de VoD.

Generación de audio y video

El equipamiento para la generación de audio y video será portátil y podrá utilizarlo de forma coordinada en el lugar y al tiempo que lo requieran. Se propone dos sistemas independientes, uno completo instalado en rack y otro más simple para aulas auxiliares. A continuación se detalla su funcionalidad.

a) Sistema Portátil instalado en rack

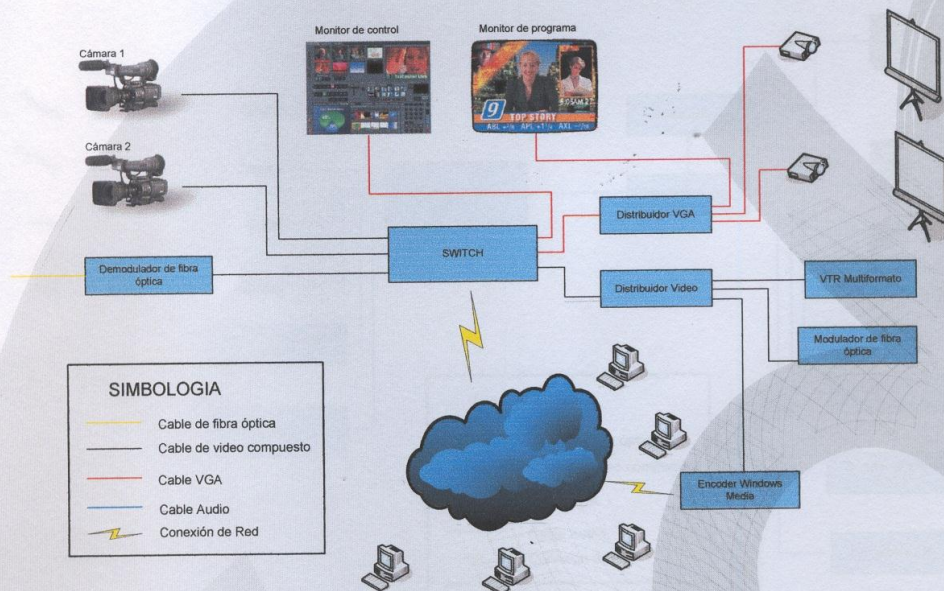
El sistema portátil instalado en rack funciona como un estudio móvil de audio y video. Estará conformado por 2 rack de 12 unidades cada uno, permitiéndonos de esta forma dividir el equipamiento de video y el de audio, facilitando con esto su transporte y operación. He aquí sus requerimientos:

- Switch de 3 entradas de video compuesto pudiendo ser estas: cámaras, videocassetteras o cualquier otro equipo con salida de este tipo
- Generador de caracteres para personalizar las presentaciones.
- Posibilidad de poder presentar las pantallas de las computadoras (MAC o PC) que estén dentro de la red de trabajo.
- Mínimo 3 salidas VGA para garantizar una distribución adecuada en caso de requerir el uso de más de 2 proyectores y monitoreo de control simultáneamente.
- Grabadora y reproductora digital con capacidad mínima de 8 horas en calidad similar a 25 Mbps.
- Capacidad de edición del material grabado en conferencia.



- Compatibilidad con sistemas NTSC y PAL
- 2 Cámaras de video 3 CCD para hombro con su respectivo trípode.
- Consola de audio con capacidad mínima para 6 entradas de micrófono y 2 de línea stereo.
- Sistema de 4 parlantes con amplificador incorporado y pedestales.
- 4 micrófonos inalámbricos: 2 tipo Lavalier y 2 hand held, deberá ser en la banda de UHF y con selección automática de múltiples canales, para evitar interferencia entre ellos.
- Controlador para evitar las realimentaciones en el audio.

Adjunto diagrama de video:

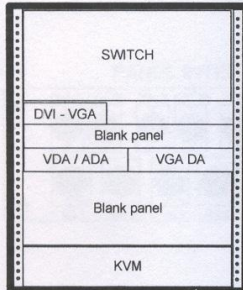


La distribución de los equipos en el rack y su panel de interconexión le mostramos en gráfico adjunto.

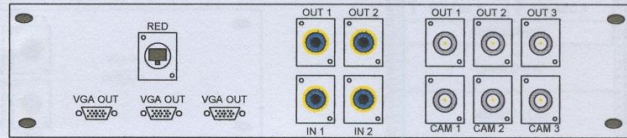
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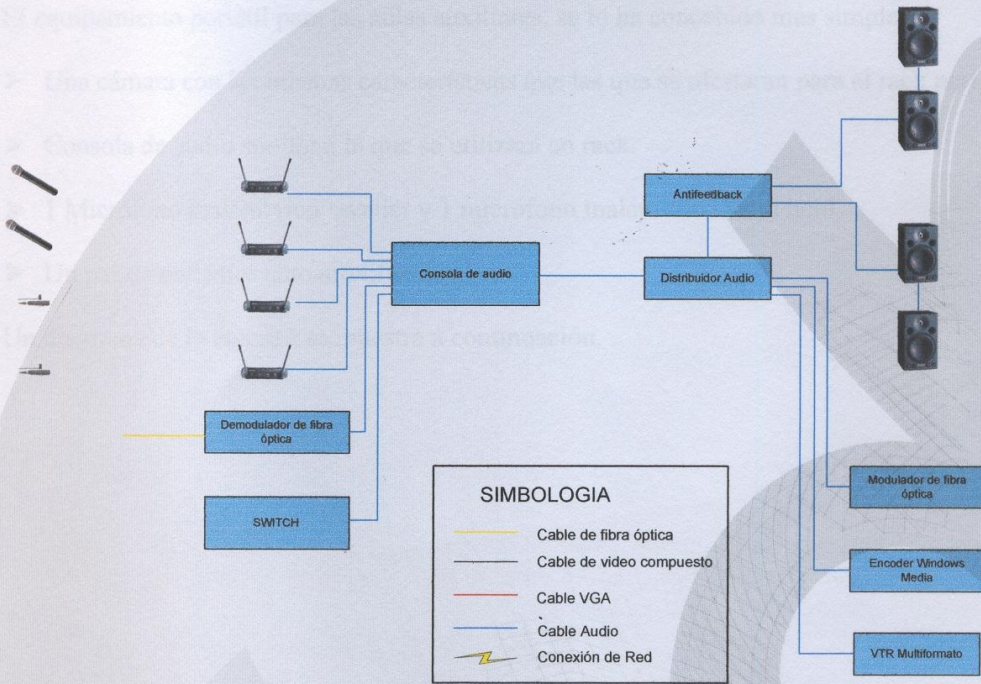
RACK VIDEO



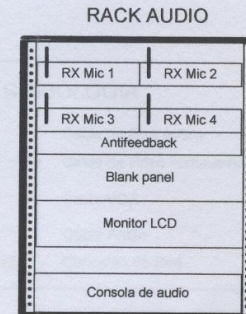
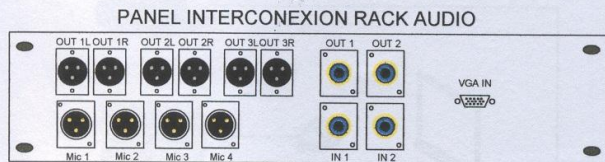
PANEL INTERCONEXION RACK VIDEO



En el caso del equipamiento de audio, a continuación se diagrama una propuesta:



La posible distribución de los equipos en el rack de audio podría ser:



b) Equipo portátil para aulas auxiliares

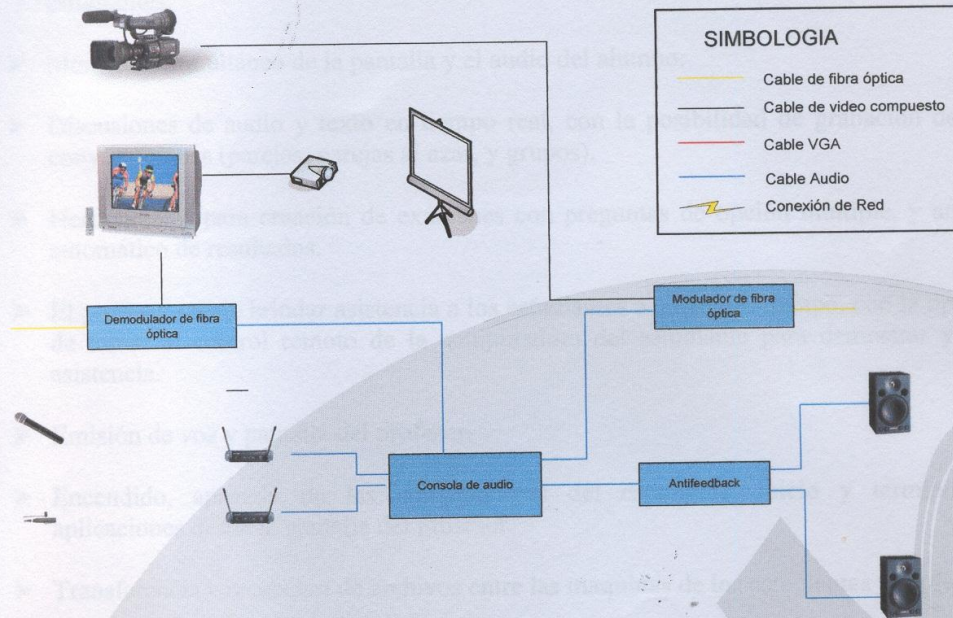
El equipamiento portátil para las aulas auxiliares, se lo ha concebido más simple:

- Una cámara con las mismas características que las que se ofertaran para el rack portátil.
- Consola de audio similar a la que se utilizará en rack.
- 1 Micrófono inalámbrico lapalier y 1 micrófono inalámbrico hand held
- Un par de parlantes autoamplificados.

Un diagrama de lo anterior se muestra a continuación.



EQUIPO PORTATIL AULAS AUXILIARES



Para satisfacer con las necesidades se requiere dos equipos portátiles para aulas auxiliares.

Cabe indicar que la instalación de los equipos portátiles debe brindar las facilidades para que su implementación sea sencilla y rápida.

3.3 Laboratorios Multimedia

Los laboratorios que forman parte de la Universidad y que tienen un ambiente de trabajo en red, en su totalidad cuentan con 441 puntos de red¹, distribuidos entre las diferentes Facultades. Estos laboratorios pueden ser convertidos en laboratorios multimedia, con la instalación de un sistema de control multimedia.

Características del Sistema de Control Multimedia

- El sistema de control multimedia permitirá la enseñanza multimedia de cualquier disciplina, y será la plataforma que permita la posterior instalación de sistemas basados en software para la enseñanza específica de disciplinas referentes a idiomas o ciencias.
- Interconexión de varios laboratorios de la Universidad.

¹ Referencia en la Tabla 1.2



- Transmisión en tiempo real de videos y pantallas de computador a todas las PCs de los estudiantes.¹
- Monitoreo simultáneo de la pantalla y el audio del alumno.
- Discusiones de audio y texto en tiempo real, con la posibilidad de grabación de las conversaciones (parejas, parejas al azar, y grupos).
- Herramientas para creación de exámenes con preguntas de opción múltiple, y anales automático de resultados.
- El profesor puede brindar asistencia a los estudiantes a cualquier tiempo, con la opción de tomar el control remoto de la computadora del estudiante para demostrar y dar asistencia.
- Emisión de voz y pantalla del profesor.
- Encendido, apagado de las computadoras del estudiante, inicio y término de aplicaciones desde la pantalla del profesor.
- Transferencia y recepción de archivos entre las máquinas de los estudiantes y profesor.

3.4 Requerimientos básicos en la red:

A continuación se describen los requerimientos básicos que debe cumplir la red para que el diseño propuesto funcione.

- Equipamiento de red soporte IP Multicast:
 - Protocolos IGMP (Internet Group-Membership Protocol),
 - PIM (Protocol Independent Multicast) y/o
 - DVMRP (Distance Vector Multicast Routing Protocol)
- Configuración de grupo multicast de los equipos de red.
- Configuración de seguridad (firewall, NAT) que no interfieran con la transmisión de la videoconferencia y VoD.
- Soporte para protocolo RTSP (Real Time Streaming Protocol), RTP (Real time Transport Protocol)
- Panel de interconexión de fibra con conector ST y ubicado lo más cerca posible del lugar previsto para la instalación del equipo portátil de audio y video.

Requerimientos mínimos computador de usuario final (interno y externo)

¹ Permite ampliar el número de usuarios que acceden a video bajo demanda.



- Windows 98, 2000, XP (Sistema Operativo XP Service Pack 2).
- Procesador 800 MHz Pentium III mínimo, recomendado superior.
- 128 MB RAM o superior.
- Tarjeta de video SVGA 640x480, 256 colores, se recomienda tarjeta aceleradora de video.
- Tarjeta de sonido full duplex.
- Dispositivo de audio compatible con Windows.
- Microsoft Internet Explorer 6.0 o superior.
- DirectX Media Version 9.0 o superior recomendado.
- Windows Media Player version 7.1 (Windows 98 o 2000), 9.0 o 10 (XP).
- Conexión de red FastEthernet o superior.*

* Los usuarios que acceden desde Internet necesitan tener un ancho de banda mínimo de 128 Kbps.

4. EQUIPOS

4.1 Precios Referenciales

Precios referenciales

a) Rack Portátil

Item	Cant	Descripción	V Ref	V Total
1	1	Switch	11435.00	11435.00
2	2	Rack transportable 12 U Heavy duty	190.00	380.00
3	2	Cámara portátil	1918.00	3836.00
4	2	Trípode	605.00	1210.00
5	1	Distribuidor de video / audio 1:4	586.00	586.00
6	1	Montaje de rack	71.00	71.00
7	1	Convertidor DVI – VGA	472.00	472.00
8	1	Distribuidor VGA 1:4	196.00	196.00
9	1	Consola de audio	340.00	340.00
10	1	Montaje de rack para riel (Consola de audio)	56.00	56.00
11	2	Sistema inalámbrico vocal	515.00	1030.00
12	2	Sistema inalámbrico de corbata	535.00	1070.00
13	4	Parlantes potenciados	1100.00	4400.00
14	4	Trípodes para parlantes	39.00	156.00
15	1	Antifeedback	380.00	380.00
16	1	Rack Mount LCD, incluye teclado / mouse	2080.00	2080.00
17	1	Rack Mount LCD 17"	2032.00	2032.00
18	1	Audífonos digitales profesionales	87.00	87.00
19	2	Panel de interconexiones	70.00	140.00
20	6	Conector de video BNC female chasis	9.00	54.00
21	4	Conector de audio XLR 3 pines Male	3.60	14.40
22	6	Conector de audio XLR 3 pines Female	3.60	21.60
23	4	Conector de audio RCA	3.83	15.32
24	1	Conector RJ-45 chasis	3.93	3.93

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25	2	Multitoma 19" 5 tomas dobles	68.00	136.00
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b) Equipo aulas auxiliares

Item	Cant	Descripción	V Ref	V Total
26	2	Cámara portátil	1918.00	3836.00
27	2	Tripode	605.00	1210.00
28	2	TV / Monitor de video In / Out para video	300.00	600.00
29	2	Consola de audio	340.00	680.00
30	2	Sistema inalámbrico vocal	515.00	1030.00
31	2	Sistema inalámbrico de corbata	535.00	1070.00
32	4	Parlantes potenciados	345.00	1380.00
33	2	Antifeedback	380.00	760.00
34	2	Audífonos digitales profesionales	87.00	174.00
35	2	Rack transportable 12 U Heavy duty	190.00	380.00
36	2	Multitoma 19" 5 tomas dobles	68.00	136.00

c) Administración central

Item	Cant	Descripción	V Ref	V Total
37	1	Matriz de video 8 X 8	1758.00	1758.00
38	1	Matriz de audio 8 X 8	1378.00	1378.00
39	4	DB 25 Pin adaptor	32.00	128.00
40	1	Videocassetera multiformato	1412.00	1412.00
41	1	Videokonferencia multiformato	6500.00	6500.00
42	3	Encoger doble canal WM	7495.00	22485.00
43	1	Servidor de video VOD	12670.00	12670.00
44	1	Control de medios	16472.00	16472.00

d) Convertidores de Fibra Óptica

Item	Cant	Descripción	V Ref	V Total
45	4	Transceiver, Two Audio/Video/Data, Bi-Directional, Terminal Block, 1300nm MMF-ST. Up to 3 km	2190	8760.00

e) Instalación

Item	Cant	Descripción	V Ref	V Total
47	1	Materiales		2320.00
48	1	Instalación y curso operativo		4300.00

119641.25



3.5 ESPECIFICACIONES DE LOS EQUIPOS

a) Rack Portátil

Item 1.- Switch:

Cant	Especificaciones
1	Mínimo 3 entradas de video compuesto
	Salidas: Video compuesto, S Video, V componentes y DVI o VGA
	Grabadora y reproductora de video y audio digital
	Capacidad de almacenamiento 8 horas mínimo
	Reproducción de imágenes fijas
	Generador de caracteres
	Presentación de pantallas de computadoras dentro de la red
	Capacidad de editar videos

Item 2.- Rack portátil:

Cant	Especificaciones
3	Los rack deben cumplir con especificaciones, (E.I.A.), ANSI/EIA
	Altura: 12 U

Item 3.- Cámaras:

Cant	Especificaciones
3	3 CCD
	Cámara para hombro
	Lente: Mínimo 10 X
	Sistema: NTSC
	Resolución horizontal: 520 líneas
	Formato de grabación: DV (25 Mbps)
	Salidas: Video compuesto y S video
	2 baterías recargables
	1 adaptador de energía para trabajo con 110V

Item 4.- Trípode:

Cant	Especificaciones
3	Capacidad de carga 8 lbs
	Cabeza fluida
	Claw Ball para ajuste de nivel
	Altura: 27" – 59"
	Peso máximo: 7 lbs

Item 5.- Distribuidor de video/audio:

Cant	Especificaciones
1	Video:
	1 entrada (Loop) a 4 salidas mínimo
	Conectores BNC, impedancia 75 ohmios
	Para montaje de rack

Galapagos OE-641 y Cuenca

ventas@dmbecuador.com

telefax: 593 2 573994

Quito - Ecuador



Ancho de banda: 100 MHz
Sistema NTSC y PAL
Audio:
1 entrada (Loop) a 4 salidas mínimo
Entradas y salidas: Balanceadas stereo
Para montaje de rack
Respuesta de frecuencia: 20 Hz – 20 KHz
Impedancia 600 Ohmios

Item 7.- Convertidor DVI - VGA:

Cant	Especificaciones
1	Convertidor de señales DVI (1280 X 1024 o mejor) a VGA
	Señal DVI automáticamente detectada
	Acepte señales 480i YCbCr y convierta a PC o resoluciones de HDTV

Item 8.- Distribuidor VGA:

Cant	Especificaciones
1	1 Entrada a mínimo 4 salidas
	Ancho de banda: 300 MHz
	Maneje resoluciones de computadora de hasta 2048x1536
	Soporte manejar hasta 50 m. de cable sin deteriorar la señal
	Conectores tipo HD-15

Item 9.- Consola de audio:

Cant	Especificaciones
2	8 entradas de micrófono / 2 entradas de línea stereo
	Phantom Power
	3 bandas de ecualización
	2 Auxiliares
	Montaje de rack para consola

Item 11.- Sistema de microfonía inalámbrica lavalier:

Cant	Especificaciones
3	Transmisor con pilas AA, autonomía de 6 horas mínimo
	Receptor con salidas: Balanceadas XLR
	Alcance: 100 m.
	Frecuencia de trabajo: UHF
	Multicanal

Item 12.- Sistema de microfonía inalámbrica Hand Held:

Cant	Especificaciones
3	Transmisor con pilas AA, autonomía de 6 horas mínimo
	Receptor con salidas: Balanceadas XLR
	Alcance: 100 m.
	Frecuencia de trabajo: UHF
	Multicanal

**Item 13.- Parlantes Potenciados:**

Cant	Especificaciones
4	Potencia: 300 W Baja frecuencia / 100 W alta frecuencia
	SPL: 129 dB @ 1 m.
	Sistema de parlantes de 2 vías
	Cobertura: 90° H x 60° V

Item 14.- Trípodes para parlantes:

Cant	Especificaciones
4	Trípodes para parlantes de Item anterior
	Capacidad de carga de acuerdo a Item anterior

Item 15.- Antifeedback:

Cant	Especificaciones
2	Entradas: balanceadas XLR
	Conversión A – D: 24 Bit
	20 filtros por canal
	Salidas: Balanceadas filtradas por RF

Item 16.- Monitor Teclado y Mouse para montaje de rack:

Cant	Especificaciones
1	Montaje de rack con altura máxima 2 U
	Monitor 17" LCD / Entradas VGA
	Teclado y Mouse compactos

Item 17.- Monitor para montaje de rack:

Cant	Especificaciones
1	Montaje de rack con altura máxima 2 U
	Monitor 17" LCD
	Entradas VGA

Item 18.- Audífonos:

Cant	Especificaciones
2	Impedancia nominal: 64 ohmios
	Respuesta de frecuencia: 8Hz – 20 KHz
	SPL: 102 dB
	Acoplamiento al oído circunaural
	Valor nominal de carga: 500 mW

Item 19.- Panel de conexiones:

Cant	Especificaciones
2	Paneles para montaje de rack con altura máxima 2 U. Instalado:
	6 Conectores BNC chasis
	4 Conectores XLR 3 pines Male Chasis
	6 Conectores XLR 3 pines Female Chasis
	4 Conectores RCA para soldadura Chasis



	1 Conector RJ-45 para montaje en chasis (Para detalle ver grafico de panel de interconexiones)
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Item 25.- Multitoma:

Cant	Especificaciones
3	Multitoma 19"
	5 tomas dobles
	Montaje de Rack

b) Equipo aulas auxiliares

Item 26.- Cámaras: (Similar Item 3)

Item 27.- Trípode: (Similar Item 4)

Item 28.- Monitor de video:

Cant	Especificaciones
2	Monitor 14" color
	Entradas / Salidas: Video compuesto
	Sistema NTSC

Item 29.- Consola de audio: (Similar Item 9)

Item 32.- Parlantes Potenciados:

Cant	Especificaciones
4	Bi- Amplificados, 2 vías, Bass Reflex
	Respuesta de frecuencia: 50 Hz – 40 KHz
	SPL: 101 dB @ 1 m.
	Potencia: Low 40 W High 27 W

Item 33.- Antifeedback: (Similar Item 15)

Item 36.- Multitoma: (Similar Item 25)

c) Administración central

Item 37.- Matriz de video:

Cant	Especificaciones
1	Matriz de video compuesto 8 X 8
	Panel de control incluido tipo X Y
	Controlable por RS-232 y con opcion a control por Ethernet
	Respuesta de frecuencia: 0 – 110 MHz – 3 dB

Item 38.- Matriz de audio:

Cant	Especificaciones
1	Matriz de audio balanceado stereo 8 X 8



	Panel de control incluido tipo X Y
	Controlable por RS-232 y con opción a control por Ethernet
	Respuesta de frecuencia: 20Hz-100kHz \pm 0.1dB

Item 40.- Videocassetera multiformato:

Cant	Especificaciones
1	MiniDV formato DV
	DVD formato MPEG2
	Almacenamiento de 40GB
	Entrada/Salida de video compuesta

Item 41.- Videoconferencia multiformato:

Cant	Especificaciones
1	Soporte H.323 y SIP
	Entrada/Salida de video compuesta y S-video
	Formato NTSC
	Salida de línea
	Manejo de configuración y seguridad

Item 42.- Encoder doble canal WM:

Cant	Especificaciones
3	Dos diferentes niveles de codificación simultáneos
	Video Codificador WM9
	Formato NTSC, PALM
	Resolución configurable (640 x 480 máxima)
	Bitrates de 20 Kbps a 4 Mbps
	Entrada Compuesta o S-Video
	Audio Codificador WM8
	Tasas de 5 Kbps a 192 Kbps
	Red Ethernet 10/100 Mbps
	Estático o DHCP
	Protocolos de distribución Unicast y Multicast
	Puerto Serie para control
	Herramientas de información de estatus y diagnóstico

Item 43.- Servidor de video VOD:

Cant	Especificaciones
1	Dedicado
	Fuente de energía redundante
	Montaje en rack
	50 usuarios simultáneos
	290 GB de almacenamiento (con capacidad de ampliación)
	Throughput 50 Mbps
	1 GB de RAM



Item 44.- Control de medios:

Cant	Especificaciones
1	Interoperabilidad con el servidor de video VoD
	Alta confiabilidad
	Dedicado
	1 GB de RAM
	Soporte LDAP (Lightweight Directory Access Protocol)
	Procedimiento de autenticación SSO (Single Sign On)
	Soporte clustering para múltiples servidores de VoD
	Funcionalidad de diagnostico para troubleshooting
	Soporta seguridad SSL(Secure Sockets Layer)/TLS (Transport Layer Security)
	Manejo de usuarios

d) Convertidores de Fibra Óptica

Item 45.- Transceiver, Two Audio/Video/Data, Bi-Directional

Cant	Especificaciones
4	Dos canales de audio, balanceado y desbalanceado. Respuesta de frecuencia: 20Hz to 20kHz @ -3 dB
	Un canal de video NTSC, ancho de banda: 8MHz
	Un canal de datos serial, formato RS-232 or RS-422
	Tipo de fibra monomodo o multimodo (conector ST)
	Longitud de onda: 1310 and/or 1550 nm
	Monitoreo de energía, enlace óptico y actividad del canal Audio/Video/Data

e) Laboratorios Multimedia

Item 45.- Sistema de Control de Multimedia:

Cant	Especificaciones
1	Difusión de videos (archivos MPEG / VCD)
	Permite transmisión de medios audiovisuales (DVD, Cassette, VHS, etc.)
	Emisión de audio y video sin retardos
	Intercomunicador por voz y texto entre alumno y profesor
	Emisión de voz y pantalla del alumno
	Generación de exámenes de opción múltiple
	Intercomunicador por voz y texto entre alumno y profesor
	Chat en modo texto y modo audio. Posibilidad de grabación de la conversaciones (parejas, parejas al azar, y discusión en grupo)
	Control remoto de máquinas de estudiantes
	Abrir, cerrar aplicaciones en las computadoras de los estudiantes.



CATALOGOS

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TriCaster™

Turn It On. Engage the World.™



Live Production System

What it is

NewTek TriCaster combines everything found in a television live truck into a box small and light enough to fit into a backpack.

What it Offers

TriCaster offers simplified live switching and audio mixing, with real-time output to video, projector and the Internet. TriCaster's user-friendly interface is in plain English instead of video jargon, meaning you don't have to know about video production to produce compelling presentations. Its quick start-up and dedicated usage allow you to produce professional quality video within minutes of opening the box.

Who Benefits

Education, Corporate communications, human resource and corporate training professionals can benefit from TriCaster's rapid deployment and easy use. TriCaster is also perfect for local access channels or anyone wanting to present or stream live events.



The Live Production Features
live cameras



Instantly incorporate live video, taking the Y/C or composite video connection from the camera and plugging straight into TriCaster's convenient front connection panel.

As soon as you plug in a camera, its video appears on-screen and is ready for use in your presentation. Quickly Connect up to three cameras for quick and compelling digital video that can then be sent to tape, to a projector or to the Internet. Live events become much easier and faster to set up thanks to TriCaster. Advanced controls are available.

The Live Production Features
network IN



This exclusive NewTek technology is like nothing you've ever used before. Each computer runs a small application and is seen by TriCaster across the local area network.



The TriCaster producer can then choose among any of those computers, bringing it into the presentation in real time. This goes way beyond sharing graphics, though. iVGA is capable of bringing in full-screen images, animations and even video playing on the outlying computer with incredible clarity and smoothness.

The possibilities are exciting:

- A co-worker breezes into the meeting with the latest ad storyboards or initial product videos. No longer do you have to halt the meeting for him to connect his system to the projector, just plug into the room's network connection, and with his launch of iVGA, he can drive the video, while you add this to the presentation.
- Financial information can change right before your eyes. One of the presenters displays a ticker page on his computer, which can be viewed by entire group with a single click.

Live Production Features



Animations and edited videos greatly enhance your live production, illuminating your points with moving pictures easily worth much more than a thousand words. TriCaster offers total freedom to record, edit and playback with its Virtual VCR. Even easier to use than your VCR at home, just drop in a video clip and when you're ready to make it live, select and play it instantly. With a big, friendly button just for the Virtual VCR on the video mixer panel, cutting between clips and live cameras is a snap.

Live Production Features

picture

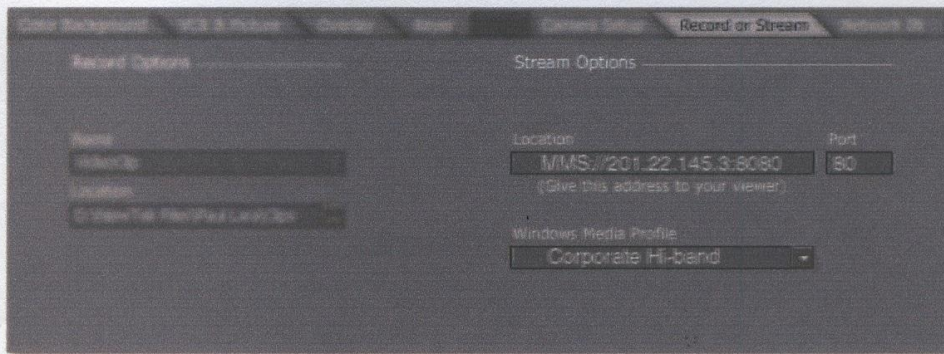


Picture this:

You can use any picture on computer in your live presentation. TriCaster's Picture Player is one of several inputs to the video mixer, and can display images in full detail, with the ability to set specific playback times for each image in the list. Help your customers better understand each point by presenting supporting graphs and data.

Live Production Features

streaming encoding / server



New Customer Relations

Never again will you have to limit your audience to the people in the room.

Today's corporations are quietly discovering the competitive advantage that Internet streaming provides. Further, live streaming is more beneficial than on-demand, as viewers report stronger positive impressions when watching a live event.

Let TriCaster help your key accounts, hot new leads, vendors and many others join in on your important meetings or events.

Live Production Features audio mixer



Running a presentation with live speakers and recorded footage requires flexibility and full control of audio, and TriCaster has simplified this to a few controls.

Each source (mic1, mic2, line, and VCR) has its own audio level controls and a single output volume control. Verify the quality of your signal with on-board audio meters as well as with the integrated headphone.

Each input has Balance, Equalization and Solo output. The microphone inputs also have an automated Talk Over button, to quickly reduce the volume of all other inputs, giving that microphone level priority. TriCaster PRO adds balanced audio and phantom power.

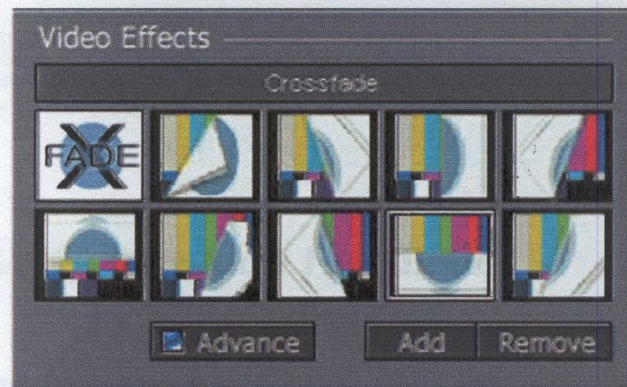
Live Production Features overlay



You can't tell the players without a program, and the fastest way to identify members and messages is with overlay titles. Quickly create key points, identify all participants on-screen and do it with professionalism. TriCaster has a simple click-and-replace text update. These pages can be easily created, and all templates have been professionally designed, so it is guaranteed to make you look good.

Quickly browse through your many styles of lower or full-screen graphics, quickly replacing the stand-in text with your own, and it's ready. Then, access any page with a click, and smoothly fade titles and text in and out. Create as many pages as you'll need from the various pre-loaded styles in TriCaster. Custom styles can be created using any graphics program and a text editor

Live Production Features video effects



TriCaster is ready-to-go with hundreds of professional transitions: wipes, peels, 3D page curls and much more can be dropped into the Transitions folder and easily arranged. All transitions serve dual duty, in the switcher and also in the real-time editor. You can choose which order the transitions will be recalled, and auto-advance to the next in line. Move to the next level of presentation technology with TriCaster. Using TriCaster VM™ you can use the transition selector to quickly dial in the effect you'd like.

Live Production Features

keyer



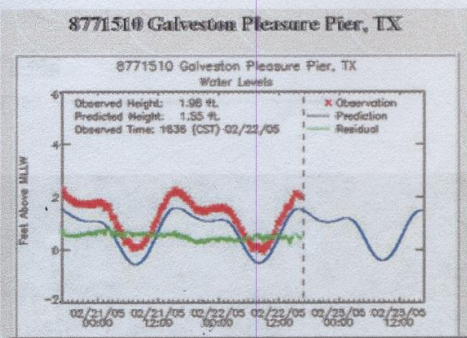
Broadcasters have known for years the impact of combining live images with background video and graphics, and do so by replacing an onscreen color with video, or keying. You see it every night in TV weathercasts. Key in real-time with the switcher or key it later in the editor. Let TriCaster help bring along the sophistication of a television studio to your next presentation.

Live Production Features

projector out

TriCaster Benefits

- Portable Live Production
- High quality projector output
- Import graphics & video across the network
- Mix video with live cameras



NewTek TriCaster brings a flexibility and ease to presentations with three simultaneous outputs: Projector, video and Internet.

With the included projector support, plug into TriCaster's DVI digital output, and project in high resolution. Mixing video sources with technical data, live web pages and PowerPoint™ is easier than ever before, since video is scaled up to your projector's resolution. Stop worrying about connections and extra gear. TriCaster brings everything you'll need for a professional, top-caliber presentation.



Features capture media



Digital Video Tools

Connect a camera or deck to TriCaster, and use the streamlined capture functions begin ingesting clips for editing or live playback.

Simple Start, Stop and Pause buttons make clip capture exceedingly simple.

Edit Media Features storyboard and timeline



Storyboard Simplicity

TriCaster's Storyboard editor is simple enough to master in seconds, as all pictures and videos sequence one after another. This is the best place to start editing, as you can quickly re-arrange and then play to see the changes.



Timeline Power

The power of the Timeline is in the way it can create picture-in-picture effects, add titles and quickly create multiple video layers.

Easily add transitions, and your project is now ready to be utilized in several ways; output as a digital video file, send to the projector or stream to the Internet. While the Storyboard is fast and simple, this is still a very powerful editor, capable of any special effect you'll need.

- Multiple video layers
- animated titles
- Slo motion
- panning, 3D rotation, soft edges and more

Along with the hundreds of professional transitions included, you have the all the tools you need to create or modify compelling messages on-site.

Edit Media Features audio mixer

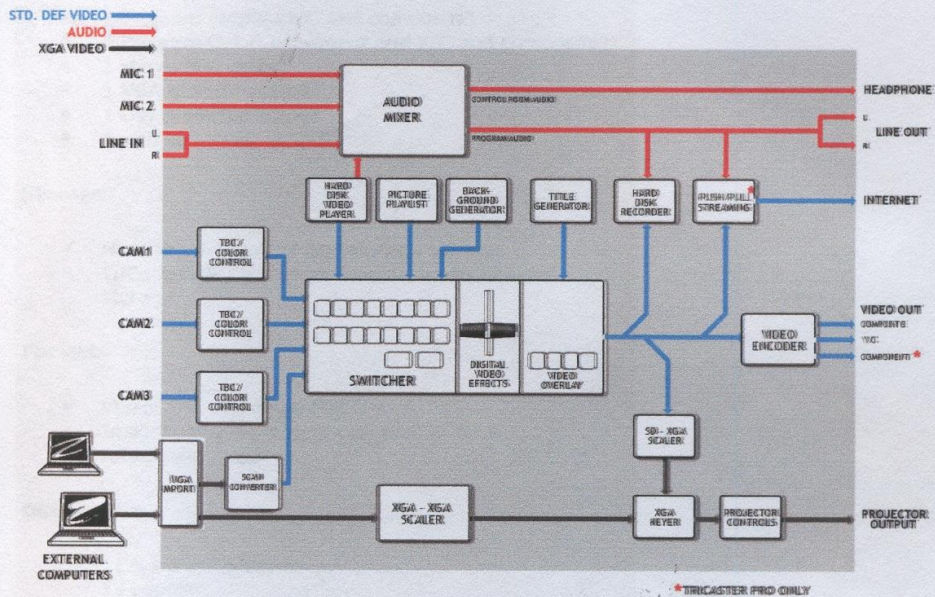


Bring in music or audio files through the capture panel or across the network, and bring them into your project without importing or converting anything.

TriCaster accepts .wav .MP3 and DV audio for immediate playback with control over left and right channels, a master audio slider and even a visual stereo positioner.

Live Production System

flow chart



Live Production System

specifications

Components

- Live Production
- Live Internet streaming
- Professional Titling
- Video Capture
- Network Input
- Media Editing
- Virtual VCR playback
- Picture playback
- XGA projector output
- Camera setup
- Color Backgrounds
- Audio Mixer
- Headphone output

Inputs

- 3 composite or Y/C Camera inputs
- 3 component inputs*
- 2 Mic inputs
- 1 line input
- 1 Firewire inputs for clip ingest (4-pin and 6-pin)
- 2 USB 2.0 inputs

- 1 RJ45 Network input

Outputs

- 1 Program output (Y/C and composite)
- 1 Program Out (Component and Y/C and composite)*
- 1 stereo line output
- 1 VGA monitor output
- 1 DVI projector output
- 1 web streaming output

Storage

- More that 6 hours of digital video storage
- TriCaster PRO has more than 10 hours of video storage

Formats

- Video: DV, avi, wmv, MPEG-1
- Images: png, bmp, jpg, tga, psd
- Audio: wav, mp3

Dimensions

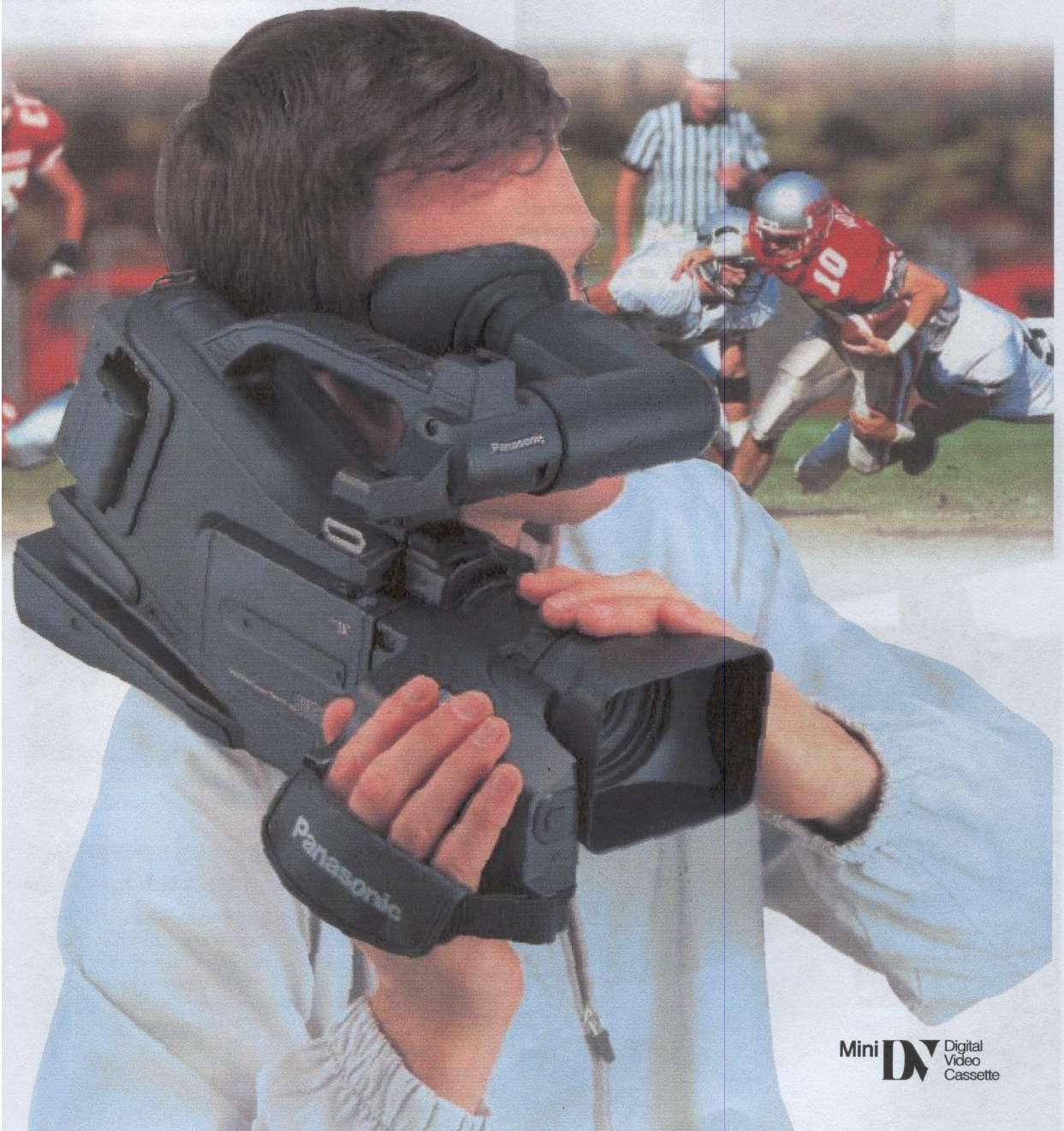
11.5 x 8 x 7.5 inches
10 pounds

* *TriCaster Pro Only*

AG-DVC20
Mini-DV Camera-Recorder (NTSC)

Panasonic
ideas for life

recordings
AG-DVC20
Mini-DV Camera-Recorder (NTSC)



Mini **DV** Digital
Video
Cassette

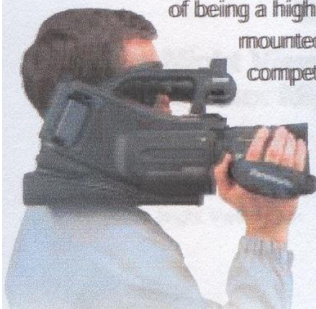
High-Quality Recordings, the Easy

The AG-DVC20 DV camcorder delivers highly professional results with easy operation.

The shoulder-held design keeps it stable when recording sports, weddings or other events.

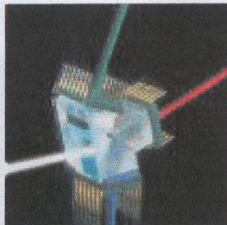
The 3CCD camera system, Advanced Color Pure Engine, and 10x optical zoom lens deliver professional-level, high-quality images. And the navigation menu makes operation one-touch easy.

The AG-DVC20 has the competitive advantage of being a highly affordable shoulder mounted camera with no competition at its price level.



Shoulder-Held Design

The AG-DVC20 features a convenient shoulder-held design, extra-large handle grip, fingertip zoom control, and LCD panel and viewfinder for easy framing and viewing. A shoulder mounted camera yields more stable images with minimal hand shaking, earns that "on the job respect" and the larger body size also acts as a deterrent against theft.



3CCD and Advanced Color Pure Engine

A 3CCD optical system is an absolute prerequisite for a professional-level camera. The AG-DVC20 combines this with the digital processing Advanced Color Pure Engine to capture consistently sharp, vivid images.

10x Optical Zoom Lens and Digital Zoom

The AG-DVC20 comes with a powerful 10x optical zoom lens and adds a digital zoom function that provides ultra-telephoto zooming all the way to 500x. Its large multi speed zoom rocker is conveniently positioned on the handle grip for easy, responsive zoom operation.



Multilingual Menu



One Touch Navigation

Easy Operation Menu

One Touch Navigation: The cursor key and linked LCD icon display make it easy to set the recording mode and play back the results. This smart, easy operation switches the display to match the mode, for AUTO, MANUAL, or PLAY.

Multilingual Menu: English, Chinese (simplified or traditional characters), Arabic, Persian, Spanish.



Way Professional Style Camcorder



Color Night View Image

LCD light at 0 Lux Night View mode

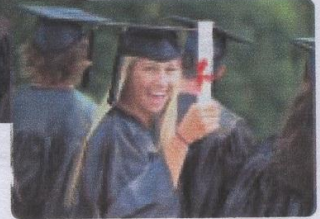


Color Night View and Zero Lux Night View

The Color Night View mode produces bright, vivid colors even in dimly lit locations. The LCD panel can also be used as a light source for shooting in total darkness with the Zero Lux Night View mode.



Power LCD "OFF"



Power LCD "ON"

Power LCD

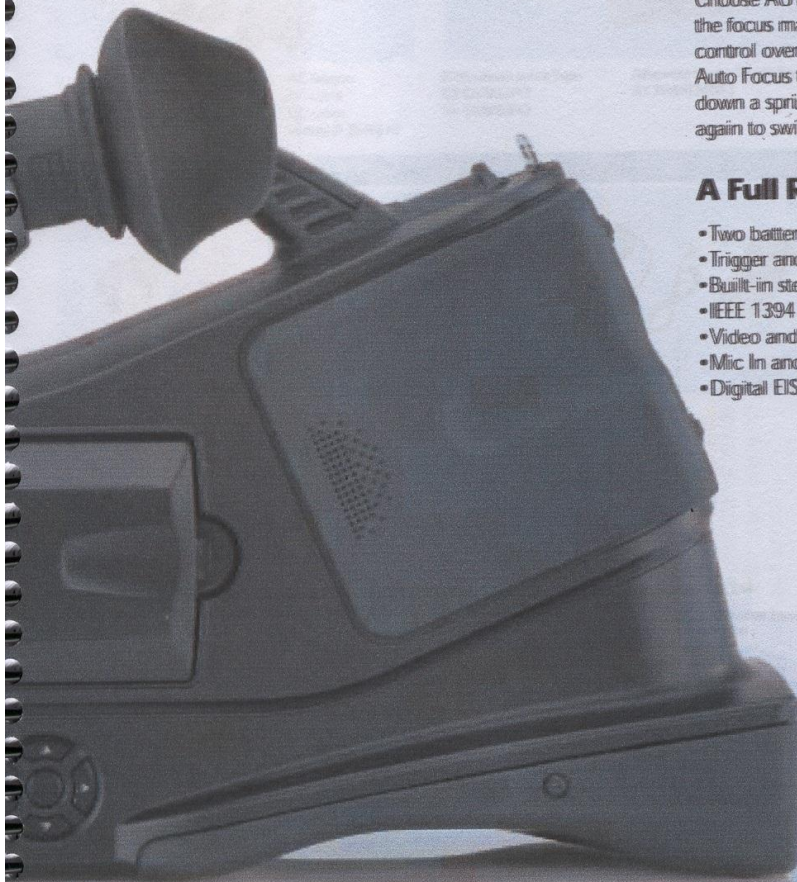
The AG-DVC20 features a bright 2.5-inch color LCD monitor. When shooting under strong sunlight, just press the Power LCD switch to increase the LCD brightness for a clearer, crisper view.

AUTO/MANUAL/FOCUS Switch

Choose AUTO for super-easy recording, or MANUAL to adjust the focus manually with the focus ring and give yourself full control over the aperture and shutter speed. Switching from Auto Focus to Manual focus is easily accomplished by pushing down a spring loaded slide switch to the FOCUS position. Push again to switch back to Manual focus mode.

A Full Range of Easy-to-Use Functions

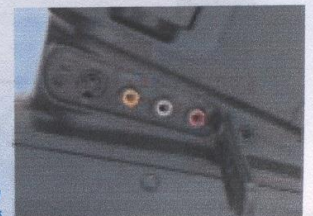
- Two batteries supplied
- Trigger and zoom lever on top handle grip
- Built-in stereo microphone
- IEEE 1394 DV In/Out terminal
- Video and S-Video Out
- Mic In and Audio Out
- Digital EIS (Electronic Image Stabilizer)



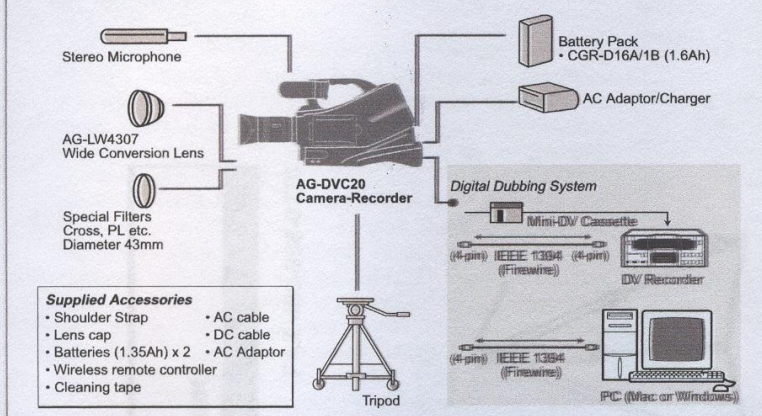
Double trigger and zoom lever on handle grip



Side Panel Connectors



Configurations



Supplied Accessories

- Shoulder Strap
- Lens cap
- Batteries (1.35Ah) x 2
- Wireless remote controller
- Cleaning tape
- AC cable
- DC cable
- AC Adaptor

Supplied Accessories



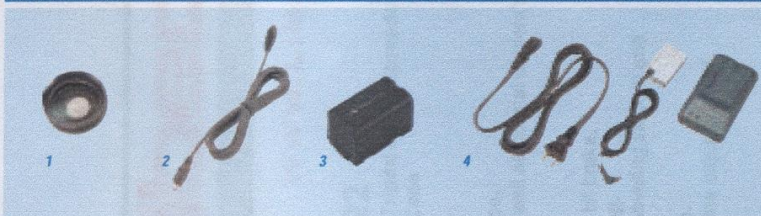
1. Lens cap
2. Cleaning tape
3. Wireless remote controller
4. Shoulder Strap
5. AC Adaptor
6. AC cable
7. DC cable
8. Battery (1.35Ah) x2

Recommended Mini-DV Tape



- Professional series Tape
AY-DVM63PQ
AY-DVM63PQ
- Advanced Master Quality Tape
AY-DVM63AMQ

Optional Accessories



1. 0.7x Wide Conversion lens (AG-LW4307)
2. IEEE1394 cable
3. Battery Pack / 1.6Ah (CGR-D16A/1B)
4. AC adaptor kit (AG-B15)

Specifications

[General]

Power Source:	7.2 VDC with battery, 7.9 VDC with AC adaptor
Power Consumption:	3.2 W (when viewfinder is used) 3.4 W (when LCD monitor is used) 6.3 W (max.)
Operating Temperature:	32°F to 104°F (0°C to 40°C)
Operating Humidity:	10 to 80% (no condensation)
Weight:	4.488 lb (2.0 kg)
Dimensions:	8.9/16" x 8.7/8" x 1.7-1/16" (216 x 225 x 43.2 mm)

[Camera]

Pick-up Devices:	1/6-inch 3CCD image sensor Total 4,600,000
Scanning System:	2:1 interlace scan, 525 lines, 60 fields
Lens:	10x (2.45 mm to 24.5 mm) zoom, F1.8 to F2.8, 43 mm filter diameter, Wide Range Macro (with Tele Macro)
Standard Illumination:	1,400 lux
Minimum Illumination:	1 lux (Color Night View Mode)

[VTR]

Recording Format:	DV (Digital Video SD format)
Tape Used:	6.35 mm wide metal tape (mini DV)
Recording Time:	80 min (SP mode), 120 min (LP mode) with AY-DVM60 tape
Television Format:	525 lines, 60 fields NTSC color signal
Video Recording Format:	Digital Component Recording
Audio Recording Format:	PCM digital recording 16 bit / 48 kHz (2ch), 12 bit / 32 kHz (4ch)

[Input/Output]

DV In/Out:	4-pin, IEEE 1394 standard
Video Out:	RCA x 1, 1.0V/p-p 75Ω
S-Video Out:	4-pin x 1, Y: 1.0V/p-p 75Ω, C: 0.285 V/p-p 75Ω
Mic In:	Stereo mini jack, Sensitivity: -70dB/-50dB (dB=1V/Pa, 1kHz)
Audio Out:	RCA x 2 (L/R), 316 mV, 600 Ω/10 kΩ

[Equipments]

Monitor:	2.5-inch LCD monitor
Viewfinder:	Color electronic viewfinder
Microphone:	Stereo (with zoom function)
Speaker:	ø 20 mm, dynamic round speaker

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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Panasonic®

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<https://www.pavc.panasonic.co.jp/pro-av/>

Panasonic de Mexico, S.A. de C.V.
Tel: 52-55-5488-1000 Fax: 52-55-5575-6763

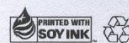
Panasonic Latin America S.A.
(Caribe/Centro America, Venezuela, Colombia, Ecuador, Bolivia,
Uruguay, Paraguay, Chile)
Tel: 507-229-2955 Fax: 507-229-2526

Panasonic del Peru S.A.
Tel: 51-1-414-0000 Fax: 51-1-452-9415

Panasonic do Brasil Ltda
Tel: 55-11-3889-4035 Fax: 55-11-3889-4004



SP-AGDVC20P1



20K6042M-1 Printed in Japan

Libec USA Camera Support Equipment

PHONE 480-948-5707

WWW.LIBECUSA.COM

FAX 480-998-0275

LS-22

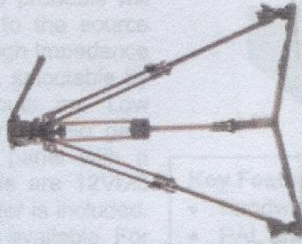
Includes - H22 Head / T58 Tripod / SP-1 Spreader / TC-50 Case

- **2 position counter balance.**
For front heavy camera's as well as normal camera's up to 8.8lbs.
- **New tilt brake system.**
Disc caliper system used for tilt brake.
- **Claw ball for easy leveling.**
This 75mm claw ball makes leveling smooth and steady.
- **Large quick release plate.**
Fitted with sliding screw for fine adjustment of counter balance.

Specifications

Load Capacity: 8.8lbs.
(Max)
Weight: 8.2lbs.
Max Height: 59"
Min Height: 27"
Tilt: 2 Position Counter Balance
Tripod Section: Single Stage

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All pricing subject to change without notice.
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Video/Audio Distribution Amplifiers

Models PD-760CVA, PD-760SVA

PD-760 Series Video and Audio Distribution Amplifiers are high performance products designed to meet the most demanding requirements for signal distribution. Model PD-760CVA is a 1x4 Composite Video DA with Stereo Audio. Model PD-760SVA is a 1x4 S-Video (Y/C) DA with Stereo Audio. Video Bandwidth of 100MHz and Audio Bandwidth of 60KHz insures these products will provide multiple video outputs identical to the source signal. Stereo Audio Input can be either High Impedance Unbalanced or Low Impedance Balanced, selectable by an internal jumper. Stereo Audio Outputs are Low Impedance Balanced. Separate video and audio gain adjustments are available on the front panel with a center detent for unity gain. Both models are 12VDC powered and a small In-Plug Power Adapter is included. An optional Dual 19" Rackmount Frame is available. For best performance, use high-grade input and output cables such as our professional Z-Plus type.



PD-760CVA



PD-760SVA

Key Features of the Distribution Amplifiers

- Bandwidth: 100MHz Video, 60KHz Audio
- PAL and NTSC Television Standards
- 4x Composite or S-Video Outputs
- 4x Stereo Audio Outputs

Specifications

Signal Performance	Video	Audio
Bandwidth	100MHz, +/-3db	20Hz-60KHz, +/- .1db
Input Impedance	75Ω	20KΩ & 600Ω Bal
Output Impedance	75Ω	50Ω & 600Ω Bal
Distortion	N/A	<0.005%
Differential Gain	<0.1%	N/A
Differential Phase	<0.1°	N/A
Isolation	>65db	>75db
Signal/Noise Ratio	>65db	>75db
Signal Gain	Variable, +/-3db	Variable, +/-6db
Television Standards	PAL-NTSC	N/A
PD-760CVA Connectors	BNC	Terminal
PD-760SVA Connectors	4-Pin Mini-DIN	Terminal
Video Input	Looping w/75Ω Termination Switch	
Mechanical		
PD-760 (HWD)	1.4"x8.5"x5.2" (36x215x130mm)	
Weight (Net)	1,8lbs (0.8kg)	
RM-200 (HWD)	1.75"x19"x7" (44x482x178mm)	
Weight (Net)	2.4 lbs (1.1 kg)	

Environmental

Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	-10° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing

Warranty

Limited Warranty 2 Years Parts and Labor

Power Requirement

External Power Supply 12VDC@500mA - Locking DC

Regulatory Approvals

Amplifier Units FCC, CE
Power Supplies UL, CE, CSA

Accessories Included

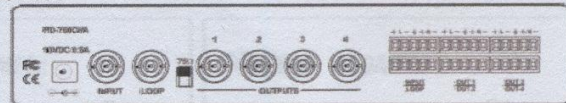
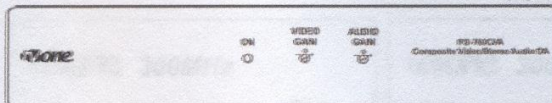
1x Video Cable 6' (2m) BNC or S-Video
1x Power Adapter US, UK or Euro or Type

Product Item Numbers

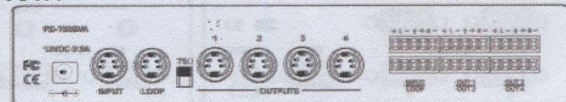
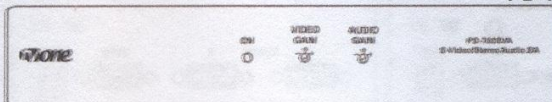
PD-760CVA 1x4 Composite Video & Stereo DA
PD-760SVA 1x4 S-Video (Y/C) & Stereo DA
RM-200 Dual Rackmount Assembly

Panel Drawings

PD-760CVA



PD-760SVA





RGBHV Distribution Amplifiers

Models MS-3002, MS-3102, MS-3004

MS-3002 and MS-3004 provide 2 or 4 outputs. Their 300MHz bandwidth handles computer resolutions up to 2048x1536 at distances up to 50 meters away without any signal deterioration. Both models provide VESA industry standard DDC (Data Display Channel) bi-directional communications between one of the outputs and the host PC for Plug and Play compatibility and host control of the downstream monitors. In and Out connectors are HD-15 type. Both models are housed in small rugged metal cases. They are 7.5VAC powered and a Power Adapter is included. A high performance 6' VGA Input cable is provided. For best performance, use high-grade output cables.

MS-3102 has all the features of the MS-3002 and adds Stereo Audio input and outputs via 3.5mm Mini-Stereo connectors.



MS-3002



MS-3004

Key Features of the MS-3000 Series

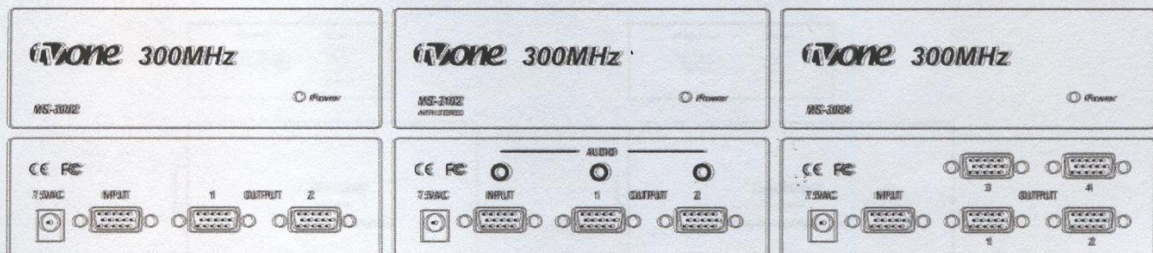
- Drives Monitors up to 150 feet away
- 300MHz Signal Bandwidth
- Max Resolution 2048x1536
- Locking DC Power Connector for Security
- 2 and 4 Output versions available
- Version available with Stereo Audio I/O

Specifications

Computer Video Input	
Signal Type	RGBHV, RGBS, RGsB
Connector	1x HD-15 Female
R-G-B Level Range	0.5-2.0 Vp-p
Maximum Resolution	2048x1536
Computer Video Outputs	
MS-3002 and MS-3102	2x via HD-15 Female Connectors
MS-3004	4x via HD-15 Female Connectors
General	
R-G-B Bandwidth	300MHz
Maximum Distance	Up to 50 meters from amplifier via DDC (Data Display Channel)
Plug-n-Play (Optional)	
Audio Input/Output (MS-3102 Only)	
Stereo Audio	1 Input x 2 Outputs
Connectors	3.5mm Mini-Stereo Female
Bandwidth	20Hz to 20KHz
Mechanical	
Size (H-W-D)	1.75"x5.1"x2.9" (44x130x74mm)
Weight (Net)	1 lb (450 g)
Warranty	
Limited Warranty	2 Years Parts and Labor

Environmental	
Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	-10° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing
Power Requirement	
External Power Supply	7.5VAC@800mA - Locking Plug
Regulatory Approvals	
Amplifier Units	FCC, CE
Power Supplies	UL, CE, CSA
Accessories Included	
1x VGA Cable	2m (6') HD-15 Male to Male
1x AC Power Adapter	US, UK or Euro or Type
1x Operations Manual	
Product Item Numbers	
MS-3002	2-Output Version
MS-3102	2-Output Version with Stereo
MS-3004	4-Output Version
Optional Accessories	
Output Cables	Various Lengths: 6' thru 150'

Panel Drawings





DVI-VGA Converter/Scalers

1T-DVI-VGA, 1T-VGA-DVI



OPETASK Series DVI-VGA Converter/Scalers are ultra compact, high performance products. Model 1T-VGA-DVI converts Analog to DVI, while the 1T-DVI-VGA converts DVI to Analog. A wide variety of PC and HDTV I/O resolutions are supported. The input resolution is automatically detected and can either be RGBHV or YPbPr format. Both models also accept a 480i YCbCr signal, from a DVD Player for example, and convert it to PC or HDTV resolutions. The output resolution and refresh rate is selected via push buttons and OSD Menu. An integral processor adjusts signal parameters.



1T-DVI-VGA



1T-VGA-DVI

Key Features of the DVI-VGA Converter/Scalers

- Versions to Convert DVI to VGA or VGA to DVI
- Simultaneous Scaling to Different Resolutions
- PC Resolutions up to 1280x1024 and HDTV

Specifications

Input Resolutions (Note 1)

VESA	Resolution	Refresh Rate	Format
VGA	640x480	60, 72, 75, 85Hz	RGBHV
SVGA	800x600	60, 72, 75, 85Hz	RGBHV
XGA	1024x768	60, 70, 75, 85Hz	RGBHV
Mac	1152x864	70, 75Hz	RGBHV
WXGA	1280x768	60Hz	RGBHV
SXGA	1280x1024	60Hz	RGBHV
480i	852x480i	60Hz	YCbCr
480p	852x480	60Hz	YPbPr
576p	852x576	50Hz	YPbPr
720p	1280x720	50, 60Hz	YPbPr
1080i	1920x1080i	50, 60Hz	YPbPr

Output Resolutions

VESA	Resolution	Refresh Rate	Format
VGA	640x480	60, 72, 75, 85Hz	RGBHV
VGA70	720x400	70Hz	RGBHV
VESA85	640x400	85Hz	RGBHV
SVGA	800x600	60, 72, 75, 85Hz	RGBHV
XGA	1024x768	60, 70, 75, 85Hz	RGBHV
Mac	1152x864	70, 75Hz	RGBHV
1280A	1280x960	60Hz	RGBHV
WXGA	1280x768	60Hz	RGBHV
SXGA	1280x1024	60, 75Hz	RGBHV
480p	852x480	60Hz	RGBHV (Note 2)
576p	852x576	50Hz	RGBHV (Note 2)
720p	1280x720	50, 60Hz	RGBHV (Note 2)
1080i	1920x1080i	50, 60Hz	RGBHV (Note 2)

Connectors

1T-VGA-DVI	In: HD-15F	Out: DVI-I
1T-DVI-VGA	In: DVI-I	Out: HD-15F

Picture Controls

Input Signal	Clock Frequency, Phase
Output Signal	Brightness, Contrast, RGB Levels, Color, Horiz & Vert Position

Mechanical – 1T-DVI-VGA

1T-DVI-VGA Size (H-W-D)	1.2"x5.25"x3" (30x133x76mm)
1T-VGA-DVI Size (H-W-D)	1.2"x5.75"x3" (30x146x76mm)
Weight (Net)	10 oz (285g)

Warranty

Limited Warranty 2 Years Parts and Labor

Environmental

Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	-10° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing

Power Requirement

External Power Supply 5VDC@2A – Locking DC

Regulatory Approvals

Amplifier Units	FCC, CE
Power Supplies	UL, CE, CSA

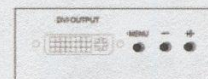
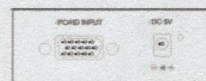
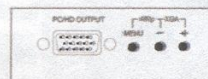
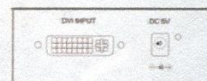
Accessories Included

1x VGA Cable	6' (2m) HD-15M/M (1T-VGA-DVI only)
1x DVI Cable	6' (2m) DVI-I M/M (1T-DVI-VGA only)
1x AC Power Adapter	US, UK or Euro Type
1x Operations Manual	

Notes

- (1) Additional inputs supported: VGA75, VESA85, 1280A, 576i.
- (2) 1T-DVI-VGA also has YPbPr output for all HDTV Resolutions.

Panel Drawings



MG12/4 MG16/4 MG16/6FX MESA DE MEZCLAS

Total control creativo en el estudio de grabación o sobre el escenario

La gama media de la serie MG va más allá de las funciones básicas para ofrecerte un control total que podrá usar en una amplia gama de aplicaciones - con la insuperable calidad de sonido de siempre que las mesas de mezclas de la serie MG ofrecen en las mejores de su clase. Tanto si la música es su hobby, como si es su profesión, estas mesas de mezclas harán que quedé totalmente satisfecho. Si no necesitas efectos, o si ya dispones de todo un arsenal de unidades externas, la MG12/4 o la MG16/4 pueden ofrecerte toda la potencia y características que pueda necesitar. Pero si le gusta la idea de disponer internamente de alguno de los mejores efectos en la propia mesa, entonces plantéese el comprar la MG16/6FX con efectos internos.

MG12/4

Impresionante balance entre sonido, tamaño y características



12 canales de entrada

Cuatro canales internos de micrófonos y canales externos de líneas estero y canales de inserción, dando la posibilidad de ser triplicado incluso de un lado.

Seis preamplificadores de micrófono de alta precisión y bajo nivel de ruidos

Seis preamplificadores de alto rendimiento que le permitirán usar el máximo partido de cualquier micrófono dinámico o condensador.

Alimentación phantom

Los seis preamplificadores de micrófono de la MG12/4 disponen de alimentación phantom activable para el uso de micrófonos de condensador de canal. Los cinco interruptores activos o desactivos con alimentación phantom en los 10 canales.

E/S de inserción

Todos los canales de entrada tienen disponible el punto de inserción de E/S de inserción para que pueda añadir a los canales unidades extra de procesamiento de señal según sus necesidades.

Cuatro buses (estéreo y de grupo)

Además del bus estero principal, el MG12/4 dispone de un bus de grupo estero y canales que puede usar para organizar grupos de canales.

MG16/4

Para cuando necesite una capacidad extra de entradas...



16 canales de entrada

Ocho canales más de micrófonos y cuatro canales de líneas estero, dos de los cuales disponen también de la posibilidad de ser triplicados de un lado.

10 preamplificadores de micrófono de alta precisión y bajo nivel de ruidos

Diez preamplificadores de alto rendimiento que le permitirán usar el máximo partido de cualquier micrófono dinámico o condensador.

Alimentación phantom

Los diez preamplificadores de micrófono de la alimentación phantom activable para el uso de micrófonos de condensador de canal. Los cinco interruptores activos o desactivos con alimentación phantom en los 10 canales.

E/S de inserción

Diez puntos de inserción. EQ y otras unidades de procesamiento de señal a los canales internos de acuerdo a sus necesidades por medio de los puntos de inserción de E/S de inserción.

Cuatro buses (estéreo y de grupo)

Además del bus estero principal, el MG16/4 dispone de un bus de grupo estero y canales que puede usar para organizar grupos de canales.

EQ de canal de 3 bandas y filtro paso-alto (HPF)

Dispone de tres canales de tres bandas con una respuesta suave y "round" en todos los canales de entrada. En los canales de entrada de micrófono, incluso disponen de un filtro paso-alto controlable que puede usar para suprimir todo el ruido no deseado de baja frecuencia.

10 preamplificadores de micrófono de alta precisión y bajo nivel de ruidos

Diez preamplificadores de alto rendimiento que le ofrecerán un rendimiento superior con cualquier micrófono dinámico o condensador.

Alimentación phantom

Los diez preamplificadores de micrófono de la alimentación phantom activable para el uso de micrófonos de condensador de canal que necesitan este tipo de conexión. Los cinco interruptores activos o desactivos con alimentación phantom en los 10 canales.

E/S de inserción

Diez puntos de inserción. EQ y otras unidades de procesamiento de señal a los canales internos de acuerdo a sus necesidades por medio de los puntos de inserción de E/S de inserción.

Efectos digitales internos y EQ gráfico estero de 7 bandas

Los canales de las unidades de efectos digitales internos conectados por módulos como los buses de la industria. En el MG16/6FX, tiene un completo sistema de efectos que cubre un rango de 16 sobrebarridos y efectos de retardo interno. También dispone de un equalizador gráfico estero de 7 bandas que le permite un control detallado de la respuesta de la señal musical más fielmente.

Dos envíos auxiliares y retorno auxiliar estero

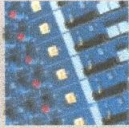
Dos envíos auxiliares en cada canal - uno pasable y otro controlable para funcionar pre y post fader - le ofrecen una gran cantidad de posibilidades y una flexibilidad increíble para el procesamiento de señal y monitorización estero. También dispone de un retorno auxiliar estero.

Interruptores iluminados

Los interruptores iluminados ON (energización de bus ST), PFL (escucha pre-fader) y alimentación phantom le ofrecen una sencilla visualización de los estados de los botones más importantes de la mesa.

Incluye adaptadores para montaje en rack

Montado en rack y según su tamaño, se ofrece una gran variedad de opciones, ya sean de mesa MG o integradas en un rack. Los adaptadores para el montaje en rack se incluyen con la unidad.



Seis buses (estéreo y dos pares de grupo)

Además del bus estero principal, el MG16/6FX dispone de dos buses de grupo estero y canales que puede usar para organizar grupos de canales.

EQ de canal de 3 bandas con barrido de medios y filtro paso-alto (HPF)

Todos los canales de entrada disponen de realizadores de tres bandas de "respuesta manual" con una banda de medios de "barido". Todos los canales de entrada de micrófono tienen disponible también un filtro paso-alto controlable que puede usar para suprimir todo el ruido no deseado de baja frecuencia.

Tres envíos auxiliares y retorno auxiliar estero

Tres envíos auxiliares en cada canal - un pasable "directo" que puede usar para funcionar pre y post fader - le ofrecen una gran cantidad de posibilidades y una flexibilidad increíble para el procesamiento de señal y monitorización estero. También dispone de un retorno auxiliar estero.

Interruptores iluminados

Los interruptores iluminados ON (energización de bus ST), PFL (escucha pre-fader) y alimentación phantom le ofrecen una sencilla configuración visual de los ajustes más importantes de la mesa.

Incluye adaptadores para montaje en rack

Montado en rack y según su tamaño, se ofrece una gran variedad de opciones, ya sean de mesa MG o integradas en un rack. Los adaptadores para el montaje en rack se incluyen con la unidad.



Los canales de las unidades de efectos digitales internos conectados por módulos como los buses de la industria. En el MG16/6FX, tiene un completo sistema de efectos que cubre un rango de 16 sobrebarridos y efectos de retardo interno. También dispone de un equalizador gráfico estero de 7 bandas que le permite un control detallado de la respuesta de la señal musical más fielmente.



SHURE®

PGX Wireless

Easy-to-choose, easy-to-use **wireless**
microphone systems for superior live sound.

PGX Wireless

Unplugged.
Uncompromising.

PGX Wireless systems are the best-sounding, easiest-to-use advanced wireless systems ever. Combining uncompromising wireless technology, quick and easy setup, and legendary Shure microphones in eight different systems, PGX Wireless provides worry-free performance every time.

Remarkable technology.
Remarkably simple.

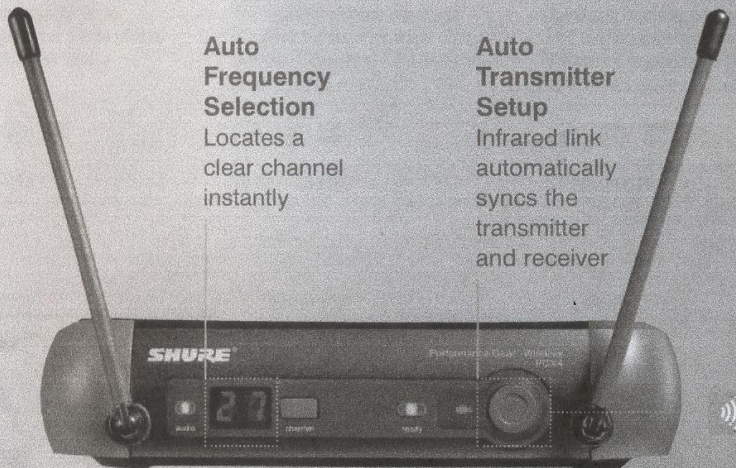
Shure's patented Audio Reference Companding
Delivers crystal-clear audio transmission, far superior to conventional wireless technology.

Auto Frequency Selection

Locates a clear channel instantly

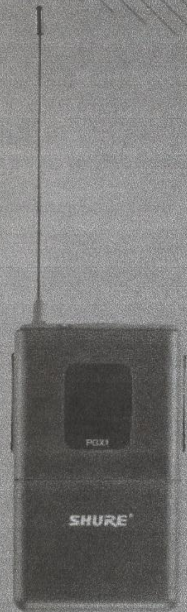
Auto Transmitter Setup

Infrared link automatically syncs the transmitter and receiver



PGX4 Wireless Receiver

- Microprocessor controlled diversity
- Up to 12 compatible systems
- 1/4" and XLR audio outputs



PGX2 Handheld or PGX1 Bodypack Transmitter

- Power, mute and battery status LEDs
- Power and mute switch
- 2 AA batteries (included) provide 8 hours of continuous use
- 100m (300 ft.) operating range

PG58 Wireless
Dynamic Vocal
Microphone



SM58 Wireless
Dynamic Vocal
Microphone



SM86 Wireless
Condenser Vocal
Microphone



Beta 58A Wireless
Dynamic Vocal
Microphone



PGX Wireless Microphones

Vocal



PG58

A rugged mic tuned to accentuate the clarity of lead and backup vocals.

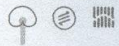


60 Hz – 15 kHz



SM58[®]

The legendary Shure vocal mic designed for superior vocal clarity and warmth. Consistently the first choice of performers around the globe.

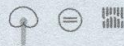


50 Hz – 15 kHz



SM86

An award-winning condenser mic that features a tailored frequency response for studio quality reproduction of vocals.



50 Hz – 16 kHz



Beta 58A[®]

A top choice among vocalists for its smooth extended frequency response. Provides maximum isolation from other onstage sounds.



50 Hz – 16 kHz

Headworn



WH20

Dynamic headset that provides high-quality voice pickup for performance vocals.



40 Hz – 20 kHz

Instrument



Beta 98H/C[™]

A versatile solution for high volume wind, brass or percussion. Gooseneck with clip-on clamp for secure fit and positioning.



20 Hz – 20 kHz

Guitar/Bass

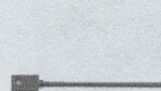


WA302

2 ft. (.6m) instrument cable for connecting the bodypack to a guitar or bass. 1/4" – 4-pin mini connector

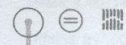


Lavalier



WL93

Miniature lavalier mic provides full, clear sound.



50 Hz – 20 kHz

PGX Handheld systems



PG58 Vocal System

Rugged, versatile vocal mic ideal for everyday use and practice.

Lead Vocals
Backup Vocals



SM58[®] Vocal System

Legendary live performance mic featuring superior clarity and warmth.

Lead Vocals
Backup Vocals



SM86 Vocal System

Award-winning condenser mic that delivers studio quality sound on tour.

Lead Vocals
Backup Vocals



Beta 58[®] Vocal System

Premium live performance mic reveals fine details in demanding environments.

Lead Vocals
Backup Vocals

UHF

PG58 Handheld Mic
PGX4 Diversity Receiver

SM58[®] Handheld Mic
PGX4 Diversity Receiver

SM86 Handheld Mic
PGX4 Diversity Receiver

Beta 58[®] Handheld Mic
PGX4 Diversity Receiver

PGX Bodypack systems



Headworn System

Comfortable, reliable headworn mic for active users.

Aerobics Instructors Karaoke
Drummers Vocals
Disc Jockeys



Instrument System

Convenient, versatile mic for instrument applications.

Saxophone Brass
Trumpet Strings
Woodwinds Percussion



Guitar System

Rugged guitar system provides clear audio across models and playing styles.

Guitar
Bass



Lavalier System

Reliable wearable mic for spoken word applications.

Instructors Ministers
Teachers Presenters

UHF

WH20TG Headset Mic
PGX1 Bodypack Transmitter
PGX4 Diversity Receiver

Beta 98H/C[®] Clip-on
Instrument Mic
PGX1 Bodypack Transmitter
PGX4 Diversity Receiver

WA302 Instrument Cable
PGX1 Bodypack Transmitter
PGX4 Diversity Receiver

WL93 Lavalier Mic
PGX1 Bodypack Transmitter
PGX4 Diversity Receiver

Carrying case
included in every system



Key:

Operating Principle

Dynamic Condenser

Polar Pattern

Omnidirectional Cardioid SuperCardioid

Frequency Response

Flat Tailored

SHURE[®]
It's Your Sound[®]

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EON® G2 Series

Suspension kits are available for EON 10 and EON 15 speakers.



With more than 500,000 systems already being used in applications from live sound reinforcement, speech and vocals to music playback in entertainment, A/V and institutional environments, the JBL EON system is firmly entrenched as the industry leader in powered portable speaker systems. The EON G2 Series is the second generation of this most successful and influential professional speaker system.

EON10 G2

The **EON10 G2** is a compact powered speaker with a 10" woofer and 175 watts total power. Weighing just 10.4 kg (23 lb), the EON10 G2 is extremely transportable and easy to handle. The built-in mini-mixer allows (for example) a microphone and a CD player to be plugged directly into the speaker for a simple, one-piece sound system. The EON10 G2 is ideal for AV applications, musical and speech reinforcement or DJ booth monitor, stage monitor and amplification of electronic instruments. For performances that require more low-frequency extension, add either EONSUB G2 or JRX118SP powered subwoofers.

The EON10 G2 has 125 watts for low frequencies and 50 watts for the highs. The 10" Differential Drive® low-frequency driver uses a neodymium magnet for light weight and reduced distortion. The one-inch JBL 2412 compression driver for the high frequencies includes a titanium diaphragm and ferro-fluid cooling.

EON15 G2

The **EON15 G2** is the flagship of the series, delivering 300 watts of power to a 15" Differential Drive LF driver. The driver boasts a dual neodymium magnet and dual voice coil motor that efficiently delivers high output from a lightweight woofer. Meanwhile, the HF amplifier delivers 100 watts of power to a 1" exit titanium diaphragm compression driver with ferro-fluid cooling.

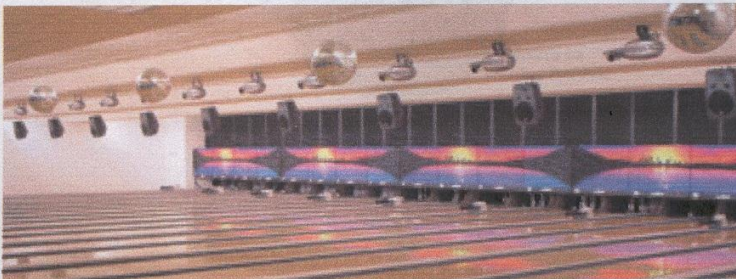
A built-in mixer with one Mic/Line input and two balanced (¼ inch TRS) line inputs provides flexibility and makes the EON15 G2 a great choice for electronic instrument or AV applications. An XLR output allows EON Speakers to be daisy-chained. As with other EON powered speakers, the EON15 G2 is kept cool by JBL's patented Thermomaster® Total Thermal Management System®. This system integrates the woofer frame, baffle, horn and amplifier heat-sink into a single aluminum casting. Fins in the port are cooled by air movement so the harder you push the system, the better it cools.

EONSUB G2

The **EONSUB G2** offers powerful low frequencies in a compact, durable enclosure and a new low price. Combine the EONSUB G2 with the EON10 G2 for a full range sound system whose clarity, volume and low end are truly amazing, considering their small size. Because the power amp and crossover are internal to all EON speakers, set up time and outboard equipment are minimized.

The EONSUB G2 powered subwoofer is consistent in design with other EON G2 models. With 250 watts of low-end power and a frequency range of 40 to 200 Hz, EONSUB G2 is also an ideal companion for any sound system needing additional low end.

The SUB's cabinet was specifically designed to securely hold the EON10 G2 using receptacles built into the top of the cabinet.



The BRK10 and BRK15 adapt EON10 and EON15 models to the Omnimount™ 30.0 and 60.0 Series Brackets.

EON G2 ACCESSORIES

ESK15: Suspension kit for EON 15 models (Not for use with EON 1500)

ESK10: Suspension kit for EON 10 models

EON BRK1: Mounting bracket (fixed angle) for EON 15" models

EON BRK2: Mounting bracket (fixed angle) for EON 10" models

EONBRK10: Adapts EON 10" models to Omnimount™ 30.0 Series brackets

EONBRK15: Adapts EON 15" models to Omnimount 60.0 Series brackets

SS2-BK: Black anodized aluminum tripod speaker stand

EON10 Bag-1: Zippered, plush-lined speaker bag for all EON 10" models

EON15 Bag-1: Zippered, plush-lined speaker bag for all EON 15" models

EON15 Bag/W-1: Wheeled, plush-lined speaker bag for all EON 15" models

EON® G2 SERIES

key features

- JBL'S PATENTED NEODYMIUM DIFFERENTIAL DRIVE® LF TRANSDUCERS
- PURE TITANIUM DIAPHRAGM COMPRESSION DRIVERS
- ENCLOSURE ANGLES FOR MANY APPLICATIONS
- LOOP/MIX OUTPUT FOR DAISY-CHAINING SPEAKERS OR SENDING SIGNAL TO A MAIN PA
- THERMOMASTER® TOTAL THERMAL MANAGEMENT SYSTEM®
- ATTACHMENT POINTS FOR FIXED-ANGLE AND ADJUSTABLE MOUNTING BRACKETS

The cabinet of the EON10 G2 has been designed to fit securely atop the EONSUB G2 for added volume and extended bandwidth.

A variety of zippered, plush-lined speaker bags are available for EON Products.

EON[®]G2
GENERATION 2



EONSUB G2

EON10 G2
(Monitor Position)

EON15 G2

specifications

	EON10 G2	EON15 G2	EONSUB G2
SYSTEM TYPE	10" Two-way Speaker System	15" Two-way Speaker System	Powered Subwoofer
FREQUENCY RANGE	65 Hz - 18 kHz (-10 dB)	39 Hz - 18 kHz (-10 dB)	40 Hz - 200 Hz (-10 dB)
FREQUENCY RESPONSE	90 Hz - 16 kHz (± 3 dB)	42 Hz - 17 kHz (± 3 dB)	42 Hz - 150 Hz (± 3 dB)
RATED MAXIMUM SPL	117 dB @ 1 m	129 dB @ 1 m	117 dB @ 1 m
TRANSDUCERS: LF	254 mm (10 in)	380 mm (15 in)	380 mm (15 in)
HF	JBL 2412 (1 in)	JBL 2418 (1 in)	
DISPERSION ANGLE	90° H x 60° V	90° H x 60° V	
LF POWER AMP	125 W @ driver impedance	300 W @ driver impedance	250 W @ driver impedance
HF POWER AMP	50 W @ driver impedance	100 W @ driver impedance	
DIMENSIONS (H x W x D)	493 x 356 x 307 mm	686 x 430 x 444 mm	686 x 430 x 444 mm
NET WEIGHT (each)	19.4 kg (23 lb)	27 x 17 x 17.5 in	27 x 17 x 17.5 in
	10.4 kg (23 lb)	21 kg (46 lb)	19.5 kg (43 lb)

AFS™ 224

Advanced Feedback Suppression

dbx

PROFESSIONAL PRODUCTS

VISIONARY DESIGN

The AFS 224 Advanced Feedback Suppression processor was designed to provide state-of-the-art feedback elimination processing, while maintaining a simple and intuitive control interface. From the powerful DSP module to the no-nonsense user interface, the AFS 224 provides all the processing and control necessary for both installation and live use. The AFS 224 is an absolute must for any live sound application.

REVOLUTIONARY ENGINEERING

Ten and twelve filter feedback elimination processors have become the de facto standard, but the engineering staff at dbx have never been content residing in the neighborhood of the status quo. So, to raise the bar once again, they went out and developed a dedicated feedback suppression processor that offers up to 24 filters per channel with filter Qs up to 1/80 of an octave. To achieve these staggering numbers dbx utilized their patent-pending AFS technology that had previously only been available in the upper echelon line of products and made it available in this stand-alone processor. In addition to the plethora of feedback suppression filters available, the AFS 224 also offers selectable modes, live filter lift, and types of filtration, which are all readily available via the intuitive user interface front panel. For more information please visit: www.dbxpro.com.

FEATURES

- *dbx's patent-pending Advanced Feedback Suppression (AFS™) technology*
- *24 Programmable Filters per Channel*
- *Stereo or Dual Independent Channel Processing*
- *Live and Fixed Filter Modes*
- *Selectable Filter Lift Times*
- *Application-specific filter types include: Speech; Music Low, Med and High*
- *Input Channel Metering*
- *24 Segment Filter Metering per Channel*
- *XLR and TRS Electronically Balanced Inputs and Outputs*

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<http://www.dbxpro.com>

H A Harman International Company

18-6397 -A 5/03



AFS™ 224

Advanced Feedback Suppression



SPECIFICATIONS

Analog Inputs:

Number of Inputs: 2
Connectors: Female XLR and 1/4" TRS
Type: Electronically balanced/unbalanced, RF filtered
Impedance: Balanced 50k Ω , Unbalanced 25k Ω
Max input line level: +20dBu
CMRR: >40dB, typically >55dB @ 1kHz

Analog Outputs:

Number of Outputs: 2
Connectors: Male XLR and 1/4" TRS
Type: Electronically balanced/unbalanced, RF filtered
Impedance: Balanced >120 Ω , unbalanced >60 Ω
Max Output Level: +20dBu

A/D Performance:

Type: dbx Type IV conversion system
Dynamic Range: >113 dB A-weighted, >110 dB unweighted, 22kHz BW
Type IV dynamic range: >119 dB, A-weighted, 22kHz BW
>117 dB, unweighted, 22kHz BW
A/D Conversion: 24 bit
Sample Rate: 48kHz

D/A Performance:

Dynamic Range: 112 dB A-weighted, 109dB unweighted
D/A Conversion: 24 bit

System Performance:

Dynamic Range: >109dB A-weighted, >106 dB unweighted, 22kHz BW
THD+N: 0.003% typical at +4dBu, 1kHz
Frequency Response: 20Hz – 20kHz, +/- 0.5dB
Interchannel Crosstalk: >80dB typical
Crosstalk input to output: >80dB
Operating Voltage: 100VAC 50/60Hz, 120VAC 60Hz and 230VAC 50/60Hz
Power Consumption: 9 Watts

Safety Agency Approvals:

UL 6500, IEC 60065, EN 55013, E 60065

dbx engineers are constantly working to improve the quality of our products. Specifications are, therefore subject to change without notice.

dbx PROFESSIONAL PRODUCTS

The Professional's Choice In Signal Processing™

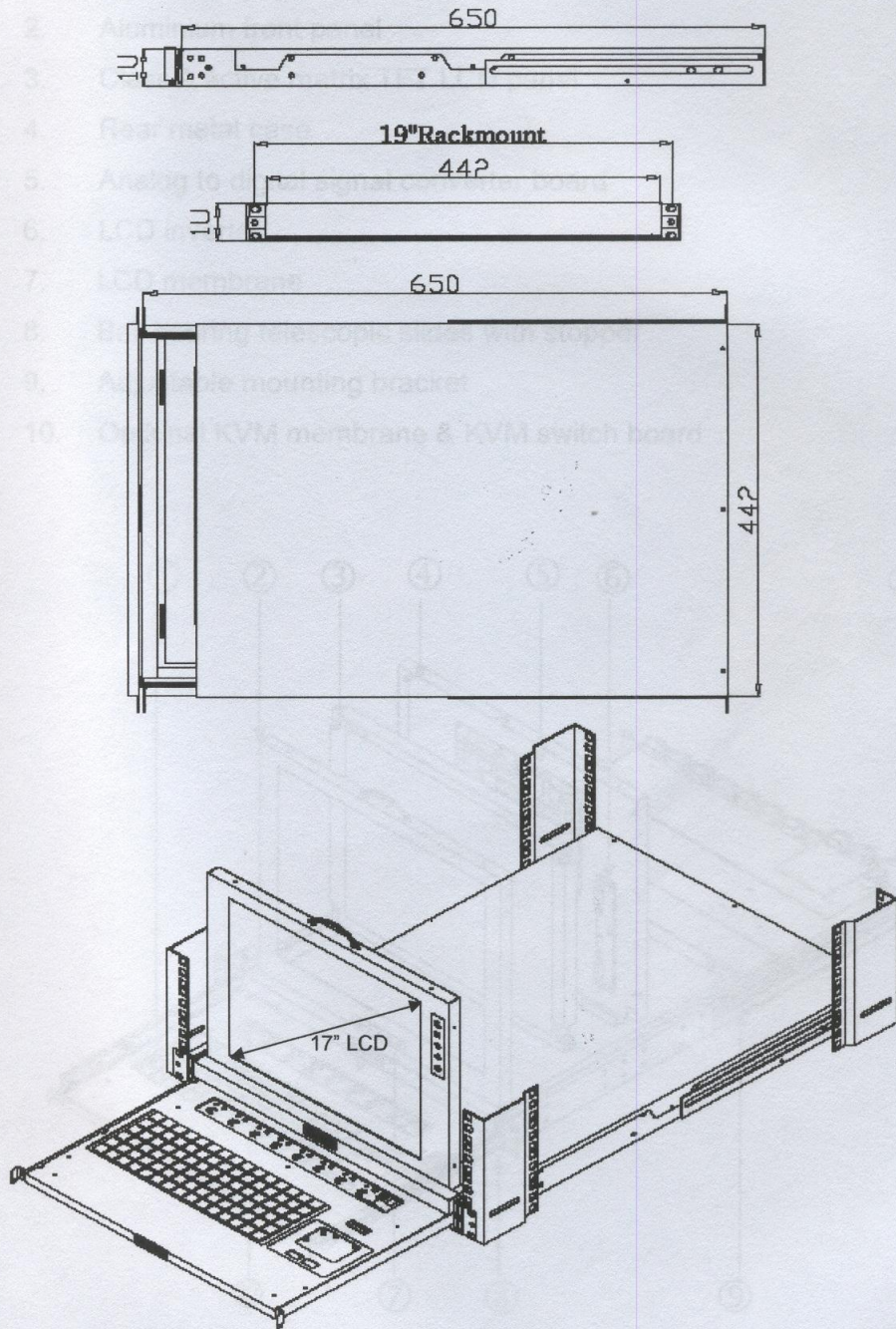
H A Harman International Company

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http://www.dbxpro.com

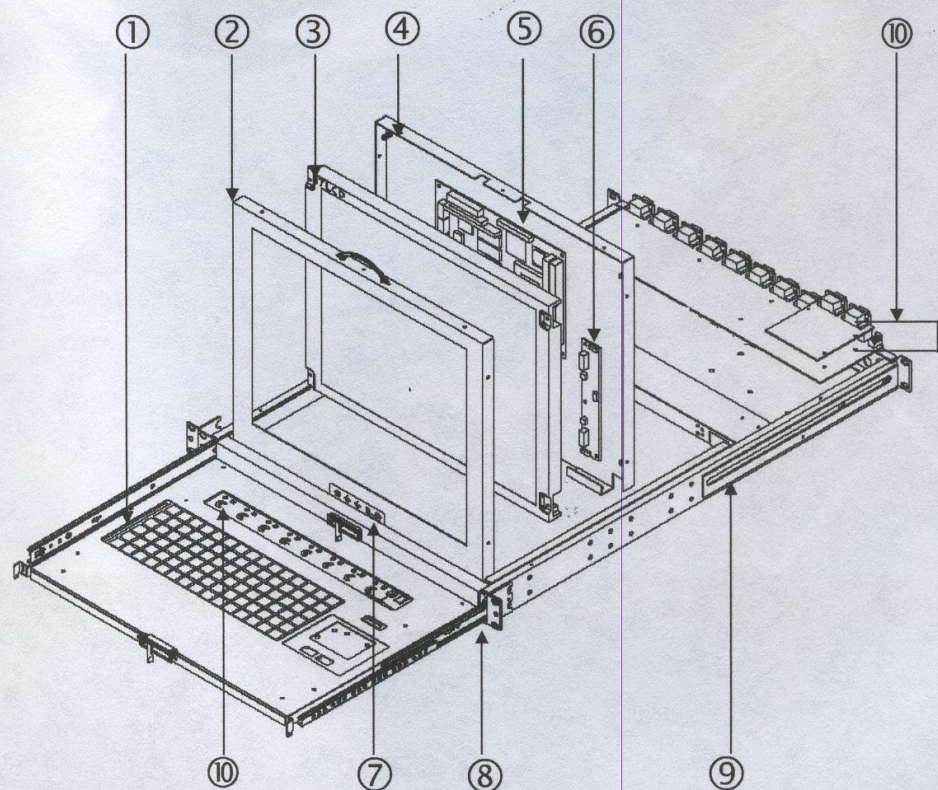
9. Dimension Diagram

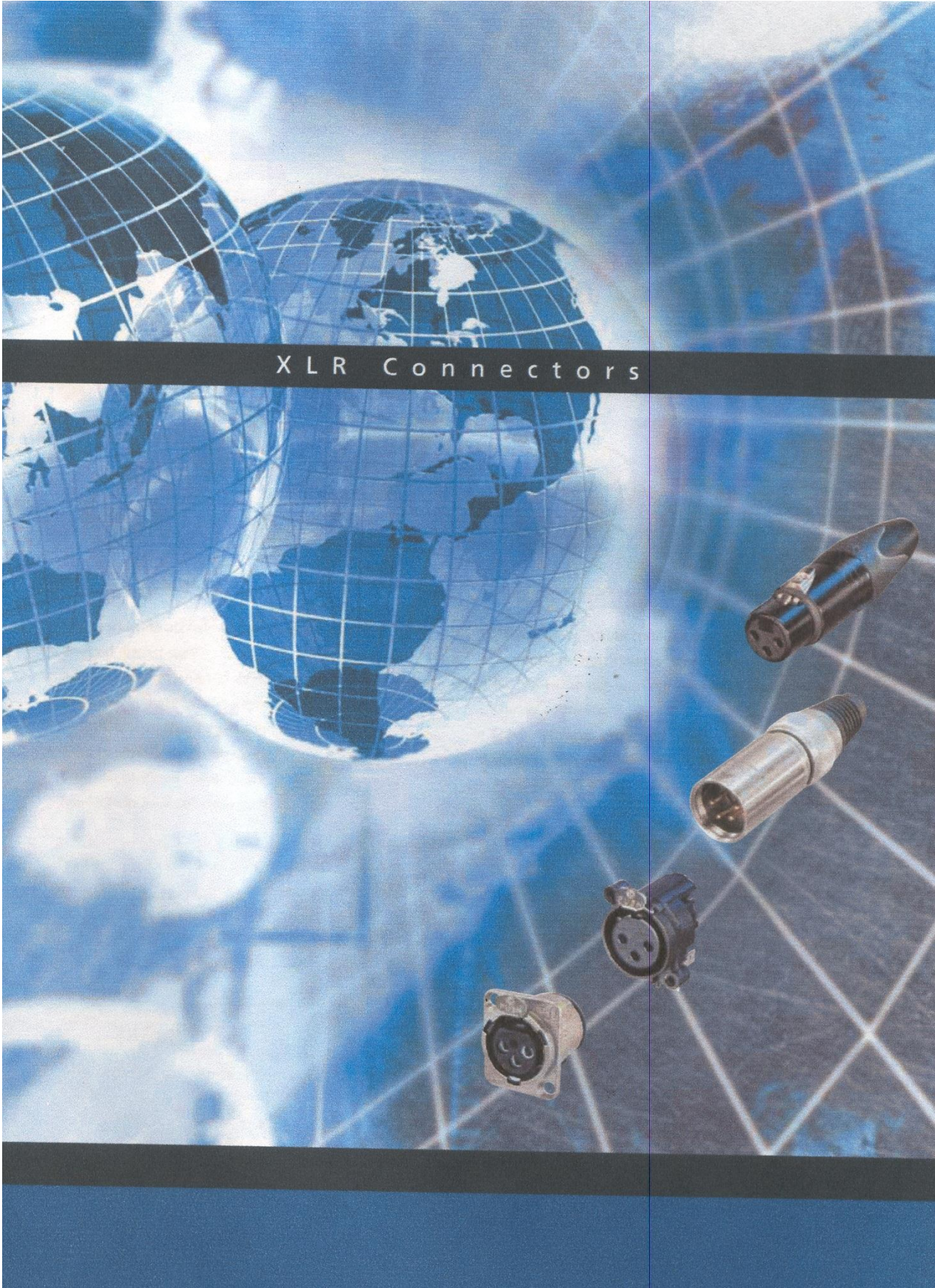
RKP1017 1U 17" LCD Keyboard Drawer



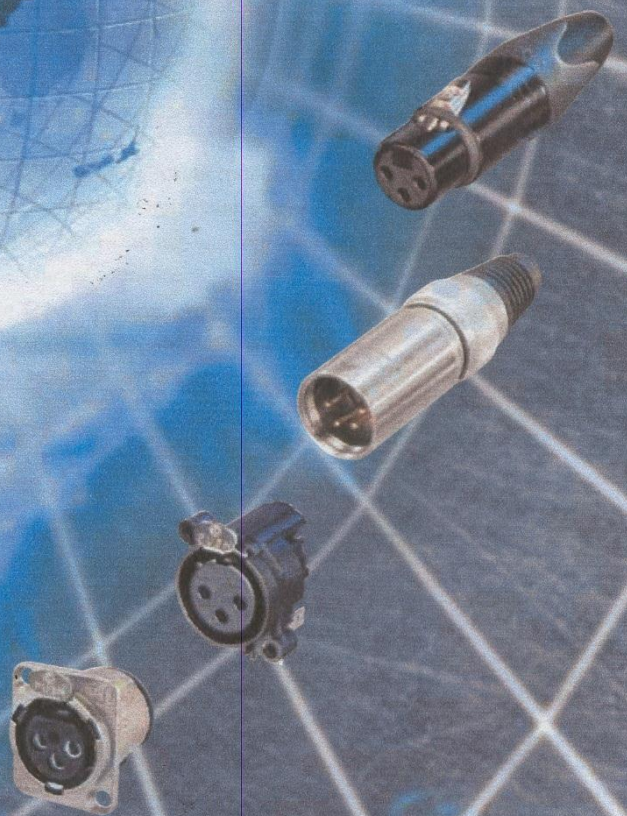
8. Structure Diagram

1. PS/2 keyboard
2. Aluminium front panel
3. Class A active matrix TFT LCD panel
4. Rear metal case
5. Analog to digital signal converter board
6. LCD inverter
7. LCD membrane
8. Ball bearing telescopic slides with stopper
9. Adjustable mounting bracket
10. Optional KVM membrane & KVM switch board





XLR Connectors



XLR Cable Connectors



X Series

X-HD Series



NC3FX




NC3MX



NC5FX-HD

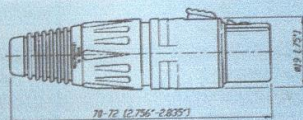


NC4MX-HD

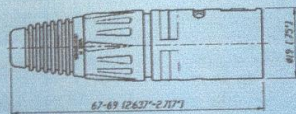
- The worldwide accepted XLR connector standard
- Rugged diecast shell
- Compact design (shortest available XLR cable connector)
- Time saving assembly – 4 parts only, no screws
- Neutrik unique chuck type strain relief
- Gold or silver plated contacts
-  UL Recognized components
- Available in 3 - 7 pin configuration

- "Heavy duty" cable connectors for outdoor use
- All metal design, stainless steel
- NC*FX-HD mates with our new NC*MPR-HD chassis connector
- Dust and water protected according IP 65 in mated combination with NC*MPR-HD
- Available in 3 - 5 pin configuration

NC*FX

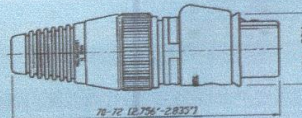


NC*MX

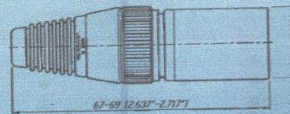


* ... 3 - 7 contacts

NC*FX-HD



NC*MX-HD



* ... 3 - 5 contacts

t o i d e n t i f y t h e o r i g i n a l

Technical Data

Specification		XX Series	EMC Series	X Series	XCC Series	X-HD Series	FXS Series	XX-HE Series	FX-SPEC Series	RX Series
Electrical										
Number of contacts		3 - 7	3	3 - 7	3	3 - 5	3	3	3	3 - 7
Contact resistance	≤ 3 mΩ	•	•	•	•	•	•	•	•	•
Insulation resistance	- initial: > 2 GΩ	•	•	•	•	•	•	•	•	•
	- after damp heat test: > 1 GΩ	•	•	•	•	•	•	•	•	•
Dielectric strength	1500 V dc	•	•	•	•	•	•	•	•	•
Cable shield-shell connection	choosable	•	-	•	-	•	-	•	•	•
	determined	-	capacitive	-	crimp	-	-	-	-	-
Shielding effectiveness	> 55 dB @ 1.3 GHz	-	•	-	•	-	-	-	-	-
Lossy ferrite bead on PIN 1		-	•	-	-	-	-	-	-	-
Rated current per contact @ 35°C										
	3 pole: 16 A	•	5 A	•	•	•	•	•	•	•
	4 pole: 10 A	•	-	•	-	-	-	-	-	•
	5, 6 pole: 7.5 A	•	-	•	-	•	-	-	-	•
	7 pole: 5 A	•	-	•	-	-	-	-	-	•
Capacitance between contacts										
	3 pole: ≤ 4 pF	•	•	•	•	•	•	•	•	•
	4, 5, 6 pole: ≤ 7 pF	•	-	•	-	•	-	-	-	•
	7 pole: ≤ 9 pF	•	-	•	-	-	-	-	-	•
Rated Voltage	50 V ac	•	•	•	•	•	•	•	•	•
Mechanical										
Lifetime	> 1'000 cycles	•	•	•	•	•	•	•	•	•
Insertion / withdrawal force	≤ 20 N	•	•	•	•	•	•	•	•	•
Cable O.D. range	3.5 - 8.0 mm	•	-	•	5.4 - 6.2 mm	•	•	•	•	•
Max. wire size	3 pole: 2.5 mm ² / AWG 14	•	AWG 20	•	•	•	•	•	•	•
	4 pole: 1.5 mm ² / AWG 16	•	-	•	-	•	-	-	-	•
	5, 6, 7 pole: 1.0 mm ² / AWG 18	•	-	•	-	•	-	-	-	•
Crimp tool:	6.5 mm Hex die (size "E" acc. to IEC 60803)	-	-	-	•	-	-	-	-	-
Material										
Shell	Zinc diecast (ZnAlCu1)	•	•	•	•	-	•	•	•	•
	(gal Ni or black Cr)	•	gal Ni	•	•	black Cr	•	•	•	•
	Stainless steel	-	-	-	-	•	-	-	-	-
Insert	Polyamide PA 6.6 30% GR	•	•	•	•	•	•	•	•	•
Contacts	- female 3 pole: Bronze (CuSn8)	•	•	•	•	•	•	•	•	•
	- female 4 - 7 pole & male: Brass (CuZn39Pb3)	•	-	•	•	•	-	•	-	•
Contact surface	Silver gal 2 μm Ag	•	•	•	•	Au	•	•	•	•
	or Gold gal 0.2 μm Au hard alloy over 2 μm Ni	-	-	-	-	-	-	-	-	-
Latch lock	St3K32 (latch) / Ck 67 (spring)	-	-	•	•	•	•	-	•	-
Strain-relief clamp	Zinc diecast (ZnAlCu1)	•	•	-	-	-	-	•	-	•
	POM	•	•	•	•	•	•	•	•	•
Bushing	PA / PU	•	•	•	•	•	•	•	•	•
Circumferential ground spring	CuSn6, Ni plated	-	•	-	•	-	-	-	-	-
Crimp ferrule	CuZn39Pb3, Ni plated	-	-	-	•	-	-	-	-	-
Coding ring	PA 6 15% GR	-	-	-	•	-	-	-	-	-
Sealing jacket	EPDM	-	-	-	-	•	-	-	-	-
Securing ring	Brass (CuZn39Pb3)	-	-	-	-	-	-	-	•	-
Environmental										
Operating temperature	-30°C to +80°C	•	•	•	•	•	•	•	•	•
Flammability	UL 94 HB	•	•	•	•	•	•	•	•	•
Protection class	IP 40	•	•	•	•	IP 65	•	•	•	•
Solderability complies with IEC 68-2-20		•	•	•	•	•	•	•	•	•
Manufacturing Standard IEC 61076-2-103		•	•	•	•	•	•	•	•	•

- Quality Design

Ordering Information

Ordering Information for Cable Connectors

Female	Male	Shell	Contact - plating	3 pole	4 pole	5 pole	6 pole	7 pole
XX Series								
NC*FXX	NC*MXX	Nickel	Silver	•	•	•	•	•
NC*FXX-B	NC*MXX-B	Black Cr	Gold	•	•	•	•	•
NC*FXX-BAG	NC*MXX-BAG	Black Cr	Silver	•	•	•	•	•
NC3FXX-**-D ¹	NC3MXX-**-D ¹	Nickel / Black Cr	Silver / Gold	•	-	-	-	-
XX-EMC Series								
NC3FXX-EMC	NC3MXX-EMC	Nickel	Gold	•	-	-	-	-
X Series								
NC*FX	NC*MX	Nickel	Silver	•	•	•	•	•
NC*FX-B	NC*MX-B	Black Cr	Gold	•	•	•	•	•
NC*FX-BAG	NC*MX-BAG	Black Cr	Silver	•	•	•	•	•
NC3FX-**-D ¹	NC3MX-**-D ¹	Nickel / Black Cr	Silver / Gold	•	-	-	-	-
NC6FSX ²	NC6MSX ²	Nickel	Silver	-	-	-	•	-
NC6FSX-B ²	NC6MSX-B ²	Black Cr	Gold	-	-	-	•	-
NC6FSX-BAG ²	NC6MSX-BAG ²	Black Cr	Silver	-	-	-	•	-
RX Series								
NC*FRX	NC*MRX	Nickel	Silver	o	o	o	o	o
NC*FRX-B	NC*MRX-B	Black Cr	Gold	o	o	o	o	o
NC*FRX-BAG	NC*MRX-BAG	Black Cr	Silver	o	o	o	o	o
XX-HE Series								
NC3FXX-HE	NC3MXX-HE	Velour Chromium	Gold	•	-	-	-	-
FXS Series								
NC3FXS	-	Nickel	Gold	•	-	-	-	-
NC3FXS-B	-	Black Cr	Gold	•	-	-	-	-
FX-SPEC Series								
NC3FX-SPEC	-	Black Cr	Silver	•	-	-	-	-
XCC Series								
NC3FXCC	NC3MXCC	Nickel	Gold	•	-	-	-	-
X-HD Series								
NC*FX-HD	NC*MX-HD	Nickel	Gold	•	•	•	-	-
NC3FX-HD-B	NC3MX-HD-B	Metal Black	Gold	•	-	-	-	-

- * Number of Contacts
- ** Nickel or Black
- o Available Spring 2006
- D¹ Bulk packed, to be ordered in multiples of 100 pcs.
- ² Switchcraft Equivalent

Look for the Logo 

XLR Chassis Connectors



DL Series



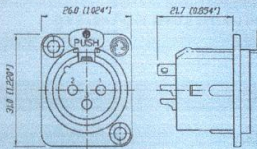
NC3FD-L-1



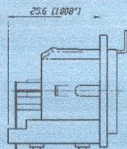
NC4MDM3-H

- Unified "D" metal shell for female and male.
- Solder cups on 3 - 7 pole version.
- Additional PCB mount on 4 and 5 pole.
- Front and rear mountable.
- High End "-HE" version available with machined female contacts, temperature resistant insulator and valuable velour chromium plating.

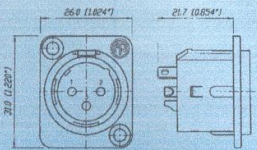
NC3FD-L-1



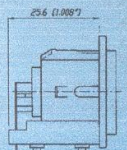
NC*FDM3-H



NC3MD-L-1



NC*MDM3-H



MPR-HD Series

NEW



NC3MPR-HD



NC5MPR-HD

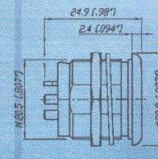
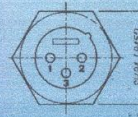
- IP 65 - in combination with NC*FX-HD cable connectors
- Perfect for outdoor applications
- Sealing gasket for water tight panel mount
- Gold plated contacts



NC5MPR-HD

NC5FX-HD

NC3MPR-HD



* ... 3 - 5 contacts

Quality Thinking

Technical Data

Specification		A Series	AA Series	B Series	BA Series	D Series	DL Series	MPR-HD Series	P Series	Combo Series
Electrical										
Number of contacts		3 - 5	3	3 - 5	3	3	3 - 7	3 - 5	3 - 7 (6**)	5 - 10
Contact resistance	≤ 5 mΩ	●	●	●	●	●	●	●	●	●
Insulation resistance	- initial: > 2 GΩ - after damp heat test: > 1 GΩ	●	●	●	●	●	●	●	●	●
Dielectric strength	1500 V dc	●	●	●	●	●	●	●	●	●
Rated voltage	50 V ac	●	●	●	●	●	●	●	●	●
Rated current per contact										
	3 pole: 6 A	●	●	●	●	●	16 A	16 A	16 A	-
	4 pole: 6 A	●	-	●	-	-	10 A	10 A	10 A	-
	5, 6 pole: 3 A	●	-	●	-	-	7.5 A	7.5 A	7.5 A	-
	7 pole: 5 A	-	-	-	-	-	-	-	-	-
Combo XLR + Jack contact	7.5 A	-	-	-	-	-	-	-	-	●
Capacitance between contacts										
	3 pole: ≤ 7 pF	●	●	●	●	-	≤ 4 pF	≤ 4 pF	≤ 4 pF	≤ 2 pF
	4, 5, 6 pole: ≤ 7 pF	●	-	●	-	-	-	-	-	-
	7 pole: ≤ 9 pF	-	-	-	-	-	●	-	●	-
Mechanical										
Lifetime	> 1'000 mating cycles	●	●	●	●	●	●	●	●	●
Insertion / withdrawal force	≤ 20 N	●	●	●	●	●	●	●	●	● 25 N
Retention method										
	- standard: latch lock	●	●	●	●	●	●	●	●	● (XLR)
	- "0" Version: ≥ 20 N separating force	●	●	●	●	●	●	●	●	● 25 N
Material										
Insert	Polyamide PA 6.6 30% GR	●	●	●	●	●	●	●	●	●
Shell	Zinc diecast (ZnAl4Cu1)	-	-	-	-	●	●	●	●	-
	(gal Ni or black Cr plated)	-	-	-	-	-	●	Ni plated	●	-
Ring	Zinc diecast (ZnAl4Cu1)	-	-	●	●	-	-	-	-	-
Contacts	- female 3 pole: Bronze CuSn6	●	●	●	●	●	●	-	●	●
	4 - 5 pole: Bronze CuSn6	●	-	●	-	-	-	-	-	-
	4 - 7 pole: Brass CuZn39Pb3	-	-	-	-	-	●	-	●	-
	- male: Brass CuZn35Pb2	●	●	●	●	●	●	●	●	-
Contact surface	gal 0.2 μm AuCo over 2 μm NiP15 (Tribor®)	●	●	●	●	●	-	-	-	●
	gal 2 μm Ag or gal 0.2 μm Au hard alloy over 2 μm Ni	-	-	-	-	●	●	Au	●	-
Latch lock & spring	Ck 67 steel, treated	●	●	●	●	●	●	-	●	●
Environmental										
Operating temperature	-30°C to +80°C	●	●	●	●	●	●	●	●	●
Protection class	IP 40	●	●	●	●	●	●	IP 65	●	●
Flammability	UL 94 HB	●	●	●	●	●	●	●	●	●
	UL 94 V-0	3 pole	-	3 pole	-	-	-	-	-	-
Solderability complies with IEC 68-2-20		●	●	●	●	●	●	●	●	●
Mounting screw		A	A	1)	A	-	-	-	-	A
Colour coding		ACR-*	-	-	ACR-*	DSS	DSS	-	-	-
		(4 + 5 pole only)								
1) B Series 3 pole connectors > B-screw, 4 & 5 pole versions > A-screw										
** P Series male 3 - 6 pole										

- Quality Design

Ordering Information

Ordering Information for Receptacle

Female	Male	Flange	Contact	3 pole	4 pole	5 pole	Female	Male	Shell	Contact	3 pole	4 pole	5 pole	6 pole	7 pole		
B Series							D Series										
NC*FBH		Metal	Gold	-	●	●	NC3FD-V	NC3MD-V	Nickel	Silver	●	-	-	-	-		
	NC*MBH	Metal	Gold	●	●	●	NC3FD-V-B	NC3MD-V-B	Black Cr	Gold	●	-	-	-	-		
NC*FBH-B		Black Metal	Gold	-	●	●	NC3FD-V-BAG	NC3MD-V-BAG	Black Cr	Silver	●	-	-	-	-		
	NC*MBH-B	Black Metal	Gold	●	-	●	NC3FDM3-V	NC3MDM3-V	Nickel	Silver	●	-	-	-	-		
NC3FBH1		Metal	Gold	●	-	-	NC3FDM3-V-B	NC3MDM3-V-B	Black Cr	Gold	●	-	-	-	-		
NC3FBH1-B		Black Metal	Gold	●	-	-	NC3FD-H	NC3MD-H	Nickel	Silver	●	-	-	-	-		
NC3FBHL1		Metal	Gold	●	-	-	NC3FD-H-B	NC3MD-H-B	Black Cr	Gold	●	-	-	-	-		
	NC3MBHL	Metal	Gold	●	-	-	NC3FD-H-BAG	NC3MD-H-BAG	Black Cr	Silver	●	-	-	-	-		
NC3FBHL1-B		Black Metal	Gold	●	-	-	NC*FDM3-H	NC*MDM3-H	Nickel	Silver	●	●	●	-	-		
	NC3MBHL-B	Black Metal	Gold	●	-	-	NC3FDM3-H-B	NC3MDM3-H-B	Black Cr	Gold	●	-	-	-	-		
NC3FBHR1		Metal	Gold	●	-	-	NC3FDM3-H-BAG	NC3MDM3-H-BAG	Black Cr	Gold	●	-	-	-	-		
NC3FBHR1-B		Black Metal	Gold	●	-	-	DL Series										
NC3FBH2		Metal	Gold	●	-	-	NC*FD-L-1	NC*MD-L-1	Nickel	Silver	●	●	●	●	●		
NC3FBH2-B		Black Metal	Gold	●	-	-	NC*FD-L-B-1	NC*MD-L-B-1	Black Cr	Gold	●	●	●	●	●		
NC3FBHR2		Metal	Gold	●	-	-	NC*FD-L-BAG-1	NC*MD-L-BAG-1	Black Cr	Silver	●	●	●	●	●		
	NC3MBHR	Metal	Gold	●	-	-	NC*FDM3-L-1	NC*MDM3-L-1	Nickel	Silver	●	●	●	-	-		
NC3FBHR2-B		Black Metal	Gold	●	-	-	NC3FDM3LBAG-1	NC3MDM3LBAG-1	Black Cr	Silver	●	-	-	-	-		
	NC3MBHR-B	Black Metal	Gold	●	-	-	NC3FD-L-1-HE	NC3MD-L-1-HE	Velour Cr	Gold	●	-	-	-	-		
NC*FBV		Metal	Gold	-	●	●	P Series										
NC*FBV-B		Black Metal	Gold	-	●	●	NC*FP-1		Nickel	Silver	●	●	●	●	●		
	NC*MBV	Metal	Gold	●	-	●	NC*FP-1	NC*MP	Nickel	Silver	●	●	●	●	●		
NC3FBV1		Metal	Gold	●	-	-	NC*FP-B-1		Black Cr	Gold	●	●	●	●	●		
NC3FBV1-B		Black Metal	Gold	●	-	-		NC*MP-B	Black Cr	Gold	●	●	●	●	●		
NC3FBV2		Metal	Gold	●	-	-	NC*FP-BAG-1	NC*MP-BAG	Black Cr	Silver	●	●	●	●	●		
NC3FBV2-B		Black Metal	Gold	●	-	-	MPR-HD Series										
NC3FBY	NC3MBY	Metal	Gold	●	-	-		NC*MPR-HD	Nickel	Gold	●	●	●	-	-		
NC3FBY-B	NC3MBY-B	Black Metal	Gold	●	-	-	Combo Series										
NC5FBV-SW	NC5MBV-SW	Metal	Gold	-	-	●	NCJ*FI-H	Black plastic	Gold	●	●	●	●	●	●		
NC3FBH1-E	NC3MBV-E	Metal	Gold	●	-	-	NCJ*FI-H-0	Black plastic	Gold	●	●	●	●	●	●		
NC3FBH2-E		Metal	Gold	●	-	-	NCJ*FI-S	Black plastic	Gold	●	●	●	●	●	●		
NC3FBV1-E		Metal	Gold	●	-	-	NCJ*FI-S-0	Black plastic	Gold	●	●	●	●	●	●		
	NC3MBH-E	Metal	Gold	●	-	-	NCJ*FI-V	Black plastic	Gold	●	●	●	●	●	●		
							NCJ*FI-V-0	Black plastic	Gold	●	●	●	●	●	●		
BA Series							Special version for 3 pole B-Series with M2.5 mounting holes (-M25) on request. B / BA Series rear mount only, all PCB mount except Y version = IDC										
NC3FBAH1		Metal	Gold	●	-	-	Contact #										
	NC3MBAH	Metal	Gold	●	-	-	1	2	3	T	R	5	TN	RN	SN	G	GN
NC3FBAH1-0		Metal	Gold	●	-	-	NCJ5FI-*	x	x	x	x	x				x	
	NC3MBAH-0	Metal	Gold	●	-	-	NCJ6FI-*	x	x	x	x	x				x	
NC3FBAH2		Metal	Gold	●	-	-	NCJ9FI-*	x	x	x	x	x	x	x	x	x	x
	NC3MBAH-1	Metal	Gold	●	-	-	NCJ10FI-*	x	x	x	x	x	x	x	x	x	x
NC3FBAH2-0		Metal	Gold	●	-	-											
NC3FBAV1		Metal	Gold	●	-	-											
	NC3MBAV	Metal	Gold	●	-	-											
NC3FBAV1-0		Metal	Gold	●	-	-											
	NC3MBAV-0	Metal	Gold	●	-	-											
NC3FBAV2		Metal	Gold	●	-	-											
	NC3MBAV-1	Metal	Gold	●	-	-											
NC3FBAV2-0		Metal	Gold	●	-	-											

- Quality Design

RCA Series



Profi® RCA Series

Phono Socket



NF2C-B/2



NF2D-4



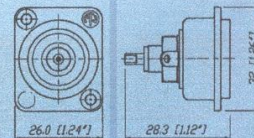
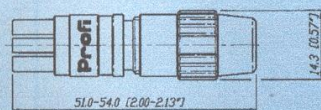
NF2D-B-6

- Makes ground before signal contact and breaks signal before ground
- No more disturbing noise and broken speaker cones
- Precisely machined to our demanding quality standards
- Neutrik® unique chuck type strain relief
- Gold plated contacts

- Makes ground before signal contact and breaks signal before ground
- No more disturbing noise and broken speaker cones
- Precisely machined to our demanding quality standards
- Neutrik® unique chuck type strain relief
- Gold plated contacts

NF2C

NF2D-*



- Quality Design



Receptacle



NE8FAV



NE8FBH



NE8FAV-YK



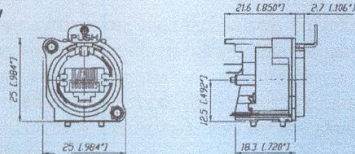
NE8FDV



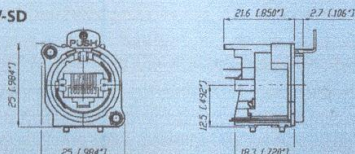
NE8FDV-Y110-B

- "A / B" and "D" sized receptacles available in vertical and horizontal PCB or IDC terminations
- Accommodates NE8MC carriers or any standard RJ45 Plug
- D-versions with unified metal flange equal to "D" series- XLR, Speakon®, PowerCon® and BNC Bulkhead
- Receptacles comply with Class D (PCB versions) or CAT 5e (IDC versions) according to TIA / EIA 568B and ISO / IEC 11801 standard
- D-version mountable from the front or rear of the panel
- Version with screw domes to fix connector onto PCB securely (NE8FAV-SD)

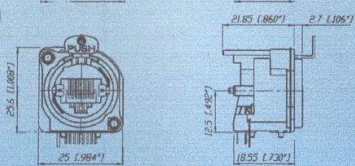
NE8FAV



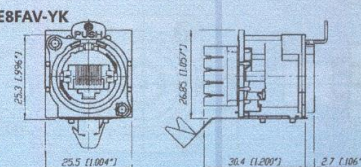
NE8FAV-SD



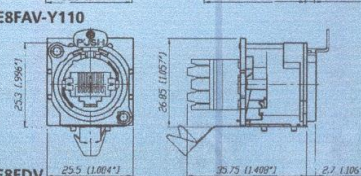
NE8FBH



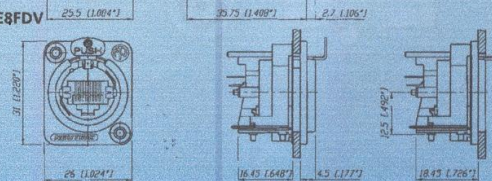
NE8FAV-YK



NE8FAV-Y110



NE8FDV



t o i d e n t i f y t h e o r i g i n a l

Chassis Connectors



Bulkhead Jacks



NBB75FI



NBB75DFG



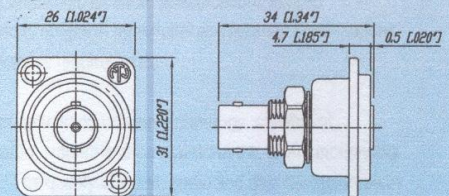
NBB75DFGB



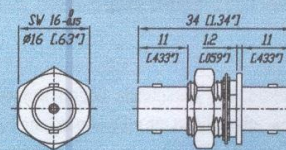
NBB75SI

- Gold plated center contact.
- "D" shaped housing or single feed through mountings.
- Excellent return loss / VSWR rating.
- Isolated or grounded versions.
- Metal threads available on isolated feed through jack for added strength.
- Based on a new production technology, the machined brass connector body provides an extremely rugged and non-abrasive connection over longterm use.
- When used in conjunction with Neutrik® 75 Ohm BNC Rear Twist® or Push-Pull cable connectors, they are the ideal combination for BNC applications.
- Recessed bulkhead jacks in the "D" size housing use the same hole cutout size as other Neutrik® "D" series sized connectors such as the Speakon® NL4MP and the XLR receptacles in the "D-L-1" series.
- "D" shaped housing provides flush mounting and protection of the jacks from damage.
- Isolated versions solve potential grounding problems and prevent common-mode influence with other connections conducted over the same panel ground potential.
- Isolated and grounded solder versions.

NBB75DFG



NBB75FI

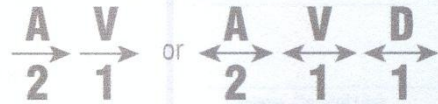


t o i d e n t i f y t h e o r i g i n a l



230/240

Digital Fiber Optic Video/Audio/Data Transport Systems with Enhanced Video Quality



"250C Medium Haul Video"



"High performance and affordable solutions for your high-end video/audio/data transmission."

Applications

Remote Multimedia Studio

Distance Learning

Audio/Video/Data Conferencing

Media Retrieval and Distribution

Features

Meets 250C Medium Haul Video Specifications

Digital Encoded Fiber Optic Links

Accommodate up to 1 Video, 2 Audio, and 1 Serial Data Channels

Standalone and Card-cage Packaging

1 Fiber Solution also Available (WDM)

CWDM Optics Available

The 230/240 system provides simultaneous transmission of digitized stereo audio, video and/or data over one or one pair of fibers. The 230 system transmits two (2) audios (or one (1) stereo audio pair) and one (1) baseband NTSC/PAL video channel in one direction. The 240 system transmits and receives two (2) audios (or one (1) stereo audio pair), one (1) baseband NTSC/PAL video channel, and one (1) serial data (RS-232/RS-422) channel in both directions. The video quality in the 230/240 system meets 250C medium haul specifications and its audio specifications exceed professional standards. Many versions of optical transmitter and receiver combinations are available to address different distance requirements.

The 230/240 features a digital fiber optic transmission technology, capable of providing sharp video and crisp audio, with little or no maintenance, high functionality reliability, and low operating cost. The quality of video, audio and data transmission in BCI's digital designs is much superior to the analog transmission designs used by other manufacturers (based on amplitude or frequency modulation). No user adjustments are required in the 230/240 system, enabling quick setup and trouble-free operation.

The 230/240 comes with two packaging options: a rugged, standalone, and compact unit, or a plug-in card for a card cage system. Panel connectors are provided for video (BNC), audio (terminal block), data (DB-9), and fiber connection (FC-type for singlemode fiber or ST-type for multimode fiber). They are also easily monitored by separate LED indicators for power, optical link, and channel activity.

Due to its digital transmission design, the 230/240 is capable of addressing a variety of non-standard configurations. Contact us to discuss your custom, OEM/private brand and high volume requirements.



Doing More With One Fiber



230/240

Multimedia Transmission System

Digital Fiber Optic Video/Audio/Data Transport Systems with Enhanced Video Quality

Video

Channel Capacity	1
Bandwidth	8 MHz
Video Level	1.0Vp-p @ 75 Ohms
Differential Gain	<3%
Differential Phase	<1.0°
SNR (Weighted)	>65dB
Connector	BNC

Audio

Channel Capacity	2
Operating Mode	Balanced or Unbalanced
Input/Output Impedance	600/50 Ohms (Balanced)
Max. Input/Output Level	5 Vp-p @ 600 Ohms (Balanced)
Magnitude Freq. Response	20Hz to 20kHz @ -3 dB
SNR (Weighted)	>75dB @ 1kHz, 4 Vp-p Input Level (Balanced)
Connector	Terminal Block

Serial Data

Channel Capacity	1
Signal Format	RS-232 or RS-422 (User Selectable)
Operating Mode	Full Duplex with Handshake
Data Rate	Up to 128kbps (RS-232) Up to 1 Mbps (RS-422)
Connector	DB-9

Physical

Dimension: (H x W x D)	
Standalone/internal power	1.72" x 8.60" x 12.00"
Standalone/external power	2.00" x 4.36" x 8.75"
Card-cage plug-in card	5.24" x 0.94" x 11.6"
Power	
Standalone/external power	5 VDC @ 2.4A
Standalone/internal power	95-240 VAC @ 0.6A
Operating Temperature	0 to +50°C
Humidity	0 to 95% RH, non-condensing

Physical (continued)

Status Indicators	Power, Optical Link, Video/Audio/Data Activity
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Optical

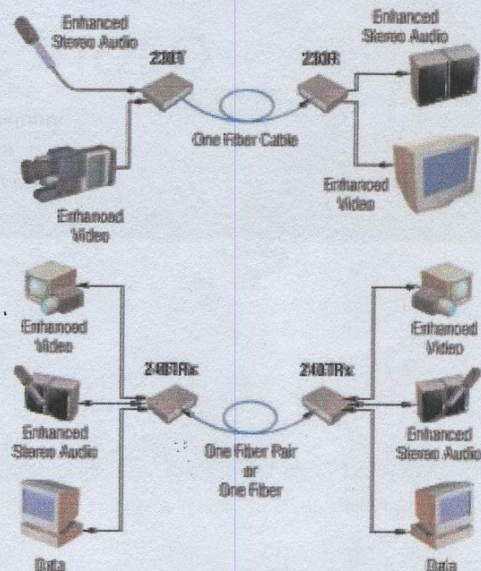
Fiber Type	Multimode and Singlemode
Number of Fibers	2 or 1
Wavelength	1310 and/or 1550 nm
Fiber Optic Connector	ST (Multimode) FC (Singlemode)

Typical Power Budget and Transmission Distance

Application	Power Budget (1)	Typical Distance KM (2)	Typical Distance Miles (2)
Multimode Fiber	13	3	2
Singlemode Fiber	25	45	28
Singlemode Long Distance	28	80	50

(1) These are typical values for the 230/240 Series. The actual values may vary.
(2) These are typical distance coverage figures. The maximum distance coverage may be greater than these typical numbers, depending on fiber type, fiber bandwidth, connector splicing losses, chromatic dispersion, environmental factors, etc.

Application



Doing More With One Fiber

Subject to continued product enhancement, we reserve the right to change the above specifications and description without notice.



1.4 Analogue Video



ANALOGUE VIDEO

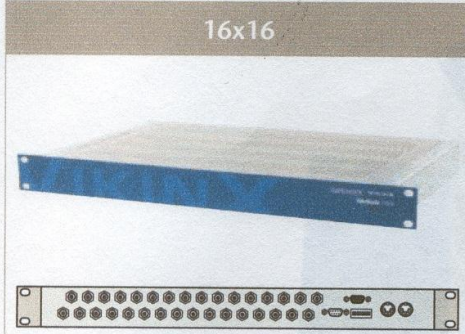
- Power down memory
- RS-232 Interface
- Network Control Bus

1.4 Analogue Video



V1616

16x16

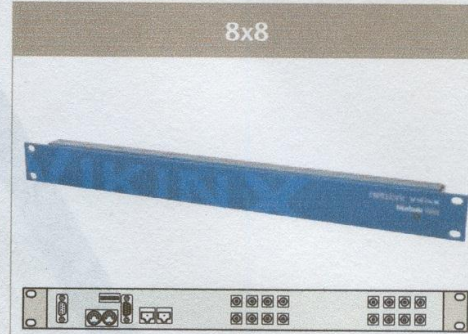


SPECIFICATIONS

Frequency response	0-90MHz -3dB
Differential gain	typ. 0.05% (3.58/4.43MHz)
Differential phase	typ. 0.05° (3.58/4.43MHz)
Crosstalk	< -60dB (3.58/4.43MHz)
Video S/N Ratio	typ. 70dB
Bar tilt	< 0.1%
Lum. non-linearity	< 0.1%
Number of inputs	16 termination with jumpers
Number of outputs	16
Impedance	75 ohm
Return loss	typ. 40dB @ 10MHz
Max signal	2Vp-p
Coupling	DC
DC offset	typ. 10mV
Propagation delay	8ns ± 1ns
Connector	BNC
AC power	External power supply 100-260 VAC
DC power	±5V, connector DB9 male
Dimensions	483x44x300 mm (19", 1RU)

V0808

8x8



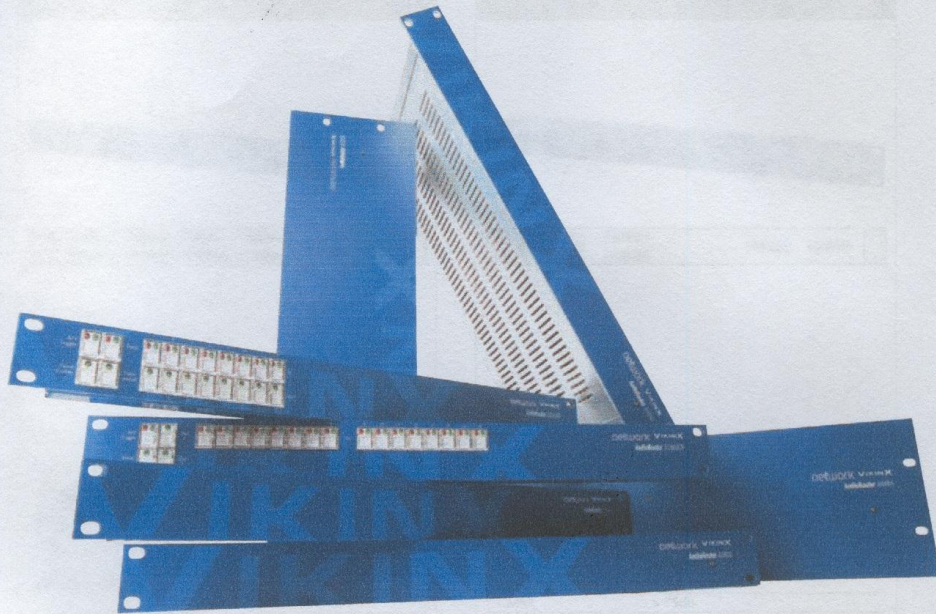
SPECIFICATIONS

Frequency response	0-110MHz -3dB
Differential gain	typ. 0.1% (3.58/4.43MHz)
Differential phase	typ. 0.2° (3.58/4.43MHz)
Crosstalk	< -55dB (3.58/4.43MHz)
Video S/N Ratio	typ. 70dB
Bar tilt	< 0.1%
Lum. non-linearity	< 0.1%
Number of inputs	8 terminated
Number of outputs	8
Impedance	75 ohm
Return loss	typ. 38dB
Max signal	2 Vp-p
Coupling	DC
DC offset	typ. 5mV
Propagation delay	5ns ± 1ns
Connector	BNC
AC power	External power supply 100-260VAC
DC power	±5V, connector DB9 male
Dimensions	483x44x40 mm (19", 1RU)



Also available with X-Y Control Panel integrated in the front (V0808CP)

1.4 Analogue Audio



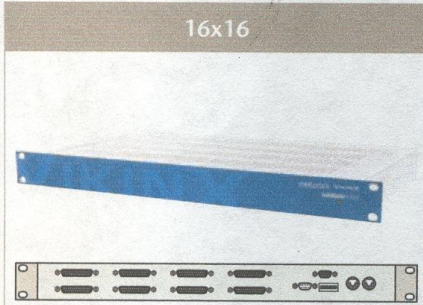
ANALOGUE AUDIO

- 100kHz Audio Bandwidth
- Power down memory
- Programmable format
- RS-232 Interface
- Network Control Bus
- Also usable as Time Code router

1.4 Analogue Audio

A1616

16x16

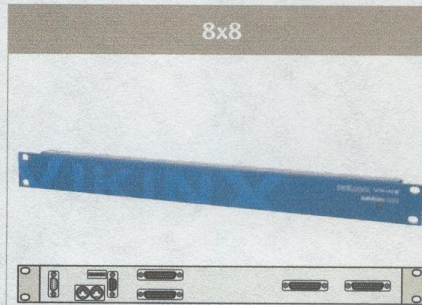


SPECIFICATIONS

Frequency response	20Hz-100kHz ± 0.1dB
Crosstalk	> -100dB
THD+N	< 0.005%
SNR	>100dB ref. to 0dB 20Hz-20kHz
Number of inputs	16 (Stereo) electronically balanced
Input impedance	> 10 kohm
CMRR	> 75dB
Max. input level	+ 23dBu
Number of outputs	16 (Stereo) electronically balanced
Output impedance	66 ohm
Audio connector	DB25 female
AC power	External power supply 100 - 260 VAC
DC power	±15V, connector DB9 male
Dimensions	483x44x300 mm (19", 1RU)

A0808

8x8



SPECIFICATIONS

Frequency response	20Hz-100kHz ± 0.1dB
Crosstalk	> -100dB
THD+N	< 0.003%
Number of inputs	8 (Stereo) electronically balanced
Input impedance	> 10k ohm
CMRR	> 75dB
Max. input level	+ 23dBu
Number of outputs	8 (Stereo) electronically balanced
Output impedance	66 ohm
Connector	DB25 female
AC power	External power supply 100-260VAC
DC power	±15V, connector DB9 male
Dimensions	483x44x40 mm (19", 1RU)



Also available with X-Y Control Panel integrated in the front (A0808CP)

JVC

The Perfect Experience / —

Three-in-One Video Recorder/Player
MiniDV, DVD, Hard Disk Drive

SR-DVM600

The All-in-One Multi-Media System Deck

Designed especially for professional applications with multiple media requirements, this all-in-one video recorder/player incorporates the convenience of MiniDV, DVD and a hard disk drive in a single device.





JVC is proud to introduce the new SR-DVM600 — a multi-deck video recorder/player that incorporates the all-digital formats of MiniDV and DVD with the added advantage of a 40GB hard disk drive. The compact SR-DVM600 also offers a number of extremely efficient editing and dubbing functions such as six-way recording. Whether used for media duplication or archiving of both analog and digital footage, this product is the ideal choice for professional applications seeking optimum performance and value.



6-way Recording!

The SR-DVM600 records three formats in both directions to enable 6-way recording with DV/MPG2 real-time encoding.

Multiple Features for Professional Creation Results

■ Various Recording/Playback Formats

The SR-DVM600 records and plays various DV, DVD and CD discs as well as transferring them to and from the Hard Disk Drive (Please refer to the specifications for further details).

Compatible Video Sources DV IN: Digital hardware (NLE system with DV out, player/recorder with DV out), **Y/C or Composite IN:** Analog hardware (MHS/ S-VHS deck, VCR with YC or composite out), **MiniDV Cassettes.**

■ Multi-format Capability (DVD)

The SR-DVM600 is capable of recording and playing back different DVD formats. These include recording & playback of DVD-R, DVD-RW, and DVD-RAM, as well as playback of +R or +RW.

■ Auto Error Correction System (MiniDV)

Reduces annoying block noise that may occur when playing back DV and DVCAM™ tapes.

■ DVCAM Playback (MiniDV)

The SR-DVM600's MiniDV deck is capable of playing back DVCAM format tapes recorded on small DVCAM cassettes. Recordings can be dubbed to either DVD or HDD, preserving the high quality of digital video and professional DV sources.

■ IEEE 1394 Interface

The standard IEEE 1394 bus interface provides direct connection to NLE systems or to a PC for downloading, editing and archiving.



Apple Avid

NOTE: Functions may vary depending on the NLE software used.

■ Video Output Terminal with BNC Connector (Composite)

■ External Wired Remote Terminal

For extra convenience, connect up an external wire remote controlled to enable additional controls such as playlist/title direct selection for HDD or DVD, and direct playback speed selection.

■ Auto Repeat Playback Disc Authoring

The Auto Repeat disc authoring function is very convenient when constant or repeated video playback material is required such as for digital signage or storefront demos.

■ Last Function Memory and Mode Lock

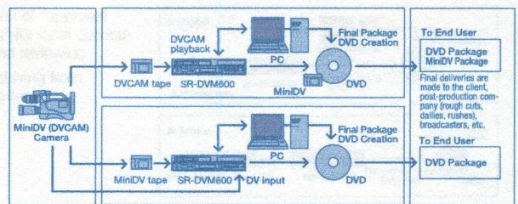
The SR-DVM600 is fully equipped with additional video editing functions designed to improve efficiency in the professional production environment. For example, Last Function Memory stores the last function performed in the memory and always resumes operation from that point while Mode Lock helps to protect against unintentional erasure of recordings.

Key Applications

The SR-DVM600 will produce a professional, high-quality DVD with smooth video edits, chaptering, and menu backgrounds regardless of the original video source material. What's more, the SR-DVM600 simplifies DVD disc creation of finished video material in a highly professional manner without the necessity of complex PC or editing skills. Here are some key applications:

Professional Photographer of Events such as Weddings

- Creation of "approval copies" for local distribution and reviewing
- DVD copy of the final video program from NLE
- Rapid reproduction of multiple DVD copies at 8x speed





DVD Recording and Dubbing

Bit-rate Optimizer for HDD to DVD Recording

This system analyzes the content as it is recorded on the HDD and then assigns optimum bit rates — low for simple scenes, high for complex scenes — to ensure optimum picture quality while calculating disc capacity.

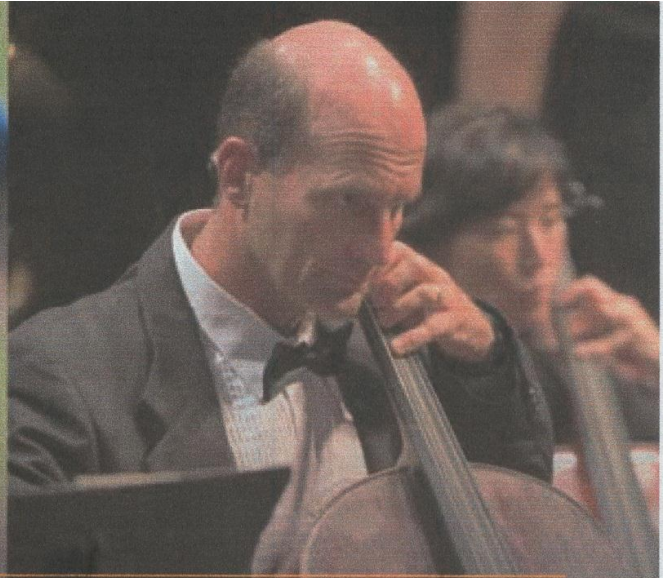
Selectable Recording Times and Data Rates

Depending on the application, the most appropriate recording time and data rate can be selected. Copying of synchronized-edited material from HDD to DVD is normally performed in real time (1X). However, the SR-DVM600 can create copies at eight-times normal speed (8X). This means that by copying the synchronized-edited recording first to the DVD-R, then back to the HDD, and finally dubbing it at normal speed, reproduction of DVD discs can be performed up to eight times faster.

When copied to DVD-R at the maximum recording speed, 64 times in FR480 mode.

18 Pre-installed Background Patterns (DVD)

For added convenience, the SR-DVM600 provides 18 pre-installed background patterns to add originality to your DVD video production.



Extended Recording with High Resolution Pictures (DVD-RAM/DVD-RW/DVD-R VR mode)

Horizontal resolution in the LP (4-hour) mode of a conventional DVD recorder is approximately 250 lines (1/2D1) but the SR-DVM600 provides more than 350 lines (2/3D1). Content that is longer than 2 hours can be recorded on a disc without any loss in picture quality.



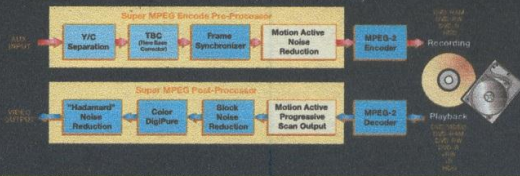
Super MPEG Processors

Pre-processor (HDD/DVD)

When recording from analog sources, a noise reduction process is applied before MPEG-2 encoding to guarantee superior quality images.

Post-processor (HDD/DVD)

Several noise reduction features work together to provide the best possible image. Block noise reduction suppresses "block noise" caused by MPEG-2 compression. Color DigiPure reduces 3D color noise, and the "Hadamard" noise reduction eliminates "mosquito noise" from any DVD.



Editing with Hard Disk Drive

Play List Editing

Video recorded on the hard disk drive can be easily divided into different sections via the play list editing screen. Convenient non-linear editing can also be performed by adding video clips to the play list, inserting in and out points within desired scenes while previewing the video, and shuffling scenes by arranging the play list in the preferred order. From the chapter setup screen, the desired chapter number can be set while previewing the thumbnails of each scene, and scene editing is possible using a play list created from these chapter numbers.

Easy Program Dubbing

Using the index navigation screen and simply selecting programs in the desired order enables easy program-based editing & dubbing when dubbing between DVD and HDD.

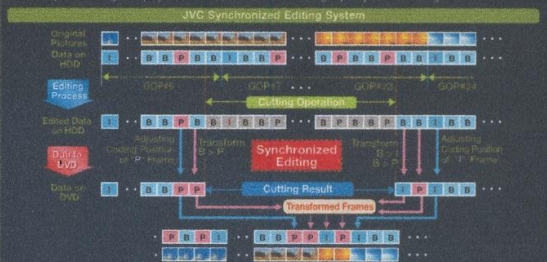
Live Memory Playback Function

To increase overall efficiency and allow checking of material when recording a master video onto the hard disk drive, Live Memory Playback Function allows playback of recorded material from any desired point. This function can also be used while recording onto a DVD-RAM disc.

Synchronized Editing System for Direct Dubbing from HDD to DVD

Using the Synchronized Editing System function, video data that has been edited on the hard disk of the SR-DVM600 can be transferred digitally to a disc in the DVD recorder, helping to preserve picture quality and ensuring that DVD playback will be seamless with no visible edit points. This is made possible by the effective use of the intra-coded picture (I), predictive-coded picture (P), and bi-directionally predictive-coded picture (B) frame information within each Group of Pictures (GOP) during editing operations. The I and P frames contain information that determines picture quality and by maintaining

their position within the GOP it is possible to minimize degradation when dubbing so there are no "freeze" pauses at edit points during DVD playback for a smooth and natural, high-quality DVD recording.

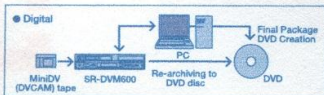


40GB Hard Disk Drive

The SR-DVM600 also features a hard disk drive with 40GB capacity to provide temporary footage storage within the deck.

Video Production Studios or Broadcasters

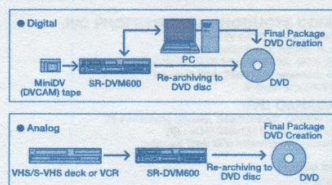
- Re-archiving digital tape masters (DV/DVCAV tape*)
- Linear to non-linear conversion
- DVD copy of the final video program from NLE without to wait for long hours required for DV to MPEG2 rendering.



*Only playback enabled for DVCAV tapes.

Academic or Corporate Video Program Creation

- Creation of "approval copies" for local distribution and reviewing
- Re-archiving from analog tapes



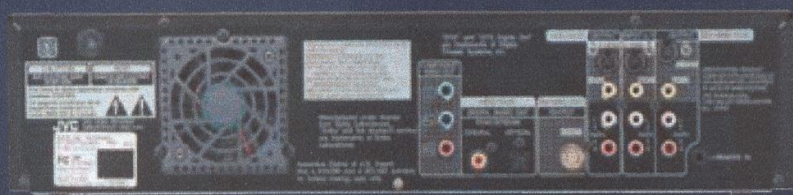


Product View

■ Front Panel



■ Rear Panel



GY-DV5100
3-CCD 1/2-inch IT Professional DV
Camcorder



Specifications

MiniDV		
Format	DV format (SD mode)	
Cassette	MiniDV cassette	
Maximum Recording Times		
SP	80min. with M-DV80ME cassette	
LP	120min. with M-DV80ME cassette	
Audio Recording System		
	PCM 48kHz, 16-bit (2-ch) / 32kHz, 12-bit (4-ch)	
DVD		
Format	MPEG2	
DVD-R (VR mode, Video mode)	Rec / Play	
DVD-RW (VR mode, Video mode)	Rec / Play	
DVD-RAM	Rec / Play	
DVD+R	Play	
DVD+RW	Play	
CDDA	Play	
VCD	Play	
CD-R	Play: JPEG / MP3 / WMA	
CD-RW	Play: JPEG / MP3 / WMA	
Recording Times: (4.7GB DVD) Max. 8 hours		
XP	Nominal bit rate (approx.)	Approx. duration
SP	10Mbps	1 hr.
LP	5Mbps	2 hrs.
EP	2.5Mbps	4 hrs.
FR 60-480	1.6Mbps	6 hrs.
	Variable	1 - 8 hrs.*
Audio Recording System		Dolby Digital 2 ch, Linear PCM (XP mode only)
Hard Disk Drive		
Capacity	40GB	
Format	MPEG2	

*The amount of hours varies depending on time selected.

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Recording Times: (40GB HDD) Max. 71 Hours	Nominal bit rate (approx.)	Approx. duration
XP	10Mbps	8 hrs.
SP	5Mbps	16 hrs.
LP	2.5Mbps	33 hrs.
EP	1.6Mbps	49 hrs.
FR 60-480	Variable	8-71 hrs.

Audio Recording System: Dolby Digital 2ch, Linear PCM (XP mode only)

General			
Inputs/Outputs		In/Out	Location
Composite Video Output (via BNC) x 1		MiniDV, DVD, HDD	Rear
DV In	Input	MiniDV, DVD, HDD	Front
DV In/Out (i.LINK)	Input	MiniDV, DVD, HDD	Front
	Output	MiniDV, HDD	Front
S-Y/C Input x 2		MiniDV, DVD, HDD	Front/Rear
S-Y/C Output x 2		MiniDV, DVD, HDD	Rear
Video/Audio Input x 2		MiniDV, DVD, HDD	Front/Rear
L/R (via RCA) x 4	Output x 2	MiniDV, DVD, HDD	Rear
Y-Pb-Pr Output (via RCA) x 1		DVD, HDD	Rear
Optical Digital Audio Out x 1		DVD, HDD	Rear
Coaxial Digital Audio Out x 1		DVD, HDD	Rear
Wired RCU Terminal x 1		MiniDV, DVD, HDD	Rear
Provided Accessories			
<ul style="list-style-type: none"> Infrared remote controller unit x 1 A/V cable x 1 2 size AA (R6) batteries 			
Operating Temperature Range		41°F to 95°F (5°C to 35°C)	
Power Requirements		120V, 60Hz	
Power Consumption		Power on: 45W Power off: 2.5W	
Dimensions (W x H x D)		17-1/8" x 3-3/4" x 14-5/8" (435mm x 96mm x 372mm)	
Weight		12.9lbs. (5.8 kg)	

Dimensions



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WM Encoder and Server



Windows Media Streaming Over IP Based Networks

The streaming of Windows Media has never been easier. Whether it's corporate training, a new product launch or a dean's speech at graduation, VBrick's WM appliance makes webcasting easy. VBrick's WM appliance is based on the award winning VB6000 platform and supports the streaming of Windows Media by functioning as a Windows Media Encoder (WME) as well as a Windows Media Server (WMS). Each VBrick WM appliance is delivered with:

- VBDNA software with embedded operating system
- An IR remote for configuration
- A complete cable kit and quick start guide

The WM appliance supports DHCP for quick installation and comes pre-configured so that you'll be streaming live within minutes. In addition, the WM appliance is fully compatible with Windows Media Player software, thus eliminating the need for desktop player installation on the majority of platforms. VBrick also stands behind its appliances with a standard one-year hardware warranty.

Benefits and Advantages

- Integrates seamlessly into existing Microsoft Ecosystem
- Combines a Windows Media Encoder and Server into a single appliance
- Easy to configure and use – streaming in a matter of minutes
- Streams to WMS publishing points via push or pull
- Portable solution is ideal for Webcasting special events
- Powerful on-board processor provides for much lower delay than with PC based systems
- No desktop download necessary - streams directly to Microsoft's Windows Media Player (WMP)

Applications

- Multicast or Unicast streaming for a variety of Intranet and Internet applications
- Digital distribution of analog sources such as cable feeds, cameras, VCR and DVD players
- Live corporate events and product launches
- Webcasting of sporting events, graduations, training sessions
- Security and surveillance of remote locations
- Live multimedia

Models

- 9190-4200 - Single channel WM appliance
- 9190-4300 - Dual channel WM appliance

Product Features

- WMV9 Video and WMA8 Audio Encoding
- 8-bit 4:2:0 color format
- User selectable resolution
- Bitrates from 20Kbps to 4Mbps
- Metadata insertion and scripting
- 200 client RTSP (UDP) and HTTP Streaming Server (UDP)
- Publishing Point Options
- Unicast and direct Multicast Streaming
- Automatic program guide
- Optional hard drive for local recording
- Push authentication for secure stream reflection

Interoperability

- EtherneTV-MCS – portal for displaying live and on-demand program listings
- Microsoft Windows Media Server – reflecting and archiving server
- StreamPlayer & StreamPlayer Plus – client side program guide and media player
- Microsoft Windows Media Player – desktop media player
- VBrick Audiomate microphone

Compatibility

- Windows Media Player 10 on Windows XP
- Windows Media Player 9 on 2000/XP and Mac OS X
- Windows Media Player 7.x on 98/2000



EtherneTV[®]

SPECIFICATIONS

Network Appliance

Video Encoder	WM9 Encoding Format: NTSC, PAL Resolution: 640 x 480, 640 x 240, 320 x 240, 240 x 180, 160 x 120 Video Frame Rates: 1, 7.5, 10, 15, 30 fps (NTSC) 1, 5, 10, 12.5, 25 (PAL) Constant Bit Rate/ Constant Frame Rate Constant Bit Rate / Variable Frame Rate User defined key frame interval Rates: 20Kbps - 4 Mbps Inputs: Composite or S-Video
Audio Encoder	WM8 Encoding Sample Frequency 8Khz to 48Khz Rates: 5 Kbps to 192 Kbps Audio Modes: Stereo, Mono 1 (L+R), Mono 2 (Left only)
Ethernet Network	10/100 Mbps Ethernet via RJ-45, Static or DHCP, Auto sense Full/Half duplex
Protocols	Unicast/Multicast, DiffServ (QoS), UDP / IP / RTP / RTSP / RTCP / HTTP / ASF
Maintenance Port	Serial port for local maintenance or data transport
Control Port	Serial port for data transport
IR Remote Control	IR Remote Control for local control and configuration
Size	5.8 cm (2.3 inches) High 22.2 cm (8.75 inches) Wide 31.7 cm (12.5 inches) Deep
Weight	Approx. 3.2 Kg (7 lbs)
Temperature Range	Operating: 0 degrees to +70 degrees Celsius, operating humidity up to 90% non-condensing* Non-operating: -10 degree to +70 Celsius
Power Supply	Input: 100 to 240 VAC, 50/60 Hz, approx. 55 Watts Output: +24V up to 3.0A
Regulatory	FCC Part 15, UL, CE
Relay	Dry contact, 75mOhms, 2A @ 30VDC, .3A @ 110VDC, .5A @ 125VDC
LCD	32 Character display (16x2), backlit
LED Status	Power In (24VDC), Activity, Link, 10/100

*High temperature operation has some dependencies, please contact VBrick.



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WM Appliance
R04252006

VOD WM Family



Windows Media video-on-demand servers extend the reach of streaming

The distribution of Windows Media assets is now both easy and affordable. VBrick's VOD WM Video-on-demand servers can deliver your content to both local and remote users using a wide variety of delivery methods. Whether your assets are self created or purchased through a third party, the VBrick VOD WM can store and deliver them over your IP based network. Imagine all of your surveillance footage, sales training and classroom lectures all available for on-demand digital playback. The WM VOD has been fully integrated into VBrick's award winning EtherneTV digital media distribution system providing a turn-key solution for capture, delivery and display of both live and stored assets. When deployed with VBrick's Portal Server, WM based assets can be categorized and permissions assigned to restrict or grant viewing access over both local area networks as well as the Internet. Experience the future of digital media with a turn-key Windows Media streaming solution from VBrick Systems.

Applications

- **Training** — record live training sessions and make them available to employees or students for future playback
- **Digital Archiving** — encode VCR tapes as WM files to build a digital media assets library
- **Media Retrieval** — access previously recorded classroom lectures, training videos, corporate announcements and military footage
- **Retail Advertising** — stream the latest product information to TV monitors and PC desktops

VOD WM Product Features

- **Rich media distribution** to desktop PCs
- **Central repository for stored WM assets**
- **System monitoring** provides usage information
- **Full VCR-like controls** with stop, pause, play, and seek (slide bar)

Portal Server Product Features

- Provides **common user interface** for live and stored videos
- **Automatic download** of necessary components (eliminates manual installation)
- **Single desktop player** for both live and stored
- **Windows Media Player** and Apple QuickTime support

Target Markets

- Education
- Corporate
- Health Care
- Government
- Military
- Intelligent Transportation Systems
- Entertainment

Benefits and Advantages

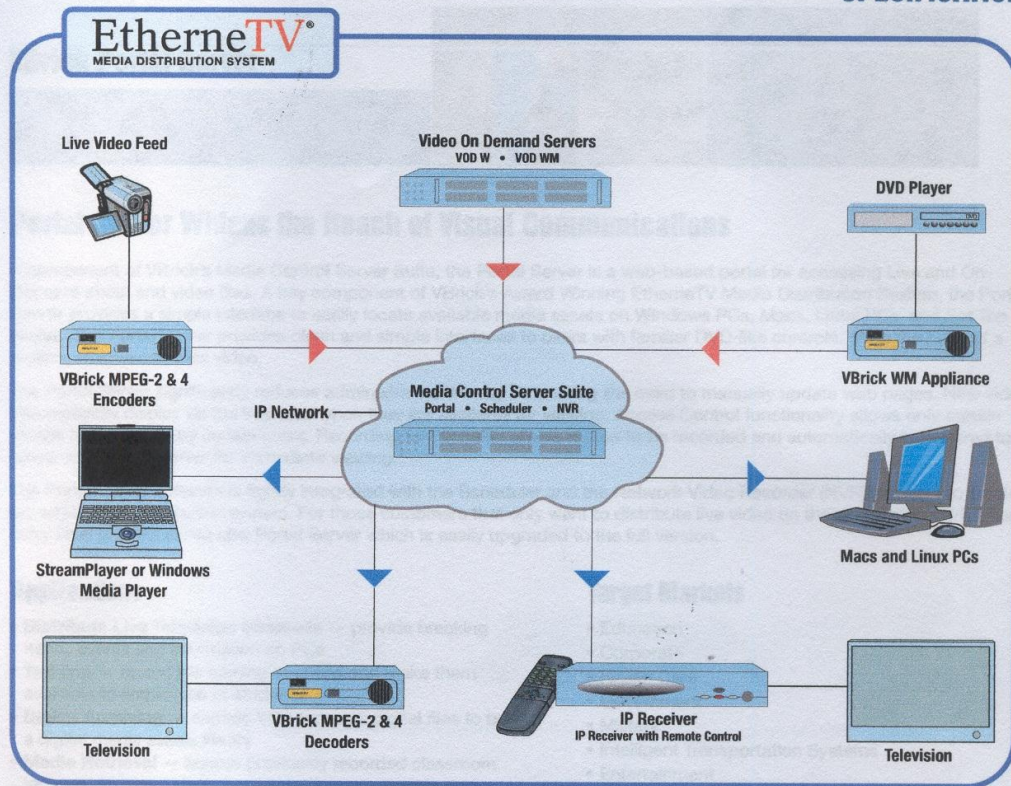
- Entry level server **designed for small to medium** sized applications
- Higher output server **designed for medium to large installations** which require greater throughput and redundancy
- **DELL platform** is best-in-class
- All storage is based on **hot-swappable high-speed 10K RPM SCSI drives**
- **Extended hardware/software warranty**

Product Options

- 125MB or 300MB streaming capacity **server model**
- **Multicast** streaming support
- **Additional storage** drive on entry level model to increase capacity
- **External Serial Attached SCSI** for storage expansion

ETHERNET TV[®] MEDIA DISTRIBUTION SYSTEM

SPECIFICATIONS



Interoperability

- VBrick **StreamPlayer** for live stream decoding
- **MCS Suite**
 - Portal Server
 - Network Video Recorder
 - Scheduler
- VBrick **WM Network Video Appliance**

Specifications

VOD Server	VOD WM 125	VOD WM 300
Qualified throughput*	125MBps	300MBps
OS Drives**	146GB	292GB (RAID 1)
Storage**	146GB	584GB (RAID 5)
External Storage	Upgradable Serial Attached SCSI	Serial Attached SCSI
CPU	Dual Core Xeon Processor	2 - Dual Core Xeon Processors
Memory	1GB	2GB
Chassis	1RU	2RU
Network	Dual Port Gigabit Ethernet	Dual Port Gigabit Ethernet
Windows Servers OS	2003 Standard***	2003 Standard***
Power Supplies	Redundant	Redundant
CD-ROM	Yes	Yes
Floppy Drive	Yes	Yes

* actual throughput depends on bitrate, number of connections, disk fragmentation, etc. and may be higher than published benchmarks

** Unformatted capacity

*** Enterprise edition required to upgrade to MULTI to enable multicast capacity



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VOD WM
R03012007

VBrick Portal Server

On Demand Video Communication



Portal Server Widens the Reach of Visual Communications

A component of VBrick's Media Control Server Suite, the Portal Server is a web-based portal for accessing Live and On-Demand audio and video files. A key component of VBrick's Award Winning EtherneTV Media Distribution System, the Portal Server provides a simple interface to easily locate available media assets on Windows PCs, Macs, Linux PCs, and Set Top Boxes. The Portal Server provides clean and simple interfaces to users with familiar DVD-like controls. With the push of a button, anyone can view video.

The Portal Server significantly reduces administrative time by eliminating the need to manually update web pages. New videos automatically display via the interface when they are available for viewing. Access Control functionality allows only certain videos to be viewed by certain users. Recording functionality allows videos to be recorded and automatically transferred to a Video on Demand server for immediate viewing.*

The Portal Server software is tightly integrated with the Scheduler and the Network Video Recorder (NVR) software to create a powerful video distribution system. For those customers that only want to distribute live video on their networks, VBrick has an entry level product called Live Portal Server which is easily upgraded to the full version.

Applications

- **Distribute Live Television Channels** — provide breaking news, events and information on PCs
- **Training** — record live training sessions and make them available to employees or students
- **Digital Archiving** — encode VCR tapes as digital files to build a digital media assets library
- **Media Retrieval** — access previously recorded classroom lectures, training videos, corporate announcements and military footage

Product Features

Key end-user features

- **Simple user interface** for live and on demand* video
- **Supports multiple video formats** - Windows Media, MPEG-1, 2, and 4
- **Full screen video** (up to DVD quality)
- **Preview video** in a web page or launch a resizable external player
- **Search and record*** videos
- **Upload video and thumbnails** to Video on Demand servers
- **Info Button** which provides customizable and searchable information and can link to documents and URLs
- **Closed captioning** for MPEG-1, MPEG-2, and MPEG-4

Key administrative features

- **Access control** — Allows certain videos to be viewed, published, or recorded by certain users
- **Single Sign On** — Access Control can be accomplished without users having to enter a User Name or Password
- **Clustering support** — Allows for multiple VoD servers to increase total throughput
- **SSL/TLS Security** — Allows MCS web pages to be encrypted for security purposes
- **Provide Access to Additional URLs** — supports links to additional URLs other than those generated automatically (such as from a hosting provider)
- **Assign Channels** to live streams

Target Markets

- Education
- Corporate
- Health Care
- Government
- Military
- Intelligent Transportation Systems
- Entertainment

Benefits and Advantages

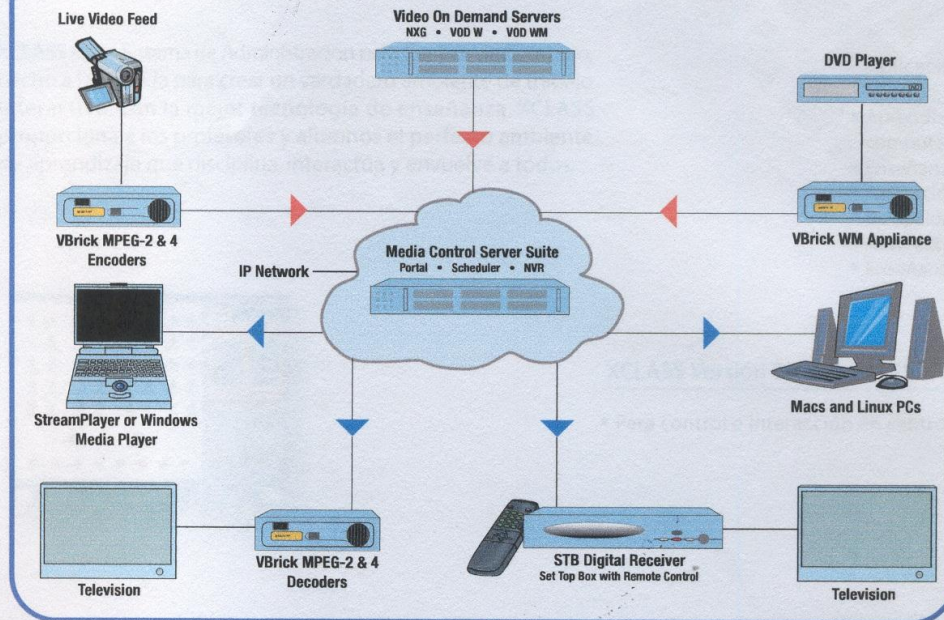
- **Ubiquitous Access** - Allows access from Windows PCs, Macs, Linux PCs, and Set Top Boxes. Common interface for all platforms
- **Real Time Performance** - Low delay VBrick encoders allow video to be viewed in real time
- **Reliability** - Once setup, the EtherneTV system provides 5 Nines reliability to users
- **Network Citizenship** - VBrick encoders and Video on Demand servers provide zero performance impact to the network
- **Live and Stored** - Provides full capabilities to distribute and schedule live and stored video
- **Operational Control** - Provides administrators the ability to quickly and easily setup the system, and control access, with little ongoing maintenance
- **Secured Access** - Provides a sophisticated Access Control mechanism to control who has access to resource scheduling and recording
- **User Simplicity** - Provides an intuitive interface that simplifies the search, viewing, and scheduling of live and stored video

*Not available on Live Portal Server

EtherneTV[®]

MEDIA DISTRIBUTION SYSTEM

SPECIFICATIONS



Interoperability

- VBrick VOD WM, VOD W, and NXG Video on Demand servers
- VBrick STB Digital Receiver for MPEG-1, 2, and 4
- Windows-based PCs with StreamPlayer or StreamPlayer Plus
- Macintosh computers with QuickTime and StreamPlayer for Mac
- Linux PCs with StreamPlayer for Linux
- VBrick 4000-6000 Series MPEG-2, MPEG-4 and Windows Media Network Video Appliances

Client PC Requirements (Windows)

- Windows 98/2000/XP
- Microsoft Internet Explorer 6.0 or higher
- StreamPlayer software automatically downloaded from the Portal Server (please see StreamPlayer datasheet for detailed requirements)

Client PC Requirements (Mac)

- Mac OS X with Safari 1.0 (or higher) or FireFox for Mac 1.0.4 or higher
- QuickTime Player 6.0 or higher for MPEG-4
- StreamPlayer for Mac for MPEG-1 and MPEG-2

Client PC Requirements (Linux)

- StreamPlayer for Linux for MPEG-1 and MPEG-2
- MPEG-4 not currently supported
- Please see product documentation for detailed support

System Requirements

- Windows 2000 Server or Windows 2003 Server Web Edition*
- Pentium IV or Xeon Processor 1.26 GHz minimum
- RAM 512 MB minimum
- Hard Drive 36 GB minimum (larger for frequent recording)

* VBrick does not support the desktop versions of the Windows operating systems



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Portal Server
R02172006

XCLASS

Sistema de Control Interactivo Multimedia
 "Enseña y Aprende con una Sonrisa"
 Enseñanza Multimedia con un "Click"

XCLASS Es un Sistema de Administración para Centros de Cómputo, hecho a la medida para crear un verdadero ambiente de trabajo interactivo. Con la mejor tecnología de enseñanza, XCLASS proporciona a los profesores y alumnos el perfecto ambiente de aprendizaje que disciplina, interactúa y envuelve a todos.

Aplicaciones:

- Aprendizaje apoyado en computadoras.
- Enseñanza de Idiomas.
- Aplicación de ejercicios de opción múltiple.
- Auto-acceso.
- Enseñanza en grupo.



XCLASS Versión Estándar (VE)

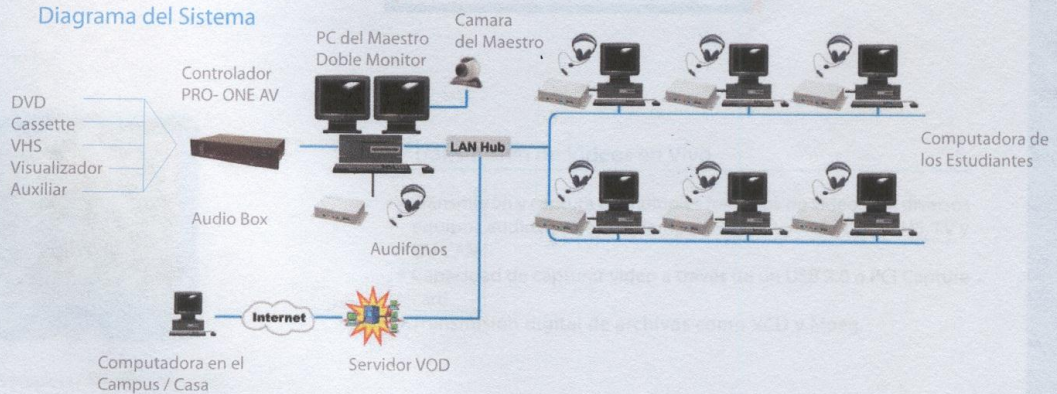
- Para control e interacción en centros de cómputo.

XCLASS Versión Profesional (PRO)

- Para aulas multimedia y laboratorios de idiomas.
- Enseñanza multimedia - con funciones extra que incluyen discusión con audio, control de equipos audiovisuales (AV) y otras opciones como Video sobre demanda (VOD) y Laboratorio de Idiomas (DLL).



Diagrama del Sistema



Una Mirada Práctica a XCLASS

Funciones y Beneficios

¡Aprendiendo con Tecnología, no de Tecnología!



Monitor Dual

Funciones y Beneficios

- Interfase gráfica del usuario (GUI), diseñada sin funciones ocultas o botones escondidos, aprende a utilizarlo en 30 minutos.
- La opción de dos pantallas, proporciona una conveniente plataforma de trabajo para intercambios entre la computadora del Maestro y el Panel de Control XCLASS.

Demostración del Maestro y Alumnos con contenidos Multimedia

El maestro puede transmitir videos y la pantalla de su computadora a las PCs de todos los estudiantes con un click, cuenta con "Smart Pen" que permite dibujar, mecanografiar, editar y utilizar otras herramientas ilustrativas, además de capacidad para usarse con un monitor o en modo dual.



El estudiante puede demostrar su trabajo en pantalla a toda la clase incluyendo, Videos, animaciones en PowerPoint y Flash y el maestro puede con el "Smart Pen" ilustrar a toda la clase con la presentación del alumno.



Pantalla Completa / Modo de Ventana

Transmisión de Videos en Vivo

- Transmisión y captura de múltiples formatos de video y de diversos equipos audiovisuales en tiempo real, incluyendo DVD, VHS, TV y DV-CAM.
- Capacidad de capturar video a través de un USB 2.0 o PCI Capture card.
- Transmisión digital de archivos como VCD y Mpeg.



Parejas, Parejas al Azar, Discusión de Audio o de Grupo en Chat de Texto

- Discusiones en tiempo real de audio o texto.
- Separa a un grupo en particular durante el proceso de discusión de audio de todo el grupo.
- Grabación en vivo de las discusiones de audio y texto de cada pareja o grupo.

Respuesta y Ayuda a los Estudiantes a Control Remoto-Intercomunicación

- Chat de audio y texto uno a uno.
- Panel de chat de texto en grupo.

Administrador de la Estación de Trabajo

- Activar o desactivar las PCs de los estudiantes desde al PC del maestro.
- Abrir/ Cerrar en forma remota aplicaciones y páginas WEB de las PCs de los estudiantes (Individual/ Grupos/ o toda la clase).
- Bloqueo de las ejecuciones de otro software de las PCs de los estudiantes para enfocar a las aplicaciones que elija el maestro.
- Monitoreo de Aplicaciones: El monitor muestra las aplicaciones en tiempo real a las PCs de los estudiantes.
- Suspensión en forma remota del acceso a Internet de las PCs de los estudiantes.
- Con el modo de pantalla en negro y bloqueo de teclados de las PCs de los estudiantes el maestro capta su atención y mantiene la disciplina.
- Desactiva (Ctrl+ Alt+ Del) y (Ctrl.+ Shift+ Esc) la tecla de control de las computadoras de los Estudiantes.

Monitoreo de los Estudiantes en Tiempo Real para Verificar su Progreso en el Aprendizaje

- Monitoreo simultáneo de la pantalla de los estudiantes, audio / video (DVD, VCD, etc.), animaciones en Power Point y Flash.
- Monitoreo máximo de 32 pantallas en modo de Monitor dual (16+16).
- Capacidad de Monitoreo múltiple de recursos de audio (micrófono, sonido de la PC, Mic + sonido de la PC) de la PC del estudiante.

Ayuda a Estudiantes y Ayuda Remota

- Los estudiantes pueden activar con la tecla F12 una señal para solicitar la asistencia del maestro en cualquier momento.
- Los maestros pueden controlar en forma remota las computadoras de los estudiantes para demostraciones y proporcionar asistencia con herramientas de anotación.

Cuestionarios

- Después de las instrucciones del maestro y que los estudiantes demuestran que entendieron, pueden ser practicados ejercicios y votaciones.
- Los maestros pueden crear fácilmente ejercicios de opción-múltiple.
- Análisis de los resultados de los ejercicios con exportación de datos a Excel (en formato CSV).

Distribución y Recolectión de Tareas- Transferencia de Archivos

- Transferencia de archivos / recepción de archivos de las PCs de los estudiantes (uno o múltiples archivos a la vez).
- Enviar y abrir archivos individuales, en grupo o de todos los estudiantes.
- Recupera archivos enviados previamente a las PCs de los estudiantes.

Control de Equipos Audiovisuales

- El control de los equipos AV se simplifica con un sencillo Software del panel de control. Todas las funciones de los equipos AV pueden ser controladas por el maestro.



Características

- Opciones disponibles para la versión profesional: VOD + DLL + PRO-ONE.
- Capacidad de hasta 8 aulas y 800 computadoras en la misma red.
- Capacidad de hasta un máximo de 26 grupos de discusión.
- Nivel de volumen prefijado.
- Auto-sincronización de los controles de volumen de las PCs de los alumnos y el maestro.
- Configuración de sonido- Auto selección / controles de (Mic/ Aux-in / PC sound/ Mic + PC Sound).
- Reducción del tráfico en la Red y envío de transmisiones de audio y video con tecnología 100% multireparto.
- Multi-Idiomas: hasta 14 idiomas disponibles.
- Nuevo mezclador de audio estéreo, con soporte de canal.
- Transmisión en tiempo real "sin-demora" de audio / video.

Requerimientos Mínimos del Sistema

COMPUTADORA:

- Pentium III 800 Mhz.
- Memoria RAM 128 MB.
- Espacio libre en disco de 300MB.
- Monitor VGA 32 MB.

PLATAFORMAS RECOMENDADAS:

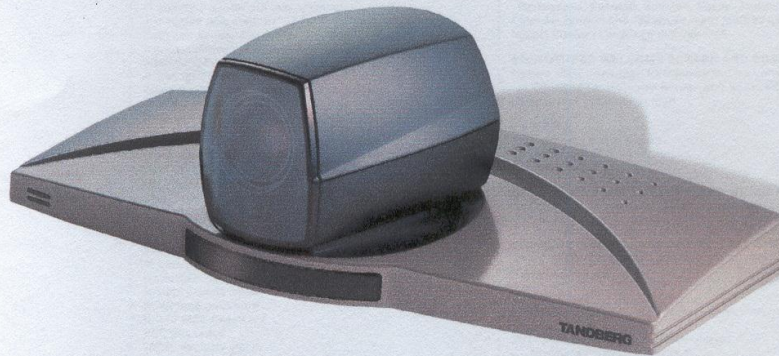
- Para XCLASS Estándar: Windows 2000/ XP.
- Para XCLASS Profesional: Windows XP/2000 /98/Me.

REQUERIMIENTOS DE LA RED:

- Switch: 100 Mbps (Se recomienda switch con función de filtrado IGMP).
- Tarjeta LAN: 100 Mbps mínimo.

TARJETA DE SONIDO:

- Completamente Duplex AC 97/ Sound Blaster compatible PCI.



TANDBERG
Set-top
550 MXP

For offices and small meeting rooms. Provides essential video features for face-to-face meetings with the quality and reliability found in all TANDBERG equipment. A highly portable set-top unit, the TANDBERG 550 offers clear sound, brilliant pictures and a choice of networks.

TANDBERG Flatscreen
 Monitor Package



DESIGN FEATURES

- Designed for offices and small meeting rooms
- Compact set-top unit that fits perfectly on any standard television set
- Integrated wide angle view camera with extensive zoom, pan and tilt
- Optional TANDBERG Flatscreen Monitor Package

APPLICATION FEATURES

- Share files using the PC presentation capabilities provided by the PC SoftPresenter technology
- Streaming capabilities
- TANDBERG Expressway™ Technology
- URI Dialing

PERFORMANCE FEATURES

- Choice of Network: up to 384 kbps ISDN/768 kbps IP (H.323 or SIP)
- Superior video quality incorporating the H.264 standard
- Highest level of embedded encryption as well as IEEE 802.1x and H.235 authentication for security
- Protection against network interruptions with automatic Downspeeding and IPLR

PROTECT YOUR TECHNOLOGY INVESTMENT WITH
 TANDBERG'S PORTFOLIO OF **CONSTANT CARE SERVICES**.
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TANDBERG

UNIT DELIVERED COMPLETE WITH:

Wireless remote control, W.A.V.E. II camera, microphone, and cables

BANDWIDTH

H.320 up to 384 kbps
H.323 up to 768 kbps
SIP up to 768 kbps

FIREWALL TRAVERSAL

TANDBERG Expressway™ Technology
Auto NAT
H.460.18, H.460.19 Firewall Traversal

VIDEO STANDARDS

H.261, H.263, H.263+, H.264

VIDEO FEATURES

Native 16:9 Widescreen
Advanced Screen Layouts
Picture in Picture (PIP)
Picture outside Picture (POP)
Side by Side
PC Zoom
Intelligent Video Management
Local Auto Layout

VIDEO INPUTS (1 INPUT)

Built-in main camera
1 x RCA/Phono, composite; document camera/auxiliary
1 x XGA; PC using VNC (PC SoftPresenter)

VIDEO OUTPUTS (3 OUTPUTS)

1 x MiniDin, S-video; main monitor
1 x RCA/Phono, composite; main monitor or VCR
1 x XGA; main monitor
XGA Output
800 x 600 @ 75 Hz, 1024 x 768 @ 60 Hz,
1280 x 768 (WXGA) @ 60 Hz
VESA Monitor Power Management

VIDEO FORMAT

NTSC, PAL, VGA, SVGA, XGA, W-XGA

LIVE VIDEO RESOLUTIONS**NATIVE NTSC:**

400p (528 x 400 pixels) receive only
4SIF (704 x 480 pixels), Digital Clarity
Interlaced SIF (SIF 352 x 480 pixels), Natural Video
SIF (352 x 240 pixels)

NATIVE PAL:

448p (576 x 448 pixels) receive only
4CIF (704 x 576 pixels), Digital Clarity
Interlaced CIF (CIF 352 x 576 pixels), Natural Video
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels) decode only

NATIVE PC RESOLUTIONS:

XGA (1024 x 768 pixels)
VGA (800 x 600 pixels)

WIDE RESOLUTIONS:

VGA (640 x 480 pixels)
w288p (512 x 288 pixels)
w448p (768 x 448 pixels) receive only
w576p (1024 x 576 pixels)
w720p (1280 x 720 pixels)

STILL IMAGE TRANSFER

CIF, SIF, 4CIF (H.261 Annex D), 4SIF, VGA, SVGA, XGA

AUDIO STANDARDS

G.711, G.722, G.722.1, G.728, 64 bit MPEG4 AAC-LD

AUDIO FEATURES

CD-Quality 20KHz Mono
Acoustic echo canceller
Audio mixer
Automatic Gain Control (AGC)
Automatic Noise Reduction
Audio level meters
VCR ducking
Packet loss management
Active lip synchronization
GSM/Blackberry interference audio feature

AUDIO INPUTS (2 INPUTS)

1 x microphone, 24V phantom powered, XLR connector
1 x RCA/Phono, Line Level; Auxiliary/VCR

AUDIO OUTPUT (1 OUTPUT)

1 x RCA/Phono, Line Level; Monitor

FRAME RATES

15 frames per second 56-128 kbps
30 frames per second 168-768 kbps

NETWORK FEATURES

Auto H.320/H.323 dialing
SIP
Downspeeding
Programmable network profiles
Intelligent Call Management
Maximum call length timer
Automatic SPID and line number configuration
(National ISDN, GR-2941-CORE)
SoftMux
H.331 Broadcast Mode
URI Dialing

EMBEDDED ENCRYPTION

H.320 and H.323 point-to-point calls
Standards-based: H.233, H.234, H.235 v2&v3, DES and AES
NIST-validated AES
Automatic key generation and exchange

IP NETWORK FEATURES

IEEE 802.1x/EAP Network Authentication
H.235 Gatekeeper Authentication
DNS lookup for service configuration
H.235 Authentication
Differentiated Services (DiffServ)
Resource Reservation Protocol (RSVP)
IP precedence
IP type of service (ToS)
IP adaptive bandwidth management
(including flow control)
Auto gatekeeper discovery
Dynamic playout and lip-sync buffering
Intelligent Packet Loss Recovery (IPLR)
H.245 DTMF tones in H.323
Cisco CallManager integration using ECS
IP Address Conflict Warning
Date and Time support via NTP
Call Services

IPv6 NETWORK SUPPORT

Dual Stack IPv4 and IPv6 simultaneous support
Net service support on IPv6: Telnet, SSH, HTTP, HTTPS,
FTP, SNMP, DNS, NTP, DHCP
Media support on IPv6: H.323, SIP Streaming

SECURITY FEATURES

Management via HTTPS and SSH
IP Administration Password
Menu Administration Password
Dialing Access code
Streaming password
H.243 MCU Password
VNC password
SNMP security alerts
Disable IP services
MD-5 Challenge
Network Settings protection
SIP Authentication via NTLM
SIP Authentication via Digest

NETWORK INTERFACES

3 x ISDN BRI (RI-4S); S-Interface
1 x LAN/Ethernet (RJ-45) 10/100 Mbit
(LAN/DSL/cable modem)
1 x PC card slot (PCMCIA) for wireless LAN
1 x USB for future usage

WIRELESS LAN SUPPORT

Compliant with IEEE 802.11b, up to 11 Mbit
Support for 64/128 bit encryption (WEP)
Infrastructure or ad-hoc mode

ETHERNET/INTERNET/INTRANET CONNECTIVITY

TCP/IP, DHCP, ARP, FTP, Telnet, HTTP, HTTPS, SOAP and XML,
MD-5 Challenge
SNMP Enterprise Management
Internal web server
Internal streaming server

OTHER MAJOR STANDARDS SUPPORTED

H.231, H.233, H.234, H.235 v2&v3, H.239, H.241, H.243,
H.281, BONDING (ISO 13871), H.320, H.323, H.331
RFC 3261, RFC 2237, RFC 3264, RFC 3311, RFC 3550, RFC
2032, RFC 2190, RFC 2429, RFC 3407

W.A.V.E. (WIDE ANGLE VIEW) II CAMERA

10 x zoom 1/4" CCD +15°/-20° tilt +/-95° pan
61° vertical field of view
96° total vertical field of view
77° horizontal field of view
267° total horizontal field of view
460 (PAL)/470 (NTSC) TV lines
Min. illumination 2 Lux (F1.8)
Auto or manual focus/brightness/white balance
Far-end camera control
15 near and far-end camera pre-sets
Voice-activated camera positioning

CLOSED CAPTIONING/TEXT CHAT

T.140 text chat available from Telnet,
Web and User Interface

PRESENTATIONS AND COLLABORATION

Soft Presenter Package including:
PC SoftPresenter
Digital Clarity & Native Formats
Advanced Video Layouts
Streaming compatible with Cisco IP/TV,
Apple QuickTime®, RealPlayer® v8 etc.

SYSTEM MANAGEMENT

Support for the TANDBERG Management Suite
Total management via embedded web server, SNMP,
Telnet, SSH, FTP and SOAP
Remote software upload: via web server, ftp server or ISDN
1 x RS-232 local control and diagnostics
Remote control and on-screen menu system
External Services from TMS

DIRECTORY SERVICES

Support for Local directories (My Contacts),
Corporate Directory and Global Directory
Unlimited entries using Server directory* supporting
LDAP and H.350
Unlimited number for Corporate directory (through TMS)
400 number global directory
200 number local directory
Received Calls with Date and Time
Directories in Local Languages
Placed Calls with Date and Time
Missed Calls with Date and Time

16 SELECTABLE MENU LANGUAGES

Arabic, Simplified Chinese, Traditional Chinese, English,
French, German, Italian, Japanese, Korean, Norwegian,
Portuguese, Russian, Spanish, Somali, Swedish and Thai
Chinese, Korean and Japanese Input Method Editors
Import Custom Language through TMS

CUSTOMIZED WELCOME SCREEN AND COMPANY LOGO

Picture JPEG (logo.jpg); Recommended maximum size
is 704x576 for Welcome Screen and 352x288 for
Encryption Required Screen

POWER

Auto-sensing power supply
100-250 VAC, 50-60 Hz
40 watts max.

OPERATING TEMPERATURE AND HUMIDITY

0° C to 35° C (32° F to 95° F) ambient temperature
10% to 90% Relative Humidity (RH)

STORAGE AND TRANSPORT TEMPERATURE

-20° C to 60° C (-4° F to 140° F) at RH 10-90%
(non-condensing)

APPROVALS

Directive 73/23/EEC (Low Voltage Directive)
– Standard EN 60950
Directive 89/336/EEC (EMC Directive)
– Standard EN 55022, Class B
– Standard EN 55024
– Standard EN 61000-3-2/-3-3
Directive 1999/5/EEC (R&TTE Directive)
– Standard TBR3
Approved according to UL 60950
and CAN/CSA C22.2 No. 60950
Complies with FCC15B Class B

UNIT DIMENSIONS

Height: 5.1"/13.0 cm
Width: 14.9"/38.0 cm
Depth: 7.9"/20.0 cm
Weight: 5.0 lbs/2.3 kg

*Requires TANDBERG Management Suite 9 or newer

All specifications subject to change without notice,
system specifics may vary.

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MTBF PRODUCT RELIABILITY/MTBF

The predicted reliability is expressed in the expected
random Mean Time Between Failures (MTBF) for the
electronic components based on the Power On Hours.
Power On Hours (POH) > 69 000 hours
Useful Life Cycle > 6 years
ISO 9001 certificate is available upon request

TANDBERG

Set-top
550 MXP

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