

USWater
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DROP Hub Install Guide



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About

The DROP system has been designed to be a home water management system. It treats the incoming water supply to give quality water to the home. It monitors water usage and can help to alert the user to excessive water usage and prevent or reduce water damage in the event of a burst pipe or a failed appliance. The DROP system can be tailored to the home's unique needs and the users personal desires.

The DROP devices that are a part of the home water system are coordinated and controlled by the DROP Hub. The DROP system uses a proprietary wireless network called DROP Link that operates all the devices on a network. DROP Link is separate from and on a different frequency from the home WiFi. This gives the system resilience in that even if the WiFi or internet goes down, the DROP system will continue to operate, monitor and protect. It also keeps unnecessary traffic off the WiFi network.

The Hub is the only component that has a WiFi radio on it. It can be connected to via 3 modes that give the user complete flexibility to setup the DROP system.

1. **Direct Connection:** The DROP Hub creates its own secure WiFi network. Using the DROP app on a smart phone or tablet, the Hub can be directly connected to for changing settings and viewing status. This mode allows the system to be connected to if an internet connection is not available.
2. **Local WiFi Connection:** Similar to Direct Connection mode but allows for connection from a smart phone or tablet without having to change the WiFi network when interacting with the DROP Hub.
3. **Cloud Connected:** This allows the DROP Hub to connect securely to DROP Connect servers. This enables notifications to be sent when there is an event that needs to be known about and allows monitoring and control of the DROP system from anywhere that an internet connection is available.

The DROP system makes it easy to add to the system as the needs of the home change and as the DROP product line continues to expand. Adding a new device to the DROP network is as easy as setting the Hub to look for new devices, and then power up the device to be added. The new device will be connected to the system and the DROP Hub will already know how to integrate it into the system.

The DROP system user interface is implemented using the "DROP Connect" app. The app is available for Android and Apple smart phones and tablets. This gives the user the convenience to have an intuitive user interface that is always with them. The app includes many helpful hints and full descriptions of system settings and operation so the user is not guessing as to what the information or settings are about.

Before You Begin

It is recommended that any DROP compatible systems be plumbed in before powering on the DROP Hub. Refer to the installation manual for each specific system.

To get started, download the DROP mobile app from the Apple or Google Play storefronts. The app will allow control of the system(s) while within range of the Drop Hub, the home WiFi or anywhere with internet service, depending on how the system is setup.

Placement of the DROP Hub

The DROP system is a wireless operating system making placement of the Hub very flexible. However there are a few things to keep in mind when deciding where to locate the Hub. If planning to connect the Hub to the home WiFi, be sure to place the Hub within range of that network. The range of the DROP Link network gives adequate coverage to a majority of homes without the use of repeaters. Any device on the DROP network that is powered from an outlet power source can act as a repeater. However, placing the DROP Hub in a central location in the home gives it the best chance of being able to reach all the devices on the network without the need for DROP repeaters.

An additional feature of the DROP Hub is the ability to power up to 5 additional DROP Products. This can be useful provided there are not enough electrical outlets in a space to power all DROP products. This should also be taken into consideration when deciding where to place the DROP Hub in the home.

Once the DROP Hub has been placed in the desired location, plug the power cord in. The Hub comes with a larger power supply than other DROP devices. The Hub should be powered by a 12VDC, 2,000mA power supply and plugged into a non-switched 120v outlet. When first powered up, the Hub light will be yellow.

Setup

This guided setup process will connect the smartphone or tablet to be used and DROP Connect App to the DROP system. If desired, it will also connect the DROP system to the assigned WiFi network and create an account on DROP Web Services. This process is necessary to control the DROP system.

By starting the DROP Connect app for the first time, it will step through the guided setup process. If for some reason the process needs to be restarted, choose "Guided Setup" from the account login page or the Account page in the app.

Guided Setup with Existing WiFi Network

1. Power on the DROP Hub. The light on the hub will indicate when it is ready for configuration.
2. Connect the smartphone or tablet to be used to the DROP Hub. The app will require a button press on the hub itself to pair the hub. Continue to follow the instructions in the app.
3. Select the desired WiFi network from the list of available networks. After entering the password for the network, the app will connect the hub to the assigned WiFi network.
4. Create a DROP Web Services account and enable remote access. This will allow control of the DROP system anywhere with an internet connection. This also allows for notifications to be sent if any problems occur with the system.

The hub setup process is a one-time installation that will not have to be performed again. The DROP Hub will remain connected the assigned WiFi network for easy access from the DROP Connect app.

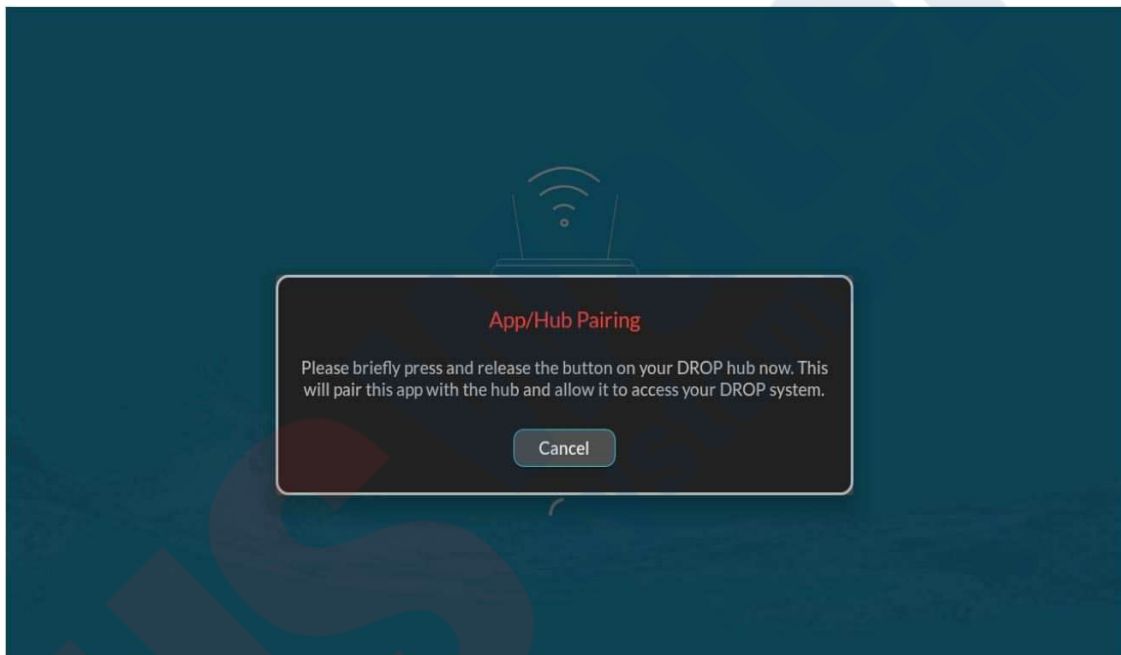
If the assigned WiFi network name or password changes, the guided setup process can be repeated to get the DROP Hub connected to a new network. For other issues and troubleshooting, refer to the Troubleshooting section.

Guided Setup With No Home Network

If the install location does not have a WiFi network, follow the "Guided Setup With Existing WiFi Network" steps until prompted to select a WiFi network. Choose "I don't have WiFi" and the guided setup process will finish. At this point, the DROP system can be connected to directly.

Pairing

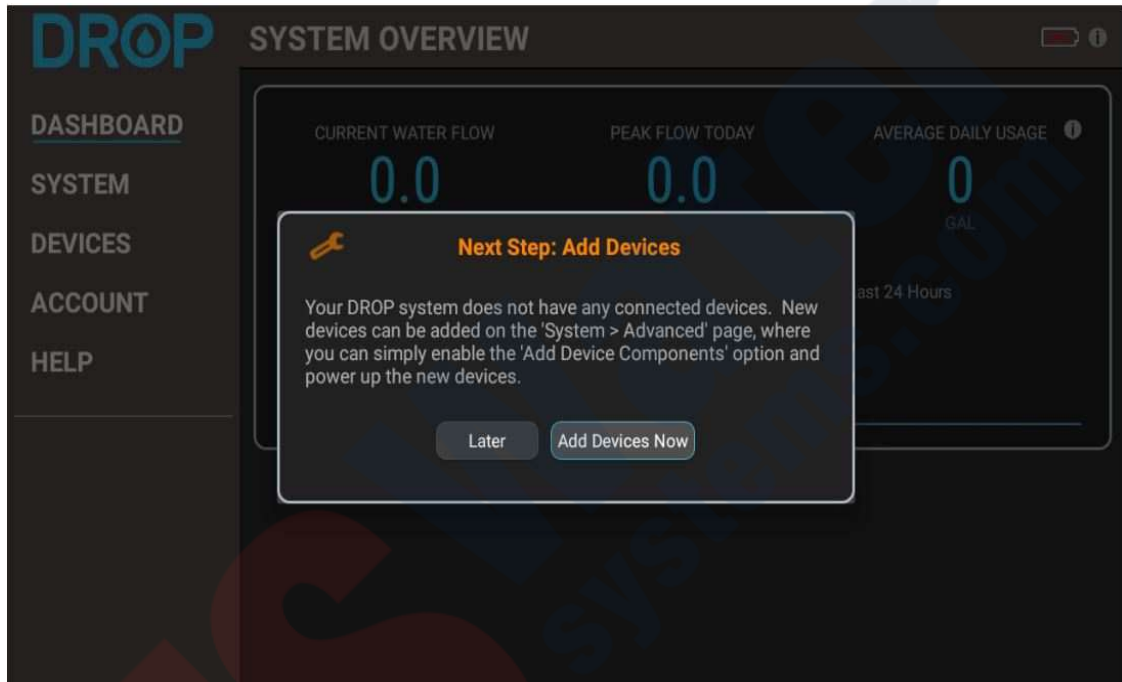
The DROP hub will only communicate with the DROP Connect app on devices that have been paired with the hub. When the app on a new device attempts to communicate with a DROP hub for the first time on a local network connection, it will prompt the user to press the button on the DROP hub to authorize the connection from that device. Once paired, the app will be able to communicate with that hub. If a user is logged into the DROP Connect app and can connect to the hub remotely, this pairing process will happen automatically, and the user will not need to press the button on the hub.



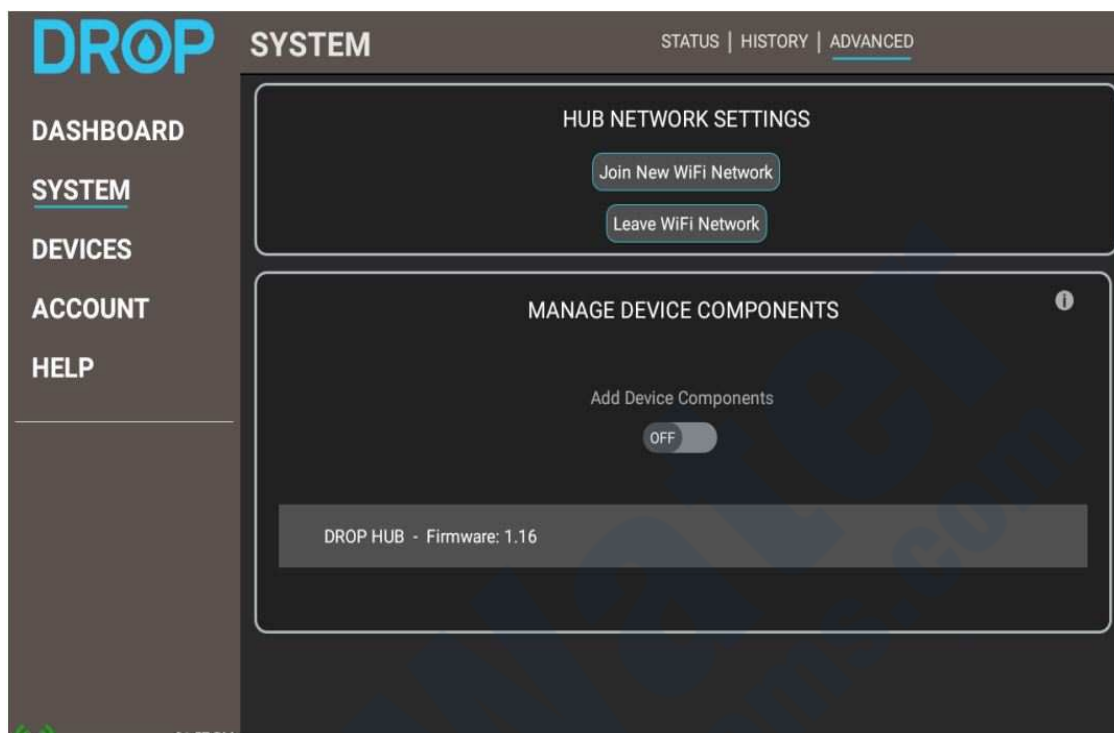
Adding and Naming Devices

Adding Devices

To add new device components using the app, the DROP Hub that will be hosting them must be connected to locally. Ensure that in the app there is a green connection icon in the lower left corner of the Navigation menu.



If no devices have been added to the Hub, the app will display a prompt to "Add Devices Now". This will redirect to the SYSTEM > ADVANCED page in the app.



Unplug and remove any batteries from the DROP device to be added. Next, turn on the "Add Device Components" switch by tapping on it. The hub will enter a state where it will accept new connections. After the hub is accepting new connections, immediately power up the DROP device to be added by plugging it in or inserting batteries. After the device has joined the DROP network, it will be added to the "Manage Device Components" table. The "Add Device Components" mode can now be disabled manually or wait for it to automatically disable.

Most DROP devices will be red when not paired and flash white when they are searching for a DROP system to pair to. Leak detectors are the exception: they will flash the network light slowly when not paired and quickly when they are searching for a DROP system to pair to. Once the device joins a DROP system, it will show up in the list in the app under "Manage Device Components". The device will also turn to its default LED color (typically green or blue) or, in the case of a Leak detector, will briefly turn on its green check mark LED.

NOTE: Leak detectors will be listed on the SYSTEM > SETTINGS page in the same order that they are added to the hub. If they need to be identified, go to DEVICES > LEAK DETECTORS and press the Check/Silence button on one leak detector. A green checkmark will appear next to the leak detector that just checked in.

Rename DROP System and Devices

The DROP system and DROP devices can all be named to make identification easier. This can be done in the SYSTEM > SETTINGS page of the app. Naming the DROP system is useful if more than one DROP system is installed to manage. Naming the DROP devices is also useful if more than one of the same type of device is installed (e.g. multiple leak detectors are installed. They can be named by location for easy identification).



Troubleshooting

If the app is having trouble making a local connection to the Hub, there are a few steps to try to remedy the problem.

1. Note that the DROPS Hub requires a 2.4 GHz WiFi network to connect to. Also, it should not be connected to a "guest" type network.
2. Confirm that the smart device is connected to the local WiFi network, the same network that the Hub is connected to.
3. When scanning for the DROPS system on the network, pressing the "Rescan" button repeatedly will cause a prompt to pop up that gives the option to "Scan Entire Network". If on a home network, choose "OK" and then press "Rescan" one more time after it becomes available. This type of scan should find the hub if it is on the network. If on a corporate network, contact the network administrator regarding problems connecting to the DROPS system. Enabling the "Scan Entire Network" option may break network rules set up in corporate environments which may in turn remove the smartphone or tablet from network access.
4. Rebooting the Hub by pressing and holding the button on the front may also help. After 2 - 4 seconds, it should turn pink. Release the button when it is pink to reboot the Hub. The Hub may take 30 seconds before it will show up in a scan after rebooting the DROPS system. It may be advisable to try scanning multiple times.
5. Rebooting the WiFi router is also an option. The easiest way to do this is to unplug power to the WiFi router for 10 seconds and then plug it back in. Routers can take several minutes to restart. Once the Wifi network is confirmed to be on again, try scanning for the DROPS system in the DROPS app.

Operation

Using the App

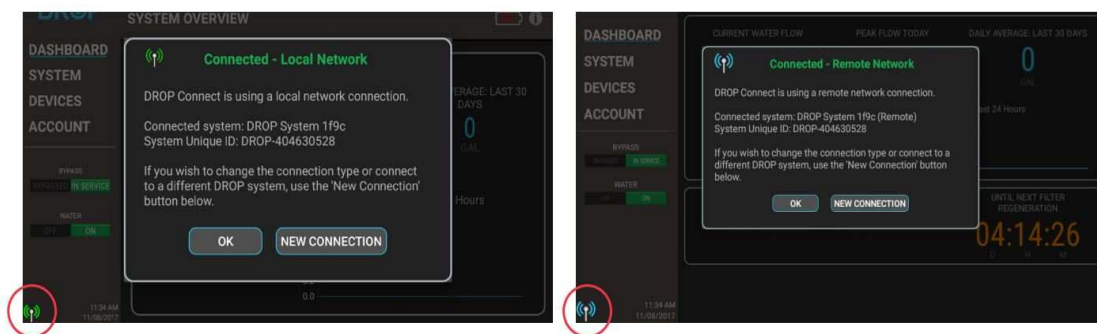
The DROP App has been designed to organize the many functions and settings of the DROP system in an intuitive manner. Almost all items in the app can be touched to change settings or to obtain more information. Any item or setting that could cause potential undesired operation will show a confirmation dialog box with more information when the setting is pressed. Also, information icons are available to give more information about individual settings throughout the app.



All graphs of data can be expanded to see more detailed information by touching the graph. Once the larger graph view is opened, the detailed data can be viewed by pinch zooming and scrolling the graph area. Common smartphone gestures can be used here. Use fingers to tap, zoom in, zoom out, and move to any area inside the app.

Local Connection vs. Remote Connection

The DROP App should prefer to connect to the Hub using a local connection rather than the remote connection through the DROP Connect web services. The connection icon in the lower left of the Navigation menu indicates whether the smartphone or tablet is connected via local (green indicator) or remote mode (blue indicator).



A local connection is preferred because it is faster, there are no limitations in functionality and a local connection is required to do firmware updates to the Hub and devices. If the app is connected to the Hub via a remote (blue icon) connection and it should be able to connect locally, tap the connection icon and, in the dialog box that pops up, tap the “New Connection” button. This will cause the app to scan the network that the phone or tablet is connected to for any DROP systems that are connected. If the DROP system is connected to that same network, it should show up on the list.



DROP Hub Status

Similar to the mobile setup process, DROP can operate in any network environment, with or without WiFi. The color of the DROP Hub light will indicate what connection mode it is in.

Connected to WiFi and DROP Connect Services: The hub has connected to a local WiFi network and to DROP Connect servers. The Hub is able to accept remote connections. In this mode, there are two ways that the app can communicate to the Hub. If the phone or tablet is connected to the same local network as the Hub, the app can communicate directly over that local network.



Connected to WiFi Only: The hub has connected to a local WiFi network. To communicate to that Hub using the DROP app, the phone or tablet will need to be connected to that same local network.



Direct Connection: The hub is using its own private WiFi network (this is the default state on first power up). To communicate to that Hub using the app on a phone or tablet, it will need to be connected to the DROP WiFi which will be named starting with "DROP_System". Follow the instructions for one of the connection modes in the section "Connecting the app to the DROP system" to have the app make that connection.



Lost WiFi Signal: The hub cannot connect to the WiFi network it was previously connected to. If this persists for more than a few minutes, check that the WiFi network is available using another device, and make sure the SSID or password of that WiFi network has not changed. If it has not changed and can be connected to using other devices, reboot the hub. If it has changed, set the hub to direct connection mode (see Adv. Hub Pushbutton Functions) and then connect it using the new credentials.



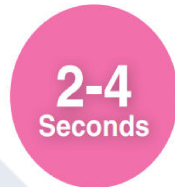
Hub Push Button

Emergency Water ON/OFF: All DROP devices that treat the water also provide a water shutoff for all plumbing that is connected to the outlet of the unit. **Briefly pressing the button on the hub will toggle the water shutoff state.** Although this functionality is also available in the app, pressing the button to shut off or restore the water flow is a quick way to change the water shutoff state. When the system is in water shutoff, the Hub light will flash orange once a second over the top of its normal status color.

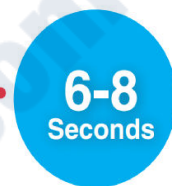
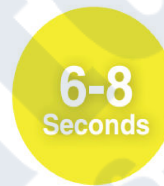
Advanced Hub Push Button Functions

The push button on the front of the Hub has been designed to perform some basic functions. By pressing and holding the push button, these functions can be accessed. As the push button is held, the button color will change for the different functions that are available. The following list explains the functions that are available:

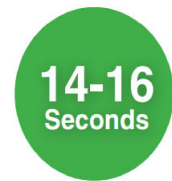
2 - 4 Seconds - The button will turn pink. If released during this time frame, the Hub will reboot. This can be helpful if a function isn't working properly and a fresh startup could be a solution. A reboot takes only a few seconds to complete and is generally not disruptive to any of the normal functions of the system.



6 - 8 Seconds - If the DROP Hub is connected to a local (blue or green before pressing the button) WiFi network, button color will be yellow. If released during this time frame, the Hub will reset and temporarily revert to direct connection WiFi mode. Once in direct connection (yellow with button not pressed) WiFi mode, if button is held again for 6 - 8 seconds, the button color will be blue. If released in this mode, the Hub will reset and reconnect to the previous WiFi connection. Switching to direct connection WiFi mode can be helpful if wanting to allow a third party to connect without giving access to the local WiFi network.



14 - 16 Seconds - The button will turn green. If released during this time frame, the Hub will reset the app pairing key. This will cause all apps that only have local access to the hub to be required to be re-paired when they attempt to connect next. When the pairing key is reset, a notification will be sent out that the app pairing key has been reset. The local pairing key ensures that a user must have direct physical access to the Hub in order to connect and also ensures that the appropriate users are notified of the app pairing key change. **NOTE:** If a user has remote access to this DROP system, through DROP web services, they will not be required to re-pair their app to the hub. To control who can remotely access the DROP system, go to the "ACCOUNT" page in the app.

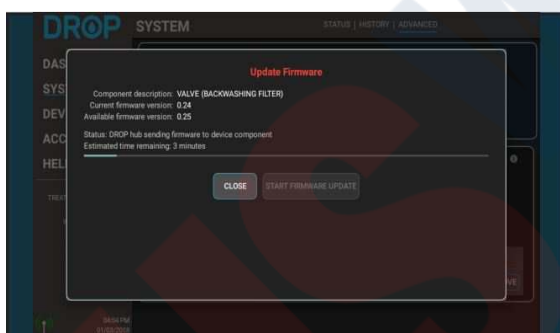
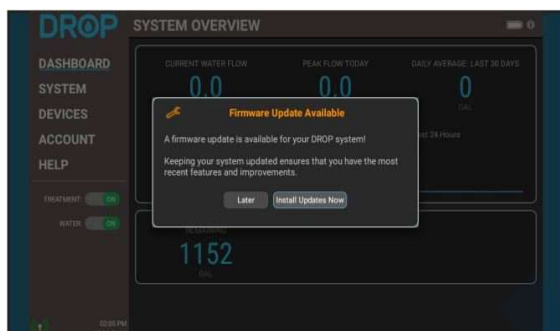


Factory Reset

A factory reset will clear all data from the hub and remove any connected devices. Typically, a factory reset is only necessary if suggested by DROP technical support staff. If a hub currently has remote access enabled, it is recommended that remote access is disabled before a reset, especially if the hub will be used by someone else. Otherwise, the hub will remain locked to the original account and cannot be used by another account. To disable remote access, go to the Account page in the app and look for the 'Disable Remote Access' button. To perform a factory reset, first remove the backup battery from the hub. Unplug the hub, depress the push button, and plug in the hub while continuing to depress the push button. After 30 seconds, the button will begin flashing orange and red. Release the push button and the hub will be armed for a factory reset while the button is red. If the button is pressed again while the button is red, a factory reset will be performed. If the button is not pressed again within 10 seconds, the factory reset will be cancelled, and the hub will start normally.

How to Update Firmware

The DROP Hub and all DROP devices have firmware that is programmed on each DROP component and controls how the DROP system operates. The DROP system is designed to be able to update the firmware in order to add new features and fix or improve operation. New firmware updates are distributed in the DROP app and can be downloaded to the DROP system using the app. The app will display a prompt that new firmware is available when it is opened and connected to the Hub in local mode. Choosing "Install Updates Now" will redirect to the SYSTEM > ADVANCED Page.



Any devices that have an update available will have an "Update" button next to them. An available Hub update must be installed before device components can be updated.

NOTE: The app needs to remain open while the firmware data is being sent to the DROP Hub.

DROP Remote Overview

Every DROP Hub comes with one DROP Remote. The DROP Remote shows the status of the DROP system at a glance and is a convenient way to turn the water supply on or off. The Remote also extends the range of the DROP Link mesh network.

If the remote has not yet been connected, please refer to "Adding and Naming Devices".

DROP Remote Placement

If the remote is going to be primarily used as a user interface, it should be hung on a wall or placed on a counter top so it is convenient to see and to control the home water state. However, if the range of the DROP Link network needs extended, the remote can be placed between the Hub and the devices that need to be extended to. The DROP Remote is a network extender that will improve communications between the DROP hub and distant DROP devices. The construction of every home is different and the placement of the Remote may need to be experimented with to find optimal placement.

Up to 8 DROP Remotes can be connected to a DROP hub as user interfaces and/or network extenders.

Lights

The lights on the DROP Remote indicate if the DROP system is in service or shut off. While the system is in service, the lights on the Remote will be green. When the system is in shut off, the lights will change to orange. The behavior of the lights can be controlled on the Remote in the DROP Connect App.

If there is a DROP notification that has not been seen in the app, the Remote will slowly blink a blue light. As with other DROP devices, periodic purple flashes indicate that the Remote is communicating with the DROP hub and other DROP devices.

NOTE: The notifications or network activity indication must be enabled in the app to be visible on the Remote.

Push Button Functions

The DROP Remote has a recessed, touch sensitive button that can perform some basic functions. These functions can be accessed by pressing and holding the button. As the push button is held, the light closest to the button will turn white to confirm the button press and the top lights will change for the different functions available. The following explains the functions that are available:

2 -4 Seconds - The remote lights will turn orange or green, depending on the remote's current position. If the remote is in service (green lights before the button was pressed), releasing the button while the lights are orange will send the valve to the shut off position. Likewise, if the remote is in shut off (orange lights before the button was pressed), releasing the button while the lights are green will send the valve to the service position.



15 - 17 Seconds - The Remote lights will turn orange. If released during this time frame, the remote will be armed for a factory reset and the lights will turn red. If the button is pressed again, once it is red, a factory reset will be performed on the Remote. It is recommended that before performing a factory reset that the Remote is removed as a device on any DROP system that it may be attached to. This can be done while using a local connection in the App and going to System on the navigation menu on the left then the Advanced page (selected at the top). On that page is "Manage Device Components". Find the Remote in that list and press the "remove" button associated with that Remote. Once the Remote is removed, then perform the factory reset.



System Settings

There are a number of configurable settings available to tailor the frequency of notifications to the user. Below is a brief overview of each:

- **Notifications** - The "Quiet Time" settings allows the user to set a period of time when non-critical notifications will not be sent to connected smart devices. Instead, these notifications will be sent once the period of time set is over. Urgent notifications such as leak detections or excessive flow rates will still be sent however.
- **Protect Mode** - This setting dictates how long the system will monitor continuous flow before sending a notification as well as how long the continuous flow can last before the system shuts off water flow. There is a snooze function (adjustable in hour increments) in cases where an extended period of continuous flow is expected, such as filling a pool or using a pressure washer.

This setting is also accessible at the top of the Navigation menu under "Protect Mode"

- **Home / Away Mode** - Under the "Protect Mode" settings, the user can configure the length of time for continuous flow before a notification will be sent and the length of time for continuous flow before the water will be shut off. This is split into the "Home" and "Away" presets to allow for different constraints.

NOTE: Setting a value of 0 will disable the notification/shutoff feature.

- **Schedule Mode** - This allows the user to schedule multiple periods of time in which continuous flow is monitored and notifications will be sent or water flow will be shut

off. Up to 10 schedule entries can be put in and they can be disabled/enabled by tapping the Power button next to each

- **High Flow Rate** - This setting controls how fast water must flow before a notification is sent. If this value is set a bit higher than typical daily peak flow, the DROP system will notify the user of unusually high flow rate.
- **High Total Flow** - This setting controls how much water may be used in a single day before a notification is sent. If these values are set a bit higher than typical daily usage, the DROP system will notify the user of excessive water usage.
This setting is useful for identifying problems such as leaky fixtures or faucets that are left open but note that atypical water usage (such as filling a pool or watering the lawn) may trigger a notification.
- **Custom System and Device Names** - Any DROP system that is connected will display here. Simply tapping the name of a system will open a prompt and allow the user to rename the device.