CHAPTER 1

In This Chapter...

Introduction

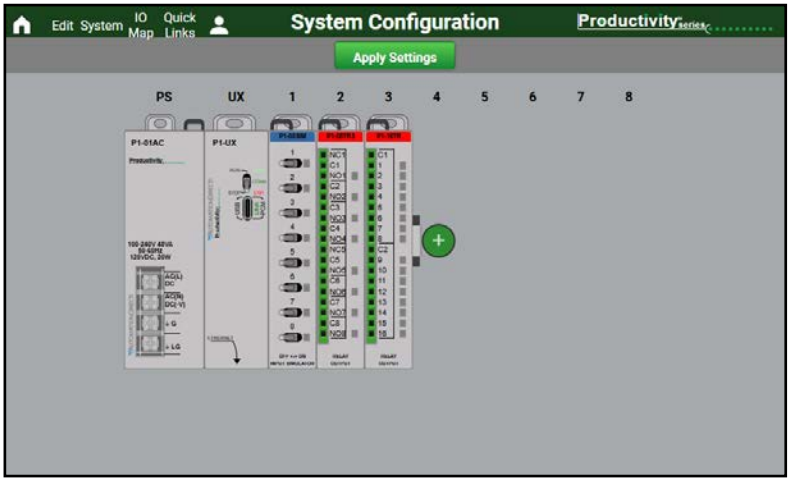
Purpose

The P1-UX has a webserver to allow user configuration of the P1-UX through a web browser connection from a PC to the P1-UX hardware. A connection can be established with the P1-UX web server over Ethernet or over USB cable. The web server allows the user to configure the P1-UX for either EtherNet/IP or Modbus communication protocols, to set the IP addressing, and to configure the I/O modules. Additionally, the web server provides an I/O map for the user to reference later after configuration is complete.

System Configuration

The webserver is a straightforward way to easily manage the P1-UX hardware. When the web server opens, the System Configuration screen allows access to the following items:

- Configuration and set up for the P1-UX and I/O modules
- Download I/O map
- Monitor I/O
- Update firmware



NOTE: *Only two web connections at a time can access the web server.*

NOTE: *To be able to edit the configuration settings, the run/stop switch must be in the stop position.*

Getting Started

Before You Begin...

Do one of the following:

- Power up the P1-UX on the network or connect to your PC via USB cable.
- Connect PC to the same network or connect to the P1-UX via USB cable.
- Connected online with supported web browser (Chrome, Edge, Firefox, Safari).

Access the P1-UX Web Interface

1. Launch a web browser and enter one of the following:
   - https://p1-ux.local (default Ethernet domain name)
   - https://p1-ux-usb.local (default USB domain name)
   - https://10.10.10.10 (default IP address)

NOTE: *You may see a device certificate warning in your browser. Accept to continue connecting to the P1-UX.*

2. The Landing Page / User Login screen appears.

3. Valid user login credentials:

NOTE: *P1-UX will force users to set a new username and password after the first attempt to access it with the default username/password.*

- Default Username: **admin**
- Default Password: **productivity**

(See **Admin>User\Pass** section)

NOTE: *Before continuing, make sure the switch is set to the STOP position.*

If the Home page does not load:

- Verify network connection (ensure the PC is on the same subnet as the P1-UX).
- Confirm the device IP address (Out of the box default is 10.10.10.10/16).
- Check browser security warnings for HTTPS and accept device certificate.
- Re-enter credentials and ensure there were no typos.

Getting Started

Home Page After Login: System State Overview

Once logged in, the user can:

- View current P1-UX Run/Stop state and access available pages based on the current state.

NOTE: *The Apply Settings button is disabled when the Run/Stop switch is in the Run position. Switch to Stop to enable it.*

The P1-UX operates in one of two modes:

Run Mode (Run/Stop Switch placed in the Run position)

Capabilities in Run Mode:

- View P1-UX settings and I/O status values.
- Export Configuration for use in other P1-UX systems or to save as a back-up configuration file.
- Show I/O Map or Download I/O maps in CSV, PDF, or Plain TXT formats.
- View Error warnings and logs for possible operational conflicts.
- Visit Quick Links for Help and product information.
- Visually monitor live I/O module operational values.
- Edit Username & Password settings

Restrictions in Run Mode:

- P1-UX and I/O module configuration editing is disabled.

Typical Use Cases:

- Normal operation
- Monitoring and verification for troubleshooting purposes.

Stop Mode (Run/Stop Switch placed in the Stop position)

Capabilities in Stop Mode:

- Apply communication settings and system changes to the P1-UX.
- Import and Export Configuration to restore from back-up or to duplicate I/O configurations.
- Modify I/O setup by reading the currently installed modules and inserting, removing, or replacing I/O modules in the slots as desired to change the I/O configuration from what is discovered.
- Edit configuration settings of the I/O modules for Analog and Temperature type modules.
- Edit Username & Password settings
- Perform all Run-mode actions as listed above.

Getting Started

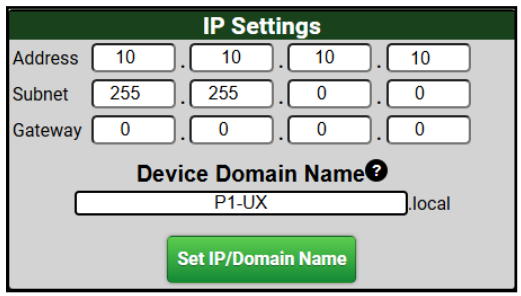
Typical Use Cases:

- Initial setup.
- Configuration changes.
- Maintenance or troubleshooting activities.

Setting the Communication & Protocol Options:

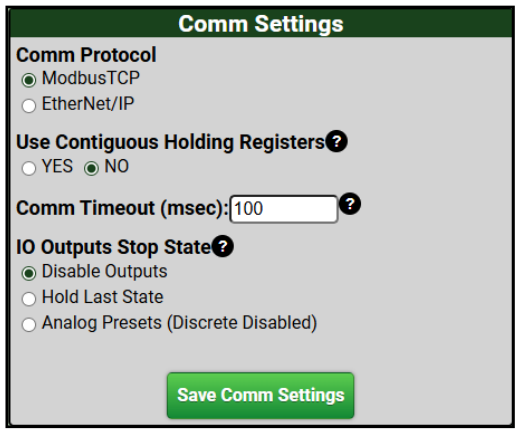
- Click on the image of the P1-UX to change the default configuration of the device.
- Default IP Settings

IP Address =	***10.10.10.10***
Subnet =	***255.255.0.0***
Gateway =	***0.0.0.0***
Device Domain Name =	***P1-UX.local or P1-UX-USB.local (for USB connections only)***



- Default Communication Protocol Settings

Comm Protocol =	***Modbus TCP***
Comm Timeout =	***100 msec***
I/O Outputs Stop State =	***Disable All Outputs***



Getting Started

- Users may change any of the fields listed above to suit their network and protocol requirements.
  - o After changing the IP Address, Subnet, Default Gateway, or Domain Name values, then click on the "Set IP/Domain Name" button when the device will ask to "Confirm" or "Decline" the changes.
  - o Click "Confirm" and await the changes to occur.

NOTE: *If not connected via USB, the web browser's Ethernet connection to the device will be lost and the user must then make sure the new IP Subnet is reachable from the PC. If using the USB connection, the connection will remain and the user should see the changes accepted and reflected on the screen.*

Switching Between Run and Stop

1. Locate the Run/Stop Switch on the face of the P1-UX.
2. Switch the P1-UX to Run or Stop as required.

NOTE: *Configuration changes require Stop mode.*

Logging Out

1. Select Log Out to exit the web interface.
2. Session ends and returns to the Login page.

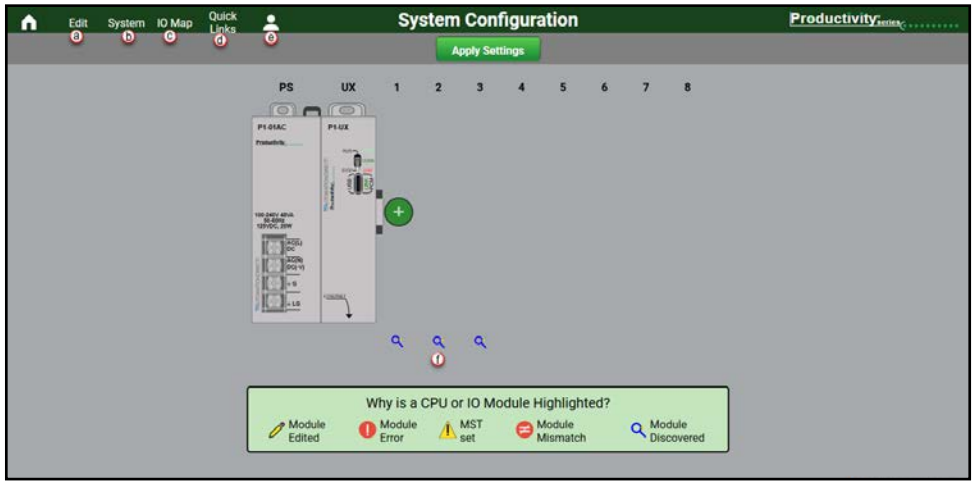
NOTE: *A default session timeout will occur after 5 minutes of no activity.*

Common Quick Checks

- Cannot edit configuration → Confirm device is in Stop
- Cannot log in → Verify credentials and permissions
- Status only visible → Device is likely in Run

Home

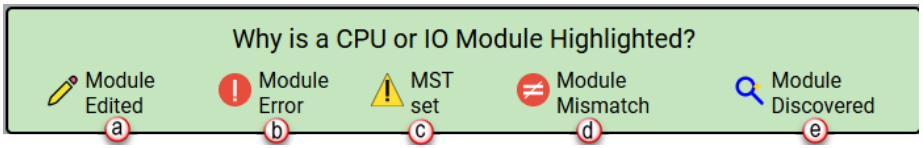
The home screen comprises six menus (upper left toolbar), and the P1-UX configuration canvas:



1. Top tool bar
    a. Edit
        i. Discover Modules
        ii. Use Discovered Modules
        iii. Remove all Modules
    b. System
        i. Export Configuration
        ii. Import Configuration
        iii. Factory Reset
        iv. Reboot UX
        v. Create System Reboot
        vi. Download System Reboot
        vii. Firmeware Update
    c. IO Map
        i. Show IO Map
        ii. IO Map (pdf)
        iii. IO Map (csv)
        iv. IO Map (md)
        v. IO Map (tx)

Home

d. Quick Links
   i. Automationdirect.com
   ii. Community
   iii. Product Specifications
   iv. Firmware Downloads
   v. Help
e. Live Analog Values
f. Account
   i. Admin (for future use)
   ii. Change User/Pass
   iii. User Settings
   iv. Logout
g. Module Status

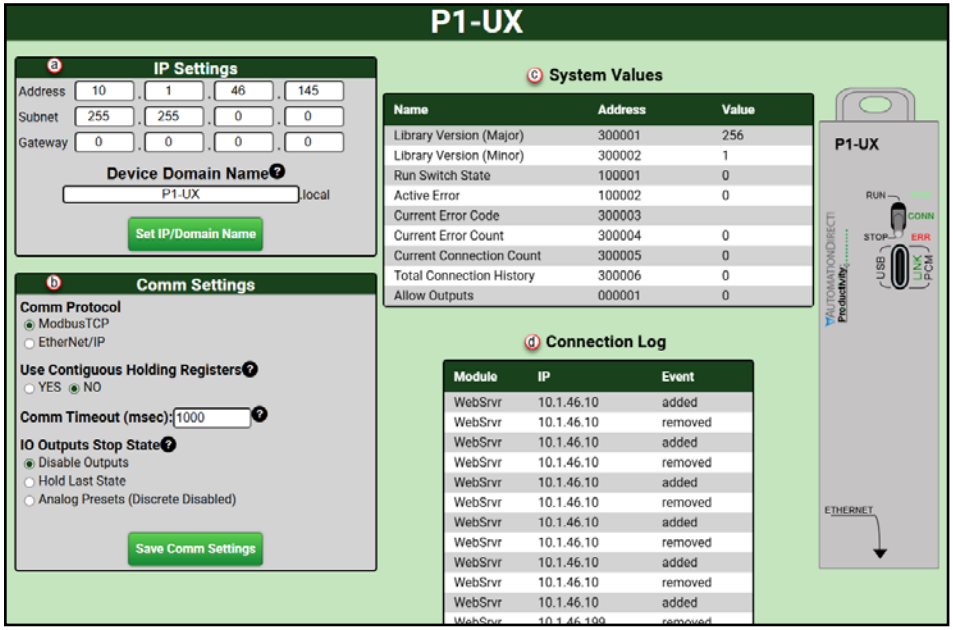


a. **Module Edited:** The module's configuration settings have been changed.
b. **Module Error:** The module is currently reporting a fault or error condition.
c. **MST Set:** One or more module status tag bits are active for this module.
d. **Module Mismatch:** The physical module detected in the slot does not match the expected configuration.
e. **Module Discovered:** A module has been detected and identified in this slot.

2. P1-UX Configuration Canvas
   a. P1-UX
      i. Configure IP Settings
      ii. Configure Communications Protocols
   b. I/O Modules (+)
      iii. Add/Remove/Replace I/O Modules
   c. Apply Settings

Module Info

On the Home page, click on the P1-UX coupler to set IP Address, Comm Settings, and view System Values and Connection Log.



a. IP Settings: Enter the IP Address, Subnet Mask, and Gateway to allow the device to communicate on your network.

   i. Address: The unique IPv4 address assigned to the device on the network e.g., 10.10.10.10 (default).

   ii. Subnet: The subnet mask that defines the network segment to which the device belongs e.g., 255.255.0.0.

   iii. Gateway: The IP address of the network gateway use to route traffic outside the local subnet.

   iv. Device Domain Name: Common name for the device. Allows an Ethernet connectiion via MDNS {name.local}. The USB port can always be connected by https://p1-ux-usb.local as it does not sync with the Device Domain Name user setting.

NOTE: *Ensure each Domain Name is unique for each coupler on the network otherwise MDNS will not work correctly.*

Module Info

NOTE: *Click on the Set IP/Domain button to apply any changes made to the IP settings fields. Changes will not take effect until saved. In addtion, you must click on Apply Settings on the main page for these settings to be applied to the coupler.*

b. **Comm Settings:** Use the Comm Settings panel to configure the communication protocol and behavior of the P1-UX device.

i. Comm Protocol: Select the communication protocol the device will use for external connections:

- Modbus TCP — Select this option to use the Modbus TCP protocol for communication.
- EtherNet/IP — Select this option to use the EtherNet/IP protocol for communication.

Modbus TCP

Use Contiguous Holding Registers: Determines how holding registers are mapped in memory.

YES — (Contiguous Mapping) Pack all UX and IO module data into Holding Registers (40000 Addresses) as one data block.

NO — (Non-Contiguous Mapping) Map data into separate function-specific ranges, creating multiple data blocks.

Comm Timeout (msec): (Default 1000) Modbus TCP timeout is configured by the user. The device will consider a connection lost [TE1.1]if no communication is received within this time.

IO Outputs Stop State: Active when there are no connected protocol clients, the Run/Idle header is idle, or an error condition is present on the UX.

- Disable Outputs — All outputs are turned off when communication is lost. This is the default and recommended safe state.
- Hold Last State — Outputs retain their last known state when communication is lost.
- Analog Presets (Discrete Disabled) — Analog outputs revert to preset values; discrete outputs are disabled.

EtherNet/IP

Comm Timeout (msec): RPI (Request Packet Interval) x Multiplier.

IO Outputs Stop State: Defines the behavior of the device outputs when a communication timeout occurs or the connection is lost:

- Disable Outputs — All outputs are turned off when communication is lost. This is the default and recommended safe state.
- Hold Last State — Outputs retain their last known state when communication is lost.
- Analog Presets (Discrete Disabled) — Analog outputs revert to preset values; discrete outputs are disabled.

Module Info

EIP Endpoints:

Shows the available connection points depending on a user's application type along with the data size (bytes).

Example:

EIP Endpoints

Type	Connection Point	Size (bytes)
Input	101	32
Output	102	16
Config	100	0
Input-Only	254	0
Listen-Only	255	0

EIP Endpoints

Type	Connection Point	Size (bytes)
Input	100001	12
Output	1	1
Config	100	0
Input-Only	254	0
Listen-Only	255	0

NOTE: *Click the* ***Save Comm Settings*** *Button to apply any changes made to the Comm Settings panel. In addtion, you must click on Apply Settings on the main page for these settings to be applied.*

c. **System Values:** The System Values table (next page) displays read-only diagnostic and status information for the P1-UX device. These values are accessed using the Modbus or EtherNet/IP addresses shown.

Module Info

System Values

Name	Modbus Address	EtherNet/IP Address	Description
Library Version (Major)	300001	IN: 0–1	Major version number of the firmware library.
Library Version (Minor)	300002	IN: 2–3	Minor version number of the firmware library.
Run Switch State	100001	IN: 4	Indicates the current state of the RUN switch (0 = Stop, 1 = Run).
Active Error	100002	IN: 5	Indicates whether an active error condition is present (0 = No error).
Current Error Code	300003	IN: 6–7	The error code associated with the current or most recent fault.
Current Error Count	300004	IN: 8	The total count of errors recorded in the current session.
Current Connection Count	300005	IN: 9	The number of active connections currently established.
Total Connection History	300006	IN: 10–11	The cumulative total number of connections made since last reset.
Allow Outputs	000001	OUT: 0	Indicates whether the device is currently permitting output operations (0 = Not allowed).

d. **Connection Log:** The Connection Log displays a real-time record of network connection of the last 20 events for the P1-UX device.

Status Indicators (device LEDs)

The P1-UX device provides the following LED status indicators on its front panel:

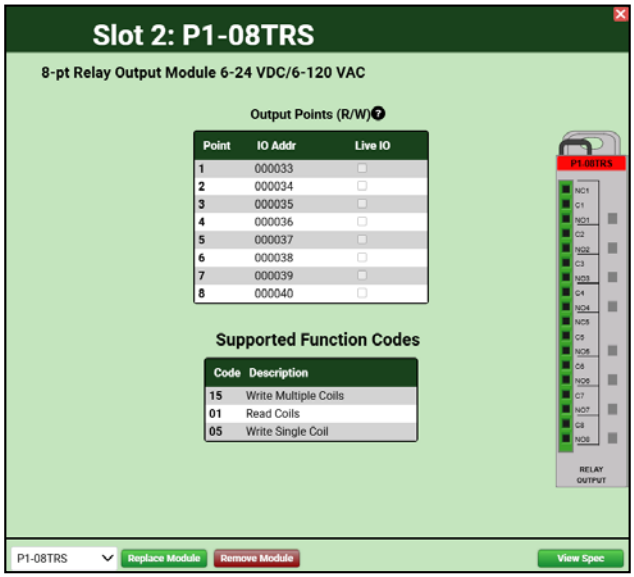
Indicator	Description
CONN	Green LED is backlit when connected to EtherNet/IP Scanner or Modbus TCP Client.
ERR	Red LED indicates power-on reset, soft reboot, or watchdog timeout.
LINK	Backlit only when USB connection is established.
PWR	Green LED is backlit when power is on.

Module Info

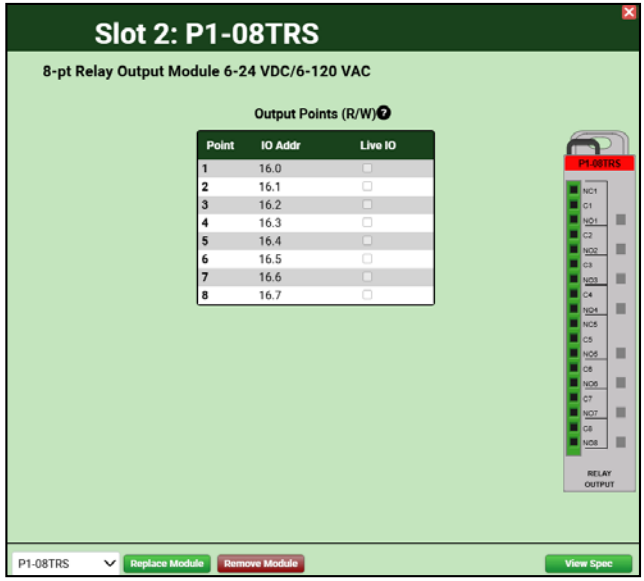
Discrete/Analog Module Information

On the Home page, select an individual module to see assigned addresses, supported functions codes (Modbus TCP), and view technical specifications for that module.

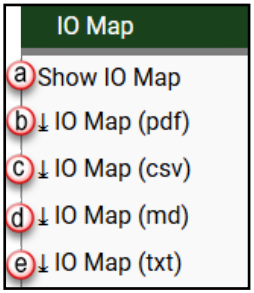
Modbus TCP:



EtherNet/IP



I/O Map



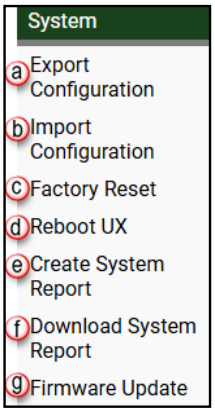
a. **Show IO Map:** Lists all Modbus or EtherNet/IP register addresses and settings available for external access.
b. **IO Map (pdf):** Downloads IO map in .pdf format.
c. **IO Map (csv):** Downloads IO map in .csv format.
d. **IO Map (md):** Downloads IO map in .md (markdown) format.
e. **IO Map (txt):** Downloads IO map in .txt format.

Example of a Non-contiguous Modbus TCP IO map:

```
P1-UX IO Map
==========================================
              UX Settings
IP Address: 10.1.46.145
Subnet Mask: 255.255.0.0
Gateway: 0.0.0.0
Domain Name: P1-UX

Comm Protocol:  ModbusTCP
Comm Timeout:  1000
IO Stop State:  All Disabled
Addressing:  Non-Contiguous
==========================================
System Data:
    Library Version (Major):        300001
    Library Version (Minor):        300002
    Run Switch State:              100001
    Active Error:                  100002
    Current Error Code:             300003
    Current Error Count:            300004
    Current Connection Count:          300005
    Total Connection History:          300006
    Allow Outputs:                 000001
==========================================
```

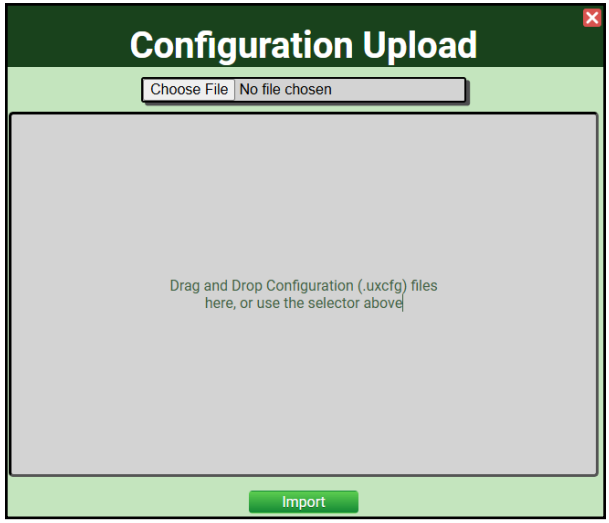
```
Module IO:
------------------------------------------
Module 1:       P1-08SIM

    Inputs:
    Point 1:            100801
    Point 2:            100802
    Point 3:            100803
    Point 4:            100804
    Point 5:            100805
    Point 6:            100806
    Point 7:            100807
    Point 8:            100808
------------------------------------------
Module 2:       P1-08TRS

    Outputs:
    Point 1:            000033
    Point 2:            000034
    Point 3:            000035
    Point 4:            000036
    Point 5:            000037
    Point 6:            000038
    Point 7:            000039
    Point 8:            000040
------------------------------------------
```

System



a. **Export Configuration:** Exports a .uxcfg binary file to the downloads folder on your PC. This file contains the configuration for the coupler (i.e. module lineups, configuration bytes, etc.) and can be imported into another coupler for quick configuration of duplicate systems.

b. **Import Configuration:** Choose the .uxcfg file location or drag and drop the file to be imported.



c. **Factory Reset:** Clears the entire configuration file, restarts and goes back to out-of-box state.

Manual Factory Reset (Forgotten Password)

If the password has been forgotten, the coupler can be factory reset manually using the steps below:

1. Disconnect the USB connection and any external TCP connections.
2. Set the run/stop switch to the stop position.
3. Power cycle the device.
4. While the CONN LED begins blinking, toggle the run/stop switch from stop to run to stop, five times within 10 seconds.
5. The coupler will reboot and complete the factory reset.

System

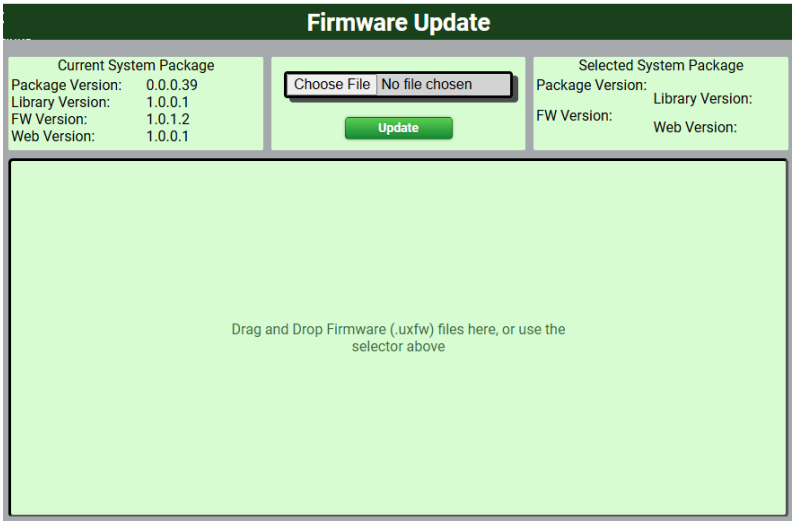
d. **Reboot UX:** Will remotely turn off and then restart the UX from the web interface.

e. Create system report: Manually generates and downloads a new file showing what's currently happening in the system.

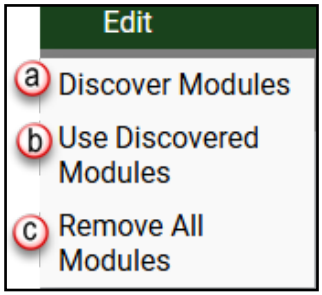
f. Download system report: Downloads the most recently generated report — either created manually via (e), or automatically after a crash.

g. **Firmware Update:** Firmware in the P1-UX is affected by new features and improvements. This will allow the P1-UX to be compatible with any new features or improvements.

The firmware is stored as a .uxfw file that must be downloaded. The latest firmware is located on AutomationDirect's web site.



Edit



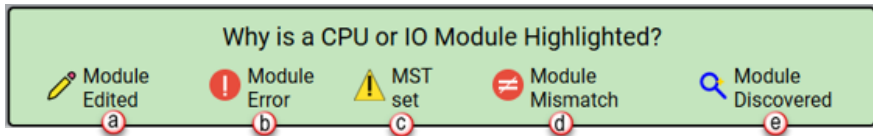
NOTE: *P1-04HSC & P1-02PWM modules are not supported.*

a. **Discover Modules:** Queries to read modules that are connected to the coupler.

b. **Use Discovered Modules:** Displays modules found during the discovery.

NOTE: *Click Use Discovered Modules to display the modules that are physically connected to the system. By default, the view reflects the modules defined in the P1-UX configuration, which may differ from what is installed.*

c. **Remove All Modules:** Removes all modules from the configuration.



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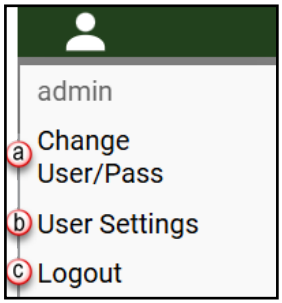
Admin



a. **Change User/Pass:** Allows a user to change the Username and/or Password.
Username: Must be between 4 & 128 characters.

NOTE: *Disallowed username characters: No leading or trailing spaces, Colon :*

Password: Must be between 8 & 128 characters.

NOTE: *Disallowed password characters: Space, slash (/), backtick (`) and tilde (~).*

b. **User Settings:** List of keyboard shortcuts:

Quick Keys

Key	Shortcut
Module Refresh	Alt+R
Clear Modules	Alt+C
Apply Discovered	Alt+A
Import Configuration	Alt+I
Export Configuration	Alt+X
Download PDF IO Map	Alt+P
Download CSV IO Map	Alt+V
Download TXT IO Map	Alt+T
View CPU Settings	Alt+Q

c. **Logout:** Logs a user offline from the coupler.