Make Digital Campus Organized

IQ™

IQSchool
Solution

IQClass Solution

CLASS 1 VIDEO PLAY
CLASS 2 POWER OFF
CLASS 3 VIDEO STOP
CLASS 4 POWER ON ⚠
CLASS 5 POWER OFF

IQSchool Solution

IQEducation

[Ca126EN]-IQSchool Solution 20181107

About IQ

Returnstar Interactive Technology Group Co., Ltd, with IQ as main brand, has been dedicated into educational industry since 2006.

So far IQ products have received wide acknowledgement from both domestic and international market. Internally our products are used by teachers and students of over 60,000 schools in 90% of provinces and municipalities of China. Globally we have been selling to more than 100 countries and regions with exclusive distributors in Europe, Africa and West Asia. IQ has provided smart teaching solutions for over 1,000,000 classrooms across the world.

With the aim to create more collaborative and inspiring classroom environment, also to offer cost-effective and environmentally-friendly campus management solutions to educators, IQ has launched two major solutions – IQClass Solution and IQSchool Solution.

IQClass Solution mainly focuses on facilitating teaching and learning with educational hardware and software. Our goal is to make class more interactive and effective.

With various educational hardware entering classroom, modern campuses are in need of better utilization of the technology – this is where our IQSchool solution comes into play. We believe IQSchool solution will be an indispensable part of modern digital school and smart city as well.

Relying on IQClass and IQSchool solutions, mission of Returnstar is to transform education with technology. Our ultimate goal is not to just sell educational hardware or software, but to provide bespoke education solutions for schools based on their specific demands and budget.
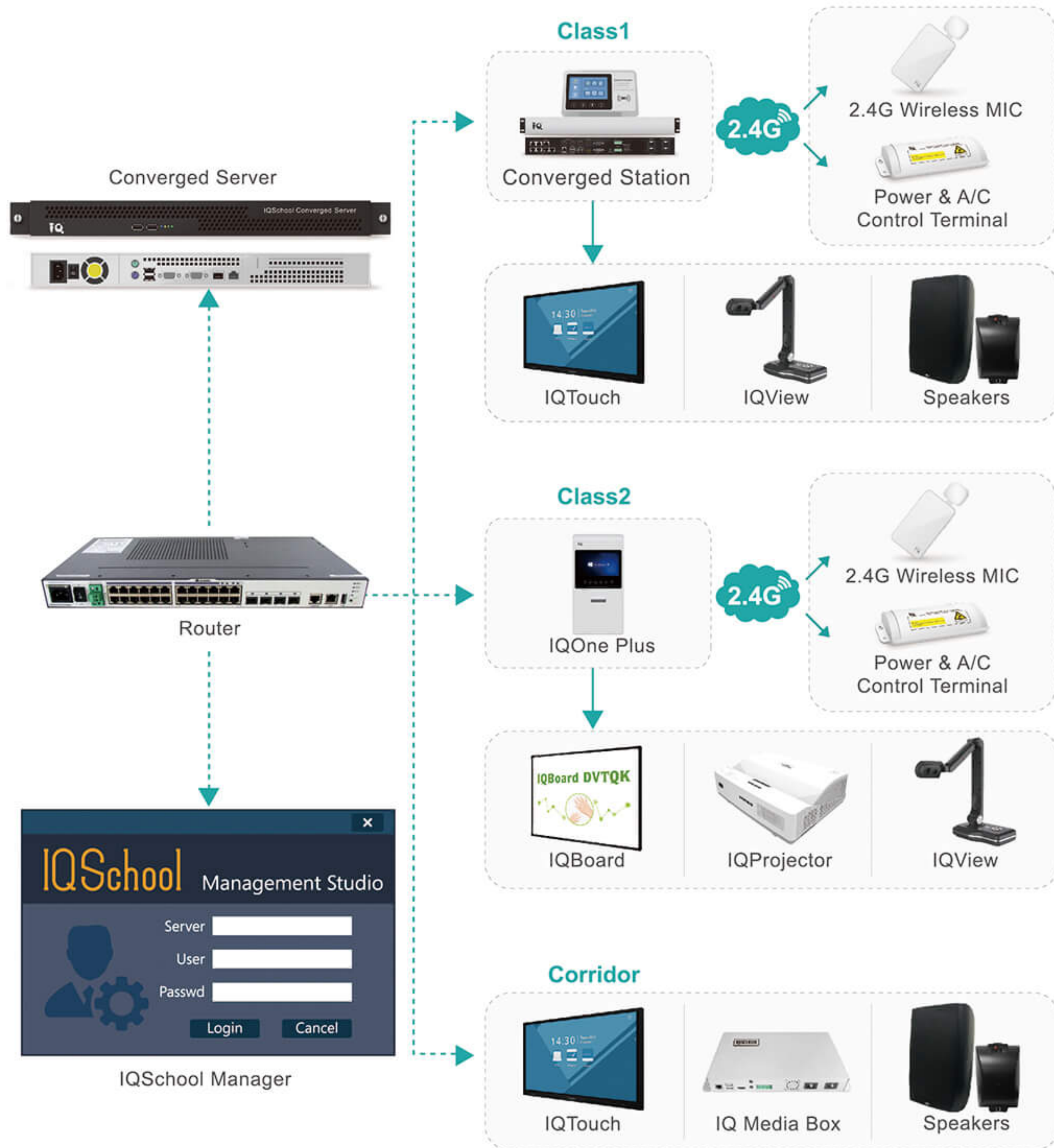
Along this road, we would like to develop long term partnership with you, and grow up together.

Content

IQSchool Solution Topology & Core Products

IQSchool solution is a unique technology solution utilizing IT/AV integration to offer education administrators and teachers unified control and automation of multiple technologies, commonly operated independently—such as classroom control, distributed audio, video on demand, digital signage, P.A(public address), bells and emergency alerts—all from a single platform.

Converged Server

Router

IQSchool Management Studio

Server
User
Passwd

Login   Cancel

IQSchool Manager

Class1

Converged Station

2.4G

2.4G Wireless MIC

Power & A/C Control Terminal

IQTouch   IQView   Speakers

Class2

IQOne Plus

2.4G

2.4G Wireless MIC

Power & A/C Control Terminal

IQBoard DVTQK   IQProjector   IQView

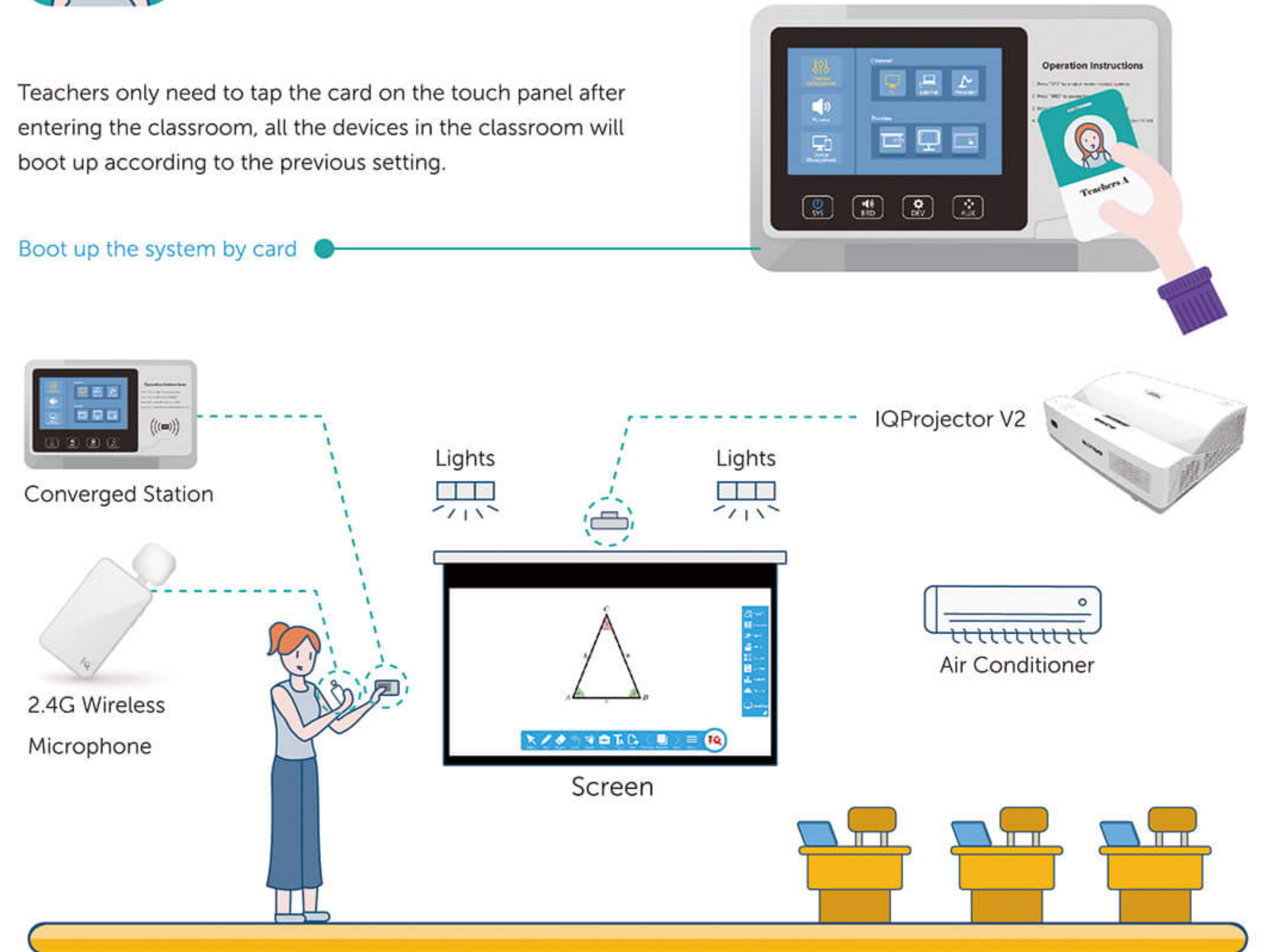**Corridor**

IQTouch   IQ Media Box   Speakers

Using Scenario of the Solution

For Teachers

Teachers only need to tap the card on the touch panel after entering the classroom, all the devices in the classroom will boot up according to the previous setting.

Boot up the system by card

Operation Instructions

Teachers A

Converged Station

2.4G Wireless Microphone

Lights   Lights

IQProjector V2

Screen

Air Conditioner

IoT Control

A/C	A/C	Lamp	Lamp
ON	OFF	ON	ON
Lamp	Lamp	Lamp	Lamp
OFF	ON	OFF	OFF

SYS   BRD   DEV   AUX

No longer need to turn on the lights first or find the remote control to turn on the air conditioner and adjust the temperature. These device controls are also integrated on the touch panel, where the teacher can control the entire classroom with one touch.

Control light and air conditioner on/off

With the wireless mic at hand, teachers can make their voice heard clearly.
On the control panel, teachers can turn on/off the mic and adjust the volume.

Mic on/off, adjust volume

Easily adjust the volume of local audio and video being played.

Ajust the volume

Boot up/shut down the classroom projector and computer, roll up or down the projection screen - simply by touching the control panel

Projector on/off

Facing a wide variety of classroom devices: computer, interactive whiteboard, visual presenter, interactive flat panel, wireless presentation box, etc., the teacher can just seamlessly switch between them using the control panel.

Switch the signals

When class is over, teachers only need to press power button to turn off all the devices. It doesn't matter if they forget to do so when leaving the classroom. Devices can still be shut down automatically on schedule set up by the IT admin.

IQProjector V2

Screen

Air Conditioner
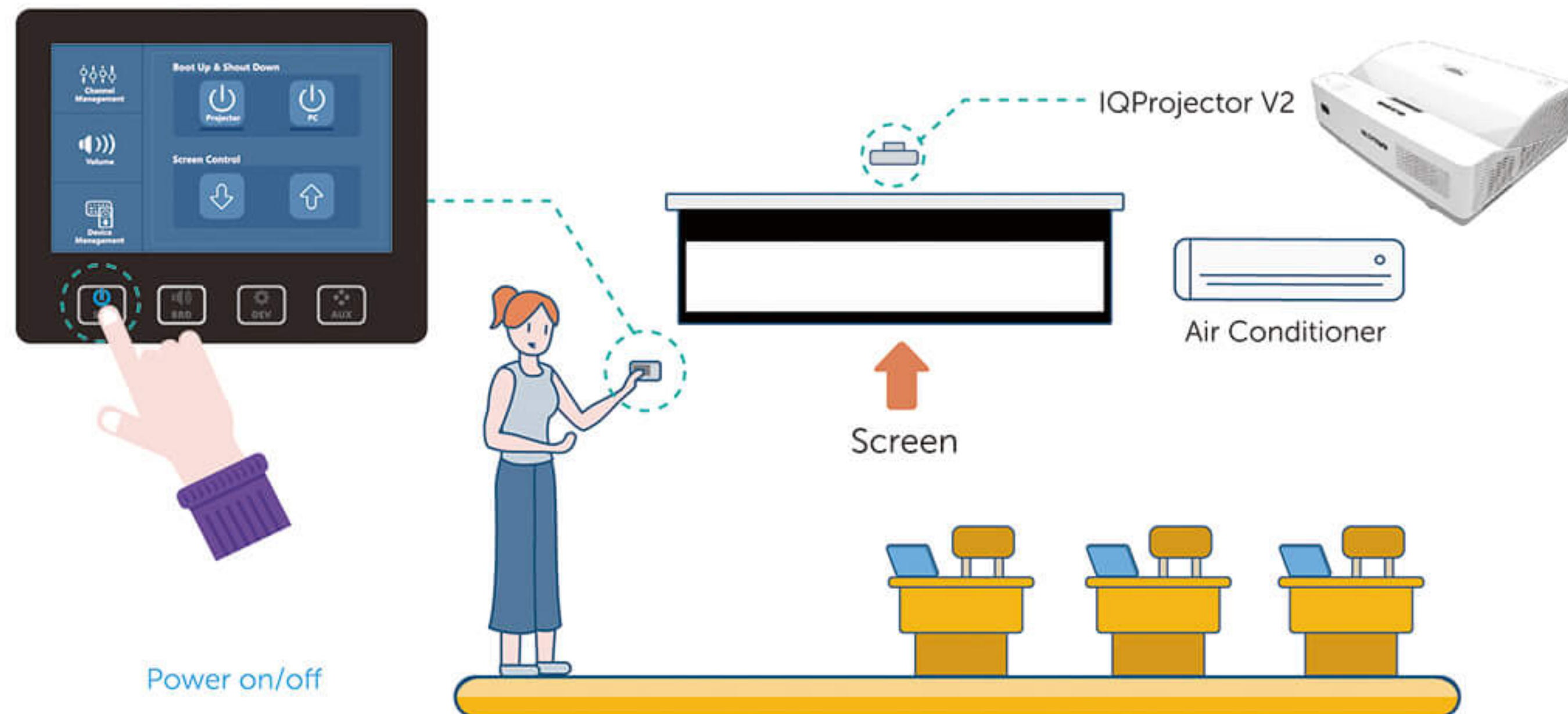
Power on/off

For IT Admins

IT administrators are usually very busy and need to run from room to room, checking and dealing with problems of multiple devices. Meanwhile, they are responsible for setting up scheduled broadcast of certain contents, some of which may not be allowed under special circumstances, so it leads to constant change of broadcasting contents. With the IQSchool solution, this situation will be greatly improved.

● **Device centralized control**

Log into the IQSchool Manager software, administrators can have a clear picture of the operation of devices in the campus, which allows them to deal with abnormal conditions of devices before any teacher reports.
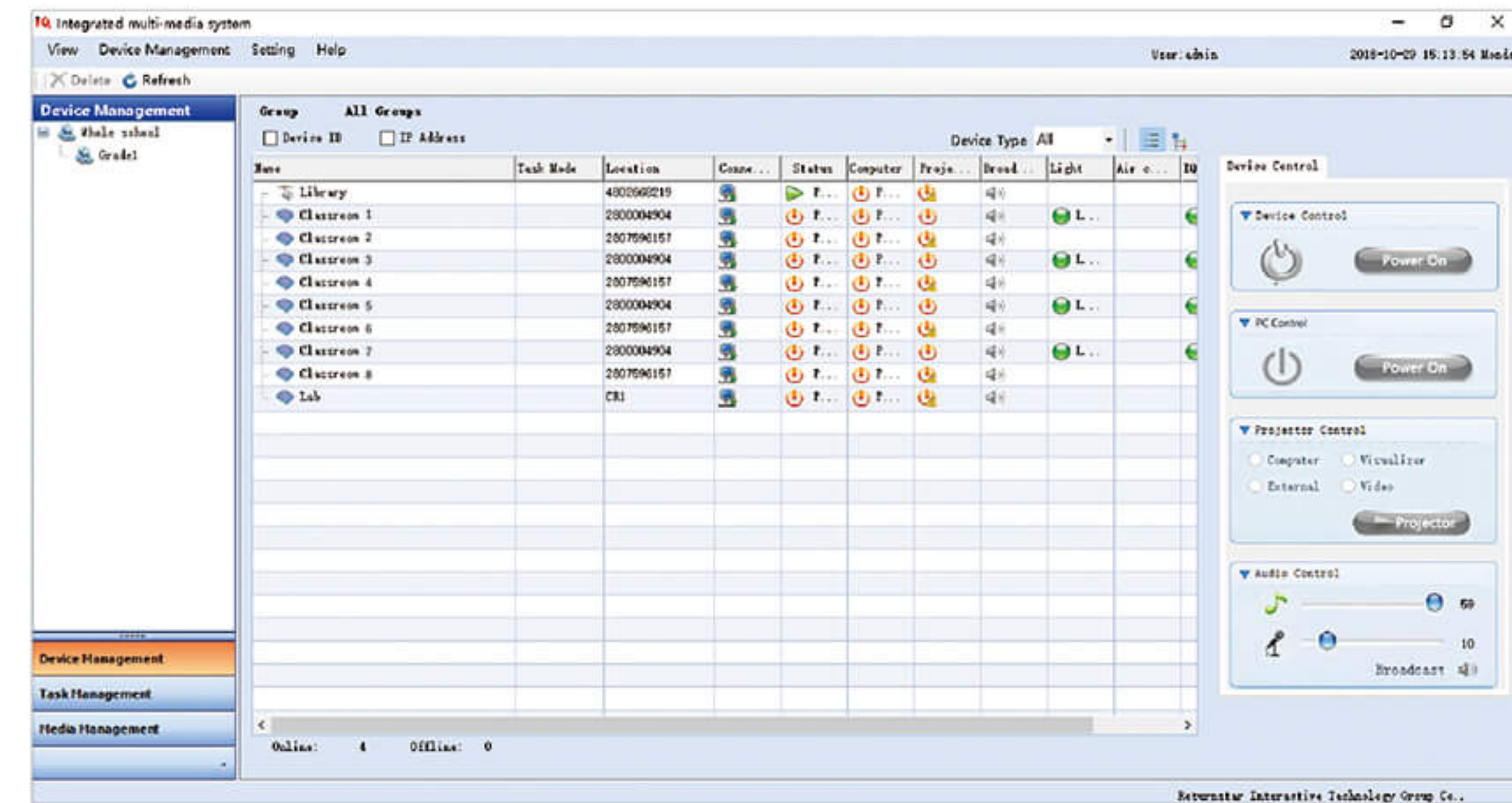
Software device list

Check the device usage log to see who uses the device, when and how long it is used. The device management is more orderly.

Check device usage log interface

Energy

Time Picker Begin: 2018-10-01 End: 2018-10-22 Time Unit: ⦿ Hour ○ Minutes [Export]

Device	Projector Duration	Projector Energy	Light Duration	Light Energy	Air conditioner	Air conditioner	IQTouch Duration	IQTouch Energy	
Classroom A	43 h	14.0 kw/h	49 h	87.4 kw/h	0 h	0.0 kw/h	39 h	8.7 kw/h	
Lecture theater	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	
IQ Lab	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	
Classroom B	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	0 h	0.0 kw/h	

Electricity usage statistics

With the IQSchool Power & AC Control Terminal, the system can generate a statistic report on the electricity usage in each classroom.

● Distribute AV over IP
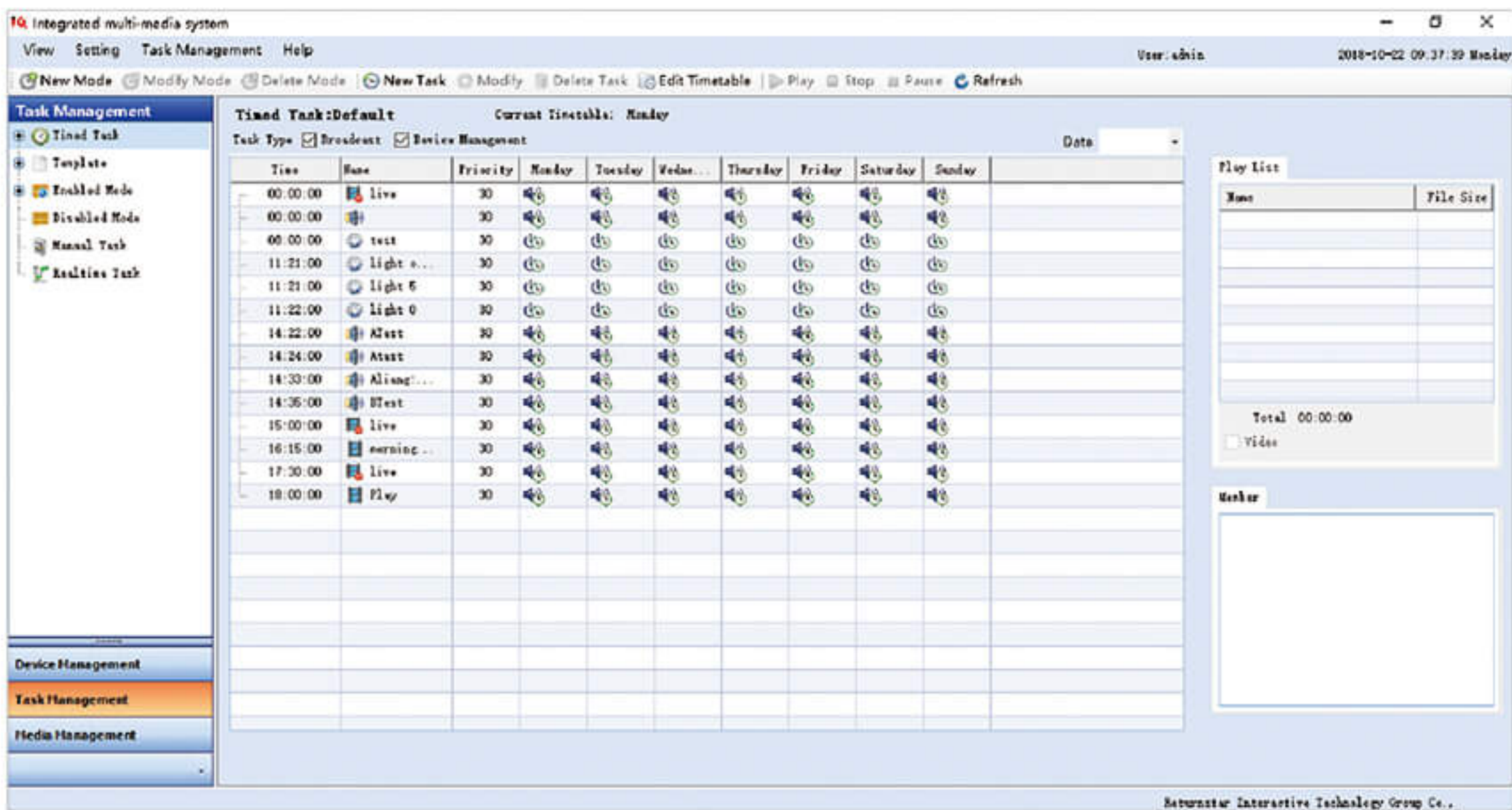
Task management interface

Centrally control the devices on/off in each classroom by setting up scheduled tasks, no longer need to worry about leaving devices on all night and wasting energy.

Most importantly, IQ Converged Station can provide IP multicast by groups as scheduled tasks. For example, the administrator can set to broadcast campus news at 8:00 AM, lunch break notice at 12:30 AM as well as corresponding school bells. When encountering a holiday or a special exam, only need to disable the current template, and enable the specially set task template to easily solve the problem of different task setting.
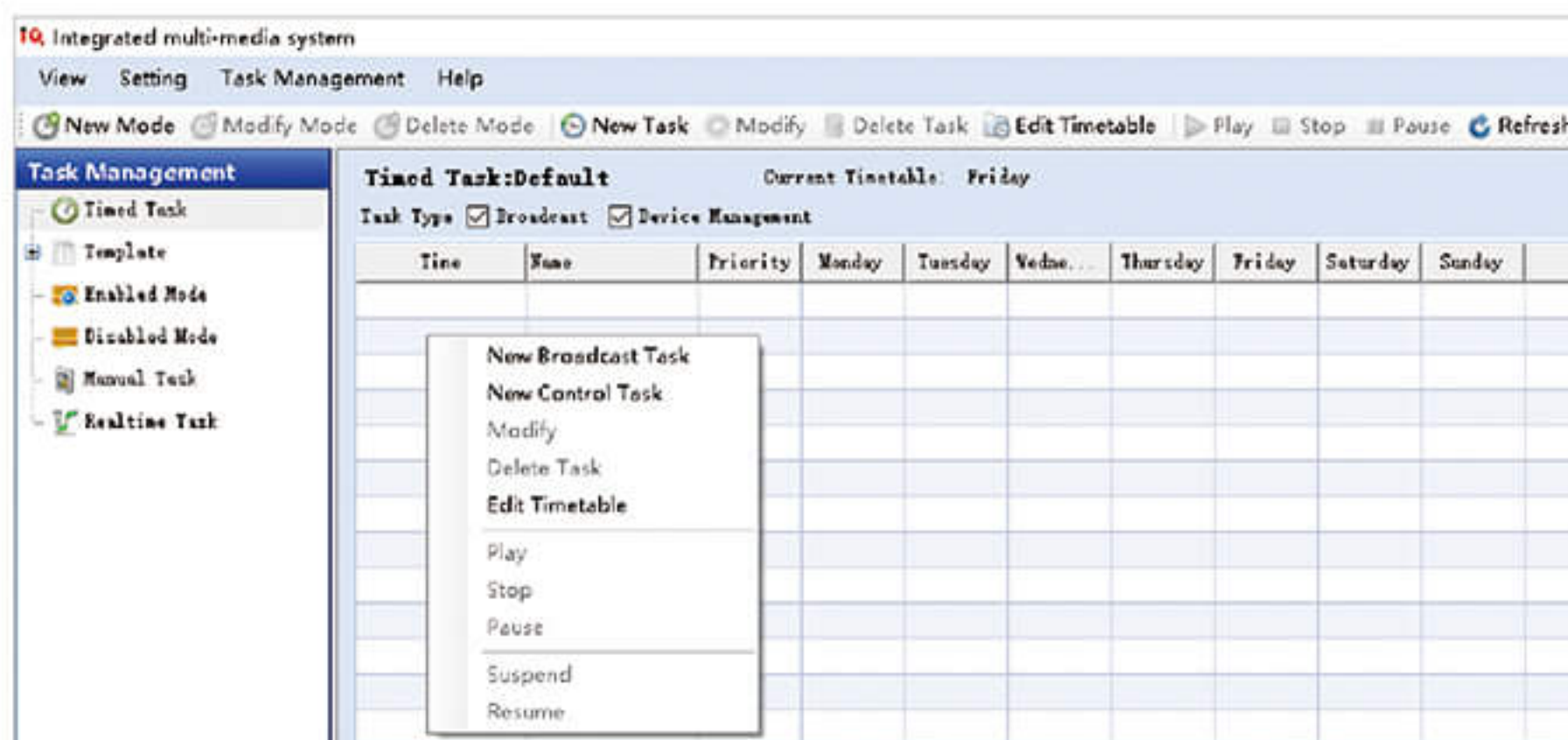
Timed task interface
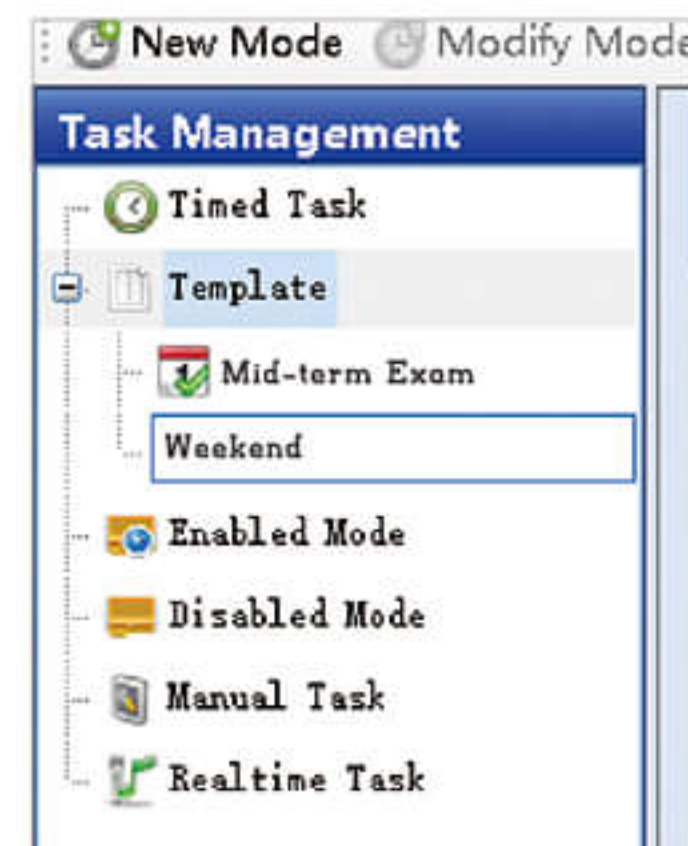
Task template setting interface

For School Managers

With the IQSchool Solution, the principal's work will be more systematic and easier. Informed budget decisions can be made under a clear knowledge of campus devices energy consumption statistics generated by the system. Meanwhile, a VL100 is installed in the principal's office, which is equipped with a camera and microphone. The principal can make a live broadcast speech in the office at any time.
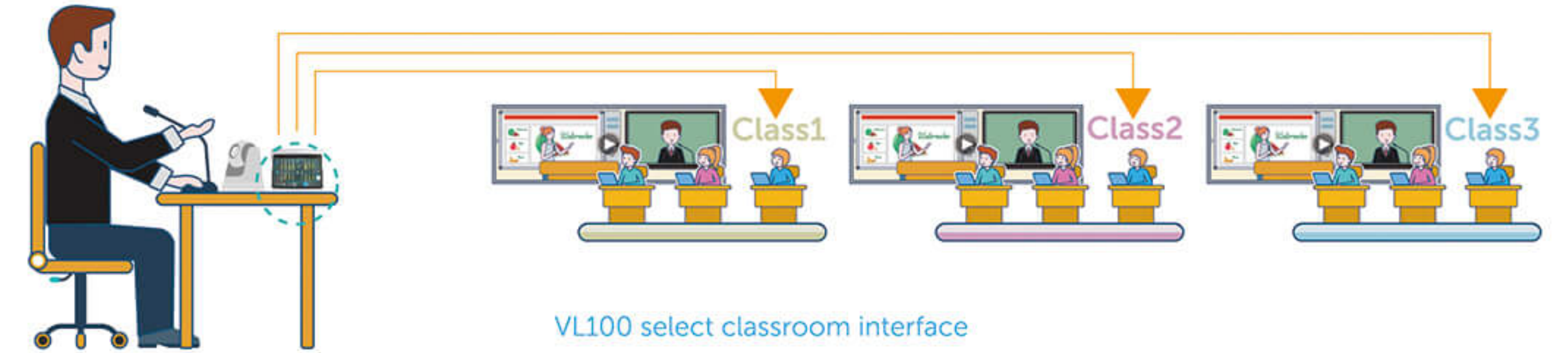
VL100 select classroom interface

For Students

Students can also benefit from IQSchool solutions. In the past, when students' union or other student groups needed to hold activities, they had to organize students to put up posters everywhere. Now they only turn to the administrator to upload a video to the server, and manual broadcast during the breaks. The whole school can watch it in real time, which greatly shows students' personalities and creativities.
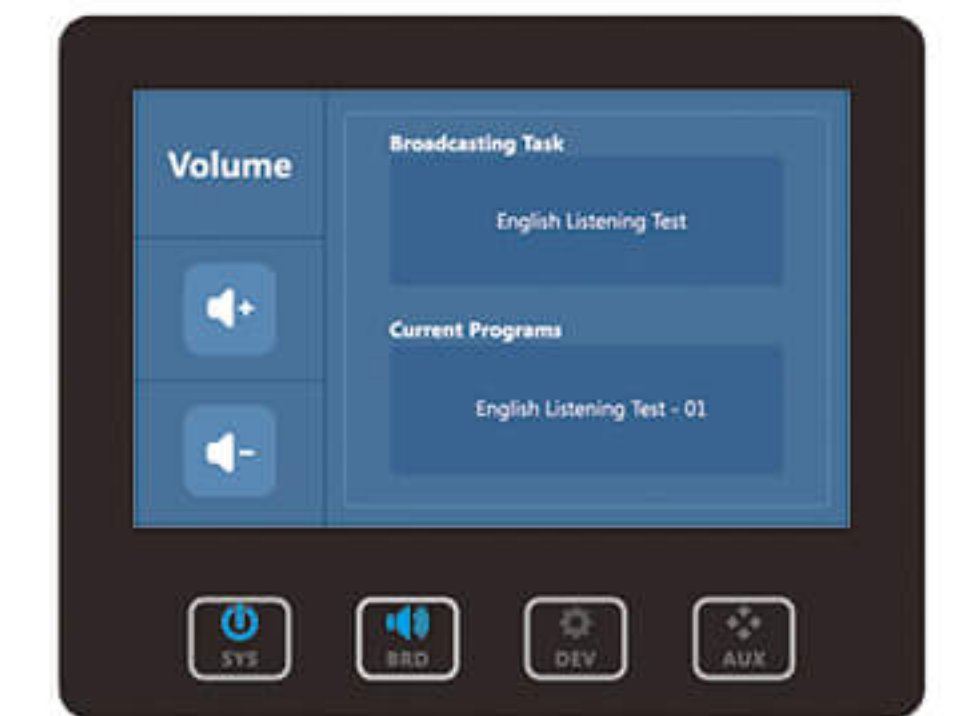
Manual broadcast setting interface

IQSchool is a compatible solution. User interface of the control touch panel can be customized according to the specific requirements of teachers in the school, which is in line with the actual teaching situation and educational concept of the school. Meanwhile, it can work together with other systems, such as fire alarm system, CCTV system, etc. Upgrading to the Internet of campus devices at a lower cost.
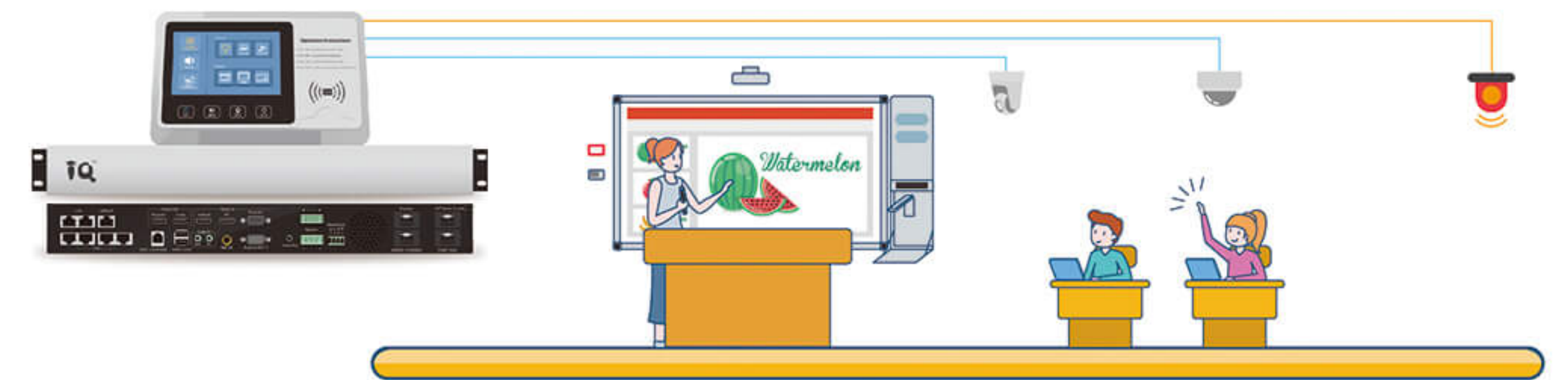
Customization system access

Products Catalog

01. Converged Server

● Product Highlights

› Self-developed Linux kernel, 1 U rack mount design.
› Industrial motherboard and hard drives.
› High-quality and low-latency audio coding technology, CD-quality sound, real-time audio delay less than 30ms.
› Patented cross network technology.
› Self-developed and customized database system to ensure efficient and stable operation.

● Specifications

Parameters	Descriptions
Processor	Dual-core 2.0G and above, industrial motherboard
Memory	4G DDR3
Hard Disk	1000G enterprise drives
Network Card	100M / 1000M network port (*2)
Chassis	1U rack chassis design
Power	250W industrial power supply

02. IQSchool Manager Software

Device Remote Control

Remote Management

Device Remote Monitor

IP Audio & Video Broadcast Management
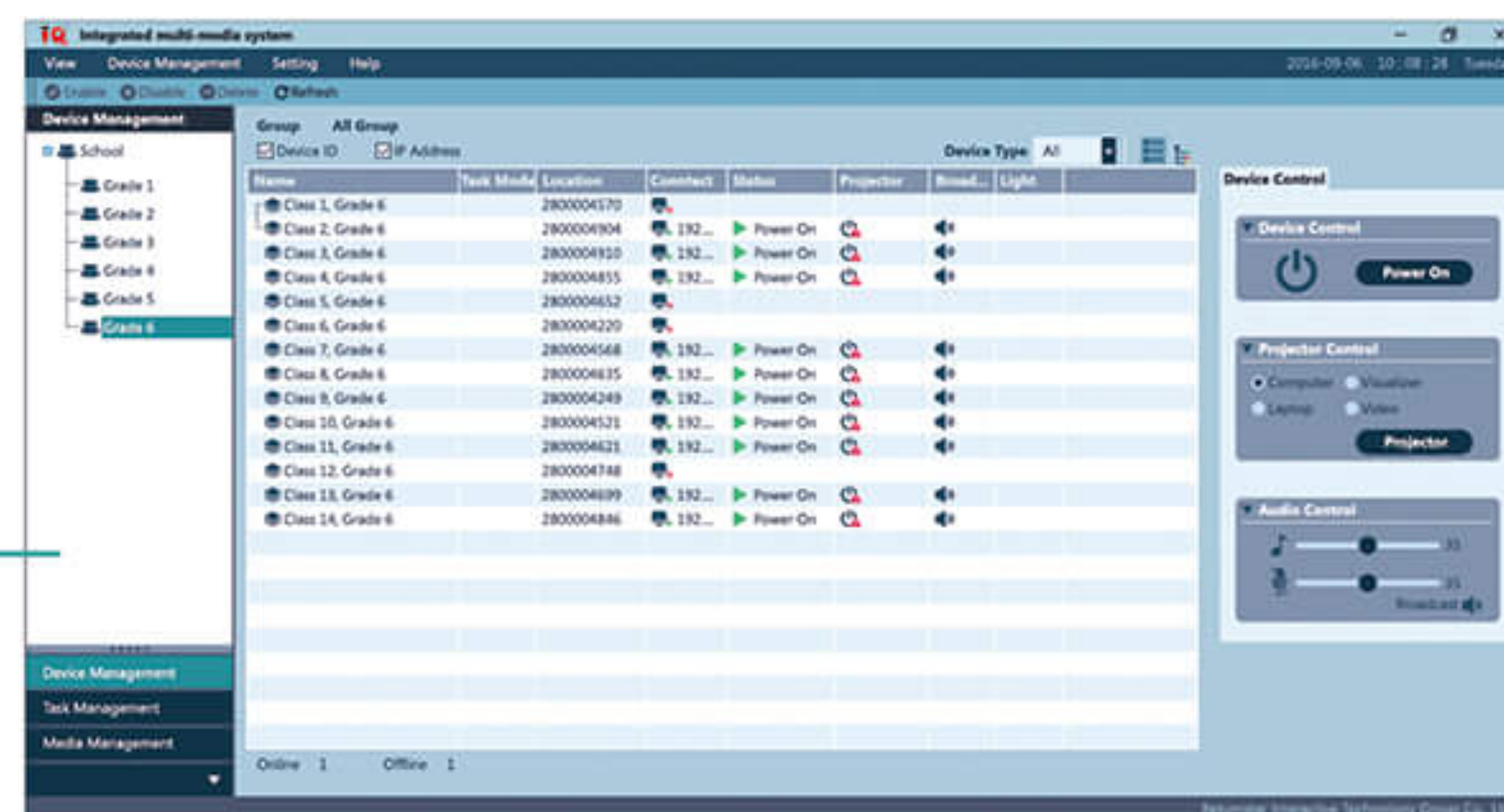
● Software Interface

03. Converged Station

Converged Station, a high-end fusion control information terminal, integrates Center Control, Inter-changer, Digital Amplifier, Electronic Magnetic Control, Digital Broadcasting and Remote Wireless Air-conditioner System. Work with IQSchool Manager Software, this system achieves remote device control and device management, IP audio broadcasting and information diffusion.

● Product Highlights

› Built-in 100w*2 Digital Amplifier.
› 6 built-in 10/100/1000M RJ45 ports.
› Remote control and management on devices.
› IP digital broadcast system.
› Industrial motherboard and solid-state drive of 120G MSATA SSD (for V430).
› High Quality ATX high-frequency power supply to work 7/24.
› Rich ports, including 3*3 HDMI Matrix.
› Equipped with IQSchool Desktop Control Panel for quick operation.
› Easy to install and use without training.

● IQSchool Desktop Control Panel

Shortcut buttons on the control panel for one-key control on the computer, projector, document camera, external devices and etc.

Converged Station

2.4G

2.4G Wireless MIC

Power & A/C Control Terminal

PC

IQTouch

IQProjector

IQView

● Connection Diagram

HDMI Cable

HDMI Cable

HDMI Cable

HDMI Cable

Power Cable

Any external device

2.4G

HDMI Cable

VGA Cable

Converged Station

RJ11 Cable

2.4G

Power Cable

IR Control

Audio Cable

Power Cable
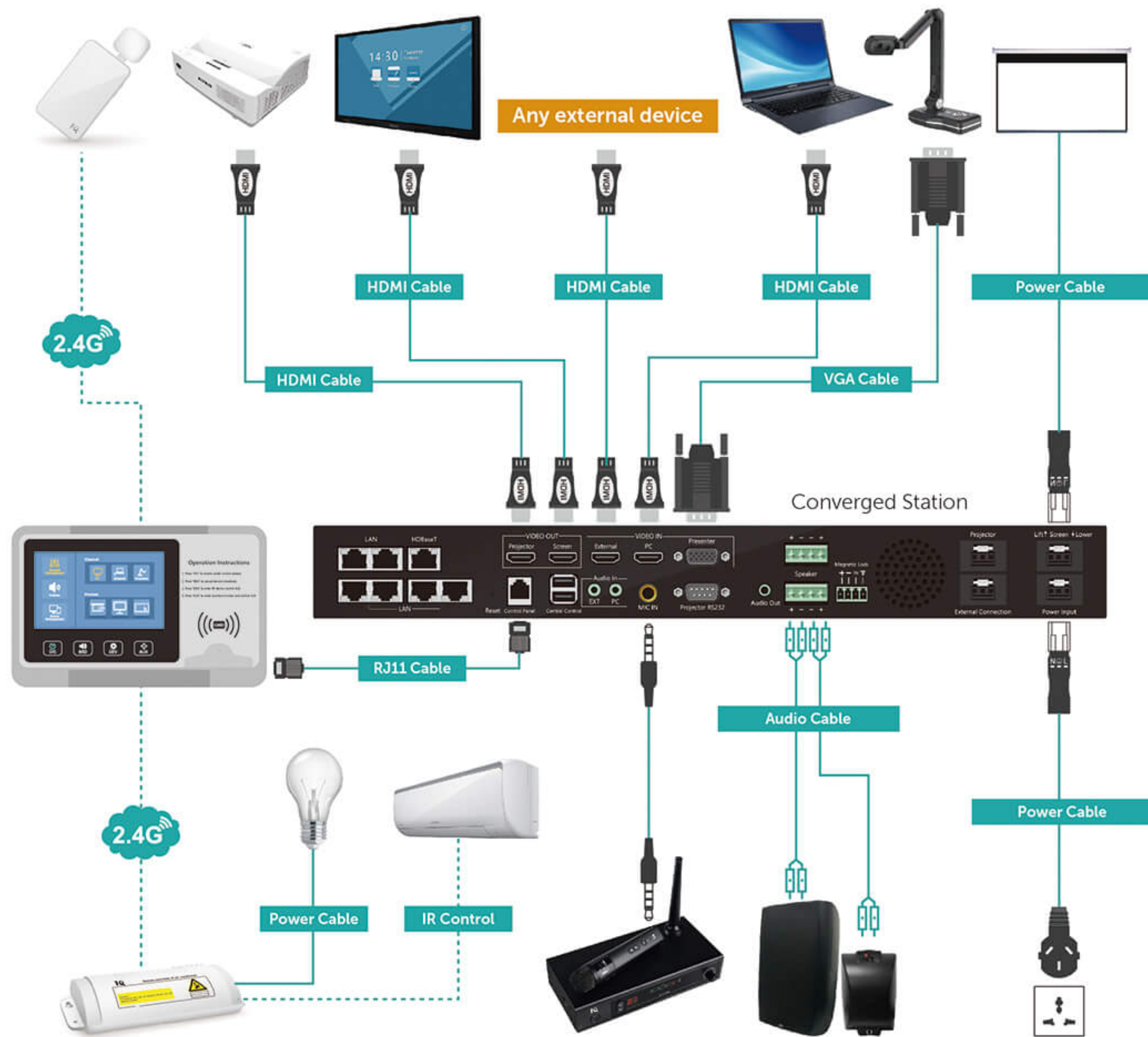
● Specifications

Parameters	Descriptions	V330	V430
Standard 1U Rack Design	Suitable for all types of rack	O	O
Built-in Industrial Computer	8G DDR3; 120G MSATA SSD; i5, 1.8GHz CPU	x	O
Ethernet Port	10/100/1000 RJ45*6	O	O
Video Input/Output	3*3 HDMI Matrix	O	O
Audio Input/Output	Input*3 & Output*2(Synchronized)	O	O
Wired MIC IN	6.5mm MIC	O	O
Communication Port	RS232*1; USB Port*2; Magnetic Lock Output*1	O	O
Audio Amplifier	100W*2	O	O
Power IN/OUT	220V Input*1; 220V Output*3	O	O
Wireless IoT Module	Support 2.4G frequency and reception	O	O

▶ 04. IQOne Plus

IQOne Plus Interactive Education System, with its brand-new design and fully integration with built-in PC, capacitive touch screen, wireless MIC receiver, document camera, loudspeaker, key board and touch board, solves complex connection for the disperse devices in multimedia classroom. IQOne Plus Interactive Education System makes teaching easier, more flexible and effective in modern classroom.

● Product Highlights

> IoT control: Easy to connect with wireless MIC, remote air condition control and remote power module control.
> Converged Application Terminal: Combine multimedia devices in one Machine, easier operation and more effective.
> High Fidelity Loudspeaker System: High quality and clear human voice output.
> Industrial Motherboard: stable operation and better performance.
> High Quality Mic: 2.4G Wireless technology, easy connection with IoT control protocol.
> HD Document Camera: 5 mega pixels, crystal-clear image display.
> Capacitive Touch Screen with 10 points: Better user experience and handy operation.

● Integrated Hardware

> Industrial Computer
> Interchanger
> Wireless MIC
> IoT Module
> Document Camera
> Digital Amplifier
> External Device Power Control

● Software Application

> Device Center Control
> IP Audio Decode
> Full HD (1920*1080) Video Decode
> Remote Control Management
> IP Digital Broadcasting
> IP Full HD Video to Live Broadcast

● IQOne Plus Installation and Layout In Classroom

2.4G Wireless MIC

2.4G

Power & A/C Control Terminal

IQOne Plus

IQTouch

IQBoard

IQProjector

IQBoard
IQSound
Control Panel
Wireless Mic
IQView
Converged Station

IQTouch
IQSound
Control Panel
Wireless Mic
IQView
Video Station
Converged Station
Audio Station

IQ Media Box

IQProjector
IQBoard
IQSound
Wireless Mic
Control Panel
IQView
Converged Station

IQProjector
IQBoard
IQSound
Control Panel
Wireless Mic
Gooseneck Mic

IQSound
IQProjector
IQ Media Box

IQSound
IQ Media Box

IQProjector
Power Control Terminal
IQBoard
IQSound
Control Panel
Wireless Mic
IQView
Converged Station

IQTouch
IQ Media Box

IQTouch
IQ Media Box

HD Camera
IQCast Pod
IQCast USB Key
Gooseneck Mic
IQTouch

I/O Control System
IQServer
Fire Alarm
Router

IQMedia Box

— Output

● Specifications

Parameters	Descriptions
X86 OPS	8G DDR3; 120G MSATA SSD; CPU: i5
Display (LED Backlight)	Size: 14 inches; Resolution:1336*768; Touch: 10-point touch PCT
Document Camera	5MP
Power Port	Input*1; Output*3
Video Input/Output	4*2 HDMI matrix
Audio Input/Output	Audio output stereo*1; Audio output AUX*1
Communication Port	RS232*1;USB port*2; Magnetic lock output*1
Ethernet Port	10/100/1000 RJ45*5; Integrated wireless network card
USB Port	PC USB port*4; 3.0USB port*2
Audio Amplifier	60W*2
Built-in Keyboard and Touch Panel	Touch and control
Wireless IoT Module	2.4G mic and A/C terminal

05. IQ Media Box

● Product Highlights

› By digital audio and HD video decoding, the device could make real-time content transmission and broadcast on the designated screen.

› With 1080P HD video output and Hi-Fi Sound quality, the campus is surrounded by real live audio&visual broadcast everywhere.

› It's time and energy-saving to control large monitors or displays as intelligent power management module could help you power on/off them easily by schedule. The module features wall-mounted design, compact size and handy installation.

● Connection Diagram

LAN

TV

Audio Cable
HDMI Cable
Network Cable
Power Cable

IQServer

IQ Media Box

Speakers
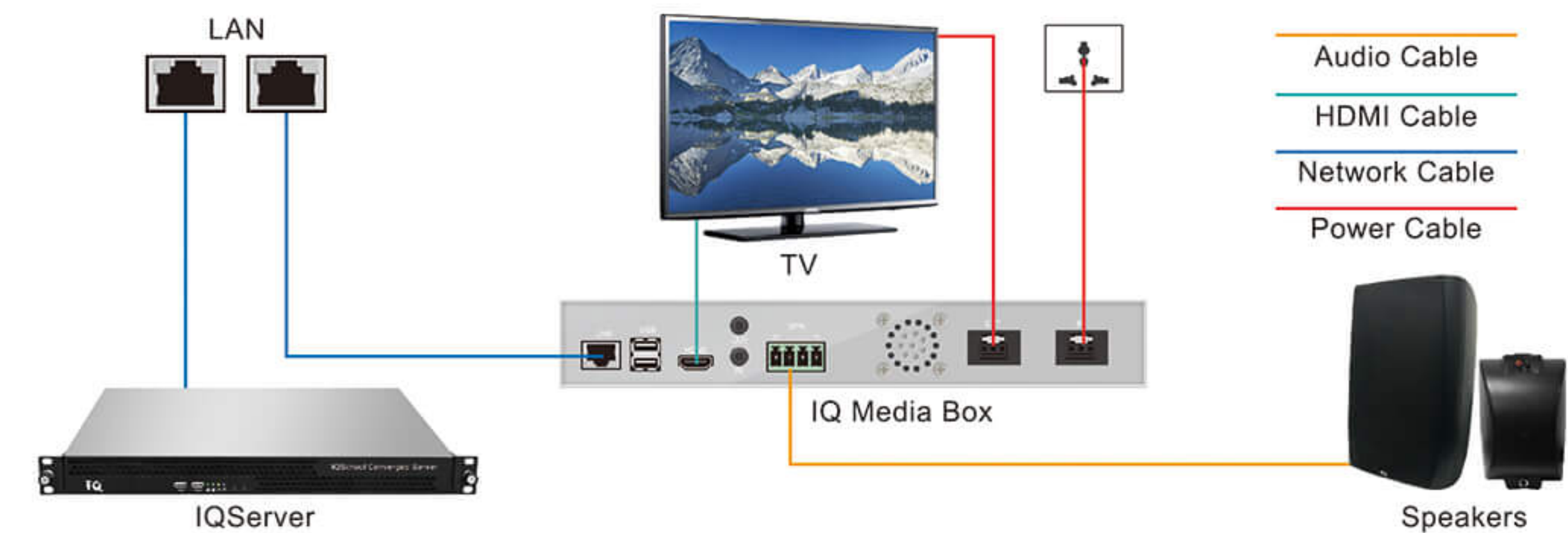
● Specifications

Items		Notes
System Parameter	CPU	Embedded system, ARM 700MHz
	RAM	DDR2 512M
	Flash	256M SLC NAND FLASH
Interface	USB	USB*2
	LAN	RJ45*1
	HDMI	HDMI Out*1
	Audio On	Earphone jack*1
	Audio Out	Earphone jack*1, Amplifier connector*1
Power	Power Control	220V Input*1, 220V Output*1
	Amplifier Output	20W*2
Others	Resolution	1920*1080
	Video Format	MP3MP4, MOV, AVI, TS……
	Streaming Format	HTTP, RTSP, UDP, RTP……

06. Power & A/C Control Terminal

Specifications

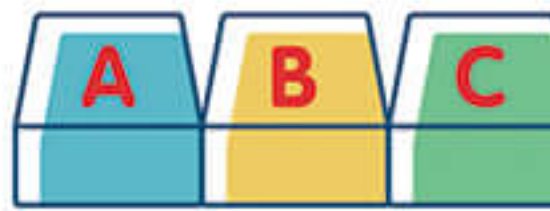| Parameters	Descriptions
Power Port	Power input port (*1), power output port (*1)
Infrared Emitter Port	Connect to infrared emitter head and send control commands
Reset Port	To reset and match with IQOne+ and Converged
Air Conditioning Remote Control	Remote control and power on/off to set air conditioning in each classroom through TCP/IP network
2.4G Wireless Control	Seamlessly connect to build-in center control (Converged Station) in wireless way
Energy-conserving Control	Remote air conditioning module works automatically according to preset five control models of server

• Product Highlights

> All intelligent devices can be connected through the control terminal, saving wiring trouble.
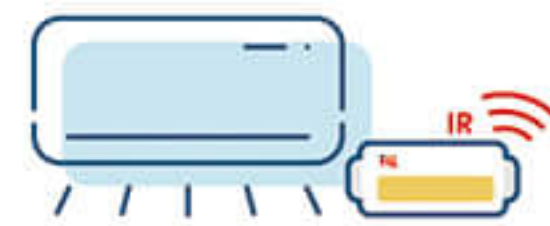
> Connect air conditioner through IR, also fit for devices by IR remote control.
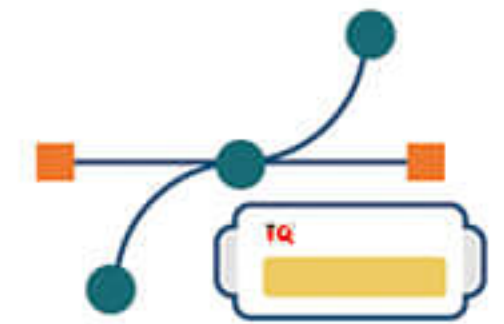
> Easy arrangement, no need to change the wire layout.

> Multi-model selection, user-friendly design.

> High accuracy power measurement chip, real time power control and air conditioning management with the software.

• Connection Diagram

Converged Station

To Local Net

A/C Control Terminal

A/C Control Terminal

IR Senser

Earth Wire

Null Wire

Live Wire

2.4G Wireless

Cat 5E

07. 2.4G Wireless MIC

• Product Highlights

> One Mic for one teacher.

> Excellent MIC to achieve perfect audio effects.

> Low radiation and real-time frequency hopping agreement.

• Specifications

Parameters	Descriptions
Sample Rate	48K audio sampling
Power Consumption	Transmitted power<=5db
Frequency Response	20Hz-20KHz
Frequency Rate	2.4GHz ISM，2400-2483.5MHz
Channel	Random frequency hopping
Sensitivity	-85 dbm
Receiving Distance	>50M
Delay Time	<0.5ms
Working Temperature	-25 ~ 85℃
Working Voltage	DC 3.6V-6V
Dimensions (mm)	72*43*17
USB Charge Time	2H

08. Wireless Mic System

● Product Highlights

Wireless microphone system is a useful system applied in the classroom that teachers could enjoy good interactive experience with students. The system delivers clear and smooth sound with anti-interference. It also fits teachers in daily teaching like turning PPT pages and infrared pointers.
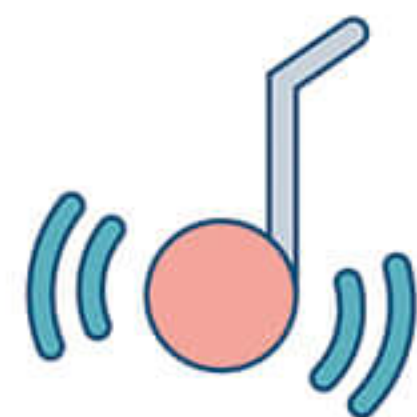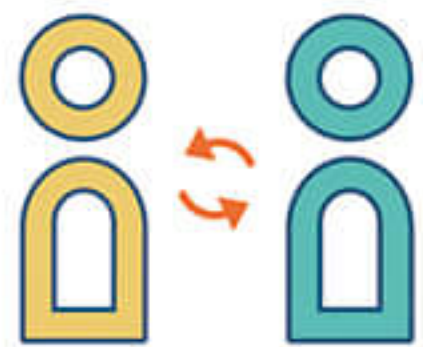
● Features—MIC

› Automatically match the frequency when hand-held microphone is on. One teacher with one microphone that could be taken around the campus, which is easy to manage.
› Microphone with extra features like turning PPT pages, being infrared pointers, vocal detection and power-saving mode.
› Support the connection to the external head or collar worn microphone. Adjust the volume at any time according to the environment.

● Features—Station

› Receiver / module and wireless microphone can be freely configured for easy management and use with RFID automatic frequency matching technology
› Effectively prevent interference and crosstalk with 2.4G and UHF dual-band technology to ensure high sound quality.
› Effective receiving distance up to 20 meters. Bluetooth PPT uses a distance of about 10 meters and RFID usage distance is about 5~8 meters.

● Specifications—MIC

RF Carrier Frequency Range	650~675MHz
Max. Channel Number	64
Pilot Mode	Digital Pilot
Display Mode	OLED Screen
RF Power Output	≥3dBm
Input Impedance	2.2KΩ
Spurious Rejection	>50dBc
Frequency Bandwidth	25MHz
Max. Input Level	≥300MvRms at max. Gain
Gain Adjusting Range	8dB
Power Requirements	3.7V/800mAh lithium battery*1
Battery life	<6h
Battery Charging Time	About 2.5h
REID/Bluetooth Radiant Power	≥-10dBm
RFID/Bluetooth Spurious Rejection	>50dBc
Dimensions(H*W*T)(mm)	31*144*31
Weight	65g

● Specifications—Station

Scillation Mode	PLL Synthesizer
Modulation Mode	π/4 QPFKS (Quadrature Modulation)
RF Carrier Frequency Range	650~675MHz
Max. Channel Number	64
Frequency Bandwidth	25MHz
RE Sensitivity	<-90dBm
Frequency Response	30~15KHz(±3db)
S/N Ratio	≥85dB(A)
T.H.D.	<0.1%1KHZ
Dynamic Range	>85dB
Output Connectors	NC
Audio Output Level	>+5dBV max
Power Requirements	DC12V/500MA
Dimensions(H*W*T)(mm)	73*36*100
Weight	65g

09. Live Broadcast Station

• Product Highlights

Video Broadcasting Station based on Android system, the device is equipped with A/V input interfaces and built-in DSP chip which is capable of audio and video mixing processing. The 10.1-inch capacitive touch screen can preview the input contents. After setting the connection, the device list on the IQSchool server can be automatically obtained, the contents of live broadcast can be sent to the required classroom.

• Specifications

Name	IQSchool multi-media broadcast terminal
Size	233.93*274.47*85.00
Display Size	10.1" TFT
Resolution	1980*1080
System Version	Android 5.1.1
Interfaces	Network port *1
	Reserved SDI Port *1
	HDMI Input*1
	HDMI Output*1
	Reserved USB Port *1
	Mic Input *1
	Audio Line in *2
	Audio Line Out *1
	Power Input（DC 5V 4A）

10. HD Live Cameras

—Auto Tracking Camera-Teacher—

• Product Highlights

1080P@30FPS Real Time Output

Auto Focus

20 x Optical Zoom

Record & Capture

Position Preset for Tracking

3D intelligent Positioning

Support Scanning

Power Cut off Memory

Support SD/SDHC/ SDXC(Max 64G)

—Panoramic Camera-Student—

• Product Highlights

1080P Live Image

20 x Optical Zoom

1080P@30FPS Real Time Output

2.8-12mm Camera Lens Range

4.7-94mm

IR connection port for Low Power Consumption 10-30M Viewing Distance
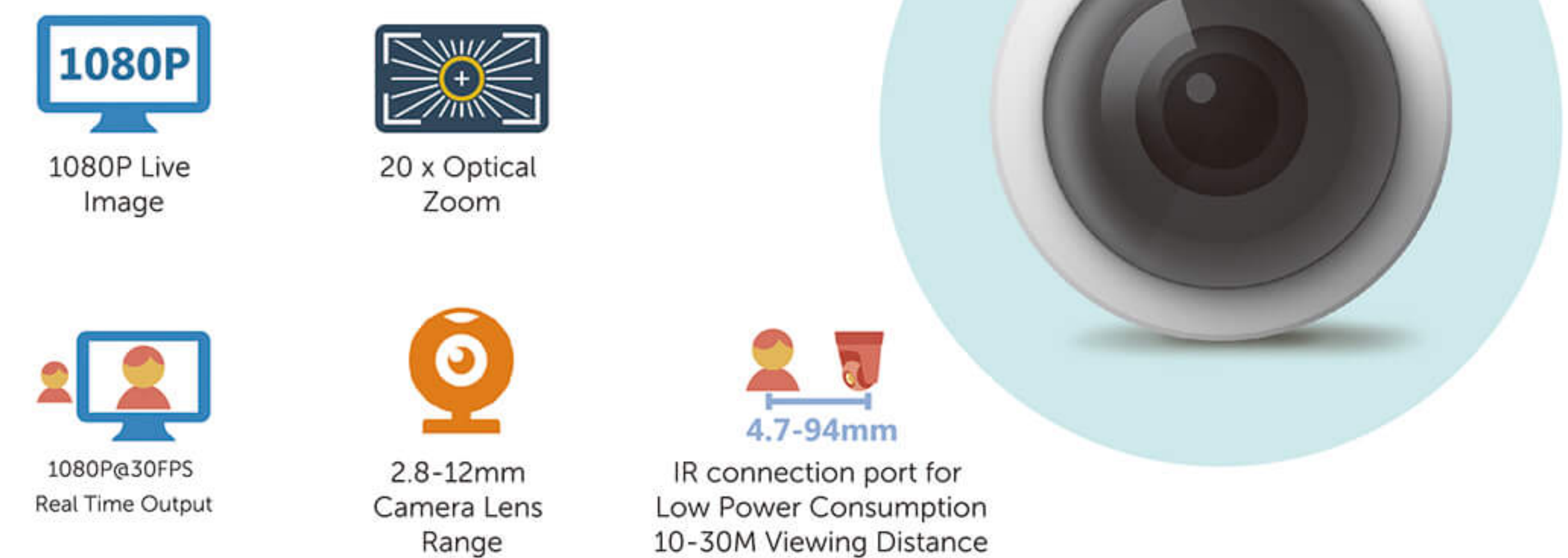
11. Desktop Gooseneck Microphone

• Product Highlights

> Noise reduction technology and high sound quality.
> Capacitance pick-up head and high sensitivity.
> Hard plastic structure to protect the head and endurable usage.
> Convenient operation with adjustable gooseneck part for all directions.
> Power on/off easily.
> External connection to devices such as phantom power for higher sound quality.

12. Speakers

• Product Highlights

> High-end wall-mounted speaker, with adjustable fixed-pressure and constant-pressure, two-way unit design, 25-core high-grade silk film treble, wide-band response, it could realize perfect sound and very easy to install.
> Application Scenarios: clubs, shops, conference rooms and schools

• Specifications

Parameters	Descriptions
Rated Power	40W
Maximum Power	80W
Input Voltage	70V/100V/8Ω
Sensitivity	91±2dB
Frequency Response	60Hz-20KHz
Material	ABS plastic shell + iron mesh cover
Speaker Unit	8"*1, 1.5"*1
Installation Method	wall mounted
Dimensions(mm)	420*300*280
Weigh	7.15kg

Case Studies

01. Global Indian International School

Global Indian International School (GIIS) is an international network of award-winning schools with 23 campuses across 7 countries. They include Singapore, Malaysia, Japan, Thailand, UAE, Vietnam, and India, offering Indian and international curricula to students from diverse backgrounds.

At the end of 2016, GIIS Singapore new campus has started construction work of two main buildings. With the aim of building a school with state-of-the-art technology, the school IT team came to IQ. We offered them a proposal for the smart classroom and smart campus development.

• Challenges

Fully aware of the importance of education technology in the 21 century, the GIIS team has confidence in blueprinting a school of the future. When it comes to the classroom A/V design, they are clear about what they want:

An interactive, intuitive and innovative teaching & learning environment, where technology is easy for teachers to use and fun for students to engage.

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An interactive, intuitive and innovative teaching & learning environment, where technology is easy for teachers to use and fun for students to engage.

Efficient campus management via a networked AV system. Keep multiple devices under regular control through the internet of things to achieve energy conservation.

Audio and video announcements broadcasted on the campus could be timely, effective and assigned destination.

Integrate the traditional emergency alert into the overall networked system to achieve a safe campus environment.

● Solution

At the request of the GIIS team, IQ has designed a comprehensive campus AV solution that rises to the challenge:

Each classroom is equipped with two IQTouch interactive displays and an IQView interactive document camera. Together with bundled software IQ Interactive Education Platform, they create a vivid and interesting learning environment.Audio and video announcements broadcasted on the campus could be timely, effective and assigned destination.Integrate the traditional emergency alert into the overall networked system to achieve a safe campus environment.

Device	Model	Amount
IQ Manager Pro	/	1
IQSchool Converged Server	BS 200	1
Converged Station	V330	139
Video Station	VL100	13
A/C controller	KC-601	139
2.4GHz Mic	KC-606	139
IQ Touch Panel	CP02	139
IQ Touch Screen	J-65	260

02. Daffodil International University

Bangladesh Daffodil International University, founded in 2002, was ranked number one in the ranking of private universities by the Bangladesh University grants committee. IQSchool solution was introduced to the university in 2017, which solved the information communication between the new campus in Permanent and the headquarter. The master server built in the headquarter can manage each classroom and device of Permanent campus, which provides convenience for IT administrators.

● Daffodil International University Configuration List for Reference

Device	Model	Amount
IQ Manager Pro	/	1
IQSchool Converged Server	BS 200	1
Converged Station	V330	22
Video Station	/	2
IQ Camera	/	2
IQ Directional microphone	/	8
A/C controller	KC-601	22

03. Shenzhen University

In the July 2011, south campus of Shenzhen University was established successfully, which has large-scale area and special design of buildings. With total amount of 3,000 students, there are three colleges located at south campus, including mechanical college and medical college.

As a core device, IQSchool Converged System is applied and equipped at every classroom. And together with advanced management platform, users can have a clear picture of all devices located at different storey and classrooms. Moreover, managers can control devices to boot or shut down by using IQ Manager Basic software, which helps improve life span of equipments a lot. In a word, IQSchool guarantees more efficient management on education equipments.

● Shenzhen University Configuration List for Reference

Device	Model	Amount
IQ Manager Adv	/	1
IQSchool Converged Server	BS100	1
IQSchool Converged System	V230	N
IQSound Plus	MC06A	N