# Infrared Wireless Classroom System

Enrich Your Students' Learning Experience with Remarkably Clear, Easily Audible Classroom Communication.
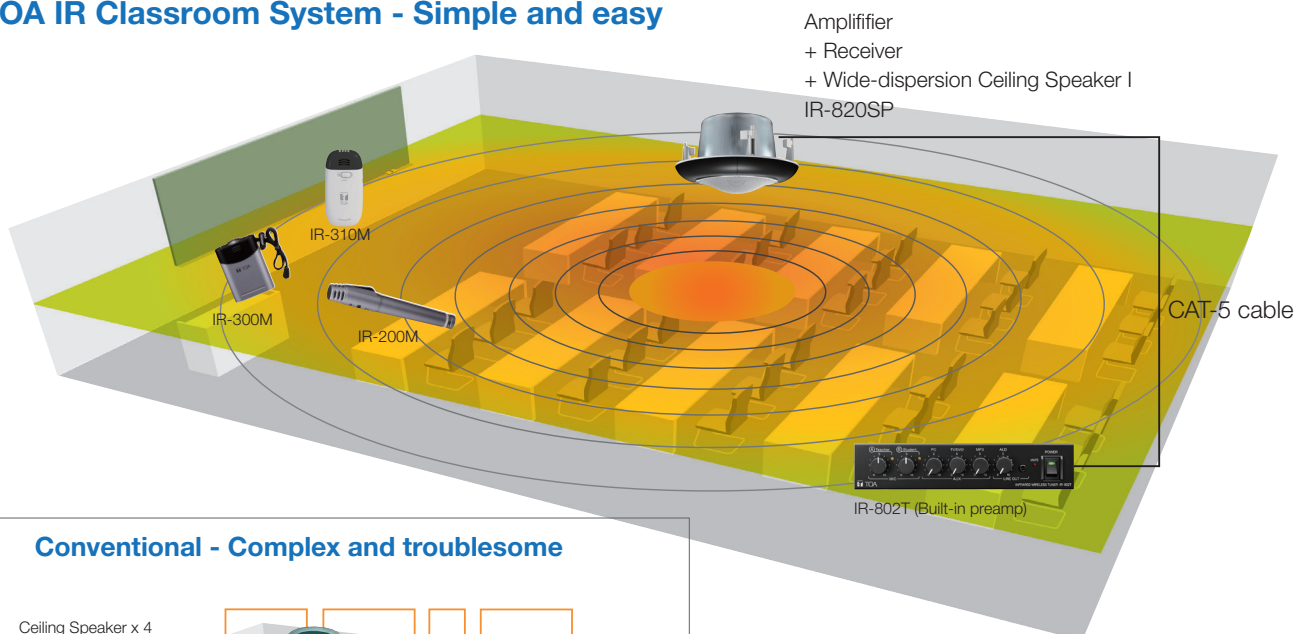
# TOA's educational microphone interference-free infrared voi
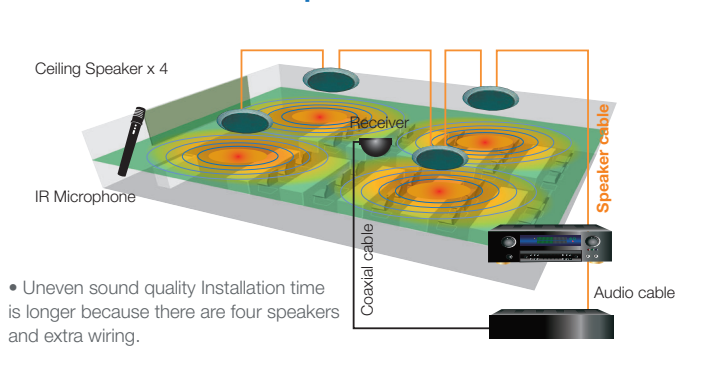
## TOA innovative all-in-one solution - simple and easy

- 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.
- Selection of three TOA lightweight, low-fatigue IR wireless microphones
- System expandable with optional interface unit for external device control and paging operations

## TOA IR Classroom System - Simple and easy

Amplifier
+ Receiver
+ Wide-dispersion Ceiling Speaker I
IR-820SP

IR-310M

IR-300M

IR-200M

CAT-5 cable

IR-802T (Built-in preamp)

### Conventional - Complex and troublesome

Ceiling Speaker x 4

Receiver

Speaker cable

IR Microphone

Coaxial cable

Audio cable

- 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.

# system offers wireless convenience and clear,
# ce transmission that brings classrooms to life.

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. 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-820SP
## Infrared Wireless Speaker

• Built-in infrared receiver and 20W 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 25 V line signal from telephone 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-310M Infrared Wireless
## Microphone (for Teacher/Student)

• Usable as hands-free or hand-held microphone
• Lightweight body with unobtrusive styling
• 8-hour operation with single AA battery
• Microphone sensitivity adjustable to suit application
• Sturdy clothing clip to prevent wobbling or rotation during hands-free use

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

• 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-310BC
## Battery Charger (for IR-310M)

• Dedicated battery charger for IR-310M
• Anti-overcharging design

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

• 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 (for IR-310M/300M)

YP-M101
Tie-clip
Microphone

YP-M301
Headset
Microphone

## IR-200BT-2 Ni-MH Batteries
Ni-MH AA rechargeable batteries for Infrared Wireless Microphones.

## IR-200BC Battery Charger
## (for IR-200M/300M)

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

## IR-800D infrared IR
## Receiver Expander

• Expansion unit that allows for the addition of any IR-500 series IR receiver to the IR-800 System

| IR-820SP Infrared Wireless Speaker | |
| --- | --- |
| Power Source | 24 V DC (supplied from IR-802T) |
| Power Consumption | 4.4 W (based on UL standard) |
| Rated Output | 20 W |
| Frequency Response | 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.) |
| Amplication System | Clase D |
| Distortion | 5 % or less (rated output) |
| Speaker Component | 12 cm (4.72") cone-type |
| Infrared Wireless Receiver | |
| Wavelength | 870 nm |
| Carrier Frequency | Channel A (for teacher) : 3.100 MHz |
| | Channel B (for students) : 3.350 MHz |
| Reception Angle | 360° (Horizontal) |
| Connection Terminal | RJ-45 |
| LED Indicator | Power (green) x 1 |
| UL Code | UL60065, UL2043 |
| Mounting Hole | ø 300 mm (11,81") |
| Usage Cable | CAT-5 UTP |
| Operating Temperature | -10 °C to +50 °C |
| Operating Humidity | 90% RH or less (no condensation) |
| Finish | Enclosure : Steel plate, plating |
| | Baffle : Fire-resistant ABS resin (resin material grade: UL94 V-0), white |
| | Punched net : Steel plate, white |
| | Filter section : Polycarbonate, optical cut filter |
| Dimensiones | ø320 x 205 (D) mm |
| Weight | 3.4 kg |
| Accessories | Safety wire x 1, Ceiling reinforcement ring x 1, Trim ring x 1, Paper pattern x 1 |
| Option | Tile bar bridge: HY-TB1 |

| IR-802T Infrared Wireless Tuner (CE-GB version) | |
| --- | --- |
| Power Source | 120 V CA, 50/60 Hz (se debe usar el adaptador de CA suministrado) |
| Power Consumption | 8 W (based on UL standards) Max. 40.8 W (rated output of IR-820SP) |
| Receiving Frequency | Teacher (Channel A): 3.100 MHz |
| | Student (Channel B ): 3.350 MHz |
| Receiver Frequency | 50 dB or more, Signal-to-noise ratio (40 dBμV input, 1 kHz modulation, ±4.8 kHz deviation |
| S/N Ratio | Tuner: 60 dB or more (60 dBμV input, 1 kHz modulation, ±4.8 kHz deviation, A-weighted, Equalization: Centered) |
| | AUX: 75 dB or more (A-weighted, Equalization: Centered) |
| Tone Squelch Frequency | 32.768 kHz |
| Input    AUX PC: | line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing) |
| AUX DVD/TV: | line, -10 dB*, 10 kΩ, unbalanced, 2P RCA jack (internal mixing) |
| AUX MP3: | line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing) |
| Mute: | 25 V line signals of telephone paging from a school intercom system) |
| Output | ALD (Assistive Listening Device): line, -10 dB*, 10 kΩ, unbalanced, monaural mini jack |
| | Speaker: RJ45 (dedicated terminal for IR-820SP connection) |
| Frequency Response | Tuner: 100 Hz - 12k Hz, AUX: 100 Hz - 20k Hz |
| Equalization | High: ±10 dB at 10 kHz/Mid: ±10 dB at 1.3 kHz/Low: ±10 dB at 100 Hz |
| Mute Function | Muted by 25 V line signals |
| LED Indicator | Power (green) x 1, Infrared reception (yellow) x 2, Mute (red) x 1 |
| Operating Temperature | -10 °C to +50 °C |
| Operating Humidity | 90% RH or less (no condensation) |
| Finish | Panel: Aluminum, black/Case: Steel plate, black |
| Dimensions | 210 (W) x 46 (H) x 312 (D) mm |
| Weight | 1.80 kg |
| Accessories | AC adapter(DC cord length: 1.8 m) x 1, AC power cord (2 m) x 1 |
| | Volume control cover x 6, Removable terminal plug (2 pins) x 1 |
| Option | Half-width blank panel: MB-15B-BK |

| | IR-310M Infrared Wireless Microphone | IR-300M Infrared Wireless Microphone | IR-200M Infrared Wireless Microphone |
| --- | --- | --- | --- |
| Batteries | One piece of IR-200BT-2 rechargeable battery for the infrared wireless microphone (option) | IR-200BT-2 rechargeable batteries for the infrared wireless microphone (option) or AA alkaline dry cell batteries (2 pieces) | |
| Current Consumption | typ.215 mA (1.2 V) | typ.250 mA (2.4 V, Power selector switch: N)/typ.340 mA (2.4 V, Power selector switch: H) | |
| Infrared Emitter | | | |
| 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. 15 m (in an unobstructed space) | Approx. 20 m (Power selector switch: H; in an unobstructed space) | |
| | | Approx. 15 m (Power selector switch: N; in an unobstructed space) | |
| Maximum Input Sound Pressure | 120 dB SPL | | |
| Input Sensitivity Adjustment | Adjustment range: 2 levels (High, Low) | Adjustment range: -9 dB to 0 dB (factory-preset: 0 dB) | - |
| Microphone Unit | Unidirectional electret condenser microphone | | |
| Frequency Response | 100 Hz – 12 kHz | | |
| Preemphasis | 300 μs | | |
| Input | External microphone input (ø3.5 monaural mini jack, phantom powered) | | - |
| Battery Operation Time | Approx. 8 hours (one piece of IR-200BT-2) | Approx. 8 hours (IR-200BT-2, Power selector switch: N) | |
| | | Approx. 6 hours (Alkaline batteries, Power selector switch: N) | |
| Operating Temperature | 0 °C to + 40 °C | | |
| Operating Humidity | 90 % RH or less (no condensation) | 30 % to 85 %RH | |
| Finish | Control Section: ABS resin, white/Filter Section: Polycarbonate, optical cut filter | Control Section: ABS resin, metallic gray, paint, 50% gloss Filter Section: Polycarbonate, optical cut filter | |
| Dimensions | 54.2 (W) x 109 (H) x 27 (D) mm | 64 (W) x 91.3 (H)  x 27.3 (D) mm | ø 37 x 241.8 (H) mm |
| Weight | 95 g (with battery and strap) | 130 g (with battery and strap) | 170 g (with battery) |
| Accessories | Neck strap x 1 | Screw driver (for setting) x 1, Color label (6 colors) x 1 | |

| | IR-310BC Battery Charger | IR-200BC Battery Charger |
| --- | --- | --- |
| Power Source | AC mains 50/60 Hz (supplied from the incfluded AC adapter) | |
| Power Consumption | Max.: 2 A | |
| Charging Time | Max.: 3 h | |
| Number of Wireless Microphones to be Charged Simultaneously | 1 piece | 2 pieces* |
| Operating Temperature | 0 °C to +40 °C | |
| Operating Humidity | 90 % RH or less (no condensation) | 30 % to 85 % RH (no condensation) |
| Finish | Control section: PPE resin, White | Case: ABS resin, metallic gray, paint, 50% gloss Microphone receptacle section :PPE resin, black |
| Dimensiones (W) x (H) x (D) | 76 x 75.5 x 60 mm | 238 x 109.5 x 98 mm |
| Weight | 105 g | 635 g (unit only, including mounting adapter (accessory)) |
| Accessories | AC adapter x 1, Power cord x 1 | AC adapter (DC cord length: 1.8 m) x 1, Power cord (2 m) x 1, Mounting adapter (preinstalled on the unit) x 2 |
| Option | Ni-MH battery: IR-200BT-2 (containing 2 pieces) | |

| IR-800D Receiver Expander | |
| --- | --- |
| Input/Output | 2 mixing inputs, 1 distribution output |
| Band-Pass Frequency | 3.0 - 6.0 MHz |
| Distribution Input | RJ45 x 1 for IR-820SP, 75 Ω, BNC jack x 1 for IR-500 series IR receiver |
| Distribution Output | RJ45 x 1 for IR-802T |
| Operating Temperature | -10 °C to +50 °C (14 °F to 122 °F) |
| Operating Humidity | 30 % to 85 %RH (no condensation) |
| Finish | Case: ABS resin, black |
| Dimensiones (W) x (H) x (D) | 84 (W) x 84 (H) x 32 (D) mm (3.29" x 3.29" x 1.25") |
| Weight | 140 g (0.31 lbs.) |

*Using the mounting adapter allows one each of the IR-200M and IR-300M to be charged in combination

# TOA Corporation
www.toaamericas.com