ISM 824

MODULAR INTEGRATION SCALING MULTISWITCHER

- Eight input matrix switcher with optional integrated signal processing
- Two universal pass-through wideband outputs and four customizable output slots
- Five optional output boards available:
  - Universal RGB and Video scaler
  - Video scaler
  - Scan converter
  - Single output wideband
  - Dual output wideband
- Audio input gain and attenuation
- Audio output volume control
- IP Link® Ethernet control and monitoring

Optimum integration flexibility in a single, compact enclosure

Extron Electronics
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Introduction

The ISM 824 MultiSwitcher is a unique modular matrix switcher that allows for **simultaneous scaling and wideband switching** in a single, compact enclosure. It features two standard, wideband outputs and four customizable board slots that accept a variety of optional output boards, including video scaling and additional wideband outputs.

The flexible design of the ISM 824 allows for simultaneous scaling and wideband matrix switching in a single, compact enclosure. The ISM 824 is ideal for applications such as high-end boardrooms, classrooms, and auditoriums that require cost-effective signal routing with flexible, on-board signal processing.

The ISM 824 is similar in performance and features to Extron's popular CrossPoint 450 Plus Series. The ISM 824 offers eight inputs that are fully configurable from RGBHV and HDTV to composite video, and two fully configurable wideband outputs. The ISM 824 provides exceptional performance in the most demanding, very high resolution computer-video and audio routing systems with features such as ADSP™ - Advanced Digital Sync Processing, DSVP™ - Digital Sync Validation Processing, and audio output volume control.

In addition to the two standard wideband outputs, the ISM 824 features a **plug-in backplane design with four output slots** that support optional expansion boards for signal processing, such as scaling and scan conversion, as well as additional wideband outputs. With this unique, powerful expansion capability, the ISM 824 can be equipped initially with any of the output boards for a specific project, and then upgraded in the future with additional boards as system needs evolve and expand. Updates to the ISM 824 can easily be accomplished in the field without the need for factory servicing or changes to the internal hardware.

Five output expansion boards are available for the ISM 824, with the same advanced video processing technologies employed in Extron scalers, signal processors, and scan converters. The **Universal Scaler Output Board** features high performance RGB and video scaling, with upconversion and downconversion of high resolution RGB signals as well as standard definition video signals. The Universal Scaler Board outputs RGBHV or component video at up to UXGA (1600x1200) resolution, as well as HDTV 1080p. The **Video Scaler Output Board** provides upconversion of standard definition composite video and S-video signals at up to SXGA+ (1400x1050) resolution and HDTV up to 1080p.

For compatibility with low resolution video monitors as well as VCRs, DVD recorders, or videoconferencing, the **Scan Converter Output Board** delivers an optimized, scan-converted video output. Finally, **Single and Dual Output Wideband Boards** are available for additional matrix switcher outputs.

The ISM 824 provides **optimum integration flexibility** while at the same time reducing system complexity and cost. With both matrix switching and signal processing capabilities in one 3U enclosure, system configuration and set-up can be accomplished from a single location, saving installation cost and time. At the same time, control system design and programming is simplified. Additionally, the ISM 824 is ideal for locations where equipment rack space is at a premium.

All features and functions of the ISM 824, including those of any installed output boards, are fully accessible from the front panel, as well as through RS-232 and IP Link. The ISM 824 thus offers versatile control functionality for managing all source distribution and signal processing within an A/V system.

Optional Expansion Boards

Five optional output boards are available for the ISM 824. These cards, which include two scalers, a scan converter, and single and dual output wideband boards, can be used in a variety of combinations to support a wide range of signal distribution and signal processing requirements. The boards are installed in a simple, plug-in backplane, providing for system upgrades at virtually any time before, during, or after system installation.

Universal RGB & Video Scaler Output Board

The Universal Scaler Output Board scales virtually any input signal, including high resolution RGBHV, HDTV, and standard definition composite video, S-video, and component video to a single, common output rate. It outputs RGB or component video and offers 59 selectable rates from 640x480 to 1600x1200, including HDTV 1080p. Other key features include 3:2 NTSC and 2:2 PAL pulldown detection, Auto-Image™ setup, comprehensive picture controls, and a built-in test pattern generator for ease of installation and set-up. **Part Number # 70-544-01**

Video Scaler Output Board

For video-only scaling needs, the Video Scaler Output Board simplifies system design with mixed signal formats by scaling standard definition composite video and S-video signals to a common, high resolution output rate. If offers 56 selectable output rates from 640x480 to 1400x1050, including HDTV 1080p. High resolution RGB signals are passed through at their native rate. The Video Scaler Output Board also features comprehensive picture controls and a built-in test pattern generator. **Part Number # 70-545-01**

Scan Converter Output Board

The Scan Converter Output Board converts any high resolution RGB or HDTV component video signal to NTSC or PAL composite video, S-video, or component video. It also accepts low resolution video as pass-through signals. Compatible with RGB signals up to 1600x1200, the Scan Converter Output Board simplifies system design for applications that require a baseband video output for distribution to televisions and other video monitors, or recording for archival purposes. **Part Number # 70-546-01**

Single Output Wideband Board

The Single Output Wideband Board adds a single, universal pass-through wideband output on 5-BNC connectors. As with all output boards, the Single Output Wideband Board features stereo audio output on a captive screw connector. **Part Number # 70-547-01**

Dual Output Wideband Board

The Dual Output Wideband Board adds two universal pass-through wideband outputs on 15-pin HD connectors. The dual output design frees board slots for additional signal processing needs. Corresponding stereo audio outputs are provided on captive screw connectors. **Part Number # 70-547-02**

Features

Windows Control Software

The included Windows control software enables complete set-up and real-time operation of the ISM 824. The software provides complete control functionality and full configuration capability.

Fully Configurable Inputs

The ISM 824 features eight fully configurable inputs on BNC connectors that accommodate RGBHV, RGBS, RGsB, component video, S-video, or composite video signals. High resolution sources can include computer-video signals up to UXGA (1600x1200), and HDTV up to 1080p.

Four Customizable Output Slots

In addition to the two universal wideband outputs, the ISM 824 is designed for future expansion via a simple, plug-in backplane design with four output slots that support optional output boards for video and RGB scaling, scan conversion, and additional wideband outputs. Boards can easily be added to the ISM 824 in the field, with no factory servicing or internal hardware modifications necessary.

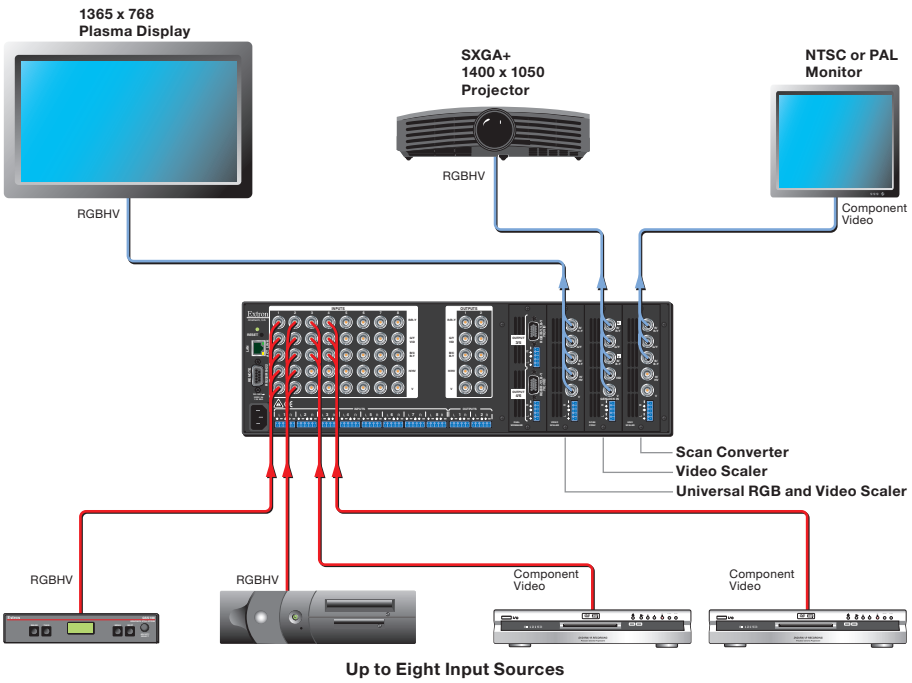
Audio Inputs and Outputs

Every input and output of the ISM 824 includes connectivity for balanced or unbalanced mono or stereo audio signals, including outputs on the optional expansion boards. Gain and attenuation can be set for each audio input. With volume control available for each audio output, the ISM 824 eliminates the need for an audio preamplifier in many system designs.

Selectable Output Resolutions

The Universal Scaler Output Board option for the ISM 824 offers 59 scaled output rates, including the following resolutions for computer-video, projectors, plasma and LCD displays, and HDTV:

640x480	1280x1024	480p
800x600	1360x765	576p
852x480	1365x768	720p
1024x768	1365x1024	1080i
1024x852	1366x768	1080p
1024x1024	1400x1050	
1280x768	1600x1200	



Up to Eight Input Sources

Up to 4 outputs can be individually scaled or scan converted to suit the requirements of virtually any presentation system.

The Video Scaler Output Board offers 56 scaled output rates from 640x480 to 1400x1050, including HDTV up to 1080p.

Integrator-Friendly Features

The ISM 824 offers the same integrator-friendly features familiar to users of the Extron CrossPoint 450 Plus Series of matrix switchers, including QS-FPC™ - QuickSwitch Front Panel Controller with tri-color backlit buttons, and 20 global presets for saving I/O configurations.

When equipped with the optional Universal Scaler, Video Scaler, or Scan Converter Output Boards, additional integrator-friendly features are available to expedite the set-up process and assist in delivering optimal image quality. These include Auto-Image™ set-up, fine tuning for picture controls, and memory presets for saving and recalling picture settings.

RS-232 Control

Through the RS-232 serial control port, the ISM 824 can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems using Extron SIS™ - Simple Instruction Set serial commands.

IP Link

IP Link is a high performance intelligent network integration solution developed by Extron. Ethernet-enabled A/V products, such as the ISM 824, can be managed and supported by a technician or administrator at any time from any authorized Web client.

IP Link enables remote access to all functions and status parameters including the internal operating temperature, and the horizontal and vertical sync frequencies of any input. The ISM 824 can be controlled through IP Link by accessing the internal Web pages or using the Windows control software.

Overview – ISM 824

Back-lit input/output selection buttons
I/O selection and crosspoint ties are easily identifiable using back-lit buttons with clear overlay labels, enabling simple front panel operation.

Configuration port
The ISM 824 can be conveniently set up and configured after installation, using the front panel RS-232 serial port.

User-friendly interface
An intuitive menu-driven LCD interface, direct access buttons, and precise rotary controls enable detailed adjustment of image settings.

ISM 824 Front

IP Link Ethernet control enables full operation and configuration from any authorized Web client.

Fully configurable inputs
The ISM 824 features eight fully configurable inputs that accommodate a wide range of sources, including RGB, HDTV, component video, S-video, and composite video.

Four customizable board slots
A simple, plug-in backplane design accepts a variety of optional signal processing and wideband output boards, reducing installation and integration labor costs.

ISM 824 Back

Audio input gain and attenuation
Each audio input includes independent gain and attenuation, which eliminates noticeable volume differences when switching between signal sources.

Audio output volume control
Adjustable output volume, per output, eliminates the need for audio preamps in many system designs.

Optional output boards
Five available output boards, including universal scaler, video scaler, scan converter, and single and dual output wideband boards provide a flexible upgrade path for future signal processing and distribution needs.

Specifications

VIDEO

Routing	8 x 2 or larger matrix, up to 8 x 8, depending on model and configuration.
Bandwidth	450 MHz (-3 dB), fully loaded (Outputs 1 and 2) 350 MHz (-3dB) for Wideband single/dual boards

VIDEO INPUT — ISM 824 MAIN UNIT

Number/signal type	8 RGB/Component (interlaced or progressive auto detected)/ S-Video/Composite Video
Connectors	8 x 5 BNC female
Nominal level	1V p-p for Y of component video and S-video and for composite video 0.7 p-p for RGB 0.3 p-p for R-Y and B-Y of component video and for C of S-video

VIDEO OUTPUT — WIDEBAND

(Wideband, single-output wideband board, dual-output wideband board)

Number/signal type	RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	Wideband output 1 and 2: 2 x 5 BNC female Single-output wideband board: 1 x 5 BNC female Dual-output wideband board: 2 x 15 pin HD female
Nominal level	0.7V p-p for RGB
Minimum/maximum levels	0.0V to 0.7V p-p

VIDEO OUTPUT — VIDEO-ONLY SCALER BOARD

Number/signal type	1 scaled RGBHV, RGBS, RGsB, or HD component (YUV) video
Connectors	5 BNC female
Nominal level	1 Vp-p for Y of component video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video
Scaled VGA resolution	640x480[1,2,3,4,5,6], 800x600[1,2,3,4,5,6], 852x480[1,2,3,4,5], 1024x768[1,2,3,4], 1024x852[1,2,3,4], 1024x1024[1,2,3], 1280x768[1,2,3,4], 1280x1024[1,2,3], 1360x765[1,2,3], 1360x768[1,2,3], 1365x1024[1,2], 1366x768[1,2,3], 1400x1050[1,2], HDTV 480p[2], 576p[1,5], 720p[1,2], 1080p[1,2], and 1080i[1,2] [1] = at 50 Hz [2] = at 60 Hz [3] = at 72 Hz [4] = at 96 Hz [5] = 100 Hz [6] = 120 Hz

UNIVERSAL RGB & VIDEO SCALER

Number/signal type	1 scaled RGBHV, RGBS, RGsB, or HD component (YUV) video
Connectors	5 BNC female
Nominal level	1 Vp-p for Y of component video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video
Minimum/maximum levels	0.0V to 1.0V p-p
Scaled VGA resolution	640x480[1,2,3,4,5,6], 800x600[1,2,3,4,5,6], 852x480[1,2,3,4,5], 1024x768[1,2,3,4], 1024x852[1,2,3,4], 1024x1024[1,2,3], 1280x768[1,2,3,4], 1280x1024[1,2,3], 1360x765[1,2,3], 1360x768[1,2,3], 1365x1024[1,2], 1366x768[1,2,3], 1400x1050[1,2], 1600x1200[1,2], HDTV 480p[2], 576p[1,5], 720p[1,2], 1080p[1,2], and 1080i[1,2] [1] = at 50 Hz [2] = at 60 Hz [3] = at 72 Hz [4] = at 96 Hz [5] = 100 Hz [6] = 120 Hz

VIDEO OUTPUT — SCAN CONVERTER BOARD

Number/signal type	1 RGsB, component video, or S-video 1 NTSC/PAL composite video
Connectors	4 BNC female
Nominal level	1 Vp-p for Y of component video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video
Output standard	NTSC or PAL

SYNC — ISM 824 MAIN UNIT

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB, RsGsBs (follows input) (Outputs 1 and 2)
Input level	0.5 V to 5.0 Vp-p, 4.0 Vp-p normal
Output level	AGC to TTL: 4.0 V to 5.0 Vp-p, unterminated

SYNC — VIDEO-ONLY SCALER BOARD

Input type	(RGBHV, RGBS, RGsB) pass-through, RGBS, RGBcvS
Output type	RGBHV, RGBS, RGsB, component (tri-level)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Output level	TTL: 5.0 Vp-p, unterminated

SYNC — UNIVERSAL SCALER BOARD

Input type	RGBHV, RGBS, RGsB, RGBcvS
Output type	RGBHV, RGBS, RGsB, Component (tri-level)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Output level	TTL: 5.0V p-p

SYNC —SCAN CONVERTER BOARD

Input type	Autodetect RGBHV, RGBS, RGsB
Output type	RGsB, component (bi-level)
Genlock connectors	1 BNC female: genlock input
Standards	NTSC 3.58, PAL
Output level	TTL: 5.0V p-p, unterminated

AUDIO

Frequency response	20Hz to 20kHz, ±0.05dB

AUDIO INPUT

Number/Signal type	8 stereo, balanced/unbalanced
Connectors	(6) 3.5mm captive screw connectors, 5 pin

AUDIO OUTPUT

Number/Signal type	2 stereo, balanced/unbalanced (base model, upgradeable to 8)
Connectors	(2) 3.5mm captive screw connectors, 5 pin (base model, upgradeable to 8)

CONTROL/REMOTE — SWITCHER

Serial control port	1 rear panel RS-232 or 422, 9-pin female D connector 1 front panel RS-232, 2.5 mm stereo mini jack
Baud rate and protocol	9600, 8-bit, 1 stop bit, no parity
Serial control pin configurations	2 = TX, 3 = RX, 5 = GND (9-pin D, RS-232) or 2 = TX–, 3 = RX–, 5 = GND, 7 = RX+, 8 = TX+ (9-pin D, RS-422) tip = TX, ring = RX, sleeve = GND (mini stereo jack)
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, ICMP (ping), TCP/IP, Telnet, HTTP
Program control	Extron's control program for Windows® Extron's Simple Instruction Set™ – SIS™ Microsoft Internet Explorer, Netscape Navigator, Telnet

GENERAL

Power	100VAC to 240VAC, 50/60 Hz, 30 watts, internal, auto-switchable
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions	5.25" H x 17.5" W x 11.2" D (3U high, full rack wide) 13.3 cm H x 44.5 cm W x 28.4 cm D
Product weight	14lbs (6kg)
Shipping weight	21lbs (10kg)

Model	Version Description	Part number
ISM 824	Modular Integration Scaling MultiSwitcher	60-787-01

Specifications are subject to change without notice.

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