

# TAIDEN®

## Smart Classroom System



## Smart Classroom System

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## Smart Classroom System

### System overview

With the wide application of multimedia teaching system, the traditional teaching equipment has become unable to meet the needs of campus information management. In order to further improve the teaching quality and teaching management service level, and create a convenient, intelligent and interconnected smart classroom system, TAIDEN launched TES-8000 series smart classroom system after its digital infrared wireless classroom audio system.

TES-8000 series smart classroom system integrates the digital infrared audio transmission and control technology used in the current TES-5600 series classroom audio system. At the same time, the network communication technology is used to manage and remote control the multimedia platform, projector, curtain, computer, audio and video equipment, microphone and power amplifier in the multimedia classroom, so as to create an integrated, intelligent and safe smart campus.

### System theory

The core of the TAIDEN digital infrared wireless classroom audio system – dirATC (digital infrared Audio Transmitting and Control technologies) - is a new technology originated by TAIDEN. It encodes and modulates audio and data signals digitally for transmission via infrared light, achieving both multi-channel audio signals and bidirectional data transmission and control. Digitalization and wireless transmission via infrared technology are integrated to make an ideal solution for a wireless conference system. TAIDEN's infrared audio transmission and control technology (dirATC) is built on its processing chip by integrating A/D (analog/digital) conversion circuit, digital encoding/decoding circuit, digital modulator/demodulator (DQPSK), and filtering and amplification circuit.



TAIDEN TDIR04 digital infrared processing chip

### System features

#### Excellent Audio Clarity

- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response: main unit to main unit: 50 Hz to 20 kHz  
Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR: ≥90 dBA
  - ◆ THD: ≤0.05%
- Better audio acoustics protects lecturers from hoarse voice
- Clearer audio facilitates learning efficiency by helping students stay focused

#### Integrated design, supporting flexible expansion

- Software and hardware integration, modular design, plug-in structure, supporting seamless expansion of other modules
- With OPS PC slot, expandable with OPS computer
- Courseware can be displayed through OPS computer or notebook computer
- Based on its intelligent operating system, expand and upgrade diverse teaching applications

#### Remote intelligent control

It supports display systems such as touchscreen LED display, projection curtain / whiteboard, etc., can control their switch and lifting, support centralized monitoring and management of various electrical equipment, and support energy consumption monitoring and data acquisition

#### Intelligent wireless IOT

The system features real-time acquisition of classroom temperature and humidity, CO<sub>2</sub> concentration, PM2.5, formaldehyde and other data, and can automatically turn on the air conditioner according to the preset, and adjust the temperature, humidity and CO<sub>2</sub> concentration; it can automatically turn on the light, open and close the curtain, provide natural light source to create a comfortable teaching environment.

The diagram illustrates a smart campus management system architecture. At the center is the **Smart Campus Management Platform**, which includes a **Recording Server**, a **Management Server**, a **Switch**, and a **PC**. This platform is connected to multiple classrooms (Class 1, Class 5, Class 15, Class 20, Class 25, Class N) and other campus areas (Dining Hall, Library, Dormitory, Playground). Each classroom is equipped with various IoT devices like air conditioners, lights, and cameras, all connected to a central switch and managed by a cloud platform. The classrooms are connected to the central switch via Cat.5 cables. The central switch is also connected to the Internet. The campus areas are connected to the central switch via Cat.5 cables. The central switch is also connected to the Internet.

## TES-5608 Series Digital IR Smart Teaching Microphone



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR: ≥90 dBA
  - ◆ THD: ≤0.05%
- Insusceptible to interferences from HF-driven lighting and works perfectly in sunlight
- Superior scalability, supporting audio input (Ø 3.5 mm AUDIO IN) from devices such as MP3 and mobile phone
- Volume adjustment of the microphone
- Remote control of PPT slides
- Supports laser pointer (TES-5608C)
- Built-in digital laser pointer, with more functionalities when working with the software (TES-5608B):
  - ◆ Multiple pointing modes: highlight, magnify, cursor
  - ◆ Support content interaction via the cursor, such as playing video, opening links, etc.
- Supports PTT (push to talk)
- Transmitter powers off automatically when no voice is detected for a preset period of time
- Microphone channel adjustable
- TES-5608B/C with a C type USB port which can connect to and power the TES-5608A
- TES-5608A is a light-weight clip microphone, with an 1.5 meter USB cable for connecting to TES-5608B/C and a clip for fitting on the lapel or necktie
- TES-5608B/C is of ergonomically compact and elegant design, can be held in hand or hung around the neck via a nice strap or fit at the waist via a belt case
- Emission angle: vertical: 0°~ 90°, horizontal: 120°
- Emission range: linear transmitting distance: over 25 m
- Supports Lithium battery, battery life: 8 hours

- Charge via C type USB port (compatible with mobile phone charger) or via charging station

### Controls and Indicators

- Power button
- Microphone volume up/down button
- Microphone on (MIC) indicator
- PPT mode indicator
- Battery indicator
- “...” button: select MIC/PPT mode
- Laser pointer button and transmitter

### Interconnections

- Ø 3.5 mm jack for auxiliary audio input
- Two charging contacts
- USB port for charging/ connecting to TES-5608A

### Technical Specifications

#### Electrical

IR transmission wavelength.....	870 nm
Modulation method.....	DQPSK
Power.....	DC 5 V, 2 A
Carrier frequency.....	Audio channel 1: 1.0 MHz
	Audio channel 2: 1.67 MHz
	Audio channel 3: 2.33 MHz
	Audio channel 4: 3.0 MHz
	Audio channel 5: 3.67MHz
Capacity of battery.....	2300 mAh
When mic. is continuously on.....	Approx. 8 hours

#### Interface data

Connector.....	Ø 3.5 mm jack for auxiliary audio input
	USB port for charging/ connecting to microphone

#### Mechanical

Color.....	Black (TES-5608A)
	space grey (TES-5608B/C)
Dimensions (h x w x d).....	37×27×44 (TES-5608A)
	41×13×123 (TES-5608B/C)
Weight.....	20 g (TES-5608A)
	90 g (TES-5608B/C)

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**Ordering Information**

TES-5608A .....	Digital Infrared Clip Microphone
TES-5608B.....	Digital Infrared Wireless Presenter (space grey, with digital laser pointer, built-in rechargeable lithium battery, with neck lanyard and belt case, excl. adapter)
TES-5608C.....	Digital Infrared Wireless Presenter (space grey, with laser pointer, built-in rechargeable lithium battery, with neck lanyard and belt case, excl. adapter)

## TES-5604N\_W Digital Infrared Wireless Microphone



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Insusceptible to interferences from HF-driven lighting and works perfectly in sunlight
- Superior scalability, supporting audio input (Ø 3.5 mm AUDIO IN) from devices such as MP3 and mobile phone
- Supports audio input from external microphones
- Volume adjustment of the (fixed/external) microphone
- Remote control of PPT slides
- Supports laser pointer
- Supports PTT (push to talk)
- Transmitter powers off automatically when no voice is detected for a preset period of time
- Microphone channel adjustable
- Ergonomically compact and elegant design, can be held in hand or hung around the neck via a nice strap or fit on the necktie
- Emission angle: vertical: 0°~ 90°, horizontal: 120°
- Emission range: linear transmitting distance: over 25 m
- Supports Lithium battery, battery life: 7 hours
- Charge via USB port (compatible with mobile phone charger) or via charging station

### Controls and Indicators

- Microphone on/off button
- Microphone volume up/down button
- Microphone on (MIC) indicator
- PPT mode indicator
- Charging indicator
- “...” button: select MIC/PPT mode
- Laser pointer button and transmitter

### Interconnections

- Ø 3.5 mm jack for auxiliary audio input
- Two charging contacts
- USB port for charging

### Technical Specifications

#### Electrical

IR transmission wavelength.....	870 nm
Modulation method.....	DQPSK
Power.....	DC 5 V, 2 A
Carrier frequency.....	Audio channel 1: 1.0 MHz
	Audio channel 2: 1.67 MHz
	Audio channel 3: 2.33 MHz
	Audio channel 4: 3.0 MHz
	Audio channel 5: 3.67MHz
Capacity of battery.....	2300 mAh
When mic. is continuously on.....	Approx. 7 hours

#### Interface data

Connector.....	Ø 3.5 mm jack for auxiliary audio input
	USB port for charging

#### Mechanical

Dimensions (h x w x d).....	145 x 41 x 22 mm
Color.....	White (PANTONE 420 C)
Weight.....	80 g

### Ordering Information

TES-5604N_W.....	Digital Infrared Wireless Microphone (white, built-in rechargeable lithium battery, with laser pointer, excl. adapter, used with TES-5600NS_W neck lanyard or TES-5600CLP clip)
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## TES-1021 Clip Microphone



### Features

- Stylish and ergonomic design
- Used for TES-5604/07 series microphones
- Excellent immunity to RF interferences from mobile phones
- Ø 3.5 mm stereo plug with a 0.3- meter cable
- Color: black (PANTONE 419 C)
- Weight: 10 g

### Ordering Information

TES-1021.....Clip Microphone

## TES-1023 Head-worn Microphone



### Features

- Stylish and ergonomic design
- Used for TES-5604/07 series microphones
- Excellent immunity to RF interferences from mobile phones
- Ø 3.5 mm stereo plug with a 1.2- meter cable
- Weight: 18 g

### Ordering Information

TES-1023.....Head-worn Microphone

## TES-1022 Single-ear Microphone



### Features

- Stylish and ergonomic design
- Used for TES-5604/07 series microphones
- Excellent immunity to RF interferences from mobile phones
- Ø 3.5 mm stereo plug with a 0.55- meter cable
- Weight: 11 g

### Ordering Information

TES-1022.....Single-ear Microphone

## TES-8000MA Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware, modular design and plug-in circuit structure, supports seamless expansion of other modules
- With lockable cover plate, which can be unlocked by IC card or key. The cover plate can be covered when class is over, convenient for management and avoids the loss of wireless microphone
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- With 1 charging station for TES-5604/5608 series microphone
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- with OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 7 USB ports connecting to OPS computer (front 1-port supports USB3.0)
- Courseware can be displayed through OPS computer or connected laptop
- 14 Inch High Definition LCD screen, supporting 1080p HD display and touch operation
- 12 touch buttons with indicator light, supporting commonly used functions, such as projection, PC, broadcasting, unlocking, visualization, volume adjustment, etc
- built in 5 megapixel high-resolution camera, pre-installed display software, can realize visualization of paper documents
- built in 5-port (front 1-port) gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- built in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting hdmi2.0 standard, hdcp2.2, and maximum resolution of  $3840 \times 2160@60\text{Hz}$
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply), front 1-way microphone input interface (6.4mm)
- Front 1-way line input interface (3.5mm)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect tes-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control
- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IoT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO<sub>2</sub>, PM2.5, temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting, high definition video broadcasting, audio and video on demand or programming timing playback
- Support the normal recording and broadcasting function
- Teaching supervision platform: remote audio and video monitoring for each classroom

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	60 W $\times$ 4 (6 Ohm)

**Mechanical**

Dimensions (h x w x d).....804 x 400 x 65 mm  
 Color.....White

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**Ordering Information**

TES-8000MA..... Smart Classroom Combo Unit (wall mounted, 14 inch touch screen, digital infrared sound reinforcement, OPS PC slot, built-in digital power amplifier, visualizer, network central control, wireless IoT, network switch, digital audio broadcasting over IP, campus TV station, HD video publishing to classrooms, class recording and broadcasting, teaching supervision)

## TES-8000MB Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- With lockable cover plate, which can be unlocked by IC card or key. The cover plate can be covered when class is over, convenient for management and avoids the loss of wireless microphone
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- With 1 charging station for TES-5604/5608 series microphone
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- with OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 7 USB ports connecting to OPS computer (front 1-port supports USB3.0)
- Courseware can be displayed through OPS computer or connected laptop
- 14 Inch High Definition LCD screen, supporting 1080p HD display and touch operation
- 12 touch buttons with indicator light, supporting commonly used functions, such as projection, PC, broadcasting, unlocking, visualization, volume adjustment, etc
- built in 5 megapixel high-resolution camera, pre-installed display software, can realize visualization of paper documents
- built in 5-port (front 1-port) gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- built in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting hdmi2.0 standard, hddp2.2, and maximum resolution of  $3840 \times 2160@60\text{Hz}$
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply), front 1-way microphone input interface (6.4mm)
- Front 1-way line input interface (3.5mm)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect tes-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control
- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IoT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of  $\text{CO}_2$ , PM2.5, temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting, high definition video broadcasting, audio and video on demand or programming timing playback

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	$60 \text{ W} \times 4$ (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	804 x 400 x 65 mm
Color	White

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**Ordering Information**

TES-8000MB..... Smart Classroom Combo Unit (wall  
 mounted, 14 inch touch screen,  
 digital infrared sound reinforcement,  
 OPS PC slot, built-in digital power  
 amplifier, visualizer, network central  
 control, wireless IoT, network  
 switch, digital audio broadcasting  
 over IP, campus TV station, HD  
 video publishing to classrooms)

## TES-8000MC Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- With lockable cover plate, which can be unlocked by IC card or key. The cover plate can be covered when class is over, convenient for management and avoids the loss of wireless microphone
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- With 1 charging station for TES-5604/5608 series microphone
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- with OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 7 USB ports connecting to OPS computer (front 1-port supports USB3.0)
- Courseware can be displayed through OPS computer or connected laptop
- 14 Inch High Definition LCD screen, supporting 1080p HD display and touch operation
- 12 touch buttons with indicator light, supporting commonly used functions, such as projection, PC, broadcasting, unlocking, visualization, volume adjustment, etc
- Built in 5 megapixel high-resolution camera, pre-installed display software, can realize visualization of paper documents
- Built-in 5-port (front 1-port) gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- Built-in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting hdmi2.0 standard, hdcp2.2, and maximum resolution of  $3840 \times 2160 @ 60\text{Hz}$
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply), front 1-way microphone input interface (6.4mm)
- front 1-way line input interface (3.5mm)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect tes-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control
- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO<sub>2</sub>, PM2.5, temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	60 W $\times$ 4 (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	804 x 400 x 65 mm
Color	White

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**Ordering Information**

TES-8000MC ..... Smart Classroom Combo Unit (wall mounted, 14 inch touch screen, digital infrared sound reinforcement, OPS PC slot, built-in digital power amplifier, visualizer, network central control, wireless IoT, network switch, digital audio broadcasting over IP)

## TES-8000ME Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- With lockable cover plate, which can be unlocked by IC card or key. The cover plate can be covered when class is over, convenient for management and avoids the loss of wireless microphone
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- With 1 charging station for TES-5604/5608 series microphone
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- 2.8 Inch High Definition LCD screen, supporting unlocking, booth, broadcasting, volume adjustment and touch operation
- 16 touch buttons with indicator light, supporting common functions, such as projection, PC, broadcast, unlocking, booth, volume adjustment, etc
- built in 5 megapixel high-resolution camera, pre-installed display software, can realize electronic paper documents
- built in 5-port (front 1-port) gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- built in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting hdmi2.0 standard, hdp2.2, and maximum resolution of 3840 × 2160@60Hz
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply), front 1-way microphone input interface (6.4mm)
- front 1-way line input interface (3.5mm)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect tes-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control
- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO<sub>2</sub>, PM2.5, temperature, humidity, illumination, etc

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz
	Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz
	mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	60 W × 4 (6 Ohm)

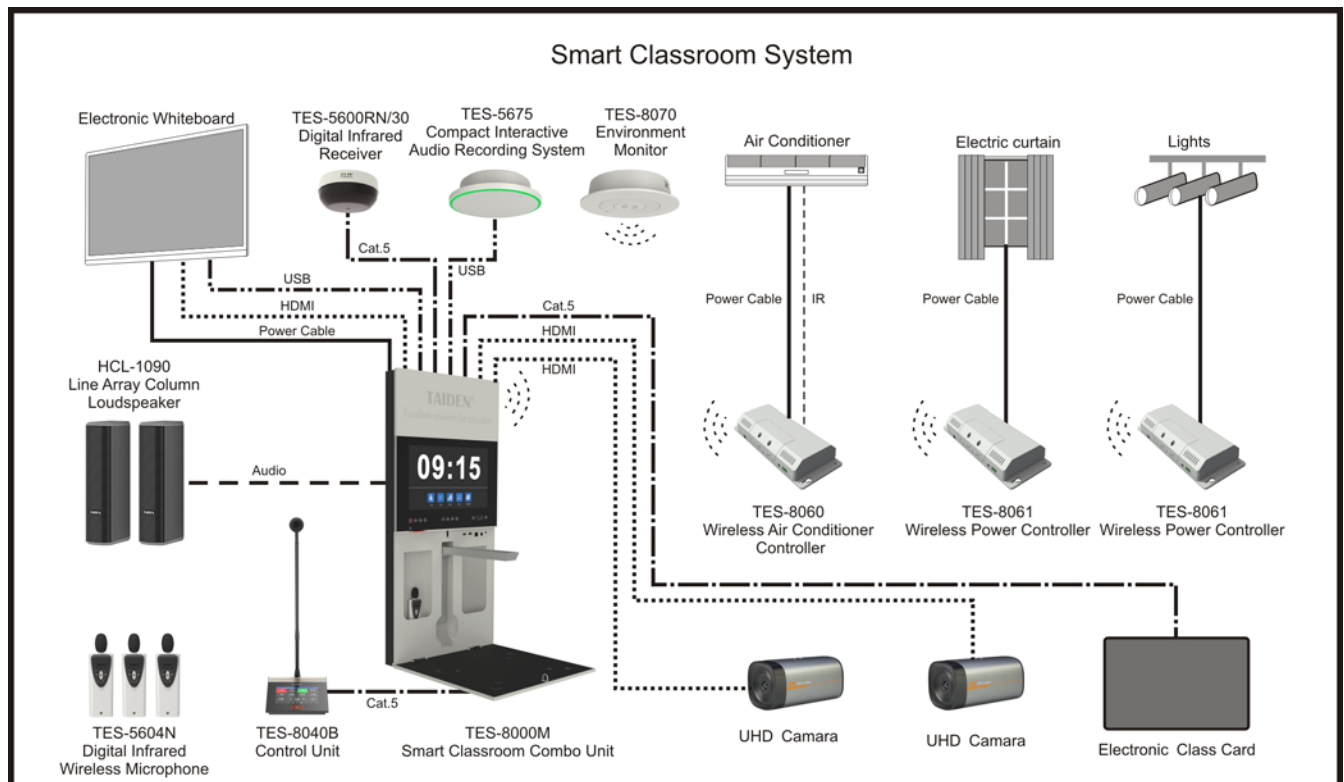
#### Mechanical

Dimensions (h x w x d)	804 x 400 x 65 mm
Color	White

### Ordering Information

TES-8000ME	Smart Classroom Combo Unit (wall mounted, 2.8 inch touch screen, digital infrared sound reinforcement, built-in digital power amplifier, visualizer, network central control, wireless IoT, network switch)
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**TES-8000 Series Smart Classroom System**

## TES-8100MA Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- With OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 4 USB ports connecting to OPS computer
- Courseware can be displayed through OPS computer or connected laptop
- Built in 4-port gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- Built in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting HDMI2.0 standard, HDCP2.2, and maximum resolution of 3840 × 2160@60Hz
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect TES-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control

- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO<sub>2</sub>, PM2.5, temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting, high definition video broadcasting, audio and video on demand or programming timing playback
- Support the normal recording and broadcasting function
- Teaching supervision platform: remote audio and video monitoring for each classroom

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz
	Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz
	mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	60 W × 4 (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	52 x 483 x 300 mm
Weight	4.0 kg
Color	White

### Ordering Information

TES-8100MA	Smart Classroom System Main Unit
	(19-inch rack mounting, digital infrared sound reinforcement, OPS PC slot, built-in digital power amplifier, network central control, wireless IoT, network switch, digital audio broadcasting over IP, campus TV station, HD video publishing to classrooms, class recording and broadcasting, teaching supervision)

## TES-8100MB Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR:  $\geq 90$  dBA
  - ◆ THD:  $\leq 0.05\%$
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- With OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 4 USB ports connecting to OPS computer
- Courseware can be displayed through OPS computer or connected laptop
- Built-in 4-port gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- Built-in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting HDMI2.0 standard, HDCP2.2, and maximum resolution of  $3840 \times 2160@60\text{Hz}$
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect TES-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control

- Built-in web server, which can access the host through browser for parameter setting and management
- Built-in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of  $\text{CO}_2$ ,  $\text{PM}_{2.5}$ , temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting, high definition video broadcasting, audio and video on demand or programming timing playback

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: $\geq 90$ dBA
THD	Mic. to main unit: $\leq 0.05\%$
Dynamic range	Mic. to main unit: $\geq 85$ dB
Audio Power Amplifier	
Max. output power	60 W $\times$ 4 (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	52 x 483 x 300 mm
Weight	4.0 kg
Color	White

### Ordering Information

TES-8100MB	Smart Classroom System Main Unit (19-inch rack mounting, digital infrared sound reinforcement, OPS PC slot, built-in digital power amplifier, network central control, wireless IoT, network switch, digital audio broadcasting over IP, campus TV station, HD video publishing to classrooms)
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## TES-8100MC Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR: ≥90 dBA
  - ◆ THD: ≤0.05%
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- With OPS computer slot, expandable OPS computer, strong compatibility and expansibility
- 4 USB ports connecting to OPS computer
- Courseware can be displayed through OPS computer or connected laptop
- Built-in 4-port gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- Built-in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting HDMI2.0 standard, HDCP2.2, and maximum resolution of 3840 × 2160@60Hz
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect TES-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control

- Built-in web server, which can access the host through browser for parameter setting and management
- Built in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO2, PM2.5, temperature, humidity, illumination, etc
- Built-in audio and video coding and decoding function, supporting campus IP digital audio broadcasting

### Technical Specifications

#### Electrical

Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: ≥90 dBA
THD	Mic. to main unit: ≤0.05%
Dynamic range	Mic. to main unit: ≥85 dB
Audio Power Amplifier	
Max. output power	60 W × 4 (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	52 x 483 x 300 mm
Weight	4.0 kg
Color	White

### Ordering Information

TES-8100MC	Smart Classroom System Main Unit (19-inch rack mounting, digital infrared sound reinforcement, OPS PC slot, built-in digital power amplifier, network central control, wireless IoT, network switch, digital audio broadcasting over IP)
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## TES-8100ME Smart Classroom Combo Unit



### Functions

- Original dirATC—digital infrared audio transmission and control technology
- Infrared transmitting carrier frequency conforms to IEC 61603-7, DQPSK digital modulation/demodulation technology
- Crystal-clear audio everywhere within an operating range of 20 meters
  - ◆ Freq. response:
    - Main unit to main unit: 50 Hz to 20 kHz
    - Microphone to main unit: 100 Hz to 20 kHz
  - ◆ SNR: ≥90 dBA
  - ◆ THD: ≤0.05%
- Features integration of the software and hardware modular design and plug-in circuit structure, supports seamless expansion of other modules
- Supports 2 wireless microphones
- 2 RJ45 for digital infrared wireless receiver
- Cooperate with digital infrared wireless microphone, PPT page turning function can be realized
- Built-in 4-port gigabit network switch, supporting VLAN setting, can be connected to LAN and WAN respectively to meet the requirements of different application environments
- Built in HDMI matrix, 2-channel HDMI input interface, 3-channel HDMI output interface (2-channel independent output), supporting HDMI2.0 standard, HDCP2.2, and maximum resolution of 3840 × 2160@60Hz
- 1 magnetic lock control interface
- 1 programmable RS232 communication serial port
- 1 balanced audio input interface for public address input
- 2-channel microphone input interface (3.5mm, with phantom power supply)
- 1 line output interface, 1 recording output interface
- 1 8-core interface can be used to connect TES-8040 series control unit, and can realize user-defined functions, such as one key operation after class / after class
- Built-in digital audio power amplifier with 4 Speaker interfaces for direct connection to Speakers
- 1 220 V anti falling socket power input interface
- 3 220 V anti falling intelligent strong current output socket can control and manage external equipment through central control
- Built-in web server, which can access the host through browser for parameter setting and management

- Built in wireless IOT controller and network central control system:
  - ◆ It supports the access of classroom equipment (lighting, air conditioner, curtain, etc.) for local or remote control and regulation, state monitoring and energy consumption statistics
  - ◆ Supports environmental monitoring of CO<sub>2</sub>, PM2.5, temperature, humidity, illumination, etc

### Technical Specifications

#### Electrical

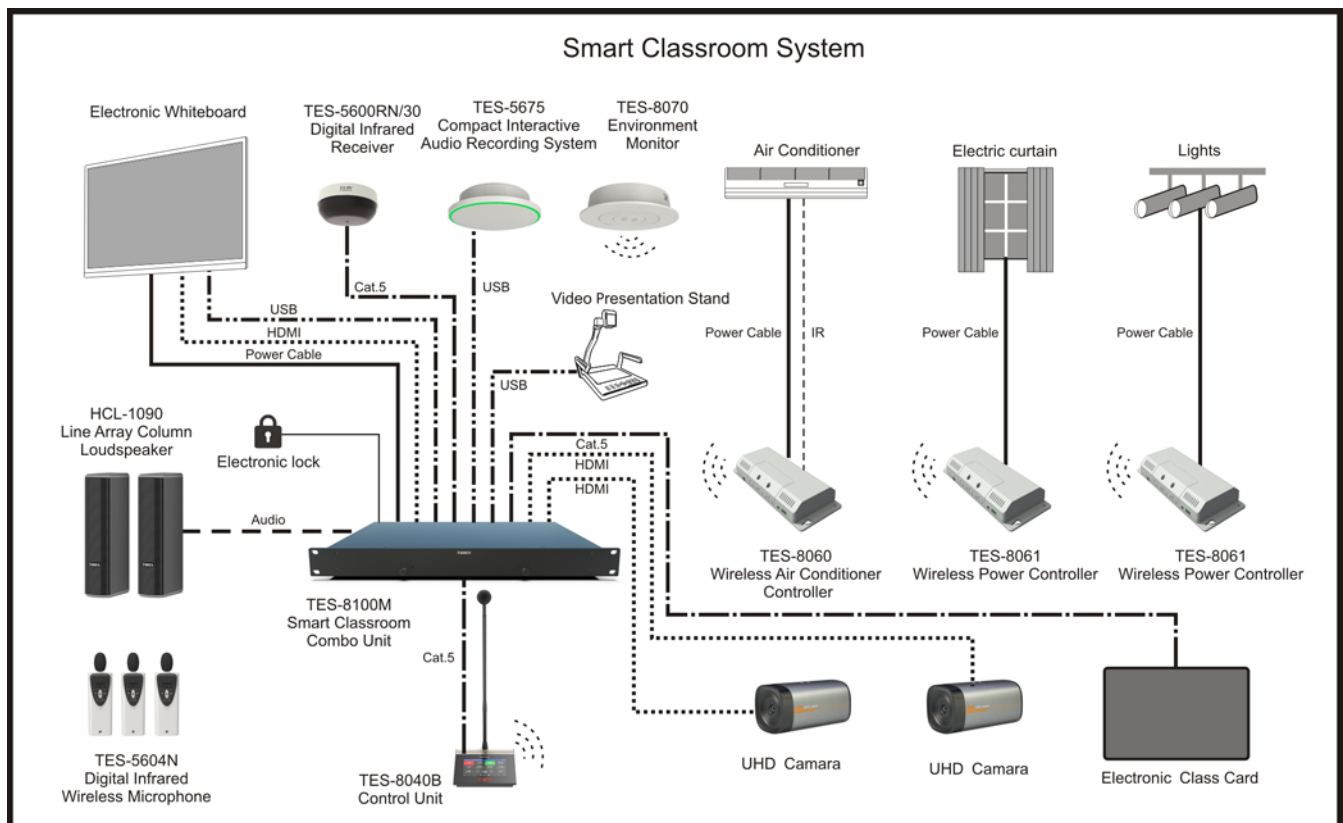
Power supply	220 V AC
Modulation method	DQPSK
Carrier frequency	Audio channel 1: 2.33 MHz Audio channel 2: 3.67 MHz
Frequency response	main unit to main unit: 50 Hz to 20 kHz mic. to main unit: 100 Hz to 20 kHz
SNR	Mic. to main unit: ≥90 dBA
THD	Mic. to main unit: ≤0.05%
Dynamic range	Mic. to main unit: ≥85 dB
Audio Power Amplifier	
Max. output power	60 W × 4 (6 Ohm)

#### Mechanical

Dimensions (h x w x d)	52 x 483 x 300 mm
Weight	4.0 kg
Color	White

### Ordering Information

TES-8100ME	Smart Classroom System Main Unit (19-inch rack mounting, digital infrared sound reinforcement, built-in digital power amplifier, network central control, wireless IoT, network switch)
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TES-8100 Series Smart Classroom System

## TES-8040AP Control Unit



### Mechanical

Dimensions (h x w x d)..... 44 x 211 x 132 mm

Weight..... 1.1 kg

### Ordering Information

TES-8040AP..... Control Unit (4.3 inch display, 15 control keys, IC card, PoE power supply, pluggable microphone stem, standard 50 cm microphone stem, 60 cm or 70 cm microphone stem optional)

### Functions

- Connected to the campus management platform through the switch for the management and control of campus network system
- Exquisite and elegant desktop design, ergonomic and modern
- Delicate and fashionable 4.3-inch touch screen displays class information and can adjust relevant parameters. Including: starting class / dismissing class, unlocking, recording and broadcasting, volume, etc.
- 15 user-defined control keys
- Built in speaker
- Built in contactless IC card reader with contactless IC card slot for privilege management
- Pluggable microphone stem with selectable microphone stem length
- 1 microphone on / off button, 1 monitoring headphone jack
- 1 analog audio input (3.5mm, differential mono), 1 analog audio output (3.5mm, differential mono)
- With a USB extension cable for PC connection
- RJ45 interface for connecting the switch to the campus network
- The built-in wireless module can connect the power controller, air conditioner controller, environmental monitor and other devices in the control system
- Supporting PoE power supply

### Technical Specifications

#### Electrical

Power supply..... PoE power supply

Freq. response..... 50 Hz to 20 kHz

SNR..... Microphone: ≥90 dBA

..... Earphone: ≥80 dBA

..... Speaker: ≥65 dBA

Dynamic range..... Mic. to main unit: ≥85 dB



## TES-8040BP Control Unit



### Ordering Information

TES-8040BP	Control Unit (4.3 inch display screen, IC card, PoE power supply, pluggable microphone stem, standard 50 cm microphone stem, 60 cm or 70 cm microphone optional)
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### Functions

- Connected to the campus management platform through the switch for the management and control of campus network system
- Exquisite and elegant desktop design, ergonomic and modern
- Delicate and fashionable 4.3-inch touch screen displays class information and can adjust relevant parameters. Including: starting class / dismissing class, unlocking, recording and broadcasting, volume, etc.
- Built in speaker
- Built in contactless IC card reader with contactless IC card slot for privilege management
- Pluggable microphone stem with selectable microphone stem length
- 1 microphone on / off button, 1 monitoring headphone jack
- 1 analog audio input (3.5mm, differential mono), 1 analog audio output (3.5mm, differential mono)
- With a USB extension cable for PC connection
- RJ45 interface for connecting the switch to the campus network
- The built-in wireless module can connect the power controller, air conditioner controller, environmental monitor and other devices in the control system
- Supporting PoE power supply

### Technical Specifications

#### Electrical

Power supply	PoE power supply
Freq. response	50 Hz to 20 kHz
SNR	Microphone: ≥90 dBA
	Earphone: ≥80 dBA
	Speaker: ≥65 dBA
Dynamic range	Mic. to main unit: ≥85 dB

#### Mechanical

Dimensions (h x w x d)	44 x 135 x 132 mm
Weight	0.7 kg



## TES-8040B Control Unit



## Ordering Information

TES-8040B.....Control Unit (4.3 inch display screen,  
IC card, pluggable microphone stem,  
standard 60 cm microphone stem, 50  
cm or 70 cm microphone optional)

## Functions

- Connected to TES-8000/8100 series smart classroom system combo/ main unit for the management and control of classroom devices
- Exquisite and elegant desktop design, ergonomic and modern
- Delicate and fashionable 4.3-inch touch screen displays calls information and can adjust relevant parameters. Including: starting class / dismissing class, unlocking, recording and broadcasting, volume, etc.
- Built in speaker
- Built in contactless IC card reader with contactless IC card slot for privilege management
- Pluggable microphone stem with selectable microphone stem length
- 1 microphone on / off button, 1 monitoring headphone jack
- 1 analog audio input (3.5mm, differential mono), 1 analog audio output (3.5mm, differential mono)
- With a USB extension cable for PC connection
- RJ45 interface for connecting the smart classroom system combo/ main unit
- The built-in wireless module can connect the power controller, air conditioner controller, environmental monitor and other devices in the control system

## Technical Specifications

## Electrical

Power supply.....12V DC  
Freq. response.....20 Hz to 20 kHz  
SNR.....Microphone: ≥90 dBA  
.....Earphone: ≥80 dBA  
.....Speaker: ≥65 dBA  
Dynamic range.....Mic. to main unit: ≥85 dB

## Mechanical

Dimensions (h x w x d)..... 44 x 135 x 132 mm  
Weight..... 0.7 kg

## TES-8041 Control Unit



## Functions

- Connected to TES-8000/8100 series smart classroom system combo/ main unit for the management and control of classroom devices
- Exquisite and elegant desktop design, ergonomic and modern
- 15 user-defined control keys, the function of which can be customized, such as: starting class / dismissing class, unlocking, recording and broadcasting, volume, etc.
- Built in speaker
- Pluggable microphone stem with selectable microphone stem length
- 1 microphone on / off button, 1 monitoring headphone jack
- 1 analog audio input (3.5mm, differential mono), 1 analog audio output (3.5mm, differential mono)
- With a USB extension cable for PC connection
- RJ45 interface is used for connecting the smart classroom system combo/ main unit
- The built-in wireless module can connect the power controller, air conditioner controller, environmental monitor and other devices in the control system

## Technical Specifications

## Electrical

Power supply.....12V DC  
Freq. response.....20 Hz to 20 kHz  
SNR.....Microphone:  $\geq 90$  dBA  
.....Earphone:  $\geq 80$  dBA  
.....Speaker:  $\geq 65$  dBA

## Mechanical

Dynamic range.....Mic. to main unit: ≥85 dB  
Dimensions (h x w x d).....44 x 135 x 132 mm  
Weight.....0.7 kg

## Ordering Information

TES-8041.....Control Unit (15 control keys,  
pluggable microphone stem,  
standard 60 cm microphone  
stem, 50 cm or 70 cm  
microphone optional)

## MS50/60/70EGD2B Stem Microphone



## Features

- Built-in windshield,
- Dual-flex gooseneck tube
- Used for TES-5600 series Wired Desktop Microphone and TES-8040 series control unit
- Stem length: 50/60/70 cm
- Color: black (PANTONE 419 C)

## Ordering Information

MS50EGD2B.....	Stem Microphone (50 cm, built-in windshield, dual-flex gooseneck arm, for TES-5600 series Wired Desktop Microphone and TES-8040 series Control Unit, black)
MS60EGD2B.....	Stem Microphone (60 cm, built-in windshield, dual-flex gooseneck arm, for TES-5600 series Wired Desktop Microphone and TES-8040 series Control Unit, black)
MS70EGD2B.....	Stem Microphone (70 cm, built-in windshield, dual-flex gooseneck arm, for TES-5600 series Wired Desktop Microphone and TES-8040 series Control Unit, black)

## TES-5600RN/30 Digital Infrared Receiver



### Functions

- World pioneering digital infrared wireless lecturing system
- Based on TAIDEN originated dirATC-digital infrared Audio Transmitting and Control technologies
- Excellent immunity to RF interferences from HF-driven lighting and may operate well in sunlight
- Support 2 wireless microphones
- 1 RJ45 interface to connect CBLRJ45 Ethernet Extension Cable
- Reception angle: vertical: 150° ( $\pm 75^\circ$ ), horizontal: 360°
- Emission range: linear transmitting distance: over 25 m  
covered range: 80 to 100 m<sup>2</sup>

### Technical Specifications

#### Electrical

Wavelength.....870 nm  
 Modulation method.....DQPSK  
 Voltage.....12 V DC (supplied from main unit or control box)

#### Mechanical

Mounting.....Ceiling, wall or tripod mounting  
 Dimensions.....60 x Ø 116 mm  
 Weight.....0.2 kg  
 Color.....Red ( PANTONE 476 )

### Ordering Information

TES-5600RN/30.....Digital Infrared Receiver  
 (RJ45 interface, ceiling,  
 wall or tripod-mounted,  
 support 2 wireless  
 microphones)

## TES-8060 Wireless Air Conditioner Controller



### Functions

- 1 set of power terminal for air conditioner power supply
- Connecting to the smart classroom system with built-in wireless module to realize local or remote monitoring and management
- Monitoring of air conditioner power in real time with built in industrial class metering chip
- Infrared remote control can be realized with built-in infrared receiver module
- 2 status indicators
- Dimensions (h x w x d): 43 x 237 x 101 mm
- Weight: 0.5 kg

### Ordering Information

TES-8060.....Wireless Air Conditioner Controller

## TES-8061 Wireless Power Controller



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### Functions

- 3 sets of power terminals for supplying power to various equipment
- Connecting to the smart classroom system with built-in wireless module to realize local or remote monitoring and management
- Monitoring of real-time equipment power with built in industrial class metering chip
- 2 status indicators
- Dimensions (h x w x d): 43 x 237 x 101 mm
- Weight: 0.5 kg

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### Ordering Information

TES-8061.....Wireless Power Controller

## TES-8062 Control Extend Kit



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### Functions

- 1 RJ45 interface to connect to smart classroom system via network
- Support network control and network cascade
- LCD for displaying the device information
- 4 relay ports, 6 digital I/O ports, 4 RS232/485 ports for control classroom devices, such as projector, curtain, etc.
- 4 IR transmission ports can connect to IR transmission stick for remote control
- Dimensions (h x w x d): 45 x 190 x 78 mm

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### Ordering Information

TES-8062.....Control Extend Kit

## TES-8070 Environment Monitor



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### Functions

- Connecting to the smart classroom system with built-in wireless module to realize local or remote monitoring and management
- Monitoring indoor light intensity, temperature and humidity, CO<sub>2</sub>, formaldehyde and PM2.5 concentration in real time with built-in sensor module
- 1 status indicators
- Dimensions: Ø 147 mm × 41 mm (height)
- Weight: 0.3 kg

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### Ordering Information

TES-8070.....Environmental Monitor