Galileo GALAXY 408 Network Platform

The Galileo® GALAXY™ 408 Network Platform is an audio processing and loudspeaker management tool that offers comprehensive control of Meyer Sound loudspeaker systems. Leveraging open-source AVB technology along with powerful audio processing, GALAXY processors provide complete system management in one platform, making it an ideal choice for a full range of applications from touring to installs.

The GALAXY 408 processor is Milan certified, providing plug-and-play network interoperability with other Milan-certified devices via AAF and CRF AVB streams. Milan certification guarantees all Milan audio over the AVB network will arrive on-time with a fixed latency. Milan AVB reserves network bandwidth which cannot be preempted by other network traffic. Milan-certified GALAXY processors support the specified network redundancy—guaranteeing interoperability with other Milan devices.

Users can control the GALAXY 408 processor using Compass Control Software (hosted on a Mac or PC), via the Compass Go iPad app, or via Spacemap® Go, Meyer Sound's spatial sound design and mixing tool.

Compass Control Software provides a complete toolkit for audio routing, system optimization, processing, and monitoring. Its Product Integration feature ensures the phase characteristics of different loudspeaker models are matched when they are combined in the same system, providing the most coherent summation possible.

Spacemap Go leverages the audio processing capability of the Meyer Sound Galileo® GALAXY Network Platform to help sound artists create immersive audio experiences using an intuitive iPad touchscreen interface.

.The GALAXY 408 processor features a 96 kHz audio processing sample rate, and the A/D and D/A converters are 24 bits/96 kHz. Processing tools for inputs include gain, delay, 5-band parametric EQ, and 5-band U-Shaping EQ. Output processing tools include gain, delay, polarity reversal, 10-band parametric EQ, 5-band U-Shaping EQ, Low-Mid Beam Control (LMBC), atmospheric correction, and simultaneous high- and low-pass filters.

Built-in summing and delay matrices allow users to easily assign gain and delay values at each routing cross point, enabling any single loudspeaker to serve as an output for multiple, independently processed input signals.

The rear panel includes one SIM bus port for direct connection to Meyer Sound's SIM audio analyzer, allowing the GALAXY 408 processor to function as a line switcher for the analyzer. With this capability, users can take measurements from any selection of GALAXY 408 processor inputs and outputs without patching beyond a single connection to SIM.

The GALAXY 408 has the following I/O:

- Inputs A-D can receive analog, AES3, or AVB signals
- Inputs E-H receive only AVB signals
- Outputs 1-8 can be analog or AVB signals
- Outputs 9-16 are only AVB signals

The GALAXY 816 processor has the same audio processing capability in a 2RU chassis with different physical I/O. See its data sheet for comparison (meyersound.com/documents).

FEATURES AND BENEFITS

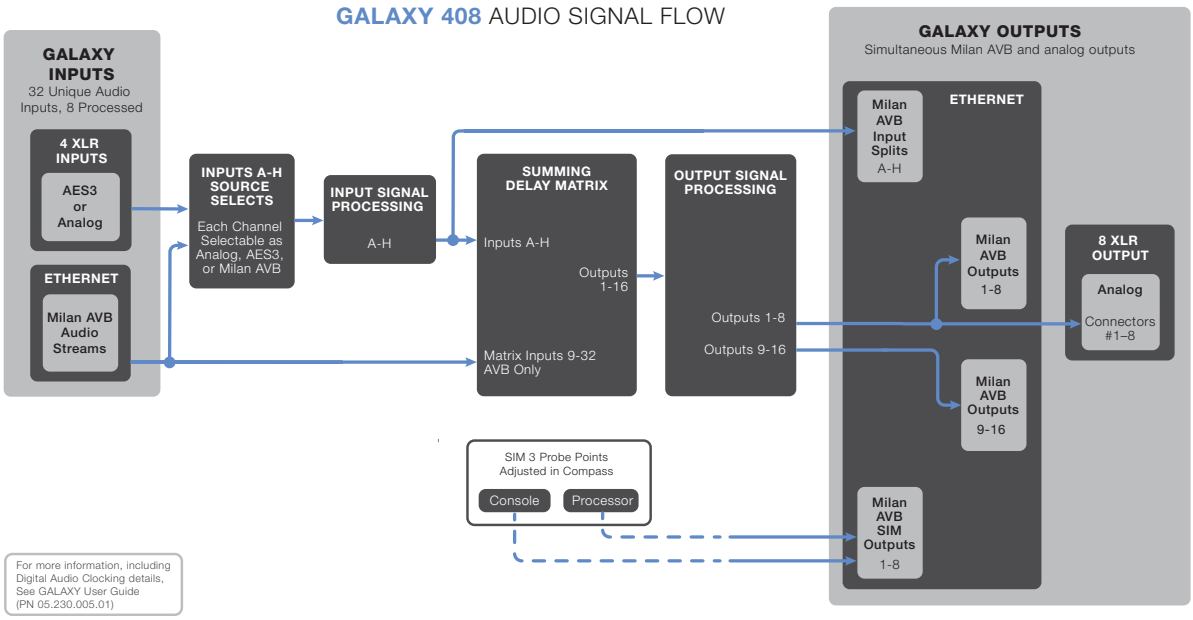
- Complete system control, optimization, and monitoring with Compass Control Software for Mac and Windows-based computers
- Mobile system control, optimization, and monitoring with the Compass Go application for iPad
- Spatial sound design and mixing with the Spacemap Go application for iPad
- 5-band U-shaping on inputs and outputs
- 5-band parametric EQ on inputs and 10-band parametric EQ on outputs
- High/low pass filters with slopes up to 48 dB per octave
- Fixed low latency system
- Optional asynchronous sample rate converters for AES3 inputs
- Cross point delay and summing matrix
- Low-Mid Beam Control
- Atmospheric correction filters
- Interoperability with other Milan-certified third party hardware, which includes:
    - Support for redundant AVB networks, allowing for fail-over without audio interruption
    - Communication of AVB timing data and audio signals via AAF packets (AVTP Audio Format)
    - Communication of AVB clock signals via CRF packets (Clock Reference Format)
    - Ability to synchronize multiple AVB signals across multiple GALAXY processors
- Selectable input and output voltage scaling make it compatible with most consoles
- Integrates with the SIM Audio Analyzer System
- User-selectable AVB output points for routing measurement signals to other calibration tools
- Access protection policies can restrict the GALAXY processor settings accessible to each operator
- Easily integrates with third-party controllers, such as AMX and Crestron

SPECIFICATIONS

INPUTS	
Input Connectors	4 gold-plated XLR-F, 2 RJ-45 network ports
Audio Input	4 processed inputs selectable as analog, AES3 or AVB, 4 processed AVB only inputs, plus 24 AVB unprocessed matrix inputs
AVB Audio Sinks	8, each capable of receiving an AVB Audio Stream Input
AVB Audio Stream Input Format	AAF PCM-INT-32, 96 kHz or 48 kHz, 1 to 8 channels per stream
AVB Clock Sink	1, capable of receiving an AVB Clock Stream Input
AVB Clock Stream Format	48 kHz CRF stream (interval equals 96, or 2 msec) and 1 timestamp per protocol data unit, single channel stream
Selectable Maximum Input Level	+16 dBu or +26 dBu BAL (input impedance 10 kΩ BAL)
Front Panel Metering	4-segment LED ladder meters on each input
Input Processing	Gain, 500 ms delay range at each input (non-fading), 5-band parametric EQ, 5-band U-Shaping EQ
OUTPUTS	
Output Connectors	8 gold-plated XLR-M, 2 RJ-45 network ports
Analog Audio Outputs	Processed outputs 1–8 on connectors 1–8, (9-16 AVB outputs only)
AVB Audio Sources	6, each capable of transmitting an 8-channel AVB Output Stream
AVB Stream Audio Output Format	Six AAF streams of 8 channels each: 4 streams at 96 kHz PCM-INT-32 (Outputs 1-8, 9-16, SIM, and Input Splits A-H) 2 streams at 48 kHz PCM-INT-32 (Duplicate Outputs 1-8 and 9-16)
AVB Clock Stream Format	48 kHz CRF stream (interval equals 96, or 2 msec) and 1 timestamp per protocol data unit, single channel stream
Maximum Output Level	+16 dBu or +26 dBu (selectable) 2 kΩ BAL (5 looped self-powered loudspeakers)
Output Impedance	50 Ω BAL (25 Ω per leg)
Recommended Minimum Load	10 looped self-powered loudspeakers (net load = 1 kΩ BAL)
Absolute Minimum Load	600 Ω
Front Panel Metering	LED lights: green to indicate signal presence; red for clipping on each output
Output Processing	Gain, 2000 ms delay range, polarity reversal, 10-band parametric EQ, 5-band U-Shaping EQ, Product Integration, Low-Mid Beam Control, atmospheric correction, simultaneous low- and high-pass filters with slopes up to 48 dB per octave.
MATRIX	
Summing Matrix	Sparse 32 x 16 Summing Matrix (up to 232 of 512 cross points can be set simultaneously)
Delay Matrix	Sparse 32 x 16 Delay Matrix; 500 ms delay range at each cross point (non-fading)
PROCESSING	
Digital Conversion	24-bit resolution, 96 kHz sample rate
Internal Processing	24-bit resolution, 96 kHz
Processor	FPGA-based audio processing
NETWORK CONNECTORS	
Network Control	Two RJ-45 ports for single or redundant networks
SIM	One SIM 3 bus port to link the GALAXY 408 processor to the SIM audio analyzer
AC POWER	
Connector	PowerCON 20
Operating Voltage Range	100–240 VAC, 50–60 Hz
CURRENT DRAW	
Idle Current	115 VAC: 0.229 A rms; 230 VAC: 0.162 A rms; 100 VAC: 0.256 A rms
Maximum Long -Term Continuous Current (>10 sec)	115 VAC: 0.306 A rms; 230 VAC: 0.195 A rms; 100 VAC: 0.343 A rms
Inrush Current	<20 A peak

SPECIFICATIONS, CONT'D.

PHYSICAL	
Dimensions	1 RU: W 19.00 in (483 mm) x H 1.74 in (44 mm) x D 16.14 in (410 mm)
Weight	13.2 lb (6.0 kg)
ENVIRONMENTAL	
Operating Temperature Range	0° C to +45° C
Non Operating Temperature Range	–40° C to +75° C
Humidity	to 95% at 35° C non-condensing
Operating Altitude	to 2000 m (6560 ft)



ARCHITECTURAL SPECIFICATIONS

The network processor shall include 96 kHz audio processing and utilize variable length integers with up to 64 bits of resolution for up to 4 processed inputs (selectable as analog, AES3 or AVB), 4 processed AVB only inputs and 24 AVB unprocessed matrix inputs, and 8 analog or 16 AVB output channels. Input channels shall include dedicated processing for mute, gain, delay, U-Shaping, and 5-band parametric equalization; output channels shall include mute, gain, delay, polarity reversal, 10-band parametric EQ, 5-band U-Shaping EQ, Product Integration, Low-Mid Beam Control, atmospheric correction, and simultaneous low- and high-pass filters.

Analog and AES3 input connectors and analog output connectors shall be balanced, gold-plated XLR connectors. The system's sophisticated digital matrix processor shall allow routing and gain adjustment from any input, or combination of mixed inputs, to any combination of outputs with cross point delays and a fixed latency for GALAXY (AD/DA) regardless of the processing applied to the signals.

The front panel shall include a two-line LCD display for device, current snapshot, and firmware information, as well as LED indicators for audio signal metering, AVB Sync, Audio Clock, Power, Controller, and SIM connections. The front panel shall also include illuminated mute switches and signal/clip indicators for output channels.

Password protection shall be available to avoid unwanted parameter changes. The unit shall be controlled remotely from a Mac or Windows-based computer via Ethernet or wirelessly from an iPad if the GALAXY processor is connected to a wireless access point; the client server control software shall have bidirectional communication to ensure that parameters are in sync.

The loudspeaker management system shall include direct connectivity to Meyer Sound's SIM audio analyzer so that measurements can be taken directly from the unit.

The unit shall be housed in a one-space, 19-inch rack-mount chassis, measuring 16.14 in (410 mm) in depth, and weighing 13.2 lb (6.0 kg). Its AC inlet shall be a powerCON 20 locking connector to prevent unwanted power disconnections. Its two network inlets shall be EtherCON RJ45 connectors. The network processor shall be Milan certified.

The network processor shall be the Meyer Sound Galileo GALAXY 408 and its software shall be Compass Control Software, the Compass Go iPad app and the Spacemap Go iPad app.

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GALAXY-408
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3K59 OR 3JKB COMMERCIAL AUDIO SYSTEM
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