

Architectural Specifications for

TeachLogic Voicelink III IRV-6650 Classroom Sound Field System

PART 1. GENERAL

1.1 SUMMARY

A. Classroom Sound Field Amplification System to amplify voice and other audio sources.

The system shall include:

1. Mixer/pre amplifier with – two infrared receivers, two auxiliary line inputs, Assistive listening output, Lesson Capture output.
2. Ergonomic design handheld transmitter microphone with dynamic uni-directional element and built-in windscreen including rechargeable NiMH batteries
3. Pendant Transmitter with a built-in cardioid microphone for enhanced performance, an adjustable (safety) break away lanyard and rechargeable Lithium batteries
4. Drop-in Charger for both the Pendant transmitter/microphone and Handheld transmitter microphone
5. Dome sensor receives the IR transmission and sends it to the receiver/amplifier, includes 50 feet of plenum rated coaxial cable

B. The following are well documented results of the benefits of installing a Classroom Amplification System.

1. Overcome high ambient noise level.
2. 30% of the students will hear their teacher significantly better.
3. Improved attention and increase on-task behavior.
4. Student participation and interaction increases.
5. Improved listening ability, regardless of teacher orientation
6. Improved student oral communication skills.
7. Classroom stress is lowered.
8. Behavior problems are reduced.
9. Teacher absenteeism is reduced.
10. Higher academic achievement and improved test scores.
11. English Language Learners (ELL) score higher.
12. Children with learning disabilities benefit.
13. Improve ease of teaching.
14. Reduced teacher vocal fatigue.

1.2 APPLICATION

A. Classroom Amplification should be installed in new schools (public or private, pre-school through university), schools scheduled for renovation, and for special needs (comprehensive needs) projects in all classrooms, learning spaces, resource rooms, media centers, and labs. Additional rooms may be considered where special needs apply (students with hearing impairments) teacher assistive devices (vocal or auditory impairments), or special room needs due to excessive ambient noise levels, size and / or location (gymnasium, cafeteria, music room, conference rooms).

B. Multiple speaker options shall be available for rooms of varying shapes and sizes, including ceiling and wall-mount types. Speakers should be placed near the instructional area so the maximum benefits of the sound amplification system are achieved by all students. All speakers shall be provided with the proper mounting

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hardware including support tile bridges for in-ceiling speakers and brackets for wall-mount speakers. Plenum rated wire must be provided with all speakers as standard.

C. The receiver/amplifier must be rack mountable, mountable above or under shelf using mounting tabs or free standing so it can be located anywhere in the classroom without degradation of signal or sound quality.

D. The Infrared Sensor shall be capable of being mounted on the ceiling. The sensor is connected to the receiver/amplifier and phantom powered through a coaxial cable. The preferred location of the infrared dome sensor is on the ceiling, near the center of the classroom. The sensor shall come with a ceiling support bracket to mount the sensor flush to the ceiling.

1.3 DESCRIPTION

A. The classroom Amplification System shall include but not limited to the following components.

1. Infrared receiver/amplifier/mixer shall have: Two infrared receivers, two sensor inputs capable of phantom powering two sensors, two stereo line inputs, one front panel line Lesson Capture output with gain control, Assistive listening output.
2. Amplifier Switching Power Supply: 12V – .6A, 7.2 watts, UL Listed.
3. Pendant Transmitter Microphone with a break away lanyard (IRT-55) including a built-in cardioid microphone) and including rechargeable lithium batteries.
4. Handheld Transmitter Microphone with NiMH rechargeable batteries (IRH-35)
5. Drop-in battery charger for Pendant or Handheld Transmitter featuring optimized charging rate and automatic full charge protection for NiMH batteries. (BRC-55)
6. Infrared Dome Sensor with 6 large receiving diodes, ceiling, with 50 feet of plenum rated coaxial cable with “RCA” connectors on each end (ICS-55).

1.4 REGULATORY REQUIREMENTS

A. Conform to building code requirements applicable to the work specified herein.

B. Conform to appropriate sections with regard to applicable requirements specified.

1.5 QUALITY ASSURANCE

A. Qualifications

1. Installer Qualifications: Installer will be experienced in performing work of this nature by having completed similar installations, having the skills and the knowledge required to complete this project.

- a. Certificate of Qualification
- b. Contractor’s License to be provided upon request.

2. Manufacturer Qualifications: Manufacturer is capable of providing field service delineation during construction, approving acceptable installer and approving application method.

B. Acceptable Manufactures

1. Basis of Design: TeachLogic, Inc., 1688 Ord Way, Oceanside, CA. 92056, PH 800-588-0018, Fax 760-631-1283. Website: www.teachlogic.com
2. Substitutions must be in full compliance to specifications as written.

C. Manufacture Testing: Manufacturer to provide quality assurance certificate for each system and all of its components. A report for each system will be available upon request. Report will include serial numbers and pertinent testing data for all of the system functions.

1.6 SUBMITTALS

A. General: Submit listed submittals in accordance with "Conditions of the Contract".

B. Manufacturer's data on all products including but not limited to:

1. Catalog cut sheets
2. Installation instructions
3. Typical wiring diagrams
4. Operation and maintenance manuals
5. Manufacturer's warranty documents
6. Manufacturer's parts lists
7. Product serial numbers

1.7 WARRANTY

A. Warranty: Refer to "Conditions of contractor" for warranty and repair provisions.

B. Repair: Manufacturer shall offer repair services on all Classroom Amplification System components. Owner shall prepay shipping for all items returned to manufacturer for repair. The manufacturer shall repair or replace system components as specified under the warranty. Manufacturer shall repair components within five (5) working days of receipt. Items returned to Owner will be shipped via most appropriate method for expediency and be cost effective, cost to be paid by manufacturer.

C. Manufacturer's Warranty: All the major system components (transmitters, receiver-amplifier, sensor, and speakers) must be warranted for five (5) years against defects occurring while used in normal classroom instruction. The warranty shall be equivalent to TeachLogic, Inc. warranty.

1. Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

2. Warranty Period: Five (5) years commencing on Date of Substantial Completion. Batteries are warranted for 2 years.

1.8 OWNER INSTRUCTION

A. Owner's Instruction: User training will be performed by installing contractor or designated representative. The training will include a basic explanation of how infrared transmission is accomplished, comprehensive instruction of the system operation, and simple troubleshooting guidelines

B. Instruction materials and detailed Owner's manual shall be provided to cover operational and basic maintenance procedures.

PART 2. PRODUCTS

2.1 RECEIVER / PRE AMPLIFIER SPECIFICATIONS (IR-255)

A. Line level output balanced or unbalanced nominal 1 volt

B. Frequency Response: 40 Hz to 20 kHz

C. Power Supply: 12 V / .6A, 7.2 watts, UL Listed

D. Signal-to-noise ratio: greater than 70dB

E. Total Harmonic Distortion: less than 0.04%

I. Lesson Capture output (analog) with level control. Assistive listening output with level control

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- L. Infrared Receivers:
 - Standard FM sub-carrier frequency: Channel 1 (2.08 MHz)
 - Standard FM sub-carrier frequency: Channel 2 (2.54 MHz)
- M. Maximum Deviation: ± 15 kHz
- N. Tone Squelch: RF carrier / tone key control
- O. Controls:
 - 1. Power Switch with Red LED indicator
 - 2. Two IR microphone volume controls with IR reception indicator, Green LED
 - 3. Two Auxiliary input volume controls
 - 4. Audio output for Lesson Capture or Assistive Listening with gain control
- P. Connections:
 - 1. One Phoenix Connector with 3 pins for balanced line level connection
 - 2. One $\frac{1}{4}$ " unbalanced low line level output (-20dB from balanced)
 - 3. DC Power input
 - 4. One Stereo Line Level input (1) 3.5 mm front panel or (2) RCA rear panel
 - 5. Two IR Sensor inputs (RCA-type)
- Q. Dimensions: 8.5" W X 1.75" H X 7.5" D
- R. Weight less Power Supply: 1 lb. 7oz.

2.2 PENDANT-STYLE IR MICROPHONE / TRANSMITTER (IRT-55 Sapphire)

- A. Pendant microphone is a complete infrared transmitter with a built-in microphone and equipped with 6 emitting diodes for reliable performance. Intended to be worn around the neck.
- B. Lanyard: Adjustable and with (safety) break away clasp.
- C. Microphone/ aux input side jack, auto level detect (3.5mm)
- D. Built in uni-directional microphone for enhanced performance.
- E. Gain control for changing built in microphone volume
- F. Power switch: ON / OFF
- G. Channel A/B selection switch
- H. Power "on" LED:
 - a. Green = Batteries have a useable charge
 - b. Red = Batteries need to be recharged
- I. Standard sub-carrier frequencies: 2.08 MHz / 2.54 MHz
- J. Modulation: FM wide-band
- K. Audio Distortion: 0.3% (+10 kHz deviation @ 1 kHz)
- L. Battery Power: Lithium Rechargeable Batteries
- M. Micro USB connector for plug in charging
- N. External battery contacts connect to drop in charger for auto recharging
- O. Dimensions: $1\frac{1}{4}$ " W x 3" H x $\frac{3}{4}$ " D
- P. Weight (with battery): 1.4 oz.

2.3 HANDHELD IR MICROPHONE / TRANSMITTER (IRH-35)

- A. Tubular shaped per hand ergonomics
- B. Uni-directional, dynamic microphone element with built-in windscreen
- C. Ten (10) transmitting diodes (360° radiation)
- D. Power Slide Switch: ON / OFF
 - a. Green = Batteries have a useable charge
 - b. Red = Batteries need to be charged
- E. Standard sub-carrier frequencies: 2.08 MHz / 2.54 MHz
- F. Audio Distortion: 0.3% (+10 kHz deviation @ 1 kHz)
- G. Battery Power: Two AA Rechargeable Batteries NiMH
- H. Dimensions: 2" Dia x 9" L
- I. Weight (with batteries): 4.8 oz.

2.4 DROP-IN CHARGER for PENDANT and HANDHELD TRANSMITTER (BRC-55)

- A. Triple Drop-in Charger: Simultaneous charging of up to (2) Pendant and (1) Handheld transmitters
- B. Regulated Charger:

- C. Automatic full charge maintenance
- D. Charging Indicator:
 - a. Red LED = Indicates batteries are being charged
 - b. Green LED = Indicates batteries are fully charged
- E. Charger detects non-rechargeable batteries and will not charge them
- G. Charging Rate: NiMH 245 mA/hr Lithium 160 mA/hr
- H. Recharge Time: NiMH 10 hours Lithium 6 hours
- I. Power Input: 5V / 1.0A adapter, 6 watts (UL Listed)
- J. Weight: 1 lb. 12oz.

2.5 IR CEILING DOME SENSOR (ICS-55)

- A. 6 large IR receiving LED's equally radial spaced
- B. Phantom powered from receiver / amplifier
- C. Operating frequency: 2.08 MHz & 2.54 MHz
- D. Operating range: 60 Feet line of sight
- E. Signal / Power interface connection: "RCA" type connector
- F. Green LED: Power "ON" indicator
- G. Mounting: Ceiling tile mount with support bracket
- I. Sensor cable: 50 feet coaxial plenum rated with type with "RCA" connectors

PART 3. EXECUTION

3.1 SYSTEM PERFORMANCE

- A. Installation to comply with manufacturer's specifications
- B. Final Adjustment: Upon completion, the system shall be tuned and adjusted for optimum vocal clarity. Transmitters shall be plugged into charger and ready for use.
- C. Provisions: There shall be no audible components of hum, static, noise, or distortion

3.2 ADDITIONAL AS-BUILT DATA REQUIRED

- A. Provide as-built conditions indicating final location of speakers, remote infrared dome sensor, and amplifier.
- B. Provide serial numbers of receiver/amplifier, transmitter(s), and drop-in battery charger.

3.3 INSTALLATION HARDWARE

- A. Receiver/Amplifier: (IR-255)
 - a. Can be rack mounted (one rack space) with rack mount kit (RM-268)
 - b. Mounted under or atop a shelf utilizing the shelf mounting kit (SM-400)
 - c. Placed at any convenient location within the classroom as a free stance unit
 - d. (Optional) Low profile wall cabinet will hold VoiceLink III receiver/amplifier, receiver power supply, route cables through back and bottom, and perfect site for storing drop-in charger (WM-400)
- B. The IR Dome Sensor: (ICS-55)
 - a. The dome sensor is designed to be flush mounted on the ceiling tile using the support bracket clipped to the metal tile support. Connect the coaxial cable via the "RCA" connector and route the cable back to the receiver/amplifier and connect to IR input.

3.4 CLEAN-UP

- A. Remove unused materials and debris from the work and storage areas. Leave areas in undamaged and acceptable condition
- B. Save the shipping boxes and leave for the school to use to return product for service.