

InVidTech

Innovative Video Technology

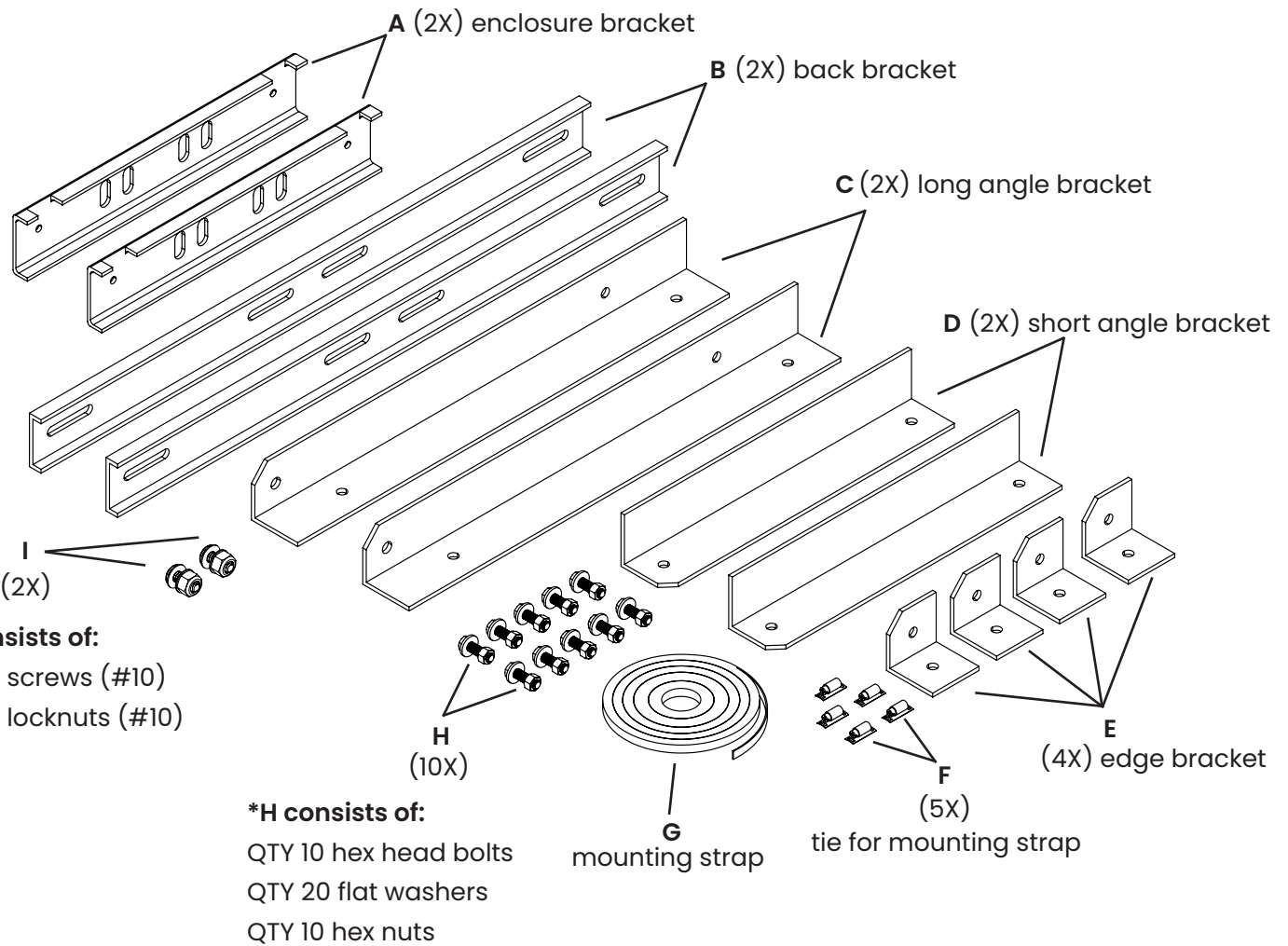
Installation Manual
Solar Surveillance System



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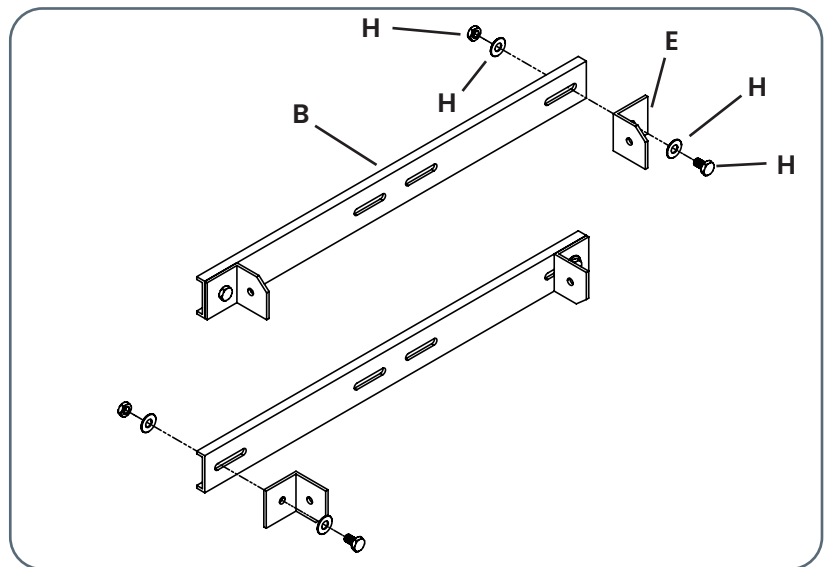
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Mounting Kit Assembly



Step 1

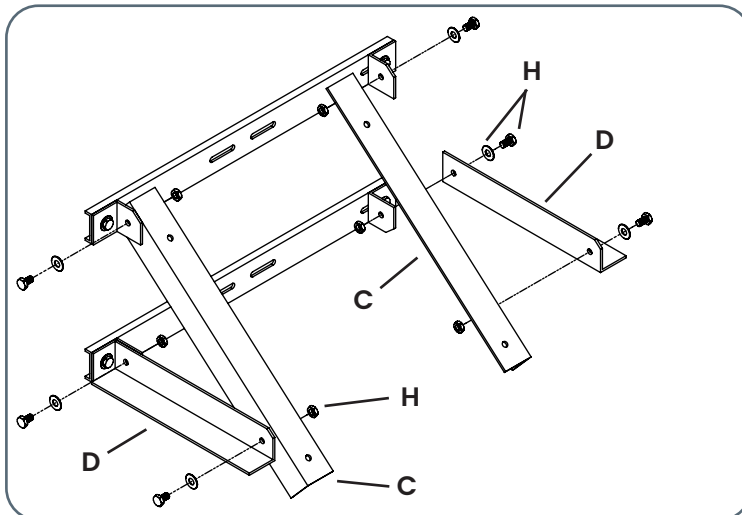
Align edge brackets (Item E) with the outside slots on the back bracket (Item B) and secure using hex bolts, two washers, and a hex nut (Items H). Attach QTY 2 edge brackets to each back bracket.



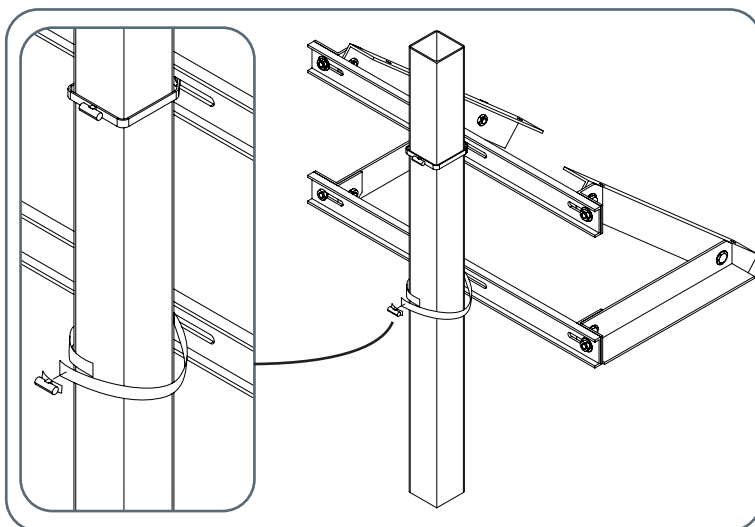
Mounting Kit Assembly (continued)

Step 2

Using the remaining hex bolts, flat washers, and hex nuts, attach the long and small angle brackets (Items C and D) to the back brackets as shown in the view to the right.



Securing Mounting Kit to Pole/ Post



Step 1

Using the mounting straps and ties for the mounting straps, secure the mounting kit assembly to the desired pole/ post.

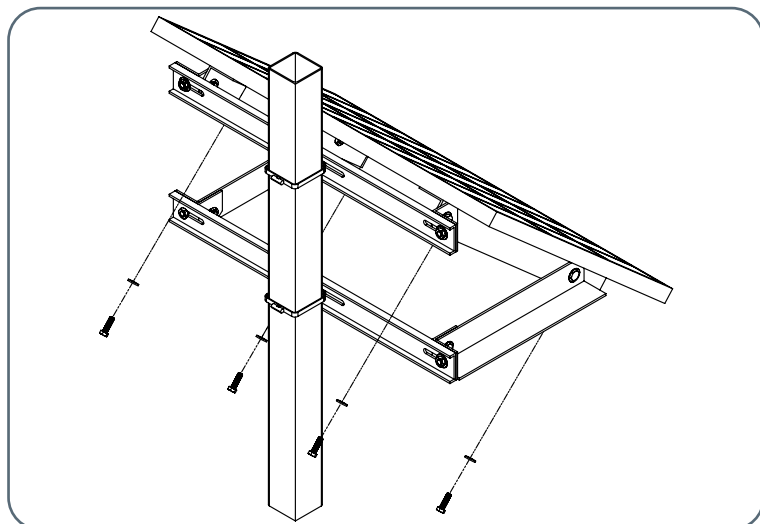
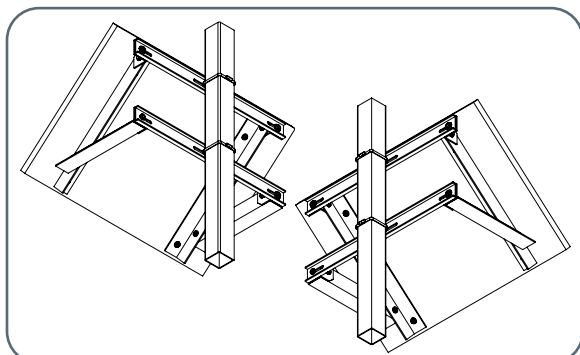
NOTE: the suggested diameter pole (or length and width of a post) to use for mounting is between 2 and 6 inches.

NOTE: U-bolts may be used as an alternate mounting method but are not provided.

Securing Solar Panel to Mounting Kit

Step 1

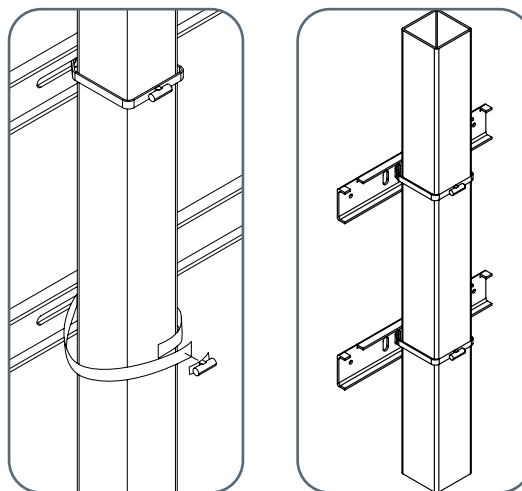
Insert hex bolts with washer through the holes on the top-side of the long angle bracket and tighten down the solar panel.



Enclosure Mounting Information

Step 1

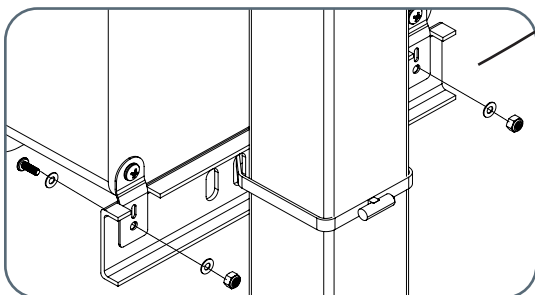
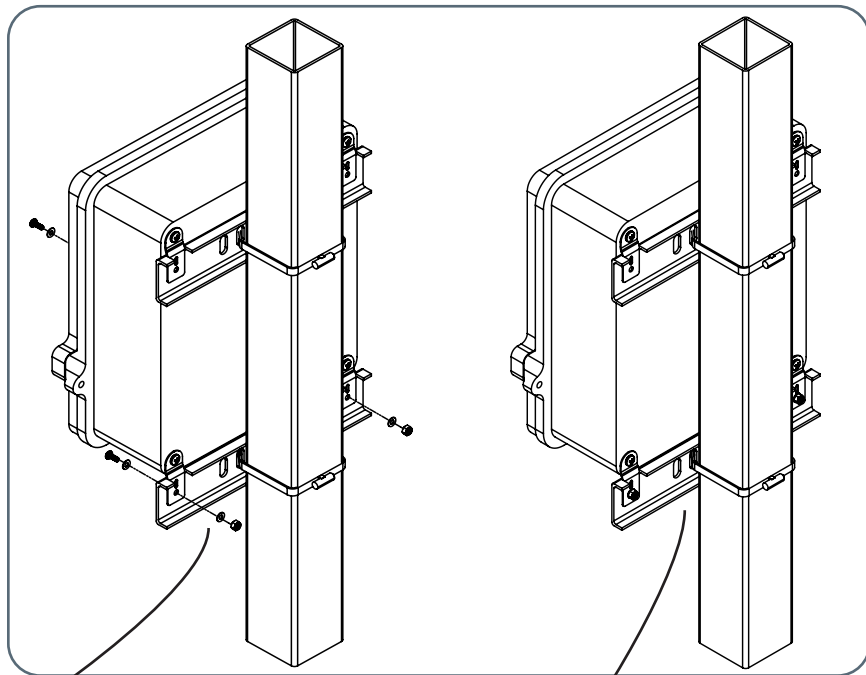
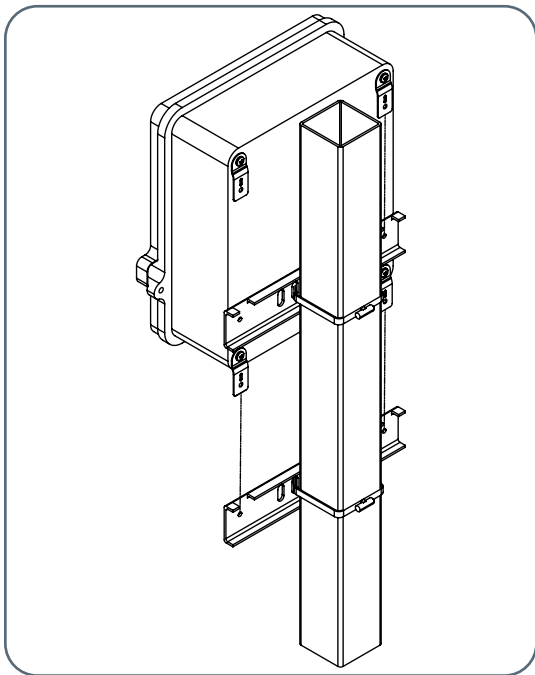
Attach enclosure brackets (Item A) to pole/ post using mounting straps and ties for mounting straps (Item G and F).



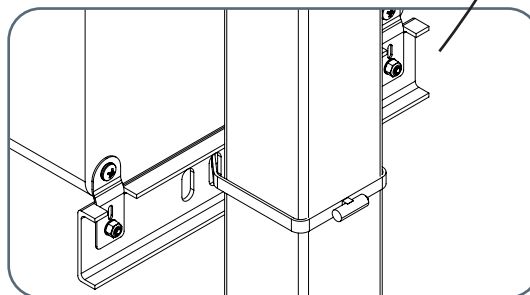
Mounting detail:
Cut mounting straps to desired length, slip on tie, and feed other end of mounting strap through. Tighten down until secure.

Step 2

Slide the enclosure onto enclosure brackets as shown in the leftmost view. Then, using QTY 2 Item I (#10 screws [with QTY 2 #10 locknuts]) secure the enclosure to the bottom enclosure bracket. See detailed views A and B below for further detail.

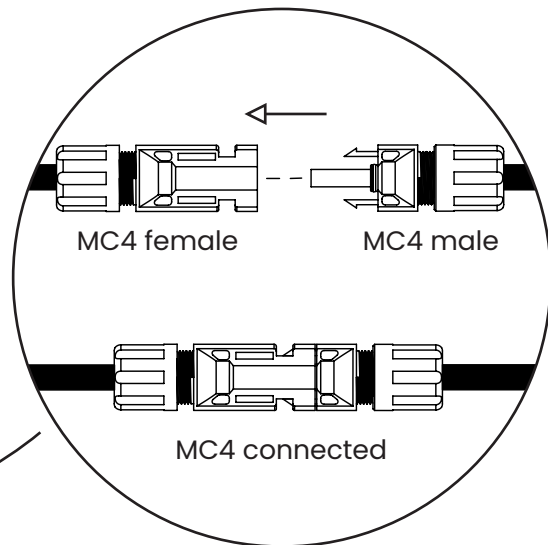
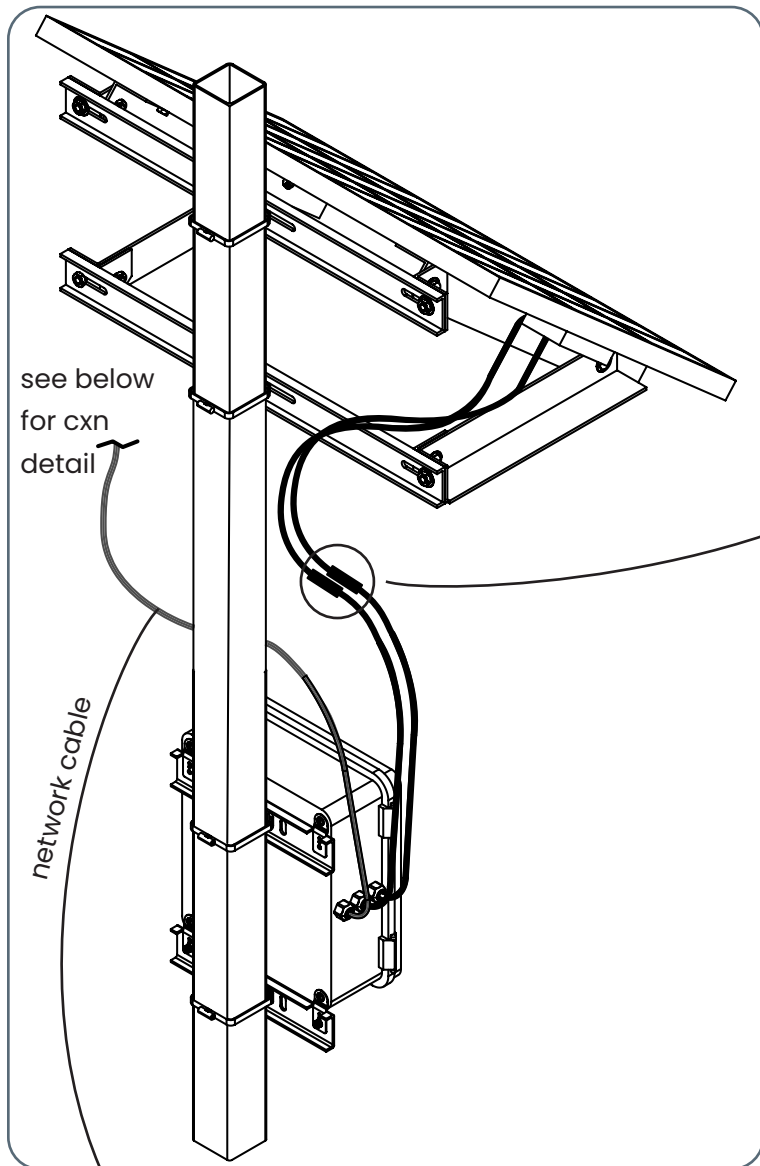


Detail View A



Detail View B

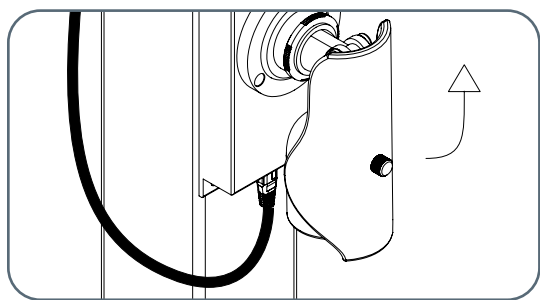
MC4/ RJ45 (Network Cable) Connection Instructions



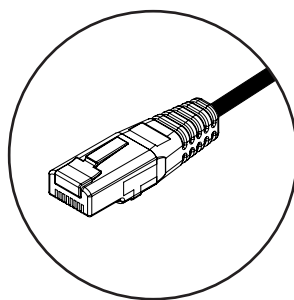
Connect to the solar panel using the two cables extruding from the surveillance enclosure with MC4 connectors at the end. See above for reference on what an MC4 connector is.

To connect:

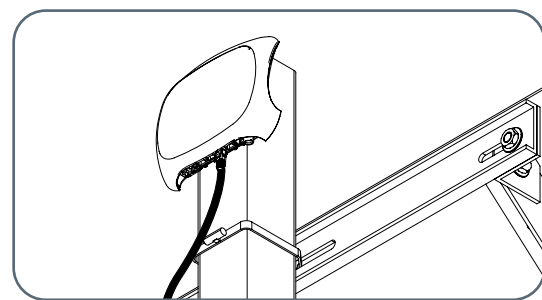
Push the MC4 male connector into the MC4 female connector until there is a click. Connection is only possible one way.



Example of 4G router connection. RJ45 cable routes directly to 4G router.



RJ45 Connector (used for P2P or 4G router connections)



Example of a P2P connection. RJ45 cable routes directly to camera.













Solar Charger Controller Information

LED Light Signal Interpretation Chart









LED Name	LED Display	LED Name
PV	off	solar input not charging *PV LED is generally off during nighttime.
	double flash	solar input charge detected
	single flash	solar input reverse polarity
	steady on	MPPT charge mode
	slow flash	in equalize/ boost/ float charge
BATTERY	single flash	battery input reverse polarity
	fast flash	battery over voltage
	slow flash	battery over discharged
	steady on	battery on
LOAD	off	no DC load connected/ load off
	fast flash	DC load short circuit
	steady on	DC load on
FAULT	off	no errors
	steady on	system error—check error code

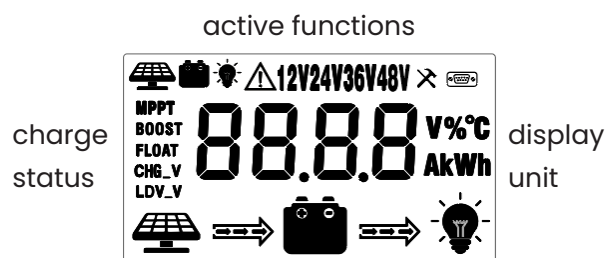
NOTE: Check the fault light to spot if a system error is present.

LED Flash Rhythm Chart






Flash Status	Indication	Description
steady on	on  off 	LED light on
off	on  off 	LED light off
fast flash	on  off 	LED light blinks twice every second (2Hz)
slow flash	on  off 	LED light blinks once every two seconds (0.5Hz)
single flash	on  off 	LED light blinks for 0.1 second every 2 seconds
double flash	on  off 	LED light blinks for 0.1 second every 4 seconds

LCD Display Interface and Overview





Display Section	Display Layout
charge status	  
charge mode & parameter	<div style="display: flex; align-items: center;"> <div style="font-size: 8px; margin-right: 5px;"> MPPT BOOST FLOAT CHG_V LDV_V </div> <div style="font-size: 24px; margin-right: 5px;">88.8.8</div> <div style="font-size: 12px; margin-right: 5px;">V%°C</div> <div style="font-size: 12px;">AkWh</div> </div>
active functions	    12V24V36V48V 







LCD Status Information

Status Icon	Indication	Status	Description
	solar charge indication	flowing	solar power charging battery
		off	solar power not charging battery
	DC load indication	flowing	DC load drawing power
		off	DC load off
MPPT	charge mode	steady on	MPPT charge mode
BOOST		steady on	boost charge mode
FLOAT		steady on	float charge mode
		off	not charging
CHG_V	voltage setting	on	setting charge voltage
		off	charge boltage has been set
LDV_V	over discharge volt settings	on	setting discharge voltage
		off	discharge voltage has been set
	solar icon	steady on	daylight detected
		off	no daylight detected
		fast flash	solar system over voltage
	battery icon	steady on	battery connected and functional
		off	no battery connection
		fast flash	battery over-discharged
	load status	flash	DC load short circuit or over-load
		on	load on
		off	load off

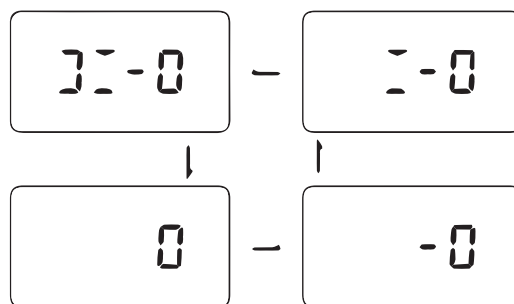
Key Functionality Chart

Function Key	System Mode	Input	Input Function
	view mode	short press	enter SET mode
	view mode	short press	view previous page
	view mode	short press	view next page
	view mode	short press	DC load on/ off

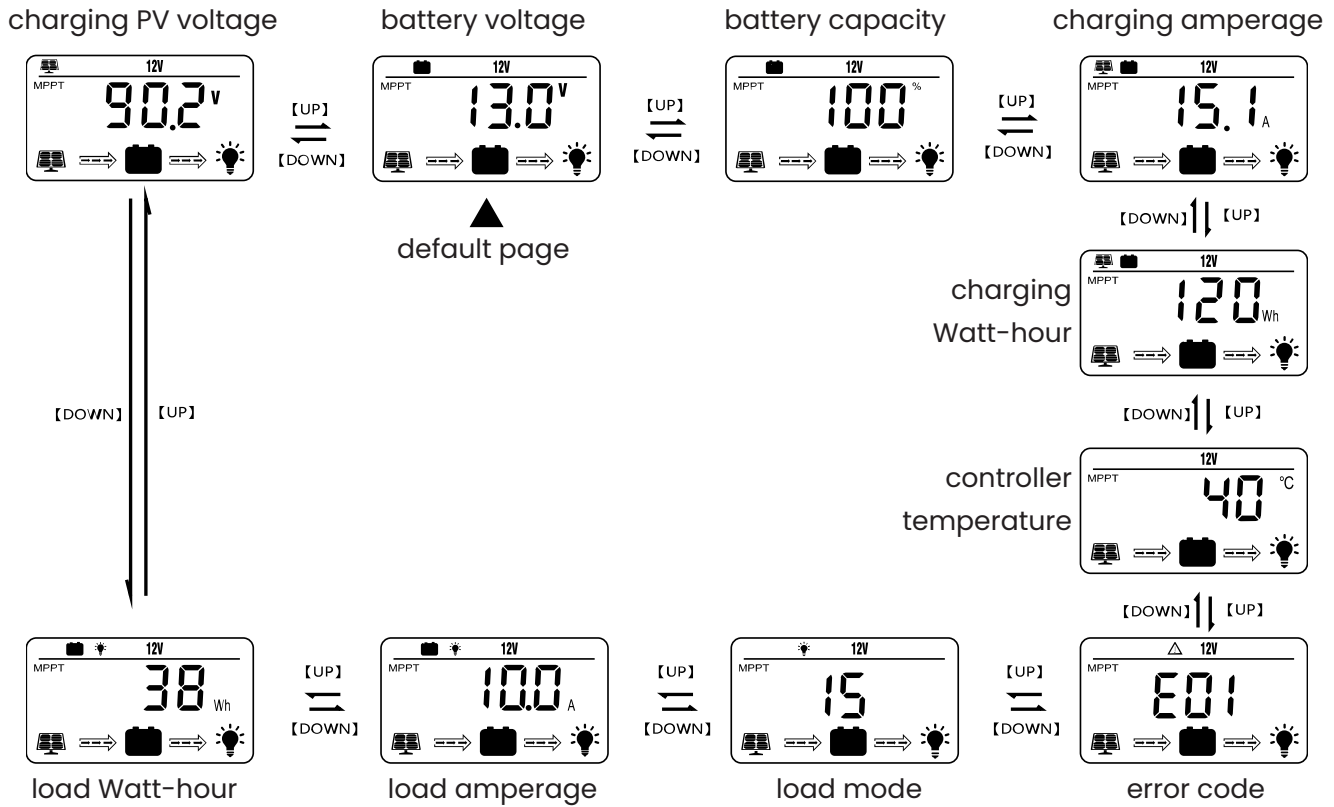
Function Key	System Mode	Input	Input Function
	set mode	long press	save data & exit SET mode
		short press	next setting
	set mode	short press	increase parameter value
	set mode	short press	decrease parameter value
	set mode	short press	exit SET mode without saving

LCD Display Rules and Cycles

Pre start-up display cycle when the MPPT controller turns on. Normally, this lasts several seconds while the controller detects the operating environment.



LCD Screen Display Cycle

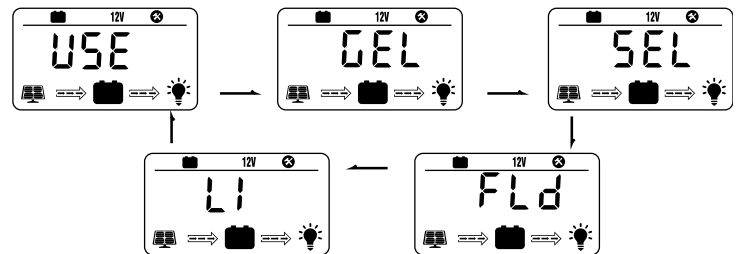


NOTE:

The battery voltage view will be displayed by default. Use the UP and DOWN arrow keys to cycle through different views. The battery voltage view will resume upon 30 seconds of inactivity. The error code view will display when an error is detected. The backlight in the screen will stay on for 20 seconds with any button operation.

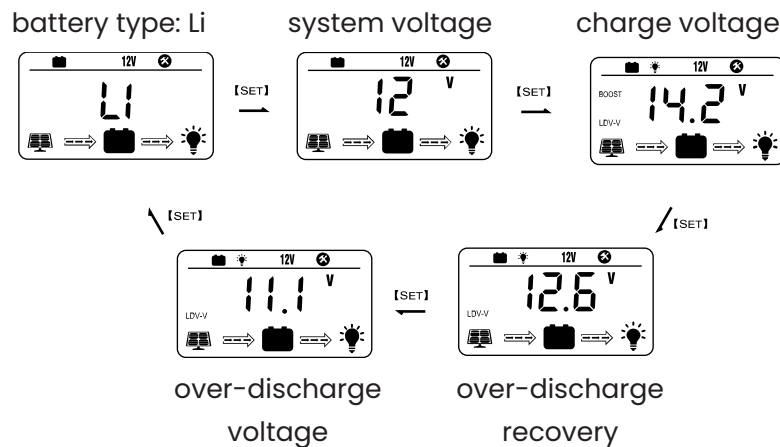
Setting Battery Mode

Enter SET mode by pressing the setting key in any view page other than load mode. Use the UP and DOWN arrow keys to select battery mode. Long press setting key to save.

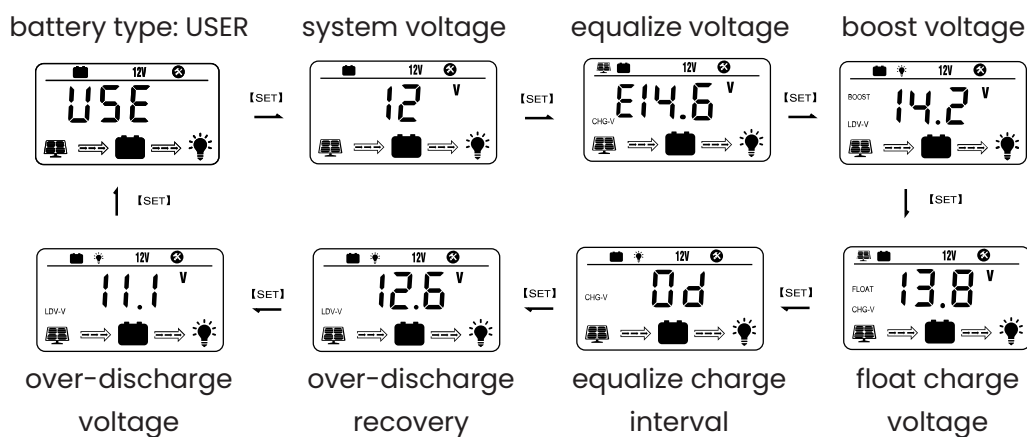


Abbreviations	Battery Types	Description
FLD	flooded battery	auto-recognition with default parameters set for each type of batteries.
SEL	sealed/ AGM battery	
GEL	gel battery	
LI	lithium battery	some parameters can be customized
USE	advanced user mode	most parameters can be customized

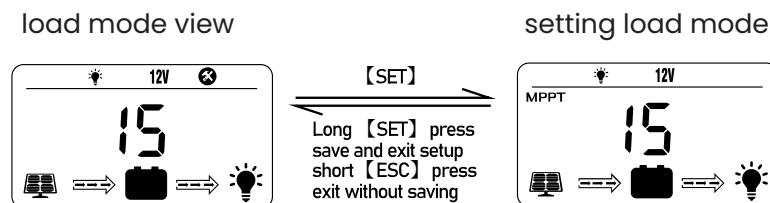
For Battery Type: Li



For Battery Type: USER



Load Mode Settings



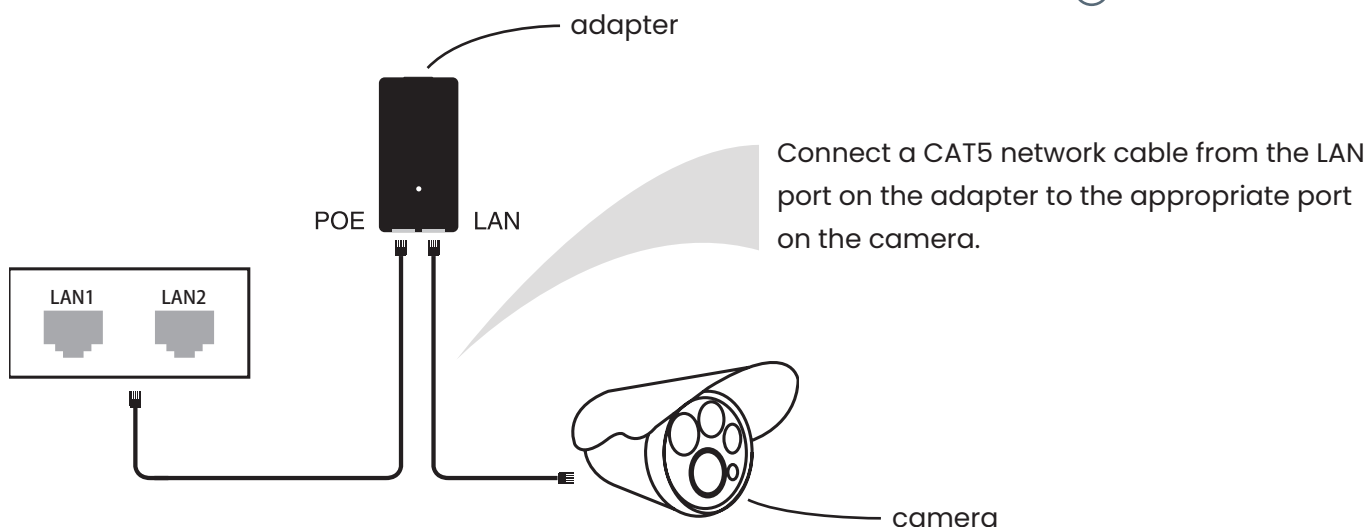
Mode	Definition	Description
0	daylight auto-control	DC load turns on when no daylight is detected
1-14	daylight on/ timer off	DC load turns on when no daylight is detected DC load turns off according to timer
15	manual mode	DC load turns on/ off by pressing return key
16	testing mode	DC load turns on and off in quick succession
17	always on	DC load stays on

Error Code Chart

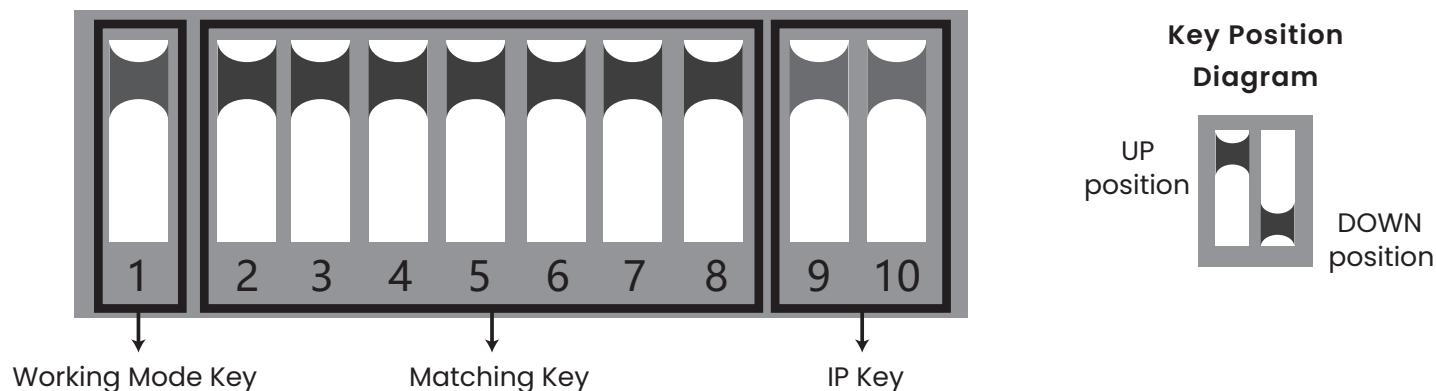
Code	Error	Description - Quick Troubleshoot
E00	no error	no action needed
E01	battery over-discharged	battery voltage is too low - DC load will be off until battery recharges to recovery voltage
E02	battery over-voltage	battery voltage has exceeded controller limit - check battery bank voltage for compatibility with controller
E04	load short circuit	DC load short circuit
E05	load overload	DC load power draw exceeds controller capability - reduce load size or upgrade to a higher load capacity controller
E06	overheating	controller exceeds operating temperature limit - ensure controller is placed in a well-ventilated, cool, dry place
E08	solar over-amperage	solar array amperage exceeds controller rated input amperage - decrease amperage of solar panels connected to controller or upgrade to a higher-rated controller
E10	solar over-voltage	solar array voltage exceeds controller-rated input voltage - decrease voltage of solar panels connected to the controller
E13	solar reverse polarity	solar array input wires connected with reverse polarity - disconnect and re-connect with correct wire polarity
E14	battery reverse polarity	battery connection wires connected with reverse polarity - disconnect and re-connect with correct wire polarity

If additional technical support is needed, please contact a professional.

Pont-to-Point Connections and Settings



DIP Device Configuration



Key 1

Key 1 changes the working mode of the device. In the UP position, the device sets up an access point (AP) for use with a computer, recorder, etc. The DOWN position is for use with a camera.

Key 2 through Key 8

These keys are used for configuring AP devices together. They allow for 128 possible combinations.

Key 9 and Key 10

Keys 9 and 10 are for multi-point functionality and allows usage for up to 4 cameras. To use 4 cameras, configure the DIP switches as shown:

1. On the recorder/ PC/ switch side have Keys 9 and 10 in the UP position.
2. On the camera side select one of the following configurations for Keys 9 and 10.
 - a. Camera 1: Key 9 (DOWN) | Key 10 (DOWN)
 - b. Camera 2: Key 9 (DOWN) | Key 10 (UP)
 - c. Camera 3: Key 9 (UP) | Key 10 (DOWN)
 - d. Camera 4: Key 9 (UP) | Key 10 (UP)

**Key configurations cannot be duplicated on Keys 9 and 10.*

**Turn off AP power before configuring.*

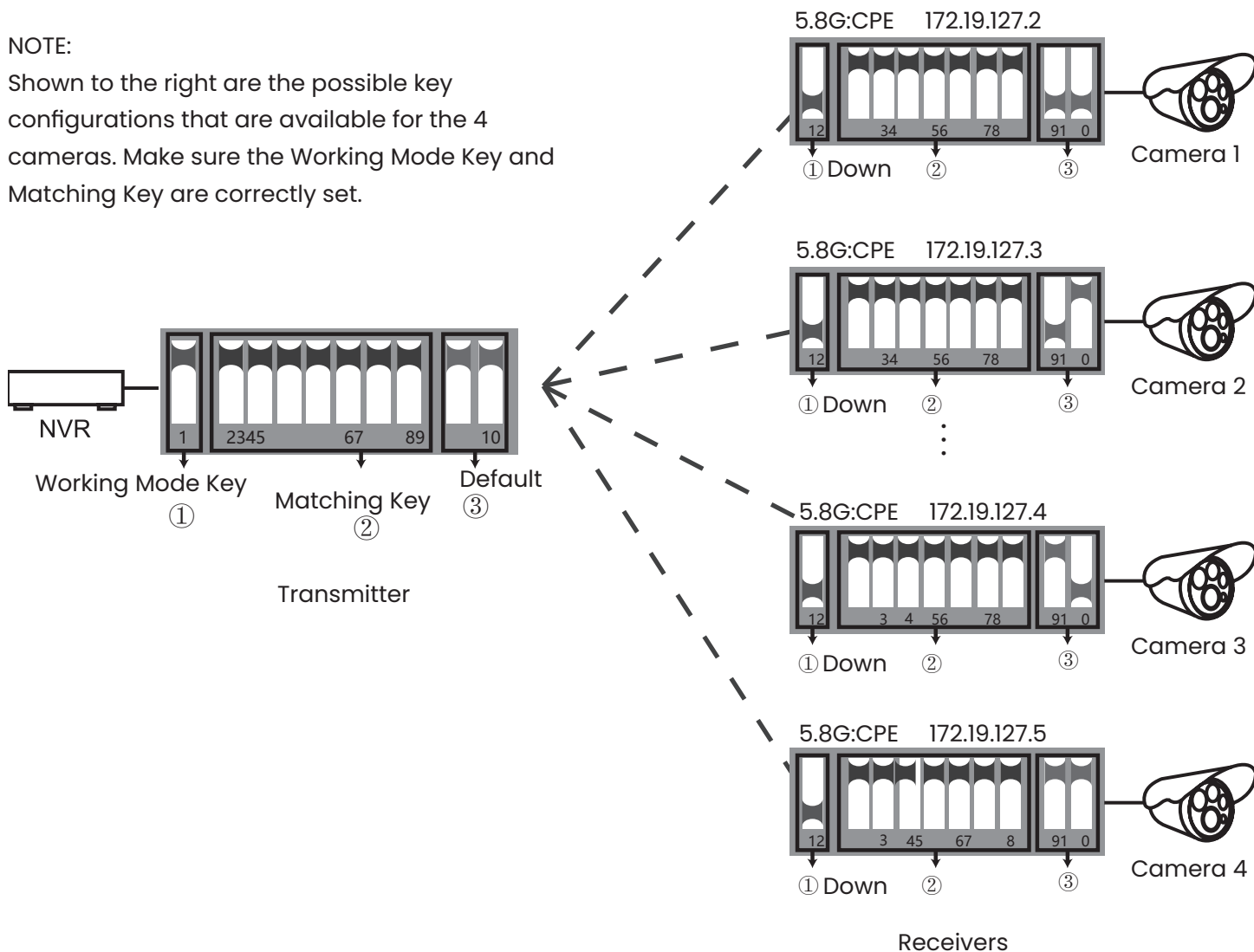
**IP address of camera must differ from AP address.*

**SSID of default AP group for DIP is not broadcast.*

Camera Configuration Setup Figure

NOTE:

Shown to the right are the possible key configurations that are available for the 4 cameras. Make sure the Working Mode Key and Matching Key are correctly set.



Signal Power Setting

Step 1

Configure the settings as shown to the left. The default password is: password.

NOTE: Subnet mask must be set to "255.255.0.0" for IP "172.19.0.2". The bound IP address of 5.8G is "172.19.0.2".

Step 2

Type the IP address of corresponding AP device in internet browser to get to the WEP page, using the default password (password) when prompted. Signal power can be set after logging in.

Transmit Power Configuration

Default is set to the maximum value. Adjust power level as needed.

Encryption Configuration

Customizable key that can be used for security. (The same key should be set in the transmitter and receiver.)

Distance Configuration

Default value is 2 kilometers (1.2 miles) but should be adjusted as needed. (If the same distance value isn't set in transmitter and receiver it will lead to a high latency and low bandwidth network connection.)

Country Code

In text mode, channels are determined by the dial-up button. In all other modes, the channels are automatically selected .

Troubleshooting an FAQ

What should be noted when setting the AP key?

Make sure that the power is off.

How does the AP work without a power supply?

The AP gets power via its cable connection, called the PoE. Two cables are needed for this connection and for the AP to get power. A CAT5e cable is strongly recommended to be used.

How long can the PoE cable be?

The length depends on the power voltage and the quality of the cable. For 24V power, the cable should be no longer than 40 meters (131 feet). For 12V power, the cable should be no longer than 20 meters (65 feet).

Why does the signal light not work after switching it on?

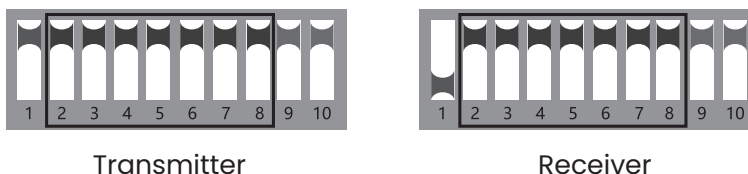
Please turn off AP power first. If the signal light is not working run the following troubleshooting test:

Transmitter: Keep Keys 1 through 10 in UP position.

Receiver: Put Key 1 in the DOWN position and Keys 2 through 10 in the UP position.

After doing that, turn on the power and wait for three minutes.

NOTE: The distance between the transmitter and receiver should be more than 2 meters. See image below.



Why is the local network connection choppy after insalling the AP?

Troubleshoot a choppy network connection by utilizing one or both of the below methods.

1. Change the cable to see if that is the problem.
2. Change the wireless channel to avoid signal interference.

How do I log into the WEP page?

Follow steps 1 and 2 under the "Signal Power Setting" section and type in the IP address of the device in question on a network browser (for example, internet explorer).

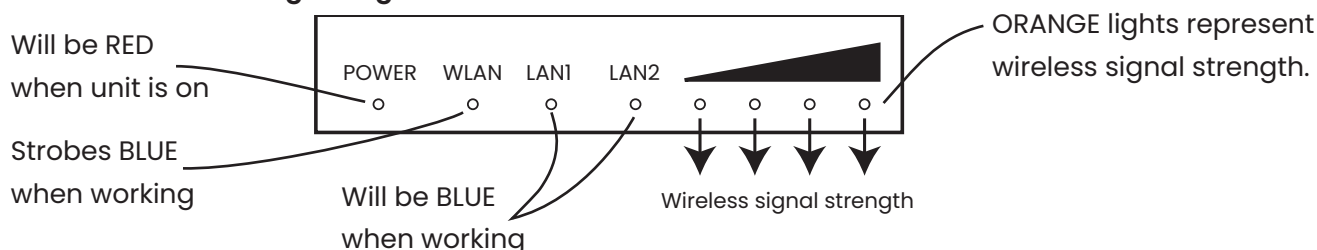
Why is there no video showing on the monitor despite having set up the AP and NVR?

Connect the adapter that links the NVR to the yellow LAN port on the AP.

How do I reset the device?

Press and hold the RST button for 6 seconds while the unit is on.

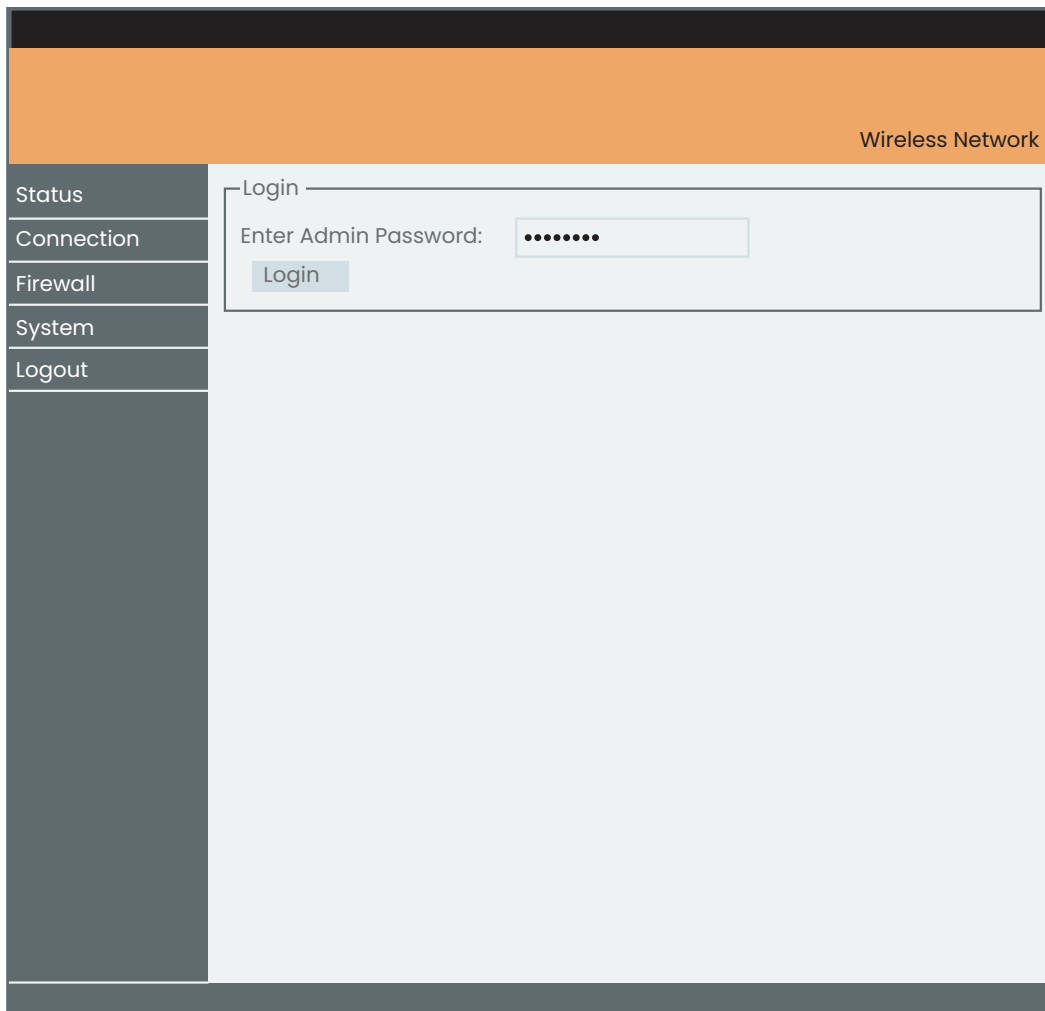
What do the colors of the signal light mean?



4G Router Setup Guide

Step 1

Log into the computer network.



The screenshot displays the web interface of a 4G router. At the top right, it says "Wireless Network". On the left side, there is a vertical menu with the following items: Status, Connection, Firewall, System, and Logout. The main content area is titled "Login" and contains the text "Enter Admin Password:" followed by a password input field with seven dots. Below the input field is a "Login" button.

How to obtain an IP address

To obtain an IP address, log into the computer network. An IP address will be automatically obtained.

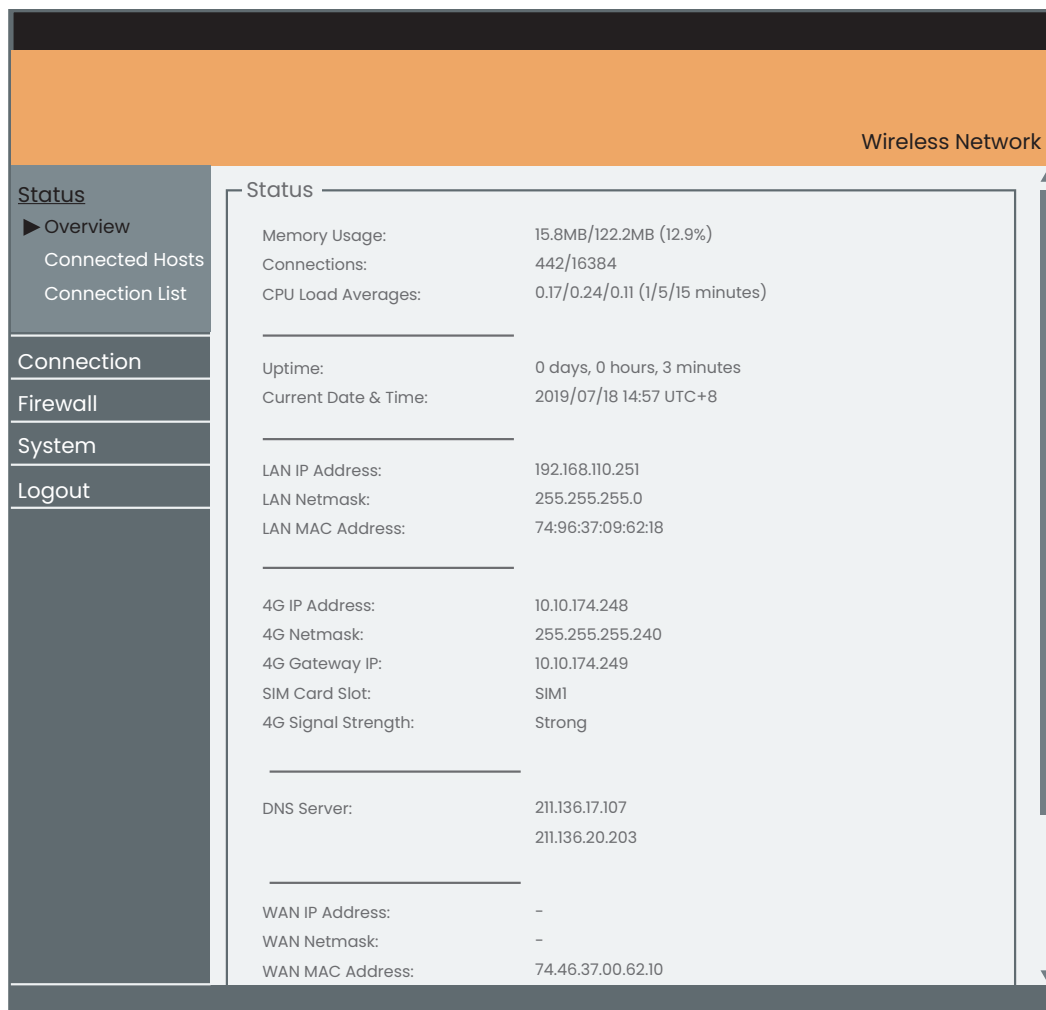
Default IP address: 192.168.110.251

Default login password: password

4G Router Setup Guide (continued)

Step 2

Access overview by selecting the Status menu.



Status	
Memory Usage:	15.8MB/122.2MB (12.9%)
Connections:	442/16384
CPU Load Averages:	0.17/0.24/0.11 (1/5/15 minutes)
<hr/>	
Uptime:	0 days, 0 hours, 3 minutes
Current Date & Time:	2019/07/18 14:57 UTC+8
<hr/>	
LAN IP Address:	192.168.110.251
LAN Netmask:	255.255.255.0
LAN MAC Address:	74:96:37:09:62:18
<hr/>	
4G IP Address:	10.10.174.248
4G Netmask:	255.255.255.240
4G Gateway IP:	10.10.174.249
SIM Card Slot:	SIM1
4G Signal Strength:	Strong
<hr/>	
DNS Server:	211.136.17.107 211.136.20.203
<hr/>	
WAN IP Address:	-
WAN Netmask:	-
WAN MAC Address:	74.46.37.00.62.10

Hardware status

Memory usage, number of connections, and CPU usage (timeline 1/5/15 minutes, respectively).

Time status

System run time and world time.

LAN port

LAN IP Address, LAN Netmask, LAN MAC Address.

G Network

4G IP Address, Netmask, Gateway IP, SIM Card Slot, Signal Strength.*

*NOTE: 4G router reads SIM1 (lower card slot) by default. When the 4G router is started, the "Ping Watchdog" function detects network connectivity. If no response is received within the maximum time limit, 4G router will automatically restart and automatically switch to SIM2 (upper card slot) and continue to detect after reboot until the network is back to normal. This process takes about 8–9 minutes.

DNS Server

DNS Server

WAN Port

WAN IP Address, Netmask, MAC.

(WAN port needs to be connected to the external network)

4G Router Setup Guide (continued)

Step 2

Accessing the Connected Hosts menu.

Wireless Network

Status

Refresh Rate

10 Seconds ▼

This specifies how frequently data on this page is reloaded

Connection

Current DHCP Leases

Hostname	Host IP	Host MAC	Lease Expires
SC-201808131922	192.168.110.182	9C:E8:E8:11:34:3A	11h 54m

Firewall

Connection Wireless Hosts

System

Hosts With Active Connections

Hostname	Host IP	Host MAC	Active TCP Cons	Recent TCP Cons	UDP Cons
(unknown)	10.10.174.248	unknown	0	0	12
TD-954G2	127.0.0.1	unknown	0	0	2
SC-201808131922	192.168.110.182	9C:E8:E8:11:3A:3A	99	262	16

Logout

Further Information on the Connected Hosts

The page refresh time to display DHCP lease user information of active users can be set.

4G Router Setup Guide (continued)

Step 3

Accessing the Connection List menu.

Wireless Network

Status

Overview

Connected Hosts

▶ Connection List

Connection

Firewall

System

Logout

Current Connections

Refresh Rate:

Bandwidth Units:

Host Display:

Proto	WAN Host/ LAN Host	Bytes Up/Down	LT Proto
tcp	10.10.174.248:51609 111.45.68.207:443	224.578 KBytes 7.382 KBytes	
tcp	10.10.174.248:51601 183.240.115.248:443	214.101 KBytes 6.287 KBytes	
tcp	10.10.174.248:51300 183.232.152.223:443	185.267 KBytes 6.095 KBytes	
tcp	10.10.174.248:51538 183.232.152.223:443	174.070 KBytes 4.950 KBytes	
tcp	10.10.174.248:51291 111.45.68.250:443	166.088 KBytes 5.373 KBytes	
tcp	10.10.174.248:51278 203.208.50.88:443	155.884 KBytes 3.559 KBytes	
tcp	10.10.174.248:51648 112.47.1.222:443	147.143 KBytes 3.325 KBytes	
tcp	10.10.174.248:51537 183.240.115.248:443	137.009 KBytes 4.409 KBytes	
tcp	10.10.174.248:51297 111.45.68.207:443	121.572 KBytes 3.720 KBytes	

Further Information on the Connection Lists

You can set the page refresh time, display the host name/ IP address, and modify the traffic data unit.

How to Set Up Cameras for the Solar Surveillance System

To record in cameras that support Micro SD

Insert the Micro SD card after opening the bottom cover of camera when the camera is unplugged from the solar surveillance device. Do not attempt to insert the Micro SD card after it is already connected to the solar surveillance device. Doing so might damage the camera or the SD card. For recommended SD card specifications, contact the manufacturer.

How to view the camera from a mobile phone

Access the app store from your phone and download and install EZView (for UNV) or Guard Viewer (for InVid). Once installed, add your camera by typing in the serial number in the app or by scanning the QR code. For further information regarding accessing your camera from your mobile phone, refer to the manufacturer's documentation and guides.

How to use the NVR or VMS

To use EZStation (for UNV) or Guard Station (for InVid) follow the instructions provided by the manufacturer. If the camera and the NVR or VMS are on the same network then use the preferable IP connection. If they are not on the same network then use a cloud base connection (<https://en.ezcloud.uniview.com> for UNV) or (<https://www.star4live.com> for InVid).