WatchfulEyE

Surge Counter & Smart Detector

Menu of Smart Detector User Manual

Surge Counter & Smart Detector

Paperless Datasheet

Going green and protecting environment is manufacturers' responsibility. Each WatchfulEyE product has a link of downloading data sheet on its enclosure:
http://datasheet.watchfuleyesolutions.com/USR127325.html

Model & Ordering Code

Model	Ordering Code	UPC/EAN Code
WTH-CS/RS485	USR121084	(0) 811914030003
WTH-CS/RS485/AC-R	USR127325	(0) 811914030034
WTH-CS/RS485/AC	US127325	(0) 811914030003

WTH-CS/RS485

WTH-CS/RS485/AC-R

WTH-CS/RS485/AC

Product Feature Comparison

Model	WTH-CS/RS485	WTH-CS/RS485/AC-R	WTH-CS/RS485/AC
Rating Voltage	USB (DC5V)	USB or 100-240VAC	USB or 100-240VAC
Remote Monitoring	NO/NC	NO/NC	/
Modbus	Yes	Yes	/
Cloud Service Expansion	Yes	Customize USC127325	/
UL Listed	Yes	/	/

Surge Counter & Smart Detector

Application Range

WTH-CS/RS485/AC series surge counter is used to test and record the discharge frequency of the surge protector (record the surge current rush frequency beyond certain degree) and SPD remote contacts monitoring, which is convenient for users to do statistics and analysis on the surge situation in specific area.
It can be used accompanying with various surge protectors or used as the supported product of the surge protective box.
In accordance with: IEC 62561-6:2018 --- Lightning protection system components (LPSC) - Part 6: Requirements for lightning strike counters (LSC)

Main Features

1. Large counting range, wide application range
2. Sensitive response, precision counting, no mis-operation
3. 3-bit digital display, easy and clear to recognize
4. No data loss in case of power outages
5. DIN-rail installation, convenient for installation and replacement
6. Adopting single-chip technology, advanced and reliable structure

WTH-CS/RS485/AC Series Technical Data	
Effective action current	>1kA
Max. discharge current (8/20μs)	80kA
Sampling mode	Inductance coil
Counting number	0~999
Protection Rating (IP Code)	IP 20
Temperature Range	- 40° to 176°F (-40° to 80°C)
Relative Humidity	0% to 95% noncondensing
Maximum Operating Altitude	10,000 feet (3000m)
DIN Rail EN60715	35mm top-hat rail
Housing Material	Thermoplastic (UL94 V-0)

Installation Instruction

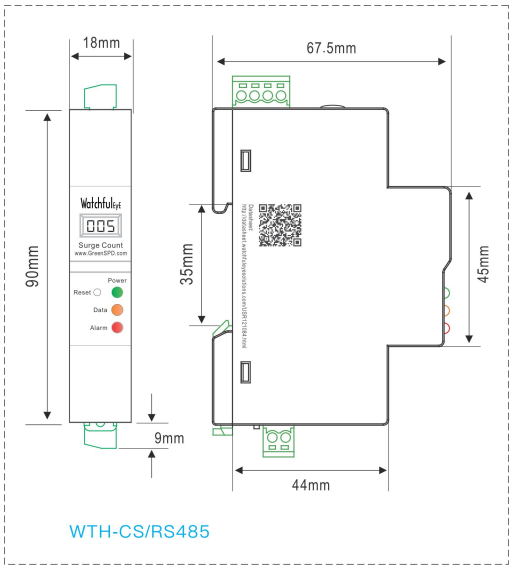
The surge protective devices smart detector shall be employed in a Listed enclosure or closet that is only accessible to technicians or service personnels.

Certificates of Products

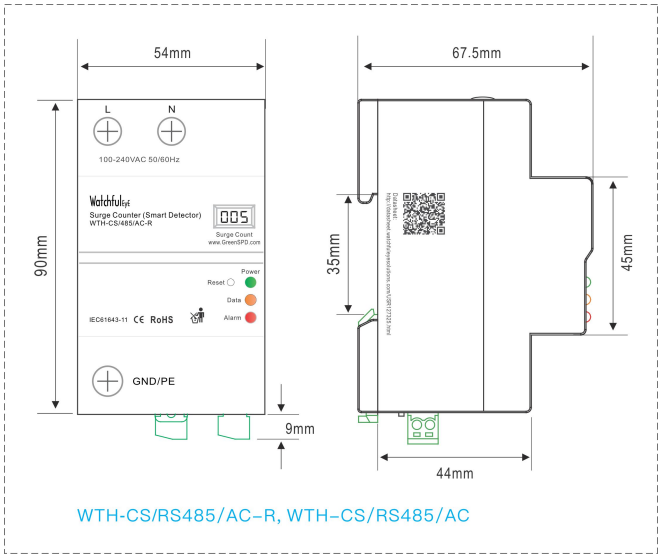
LISTED E345944 CE RoHS IEC61643-11

Surge Counter & Smart Detector

WTH-CS/RS485 Series Dimensions

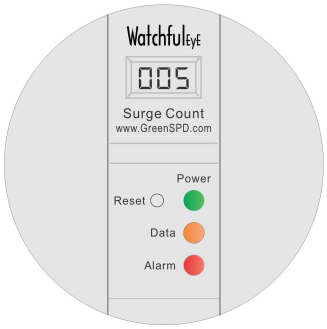


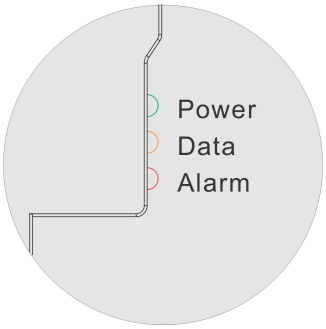
WTH-CS/RS485



WTH-CS/RS485/AC-R, WTH-CS/RS485/AC

Detector Status Description





Power (green): Power indicator, when the power is turned on, the indicator light is on
Data (orange): Data sending indicator, when there is data sending, the indicator flashes
Alarm (red): The alarm indicator light, or when the number of surges increases, keeps on, press the Reset button to reset the light off; when the surge protector failure is detected, it keeps on

.

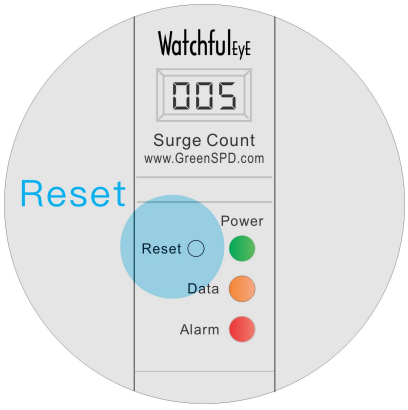
LCD Display Description

LCD display 0-9 numbers and A-F letters, check the following table:

1234567890 ABCDEF
1234567890 AbCdEF

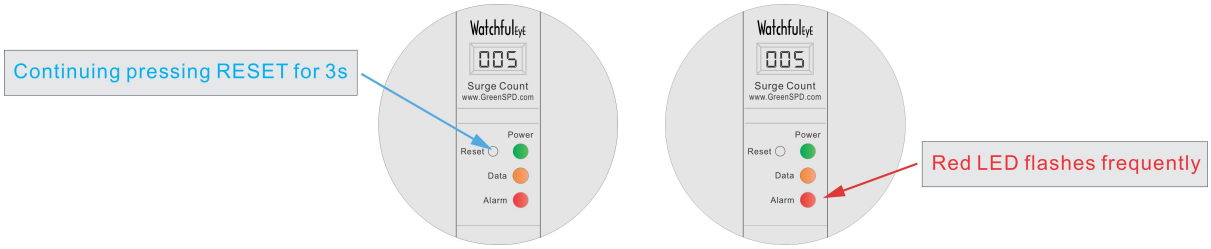
Modbus Mode: RS485 ID, Surge Counts

I. Turn on the power, the LCD screen first displays the RS485 address (factory value 001), and then displays the number of surges, the screen keeps displaying this value

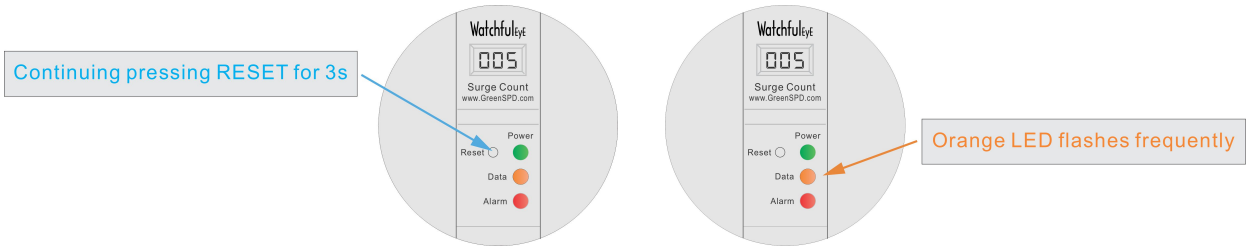


II. Continuing pressing RESET to enter SETTING status. When the Alarm light flashes frequently, continue pressing it, the indicator light loops from bottom to top.

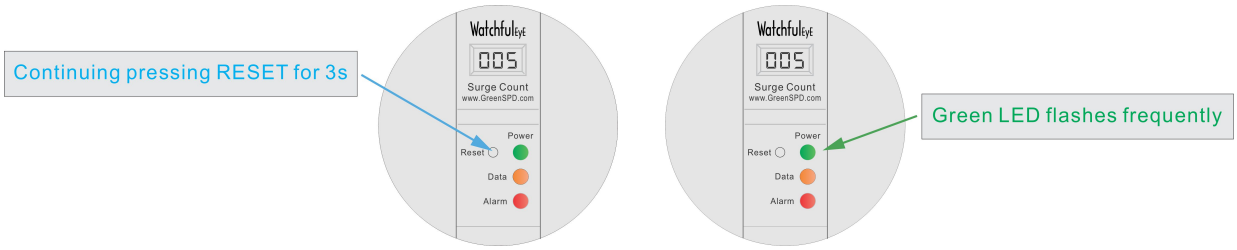
Setting Steps



1. When ALARM indicator flashes frequently, short press RESET, switch to NO/NC, default: 0 (NO: normal, NC: fault)



2. When Modbus indicator flashes frequently, short press RESET to set RS485 ID address (RS485 ID: 1-247)



3. When POWER indicator flashes frequently. Short press RESET to save data and return to the Standby mode. (Data can also be saved automatically after 30 seconds and return to Standby mode without pressing RESET in any setting status)

Cloud Service Mode: Device ID, Surge Counts

When the power is turned on, the LCD screen displays in sequence: the first screen displays 2 digits or letters, the second screen displays 3 digits or letters, and the third bottle displays 3 digits or letters, and the device number consisting of 8 numbers or letters in total (Take the device number 2010CAFE as an example: the first screen displays 20, the second screen displays 10C, and the third screen displays AFE)
After the three screens are displayed, the last display is the number of surges, and the screen keeps displaying this value. (Each product has a unique Device ID, which is fixed in the product when it leaves the factory. This device number is only used for Cloud service functions)

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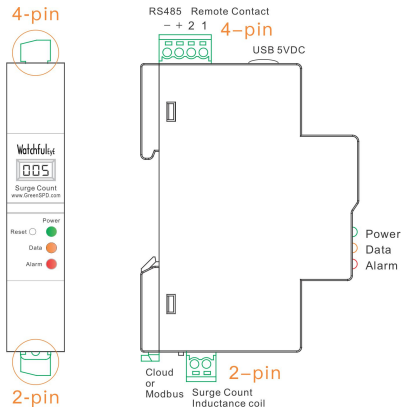
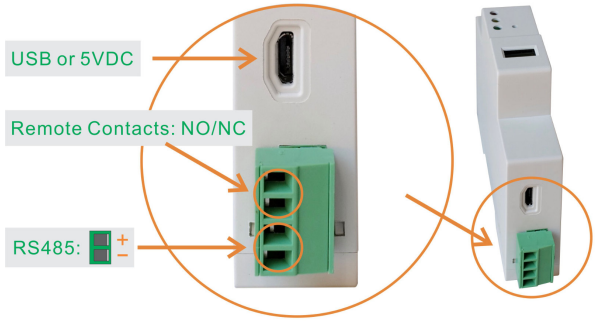
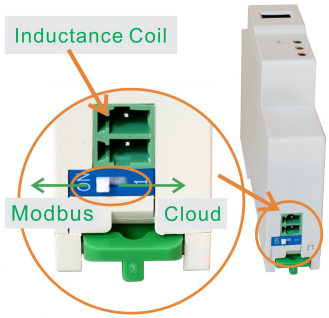
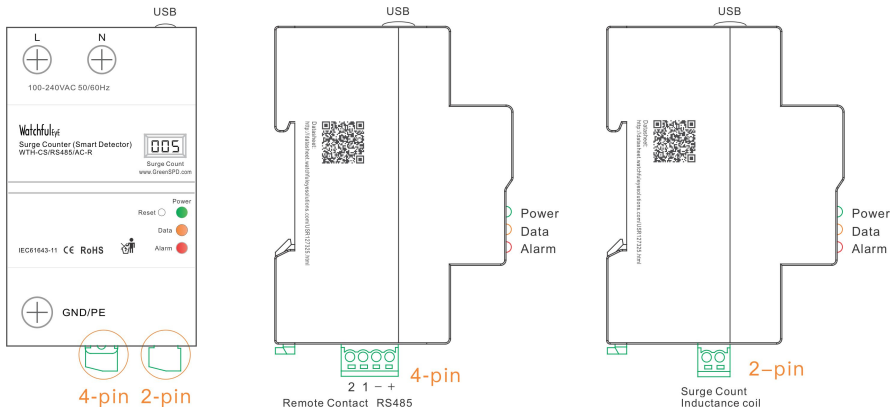
WTH-CS/RS485 Connection Diagram

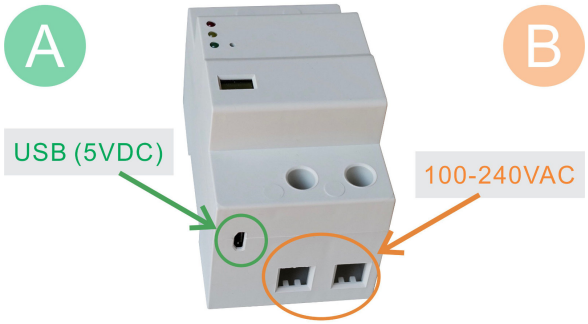




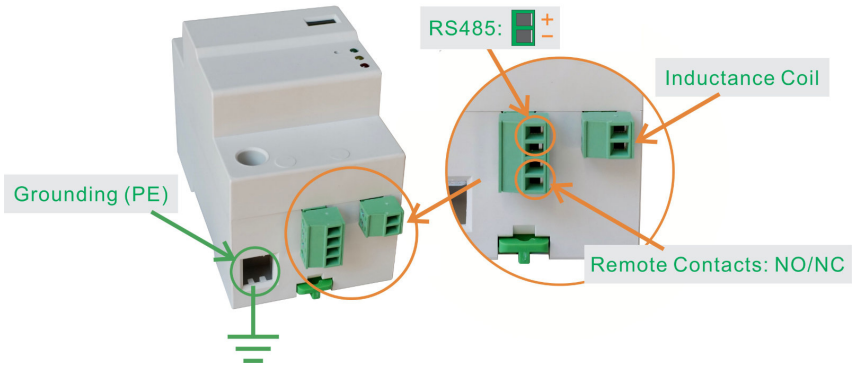


WTH-CS/RS485/AC-R Connection Diagram

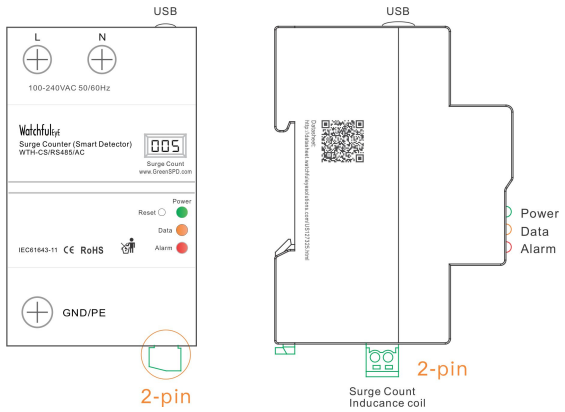


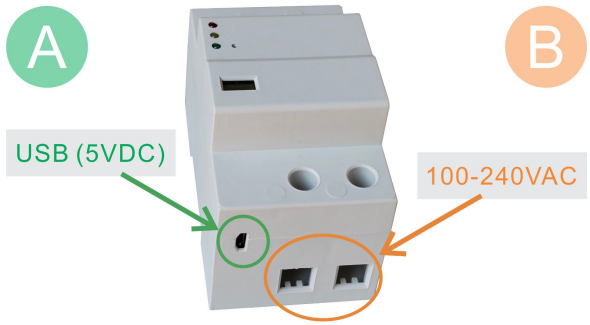


Power supply (100-240VAC or USB-5VDC):
When the L-N power cord is connected, the LED light is on (you can also choose to connect the USB power adapter)



WTH-CS/RS485/AC Connection Diagram





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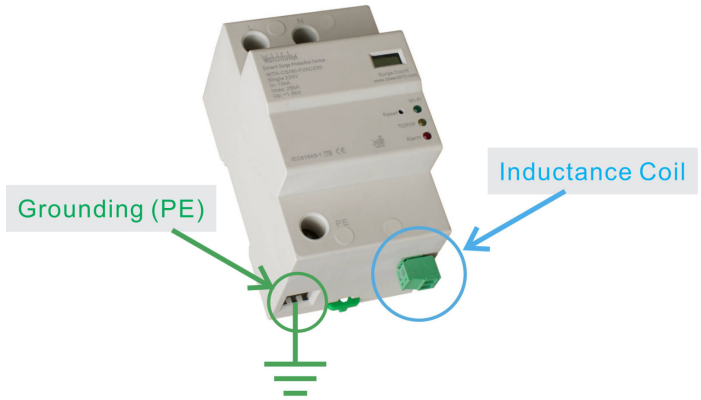
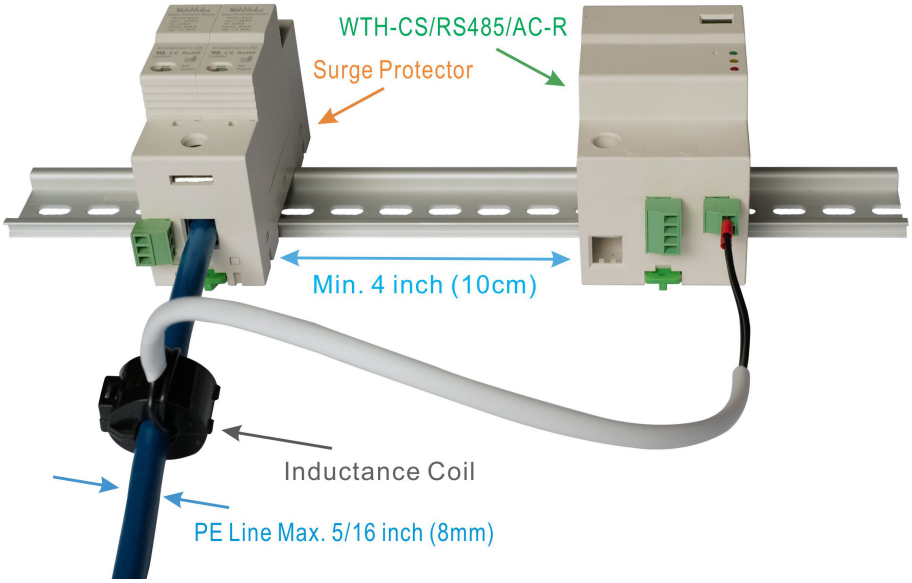
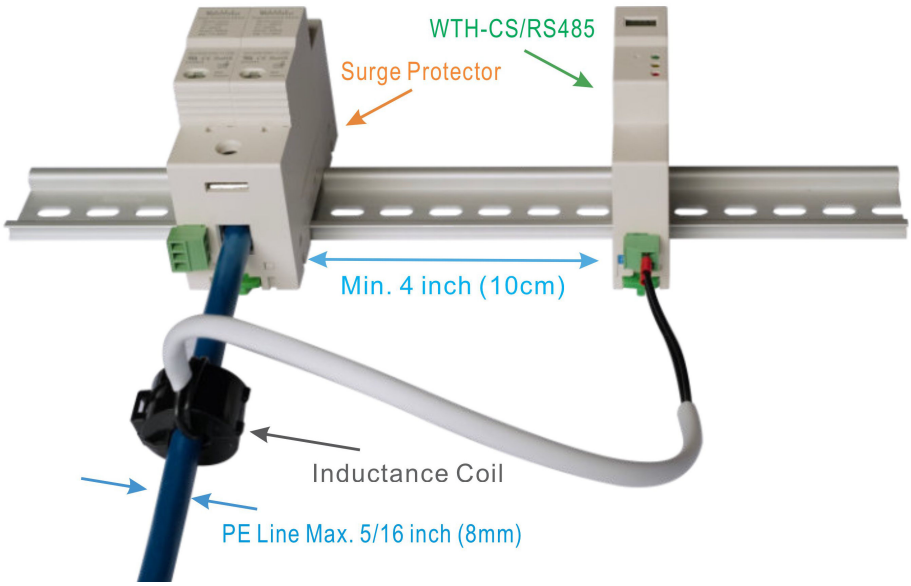
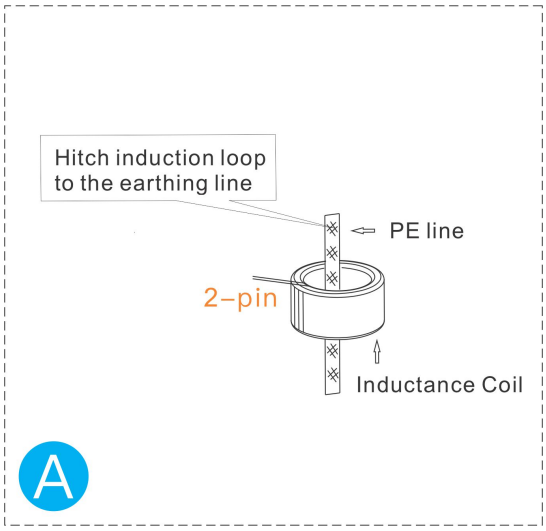


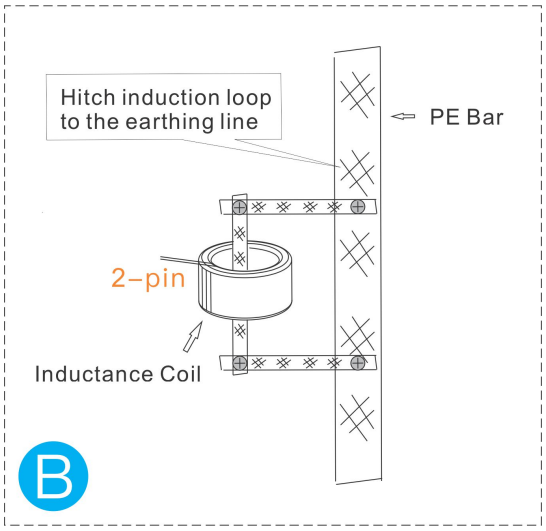
Inductance Coil Connection Diagram





Inductance Coil Connection Diagram

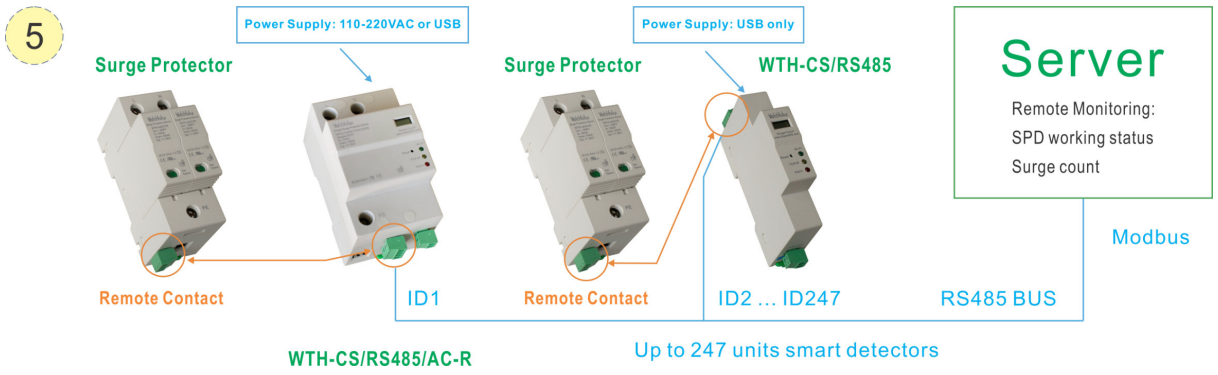




A: If the grounding wire can penetrate the magnetic ring, and Imax of the surge protector is less than 80kA
B: If the grounding wire cannot penetrate the magnetic ring, or Imax of the surge protector is greater than 80kA, use the shunt connection method

Surge Counter & Smart Detector

Server Modbus Networking System Diagram



Test Steps

Step 1: Modbus (Page A6)
Step 2: USB Power (Page A6 | Page A7)
Step 3: NO/NC (Page A5)
Step 4: RS485 ID (Page A5)
Step 5: RS485 connected to the computer (Page A6 | Page A7)
Step 6: Download software
Step 7: Test read data

Modbus Address Description

Communication Protocol: Modbus RTU

Baud rate: 19200 (Customized: 4800/9600/19200/38400)
Data bits: 8 bit
Parity Check: none
Stop bit: 1 bit

03 Read Holding Register

Address	Description	Read/Write	Data Type	Length
0	System reservation	R	Integer	1
1	Device address high position	R	Integer	1
2	Device address low position	R	Integer	1
3	System reservation	R	Integer	1
4	Cloud service data sending cycle	R/W	Integer	1
5	Surge count value	R	Integer	1
6	RS485 working mode (0:modbus 1:cloud)	R	Integer	1
7	Modbus address	R	Integer	1
8	Modbus baud	R	Integer	1
9	SPD remote communication state (0:Normal open 1:Normal close)	R	Integer	1
10	SPD Remote Alarm mode (0:NC Alarm 1:NO Alarm)	R/W	Integer	1
11	Device state (0:Normal 0xffff: Alarm)	R	Integer	1

WatchfulEyE

Cloud Service www.greenspd.com

Remote Monitoring System - A Cloud Based System

Introduction of Cloud service management

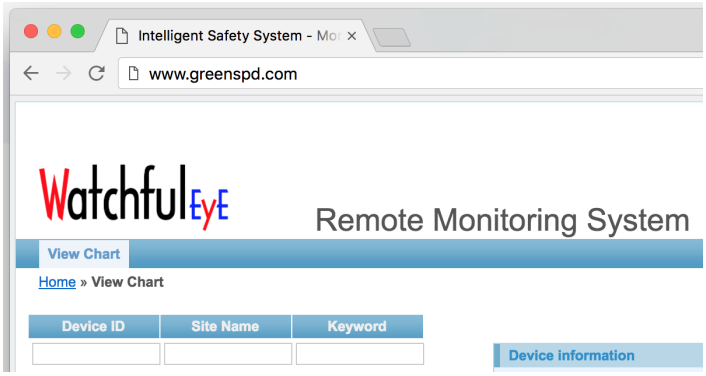
1. Unattended operation: Through any computer connected to the Internet , Log in on the cloud platform to view the system mode, achieving remote monitoring office work.
2. Alarm transmission: Once the SPD fault, lightning or surge occurs, a sound and light alarm message will be issued by the detector, and an alarm E-mail can also be sent by cloud.
3. Internet of things: Each device has a unique serial number. Since an unlimited number of nodes are available on the same network, using the software enables centralized management for multi-users.
4. Webpage management, website: www.greenspd.com
5. User name and password for cloud service login
User name: Device ID or bundled E-mail, If a bundled E-mail is set, you can use the bundled E-mail address as user name.
Password: Serial number, the serial number is the server login password initialized at the factory, and the password can be changed after login.

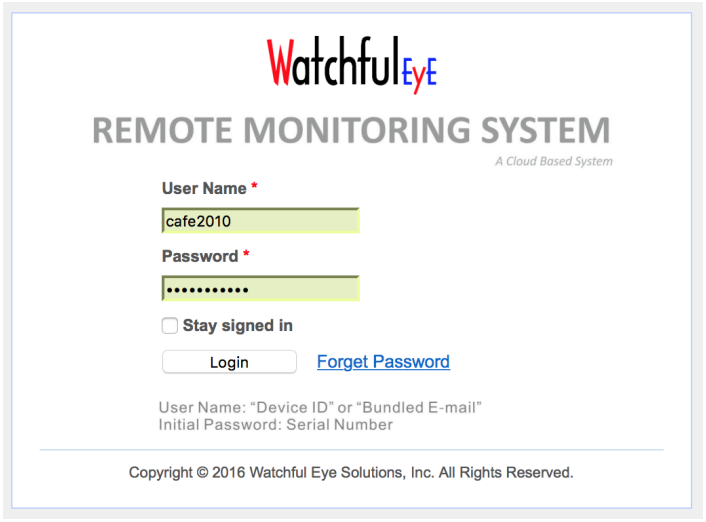
VIP: Cloud Service Customization

1. Customize your website domain name: http://yourname.greenspd.com or www.youname.com
2. Customized Logo and personalized management window
3. Customize sending E-mail server
4. Send alert emails with youname@youname.com to truly reflect your exclusive cloud service
5. More nodes, manage in your group

Cloud Service www.greenspd.com

Cloud Service Log on





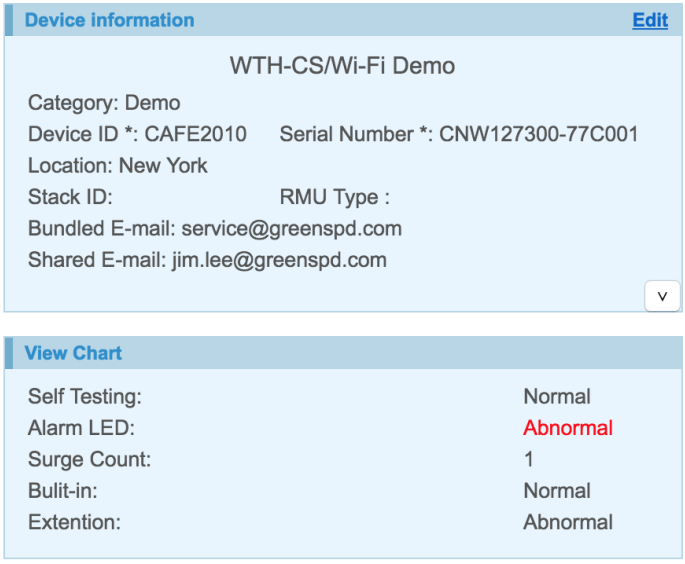
Demo user name: 2010cafe or bundled E-mail: service@greenspd.com
Password: watchfuleye

The monitoring webpage displayed after log in

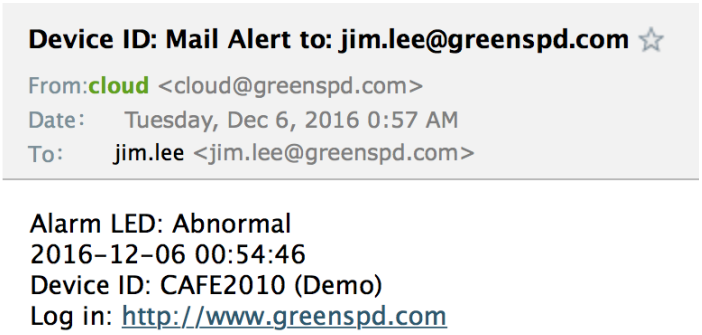
Roll down to view more node information displays

Surge protector fault alert page display

If "Alarm LED" status displays "abnormal", the text turns red and it contains an email alert sending function
If "Bunlded E-mail" or "Share to E-mail" is set, an E-mail alert is sent to the corresponding mailbox



Alert sent by Email



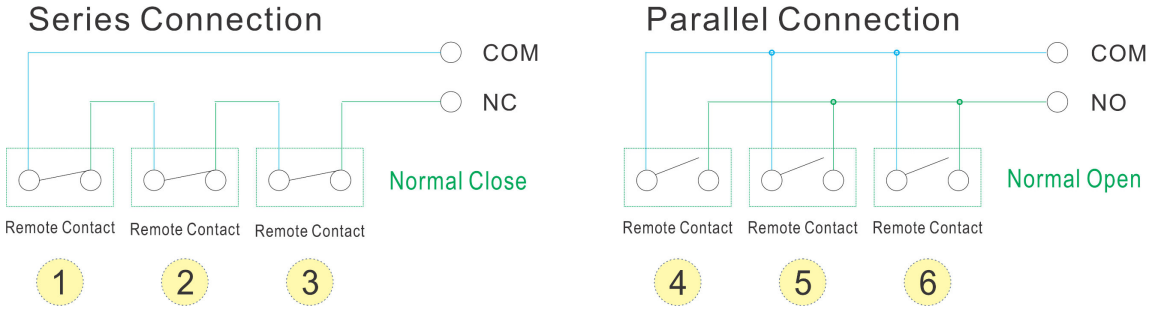
FAQ & Help (1/2)

1. What should I do if I can't find the paper manual in the product packaging?
Watchful Eye products is committed to going green with paperless data sheets. On the left side of each product enclosure is an engraved link with URL for downloading paperless data sheet and QR code of the website. If you need the paper data sheet, you can open the link and print the data sheet by yourself.

2. Some questions about Product Serial Number
a. Each product has a unique product serial number, and the barcode is laser engraved on the side of the product when it leaves the factory, for example: S.N.: USR127325-7AG002
b. This serial number is a certificate for tracking product warranty and service
c. In the Cloud Service function, the serial number is the server login password initialized at the factory, and the password can be changed after login.

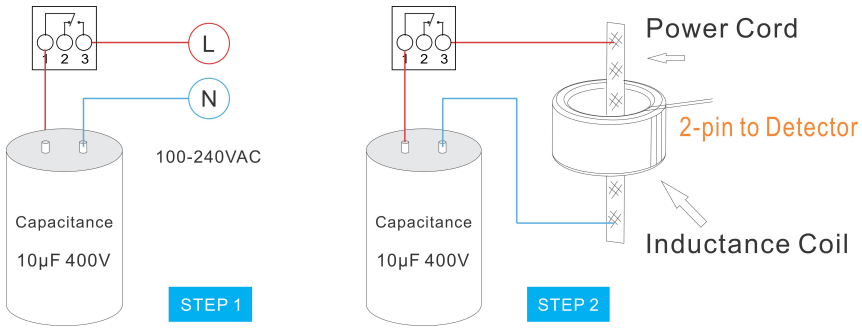
3. Characteristics of wide voltage, rated working voltage (Un): What are the advantages of 100-240VAC?
If you don't know what kind of power network the system is, it is commonly used in systems below 100-240VAC, such as: 110V, 120V, 220V, 230V, etc., to avoid confusion about your selection.

4. Can you describe some application skills about NO/NC (normally open/normally closed) interface?
a. The remote signal of the lightning protection device is recommended to be connected to the COM-NC (normally closed) interface, because when the lightning protection device is not connected, the normally open interface defaults to the normal equipment
b. NO (Normally Open) and NC (Normally Closed) interfaces can be extended to alarm equipment for digital signal input, such as access control, glass broken, water immersion alarm, temperature, humidity, smoke, etc
c. Normally open interface, when there are more digital alarm devices connected, it can be connected to the COM-NO (normally open) interface in parallel, when any device alarms, it will become a COM-NC (normally closed) signal



FAQ & Help (2/2)

5. I have question for Surge Counter how the minimum of Input Current for testing?
Surge count test of minimum input current:
It is tested in the factory with a 1.2/50μs + 8/20μs combination wave generator
If it is only to test the digital display of the surge count, a 10μF 400V capacitor can be used, refer to the following steps
Note: This method cannot simulate 8/20μs surge waveform.



Step 1: Turn on the power switch to charge the capacitor for 1 second
Step 2: Turn on the power switch to make the capacitor short-circuit discharge

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Surge Counter & Smart Detector

Download WatchfulEyE Official App

To learn about more products and updates from company, please scan QR code to download the official App:

Download on the App Store

After-sale Services

Watchful Eye provides a 5-year quality warranty globally.

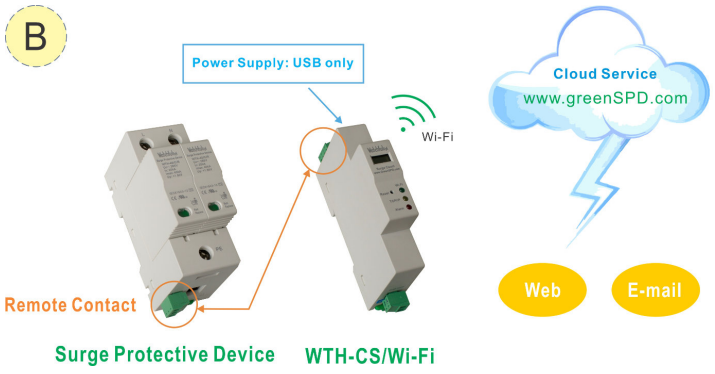
I have a question

Watchful EyE

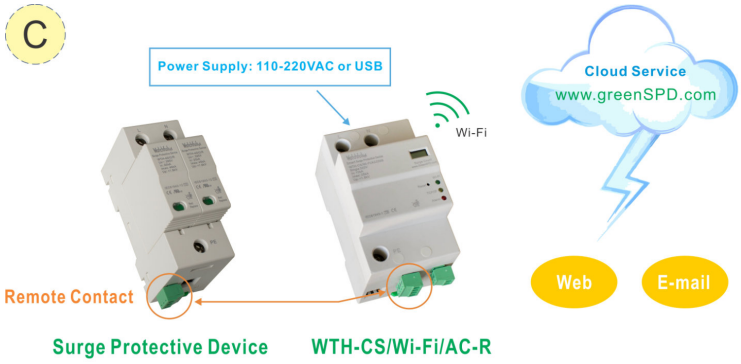
Smart Surge Protector & Smart Detector

Wi-Fi Networking System Diagram

Remote Monitoring:
SPD working status
Surge count
Alerts sent by E-mail



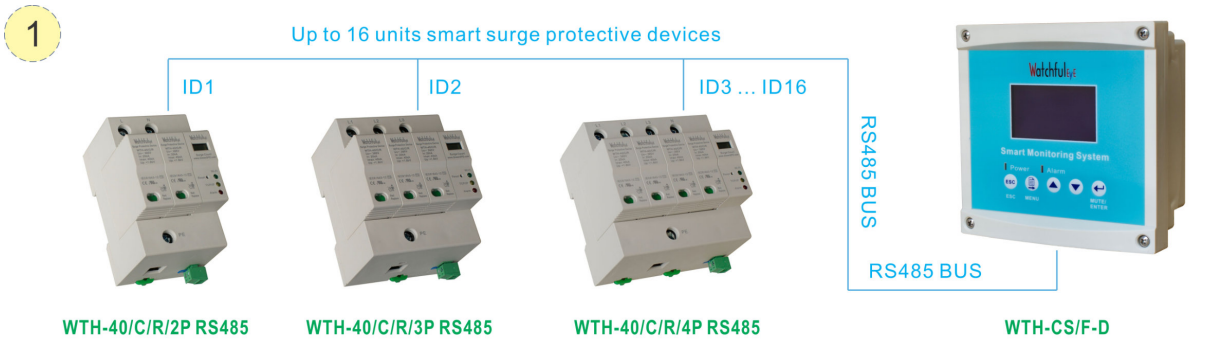
Remote Monitoring:
SPD working status
Surge count
Alerts sent by E-mail

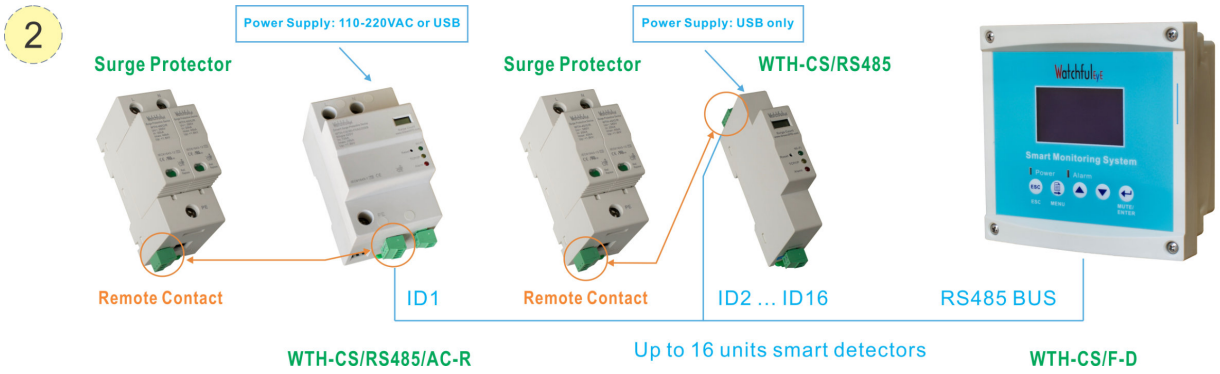


Remote Monitoring:
SPD working status
Surge count
Alerts sent by E-mail

Smart Surge Protector & Smart Detector

Monitoring Server Network System Diagram





Combined Model

Model	Ordering Code	UPC/EAN Code
WTH-CS/F-D	USR127209	

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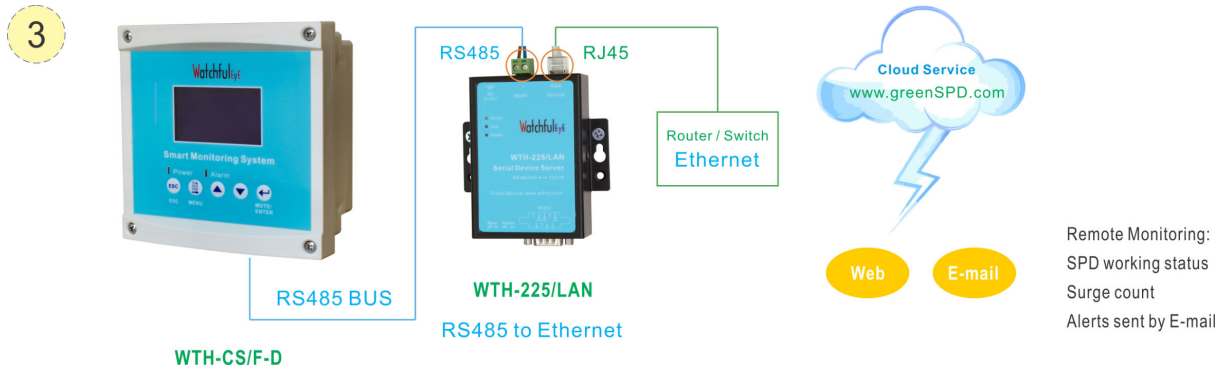
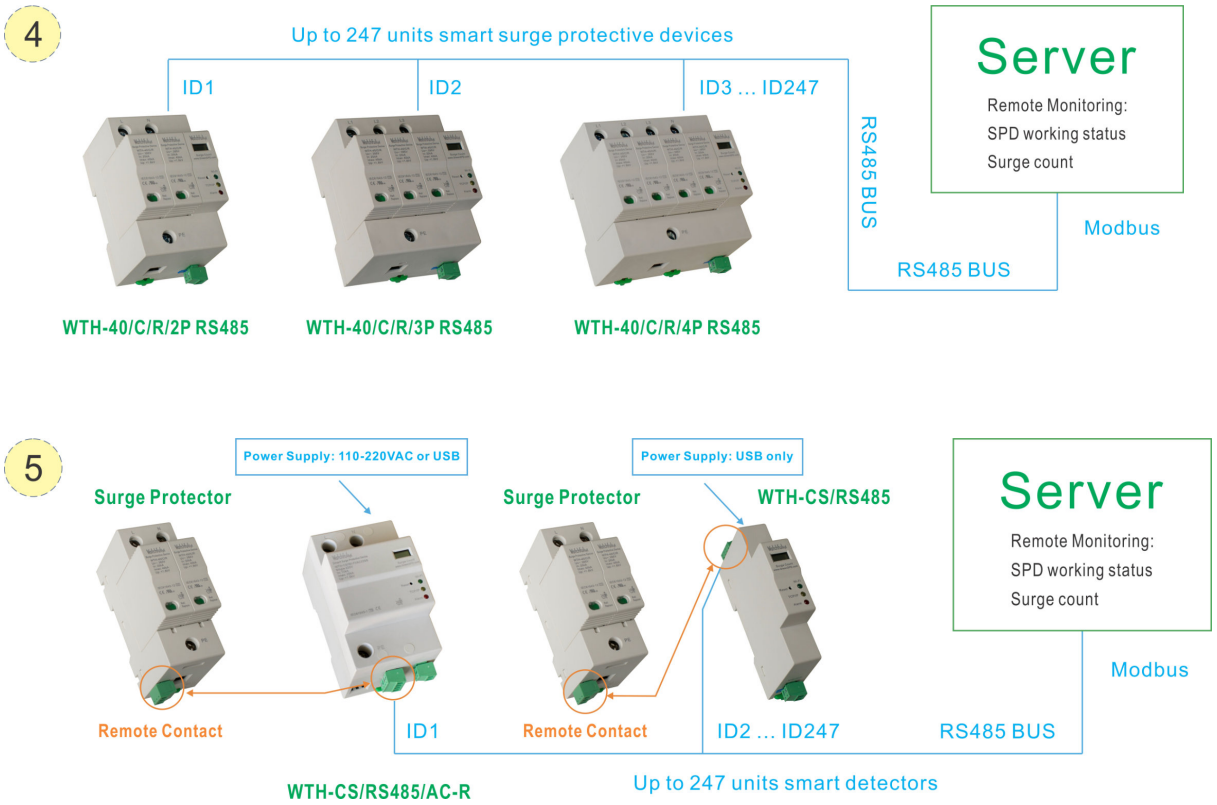
Monitoring Server Expansion Cloud Service System Diagram



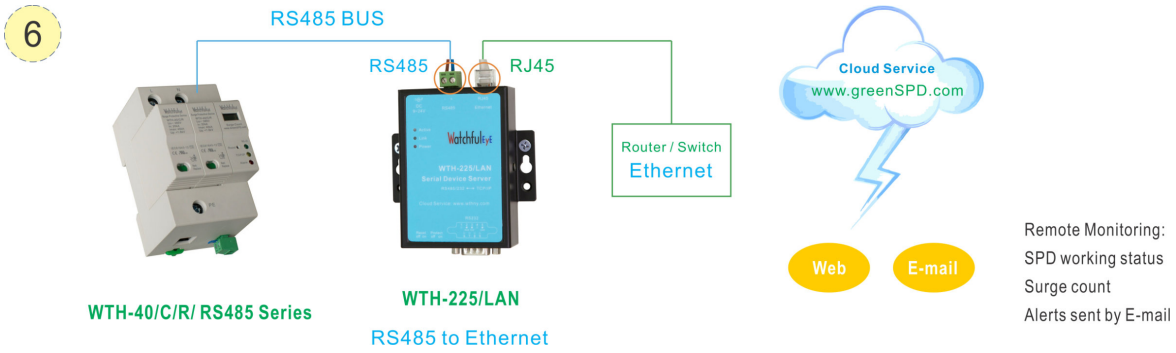
Combined Model

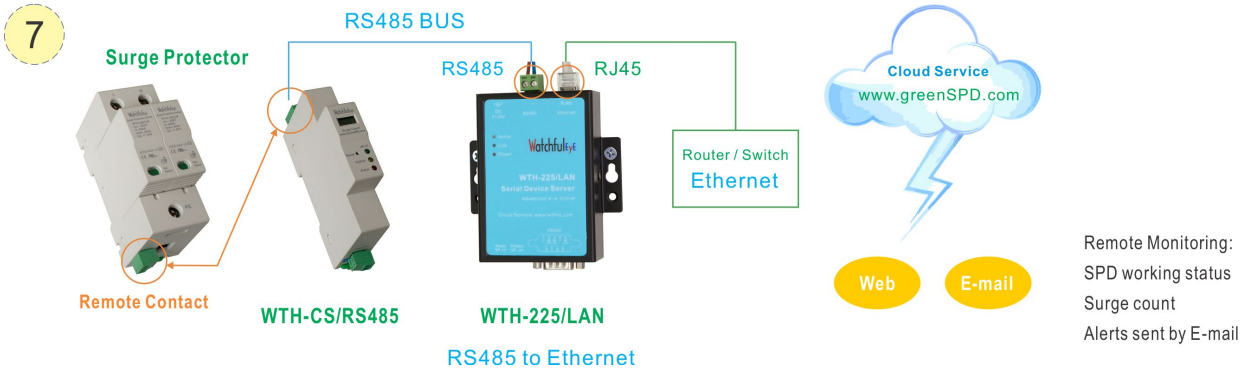
Model	Ordering Code	UPC/EAN Code
WTH-CS/F-D	USR127209	
WTH-225/LAN	US127301	

Server Modbus Networking System Diagram



Independent Cloud Service Networking System Diagram





Combined Model

Model	Ordering Code	UPC/EAN Code
WTH-225/LAN	US127301	