

Application of IoT based on Intelligent Controllers in Poultry Farming

CCSDA Technology Co., LTD



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About us

CCSIDA

Enterprise introduction





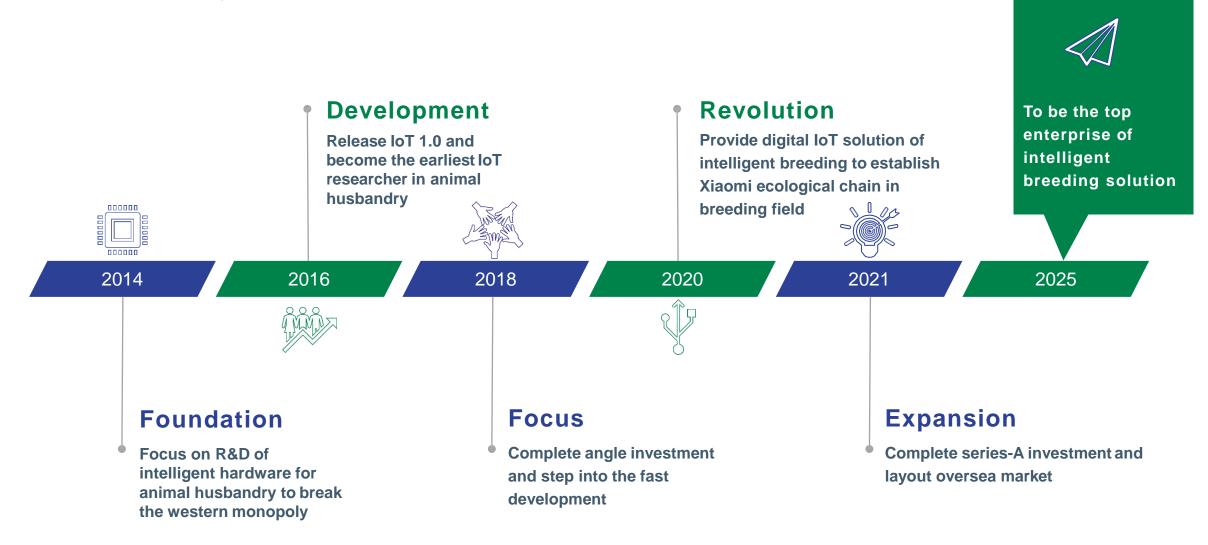
CCSDA Technology Co., Ltd, founded in 2014, focuses on digital transformation of animal husbandry. Integral solution is provided for enterprises of information upgradation and digital transformation based on intelligent Hardware and big data platform. Service of university research transformation, government program application and supply chain finance is also available.

After years of struggle, we have been advanced in R&D of climate controller internationally. EMC lab, which is rare in peer companies, has been established for more stable product. More than 200,000 pcs have been used in animal husbandry globally. Self-developed CCSDA AIFarm digitalization platform has served thousands of farms

About us



Development history





CCSIDA

Culture



About us



[invention patent]

- A feeding device for piglets
- The utility model relates to a convenient feeding device for animal husbandry
- Environmental control method and system suitable for building pig raising
- Predictionmethod, device, product and storage medium of environmental comfort of chicken house based on environmental data
- Temperature and humidity prediction method, device, product and storage medium of chicken house based on wavelet decomposition and LSTM

[appearance patent]

- Climate controller (FutureX)
- Climate controller (KSeries)

[utility model]

- Farm louver fan system
- A heating pipeline meter reading system based on onenet Internet of Things
- The invention relates to a remote acquisition controller

[software copyright]

- •Simple pig house environment controller K4 system software V1.0
- Kechuang Xinda Pigsty environmental controller K9 system software V1.0
- Soft chicken breeding technology control system V1.0
- •Soft Piggery environment controller with alarm system software V1.0

[certification]

- State-level high-tech enterprises
- Shandong Province "gazelle" enterprise
- Shandong 2022 "Specialized, special and new" enterprise
- 2021 Qingdao New Economy Top 50 high-growth Enterprises
- Qingdao 2021 "specialized, special and new" enterprises
- Digital economy major project of Shandong Province
- ISO9001/ISO45001 system certification
- Member of China Animal Husbandry Association
- Member of Intelligent Animal Husbandry Branch of China Animal Husbandry Association
- Provincial big data "double, triple and excellent" project
- The third prize of the 10th China Innovation and

[group standards]

- T SDAA033-2021 Environmental Control
 Technology for Multi-layer cage broiler
 breeding
- T SDAA037-2021 Commercial pig feeding management technical regulations
- ●T SDAA0039-2021 Technical
 Regulations for Environmental Control of
 pig farms
- T SDAA0041-2021 Technical specification for health of multi-layer cage rearing of white feathered broilers
- Set the technical regulations and standards for the cloud platform of intelligent pig breeding
- •Set rules and standards for the construction of intelligent environmental control system for large-scale pig farms















About us

CCSIDA

Events













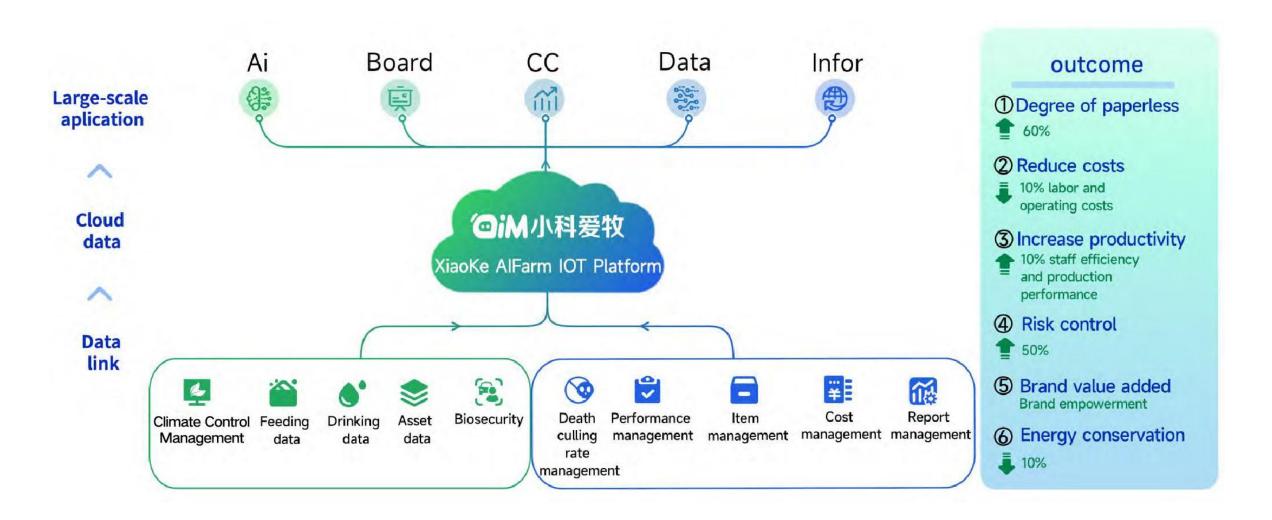




Integral solution



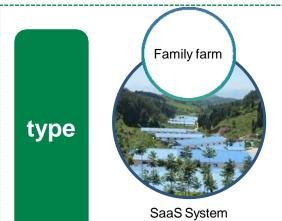
CCSDA data to cloud application scenarios



Integral solution



CCSDA data to cloud application scenarios



































layer

Broiler

Breeder

Meat duck Breeding duck Laying duck

Mushroom

Rabbit

Quail

Strawberry

model













Floor-rearing

Cages-rearing

Building breeding

Poultry farm upgrade

Positive pressure ventilation

Alarm



Xiaoke AlFarm O²S intelligent breeding platform

IoT platform

CCSDA is committed to building the Only One System platform, making full use of 5G empowerment, the environmental data, equipment operation data, alarm data, aquaculture data, water and electricity data, video surveillance and other massive information closely related to the farm are transmitted to the cloud platform without delay, the powerful analysis and self-learning capabilities enable users to control the farm status anytime and anywhere.

According to the type of enterprise, we will launch MES System, PaaS System and SaaS System respectively. Through big data and cloud computing, we continuously optimize the breeding parameters and improve the breeding process, and iterate a better breeding strategy for each farm to achieve cost reduction and efficiency enhancement, and brand empowerment.

MES

Break through the information gap between the farm and the group management System

PaaS

Customized development based on existing PaaS System

SaaS

Standardized IoT production management software



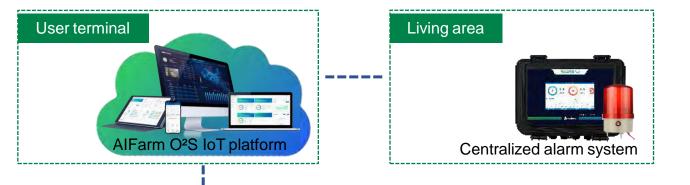




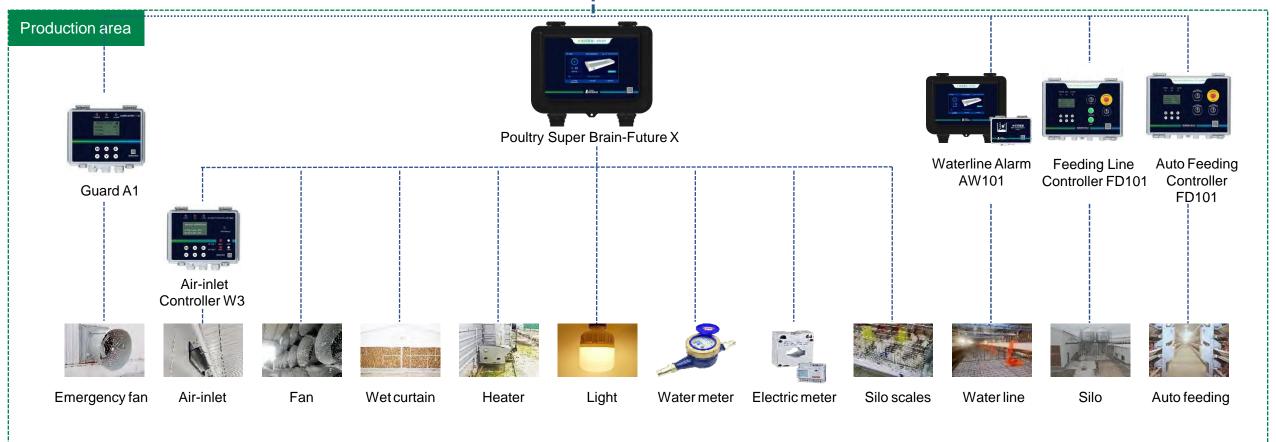


Hardware system

Poultry Series







Poultry Series



Super Brain for Poultry - Intelligent Climate Controller Future X





Product Functions

- 1 40 channels of relay output
- Early warning consume data
- Breeding technology algorithm implantation
- **(5)** Fine control of somatosensory temperature
- 3 Precise control of data
- **6** Alarm waterline shortage



screen

ر کے ا 10 inch touch L

Level ventilation compensation ventilation



Breeding technology algorithm implantation



Fine control of somatosensory temperature



Cloud platform

Main component

Input section

[10 channels] High-precision temperature sensor, 9 channels of indoor temperature and 1 channel of outdoor temperature can be configured;

[6 channels] 4-20mA signal sensor, which can be configured as temperature, humidity, CO2, NH3, H2S, static pressure, wind speed, etc.;

[2 channels] 0-5V analog quantity, the position feedback signal of the wind window can be configured;

[5 channels] relay, feed and water consumption, external alarm signal, etc.;

[1 channel] 12V battery input interface; configured as outage alarm;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: <25W;

Dimensions:400*300*140mm;

Displayaccuracy: 0.1°C;

Output section

[8 channels] 0-10V analog quantity, can be configured as 2 channels of variable speed fans, 4 channels of air inlet, 1 channel of heating, and 1 channel of light adjustment;

[40- channels] relay; can be configured as 30 channels of fixed speed fans (multiplexing), 2 channels of cooling pad water pump, 1 channels of spray, 3 channels of heater, 1 channels of circulating fan, 3 channels of timer, 1 channels of temperature control switch, 4 channels of air inlet, 1 channels of alarm;

Communication section

[3 channels] 485 communication interface, configured as communication interface, product data gather interface, waterline sensor gather interface;

Super Brain for Poultry - Intelligent Climate Controller Future 100





Product Functions

- Multi-sensor Auxiliary Control
- 4 Four Seasons Parameters Save
- Production data management, single consumption analysis
- Refined production data management

- 3 Risk monitoring alarm
- **⑥** IoT platform parametersetting



7 inch touch screen



Refined production data management



Multi-sensor fusion



cloud platform

Main component

Input section

[7 channels] High-precision temperature sensor, 6 channels of indoor temperature and 1 channel of outdoor temperature can be configured;

[6 channels] 4-20mA signal sensor, which can be configured as temperature, humidity, CO2, NH3, H2S, static pressure, wind speed, etc.;

[2 channels] 0-5V analog quantity, can be configured as feedback signal of wind window and curtain position;

[7 channels] relay, feed and water consumption, external alarm signal, etc;

[1 channel] 12V battery input interface; configured as outage alarm;

Output section

[6 channels] 0-10V analog quantity, can be configured as up to 4 channels of variable speed fans, 6 channels of air inlet (shared), 1 channel of heating, and 1 channel of light adjustment;

[20 channels] relay, can be configured as fixed speed fan, cooling pad water pump, spray, heater, circulating fan, timer, temperature control switch, wind window, curtain, alarm;

Communication section

[3 channels] 485 communication interface, configured as communication sensors, electricity meters, water meters, Internet of Things and expansion;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: <15W;

Dimensions: 350*250*130mm;

Display accuracy: 0.1°C;

Brain for Poultry - Intelligent Climate Controller Future 80





Product Functions

- 16 channels relay output
- Day-age, time, outdoor temperature assist control

7 inch touch screen

2 3 areas heating

Ventilation level

(5) CO2, humidity, static pressure assist control

cloud platform

- 3 Multipart sensor assist control
- 6 IoT platform parameter setting, data analysis, alarm reminding

Main component

Input section

[7 channels] High-precision temperature sensor, 6 channels of indoor temperature and 1 channel of outdoor temperature can be configured;

[4 channels] 4-20mA signal sensor, configured as temperature, humidity, CO2, NH3,H2S,static pressure, wind speed, etc;

[3 channels] relay, feed and water consumption, external alarm signal, etc.;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: <15W;

Dimensions: 350*250*130mm;

Display accuracy: 0.1°C;

Output section

[3 channels] 0-10V analog quantity, can be configured as up to 3 channels of variable speed fans, 2 channels of air inlet (shared) and 1 channel of light adjustment;

[16 channels] relay, can be configured as fixed speed fan, cooling pad water pump, spray, heater, circulating fan, timer, temperature control switch, wind window, curtain, alarm;

Communication section

[2 channels] 485 communication interface, can be configured as communication sensors, electricity meters, water meters, Internet of Things and expansion;

Brain for Poultry - Intelligent Climate Controller Future 80E





Product Functions

16 channels relay output

7 inch touch screen

2 3 areas heating

Ventilation level

cloud platform

3 loT platform parametersetting, data analysis, alarm reminding



Input section

[7 channels] High-precision temperature sensor, 6 channels of indoor temperature and 1 channel of outdoor temperature can be configured;

[4 channels] 4-20mA signal sensor, configured as temperature, humidity, CO2, NH3,H2S,static pressure, wind speed, etc;

[3 channels] 1 channel external alarm signal, 2 channels reserved.

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: <15W;

Dimensions: 350*250*130mm;

Display accuracy: 0.1°C;

Output section

[3 channels] 0-10V analog quantity, can be configured as up to 3 channels of variable speed fans, 2 channels of air inlet (shared) and 1 channel of light adjustment;

[16 channels] relay, can be configured as fixed speed fan, cooling pad water pump, spray, heater, circulating fan, timer, temperature control switch, wind window, curtain, alarm;

Communication section

[1channel] RS485 communication interface, can be configured as, Internet of Things;

Waterline Alarm System – Waterline Alarm WM100 **Waterline Gather WS8**





Connect 20 pcs waterline Gather WS8 at most



Connect 8 pcs sensors at most

Main component

Input section

[4 channels]switch input interface;

Output section

[3 channels]relay output;

[1 channel]relay alarm signal;

Communication section

[3 channels]485 communication interface, (gather 120 channel

alarm signal);

[1 channel]inlay IoT interface;



7 inch touch screen

Accurate positioning alarm



cloud platform

Main technical parameters

Input voltage:AC220;

Rated power: <50W;

Dimensions:350*250*130mm:

Main component

Input section

[8 channels]relay

Output section

[1 channel]485 communication interface;

Power interface

[1 channel]DC24V;

Sensor

Easy for installation

Capacitive sensing

Strong anti-interference capability

Product Functions

- 120 channels alarm and flush
- Feeding Mode userdefined
- 7 inch LCD display
- Digital communications, wiring convenience
- Accurate positioning, alarm display
- Platform manage, in timepost

Waterline Alarm System - Waterline Alarm WM100 Waterline Controller LC50









Main component

Input section

[4 channels]switch input interface;

Output section

[3 channels]relay output;

[1 channel]relay alarm signal;

Communication section

[3 channels]485 communication

interface ,(gather 120 channels alarm

signal);

[1 channel]inlay IoT interface;

Product Functions

- 120 channels alarm and flush
- 3 Adding medicine and sterilize, synchronous management
- Digital communications, wiring convenience

- 2 7 inch LCD display
- Feeding Mode user-defined
- Platform manage, post real-time

7 inch touch screen Accurate cloud platform positioning alarm

Main component

Input section

[20 channels]relay input(LC20),expand to 50 channels at most

[4 channels]relay output interface, control main valve, add medicine,, sterilize, etc

Output section

[1 channel]485 communication interface;

Power interface

[1 channel]AC220V;

Waterline Alarm System - Waterline Controller LC50

Waterline Alarm WM100







Main component

Input section

[20 channels]relay input(LC20), expand to 50 channels at most

[4 channels]relay output interface, control main valve, add medicine, sterilize, etc

Output section

[1 channel]485 communication interface;

Power interface

[1 channel]AC220V;



Main component

Input section

[4 channels]switch input interface;

Output section

[3 channels] relay output;

[1 channel]relay alarm signal;

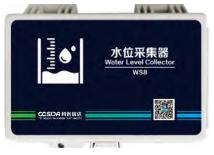
Communication section

[3 channels]485 communication

interface, (gather 120 channels alarm

signal);

[1 channel]inlay IoT interface;



Main component

Input section

[8 channels]relay

Output section

[1 channel]485 communication interface;

Power interface

[1 channel]DC24V;







cloud platform

Air Inlet Controller W3





Product Functions

- ① LCD display, easy to operation
- Manual and auto,1click switchover

- Electric push rod, accurate control
- **⑤** Electric push rod fault display
- 3 Control 2 pcs electric pushrod
- **6** 0-10V, RS485 option



Main component

Input section

[4 channels]switch interface;

[2 channels]potentiometer interface;

[2 channels] Analog quality 0-10V interface;

Output section

[4 channels]relay, electric push rod control interface;

[1 channel]alarm output interface;

Communication section

[1 channels]485 communication interface

Main technical parameters

Input voltage:AC85~305V,50/60HZ;

Rated power:515W(system rate:15W;2 pcs electric push rod rate:500W);

Dimensions:220*160*100mm;

Display accuracy:1%;

Main Function feature

- Control 2 pcs electric push rod, synchronous control or asynchronous control;
- 3.6 inch LCD display the in-time open angle;
- Time control and position control;
- Manual, 0-10V, RS485 control;
- Manual and auto control,1 click switchover;
- real-time detection push rod limit feedback function, alarm display.

Automatic Chicken Feeding System FD101





Product Functions

- ① Manual, Auto, remote control, total 3 control mode
- **4** 3 channels AC relay

- Timing, quantify, accurate feeding
- **⑤** Self-calibration, pinpoint accuracy
- 3 Limit switch to stop and return to prevent derailment
- **6** Data reporting platform, real-timeview and set seeder information





Power supply, blocked rotation.

derailment alarm detection





Spill curve

Cloud platform

Main component

Input section

3-Phase input;

3 channels limit input;

remote control input;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: < 1.5KW;

Dimensions:350*250*130mm;

Key input

✓ operate the interface to parameter setting and review.

Output section

Upload the data via IoT model;

4 channels relay output, 3 channels relay

controlling 3 pcs motor, 1 channel control alarm;

LCD display;

Main Function feature

- Manual, Auto, remote control, total 3 control mode
- > Setting the feeding time and frequency under auto mode with highly accurate;
- When the limit switch is detected in the three modes, it will stop and return the switch to prevent derailment while ensuring safety. It will also automatically participate in the manual mode to improve the user's physical examination.
- The three AC relays correspond to the walking motor forward, the walking motor reverse and the feeding motor respectively, with strong controllability;
- Manual calibration and automatic calibration, calibration accuracy;
- > Upload the data to IoT platform, review in real time
- With the addition of excessive current protection, motor blocking alarm, phase sequence error alarm, derailment alarm, with extremely high safety;

Automatic Chicken Feeding Controller - F101Pro. F201Pro. F301Pro





Main technical parameters

Input voltage:AC380V± 10% < 50/60HZ;

Rated power:F101Pro 1.5KW, F201Pro 3KW, F301Pro 4.5KW;

Dimensions:350*250*130mm;

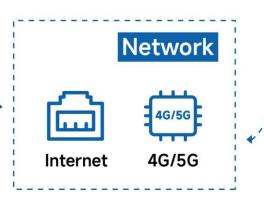


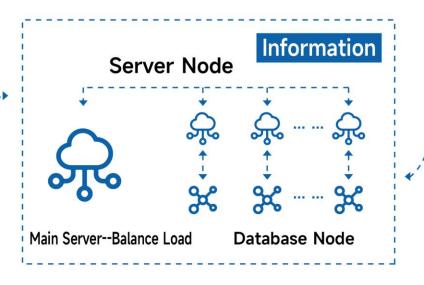
Main function feature

- Manual operation < detection of material level;
- Auto timer running < 10 times per day at most;
- Feeding operation, stop the feeding when detection of material level is full;
- Connect with 1 channel / 2 channels/3 channels motor < respectively corresponding F101Pro, F201Pro, F301Pro;
- Connect with 1/2/3 channels feeding position sensor and switch;
- Setting time-lapse clean fodder, time-lapse transport;
- Connect with IoT platform;
- Overcurrent protection < Optional < ;
- Phase sequence, lack of phase protection;



Intelligent Online Weighting System







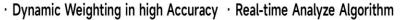
Intelligent Gateway G2

One G2 could collect 32 sets of scale in one house atmost









Battery built-in, free of wire · Automatically Tare Function Operation







IoT Platform



Wireless IoT. Wired IoT. XIAOKE AlFarm O2S Platform



Common for livestock and poultry –loT Platform

Wireless IoT, Wired IoT, XIAOKEAIMU O2S Platform







PC WEB | Mobile Phone | Pad

Sensor Series





Common for Livestock and Poultry - Sensor

Temperature KCNTC-1M, Humidity KCTHT-102, CO₂ KCCOT-103, Humidity&CO₂ KCHCOT-110, NH₃ KCNHT-104, Static pressure KCPT-106

Parameters



Temperature KCNTC-1M

Configuration: 2-wire thermistor;

Features: Imported high-precision sensors, good • precision:0.2°C

consistency;



Humidity&CO₂ KCHCOT-110

Configuration

[2channels] 4~20mA output

[1channel] 12V DC Power

Parameters

• scope:0-100%, 0-5000ppm or 0-10000pp m

precision:1.5%, 3%

Features

Modules imported from Switzerland, high

precision, high stability;



Humidity KCTHT-102

Configuration

[1channel] 4~20mA output [1channel] 12V DC Power

Parameters

• scope:0-100%℃

• precision:± 1.5%℃

Features

Modules imported from Switzerland, high precision, high stability;



NH₃ KCNHT-104

Configuration

[1channel] 4~20mA output

[1channel] 12V DC Power

Parameters

• scope:0-100ppm

•precision:3%

Features

Imported high-precision sensors, good

consistency;



CO₂ KCCOT-103

Configuration

[1channel] 4~20mA output

[1channel] 12V DC Power

Parameters

• scope:0-5000ppmor 0-10000ppm

• precision:3%

Features

Modules imported from Switzerland, high precision, high stability;



Static pressureKCPT-106

Configuration

[1channel] 4~20mA output

[1channel] 12V DC Power

Parameters

• scope:-100~100pa

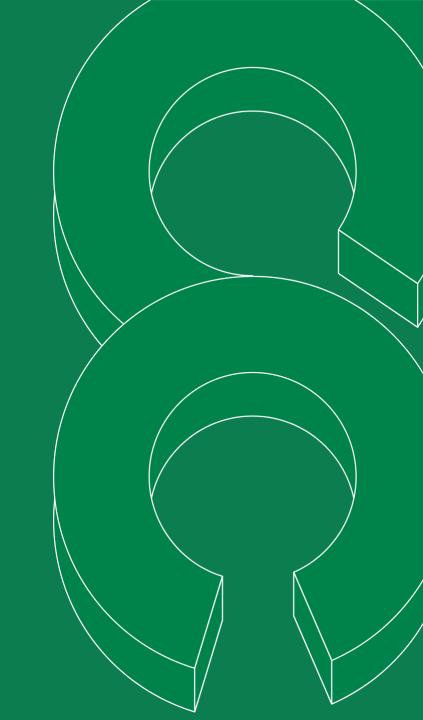
• precision:3%

Features

Modules imported from Switzerland, high

precision, high stability;

Centralize Alarm Series



Intelligent Gather S1





Product Functions

- ① Temperature gather partition
- Multi sensor connected
- ② Gather water, electric, fodder consume data
- **⑤** Remote mange connected IoT
- **3** Abnormity warning, centralized management
- Digital intelligent upgrade, cost reduction and efficiency, suitable for old factory transformation, data Series



Main component

Input section

[4 channels]High-precision temperature sensor, configurable for 1 channel outdoor temperature;

[4 channels] Configurable for humidity, CO2, NH3, static pressure;

[4 channels] Switch input,reserved;

Output section

[1 channel]relay;

Communication section

[1 channel]LoRa wireless communication interface;

[3 channels]RS485 interface;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: < 15W;

Dimensions:220*160*100mm;

Display accuracy:0.1℃;

Guard Safety Alarm A1





Product Functions

- ① 3 phase detectionalarm
- 2 Climate controller data gather
- 3 Internally installed buttery outage alarm

- Independent temperature alarm detection
- **⑤** Forced fan operation

6 Platform manage post real-time



Independent temperature detection



Power and climate controller alarm



Forced fan operation

Main function feature

- Humanized interface design, LCD display;
- Independent temperature detection, independent high and low temperature alarm.
- Detection of three-phase power outage, lack of phase, phase sequence error and other abnormal conditions;
- Data of one environment controller can be accessed and uniformly reported.
- Built-in 2000mAH spare battery, can run for 8-12 hours in the state of power failure;
- 2 channels switch input interface, can collect external alarm information, alarm information can be arbitrarily configured;
- 3 channels relay Output interface, phase sequence alarm, fault alarm, and forced fan operation.
- 2 channelsRS485 port, which collects and reports data for the CCE.
- Equipped with on-board Internet of Things function to realize the communication between the device and the platform;

Main component

Input section

[1 channel] High-precision temperature sensor;

[2 channels] Relay switch signal;

[1 channel]Power gather interface;

Output section Communication section

[3 channels]relay; [2 channels]RS485 communication interface;

Main technical parameters

Input voltage:AC85~305V, 50/60HZ;AC380V± 10% < 50/60Hz;

Rated power:<15W;

Dimensions:220*160*100mm;

Display accuracy:0.1°C;

Guard Data Center Safety Alarm A2



Building



Product Functions

- Easy operation, platform stabilization
- **4** 3 phase anomaly detection
- 2 10 pcs climate controller centralized networking alarm
- ⑤ Internally installed buttery outage alarm
- 3 10 channels alarm signal detection
- **6** IoT platform parametersetting



Easy operation



Power and climate controller alarm



Manage multi controller



USB import/export data manage

Main function feature

Humanized interface design, LCD display;

Detection of three-phase power outage, lack of phase, phase sequence error and other abnormal conditions;

Manage and report data of a maximum of 10 environmental controllers in a unified manner.

Built-in 2000mAH spare battery, can run for 8-12 hours in the state of power failure; 2channelsRS485 port, which collects and reports data for the CCE.

Equipped with on-board Internet of Things function to realize the communication between the device and the platform;

10 channels switch input interface, can collect external alarm information, alarm information can be arbitrarily configured;

2 channels alarm output interface, can be connected to the sound and light alarm; Support USB export system Settings data, update program function;

Main component

Input section

[10 channels] relay switch signal;

[1 channel] Power gather interface;

Output section Communication section

[2 channels]relay; [2 channels]RS485 communication interface;

Main technical parameters

Input voltage:AC85~305V, 50/60HZ;AC380V± 10% < 50/60Hz;

Rated power: < 15W;

Dimensions:250*350*130mm;

Net Safety Alarm A3







Product Functions

- 1) 7 inch touch screen
- Internally installed buttery outage alarm
- 2 Alarm information displaydetail
- **⑤** The voice alarmadjustment
- 3 Manage 200 pcs climate controller at most
- **6** Choose to mask an alarm











Easy operation

n 7 inch touch screen

Centralized alarm in office area

Convenient construction without pulling wire

Voice broadcast

Main function feature

- 7 inch touch screen, clear display, easy interaction;
- Access platform, real-time detection of factory alarm;
- Optional monitoring equipment, alarm field selective shielding;
- Voice broadcast alarm content;
- Built-in battery, speaker, no external installation;
- Built-in wired and wireless networking options

Main component

Output section

[4 channels]relay;

Communication section

[3 channels] RS485 communication interface; < With intelligent voice box can be voice broadcast < ;

Main technical parameters

Input voltage: AC85~305V, 50/60HZ;

Rated power: < 15W;

Dimensions:350*250*130mm;

preciation



Shandong Yataizhonghui Group——Broiler Chain



Over 100 old farms integrate transformation











Yataizhonghui Group starts intelligentization and information transformation because breedingbird farm and broiler farms have been establish too long from 2021

Customized develop based on specific requirement, data to cloud and intelligentbreeding

Unify all the device joint, pave the way for information excel to group finance system

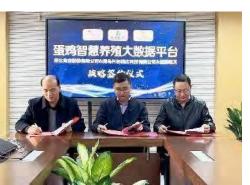


Anhui Rongda——Layer chain

3,000,000 pcs layers big data platform development project











Anhui Rongda is over 3,000,000 pcs layers, and most of the equipment imported from abroad has been used before

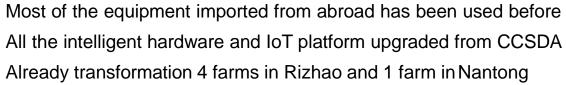
CCSDA provides intelligent hardware and big data platform development, pave the way for information excel to group finance system



TYSON—Top brand in USA

IoT platform system upgraded

















Shanxi Daxiang——Intelligent breeding solution

White Feather Broiler capacity top 10 domestic
Upgrade and layout IoT from 2019
Over 700 building appointed CCSDA intelligent hardware and IoT platform



Guangxi Liyuan——Intelligent breeding solution

Yellow chicken capacity top 5 domestic building appointed CCSDA intelligent hardware and IoT platform



Ningxia Dadi——Intelligent breeding solution

Progenitor chicken, parents breed chicken

Equipped climate controller from small supplier without networking capabilities.

Finish 80 building IoT transformation for the last two years





New hope Gebeitou millions meat duck breeding base

The largest monomer of meat duck breeding program CCSDA provides IoT and energy management system Intelligent hardware 100% supplied from CCSDA



Haiyang Dingli Digitalization platform program

Parents breed chicken breeding enterprise

CCSDA provides integral digitalization platform solution



Yantai Xinde Training College of head of Large-scale

First comprehensive farm director training college domestic

Teaching practice climate controller and IoT platform from CCSDA

Oversea Poultry Case

CCSIDA

Southeast Asia (Thailand) client











Long-term stable cooperation

Exported to layers and broilers exceeds 200 buildings of intelligent hardware





THANKS