



# INFRARED WIRELESS CLASSROOM SYSTEM



***Enrich Your Students' Learning Experience with Remarkably Clear, Easily Audible Classroom Communication.***

# TOA's educational microphone system offers wire interference-free infrared voice transmission that

## TOA innovative all-in-one solution

- Uniform classroom-wide sound quality with single wide-dispersion speaker
- Minimized system components (tuner, 2 microphones and integrated speaker)
- Quick, easy installation requiring just one CAT-5 cable.
- TOA lightweight, low-fatigue infrared wireless microphones



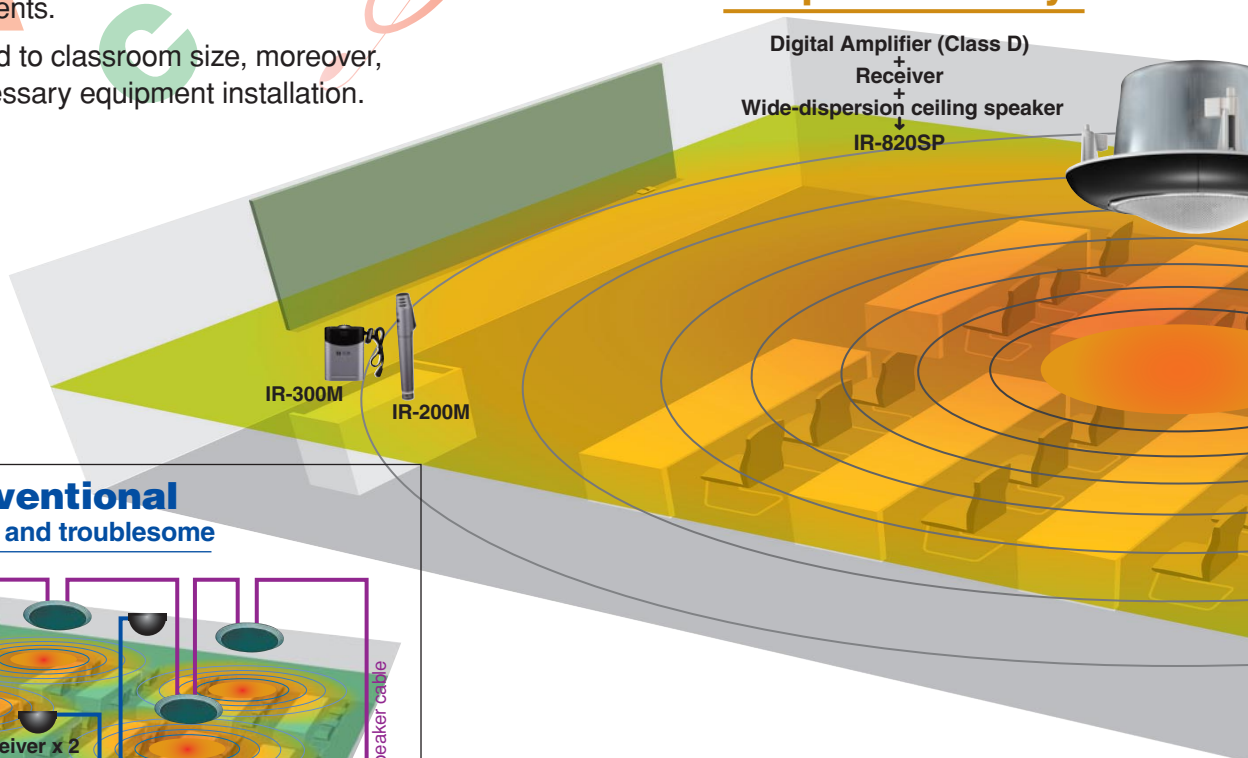
Assembled specifically for classroom use, TOA's new Infrared Wireless Classroom System includes a ceiling-mounted wide-dispersion speaker (with integrated receiver and amplifier), an easily accessed desktop tuner and a pair of lightweight IR wireless microphones, one each for the teacher and students.

The system is tailored to classroom size, moreover, thus avoiding unnecessary equipment installation.

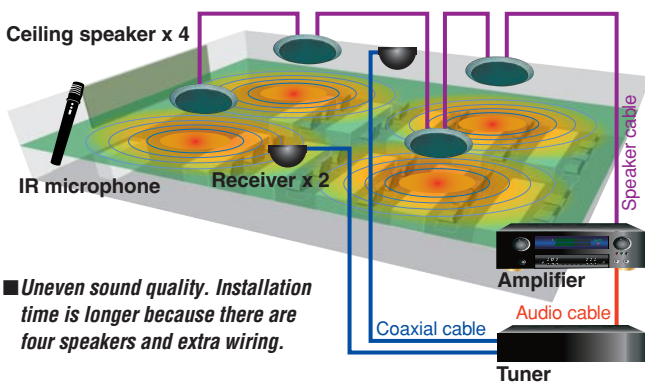
### TOA IR Classroom System

#### Simple and easy

Digital Amplifier (Class D)  
+  
Receiver  
+  
Wide-dispersion ceiling speaker  
↓  
IR-820SP



#### Conventional Complex and troublesome



■ Uneven sound quality. Installation time is longer because there are four speakers and extra wiring.

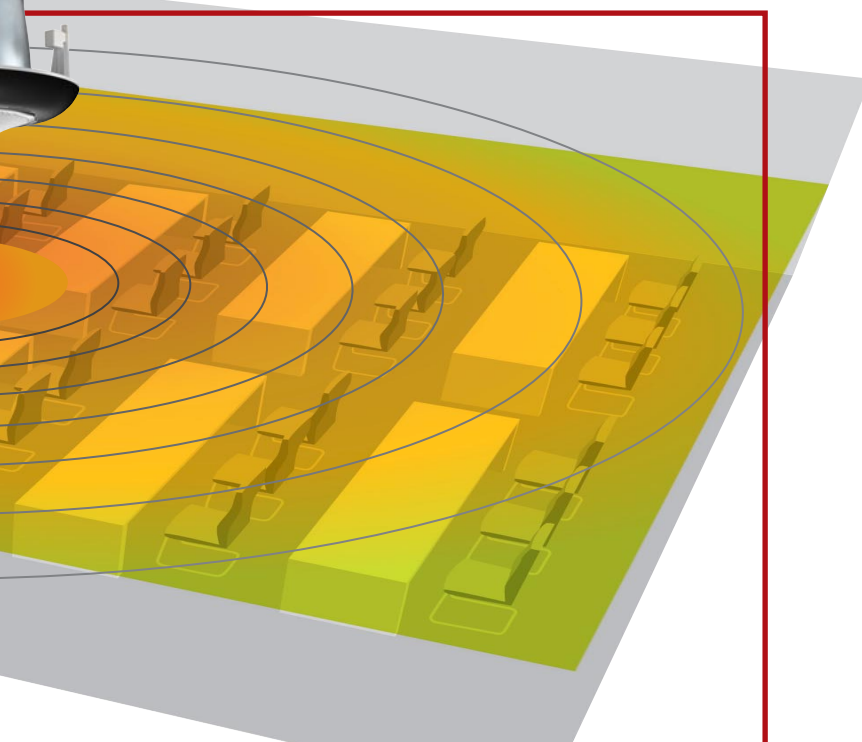
■ Uniform sound quality throughout the classroom through one speaker. Quick and easy installation using one CAT-5 cable.

**less convenience and clear,  
brings classrooms to life.**

**— simple and easy**



The wide-dispersion speaker provides ample 30 ft x 30 ft coverage, transmitting teachers' and students' normal speaking voices to everyone in the room, from front to back, with equal clarity and TOA's renowned superior sound quality. The resulting easy interactive communication stimulates students and improves their understanding of the course content.



**IR-802T (Built-in Preamp)**

**CAT-5 cable**

**IR-820SP**  
Infrared Wireless Speaker



- Built-in infrared receiver and 20 W digital amplifier
- Unique wide-dispersion acoustic structure employing innovative TOA technology to achieve uniform output over a wide radius
- Bass-reflex speaker system achieving a wide frequency range and high power-handling capability

- Easy installation with quick, optimally positioned ceiling mounting

**IR-802T**  
Infrared Wireless Tuner



- 3 AUX inputs for PC, TV/DVD player and MP3 audio player
- Output muting by 25V speaker line signal from emergency/intercom paging
- Equalizer control knobs for low-, mid- and high-frequency outputs
- Mixing output terminal for ALD (Assistive Listening Device)
- Frequency response optimized to reduce acoustic feedback in 30 ft x 30 ft classrooms

**IR-300M (for Teacher)**  
Infrared Wireless Microphone



- Easy-to-wear, neck-suspension design permitting immediate use
- 2-level adjustable infrared light emission intensity
- Lightweight body can be worn for long periods of time without causing fatigue (0.29 lb with 2 alkaline batteries).
- Usable as transmitter for external microphone
- Antibacterial treatment



**Optional External Microphones**



**YP-M101**  
Tie-clip  
Microphone



**YP-M301**  
Headset  
Microphone

**IR-200M (for Student)**  
Infrared Wireless Microphone



- Designed for stable voice transmission, with 2 infrared emitters positioned on the body to avoid accidental interference by a hand holding the microphone
- 2-level adjustable infrared light emission intensity
- Lightweight body keeps hands from tiring, even during long hours of use (0.37 lb with 2 alkaline batteries).
- Antibacterial treatment

**IR-200BC**  
Battery Charger



**IR-200BT-2**  
Ni-MH Batteries



- Ni-MH AA rechargeable batteries for dedicated use with IR-200M/300M.

- Rapid-charging function permitting simultaneous charging of 2 infrared microphones within 3 hours (max.)

## SPECIFICATIONS

IR-820SP Infrared Wireless Speaker	
<b>Power Source</b>	24 V DC (supplied from IR-802T)
<b>Power Consumption</b>	4.4 W (based on UL standard)
<b>Rated Output</b>	20 W
<b>Frequency Response</b>	100 Hz – 20 kHz (-10 dB) at installation in 1/2 free sound field (Measured by installing the unit in the center of a ceiling.)
<b>Amplification System</b>	Class D
<b>Distortion</b>	5% or less (rated output, A-weighted)
<b>Speaker Component</b>	12 cm (4.72") cone-type
Infrared Wireless Receiver	
<b>Wavelength</b>	870 nm
<b>Carrier Frequency</b>	Teacher (Channel A) : 3.100 MHz Student (Channel B) : 3.350 MHz
<b>Reception Angle</b>	360° (Horizontal)
<b>Connection Terminal</b>	RJ-45
<b>LED Indicator</b>	Power (green) × 1
<b>Mounting Hole</b>	ø11.81"
<b>Connection Cable</b>	CAT-5 UTP
<b>Operating Temperature</b>	14°F to 122°F
<b>Operating Humidity</b>	90% RH or less (no condensation)
<b>Finish</b>	Enclosure : Steel plate, plating Baffle : Fire-resistant ABS resin (resin material grade: UL94V-0), white Punched net : Steel plate, white Filter section : Polycarbonate, optical cut filter
<b>Dimensions</b>	ø12.6" × 8.07" (D)
<b>Weight</b>	7.5 lb
<b>Accessories</b>	Safety wire × 1, Ceiling reinforcement ring × 1, Paper pattern × 1
<b>Option</b>	Tile bar bridge: HY-TB1

\*0 dB = 1V

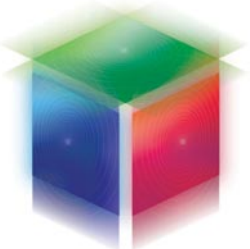
IR-802T Infrared Wireless Tuner	
<b>Power Source</b>	120 V AC, 50/60 Hz (supplied AC adapter must be used)
<b>Power Consumption</b>	8 W (based on UL standards) Max. 40.8 W (rated output of IR-820SP)
<b>Receiving Frequency</b>	Teacher (Channel A): 3.100 MHz Student (Channel B): 3.350 MHz
<b>Receiver Sensitivity</b>	50 dB or more, Signal-to-noise ratio (40 dB $\mu$ V input, 1 kHz modulation, $\pm$ 4.8 kHz deviation)
<b>S/N Ratio</b>	Tuner: 60 dB or more (60 dB $\mu$ V input, 1 kHz modulation, $\pm$ 4.8 kHz deviation, A-weighted, Equalization: Centered) AUX: 75 dB or more (A-weighted, Equalization: Centered)
<b>Tone Squelch Frequency</b>	32.768 kHz
<b>Input</b>	AUX PC: line, -10 dB*, 10 k $\Omega$ , unbalanced, stereo mini jack (internal mixing) AUX DVD/TV: line, -10 dB*, 10 k $\Omega$ , unbalanced, 2P RCA jack (internal mixing) AUX MP3: line, -10 dB*, 10 k $\Omega$ , unbalanced, stereo mini jack (internal mixing) Mute: 25 V line signals of telephone paging from a school intercom system
<b>Output</b>	ALD (Assistive Listening Device): line, -10 dB*, 10 k $\Omega$ , unbalanced, monaural mini jack Speaker: RJ45 (dedicated terminal for IR-820SP connection)
<b>Equalization</b>	High: $\pm$ 10 dB at 10 kHz/Mid: $\pm$ 10 dB at 1.3 kHz/Low: $\pm$ 10 dB at 100 Hz
<b>Mute Function</b>	Muted by 25 V line signals
<b>LED Indicator</b>	Power (green) × 1, Infrared reception (yellow) × 2, Mute (red) × 1
<b>Operating Temperature</b>	14°F to 122°F
<b>Operating Humidity</b>	90%RH or less (no condensation)
<b>Finish</b>	Panel: Aluminium, black/Case: Steel plate, black
<b>Dimensions</b>	8.27" (W) × 1.81" (H) × 12.28" (D)
<b>Weight</b>	3.97 lb
<b>Accessories</b>	AC adapter(DC cord length:5.91 ft) × 1, AC power cord (6.56 ft) × 1 Volume control cover × 6, Removable terminal plug (2 pins) × 1
<b>Option</b>	Half-width blank panel: MB-15B-BK

\*0 dB = 1V

	IR-200M Infrared Wireless Microphone	IR-300M Infrared Wireless Microphone
<b>Batteries</b>	IR-200BT-2 rechargeable batteries for the infrared wireless microphone (option) or AA alkaline dry cell batteries (2 pieces)	
<b>Current Consumption</b>	typ.250 mA (2.4 V, Power selector switch: N)/typ.340 mA (2.4 V, Power selector switch: H)	
<b>Infrared Emitter</b>	870 nm (AM: Brightness modulation) Frequency modulation Channel A: 3.100 MHz/Channel B: 3.350 MHz	
Wavelength	870 nm (AM: Brightness modulation)	
Modulation Method	Frequency modulation	
Carrier Frequency	Channel A: 3.100 MHz/Channel B: 3.350 MHz	
Transmission Distance	Approx. 65 ft (Power selector switch: H; In an unobstructed space)/Approx. 50 ft (Power selector switch: N; In an unobstructed space)	
<b>Tone Signal</b>	32.768 kHz	
<b>Modulation Sensitivity</b>	$\pm$ 4.8 kHz (1 kHz, when SPL of 84 dB is input)	
<b>Maximum Input Sound Pressure</b>	120 dB SPL	
<b>Input Sensitivity Adjustment</b>	—	Adjustment range: -9 dB to 0dB (factory-preset: 0 dB)
<b>Microphone Unit</b>	Unidirectional electret condenser microphone	
<b>Frequency Response</b>	100 Hz – 12 kHz	
<b>Preemphasis</b>	300 $\mu$ s	
<b>Input</b>	—	External microphone input (ø3.5 monaural mini jack)
<b>Battery Operation Time</b>	Approx. 8 hours (when IR-200BT-2 rechargeable batteries for the infrared wireless microphone are used; Power selector switch: N) Approx. 6 hours (when alkaline batteries are used; Power selector switch: N)	
<b>Operating Temperature</b>	32°F to 104°F	
<b>Operating Humidity</b>	30% to 85% RH	
<b>Finish</b>	Control Section: ABS resin, metallic gray, 50% gloss, paint/Filter Section: Polycarbonate, optical cut filter	
<b>Dimensions</b>	ø1.46" × 9.52"	2.52" (W) × 3.59" (H) × 1.07" (D)
<b>Weight</b>	0.37 lb (with batteries)	0.29 lb (with batteries and strap)
<b>Accessories</b>	Screw driver (for setting) × 1, Color label (6 colors) × 1	

IR-200BC Battery Charger	
<b>Power Source</b>	AC mains 50/60 Hz (supplied by the accessory AC adapter)
<b>Current Consumption</b>	Max. 2 A
<b>Charging Time</b>	Max. 3 hours
<b>Number of Wireless Microphones Charged Simultaneously</b>	2 pieces*
<b>Operating Temperature</b>	32°F to 104°F
<b>Operating Humidity</b>	30% to 85% RH
<b>Finish</b>	Case: ABS resin, metallic gray, 50% gloss, paint, Microphone receptacle section : PPE resin, black
<b>Dimensions</b>	9.37" (W) × 4.31" (H) × 3.86" (D)
<b>Weight</b>	1.41 lb (unit only, including mounting adapter)
<b>Accessories</b>	AC adaptor (DC cord length: 5.91 ft) × 1, Power cord (6.56 ft) × 1 Mounting adapter (preinstalled) × 2

\* Use of the mounting adapter allows one IR-200M and one IR-300M to be charged in combination.



Human Society with  
Sound & Communication

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Specifications are subject to change without notice.  
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