KUPNÍ SMLOUVA

uzavřená podle § 2079 a násl. zákona č. 89/2012 Sb., občanský zákoník,
ve znění pozdějších předpisů

Smluvní strany:

OteSound, s.r.o.
Sídlo: Klatovská 424/22, 602 00 Brno
Zastoupená: MUDr. Filip Otevřel, Ph.D., jednatel
IČ: 27661164
DIČ: CZ27661164
Zapsaná v OR u KS Brno, spis. značka C 49802
Bankovní spojení: Raiffeisenbank a. s,
Číslo účtu: [redacted]
(jako „**prodávající**")

a

Městské divadlo Brno, příspěvková organizace
Sídlo:Lidická 1863/16, 602 00 Brno
Zastoupená: Stanislav Moša, ředitel
IČ: 00101397
DIČ: CZ 00101397
Zápis v OR: Krajský soud v Brně, spis. značka Pr 35
Bankovní spojení: Komerční banka, a.s.
Číslo účtu: [redacted]
(jako „**kupující**")

1. Úvodní ustanovení

Smlouva se uzavírá na základě výsledků průzkumu trhu na veřejnou zakázku malého rozsahu „Dodávka odposlechových reproduktorů.", který kupující provedl ve smyslu ust. § 27 zákona č. 134/2016 Sb., o zadávání veřejných zakázek, a v souladu s nabídkou prodávajícího.

2. Předmět smlouvy

2.1. Předmětem této kupní smlouvy (dále jen „smlouva") je závazek prodávajícího dodat kupujícímu **zvukový systém** sestávající z následujících komponent:

- reproduktorová soustava – 5 kusů reproduktorů Meyer Sound JM-1P,
- 1 x distribuční procesor Meyer Sound Galileo 616,
- potřebná kabeláž a příslušný rigging

(dále též jako „**zboží**") a umožnit kupujícímu nabytí vlastnického práva ke zboží a dále závazek kupujícího řádně dodané zboží převzít a zaplatit za něj prodávajícímu sjednanou kupní cenu.
Součástí dodávky je doprava do místa plnění a montáž zvukového systému na místě určení a jeho zprovoznění.

2.2. Specifikace vlastností zvukového systému – viz Příloha č. 1 této smlouvy: Nabídka prodávajícího.

3.3. Prodávající prohlašuje, že zboží bylo vyrobeno dle příslušných norem platných v EU.

3. Doba, místo a způsob dodání

3.1. Prodávající se zavazuje dodat kupujícímu zboží nejpozději do 5 pracovních dnů od podepsání této smlouvy.

3.2. Místem dodání zboží je sídlo kupujícího, konkrétně **hudební scéna Městského divadla Brno**.

3.3. Zboží bude předáno bez vad, kompletní, včetně všech dokladů vztahujících se ke zboží - zejména dodací list, průvodní dokumentace od výrobce zboží, uživatelská příručka/návod na použití v českém jazyce, prohlášení o shodě nebo jiný dokument podle zákona č. 22/1997 Sb., o technických požadavcích na výrobky a o změně a doplnění některých zákonů, v platném znění. Dodání zboží v souladu s touto smlouvou a jeho převzetí kupujícím bude potvrzeno podpisem kupujícího na dodacím listu. Dodací list bude obsahovat výrobní čísla zařízení. Okamžikem podpisu dodacího listu kupujícím přechází nebezpečí škody na zboží a vlastnické právo ke zboží na kupujícího.

3.4. Kontaktní osobou určenou kupujícím pro převzetí předmětu plnění a provedení kontroly z hlediska úplnosti a požadované kvality je paní **Gabriela Bayerová, vedoucí zvukařů,** [redacted], která podepíše dodací list a předávací protokol o převzetí nainstalovaného a zprovozněného zvukového systému.

4. Kupní cena a platební podmínky

4.1. Kupní cena předmětu smlouvy činí: **897 000,- Kč DPH** (slovy: osm-set-devadesát-sedm-tisíc Kč)

DPH 21%.....188 370,- Kč

Kupní cena vč. DPH 21%……**1 085 370,- Kč**

4.2. Kupní cena zboží je konečná, maximální, nejvýše přípustná a zahrnuje rovněž dopravu zboží do místa plnění, balné, pojištění, případné celní a daňové poplatky, montáž a zprovoznění zařízení na místě určení.

4.3. Úhrada kupní ceny bude kupujícím provedena bezhotovostním převodem ve dvou splátkách takto:

a) **První splátka ve výši 630 000,- Kč vč. DPH** bude uhrazena na základě faktury (daňového dokladu) vystavené po dodání zboží se splatností do 31. 12. 2017.

b) **Druhá splátka ve výši 455 370,- Kč vč. DPH** bude uhrazena na základě faktury (daňového dokladu) vystavené v prvním lednovém týdnu se splatností 31. 1. 2018.

4.4. Faktury musí obsahovat veškeré náležitosti řádného daňového a účetního dokladu.

5. Odpovědnost za vady, záruka, servis

5.1. Na dodané zboží poskytuje prodávající záruku za bezvadnou funkčnost v délce **24 měsíců**. Záruční doba běží od okamžiku převzetí dodaného, nainstalovaného a zprovozněného zvukového systému.

5.2. Záruka se nevztahuje na případy, kdy je vada zboží způsobena nesprávnou obsluhou (např. nadlimitní voltáž vstupního signálu), neodbornou manipulací, zásahem vyšší moci (např. přepětí a nadproudy v elektrické distribuční síti, apod.) nebo jiné činnosti v rozporu s návodem k obsluze jednotlivých zařízení. V těchto případech je rozhodující vyjádření servisu výrobce.

5.3. V záruční době se prodávající zavazuje k **servisní reakci nejpozději do 5 hodin** od oznámení vad kupujícím (písemně, emailem, telefonicky), nedohodnou-li se smluvní strany jinak, a **uvést zvukový systém do provozu** nejpozději **do 2 týdnů**. Jestliže se prodávajícímu nepodaří uvést zvukový systém do provozu ve výše zmíněné lhůtě, zavazuje se prodávající v záruční době zapůjčit kupujícímu do bezplatného užívání náhradní zboží srovnatelných parametrů, a to po celou dobu nutné opravy.

5.4. V případě, že se jedná o uznanou záruční opravu, cestovní náklady, náklady na materiál a veškeré jiné náklady, které prodávajícímu vzniknou v souvislosti s odstraňováním vad zboží, hradí v plné výši prodávající.

5.5. Prodávající se zavazuje na základě objednávky kupujícího provádět po dobu pěti (5) let za úhradu mimozáruční a pozáruční servis. Tento servis bude poskytován za cenu obvykle prodávajícím účtovanou, sjednanou v samostatné dohodě o provádění pozáručního servisu, pokud ji strany uzavřou, nebo na základě objednávky v každém konkrétním případě. Práce servisního technika, cestovné a čas strávený na cestě bude vždy součástí celkové sjednané ceny za provedení servisu. Splatnost faktury vystavené prodávajícím za pozáruční servis na základě tohoto odstavce je po provedení servisu, a to 30 dnů od jejího doručení kupujícímu.

5.6. **Kontaktní osoba prodávajícího k provádění servisu**:
Jméno a příjmení: David Kurc
tel: [redacted]
email: [redacted]

6. Závěrečná ustanovení

6.1. Pokud některé z ustanovení této smlouvy je nebo se stane neplatným či neúčinným, nemá tato skutečnost vliv na platnost a účinnost ostatních ustanovení této smlouvy. Smluvní strany se zavazují takové ustanovení bez zbytečného odkladu nahradit novým platným a účinným ustanovením, které svým obsahem bude odpovídat účelu ustanovení předchozího.

6.2. Jakékoli změny a doplňky této smlouvy jsou možné pouze ve formě písemných číslovaných dodatků, podepsaných oprávněnými zástupci obou smluvních stran.

6.3. Tato smlouva nabývá platnosti a účinnosti dnem jejího podpisu.

6.4. Tato smlouva je vypracována ve dvou vyhotoveních, z nichž každá smluvní strana obdrží po jednom.

6.5. Kupující tuto smlouvu zveřejní v registru smluv podle zákona č. 340/2015 Sb., o zvláštních podmínkách účinnosti některých smluv, uveřejňování těchto smluv a o registraci smluv (zákon o registru smluv). Kupující je povinným subjektem podle tohoto zákona.

6.6. Smluvní strany si smlouvu přečetly, jejímu obsahu rozumí a na důkaz toho připojují vlastnoruční podpisy svých oprávněných zástupců.

Příloha: Nabídka prodávajícího

V Brně dne:
Za prodávajícího:

V Brně dne
Za kupujícího:

…….
MUDr. Filip Otevřel, Ph.D., jednatel

……
Stanislav Moša, ředitel

Zákazník: **Městské divadlo Brno**
Název projektu: **Dodávka odposlechových reproduktorů**
Vypracováno: V Brně dne **12.11.2017**.
Platnost: Nabídka je platná 30dní od data vypracování.

Technika
Popis **Cena**

Zvukový systém

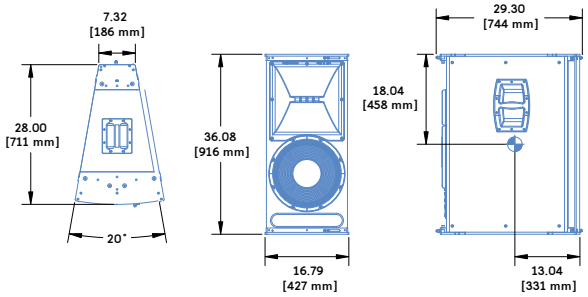
- 5x reproduktorová soustava Meyer Sound JM-1P
  - specifikace viz JM-1P datasheet níže
- 1x řídící distribuční procesor Meyer Sound Galileo 616
  - specifikace viz Galileo 616 datasheet níže
- potřebná kabeláž
  - hybridní instalační
- příslušný Meyer Sound rigging

CELKEM bez DPH: 897.000,- Kč
DPH 21% 188.370,- Kč
CELKEM včetně DPH: **1.085.370,- Kč**

	Ks	Cena/ks	Celkem
Zvuková technika	Ks	Cena/ks	Celkem
Loudspeakers			
Meyer Sound JM-1P	5	156 000 Kč	780 000 Kč
Processing/optimization			
Meyer Sound Galileo 616	1	117 000 Kč	117 000 Kč
Cabling			
Hybrid instalation	1	gratis	0
Rigging			
JM-1P rigging	1	gratis	0
Celkem ZVUK bez DPH			897 000 **Kč**

Specifikace techniky viz následující strany nabídky.

JM-1P : Arrayable Loudspeaker



Dimensions	16.79" w x 36.08" h x 29.30" d (427 mm x 916 mm x 744 mm)
Weight	147 lbs (66.68 kg)
Enclosure	Multi-ply hardwood
Finish	Black textured
Protective Grille	Hex-stamped steel with black mesh screen
Rigging	Aluminum end plates with side links for arraying units; threaded metric M10 points for rigging accessories; optional pickup plate and vertical grid for suspending arrays with uptilt or downtilt

The JM-1P self-powered loudspeaker is a high-Q, arrayable loudspeaker suited for a wide range of applications. Utilizing Meyer Sound's patented REM™ technology and trapezoidal cabinet design, the JM-1P can be deployed in tightly-packed array clusters to deliver coverage that is proportional to the number of units in the array. While JM-1P point source arrays are optimized for horizontal installations, they can also be used vertically when necessary. With its scalable coverage and versatile QuickFly® rigging options, the JM-1P loudspeaker can be used for touring, rental, and fixed installations.

Boasting a wide operating frequency range of 53 Hz to 18 kHz, the JM-1P delivers a remarkably smooth sound with ample low-frequency headroom. Designed and manufactured at Meyer Sound headquarters in Berkeley, California, the JM-1P's drivers include one low-frequency 15-inch long excursion cone driver, and one high-frequency 4-inch compression driver with an REM manifold coupled to an extremely accurate horn. The JM-1P is distinguished by its constant-Q horn that provides a 20-degree horizontal by 60-degree vertical coverage. The unit's consistent polar response and trapezoidal enclosure allow for tightly packed arrays with minimal overlap in high frequencies.

The JM-1P's sophisticated onboard amplification and processing produces consistent and predictable results in any system design. A proprietary two-channel, class AB/H power amplifier with complementary MOSFET output stages yields a total power output of 1275 W (2550 W peak). Built-in signal processing includes an electronic crossover, driver protection, and correction filters for achieving flat phase and frequency responses. Each amplifier channel has peak and rms limiters that prevent driver overexcursion and regulate voice coil temperatures. Limiting activity is easily monitored with the rear panel limit LEDs.

The optional RMS™ remote monitoring system provides comprehensive monitoring of system parameters on a Windows®-based computer.

The JM-1P's end plates include captive GuideALinks™ and quick-release pins that allow the unit to be easily linked to other JM-1Ps in arrays. The optional MPA-JM1 pickup plate suspends JM-1P horizontal arrays of up to four units with uptilt or downtilt from a single hanging point; two pickup plates can suspend arrays of up to six units from a single hanging point or motor using the MTGSB-4B spreader bar. For additional flexibility, the optional MTG-JM1 vertical grid suspends vertical arrays of up to six units.

Constructed of premium birch plywood, the durable JM-1P enclosure is coated with a black-textured, hard-shell finish. A hex-stamped, steel grille with acoustical black mesh protects the unit's drivers. Other options include weather protection and custom color finishes for fixed installations and applications with specific cosmetic requirements. The optional MDB-JM1 dolly board transports the JM-1P safely and securely; multiple dolly boards can be interlocked to transport up to three linked JM-1Ps.

JM-1P horizontal array (six units) with two MPA-JM1 pickup plates suspended from a single point using the MTGSB-4B spreader bar

Features & Benefits

- Tightly controlled coverage yields scalable coverage proportional to the number of arrayed units
- Exceptional size to power ratio
- QuickFly rigging offers the flexibility of both horizontal and vertical arrays
- Consistent and predictable array performance ensures accurate system design

Applications

- Theatrical sound reinforcement
- Houses of worship
- Portable and installed AV systems
- Centerfill and sidefill in large-scale systems
- Theme parks, stadiums, concert halls, and nightclubs

JM-1P Specifications

Acoustical	
Operating Frequency Range[1]	53 Hz – 18 kHz
Frequency Response[2]	56 Hz – 16.5 kHz ±4 dB
Phase Response	580 Hz – 16 kHz ±45˚
Maximum Peak SPL[3]	138 dB
Dynamic Range	›110 dB
Coverage	
	20˚ horizontal x 60˚ vertical
Crossover[4]	
	520 Hz
Transducers	
Low Frequency	High-power 15" cone driver with neodymium magnet Nominal impedance: 2 Ω Voice coil size: 4" Power handling capability: 1200 W (AES)[5]
High Frequency	4" compression driver Nominal impedance: 8 Ω Voice coil size: 4" Diaphragm size: 4" Exit size: 1.5" Power handling capability: 250 W (AES)[5]
Audio Input	
Type	Differential, electronically balanced
Maximum Common Mode Range	±15 V DC, clamped to earth for voltage transient protection
Connectors	Female XLR input with male XLR loop output or VEAM all-in-one connector (integrates AC, audio, and network)
Input Impedance	10 kΩ differential between pins 2 and 3
Wiring	Pin 1: Chassis/earth through 220 kΩ, 1000 pF, 15 V clamp network to provide virtual ground lift at audio frequencies Pin 2: Signal + Pin 3: Signal – Case: Earth ground and chassis
DC Blocking	Differential DC blocking up to the maximum common mode voltage
CMRR	›50 dB, typically 80 dB (50 Hz – 500 Hz)
RF Filter	Common mode: 425 kHz; Differential mode: 142 kHz
TIM Filter	Integral to signal processing (‹80 kHz)
Nominal Input Sensitivity	0 dBV (1.0 V rms, 1.4 V peak) continuous is typically the onset of limiting for noise and music
Input Level	Audio source must be capable of producing +20 dBV (10 V rms, 14 V peak) into 600 Ω in order to produce maximum peak SPL over the operating bandwidth of the loudspeaker
Amplifier	
Type	Two-channel complementary MOSFET output stages (class AB/H)
Output Power[6]	1275 W (1 x 1000 W, 1 x 275 W)
Total Output[7]	2550 W peak
THD, IM, TIM	‹.02%
Load	2 Ω low channel; 8 Ω high channel
Cooling[8]	QuietCool™ with convection cooling at low to mid audio levels; fan-assisted only at high audio levels
AC Power	
Connector	PowerCon® with loop output or VEAM
Voltage Selection	Automatic, two ranges, each with high-low voltage tap (uninterrupted)
Safety Agency Rated Operating Range	95–125 V AC; 208–235 V AC, 50/60 Hz
Turn-on and Turn-off Points	85–134 V AC; 165–264 V AC
Current Draw: Idle Current	0.50 A rms (115 V AC); 0.28 A rms (230 V AC); 0.56 A rms (100 V AC)
Maximum Long-Term Continuous Current (›10 sec)	4.55 A rms (115 V AC); 2.50 A rms (230 V AC); 5.25 A rms (100 V AC)
Burst Current (‹1 sec)[9]	8.0 A rms (115 V AC); 4.1 A rms (230 V AC); 9.2 A rms (100 V AC)
Ultimate Short-Term Peak Current Draw	20.8 A peak (115 V AC); 13.0 A peak (230 V AC); 21.6 A peak (100 V AC)
Inrush Current	7.1 A peak (115 V AC); 8.4 A peak (230 V AC); 7.1 A peak (100 V AC)
RMS Network (optional)	
	Equipped with two-conductor twisted-pair network, reporting all operating parameters of amplifiers to system operator's host computer

Notes:

1. *Recommended maximum operating frequency range. Response depends on loading conditions and room acoustics.*
2. *Free field measured with 1/3-octave frequency resolution at 4 meters.*
3. *Measured with music, free field, referred to 1 meter.*
4. *At this frequency, the transducers produce equal sound pressure levels.*
5. *Power handling is measured under AES standard conditions: transducers driven continuously for two hours with a band limited noise signal having a 6 dB peak-average ratio.*
6. *Amplifier wattage rating based on the maximum unclipped burst sine-wave rms voltage the amplifier will produce for at least 0.5 seconds into the nominal load impedance.*
7. *Peak power based on the maximum unclipped peak voltage the amplifier will produce for at least 100 milliseconds into the nominal load impedance.*
8. *Fan controlled by audio level, remaining off at turn-on and at low to mid audio levels and operating only at high audio levels, making it virtually inaudible.*
9. *AC power cabling must be of sufficient gauge so that under burst current rms conditions, cable transmission losses do not cause the voltage to drop below the specified operating range at the loudspeaker.*

CE N775
www.meyersound.com
Made in USA with domestic and foreign parts

TÜV Rheinland of North America, Inc. C US

JM-1P — 04.202.004.02 A

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Architect Specifications

The loudspeaker shall be a self-powered, full-range system; the transducers shall consist of a 15-inch diameter cone driver and a 4-inch diaphragm compression driver on a 20-degree horizontal by 60-degree vertical horn. The loudspeaker system shall incorporate internal processing electronics and a two-channel amplifier, one channel for each driver. Processing functions shall include equalization, phase correction, signal division, and protection for the high- and low-frequency sections. The crossover point shall be 520 Hz.

Each amplifier channel shall be class AB/H with complementary MOSFET output stages. Burst capability for the low-frequency channel shall be 1000 watts total with nominal 2-ohm resistive load and 275 watts for the high-frequency channel with nominal 8-ohm resistive load. Peak power shall be 2550 watts. Distortion (THD, IM, TIM) shall not exceed 0.02%.

Performance specifications for a typical production unit shall be as follows, measured at 1/3-octave resolution: operating frequency range shall be 53 Hz to 18 kHz; phase response shall be ±45˚ from 580 Hz to 16 kHz; maximum peak SPL shall be 138 dB at 1 meter, free field.

The audio input shall be electronically balanced with a 10 kOhm impedance and accept a nominal 0 dBV (1.0 V rms, 1.4 V peak) signal. Connector shall be XLR (A-3) type female with parallel looping male or VEAM all-in-one multipin connector. RF filtering shall be provided, and CMRR shall be greater than 80 dB from 50 Hz to 500 Hz.

The internal power supply shall perform automatic voltage selection, EMI filtering, soft current turn-on, and surge suppression. Power requirements shall be nominal 100, 110, or 230 V AC line at 50 or 60 Hz. UL and CE operating voltage range shall be 100 to 240 V AC. Maximum peak current draw during burst shall be 8.0 A at 115 V AC, 4.1 A at 230 V AC, and 9.2 A at 100 V AC. Current inrush during soft turn-on shall not exceed 7.1 A at 115 V AC, 8.4 A at 230 V AC, and 7.1 A at 100 V AC. AC power connectors shall be either a PowerCon with loop output or VEAM all-in-one multipin connector.

The loudspeaker system shall provide facilities for installing Meyer Sound's optional RMS remote monitoring system.

All components shall be mounted in an acoustically vented trapezoidal enclosure constructed of multi-ply hardwood with a black textured, hard-shell finish. The enclosure shall include end plates with GuideALinks for linking units in horizontal and vertical arrays; threaded metric M10 points accommodate Meyer Sound proprietary rigging hardware. The front protective grille shall be powder-coated, hex-stamped steel with black mesh screen.

Dimensions shall be 16.79" wide x 36.08" high x 29.30" deep (427 mm x 916 mm x 744 mm). Weight shall be 147 lbs (66.68 kg).

The loudspeaker shall be the Meyer Sound JM-1P.

Galileo® 616 : Loudspeaker Management System

thinking sound Meyer Sound®

The Galileo loudspeaker management system is an elegant hardware and software solution for driving and aligning multi-zone loudspeaker systems. The 2-space, rack-mount Galileo 616 includes six inputs, 16 outputs, and a fully digital matrix processor. The Compass® control software provides comprehensive control of all parameters from a Mac® or Windows®-based computer. The Galileo 616 is also fully programmable from its front panel for maximum flexibility.

Designed as the perfect complement to Meyer Sound's self-powered loudspeakers, the Galileo loudspeaker management system includes array correction for M Series™ array loudspeakers, atmospheric correction filters, low- and high-pass filters for subwoofer control, and configuration presets for Meyer Sound loudspeaker systems of various types and sizes.

The Galileo 616 offers an extensive equalization architecture that includes complementary phase parametric filtering and TruShaping® low-order equalization on both inputs and outputs. 31-band graphic equalization is also available on inputs.

Equalization parameters are easily edited in the Compass control software, with numeric entry or by graphically dragging frequency bands. Parameters can be adjusted while viewing multiple layers of equalization in a composite graphic plot to achieve the ideal equalization curve. The Compass software's intuitive user interface is the culmination of Meyer Sound's extensive experience optimizing complex loudspeaker systems.

The Galileo 616 features full digital operation with fixed latency across all output channels regardless of any applied processing. It can also be connected directly to the SIM® 3 audio analyzer, providing complete measurement and control for integrated audio systems.

Features & Benefits

- Six inputs (analog, AES/EBU, or mixed) and 16 analog outputs with full matrix mixing and routing for driving systems of any size
- Robust +26 dBu outputs easily drive Meyer Sound self-powered loudspeaker systems over long cable runs
- A/D/A conversion with 24-bit resolution at 96 kHz; digital inputs converted to 96 kHz sample rate
- Monolithic 1 GHz vector DSP architecture
- Internal processing performed at 96 kHz, 32-bit floating point resolution with fixed latency across all output channels
- Array correction for M Series line array loudspeakers
- Atmospheric correction filters
- Patented TruShaping equalization and parametric filtering yield corrections with minimal impact on phase response
- Low- and high-pass filters
- Up to 2 seconds of delay on inputs and outputs
- Configuration presets for Meyer Sound loudspeaker systems
- Ethernet connection for remote control from Mac and Windows-based computers running the Compass control software
- Front-panel operation for standalone control
- Full bidirectional communication with computer ensures parameter settings are always in sync
- Direct connection to Meyer Sound's SIM 3 audio analyzer

GALILEO 616 HARDWARE

The Galileo 616 features six analog inputs with balanced XLR connectors and state-of-the-art A/D converters operating at 24-bit resolution with a 96 kHz sample rate. The inputs can be individually switched to operate as stereo AES/EBU digital inputs, accepting sample rates up to 96 kHz. Because internal processing is performed at 96 kHz with 32-bit vector floating point, source signals with lower sample rates are upsampled using advanced hardware sample rate converters. The six input channels can be configured in pairs to receive a combination of analog and digital sources.

The 16 analog outputs feature balanced XLR connectors with high-resolution 96 kHz, 24-bit D/A converters, and a robust maximum output level of +26 dBu, capable of driving Meyer Sound self-powered loudspeakers to full output, across all frequencies, over long cable runs.

Galileo 616 Front and Rear Panels

The Galileo 616 processor is built around a monolithic, 1 GHz vector DSP architecture with a direct DMA audio path to maximize processing power and guarantee fixed low-latency performance, no matter how much processing is applied. High-quality algorithms with 32-bit floating-point resolution and 96 kHz sample rates are used to deliver a large assortment of processing.

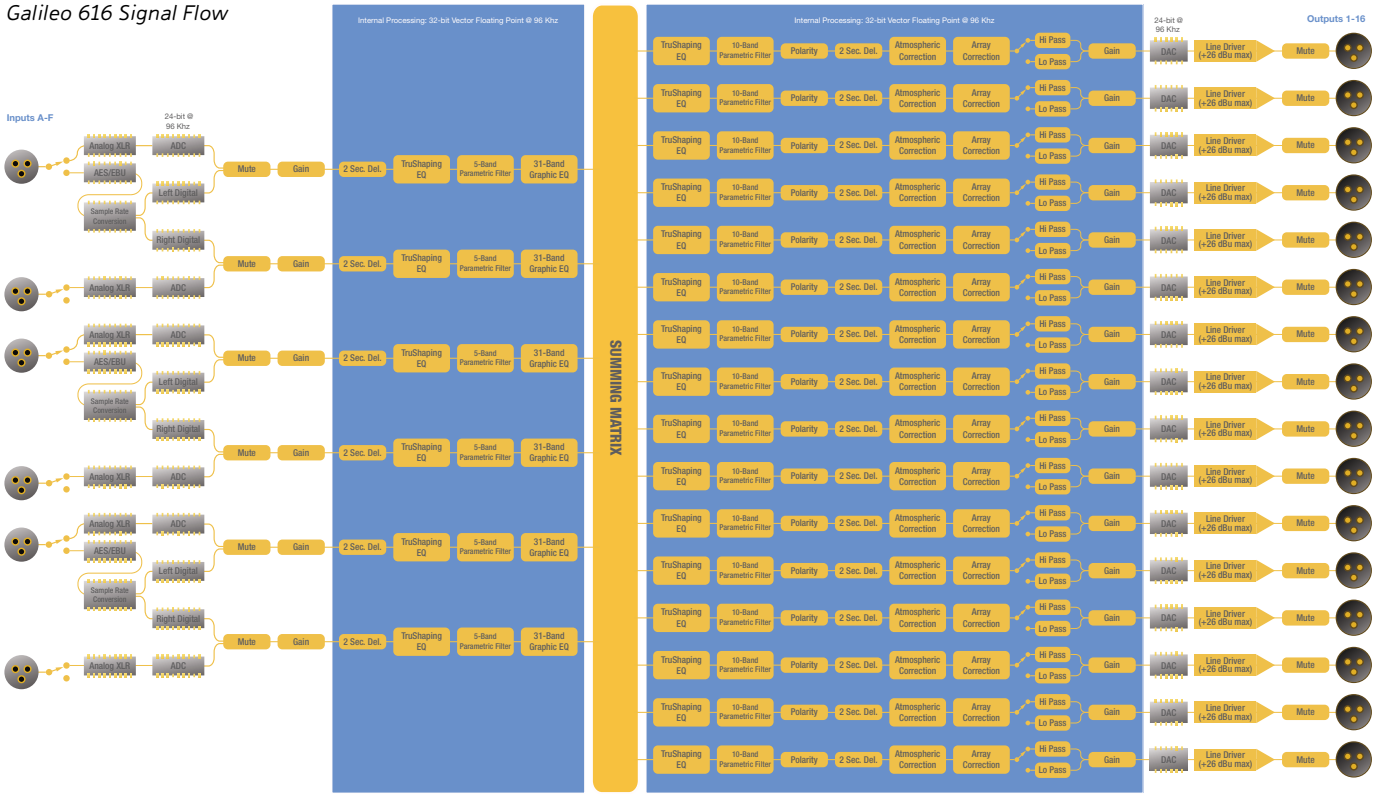
The rear panel includes two SIM bus ports for direct connection to Meyer Sound's SIM 3 audio analyzer, allowing the Galileo 616 to function as a line switcher for the analyzer so that measurements can be taken from any selection of Galileo inputs and outputs, without patching beyond a single connection to the analyzer.

Front panel controls allow the Galileo 616 to be operated intuitively and quickly during live use, without a computer. Input levels are displayed with 26-segment LED meters, while output levels are indicated with variable-intensity, bi-color clip LEDs. Inputs and outputs also include illuminated mute and select buttons.

Parameters are displayed on a 128 x 64 LCD and can be accessed and edited with the navigation buttons and high-resolution encoder knobs.

AC power is software-activated so that accidental button-pushes won't power down the Galileo 616. A locking powerCON® AC connector prevents unwanted power disconnections. Front panel locking and password protection are available to guard against errant parameter changes.

Galileo 616 Signal Flow



The Galileo 616 includes a powerful arsenal of DSP for tuning and aligning Meyer Sound loudspeaker systems. In addition to standard DSP components like delay (up to 2 seconds), gain, and polarity reversal, the Galileo 616 boasts an unprecedented architecture of equalization and filtering capable of addressing a range of acoustic anomalies and subjective tailoring of system responses, without introducing excessive shifts in phase that degrade intelligibility and signal clarity.

TruShaping equalization, available on both inputs and outputs, is comprised of four first-order interactive filters configured in a unique cascading topology that allows bands to overlap, resulting in slopes as low as 3 dB per octave, yielding extremely smooth response curves with minimal phase shifts.

Because Meyer Sound loudspeaker systems are optimized to produce flat frequency and phase responses out of the box, the TruShaping equalizer is a powerful tool for adding warmth, presence, and other subjective sonic qualities.

To address anomalies resulting from loudspeakers interactions, or loudspeaker interactions with acoustical environments, complementary phase parametric filtering is provided — 5 bands on inputs, 10 bands on outputs. As a second-order filter, the parametric filter is ideal for treating these types of interaction artifacts.

For even more flexibility, a 31-band graphic equalizer with a 20 Hz to 20 kHz frequency span is available on each input.

The array correction filter reduces low and low-mid frequency buildup common with line arrays and curvilinear arrays. Simply specify the M Series loudspeaker model, along with the number of cabinets employed in the array, and the Galileo 616 will use its stored table of compensation parameters to adjust for the array's output.

The atmospheric correction filter compensates for high frequencies absorbed when sound travels through the air over long distances. By entering just a few atmospheric settings — temperature, relative humidity, distance, and altitude — the system automatically calculates and applies the appropriate filtering to correct for the environmental conditions. The user-defined Atmospheric Gain Factor ensures that sufficient headroom is available for reinforcement systems that require maximum output.

Also included are low- and high-pass filters for subwoofer control.

DSP parameter settings are accessible from the Galileo 616's front panel, as well as from the Compass control software. Unique settings for multiple loudspeaker configurations can be stored as presets and recalled from the front panel or from the host computer.

$$f_{rO} = \frac{p_a}{p_r}\left(24 + \frac{(4.04 * 10^4 h)(0.02 + h)}{0.391 + h}\right) \quad (1)$$

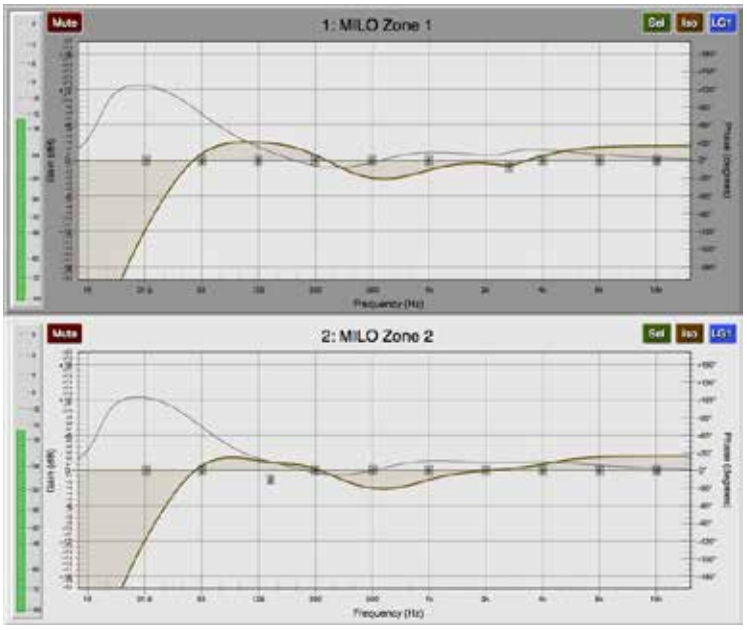
$$f_{rN} = \frac{p_a}{p_r}\left(\frac{T}{T_r T}\right)^{-\frac{1}{2}} * \left(9 + 280 h \exp\left[-4.170\left(\left(\frac{T}{T_r}\right)^{-\frac{1}{3}} - 1\right)\right]\right) \quad (2)$$

$$\text{Oxygen} = \left(0.01275\left[\exp\left(\frac{-2239.1}{T}\right)\right]\left[\frac{f_{rO}}{f_{rO}^2 + f^2}\right]\right) \quad (3)$$

$$\text{Nitrogen} = \left(0.1068\left[\exp\left(\frac{-3352.0}{T}\right)\right]\left[\frac{f_{rN}}{f_{rN}^2 + f^2}\right]\right) \quad (4)$$

$$\alpha(f) = 8.686 f^2 \left(\left[1.84 * 10^{-11}\left(\frac{p_a}{p_r}\right)^{-1}\left(\frac{T}{T_r}\right)^{\frac{1}{2}}\right] + \left(\frac{T}{T_r}\right)^{-\frac{5}{2}} [\text{Oxygen} + \text{Nitrogen}]\right) \quad (5)$$

Air Absorption Calculation (ANSI S1.26 – 1995)



Compass Control Software, EQ Plots

COMPASS CONTROL SOFTWARE

The Compass control software provides comprehensive control of the Galileo 616 from an intuitive graphical user interface. The software enables easy access to all features and even provides control of multiple units. Compass runs on a Mac or Windows-based computer.

The Galileo Map tab displays a summary overview of all Galileo channels complete with signal flow. Inputs and outputs can be labeled and conveniently grouped for gang edits.

The Input Processing and Output Processing tabs provide access to all DSP settings. Equalization parameters can be easily edited with numeric entry or by graphically dragging frequency bands. Multiple layers of equalization can be viewed for a composite graphic plot of equalization curves.

GALILEO 616 SPECIFICATIONS

INPUTS

Inputs Section	Six inputs, analog or digital (AES/EBU, selectable in pairs)
Connectors	Goldplated XLR female
Maximum Input Level	+26 dBu (maximum range selected, 0 dB input gain)
Metering	26-segment LED ladder meters on each input

OUTPUTS

Outputs Section	16 analog outputs
Connectors	Goldplated XLR male
Maximum Output Level	+26 dBu into 600 Ω or greater (maximum range selected)
Metering	Variable-intensity, bi-color signal presence/clip LEDs on each output

SUMMING

Full 6 x 16 summing matrix; any input summed with any input and routed to any output

PROCESSING

Digital Conversion	24-bit resolution, 96 kHz sample rate
Internal Processing	32-bit vector floating point, 96 kHz
Processor	Monolithic, 1 GHz vector DSP
Input Processing	Gain, delay, TruShaping equalization, 5-band parametric filtering, 31-band graphic equalization
Output Processing	Gain, delay, polarity reversal, TruShaping equalization, 10-band parametric filtering, atmospheric correction, M Series array correction, low- and high-pass filters

NETWORK/CONTROL

Front Panel	128 x 64 LCD, navigation buttons, high-resolution encoder knobs, and illuminated mute switches
Network	RJ-45 port for network connection and control from a Mac or Windows-based computer
Software	Full bidirectional communication with Meyer Sound's Compass control software within a client-server architecture
SIM	Two SIM bus ports for linking to the SIM 3 audio analyzer for measuring Galileo outputs (either post delay or post gain)

AC POWER

Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Current Draw	0.55 A rms (115 V AC); 0.27 A rms (230 V AC); 0.56 A rms (100 V AC)

PHYSICAL

Dimensions	2-space rack 19.00" w x 3.48" h x 15.30" d (483 mm x 88 mm x 388 mm)
Weight	19.2 lbs (8.71 kg)

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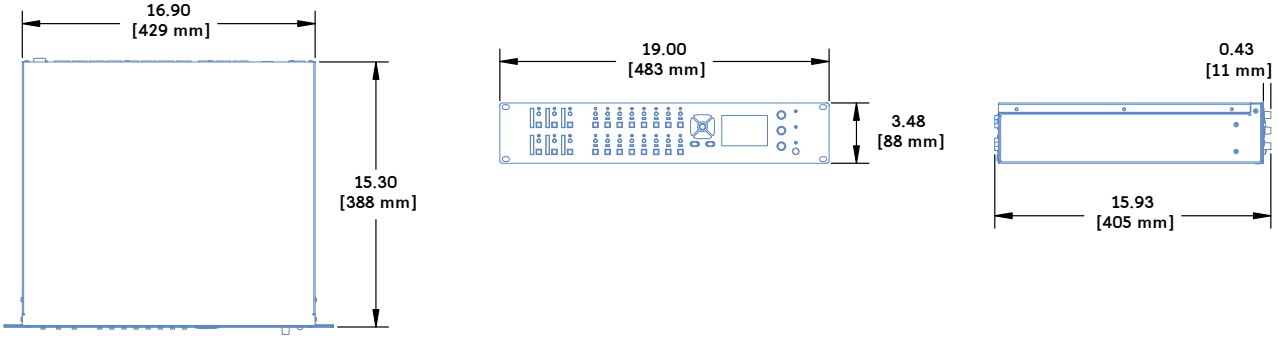

ARCHITECT SPECIFICATIONS

The loudspeaker management system shall include 96 kHz, 32-bit floating point processing for up to six input channels (analog or AES/EBU) and 16 analog output channels. Input channels shall include dedicated processing for mute, gain, delay, TruShaping equalization, 5-band parametric equalization, and 31-band graphic equalization; output channels shall include mute, gain, delay, polarity reversal, TruShaping equalization, 10-band parametric equalization, as well as filters for subwoofer integration, low-mid buildup for line arrays and curvilinear arrays, and atmospheric correction.

Input and output connectors shall be balanced, goldplated XLR connectors with high-current line drivers capable of output voltages up to +26 dBu, without clipping, into loads of 600 Ohms or higher.

The system's complex digital matrix processor shall allow routing from any input, or combination of mixed inputs, to any combination of outputs with a fixed latency of 1.52 milliseconds, regardless of the processing applied to the signals.

All features and parameters for the loudspeaker management system shall be controlled from the unit's front panel, which shall include a 128 x 64 LCD, navigation buttons, high-resolution encoder knobs, and illuminated mute switches and signal/clip indicators for output channels. Password protection shall be available to avoid unwanted parameter changes.

The unit shall also be controlled remotely from a Mac or Windows-based computer via Ethernet; the client server control software shall have bidirectional communication to ensure that all parameters are in sync.

The loudspeaker management system shall include direct connectivity to Meyer Sound's SIM 3 audio analyzer so that measurements can be taken directly from the unit.

The unit shall be housed in a 2-space, 19-inch rack-mount cabinet, measuring 15.3 inches (388 mm) in depth, and weighing just 19.2 lbs (8.71 kg). Its AC inlet shall be a powerCON 20 A locking connector to prevent unwanted power disconnections.

The loudspeaker management system shall be the Meyer Sound Galileo 616 and its software shall be the Compass control software.