S16
Digital Snake I/O

I/O Box with 16 Remote-Controllable Mic/Line Inputs, 8 Outputs and AES50 Networking featuring KLARK TEKNIK SuperMac Technology

- 16 fully programmable and remote-controllable audiophile mic preamps

- 8 analog, servo-balanced XLR outputs

- AES50 network ports featuring KLARK TEKNIK SuperMac technology for ultra-low latency (in-ear compatible)

- Up to 100 m networking capability via CAT-5e cable (not included)

- Dual AES50 ports for cascading S16 units—no merger or router required

- Precise LED metering plus 7-segment displays for signal control on stage

- Phones output assignable to any of the inputs/outputs for on-stage monitoring

- Connectivity for BEHRINGER's P-16 Personal Monitoring System for In-Ear applications (not included)

- Dual ADAT outputs for use in splitter mode and stand-alone digital multicore applications

- MIDI In/Out for bi-directional communication between FOH console and on-stage MIDI devices

- USB connector for system updates via PC

- "Planet Earth" switching power supply for maximum flexibility (100 - 240 V~), noise-free audio, superior transient response plus low power consumption for energy saving

Digital mixing has revolutionized so much of the live-entertainment production workflow. But one thing that hasn't changed is having to roll out that heavy, cumbersome old analog snake. That is until now! The new S16 Digital Snake from BEHRINGER takes the burden out of connecting your FOH (Front of House) console with the talent. The S16 provides 16 fully programmable, remotely controllable high-end mic preamps plus 8 analog, balanced XLR returns at the stage end, and connects to the FOH via a single CAT5 cable without the need for a dedicated router. KLARK TEKNIK, a longtime industry-leader in the development of high-end digital audio processing, provided the SuperMAC technology that made all of this possible—BEHRINGER made it affordable.

Massive Connectivity

When used as part of a complete X32 system, two S16 Stage Boxes can be cascaded via the built-in AES50 ports, providing connectivity for up to 32 mic/line inputs, 16 balanced outputs and the incredibly-affordable POWERPLAY P-16 Personal Monitoring System, which can feed up to 48 individual monitor mixers. We also included two optical ADAT sockets for connecting channels 1-8 and 9-16 to outboard devices, a convenient USB port for system updates via your PC, plus MIDI I/O for lighting systems and sound module control.

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- "Built like a tank" yet compact, all-steel 2U rack-mount chassis

- High-quality components and exceptionally rugged construction ensure long life

*P16 ULTRANET CAT5-based 16-channel personal monitoring products optionally available

Standalone Snake Mode

Although the S16 was initially designed for use with our flagship X32 and X16 digital consoles, any mixing board with AES50 networking capability can tap into the S16's powerful feature set. So if you happen to work on an analog mixing board occasionally, you could use two pairs of S16 and ADA8000 to form a high-performance, lightweight 16 x 16 digital snake—all on one CAT5 connection, keeping the preamp remote control functionality.

Remotely Controllable Preamps Make Setup a Breeze

Having to run back and forth to FOH, or trying to communicate with a tech on stage tracking down a bad cable or connection, can really put a crimp in the gig. S16's ingenious monitoring / head amp control section allows you to select any one of the 16 inputs, 8 bus outputs or P16 output streams—for immediate line checks. In addition to signal metering at the stage box, you can set individual input channel Gain, apply +48 V phantom power, plus you have the option of listening directly to the input signal via headphones and much more. Once set, all configuration settings can be locked at the console for total system security.

Seamless Integration with P-16 Personal Monitoring System

The ULTRANET port on the S16 lets you connect directly to the BEHRINGER POWERPLAY P16 system, which provides an easy, affordable way to give your musicians and vocalists what they really want—"more me!" P16-M Personal Mixers let each performer take control of what they hear, allowing you to concentrate on providing the audience with the best possible listening experience. Fast and easy to set up, a basic system can be installed and configured in a matter of minutes—and the system can be expanded to adapt to changing needs.
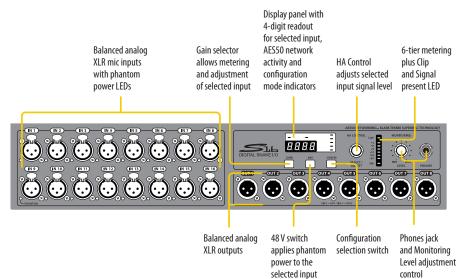
KLARK TEKNIK AES50

KLARK TEKNIK SuperMAC (AES50-Compliant) technology gives the S16 its high-capacity digital interconnectivity with ultra-low latency operation, as well as superbly simple deployment and ease of use. KLARK TEKNIK

engineers worked hand-in-hand with BEHRINGER product developers to ensure the S16 meets, or exceeds, the requirements of live performance entertainers and their professional audio engineers. Some of the outstanding features are:

- 48 bidirectional audio channels over CAT5 cable (48 kHz)

- 24 bidirectional audio channels over CAT5 cable (96 kHz)

- Single cable duplex interconnection for audio and sample clocks

- Ethernet physical layer audio data transmission

- High channel count and ultra-low deterministic latency

- Accurate phase-aligned clock distribution.

- Comprehensive error detection and management

- Provision for redundant networking

- Minimal configuration – total ease of deployment and use

- Ethernet TCP/IP protocol-compatible auxiliary data channel

- Royalty-free implementations available as Xilinx FPGA cores
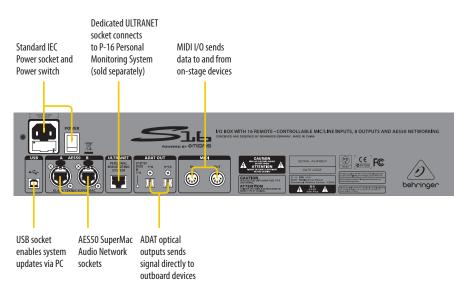
- OEM modules available from developer partners

Extreme Value

As you can see, the S16 is an extremely versatile 16 x 8 digital stage box solution with lots of unique features, at a price that everyone can afford. Built tough to withstand the rigors of the road, S16 only takes up two rack spaces and connects to FOH with a single, inexpensive CAT5 cable. Now you can have the missing link between the stage and FOH at a fraction of the cost of competing systems, and we back it with a comprehensive warranty program.
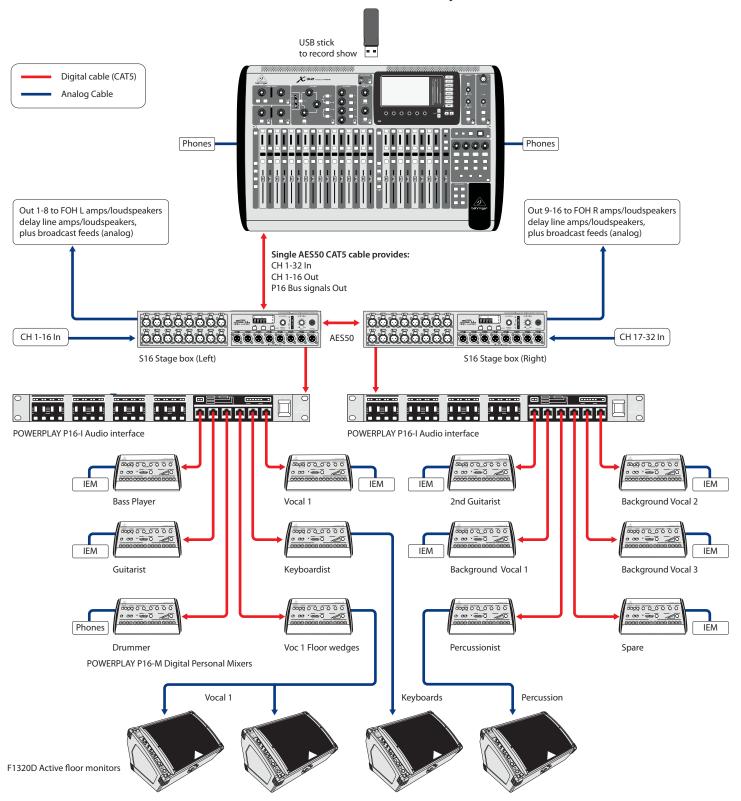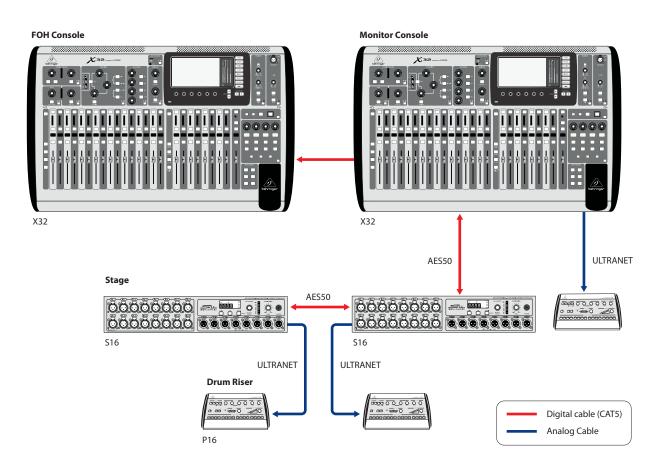
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Front View

Balanced analog XLR mic inputs with phantom power LEDs

Gain selector allows metering and adjustment of selected input

Display panel with 4-digit readout for selected input, AES50 network activity and configuration mode indicators

HA Control adjusts selected input signal level

6-tier metering plus Clip and Signal present LED

Balanced analog XLR outputs

48 V switch applies phantom power to the selected input

Configuration selection switch

Phones jack and Monitoring Level adjustment control

Rear View

Standard IEC Power socket and Power switch

Dedicated ULTRANET socket connects to P-16 Personal Monitoring System (sold separately)

MIDI I/O sends data to and from on-stage devices

USB socket enables system updates via PC

AES50 SuperMac Audio Network sockets

ADAT optical outputs sends signal directly to outboard devices

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S16 Stage Box Deployment with X32 Digital Console and P16 Personal Monitor System

USB stick
to record show

—— Digital cable (CAT5)
—— Analog Cable

Phones

Phones

Out 1-8 to FOH L amps/loudspeakers
delay line amps/loudspeakers,
plus broadcast feeds (analog)

Out 9-16 to FOH R amps/loudspeakers
delay line amps/loudspeakers,
plus broadcast feeds (analog)

Single AES50 CAT5 cable provides:
CH 1-32 In
CH 1-16 Out
P16 Bus signals Out

CH 1-16 In

AES50

CH 17-32 In

S16 Stage box (Left)

S16 Stage box (Right)

POWERPLAY P16-I Audio interface

POWERPLAY P16-I Audio interface

IEM

Bass Player

Vocal 1

IEM

IEM

2nd Guitarist

Background Vocal 2

IEM

IEM

Guitarist

Keyboardist

IEM

Background Vocal 1

Background Vocal 3

IEM

Phones

Drummer

Voc 1 Floor wedges

Percussionist

Spare

IEM

POWERPLAY P16-M Digital Personal Mixers

Vocal 1

Keyboards

Percussion

F1320D Active floor monitors

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S16 Stage Box with FOH & Monitor X32 Consoles and P16 Personal Monitor System

FOH Console

Monitor Console

X32

X32

AES50

ULTRANET

Stage

AES50

S16

S16

ULTRANET

ULTRANET

Drum Riser

P16

——	Digital cable (CAT5)
——	Analog Cable

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Specifications

Processing	
A/D-D/A conversion (Cirrus Logic A/D CS5368, D/A CS4385)	24-bit @ 44.1 / 48 kHz, 114 dB dynamic range
Networked I/O latency (stagebox in > console processing* > stagebox out)	1.1 ms
Connectors	
XLR inputs, programmable mic preamps, designed by MIDAS	16
XLR outputs	8
Phones outputs, ¼" TRS	1 (mono)
AES50 ports, SuperMAC	2
P-16 connector, Ultranet (no power supplied)	1
MIDI inputs / outputs	1 /1
ADAT Toslink outputs (2x 8 Ch)	2
USB type B, rear panel, for system updates	1
Mic Input Characteristics	
Design	MIDAS
THD + noise, 20 dB gain, 0 dBu out	< 0.006 % A-weighted
Input impedance XLR, unbal. / bal.	5 kΩ / 10 kΩ
Non clip maximum input level, XLR	+23 dBu
Phantom power, switchable per input	48 V
Equivalent input noise level, XLR (input shorted)	-128 dBu
CMRR, XLR, @ 20 dB gain (typical)	> 70 dB
CMRR, XLR, @ 40 dB gain	> 80 dB
Input/Output Characteristics	
Frequency range, @ 48 kHz sample rate, 0 dB to -1 dB	10 Hz - 22 kHz
Dynamic range, analog in to analog out (typical)	106 dB
A/D dynamic range, preamp and converter (typical)	109 dB
D/A dynamic range, converter and output	108 dB
Cross talk rejection @ 1 kHz, adjacent channels	100 dB
Output level, XLR, nom./max.	+4 dBu / +21 dBu
Output impedance, XLR, unbal. / bal.	75 Ω / 75 Ω
Phones output impedance / level	40 Ω / +25 dBm (mono)
Residual noise level, XLR and TRS	-87 dBu A-weighted
Indicators	
Display	4-digit, 7-segment, LED
Front status LEDs	AES50-A, red/green; AES50-B, red/green; HA Locked, red; SN Master, green; Splitter, orange; Out +16, orange; Out +8, orange
Meter	Sig, -30 dB, -18 dB, -12 dB, -9 dB, -6 dB, -3 dB, Clip
Rear panel	Splitter mode, orange
Power	
Switch-mode autorange power supply	100-240 V (50/60 Hz)
Power consumption	45 W
Physical	
Dimensions	19 x 8.9 x 3.5" / 482 x 225 x 89 mm
Weight	10.4 lbs / 4.7 kg

*) incl. all channel and bus processing, excl. insert effects and line delays

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