

High-Definition Audio Full-Duplex Truck Scale Intercom System with Automatic Volume and Advanced Noise Cancellation



This truck scale intercom system provides high-definition, two-way audio communication with simultaneous talk and listen conversation just like a telephone call. Its advanced design ensures that both the scale operator and the driver clearly understand what's being said.

A powerful 10-watt amplifier gives drivers the level of sound they need to hear over the noisiest engines, and automatic volume control ensures that quieter trucks don't get blasted with more volume than they need. An add-on amplified horn speaker increases volume even more if needed.

Noise cancellation filters out the truck noise so scale operators can clearly understand the drivers. Features like microphone automatic gain control help when drivers stop farther away from the intercom.

This is a great wired solution to one of the most challenging environments for a full-duplex intercom. Its superb audio communication make it an excellent business investment that eliminates complaints about poor audio.

OPERATION:

Drivers don't have to try to reach past their mirrors to press a button since an optical sensor can be connected to the scale intercom. The scale intercom automatically calls the scale house giving drivers totally hands-free operation!

The scale house operator can also press a button on the inside phone and the scale intercom will answer automatically.

Scale house operators can talk to drivers in three ways: by picking up the handset, through a wireless headset, or it through the full-duplex hands-free speakerphone.

You can have multiple inside and outside units and you can selectively call any one of them. Scale operators can even call each other if need be. Works great for multi-lane scales!

THE CHALLENGES OF TRUCK SCALE COMMUNICATION

There are two problems to be solved for a truck scale intercom system: 1. The trucks are very loud and scale operators can't understand the drivers. 2. The truck scale intercom needs lots of volume to overcome engine noise.

It's easy enough to amplify sound so the driver can hear, but the hard part is the scale operator side. Two technologies are required to make this work well: Acoustic Echo Cancellation (AEC) and Active Noise Cancellation (ANC).

Acoustic Echo Cancellation is required for full duplex and is used to cancel feedback (squealing noise) on the truck scale intercom. The higher the volume, the harder AEC has to work. It takes expensive processing power and complex, patented software algorithms to make this happen. Now add noise cancellation and it takes even more processing power. Lower cost systems don't work well because they can't use the quality components and engineering needed to give you both volume and understandable conversation.

INTERCOM SPECIFICATIONS

AUDIO

• Audio quality - percentage articulation loss of consonants (Alcons) - at 70 dB	at 70 dB < 5%*
• Audio quality - total harmonic distortion + noise, without noise reduction (THD+N) - at 70 dB	at 70 dB < 2%*
• SPL rated power at 1m in open duplex	95 dB*
• SPL rated power at 1m in half duplex	105 dB*
• SPL rated power at 1m in program distribution and announcement	105 dB*
• Noise cancelling - suppression of musical noise	YES
• Noise cancelling - suppression of static noise	YES
• Noise cancelling - suppression of rapidly changing noise	YES
• Codecs	G.711, G.722, G.729
• Frequency range	G.722 Codec 200 Hz – 7000 Hz
• Audio technology Modes:	Full open duplex, switched open duplex Adaptive jitter filter Custom Ringing Tone Audio Mixing – Conversation and Group Call Sound Level Detection / scream alarm (only in AlphaCom) Automatic gain control (microphone)
• Internal speaker amplifier	10 W class D
• Microphone technology	Digital MEMS, omnidirectional microphone
• Automatic Volume Control (AVC)	Undistorted and clear audio
• Acoustic Echo Cancellation (AEC)	Prevents audio feedback even at high volumes (95dB)
• 10W Speaker	Matches 10W amp for distortion-free broadcast level sound
<i>* Tested with Audio Precision SYS 2722 equipment</i>	<i>* Tested with Audio Precision SYS 2722 equipment</i>

HARDWARE

• Ethernet connector	1 x RJ 45
• All other connectors	Tool less, spring loaded, vibration proof terminals
• General inputs and outputs	6 (configurable)
• Outputs	12mA as LED drivers
• Change-over relay (NO+NC+COM)	Max: 250VAC/220VDC, 2A, 60W
• Power options	PoE and or external power supply
• PoE (power over Ethernet)	IEEE 802.3af standard, Class 0 (0.44W to 12.95 W)
• External power supply	24 VDC (16 – 48 V)
• Power consumption	Idle 1.8W, max 12W (depending on volume)

PHONE SPECIFICATIONS

GENERAL

• Dimension	(WxLxH) 196.5mm (W) x 206.2mm (L) x 85.2mm (H)
• Weight	0.92kg
• Graphic Display	4.3" (480x272) capacitive (5 points) touch screen TFT LC
• Camera	Tilttable mega pixel CMOS camera with privacy shutter
• Video Codec	H.264, supports display of MJPEG streams
• Video resolution	Up to 720p
• Video frame rate	Up to 30 fps
• Operating temperature range	0°C to +40°C
• Storage temperature range	-10°C to +60°C
• Relative humidity	10% - 90% non-condensing
• Power options	Power over Ethernet (PoE) or power adapter.
• Power over Ethernet	IEEE 802.3at, Class 4, Idle 3.8W, max. 9.7W
• Power adapter	12VDC, 1.5A, Idle 2.2W, max 7.6W
• Network Interface	2 x RJ45 (Ethernet) 10/100/1000 Mbps with integrated PoE
• Bluetooth	Bluetooth Integrated, Bluetooth 4.0 + EDR
• Wi-Fi	Wi-Fi Integrated, 802.11 b/g/n
• Security	Security MD5 and MD5-session authentication, 256-bit AES encryption, TLS, SRTP, HTTPS, 802.1x media access control
• SIP	SIP RFC 3261, SIP Info (DTMF), RFC 2833 (DTMF)
• IP protocols	IP protocols IPv4 - IPv6 - TCP - UDP - HTTPS - TFTP - RTP - RTCP - DHCP - SIP
• Audio technology	Audio technology Wideband 200 Hz - 7 kHz (G.722), Telephony 3.4kHz (G.711), Narrowband (G.729)
• Compliance	Compliance CE and FCC Part 15