HONGYUV

HY-DISPLAY

Data Logger   Console   Display

2022-04-29 10:54:52   TCP   IoT

Air Temp.   Humidity   Pressure
25.5 ℃   69 %   947.2 hPa
Preci. Type   RAIN+SNOW+HAIL
Rain Intensity   Accumulation
0.7 mm/hr   240.96 mm
Solar   Luminance   Daily Rad.   UVI
226 W/m²   21.7 KLux   0.0 KJ   -
PM1.0   PM2.5   PM10
10.8   17.3   -   µg/m³
Road State   Road Temp.   Visibility
-    ℃   -
Thickness   Water   Snow   Ice
-    -   -   mm
Longitude   Latitude
103.96184253   30.73710617

Update at: 10:54:51
Relative   2.0   35°
True   0.0   46°
Gust   -   m/s
Travel   2.0 km/h 0°
Compass   46°

Operating Manual

FOREWARD

Thank you for purchasing HY-DISPLAY versatile console manufactured by Hongyuv. This device without moving parts, free of maintenance and calibration on site. To achieve optimum performance we recommend that you read the whole of this manual before proceeding with use.

Hongyuv products are in continuous development and therefore specifications may be subject to change.

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INTRODUCTION

HY-DISPLAY is a versatile console comes with multiple function developped by Hongyuv Technology. Not only can it display real-time data, log real-time data, but also conduct TCP connection as client to your server, upload data to Weather Underground, HongYuv IoT platform.

All data received by serial port(UART, RS485, RS232, TTL, those should be decided when you place order) will be automatically uploaded to your server.

It's working based on embedded real-time operating system, which is stable, free of system crash.

It can support HongYuv unsolicited(active) output in ASCII stream format, NMEA0183, MODBUS-RTU protocol.

We can also make it suit to your own protocol based on your requirement customization.

Multiple language can be customized.

Features

➢ Intuitive wind speed direction indication
➢ Wind and Temperature Alarm
➢ Changable wind, temperature, rain, barometric unit
➢ TCP connection
➢ Support Weather Underground WUnderground
➢ WIFI & SD card supported
➢ Support HongYuv IoT platform
➢ Can upload data to your own server

Specification

Screen	7 inch TFT Capacitive touch screen
CPU	800Mhz
RTC function	Yes
Dimension	189.0mm×105.3mm×17.5mm
Display Zone	155.5mm×87.2mm
Interface	TTL or RS485 or RS232
WIFI	Optional: 2.4GHz-2.48GHz supported
TF card	Supported, 32GB TF card can store 10 years' data
Operational Temp.	-20～+70℃
Storage Temp.	-30℃～ +80℃
Optional protocol	MODBUS-RTU,NEMA0183,Active output Other protocol can be customized
Reliability	It has passed industrial standard high and low temperature, ESD, group pulse and radiation tests
Power consumption	Backlight off:120mA@12VDC 20%:150mA@12VDC 100%: 240mA@12VDC

Quick Start

1.Sketch

kickstand   Power supply and RS485 interface

7 inch capacitive touch screen   SD card slot
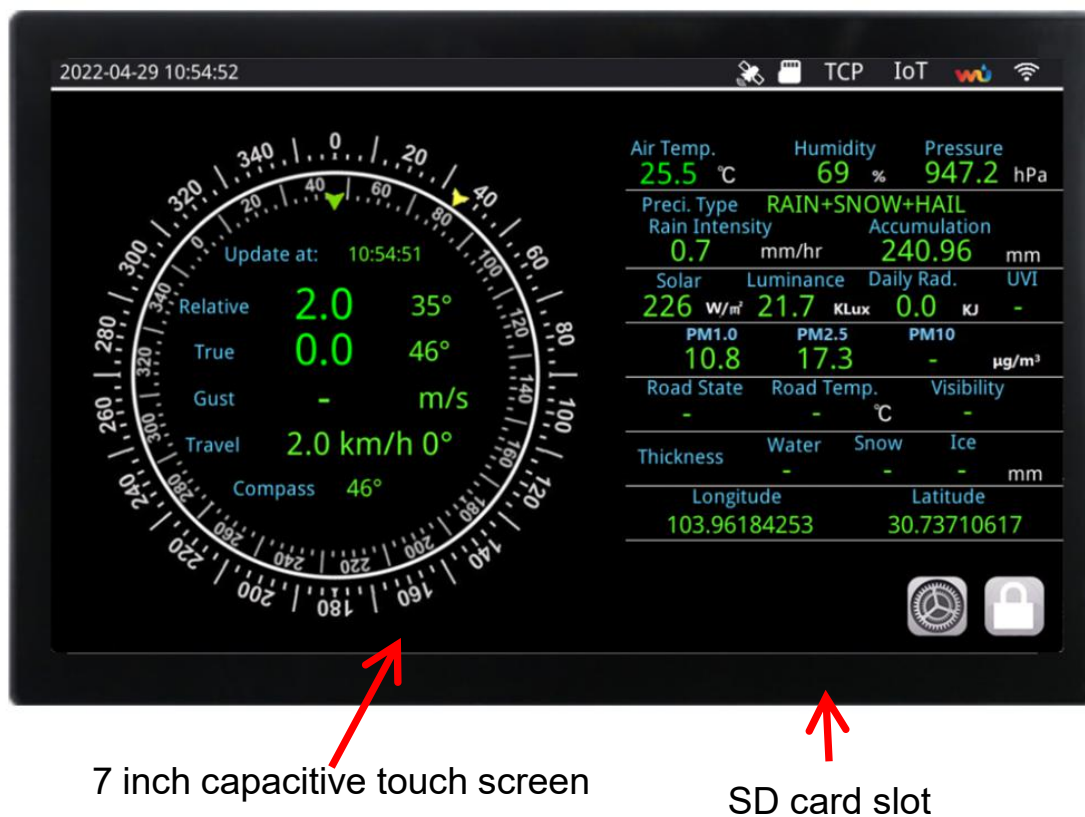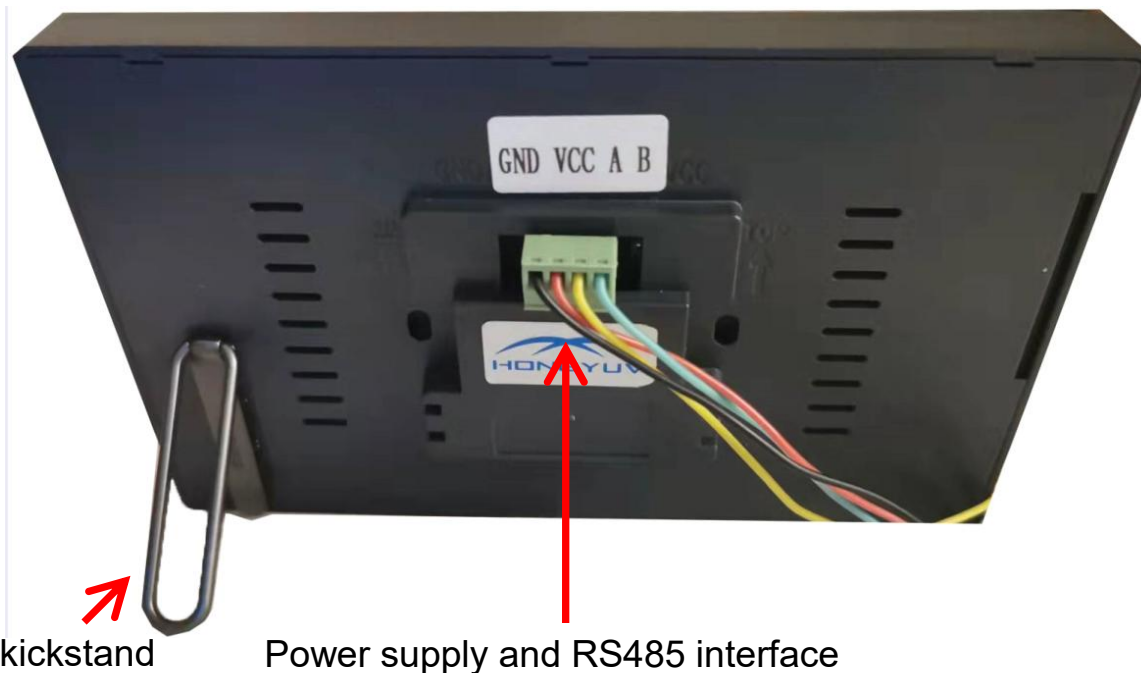
2.Operation

2.1 Main page

All real-time data are displayed at this page.

When you touch time stamp, you can hear a "beep" sound.

Keep pressing time stamp for over 5 seconds, time setting window will pop up.
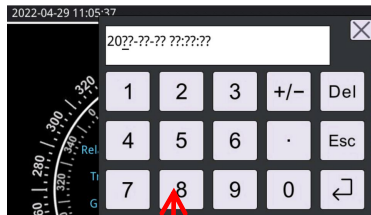
Icons from left to right:
GPS,TF card, TCP, IOT, WU,Internet

Click <setting> button to enter setting page

Click <lock> button to turn off/on backlight of screen,
Setting button will be untouchable when backlight is off.

2.2 Setting Page

User may select different function on functions list.
Details of each function will be displayed at zone right to it.

Functions list

Display zone of function
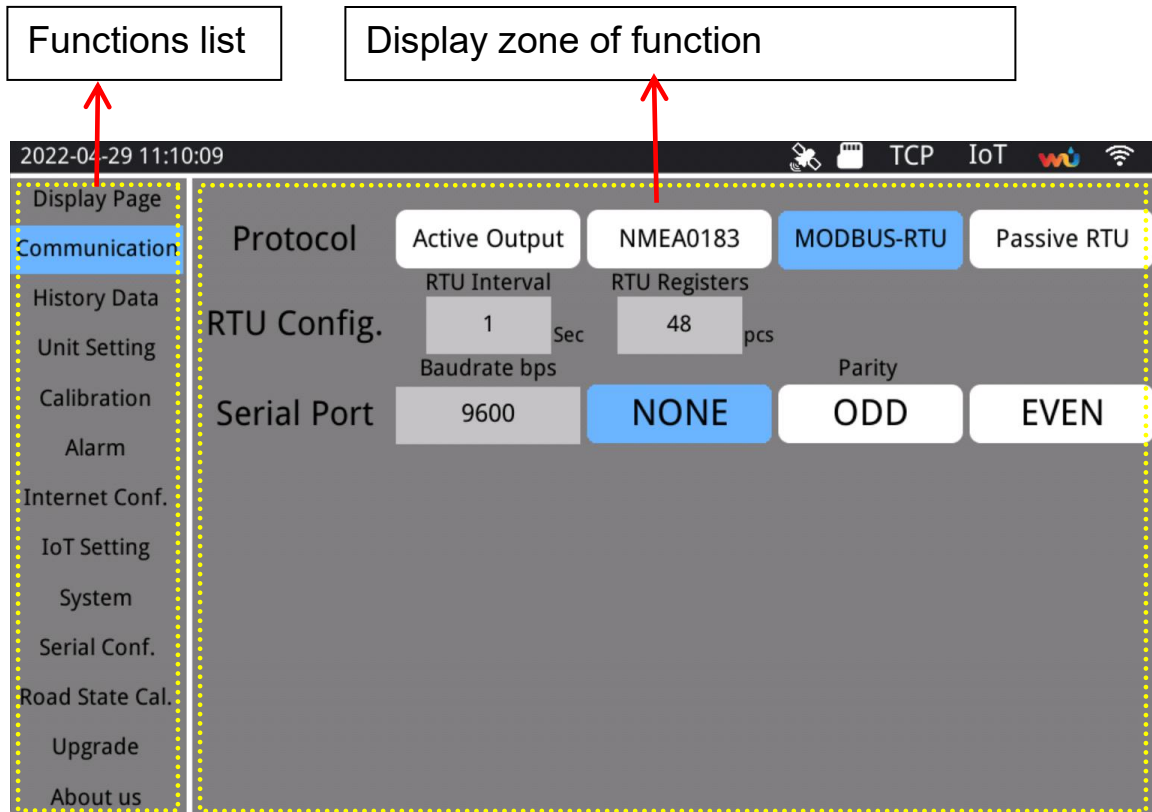
<Display Page>: To main display page.
<Communication>: To change protocol, MODBUS-RTU inquiry interval, register quantity,Baudrate, parity.
<History Data>: To review history data.
<Unit Setting>: To change unit of wind speed, temperature, barometric,rain
<Calibration>: To change coefficient of all parameters.
Data correction is using formula: y = ax + b, you can change a and b at this page.
Especially, you can initiate accumulated rain here.

Rain Accu. 240.96 mm

A file named as rain.txt will be generate in TF card, HY-DISPLAY will load it as latest rain accumulation.
Since our weather station will lose rain accumulation once its power is cut off, this function is critical to record correct rain accumulation.
<Calibration>: Currently, it has wind speed and temperature alarm value input at this page.
Once measurement is greater than alarm value, the color displayed on display page will turn to red.
More functions, such as alarm via TCP/IP or relay control, can be customized.
<Internet Conf.>: Internation configuration page, to scan WIFI(for wifi version), or to turn on/off DHCP(for ethernet version)
<IoT Setting>: To change IoT code, upload interval, IP and Port of TCP server or IoT server, WUnderground ID, KEY. Check message from server or HTTP response.
IoT code will be sent to server at the beginning of connection.

Please make sure IoT server IP and port are correctly input when you turn on IoT function.
Connections should be done with 15 seconds.
Thereafter, your server will receive string from HY-DISPLAY below:
HY,2022-04-28,17:24:36,OFF,2.0,0,103.96184253,30.73710617,2.0,35,0.0,46,1.52,46,25.5,69,947.2,RAIN+SNOW+HAIL,0.7,80.00,226,0.0,21.7,,10.8,17.3,19.0
Each parameters are separated by ','.(to figure out their definition, you can review excel title of file stored in TF card)

Please make sure TCP server IP and port are correctly input when you turn on TCP function.
All data received on serial port will be passed to your TCP server, vice versa.

Please make sure ID and KEY of Weather Undergournd are correctly input when you turn on WU function.
You will see data uploaded on their website.
You may find more information on their website:
https://www.wunderground.com

<System>: To switch language between Chinese and English, data store interval, backlight.
Data store interval,hereby, is interval before next writting to TF card.
All data before writting will be lost when you cut off power of HY-DISPLAY.

<Serial Config.>: To change ID, baudrate,parity of our sensors.(not HY-DISPLAY)
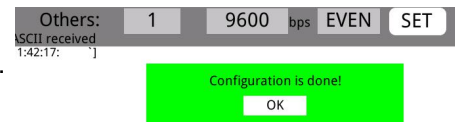MODBUS-RTU inquiry action will be temporarily paused when you enter this page.
For HY-RSS11E road state sensor, please choose first one.
For other sensors manufactured by HongYuv, please choose second one.
ASCII recived zone will display last ASCII string received.
HEX recived zone will display last HEX string received.
Normally you should see remind page pop up,
which indicate setting is successful, press OK to return.
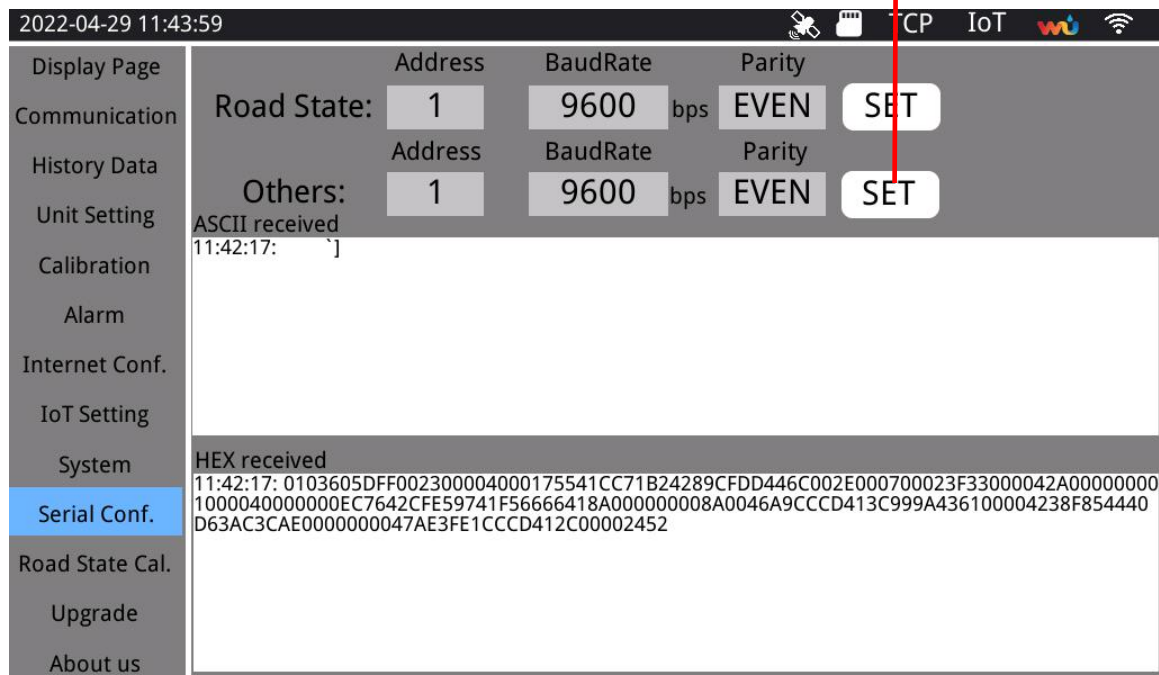
<Road State Cal.>: To calibrate our HY-RSS11E road state sensor, please note that This function currently not suitable for HY-RSS12E and HY-RSS13E.

MODBUS-RTU inquiry action will be temporarily paused when you enter this page.

<Upgrade>: To upgrade firmware of HY-DISPLAY

If you fail to upgrade:

1. Please check internet conneciton and try again.
2. Report Version of HY-DISPLAY, the string on lower right corner, to HongYuv.
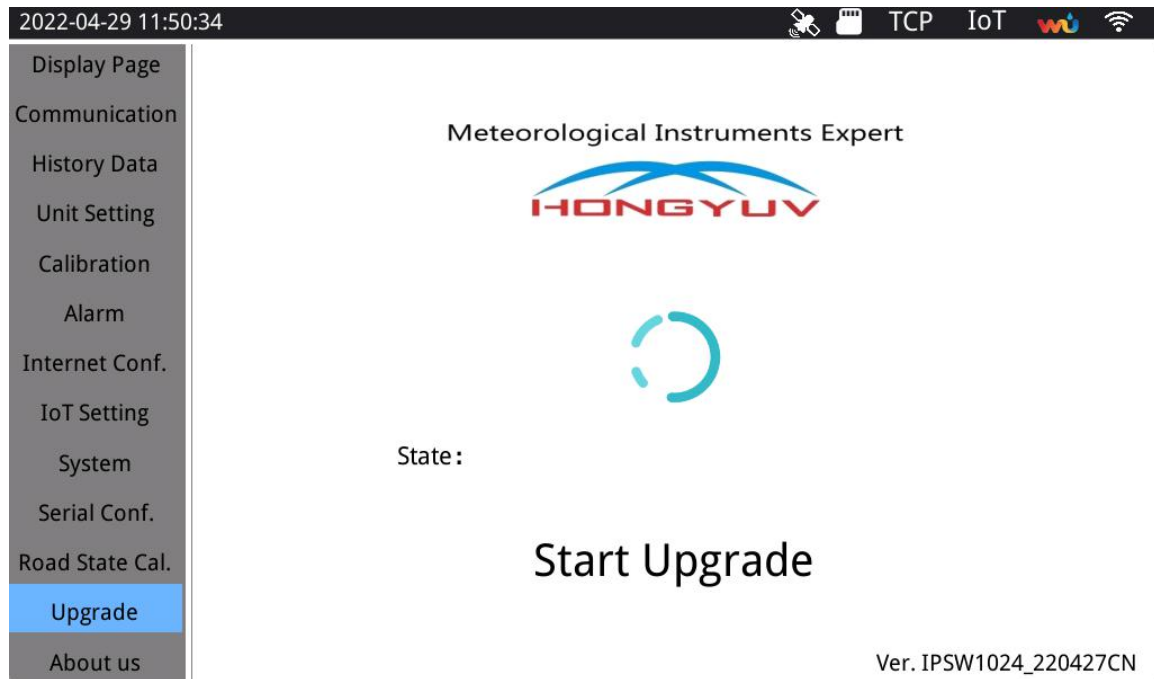
A simple TCP connection demonstration

for your reference below:

Firstly, open a TCP server on my computer.

HY-DISPLAY is connected to my WiFi and TCP connected to IP:192.168.43.78, port 10000

HY-DISPLAY is also connected to serial PORT COM12.

You can see message sent from server is received and displayed at "from server" by HY-DISPLAY, and also be transmitted to its serial port connected to COM12.

Meanwhile, the data sent on COM12 was transmitted to server 192.168.43.78:10000
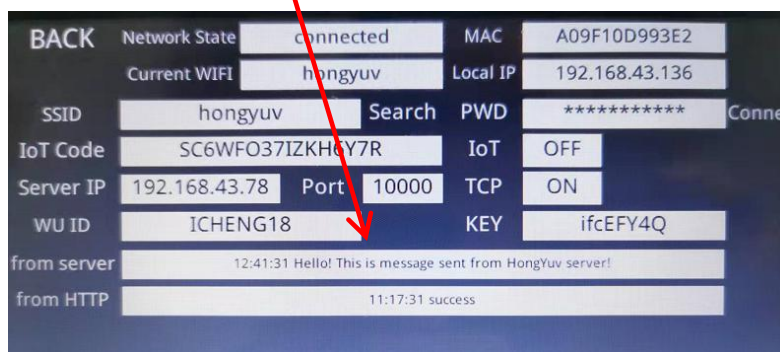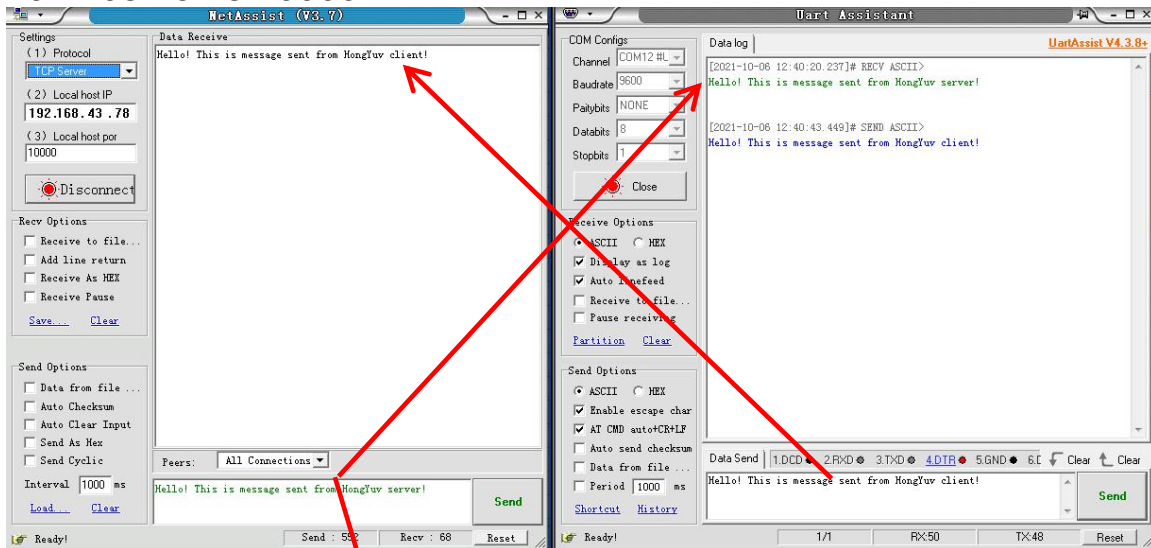
With this powerful funciton, you can talk to your sensor onsite and diagnose them remotely.

You can still have every single data in control while you connect them to Wunderground or our IoT platform.

IoT service of HongYuv IoT Platform

Charge: 50 USD/year.
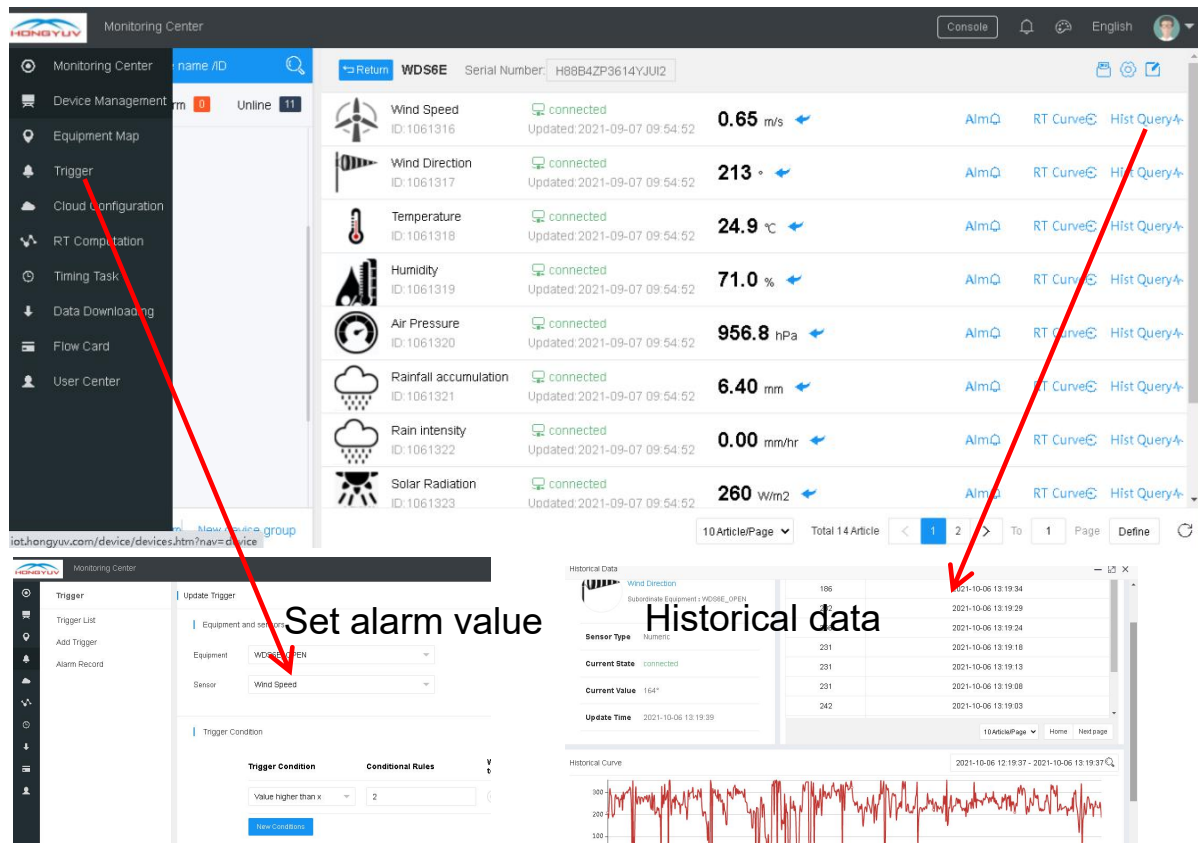
Access methods of HongYuv IoT platform:

1. Web page: http://iot.hongyuv.com/
2. Android APP
3. Wechat APP

Function of our platform:

1. Real-time data and graph display
2. Email or Wechat Alarm
3. Historical data can be download in excel format.
4. Programable visualization
5. Data can be view at the same time by phone, laptop, wechat by multiple persons and devices.
6. Send commands to your sensors
7. Programable communication protocol to suit different protocol of various devices.
8. Programable comparison graph between parameters and sensors

You can see all realtime data of all parameters, check and download historical data.

Set alarm value

Historical data

Download historical data

Visualization design and generate
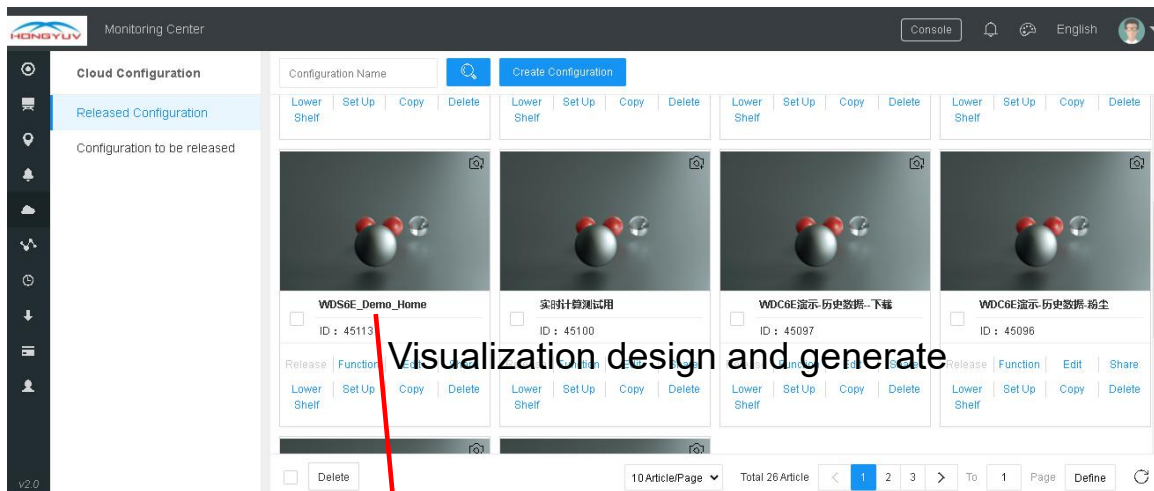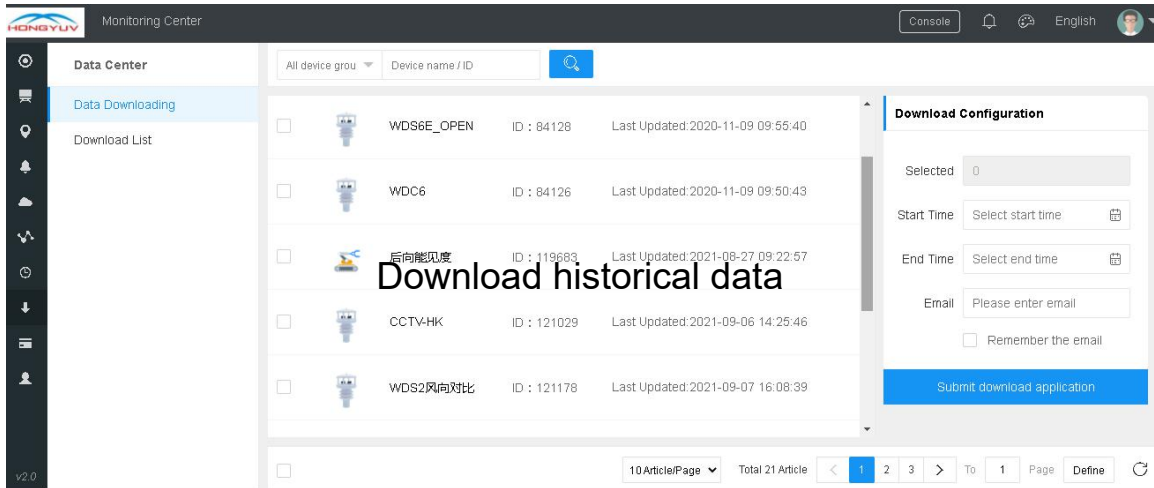
A demonstration for your reference, it support Hikvision camera, you can get realtime data and video onsite. You can also visit your data through a unique link directly.
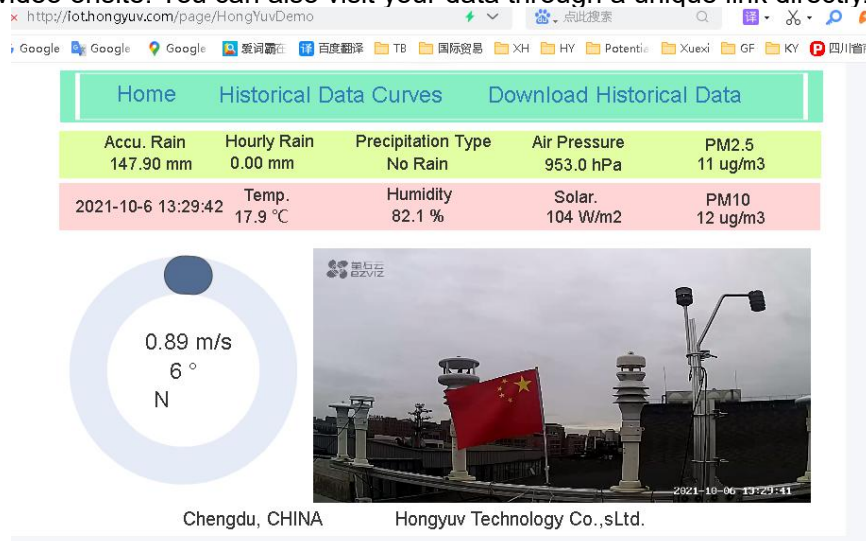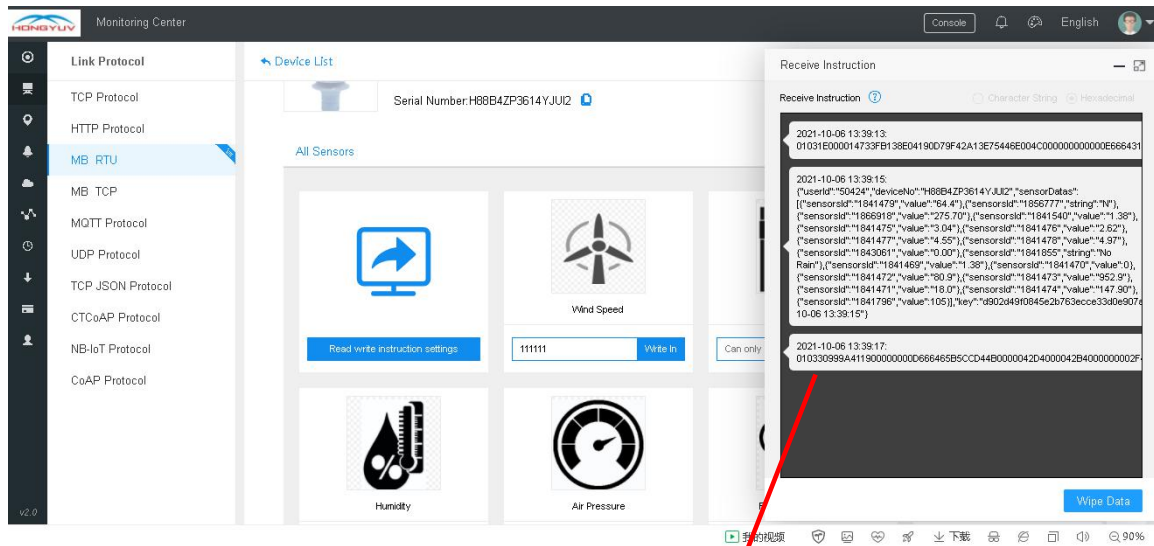
Data received on platform, you can also send commands to sensor here.

Comparison graph between different sensors.

Visibility in Meters

Android APP screenshots

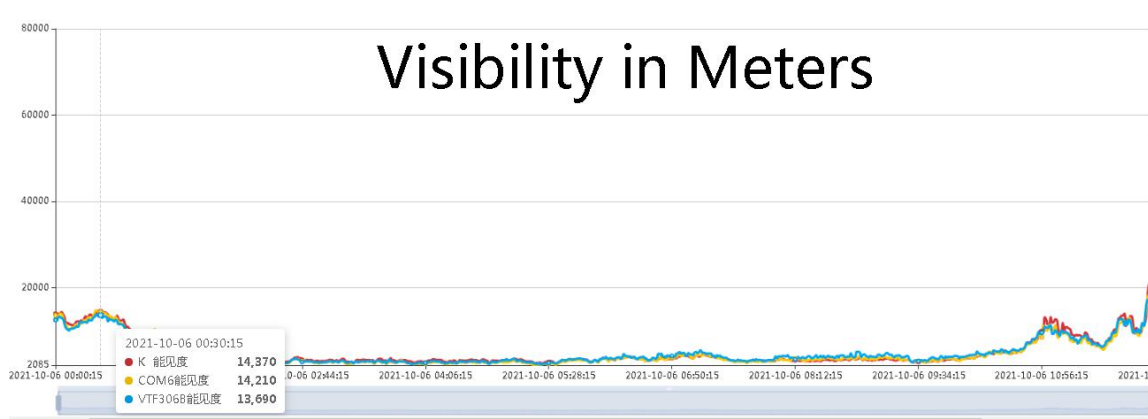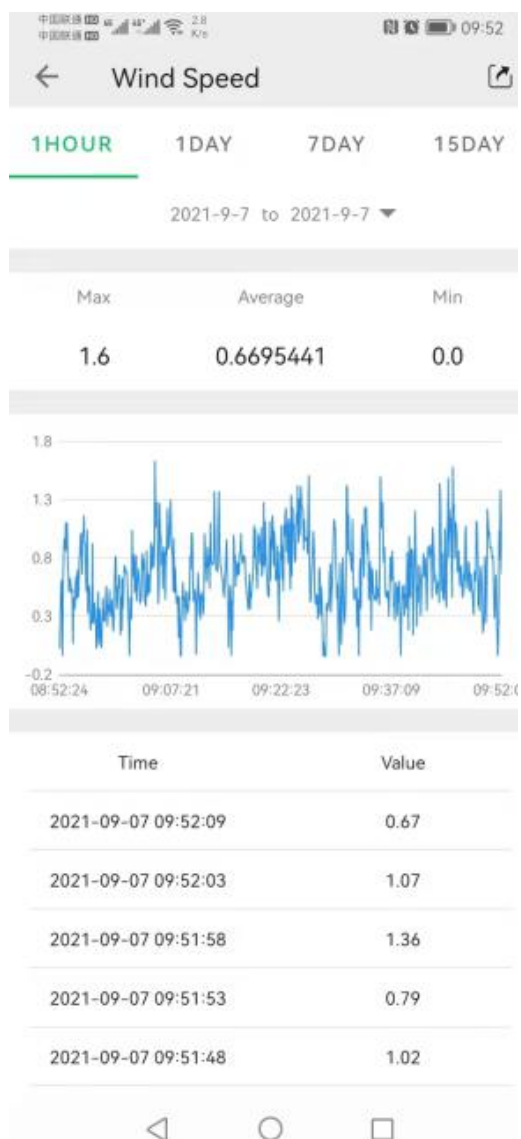|	WDS6E	
Wind Speed 2021-09-07 09:52:09		0.67 m/s
Wind Direction 2021-09-07 09:52:09		124 °
Temperature 2021-09-07 09:52:09		24.7 ℃
Humidity 2021-09-07 09:52:09		69.8 %
Air Pressure 2021-09-07 09:52:09		956.7 hPa
Rainfall accumulatio 2021-09-07 09:52:09		6.40 mm
Rain intensity 2021-09-07 09:52:09		0.00 mm/hr
Solar Radiation 2021-09-07 09:52:09		265 W/m2
Precipitation type 2021-09-07 09:52:09		No Precipi
Brightness		

Wind Speed

1HOUR	1DAY	7DAY	15DAY

2021-9-7 to 2021-9-7 ▼

Max	Average	Min
1.6	0.6695441	0.0

Time	Value
2021-09-07 09:52:09	0.67
2021-09-07 09:52:03	1.07
2021-09-07 09:51:58	1.36
2021-09-07 09:51:53	0.79
2021-09-07 09:51:48	1.02

Integration solution by HY-DISPLAY

HY-DISPLAY is a powerful data logger rather than display unit.
Integration diagram below is for your info.

UV	Solar radiation	PAR	Wind T/H/P Rain	Soil Temp Hum.	Air quality

Noise	Water quality	Water level	Visibility	Road ice monitoring	Optical rain

HY-DISPLAY with TF card   Cloud Server

WiFi

Tablet   PC   Phone