Polycom® SoundStructure™ Models C16, C12 and C8

High performance installed audio solution

The first truly immersive audio experience for voice and video conferencing.

Polycom SoundStructure installed audio solutions, models C16, C12 and C8, deliver clear, immersive sound for more productive voice and video conferences. Unmatched performance and clarity will delight your customers and meeting participants, while new innovations in design and configuration let you set up the system in far less time than you would expect. Plus, SoundStructure installed audio solutions integrate easily with other Polycom conferencing and collaboration solutions, enabling faster integration and better performance for the true Polycom UltimateHD™ technology experience.

SoundStructure C-Series installed audio solutions have set a new standard in performance for a truly immersive conferencing experience. They feature the latest breakthroughs in full-stereo acoustic echo cancellation with 22 kHz bandwidth and no compromises in performance. Powerful feedback elimination lets participants focus on what they are saying, not where they are standing. Comprehensive input, output and submix processing delivers the ultimate in flexibility for any room configuration. Plus, all the core audio processing needed for effective meetings is integrated into a single solution, eliminating the need for additional equipment.

Installing and configuring high-performance audio conferencing has never been easier or more flexible. The SoundStructure installed audio solution's innovative OBAM™ matrix architecture enables multiple SoundStructure units to appear as one system for unparalleled scalability and flexibility. Advanced signal grouping, labelling and submixing let you leverage existing design and configuration work during future installations, saving time and money. What's more, Polycom's exclusive SoundStructure Studio software makes configuration easy and is powerful enough to handle the most challenging acoustic designs.

Deep, seamless integration with other Polycom products makes the SoundStructure installed audio solution the only choice for the Polycom UltimateHD technology experience. Full digital integration with the Polycom HDX platform delivers true Polycom HD Voice™ technology to match the clarity of HD Video. You can even use Polycom HDX microphones and Ceiling Microphone Array for additional flexibility and convenience. Your Polycom conferencing solutions work together easily and seamlessly for improved performance, as well as faster design and installation.

Make Great Things Happen with Polycom SoundStructure Installed Audio Solutions

In today's Internet driven world, the ability to conduct real time communication and collaboration has become critical to an organisation's survival. As the market leader in voice, video, data and Web solutions, our award-winning conference technology makes it easy for people to interact and maximise productivity — over any network, in just about any environment, anywhere around the globe. That's why more organisations worldwide use and prefer Polycom conferencing solutions. Because when people work together, great things happen. See how you, too, can achieve great things with Polycom SoundStructure installed audio solutions.

- Unrivalled Stereo Acoustic Echo Cancellation (AEC) – The only product with both monaural and stereo echo cancellation from 20Hz to 22 kHz – AEC with no compromises
- Breakthrough feedback elimination – Enables more flexible microphone, talker, loudspeaker placements and speech reinforcement
- OBAM™ matrix architecture – Connect multiple units together to create larger systems without the limitations of traditional bussing
- All conferencing features available on all inputs – Eliminate the worries of running out of microphone inputs, since every feature is available on all inputs
- Gain sharing automatic microphone mixer – Improved automixer experience ensures smoother transitions and robust performance in a variety of operating environments
- SoundStructure Studio – Powerful Windows-based software for efficient design and configuration; use it to easily set up a basic system, or use its powerful customisation tools for more complex environments
- Integrated Ethernet – Control and manage the system from anywhere on the network
- Modular Telephony Cards – Single and dual-line PSTN cards in a modular slot for flexibility and investment protection
- Fully digital Polycom HDX integration – Add powerful, configurable audio to your HD video solution
- Use HDX digital mic arrays – Compatible with both HDX digital mic arrays and traditional analogue microphones

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FEATURES & BENEFITS

Audio Performance	
Full stereo Acoustic Echo Cancellation (AEC) to 22 kHz	• Eliminates echoes while maintaining full stereo separation with remarkable clarity • Completely transparent echo canceller experience even during doubletalk with multiple independent audio sources
Immersive audio experience	• Stereo separation makes it possible to be "in the middle" of the audio and understand where remote participants are seated • Delivers a much more natural and realistic conferencing experience
Powerful gain sharing automixer	• Provides additional flexibility and smoother transitions to ensure robust performance in a variety of operating environments
Dynamics processing	• Compensates for level variation on telco and video calls to improve system sound in even the most acoustically challenging environments
Unrivalled noise cancellation technology	• Eliminates background noise, even in extremely challenging rooms
Comfort noise	• Background noise fill used for more natural sounding conferencing
Analogue gain control	• Adjusts input gains in the analogue domain to maximise signal-to-noise ratio and eliminate background hiss
Fast, responsive Automatic Gain Control (AGC)	• Seamless gain adjustments are transparent to participants
Modular telephony slot	• Configurable telephony options for added flexibility and investment protection for future technology
Easy, Flexible Installation	
OBAM matrix architecture	• Number of inputs and outputs easily scales by simply connecting multiple units • For example, three C16 units results in 48 inputs and outputs – it's that simple • All units operate as one device, simplifying configuration • Scales up to 128 inputs and 128 outputs
Feedback elimination technology	• Easier and more flexible microphone and speaker placement
SoundStructure Studio software included	• Windows-based design and installation makes it easier than ever to add and remove input and output signals and to provide default signal routings and gains based on the type of input or output signals • Complete off-line emulator enables more early testing for less time onsite
Robust Acoustic Echo Cancellation (AEC)	• Strong performance even in high-gain environments, resulting in fast setup with little tuning needed
Digital integration to Polycom HDX	• Simplify installation in audio/video environments, reducing installation time
Integrated Ethernet	• Configure, monitor and manage SoundStructure from anywhere on the network
Powerful, flexible processing	• Processing feeds for sound reinforcement, conferencing and recording • All audio processing features in one box – no need to purchase additional equipment
Advanced submix processing	• Manipulate multiple signals at one time • Easier setup, configuration and control
Virtual channels	• Reuse an entire design and control system code, even when the underlying physical wiring is different from design to design • Control input and output channels by using the virtual channel 'label' instead of the underlying channel numbers • Configure and control stereo input and output channels as if they were one virtual channel for easier setup and routing • Works with mono and stereo signals
Virtual channel groups	• Configure and control multiple audio channels at the same time by adding the channels to a group and configuring as a single channel
Powerful macros & events	• Provides move control over system behaviour; customise the behaviour to match your installation
Proactive monitoring & diagnostics	• Advance notifications of system status for faster response
Front panel LED status	• Información de estado clara para simplificar la resolución de problemas y los problemas de configuración
Polycom Interoperability	
Polycom HDX integration	• Fully digital connection for high performance and easy integration • Greatly enhances HDX audio performance in any installed environment
Polycom HDX digital microphone and Polycom Ceiling Microphone Array	• Easier integration with existing Polycom microphones • Use a mixture of analogue and digital microphones to more easily suit installation requirements

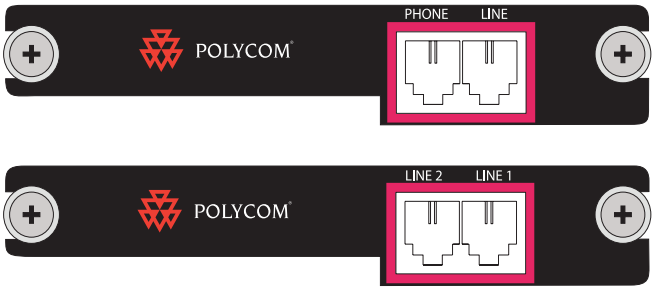
SoundStructure Model SR12

SoundStructure model SR12 includes the same audio quality and ease of installation features as the C-series models, but without the Acoustic Echo Cancellation. Featuring 12 inputs and outputs, the SR12 is a cost effective solution for adding additional non-conferencing inputs and outputs to the C-series. Plus the OBAM matrix architecture makes deploying this level of scalability as easy as plugging in a cable – simply connect the SR12 to the OBAM audio input and outputs on your existing SoundStructure system to increase the size of the system. In addition, the SR12 can be used as a stand-alone sound reinforcement solution for houses of worship, stadiums, conference centres, hotels, night clubs, and restaurants.

Telephony Card Options

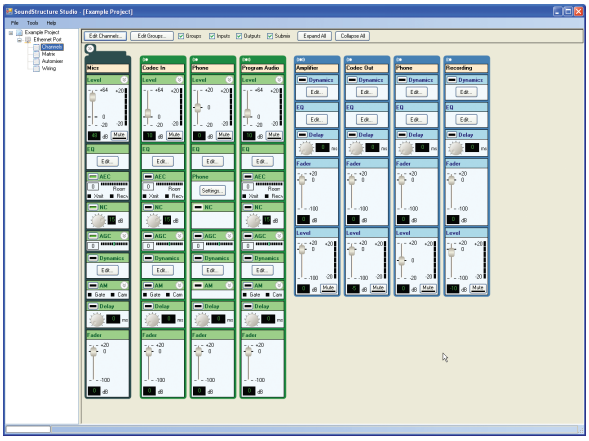
Every SoundStructure product includes a modular telephony card slot for added flexibility and configurability. The telco cards include diagnostics tools to simplify PSTN
connections. Plus, using a modular slot provides investment protection for future telephony options.

Two telephony card options are available today:
- Single-line PSTN
- Dual-line PSTN

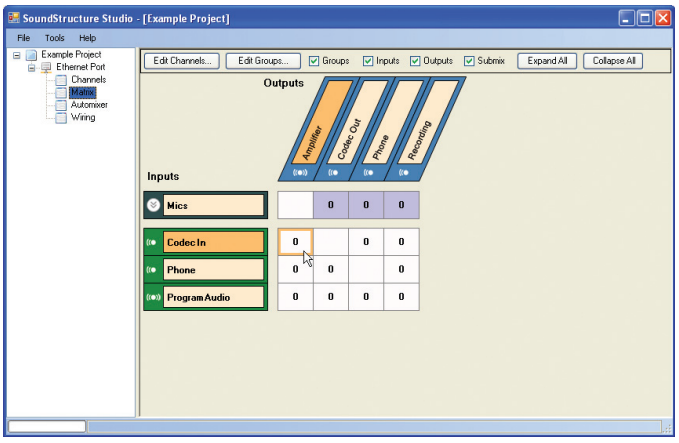


SoundStructure Studio

SoundStructure Studio is Polycom's next-generation installed audio design and configuration software. Using SoundStructure Studio makes it possible to get your installed audio solutions up and running faster than you ever thought possible. It also makes it easier than ever to add and remove input and output signals through a single matrix view on one screen, and to provide default signal routings and gains based on the type of input or output signal.



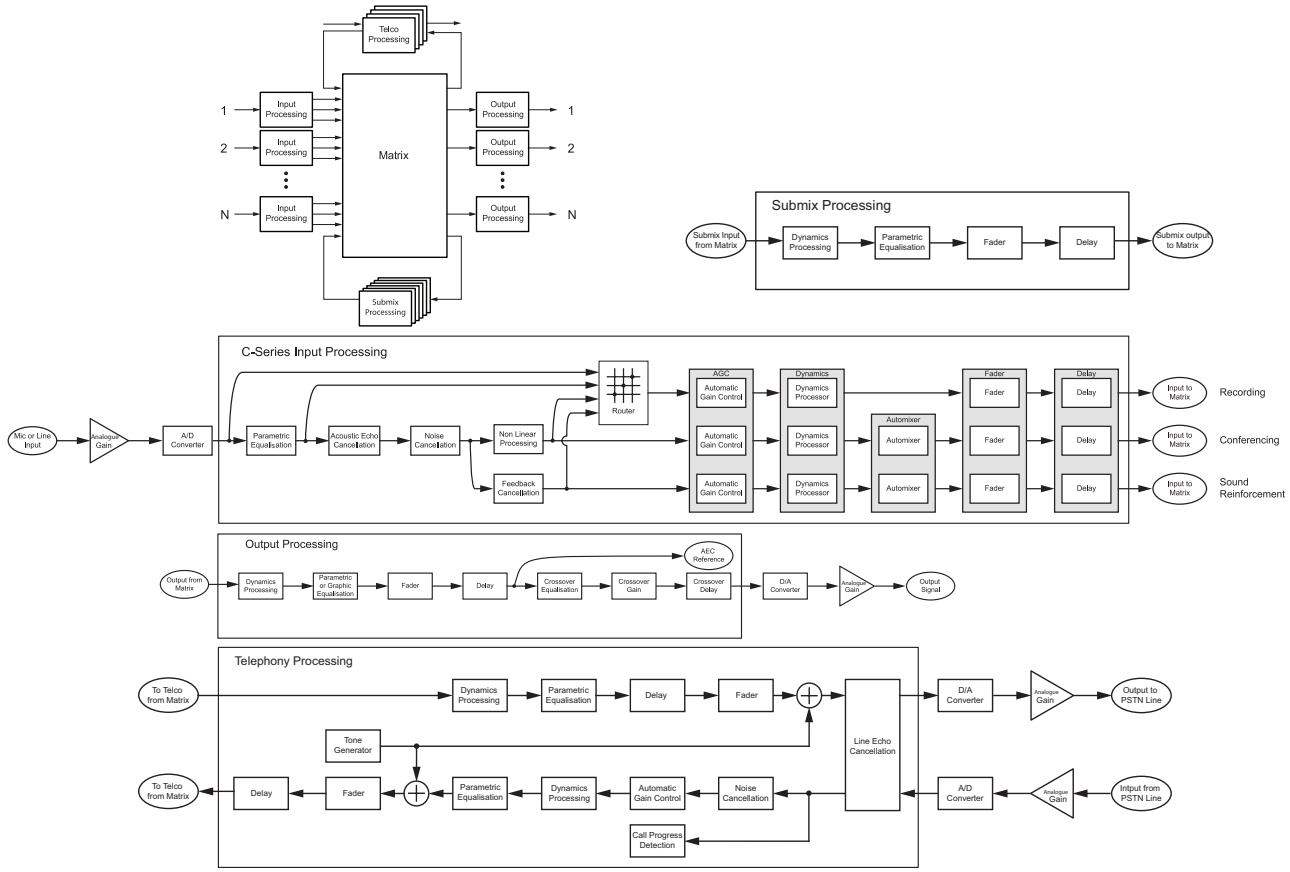
SoundStructure Studio channels page allows for easy access to the settings for all the inputs and outputs for the entire system.



The matrix page shows the signal routing from inputs to outputs for all audio channels in the system. Groups of multiple signals can be collapsed and configured as a single channel or expanded and configured individually.

Polycom SoundStructure

Block Processing Diagram



SPECIFICATIONS

Dimensions
- 48.3cm W x 34.3 cm L x 4.5 cm H (one rack unit) (19" W x 13.5" L x 1.75" H)

Weight
- 5.5 kg (12lbs.) dry, 6.4 kg (14 lbs.) shipping

Connectors
- RS-232: DB9F
- OBAM In/Out: IEEE 1394B
- CLINK2 : RJ45
- LAN: RJ45
- Control /Status: DB25F
- Audio: Mini (3.5mm) quick connect terminal blocks
- IR Receive: Mini (3.5mm) quick connect terminal block

Power and Thermal
- Internal supply
- Input voltage of 90-250 VAC; 50-60 Hz; line power requirements (including 0.6 PF): 130VA (C16), 115VA (C12), 95VA (C8)
- Thermal dissipation (Btu/hr): 266 Btu/hr (SoundStructure C16), 230Btu/hr (C12), 200 Btu/hr (C8)
- 0 to 40°C operating temperature

Inputs
- Phantom power: 48 V DC through 6.8kOhm series resistor per leg, 7.5mA per channel, software selectable
- Analogue input Gain: 0 to 64 dB on all inputs in 1 dB steps, software adjustable
- Maximum input amplitude: +20.4 dBu, 1% THD + N
- Nominal level: 0 dBu (0.775V rms)
- Equivalent input noise: <-122 dBu, 20 - 20,000 Hz, Rs=150 Ohms (1%)
- Input Impedance: 10 kOhms
- Input EMI Filter: Pi filter on all audio inputs

Outputs
- Output Gain: -100 to 20 dBu in 1 dB steps, software adjustable
- Maximum output amplitude: +23 dBu, 1% THD + N
- Nominal output level: 0 dBu (0.775 V rms)
- Output impedance: 50 Ohm, each leg to ground, designed to drive loads > 600 Ohms
- Output EMI Filter: Pi filter on all audio outputs System*
- Frequency response: 20-22,000 Hz, + 0.1 /- 0.3 dB
- Idle channel noise: <-109 dB FS no weighting, 20 - 20,000 Hz, -60dB FS, 0.997 kHz input signal, 0 dB gain
- Dynamic range: >109 dB FS no weighting, 20 - 20,000 Hz, -60 dB FS, 0.997 kHz input signal, 0 dB gain
- Linearity: 0 dB FS to -122 dB FS +/- 1 dB
- THD+N: < 0.005%, -20 dB FS input signal
- Common Mode Rejection Ratio: <-61 dB, 20 - 20,000 Hz, no weighting
- Cross talk: <-110 dB, 20-20,000 Hz, 1kHz, channelto- channel
- Latency: Mic/Line inputs to outputs: 20 ms, AEC and NC processing enabled
- Acoustic Echo Cancellation Span: 200 ms
- Total Cancellation: >65 dB
- Convergence Rate: 40 dB/second
- Noise cancellation: 0-20 dB, software selectable
- Control Inputs: Contact closure
- Status Outputs: Open collector 60V and 500mA maximum per output
- All signal ground pins connected to chassis ground through low impedance planes

*Unless noted, all values are valid for all channels at 0dB input gain

Optional Telco Cards
- Input gain: -100 to +20 dB in 1 dB steps, software adjustable
- Nominal transmit level: 0 dBu in SoundStructure yields -15 to -17 dBm to phone (country code dependent)
- Nominal receive level: -15 to -17 dBm from phone yields 0 dBu output (country code dependent)
- Off hook loop current: 10 mA (minimum) to 120 mA (maximum)
- Output gain: -100 to +20 dB in 1 dB steps, software adjustable
- Frequency response: 250-3300 Hz
- Dynamic range: >70 dB FS, 250-3300 Hz, "A" weighted

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