Q-SYS™

Integrated System Platform

I/O Frame | I/O Cards

Features

- I/O Frames may be equipped with a variety of audio input and output cards
- Premium 24-bit AD and DA conversion used throughout
- I/O Frames may be located with the Core or remotely – whichever best suits the needs of the installation
- Intuitive and easy to use design GUI
- Uses standard Gigabit Ethernet hardware for audio transport and control
- System seamlessly integrates with QSC amplifiers and loudspeakers
- Q-Sys technical support is available 24/7 - worldwide 24/7

Q-Sys™ is a complete integrated system that encompasses everything from the audio input to the output of the loudspeakers; it provides all the routing, processing, control and monitoring, while maintaining the audio quality and reliability QSC has come to be known for.

Physically located near audio sources and destinations, I/O Frames provide the points of connection used to interface Q-Sys with other components of the audio system, such as mixers and power amplifiers. Each I/O Frame enables up to 16 channels of input and/or output by housing up to four of the following I/O cards, which may be mixed and matched in a single unit: **Mic/ Line Input card** — Four channels of switchable mic/line-level analog audio input with 48V phantom power (available with standard or premium pre-amps and A/D converters). **Line Output card** — Four channels of balanced, line-level analog output. **DataPort Output card** — Four audio output channels (2 DataPorts) for connection to DataPort equipped QSC amplifiers. **AES Input/Output card** — Four input and four output channels of AES-3 digital audio. **CobraNet Input/Output card** — Up to 32 input and 32 output channels available when used in a core, up to 16 x 16 in an I/O Frame.

One of the primary development goals was to create a platform that had nearly unlimited resources; Q-Sys truly lives up to that goal with unrivaled processing breadth and depth. The design interface was created specifically to harness its unmatched power while remaining intuitive and easy to use. The processing tools are extensive and simple to apply. Once the system is designed, you will find that Q-Sys also offers a useful suite of trouble shooting and measurement tools.

The strength of the centralized architecture used by Q-Sys is that it facilitates the implementation of total or partial system redundancy. A system can be created with Core, Network, I/O Frame and even amplifier redundancy. In a redundant Q-Sys system, a problem with any of the primary devices will result in the back-up device taking over. If, for example the Core experiences a failure, the backup core automatically takes over ensuring continued flawless operation.

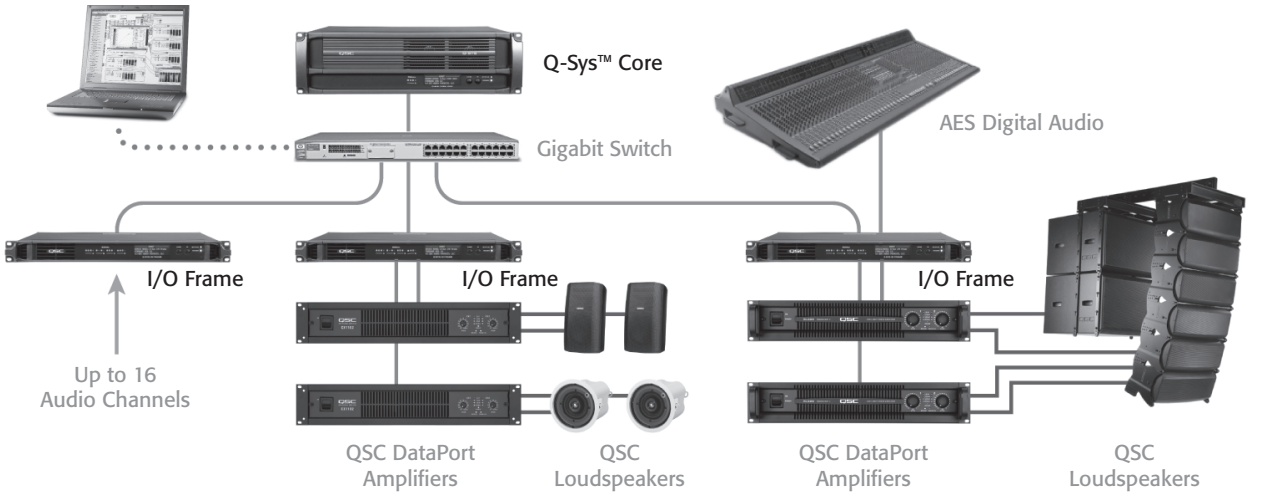
Q-Sys is a powerful and reliable unified system that features rock-solid performance backed by the unrivaled service and support QSC has built its reputation on. For more information please visit www.qscaudio.com/products/network/Q-Sys.

I/O Cards	Mic/Line Input CIML4	High-Performance Mic/ Line Input CIML4-HP	Line Output COL4	DataPort Output CODP4
Description	Four channels of microphone/ line-level analog audio input with 48V phantom power	Four channels of microphone / line-level analog audio input with 48V phantom power and high performance pre-amplifiers and A/D converters	Four channels of balanced, line-level analog output	Four audio output channels (2 DataPorts) for connection to DataPort equipped QSC amplifiers
Performance				
Dynamic Range Unweighted	> 105 dB	> 112 dB	> 112 dB	> 114 dB
Dynamic Range A-weighted	> 108 dB	> 115 dB	> 115 dB	> 117 dB
Distortion 20 Hz – 20 kHz +4 dBu (nominal input)	< 0.009% THD+N	< 0.004% THD+N	–	–
Distortion 20 Hz – 20 kHz 2 dB below clip (max)	< 0.08% THD+N	< 0.06% THD+N	< 0.004% THD+N	< 0.004% THD+N
Crosstalk 20 Hz – 20 kHz				
Inter-channel (max)	> 100 dB	> 110 dB	> 100 dB	> 95 dB
Inter-channel (typ)	> 110 dB	> 110 dB	> 110 dB	> 100 dB
Intra-channel (max)	> 100 dB	> 110 dB	> 100 dB	> 100 dB
Intra-channel (typ)	> 110 dB	> 110 dB	> 110 dB	> 110 dB
Frequency Response 20 Hz – 20 kHz (max)	± 0.5 dB	± 0.5 dB	± 0.5 dB	± 0.5 dB
Frequency Response 20 Hz – 20 kHz (typ)	± 0.2 dB	± 0.2 dB	± 0.2 dB	± 0.2 dB
Input Impedance				
Balanced (nominal)	10 k ohms	10 k ohms	–	–
Unbalanced (nominal)	10 k ohms	10 k ohms	–	–
Common Mode Rejection 20 Hz – 20 kHz (max)	> 45 dB	> 45 dB	–	–
Common Mode Rejection 20 Hz – 20 kHz (typ)	> 50 dB	> 50 dB	–	–
Max Input Level	0.123, 2.25, 8.70, 17.35 Vrms -16, 10, 21, 27 dBu -18.2, 7.04, 18.8, 24.78 dBv (4 selections)	1.23 to 17.35 Vrms -56 to 27 dBu -58.2 to 24.8 dBv (continuously variable)	– – –	– – –
Mute	Infinite attenuation (via digital mute)	Infinite attenuation (via digital mute)	Infinite attenuation (via electro-mechanical relays)	Infinite attenuation (via electro-mechanical relays)
Audio Converters				
Analog to Digital Conversion (ADCs)	24-bit delta-sigma at 48 or 96 kHz sample rate	24-bit delta-sigma at 48 or 96 kHz sample rate	–	–
Digital to Analog Conversion (DACs)	–	–	24-bit delta-sigma at 48 or 96 kHz sample rate	24-bit delta-sigma at 48 or 96 kHz sample rate
Group Delay	< 13 FS (≈ 271 µs) at 48 kHz	< 13 FS (≈ 271 µs) at 48 kHz	< 10 FS (≈ 196 µs) at 48 kHz	< 13 FS (≈ 271 µs) at 48 kHz
Connectors	Four 3-terminal Euro- style detachable terminal blocks	Four 3-terminal Euro-style detachable terminal blocks	Four 3-terminal Euro-style detachable terminal blocks	Two 15-pin HD15 connectors
User-configurable Options (software enabled)				
Phantom Power	+48 V phantom power (meets IEC 1938 [1996] spec)	+48 V phantom power (meets IEC 1938 [1996] spec)	–	–
Output Trim				
Vrms (max)	–	–	8.7 V	–
dBu (max)	–	–	21 dBu	–
dBv (max)	–	–	18.8 dBv	–
Amplifier Standby	–	–	–	Set or clear amplifier in standby mode
Mute	–	–	–	Set or clear individual channel mutes
Enable Meters	–	–	–	Enable data collection of meters for each channel
Audio Output Levels	–	–	–	Adjust individual audio channel levels
Amplifier Model Support	–	–	–	CX, PowerLight™ 3 Series, DCA, and legacy V1 models

I/O Cards	AES-3 Input/Output CAES4	CobraNet Input/Output CCN32
Description	Four input and four output channels of AES-3 digital audio	Up to 32 input and 32 output channels of CobraNet digital audio
Frequency Response	± 0.2 dB	± 0.2 dB
Mute	Infinite attenuation (via digital mute)	Infinite attenuation (via digital mute)
Group Delay	37 Samples (0.760 ms actual) with Sample Rate Converter enabled	Selectable: 64 Samples (2.687 ms actual) 128 Samples (4.020 ms actual) 256 Samples (6.686 ms actual)
I/O Capacity	4x4	Selectable: 4x4 8x8 16x16 32x32 (in Core only)
Bundle Packing	–	0 to 8 channels
Network Transmitters	–	4
Network Recievers	–	4
Management	–	CobraNet management via SNMP
Connectors	Four 3-terminal Euro-style detachable terminal blocks	Dual RJ-45

Q-SYS™

I/O Frame Specifications



System Hardware	I/O Frame
Description	System audio input and output device
Front Panel Controls	LCD page forward momentary switch Unit ID button momentary switch Clear settings momentary switch
Front Panel Card Receptacle	–
Front Panel Indicators	Power On: Blue LED Device Status: Tri-color LED Audio Signal: Five tri-color LEDs/per I/O card slot 240 x 64 monochrome LCD graphics display
Rear Panel Connectors	RS-232: DE-9 (male 9-pin D shell connector) GPIO A: DA-15 (female 15-pin D shell connector) Q-Sys Network LAN A: RJ45 1000 MBps only Q-Sys Network LAN B: RJ45 1000 MBps only
I/O Capacity	Up to 16 x 16. Requires purchase of I/O cards.
Line Voltage Requirements	100 VAC – 240 VAC, 50 – 60 Hz
Current Draw	625mA (120V mains)
Thermal	205 BTU/h (typical)
Dimensions (HWD)	1.75" x 19" x 15" (44.45 mm x 482.6 mm x 381 mm)
Accessories Included	6 ft UL/CSA/IEC line cord • User manual • Optional audio I/O ship kit

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