



EZLOGIC[®] OS

REFERENCE GUIDE

MODEL

EZLogic

BULLETIN

#765

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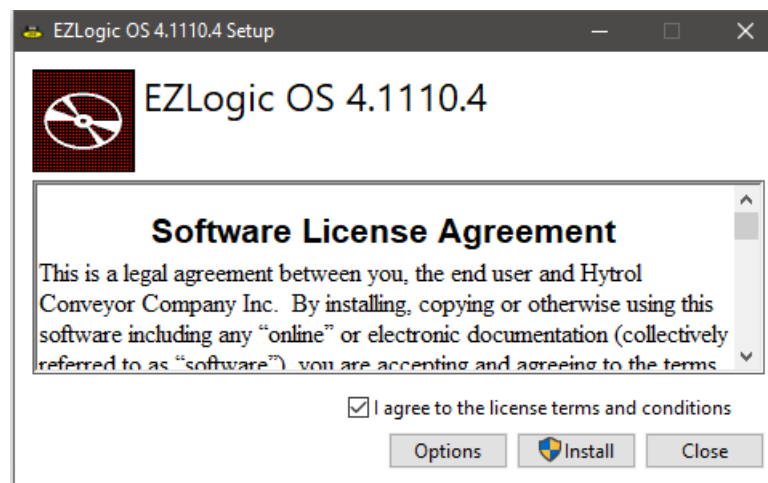
1 GETTING STARTED

1.1 INSTALLATION

The EZLogic® OS software comes packaged with the PC programming cable. To install EZLogic® OS on your PC:

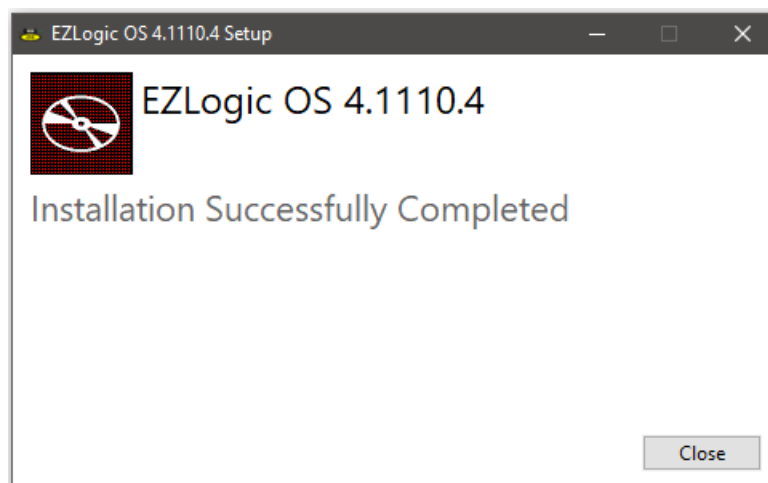
1. Make sure you have **ADMINISTRATIVE** privileges for the PC you wanted to install EZLogic® OS.
2. Download the EZLogic® OS installation package from the Hytrol website.
3. Launch the installation package from your downloaded location.
4. The installation welcome screen will be displayed with the **Software License Agreement**. Please agree and click “Install” (Figure 1).

FIGURE 1



5. After successfully installing the required softwares, an installation complete screen will be shown (Figure 2). Close the setup window. This will create a shortcut on the desktop and programs menu.

FIGURE 2



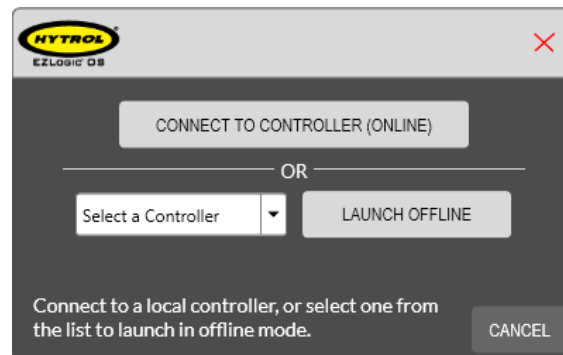
1.2 CONNECTION TO A ZONE CONTROLLER

1. The method used to connect to your PC is determined below:
 - A. If you are using the USB programming cable and you have already installed EZLogic® OS and the USB driver, simply plug the cable into any available USB port on the PC.
 - **NOTE:** The USB driver for the programming cable must be installed before plugging in the cable for the first time.
 - **NOTE:** In instances where EZLogic® NET is being used, the USB end of the programming cable can be connected to the Bluetooth module should the user choose to configure the branch with it rather than a PC.
2. Connect the other end of the PC programming cable to the auxiliary port of the desired zone controller for Gen 3 and 4.0. If using EZLogic® NET, you should connect the other end of the PC programming cable to the Gateway "Config" port of the desired branch.
 - **NOTE:** If connected to a Dual Zone Controller (DZC), make sure the programming cable is connected to the left hand side auxiliary port of the controller.

1.3 STARTING THE PROGRAM

1. Start EZLogic® OS by clicking "Start->Programs->EZLogic® OS" or by double clicking "EZLogic® OS" shortcut from your desktop.
2. You will see the following (Figure 3):

FIGURE 3



EZLogic® OS 5.x.x version

- A. A window dialog box based on the version on the EZLogic® OS launched. This can be caused by one of the following:
- The PC programming cable is not connected to the computer.
 - The PC programming cable is not connected to the zone controller.
 - The PC programming cable is not connected to the left side auxiliary port of the Dual Zone Controller (DZC).
 - There is no power to the zone controller.
 - The drivers for the USB programming cable have not been properly installed.
 - The PC programming cable is damaged.

Choose one of the available options to launch the application offline. When the application is launched, you will see the following on the Title Bar (Figure 4).

FIGURE 4



- B. When connecting to an online controller, the EZLogic® OS software automatically detects the type of controller connected and launches the application with the options required. When the application is launched, you will be seeing the following on the Title Bar (Figure 5).

FIGURE 5



The following are the different navigation options depending on the type of controller connected (Figures 6-9):

FIGURE 6: STANDARD CONTROLLER (GEN 3)



FIGURE 7: ENHANCED CONTROLLER (GEN 3)

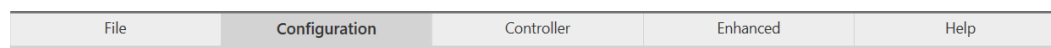
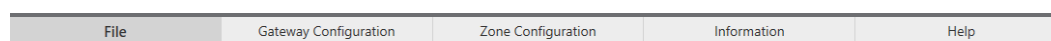


FIGURE 8: DUAL ZONE CONTROLLER (DZC)



FIGURE 9: EZLOGIC® NET (EZN)



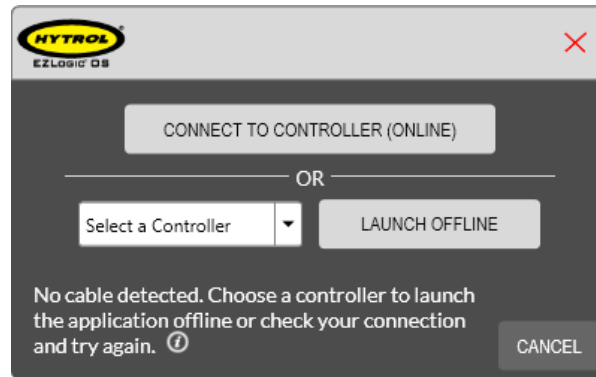
When attempting to connect to an online controller, there can be instances where the connection can not be completed.

This can be caused by one of the following:

- a. The PC programming cable is not connected to the computer.
- b. The PC programming cable is not connected to the zone controller.
- c. The PC programming cable is not connected to the left side auxiliary port of the Dual Zone Controller (DZC).
- d. There is no power to the zone controller.
- e. The drivers for the USB programming cable have not been properly installed.
- f. The PC programming cable is damaged.

NOTE: Above options can also be viewed by hovering over  icon on the window dialog box as shown below (Figure 10).

FIGURE 10

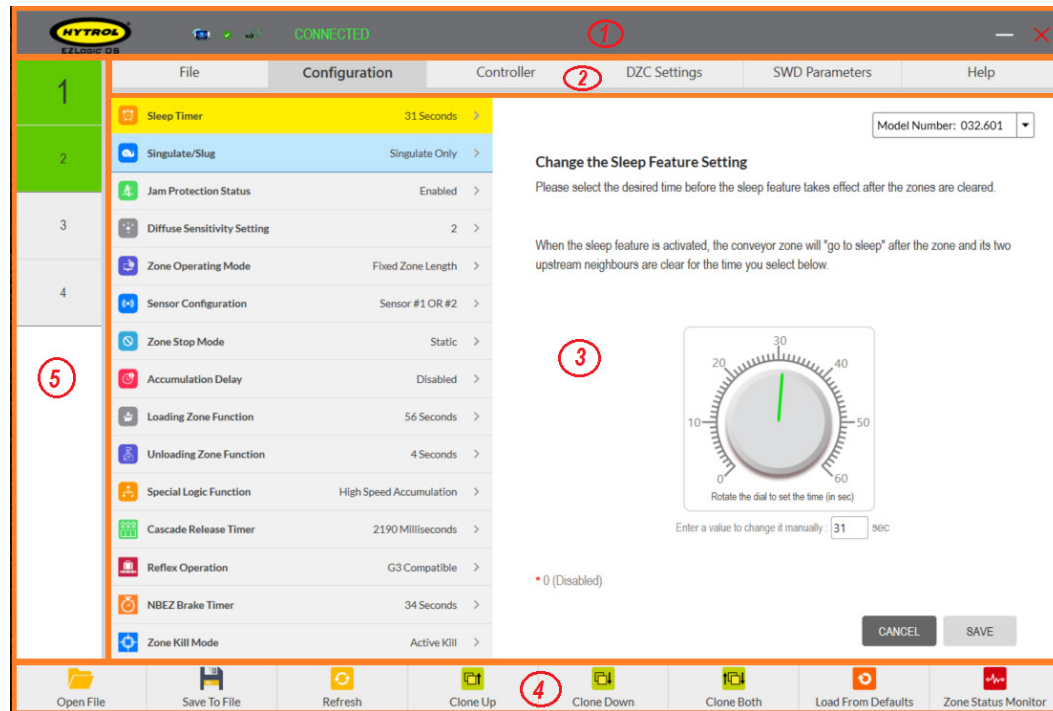


1.4 GRAPHICAL USER INTERFACE

EZLogic® 4.0 OS - Figure 11

This page explains all the options that are available in EZLogic® OS.

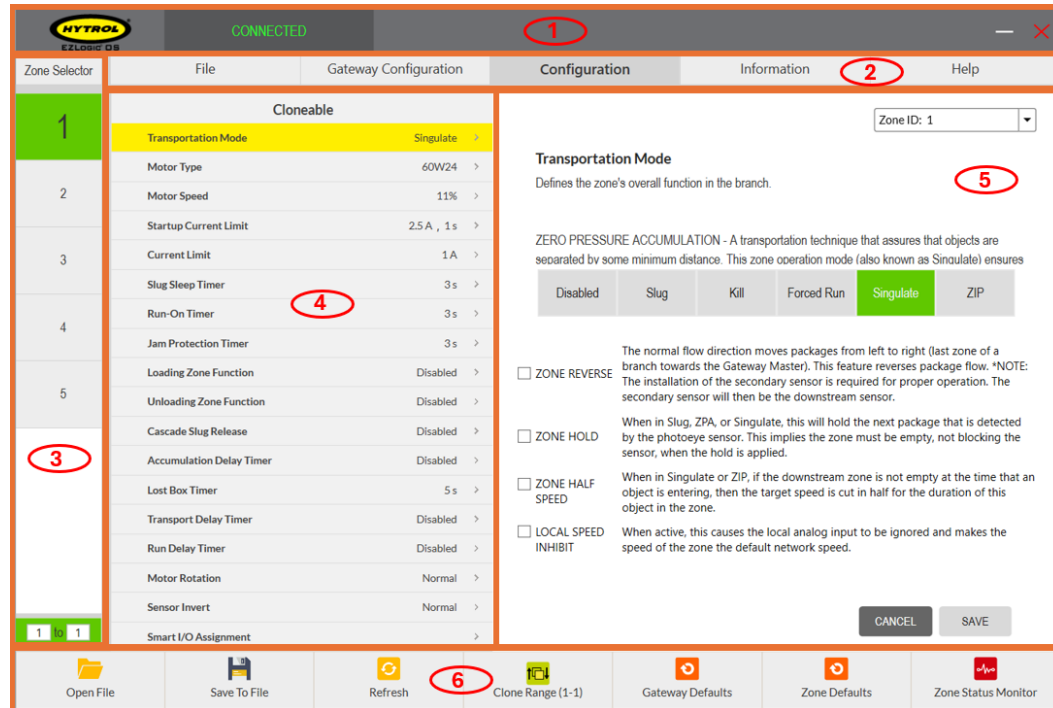
FIGURE 11



1. **Title Bar:** This shows if EZLogic® OS is able to connect to a controller or not. If connected to a controller, the connection icon has **Green Check** and the text shows as **CONNECTED** else the connection icon has **Red Cross** and the text shows as **NOT CONNECTED**.
2. **Navigation Bar:** This shows all the possible tabs (options) for the connected controller. This depends on the type of the controller connected (or chosen from the offline options). Please see 2(B) under "Starting the Program".
3. **Content Area:** This is divided into two panels. **Left panel** contains the list of all the available settings for the selected navigation tab and the **Right panel** contains the Controller Information (Model Number dropdown), Save Button (to save the modified setting value to the controller), Cancel Button (to discard any change), and description for the selected setting.

4. **Shortcuts Bar:** The following are the available shortcuts
- a. **Open File:** This feature allows the user to open an existing/saved configuration file (.EZL) which can be loaded into the controller.
 - b. **Save To File:** This feature allows the user to save the connected controller's settings as a file (.EZL) when connected to Standard/Enhanced controllers or save the Accumulation Control Engine's (ACE) settings as a file (.EZL) when connected to Dual Zone Controllers.
 - c. **Refresh:** This feature refreshes all the values displayed on EZLogic® OS with the currently connected controller.
 - d. **Clone Up:** This feature helps copying the settings to all the controllers in upstream direction from the currently-connected controller, except for controllers that have clone protection enabled.
 - e. **Clone Down:** This feature helps copying the settings to all the controllers in downstream direction from the currently-connected controller, except for controllers that have clone protection enabled.
 - f. **Clone Both:** This feature helps copying the settings to all the controllers in both directions from the currently-connected controller, except for controllers that have clone protection enabled.
 - g. **Load From Defaults:** This feature takes the user to a screen with the list of all available defaults for the controller connected/chosen.
 - h. **Zone Status Monitor:** This feature brings up the Zone Status Monitor screen for the connected controller.
5. **Zone Picker:** This feature is available only when connected to a **Dual Zone Controller**. This feature helps user to remote into any available zone within the network. Please see "DUAL ZONE CONTROLLER (EZLogic® 4.0) - ZONE SELECTOR" page for more information.

FIGURE 12



1. **Connection Bar:** This shows if EZLogic® OS is connected to a Gateway or not. The text shows “CONNECTED” in green when successfully connected to a Gateway. The text shows “NOT CONNECTED” in red when the OS is not connected to a Gateway. EZLogic® OS can be disconnected from the Gateway by clicking in the area of the green “CONNECTED” text.
2. **Navigation Bar:** This shows all the available tabs for the connected Gateway and Zone(s). The Configuration tab is for modifying zone configurations while the Gateway Configuration tab is for modifying that of the Gateway that EZLogic® OS is connected to.
3. **Zone Selector:** This feature allows the user to select the zone they wish to configure. The current selected zone appears in the zone selector pane in a larger font. At the bottom of the zone selector pane, is the zone cloning editor. If the user wants to clone the configurations amongst many sequential zones, they can enter the zones for cloning into the editor. For example, if the user wants zones 5, 6, 7, and 8 to have the same configuration they should select zone 5, edit the configurations as needed, change the zone cloning editor to be 5 to 8, and then select “Clone Range” in the Shortcuts Bar.
4. **Parameter Selection Pane:** In this pane, all features that can be edited are listed. The user should click on the parameter that they would like to edit for the selected zone. Once the parameter is selected, the user can then edit the parameter in the Configuration Editor.

5. **Configuration Editor:** In this pane, the selected parameter can be edited. Saving a modified parameter is done so by clicking the “SAVE” button in the bottom right area of the Configuration Editor. If the save button is not clicked, and a green success message is not received, the modified parameter will not be saved.
6. **Shortcuts Bar:** The following are the available shortcuts:
 - a. **Open File:** This feature allows the user to open an existing/saved configuration file (.eznet) which can be loaded into the Gateway for the selected zone.
 - b. **Save To File:** This feature allows the user to save the selected zone’s configuration settings as a file (.eznet).
 - c. **Refresh:** This feature refreshes all the values displayed on EZLogic® OS with the currently connected Gateway.
 - d. **Clone Range:** This feature will clone the configurations for the selected range denoted in the zone cloning editor located at the bottom of the zone selection pane.
 - e. **Gateway Defaults:** This feature will reset the Gateway Configurations to their default settings.
 - f. **Zone Defaults:** This feature will reset the Zone Configurations of the selected zone to their default settings.
 - g. **Zone Status Monitor:** This feature brings up the Zone Status Monitor screen for the connected zones.

2 USING EZLOGIC® OS

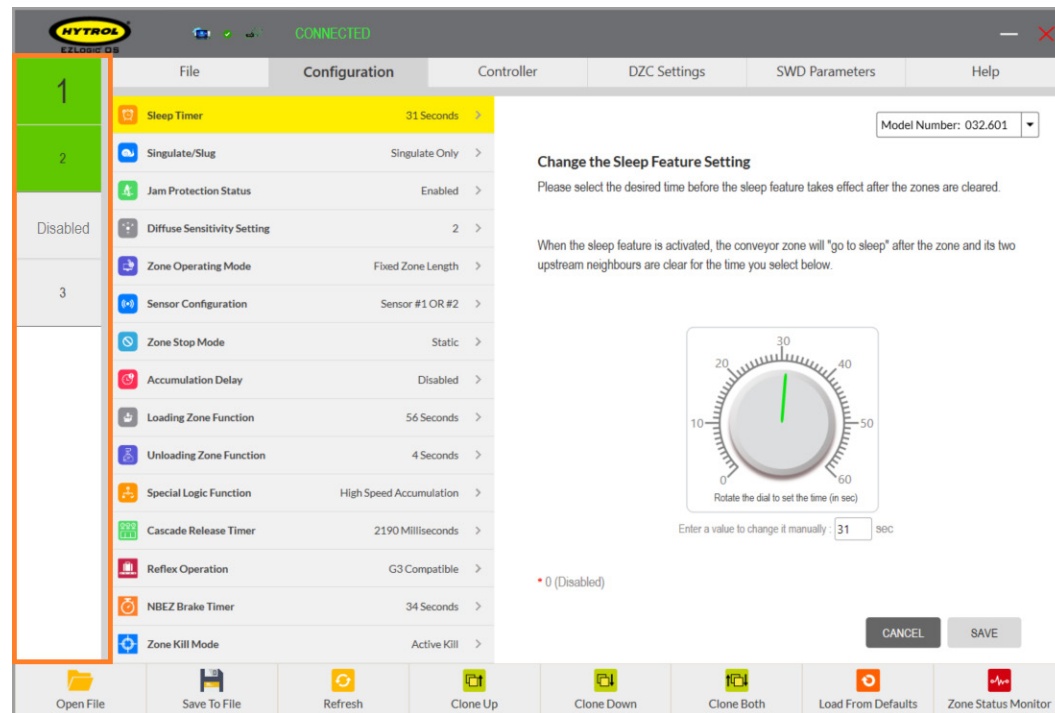
2.1 GEN 3 AND 4.0

2.1.1 Controls

*Common User Interface
Dual Zone Controller
Zone Selector*

This page shows how to use the zone selector when connected to Dual Zone Controller using EZLogic® OS 4.x.x version of the installer. If the zone controller connected is in a valid SmartWire® network (in FULL COMS), then the following is shown (Figure 13).

FIGURE 13



The highlighted area in Figure 13 (in orange) in the image shown is the **Zone Selector**. This is seen only when connected to a Dual Zone Controller using EZLogic® OS 4.x.x version.

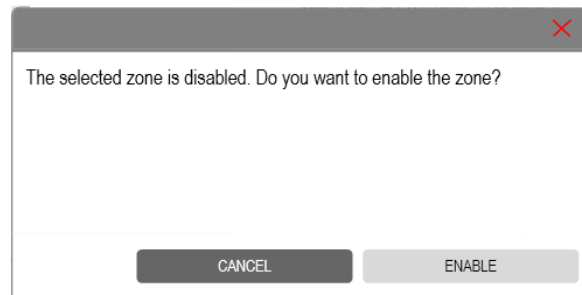
Each number represents a Zone ID in the connected SmartWire® network. The Dual Zone Controller (DZC) you are physically connected using the USB cable is represented with a Green background (#1 and #2 in Figure 13).

The selected/connected zone is represented with the larger font when compared to other numbers (#1 in Figure 13).

If there is a disabled zone in the connected network, then that zone is represented with a "Disabled" instead of number (highlighted in yellow in the image).

The disabled zone can be enabled by clicking on "Disabled" which shows the below confirmation dialog box (Figure 14).

FIGURE 14

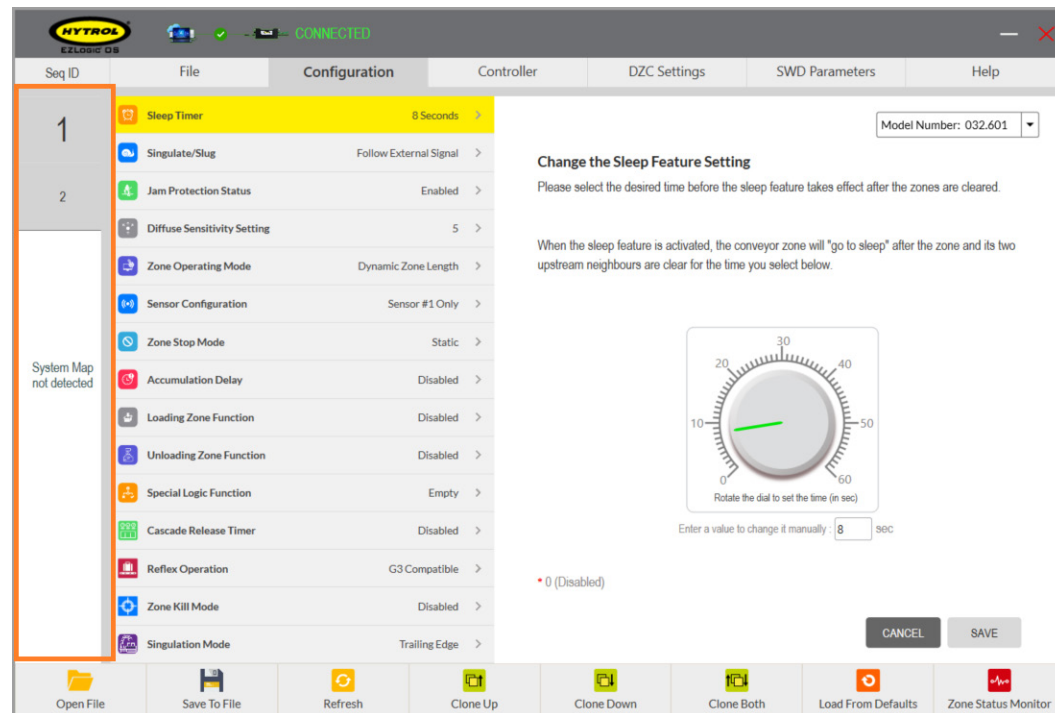


Click on "ENABLE" to Enable the selected disabled zone.

NOTE: Enabling the zone impacts the system map. A power cycle is required before the update will be reflected in the operational behavior of the system.

If the zone controller connected is not in a valid SmartWire® network, then the following is shown (Figure 15).

FIGURE 15



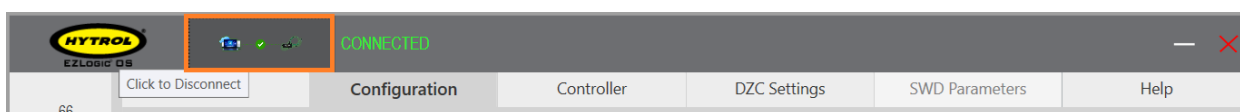
The highlighted area in Figure 15 (in orange) represents the Zone Picker with the **TWO** zones of the connected controller and a text saying, "System Map not detected".

Manual Disconnect/Connect

Manual Disconnect/Connect feature is available only in EZLogic® OS 4.x.x version of the installer.

- A. If EZLogic® OS 4.x.x version is used to connect to any controller (Gen3 Standard/Enhanced or DZC), then the following is seen when you hover your mouse on to the connection icon (Figure 16).

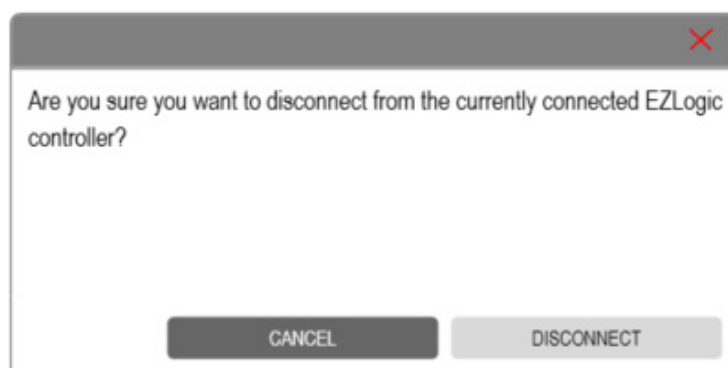
FIGURE 16



In Figure 16, the highlighted area is the "Manual Disconnect/Connect" button. If EZLogic® OS is currently connected to a controller, then a tool tip saying "Click to Disconnect" is shown when hovered the mouse pointer on to the connection icon shown in the image.

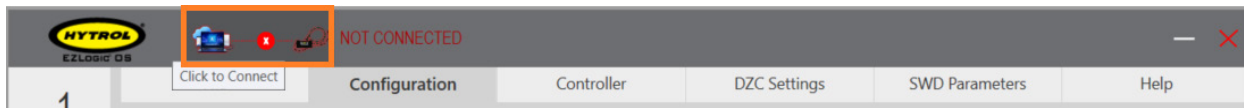
When Clicked, a confirmation pop-up is seen asking for the user confirmation to disconnect EZLogic® OS from the connected controller (see Figure 17).

FIGURE 17



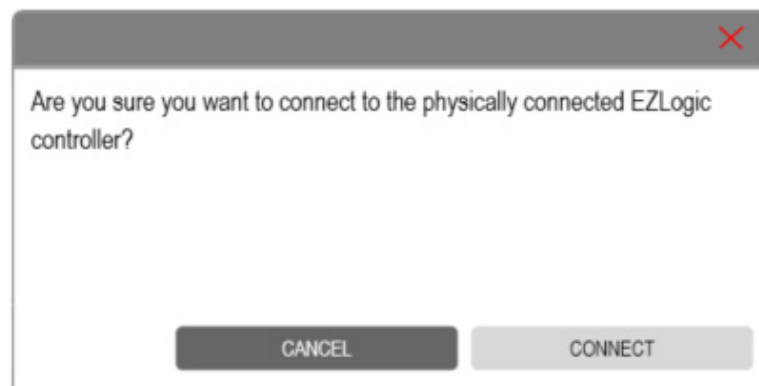
- B. If EZLogic® OS 4.x.x version is used to launch the application offline, then the following is seen when you hover your mouse on to the connection icon (Figure 18).

FIGURE 18



In Figure 18, the highlighted area is the "Manual Disconnect/Connect" button. If EZLogic® OS is offline (not connected to any controller), then a tool tip saying "Click to Connect" is shown when hovered the mouse pointer on to the connection icon shown in the image. When clicked, a confirmation pop-up is seen asking for the user confirmation to connect EZLogic® OS to the controller the OS is physically connected (Figure 19).

FIGURE 19



2.1.2 Menu Bar

File Menu

Load From Defaults

These options allow you to select from a list of Hytrol conveyor models equipped with EZLogic®. The following are the defaults for different controllers.

FIGURE 20: GEN3 STANDARD/ENHANCED CONTROLLER

	Controller Values		Preview Values
ABEZ	Sleep Timer	Disabled	5 Seconds
CCEZ	Singulate/Slug	Follow External Signal	Follow External Signal
CREZD	Zone Output Mode	Off To Stop	On To Stop
DCEZ	Jam Protection Status	Disabled	Enabled
E24EZ	Diffuse Sensitivity Setting	1	5
LREZ	Zone Operating Mode	Fixed Zone Length	Dynamic Zone Length
NBEZ	Sensor Configuration	Sensor #1 Only	Sensor #1 Only
NSPEZ	Zone Stop Mode	Static	Static
PLEZD	Accumulation Delay	Disabled	Disabled
	Loading Zone Function	Disabled	Disabled
	Unloading Zone Function	Disabled	Disabled
	Special Logic Function	Empty	Empty
	Auxiliary Input Mode	Zone Stop (Active to Stop)	Zone Stop (Active to Stop)
	Auxiliary Output Mode	Photo-eye Beam Status (NO)	Photo-eye Beam Status (NO)

FIGURE 21: DUAL ZONE CONTROLLER (DZC)

	Parameter Object(Cloneable Values)	
	Controller Values	Selected Default Values
ABEZ	Sleep Timer	5 Seconds
E24EZ	Singulate/Slug	Singulate Only
CREZD	Jam Protection Status	Disabled
NBEZ	Diffuse Sensitivity Setting	5
	Zone Operating Mode	Dynamic Zone Length
	Sensor Configuration	Sensor #1 Only
	Zone Stop Mode	Static
	Accumulation Delay	Disabled
	Loading Zone Function	Disabled
	Unloading Zone Function	Disabled
	Special Logic Function	Empty

The defaults are based on the controller connected. When clicked on any of the available defaults, a comparison list is shown with the controller values and the chosen default values. The value is highlighted in **Green** if the default value is different from the value saved in the controller for that specific setting.

Open

Open/Load configuration allows you to open up a saved configuration file. Configuration files have a ".ezl" extension. Configuration files are shown in preview screen, similar to model defaults. This allows you to quickly see what changes will be made if the configuration file is loaded. On click of "Open", a default Windows Open file dialog will open asking to choose the ".ezl" file to load the configurations in to the controller. On choosing the ".ezl" file, a preview of the configurations are shown on a page (similar to Figure 22) asking you to save it to the controller.

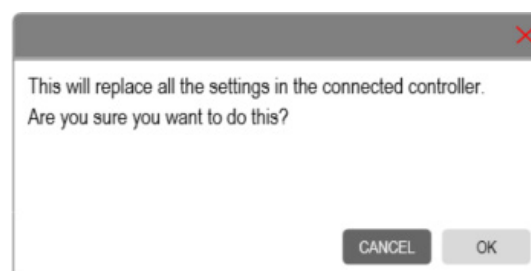
FIGURE 22

Saving the configuration below

	Controller Values	Preview Values
Sleep Timer	Disabled	5 Seconds
Singulate/Slug	Follow External Signal	Follow External Signal
Zone Output Mode	Off To Stop	On To Stop
Jam Protection Status	Disabled	Enabled
Diffuse Sensitivity Setting	1	5
Zone Operating Mode	Fixed Zone Length	Dynamic Zone Length
Sensor Configuration	Sensor #1 Only	Sensor #1 Only
Zone Stop Mode	Static	Static
Accumulation Delay	Disabled	Disabled
Loading Zone Function	Disabled	Disabled
Unloading Zone Function	Disabled	Disabled
Special Logic Function	Empty	Zone Kill Active To Run
Auxiliary Input Mode	Zone Stop (Active to Stop)	Wake-Up Input
Auxiliary Output Mode	Photo-eye Beam Status (NO)	Direction of Flow

Figure 22 shows the comparison of the saved values in the controller and the values in the selected .ezl file. The value is highlighted in green if there is any mismatch with the saved value in the controller. On click of "SAVE", a confirmation pop-up is shown similar to Figure 23.

FIGURE 23



Please click OK if you choose to replace the configurations in the controller with the selected .ezl file configurations.

Save Configuration

Save configuration allows you to save the configurations displayed on the screen to a configuration file (.ezl). It brings up a default windows save file dialog box. You may save the file to the location of your choice on your computer.

All settings of the current configuration, including any IOP channel selections, are saved in the configuration file. This is true even if you are not connected to a zone controller. This allows you to create custom configurations when you are offline (or not connected to any controller) that you can later open and write to a connected zone controller.

Exit

This closes the currently running EZLogic® OS application.

Configuration Menu

The settings under configuration menu depend on the type of controller connected.

- **NOTE:** All the settings except Auxiliary Input Mode and Auxiliary Output Mode under Configuration Menu are **CLONEABLE** along with Reverse Operation and System Signaling Channels (SSC) from "DZC Settings" tab. Auxiliary Input Mode and Auxiliary Output Mode settings are not available if connected to a Dual Zone Controller.

Sleep Timer

When the sleep feature is activated, the conveyor zone will "go to sleep" after the zone and its two upstream neighbors are clear for the time you selected.

Singulate/Slug

The EZLogic® controller may be set to operate in Singulation Mode only, Slug Mode only, or to follow a Slug/Singulate signal provided by outside controllers.

- **NOTE:** If Follow External Signal is selected, it defaults to Singulate Mode when no signal is present. If Singulate/Slug is set to Follow External Signal or Slug Only signal, then Jam Protection Status will be enabled, and Jam Timer is set to 6 sec automatically.

Zone Output Mode

The EZLogic® controller may be configured to provide an "active" output signal to a zone actuating device (solenoid air valve, motor starter, etc) in order to stop the zone from driving ("On to Stop"), or to provide an active signal to make the zone drive ("Off to Stop").

- **NOTE:** This setting is available **ONLY** when connected to a Gen3 Standard or Enhanced Controller.

Jam Protection Mode

The Jam Protection feature helps prevent product pile-ups should a carton become jammed while operating in Slug Mode. This feature should only be disabled if cartons are so closely packed that an EZLogic® sensor can remain "blocked" for more than six seconds at a time. The Jam Protection feature has no effect on operation when operating in Singulate Mode.

Diffuse Sensitivity Setting

The sensitivity of an EZLogic® controller with a diffuse sensor can be adjusted to avoid detecting objects beyond the product area of the conveyor. The actual sensing range will vary based on the reflectivity (color, shininess) of the object it is detecting. This setting has no effect on reflex-type sensors.

Zone Operating Mode

The EZLogic® controller may be set to operate in "Fixed Zone Length" or "Dynamic Zone Length" modes. Fixed zone length will allocate a single "physical" zone to each carton when operating in singulation mode. Dynamic zone length will allocate one or more "physical" zones to a carton based on its length, while still providing singulated transport and release of the cartons.

Sensor Configuration

When the dual-sensor option is being used with EZLogic® controllers, the controllers must be configured to operate as required by the application.

- NOTE: "Sensor #1" must be selected for all controllers using a single sensor.

Zone Stop Mode

The EZLogic® controller may be configured to accept a zone stop input as a normal, or "static" zone stop, or it may be configured to release a pre-determined number of cartons after a momentary zone stop signal is given. Select the mode desired. If a count-type zone stop is selected, enter the number of cartons to be released after zone stop input is received.

Accumulation Delay

The accumulation delay can be set to operate in two ways. "Delay zone accumulation" will cause a zone to drive 1.8 seconds after normal accumulation would have occurred. It may be used to "crowd" cartons on the conveyor. "Delay during transport only" inhibits normal singulation of cartons during transport but does not inhibit normal product accumulation. Both provide a singulated release of cartons.

Loading Zone Function

When the Loading Zone function is activated, the controller will detect when a load is placed in the loading zone and delay the restart of the zone. The zone upstream from the loading zone will also hold back any upstream loads (if present) until the timer has expired. This allows time for a fork truck to clear the conveyor before the loads advance.

Unloading Zone Function

When the Unloading Zone function is activated, the controller will detect when a load is removed from the unloading zone and delay the restart of the zone. The zone upstream from the unloading zone will also hold back any upstream loads (if present) until the timer has expired. This allows time for a fork truck to clear the conveyor before another package advances into the unloading zone.

Special Logic Function

Special logic functions will modify the behavior of your EZLogic® Zone Controller.

- **NOTE:** The following are the available logic blocks based on the controller connected:
 - A. Standard Controller : This displays a list of the special logic functions available to EZLogic® OS to load into a standard zone controller. Only **ONE** special logic function can be added to the controller.
 - B. Enhanced Controller : This displays a list of the special logic functions available to EZLogic® OS to load into a enhanced zone controller. At most **FOUR** special logic functions can be added to the controller.
 - C. Dual Zone Controller : This displays a list of the special logic functions available to EZLogic® OS to load into a dual zone controller. At most **NINE** special logic functions can be added to a dual zone controller. The Nine special logic functions are divided into standard special logic functions which are in-built and custom special logic functions which are created by Hytrol based on user requirement. A Dual Zone Controller can have at most **FOUR** standard special logic functions and **FIVE** custom special logic functions.

Auxiliary Input Mode

The Auxiliary Input port on EZLogic® controller may be assigned to perform various functions when an input signal is given. By default, an input signal is interpreted as an active zone stop signal. Other possible assignments are listed below.

- **NOTE:** This setting is available **ONLY** when connected to a Gen3 Standard or Enhanced Controller.

Auxiliary Output Mode

The Auxiliary Output port on EZLogic® controller may be assigned to provide an output signal when various controller events occur. By default, an output signal is given when the controller's sensor detects a carton (photo-eye beam status). An optional "Auxiliary Output Adapter" is required to use this feature.

- **NOTE:** This setting is available **ONLY** when connected to a Gen3 Standard or Enhanced Controller.

Cascade Release Timer

Sets the duration of delay between the state change (stop to run) in the downstream zone until product in the current zone is released.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

Reflex Operation

Sets the operating mode of the Polarized Reflex transducer. G4 Signaling places the excess gain level from the sensor in the cyclic data space. G4 Alignment enables the LED of the sensor to display the excess gain level.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

Zone Kill Menu

Enables the Zone Kill control signal independently override and shut down the zone.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

Singulation Mode

Selects the type of singulation algorithm active in accumulation module.

Controller Menu

The controller menu contains items related directly to the zone controller. The following choices are included in this menu:

- **Clone:** This menu choice brings up various clone command options. A "clone" command causes many of the parameters in the connected zone controller to be copied, or "cloned," to all other zone controllers in the direction indicated by the chosen command. The following are the different choices:
 - A. Clone Upstream:** This will replace the settings in all controllers upstream from the controller physically connected with the settings in the currently-connected controller, except for controllers that have clone protection enabled.
 - B. Clone Downstream:** This will replace the settings in all controllers downstream from the controller physically connected with the settings in the currently-connected controller, except for controllers that have clone protection enabled.

C. Clone Both Directions: This will replace the settings in all controllers upstream and downstream from the controller physically connected with the settings in the currently-connected controller, except for controllers that have clone protection enabled.

- **NOTE:** Below are the exceptions:

1. In Gen3 Enhanced Controllers:

- a. If you are remotely connected to a downstream controller, then **Clone Upstream** and **Clone Both Directions** features are disabled(not available) for the controller to which you are remotely connected.
- b. If you are remotely connected to a upstream controller, then **Clone Downstream** and **Clone Both Directions** features are disabled(not available) for the controller to which you are remotely connected.

2. In Dual Zone Controllers (DZCs): All the clone features are available only if you are connected to a local controller(physically connected to a controller using the USB cable). If you are remotely connected to any other zone in the network, then all the clone features are disabled (not available).

Enable/Disable Clone Protection

This menu option toggles between enabling and disabling the clone protection feature of the zone controller. When clone protection is enabled on a zone controller, configurations cannot be changed by a clone command sent by another zone controller. This prevents critical settings in a zone controller from being accidentally changed. The zone controller will pass the clone command on to the other controllers in the chain. The zone controller may still be configured directly.

Auto Configure

Auto Configure is a very useful function when there is a need to replace an EZLogic® zone controller. When this function is selected the zone controller retrieves the configuration of one of the two adjacent zone controllers. This configuration is then applied to the zone controller. This provides an easy way to configure a replacement zone controller for your particular application.

- **NOTE:** This feature is available **ONLY** for Gen3 Standard and Enhanced controllers.

Diagnostic Information

The content on the Diagnostic Information screen depends on the type of controller you are connected to. If you are connected to a Gen3 Standard/Enhanced controller (Figure 24) then the screen shows information about the zone controller, such as the number of zone actuations, time since the last communications error, etc. This information may be used to help troubleshoot problems with a zone controller. If you are connected to a Dual Zone Controller (Figure 25) then the screen shows the information about the zone controller of any faults.

FIGURE 24: GEN3 STANDARD/ENHANCED CONTROLLER

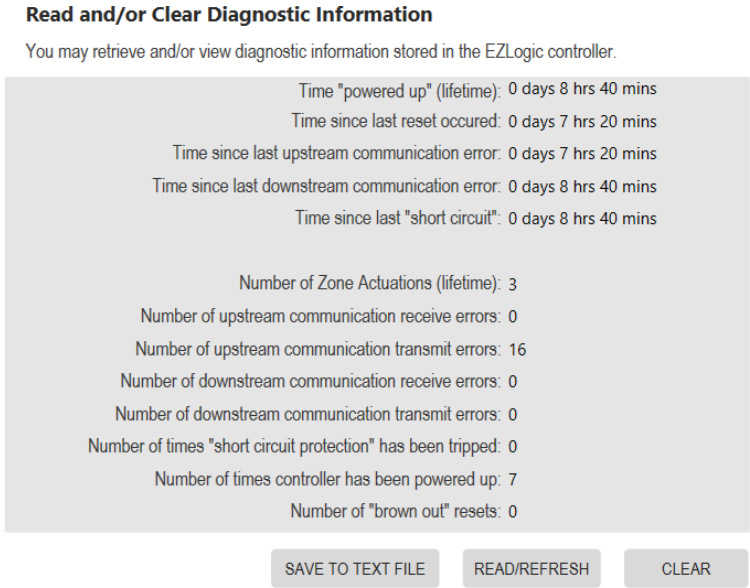
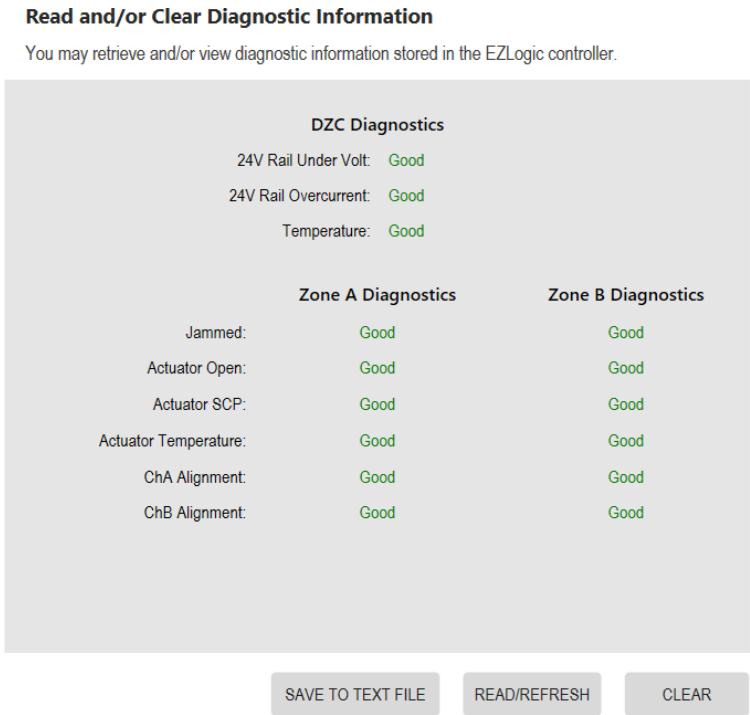


FIGURE 25: DUAL ZONE CONTROLLER(DZC)



- The **Save To Text File** button brings up a save dialog that allows you to save a text file to your computer. This file includes the zone controller description, the configuration of the zone controller, and the diagnostic information on the screen.
- The **Read/Refresh** button refreshes the diagnostic screen with data from the zone controller.
- The **Clear** button will reset all of the diagnostic information in the zone controller except the "Time 'powered up' (lifetime)" and "Number of zone actuations" in Gen3 Standard/Enhanced controllers and clear the "faults" if any in Dual Zone Controllers (DZC).

Performance Data

This screen (Figure 26) shows the performance data of the currently connected dual zone controller and also gives the ability to save it to a text file.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

FIGURE 26

Read and/or Clear Performance Data

You may retrieve and/or view performance data stored in the EZLogic® controller.



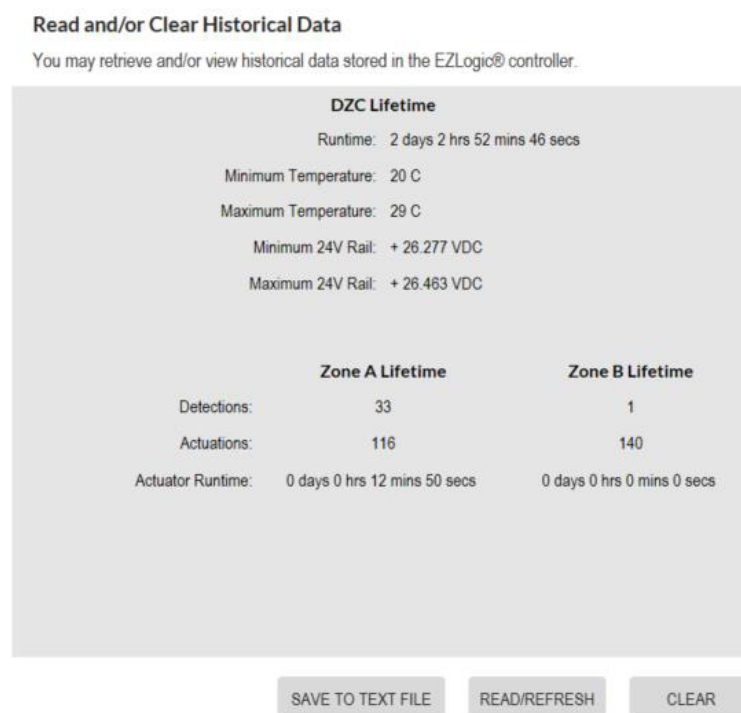
- The **Save To Text File** button brings up a save dialog that allows you to save a text file to your computer.
- The **Read/Refresh** button refreshes the performance data screen with latest data from the currently connected dual zone controller.
- The **Clear** button will reset all of the performance data in the zone controller.

Historical Data

This screen shows the historical data of the currently connected dual zone controller and also gives the ability to save it to a text file.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

FIGURE 27



- The **Save To Text File** button brings up a save dialog that allows you to save a text file to your computer.
- The **Read/Refresh** button refreshes the historical data screen with latest data from the currently connected dual zone controller.
- The **Clear** button will reset all of the historical data in the currently connected dual zone controller.

Reset Data

This screen shows the reset data of the currently connected dual zone controller and also gives the ability to save it to a text file.

- **NOTE:** This setting is available **ONLY** when connected to a Dual Zone Controller.

FIGURE 28

Read and/or Clear Diagnostic Information

You may retrieve and/or view diagnostic information stored in the EZLogic® controller.

Low Power Reset Count: 0
Seconds Since Last LPR: 2 days 12 hrs 59 mins 4 secs
WWatchdog Reset Count: 0
Seconds Since Last WWDR: 2 days 12 hrs 59 mins 4 secs
IWatchdog Reset Count: 0
Seconds Since Last IWDR: 2 days 12 hrs 59 mins 4 secs
SWR Reset Count: 0
Seconds Since Last SWR: 2 days 12 hrs 59 mins 4 secs
Power On Reset Count: 6
Seconds Since Last POR: 0 days 2 hrs 30 mins 51 secs
NRST Pin Reset Count: 0
Seconds Since Last NRST: 2 days 12 hrs 59 mins 4 secs
Unknown Count: 0
Last Reset Event: Power-On Reset
CSR Register: 0x c000000
Seconds Since Last Restore: 2 days 12 hrs 59 mins 4 secs
Seconds Since Last Rst Error: 2 days 12 hrs 59 mins 4 secs
Restore Count: 0
Restore Exit Code: 0
Reset Error Count: 0
Device ID Exit Code: 0

SAVE TO TEXT FILE READ/REFRESH CLEAR

- The **Save To Text File** button brings up a save dialog that allows you to save a text file to your computer.
- The **Read/Refresh** button refreshes the reset data screen with latest data from the currently connected dual zone controller.
- The **Clear button** will reset all of the reset data in the currently connected dual zone controller.

Reset to Factory Defaults

Resets all internal memory objects to factory defaults (as shipped from JRZ). This includes Reset, History, and Auto backup IDs.

Reset Diagnostic Information

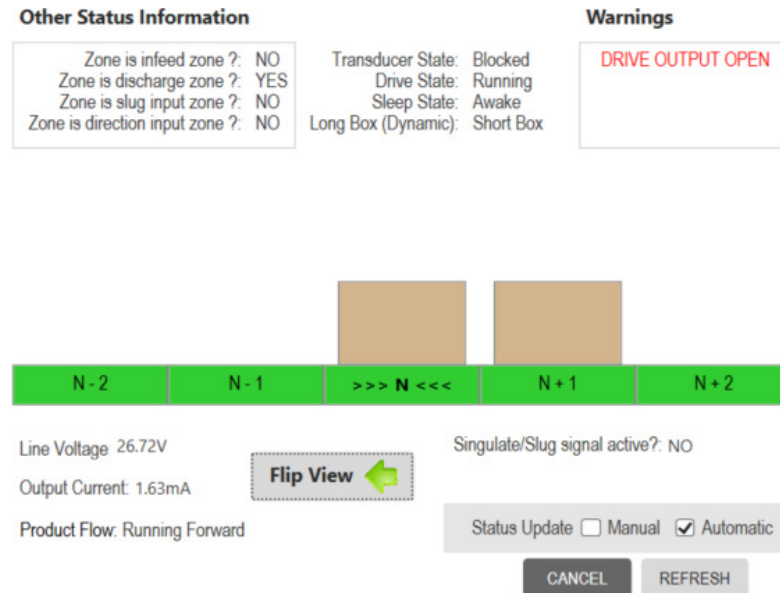
This menu choice brings up various reset command options. These commands reset the diagnostics information of the zone controller and all the zone controllers in the direction chosen. The exceptions are the "Time 'powered up' (lifetime)" and "Number of zone actuations" values.

- A. Reset Upstream:** This will reset the diagnostic information of the zone controller that you are connected to and all the zone controllers in the upstream direction except for "Time 'powered up' (lifetime)" and "Number of Zone Actuations" values.
- B. Reset Downstream:** This will reset the diagnostic information of the zone controller that you are connected to and all the zone controllers in the downstream direction except for "Time 'powered up' (lifetime)" and "Number of Zone Actuations" values.
- C. Reset Both Directions:** This will reset the diagnostic information of the zone controller that you are connected to and all the zone controllers in both the directions (upstream and downstream) except for "Time 'powered up' (lifetime)" and "Number of Zone Actuations" values.
- **NOTE:** This feature is available ONLY for Gen3 Standard and Enhanced controllers.

Zone Status Monitor

This feature brings up the zone status monitor screen depending on the type of controller connected. The following are the different zone status monitor screens.

FIGURE 28: GEN3 STANDARD/ENHANCED CONTROLLER



The status monitor screen (Figure 28) shows a snapshot of the zone controller's status. The green and/or red areas represent conveyor zones. In Standard/Enhanced controller the center zone represents the zone that is currently connected, and the other zones represent the two zones on each side of the connected zone controller.

A zone that is red represents a zone that is stopped and the zone that is green represents a zone that is driving. The direction of conveyor flow on the view is "left-to-right" by default which can be changed on click of "Flip View" button. The brown rectangles represent cartons occupying the zone in that location.

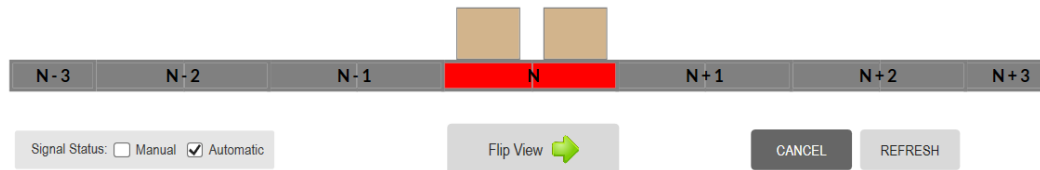
When connected locally, the "Automatic" option is selected by default. This causes the status monitor to be updated at regular intervals. A "near real-time" view of carton movement in the five-zone "window" in Standard/Enhanced controller can be achieved in this manner.

Important status information is displayed when needed. This information includes:

- Drive output shorted/open
- Jam detected
- Low voltage detected
- Zone is infeed, discharge, a slug input point, or a direction input point
- Current direction of flow, singulate/slug status
- The line voltage the zone controller is receiving and the amount of current it is outputting to operate the conveyor zone.

FIGURE 29: DUAL ZONE CONTROLLER(DZC)

Zone A						Zone B					
Zone Control Signals		ZPA Algorithm		Zone Fault Status		Zone Control Signals		ZPA Algorithm		Zone Fault Status	
Zone Enabled	DISABLED	Zone Full	BLOCKED	Zone Jammed	GOOD	Zone Enabled	DISABLED	Zone Full	BLOCKED	Zone Jammed	GOOD
Slug Mode	SINGULATE	Zone Run	STOPPED	Actuator Open	GOOD	Slug Mode	SINGULATE	Zone Run	STOPPED	Actuator Open	GOOD
Zone Stop	OFF	Zone Dynamic	SHORT	Actuator SCP	GOOD	Zone Stop	OFF	Zone Dynamic	SHORT	Actuator SCP	GOOD
Zone Kill	OFF	Zone Sleep	WAKE	Brake Open	GOOD	Zone Kill	OFF	Zone Sleep	WAKE	Brake Open	GOOD
Fwd / Rev	FORWARD	Infeed Zone	FALSE	Brake SCP	GOOD	Fwd / Rev	FORWARD	Infeed Zone	FALSE	Brake SCP	GOOD
Transducer ChB	OFF	Discharge Zone	FALSE	Internal Act Fault	GOOD	Transducer ChB	OFF	Discharge Zone	FALSE	Internal Act Fault	GOOD
Logic Block	OFF	Product Flow	NORMAL	Excess Gain ChA	GOOD	Logic Block	OFF	Product Flow	NORMAL	Excess Gain ChA	GOOD
Wake Up	OFF			Excess Gain ChB	GOOD	Wake Up	OFF			Excess Gain ChB	GOOD



Important status information of both the zones (A and B) for the connected Dual Zone Controller are displayed in the table.

The status monitor screen shows a snapshot of the zone controller's status. The red and/or gray areas represent conveyor zones. In the Dual Zone Controller (DZC) the center two zones (marked as N) represent the A and B zones of the currently connected Dual Zone Controller and the other zones represent the five zones on each side of the connected Dual Zone Controller.

A zone that is gray represents a zone that is stopped and the zone that is red represents a zone that is driving. The direction of conveyor flow on the view is "left-to-right" by default which can be changed on click of "Flip View" button. The brown rectangles represent cartons occupying the zone in that location.

When connected to the controller, the "Automatic" option is selected by default. This causes the status monitor to be updated at regular intervals. A "near real-time" view of carton movement in the twelve-zone "window" in Dual Zone Controller can be achieved in this manner.

NOTE: The "Automatic" option is not available when connected to a remote zone controller.

Timers

This feature brings up the timer values for all the special logic functions that are loaded into the connected controller. The Timer screen is based on the type of controller connected. The following are the different timer screens based on the controller connected.

FIGURE 30: GEN3 STANDARD CONTROLLER

Special Logic Timers

This screen allows you to modify the timer values of the loaded special logic functions.

Block #	Installed Special Logic Function	Timer Value (in Milliseconds)
0	Accumulation Delay	- 1000 +

EXPORT

CANCEL

SAVE

If connected to standard controller, only one special logic function can be loaded to the connected zone controller.

FIGURE 31: GEN3 STANDARD CONTROLLER

Special Logic Timers

This screen allows you to modify the timer values of the loaded special logic functions.

Block #	Installed Special Logic Function	Timer Value (in Milliseconds)
0	Accumulation Delay	- 1000 +
1	Delay Upstream Zone Release	- 720 +
2	Smart Singulate	- 1200 +
3	Empty	- 0 +

EXPORT CANCEL SAVE

If connected to enhanced controller, a maximum of four special logic functions can be loaded to the connected zone controller.

FIGURE 32: DUAL ZONE CONTROLLER

Special Logic Timers

This screen allows you to modify the timer values of the loaded special logic functions.

Standard Special Logic Functions		
Block #	Loaded Functions	Timer Value (in Milliseconds)
0	Delay Upstream Zone Release	- 1250 +
1	High Performance Brake Pulse	- 2500 +
2	High Speed Accumulation	- 1000 +
3	Empty	- 0 +
Custom Special Logic Functions		
Block #	Loaded Functions	Timer Value (in Milliseconds)
0	Empty	- 0 +
1	Empty	- 0 +
2	Empty	- 0 +
3	Empty	- 0 +
4	Empty	- 0 +

EXPORT CANCEL SAVE

If connected to dual zone controller, a maximum of nine(four standard and five custom) special logic functions can be loaded to the connected dual zone controller.

ENHANCED MENU

The enhanced menu is only available when connected to a Gen3 enhanced zone controller. It contains the following features:

IOP Configuration

This feature (Figure 33) is available only when connected to an enhanced zone controller.

FIGURE 33

The screenshot shows the IOP Configuration screen. On the left, there are eight dropdown menus for IOP Channels 1 through 8, all currently set to "Disabled". To the right of these is a section titled "Output State Settings" with a descriptive text: "Use these buttons to set output behavior of the listed functions ('normally open/closed'). The 'Aux Out State' button may be used to invert output of the auxiliary port." Below this text are four buttons: "Logic Out OFF when idle", "PE output Active when FULL", "Blocked/Stopped Active when FALSE", and "Aux Out State INVERTED". Below the "Output State Settings" section is a "Zone Stop Default State Setting" section with descriptive text: "Use this button to set the behavior of a ZoneStop input signal. 'Active to Stop' (default) means the signal must be active before a carton will be stopped. 'Active to Run' means that a carton will stop in the zone and will be held until an active signal is given." To the right of this text is a button labeled "Zone Stop Active to STOP". At the bottom of the screen are two buttons: "CANCEL" and "SAVE".

NOTE: This affects the behavior of IOP AND the Auxiliary port.

The IOP configuration screen (Figure 34) is used to set up a zone controller to use the IOP system for control wiring. Clicking on any of the IOP channel dropdowns exposes a list of choices for inputs and outputs to assign to the channel. This screen is described in more detail in the "EZLogic® IOP Solutions" manual.

FIGURE 34

This screenshot is similar to Figure 33, but the dropdown menu for IOP Channel 1 is open, displaying a list of available functions. The list includes: "Disabled", "Zone Stop Input", "Slug Control Input", "Zone Wake-Up Input", "Logic Input", "Directional Control Input", "Transducer Output", "Blocked/Stopped Output", "Directional Output", "Logic Output", "Jam Detected Output", "Short Circuit Output", "Low Voltage Output", and "Over-Current Output". The "Disabled" option is currently selected. The rest of the screen, including the other channel dropdowns, the "Output State Settings" buttons, the "Zone Stop Default State Setting" text and button, and the "CANCEL" and "SAVE" buttons at the bottom, remain the same as in Figure 33.

NOTE: This affects the behavior of IOP AND the Auxiliary port.

Connect To

This feature shows a dropdown menu (Figure 35). If the zone controller chain has been addressed and mapped, then the dropdown will be "populated" with a list of all the zone controllers in the chain.

FIGURE 35

Connect To...

This option brings up a dropdown menu. If the zone controller chain has been addressed and mapped, the dropdown menu will be "populated" with a list of all zone controllers in the chain.

Enhanced controllers may be connected remotely by clicking the address of the controller on the list.

The currently "active" zone controller will have a checkmark displayed to the left of its address in the menu.

The zone controller that is directly connected to the computer is labeled "local" in the list. Other zone controllers will be labeled if they are a "Slug Input" point, a "Directional Input" point, or if they are a "Tracking" type controller. Standard controllers may not be configured remotely. However, a snapshot of the status of a standard controller may be retrieved by clicking "Other Address" at the top of the dropdown menu and manually entering the standard controller's address.

Connect To

☒ 500 (Local) ▼

☐ Other Address...

☐ 499

☒ 500 (Local)

CANCEL SAVE

Enhanced zone controllers are displayed in the list in normal type, while standard controllers are disabled. Enhanced controllers may be connected remotely by clicking the address of the controller on the list. The currently "active" zone controller will have a checkmark displayed to the left of its address in the dropdown items. The zone controller that is directly connected to the computer is labeled "local" in the list. Other zone controllers will be labeled if they are a "Slug Input" point, a "Directional Input" point, or if they are a "Tracking" type controller.

Standard controllers can not be configured remotely. However, a snapshot of the status of a standard controller may be retrieved by selecting "Other Address" from the dropdown list and manually entering the standard controller's address in the textbox provided.

Initialize Addressing and Map

This system-wide command assigns an address to every zone controller in the chain. It may be invoked from any enhanced controller in the chain. The zone controller at the discharge end of the chain is assigned address "1". All controllers in the upstream direction are given a number in sequence, with the last controller on the infeed end receiving the "largest" address.

- **NOTE:** Initializing addressing may take several minutes to complete!

Map Controller Chain

This command polls each zone controller and "populates" the "Connect to..." dropdown with a list of all controllers in the chain. This is done automatically when the "Initialize Addressing and Map" command is selected. The "Map Controller Chain" command is selected if the conveyor has previously been addressed and you wish to map the controller chain with re-addressing the controllers.

- **NOTE:** Mapping the device chain may take several minutes!

DZC SETTINGS MENU

The DZC Settings menu is only available when connected to a dual zone controller.

- **NOTE:** Reverse Operation, Jam Timer, NBEZ Brake Timer, Conveyor Speed, Zone Length, and System Signaling Channels (SSC) are **Cloneable** along with all the settings from "Configuration" Tab.

NBEZ Brake Zone

This setting is used to enable/disable NBEZ Brake signaling in actuator cable.

- **NOTE:** Requires Zone Actuation Type = NBEZ. When enabled, diagnostic codes associated with the Brake circuit are active.

Producing Signal Sources (PSS) Channels

Produced Signal Source (PSS) is a signal internal to an Accumulation Control Engine (ACE) which is output in the cyclic data of the producing ACE for consumption by other ACEs. An individual PSS can be 1 of 13 defined signals within the producing ACE. Each ACE can produce up to 4 individual signals in its cyclic data space. A typical application for a PSS is the source for a System Signaling Channel (SSC).

- **NOTE:** Only **TWO** PSS Channels (Channel 3 and Channel 4) can be configured from this screen. The remaining PSS Channels (Channel 1 and Channel 2) are available from "SWD Parameters" Tab.

Peer Consumed Signals (PCS) Channels

A Peer Consumed Signal Channel (PCS) is an explicitly defined signal in the cyclic data stream for consumption by an individual Accumulation Control Engine (ACE). Each ACE has 4 channels available for definition of an explicitly defined consumed signal. These are defined in the configuration memory space for each individual ACE and therefore can't be cloned. This property makes them Peer Consumed Signal Channels (PCSC).

Zone Control Signals

Zone Control Signals are auxiliary input signals to the ZPA control algorithm of an Accumulation Control Engine (ACE). The source of the signal and polarity for the active state is selectable.

- **NOTE:** Zone Stop Signal and its Polarity are not available from this screen. This can be changed from "SWD Parameters" Tab.

Reverse Operation

This setting is used to enable the Directional Zone Control signal to reverse the operation of the ZPA algorithm. Requires dual transducer for operation and overrides Sensor Operation setting. Forward operation uses Channel A and reverse operation uses Channel B. Directional operation is independent of Default Product Flow.

Jam Timer

A timer-based feature that forces the upstream zone to stop driving when material is jammed and not flowing through a zone. When set time is reached the stalled zone holds back product in the upstream zone while it continues to drive its zone. Once engaged, diagnostic code is generated as well as the LED fault indication.

NBEZ Brake Timer

This setting is used to set the amount of time in seconds the NBEZ brake signal will be generated.

NOTE: Requires Zone Actuation Type = NBEZ and NBEZ Brake Zone to be enabled.

Conveyor Speed

This setting is used to set the rate (in feet/minute) at which the conveyor transports product.

Default Value: 65 feet/minute

Range: 20 - 500 feet/minute

- **NOTE:** Zone Length + Conveyor Speed is used to calculate the travel timers thru zone.

Zone Length

This setting is used to set the length (in inches) of an individual zone.

Default Value: 30"

Range: 12" - 120"

- **NOTE:** Zone Length + Conveyor Speed is used to calculate the travel timers thru zone.

System Signaling Channels (SSC)

A **System Signaling Channel (SSC)** is an explicitly defined signal in the cyclic data stream for consumption by multiple Accumulation Control Engines (ACEs). Each ACE has 6 channels available for definition of an explicitly defined consumed signal. These are defined in the parameter memory space for each individual ACE and therefore can be **cloned**. This property makes them System Signaling Channels (SSC).

Complete System Map Info

Figure 36 shows the information of all the zones that are connected in the current network.

FIGURE 36: COMPLETE SYSTEM MAP INFORMATION

DZC	ACE	ADR	ENB	CTL	ACT	LOC	FLO	SWP	PS0	PS1	CFG	B1100
1	1	1	1	2	0	2	1	0	12	0	1	1
	2	129	1	2	0	0	1	0	12	0		
2	3	2	1	2	0	1	1	0	12	0	1	1
	255	130	0	2	0	1	1	0	12	0		

Figure 37 is the descriptions for all the acronyms:

FIGURE 37

Individual DZC Items	Description
DZC	DZC Sequential ID
ACE	ACE Sequential ID
ADR	ACE Address (derived from DZC Sequential ID)
ENB	ACE Enable / Disable
CTL	ACE Control Mode
ACT	ACE Actuator Type
LOC	ACE Location
FLO	ACE Flow
SWP	ACE Swap Logic
PS0	ACE PSS Channel 0
PS1	ACE PSS Channel 1
CFG	SWD Configuration Profile
B1100	DZC FW B1100 or later

Following are the values and their descriptions:

1. **DZC** - The number represents the number of the Dual Zone Controller (DZC) connected in the current network.
2. **ACE** - The number represents the number of the Zone/ACE connected in the current network.
3. **ADR** - The number represents the address of the corresponding Zone/ACE.
4. **ENB** - The number represents the following for the corresponding Zone/ACE.
 - 0 = Disabled
 - 1 = Enabled

5. **CTL** - The number represents the following for the corresponding Zone/
ACE.
 - 0 = ZPA Only
 - 1 = PLC Only
 - 2 = Override
6. **ACT** - The number represents the following for the corresponding
Zone/ACE.
 - 0 = ABEZ
 - 1 = E24EZ
 - 2 = CREZD
 - 3 = NBEZ
7. **LOC** - The number represents the following for the corresponding
Zone/ACE.
 - 0 = Standard
 - 1 = Infeed
 - 2 = Discharge
8. **FLO** - The number represents the following for the corresponding Zone/
ACE.
 - 0 = Normal
 - 1 = Inverted
9. **SWP** - The number represents the following for the corresponding
Zone/ACE.
 - 0 = Normal
 - 1 = Swapped
10. **PS0** - The number represents the number of the Zone/ACE if
configured, else it is zero.
11. **PS1** - The number represents the number of the Zone/ACE if
configured, else it is zero.
12. **CFG** - It is the currently active configuration profile that is active in the
corresponding DZC.
 - **NOTE:** For a Base system, all DZCs use config profile 1
 - The number represents the following for the corresponding DZC.
 - 0 = CFG_PROFILE_1_STD
 - 1 = CFG_PROFILE_2_STD
 - 2 = CFG_PROFILE_1_ALT
 - 3 = CFG_PROFILE_2_ALT
13. **B1100** - The number represents the following for the corresponding
DZC.
 - 0 = If Firmware version in the corresponding Zone/ACE is less
than B1100
 - 1 = If Firmware version in the corresponding Zone/ACE is greater
than B1100

SWD PARAMETERS MENU

The SWD Parameters menu is only available when connected to a dual zone controller.

- **NOTE:** This tab is enabled only when **SWD Parameter Protect** setting is disabled from the DZC Settings Menu.

SWD Parameter Protect

SWD Parameter Protection is used to control write access by EZLogic® OS to the parameters pushed via SWD-Assist.

When enabled, the parameters setup in the SWD-Assist project configuration and pushed from the coordinator are used. When EZLogic® OS reads the configuration object, the active parameters are returned. When EZLogic® OS writes the configuration object, the SWD-Assist parameters are protected with SWD Parameter Protection is Enabled. To unlock the parameters for writing, EZLogic® OS must first write the configuration Object with SWD Parameter Protection set to disabled. Subsequent writes will now accept the SWD Parameter values from EZLogic® OS. To restore the SWD Parameters, EZLogic® OS must write the configuration object with SWD Parameter Protection set to Enabled. This will cause the parameters pushed from the coordinator during system initialization to be restored into the saved configuration object.

- **NOTE:** When SWD Parameter Protection is enabled, "SWD Parameter" tab is disabled. To enable the "SWD Parameter" tab the SWD Parameter Protection should be disabled.

Accumulation Control Engine (ACE) Operation

This setting is used to set the mode of operation of an individual Accumulation Control Engine (ACE). Valid operational modes include Enabled / Disabled / Logic. Changes to this parameter impacts the system map. When set via EZLogic® OS, a power cycle is required before the update will be reflected in the operational behavior of the system.

- **NOTE:** A power cycle is required when set using EZLogic® OS.

Logical Placement/Orientation

This setting is used to internally swap the logical placement of the Accumulation Control Engine (ACE) with respect to product flow. Changes to this parameter impacts the system map. When set via EZLogic® OS, a power cycle is required before the update will be reflected in the operational behavior of the system.

- **Example:** Dual Zone Controller (DZC) is mounted on the inside of a curve section and DZCs are mounted on the outside of straight sections.
- **NOTE:** A power cycle is required when set using EZLogic® OS.

Default Product Flow

This setting is used to set the default direction of product flow for the ZPA algorithm and uses transducer Channel 1 signal. This setting is independent of reverse operation.

- **NOTE:** Standard direction (towards the gateway) of product flow follows increasing address numbering.

Inverted direction (away from the gateway) of product flow follows decreasing address numbering.

Zone Placement

This setting is used to define a zone as an infeed, discharge or standard zone. This enables the creation of separate functional sections of accumulation conveyor to operate from a single coordinator.

Zone Control Mode

This setting is used to set the control mode employed in this zone.

ZPA only - executes EZLogic® ZPA control algorithm.

PLC only - PLC only drives actuator run, auxiliary output and direction signals.

Override - PLC can override ZPA control algorithm.

- **NOTE:** When override signal (n_OVR_CMD) is active, ZPA control algorithm continues to run. Zone actuation, Auxiliary output and Direction signals are controlled (overridden) by PLC signal n_RUN_CMD, n_AUX_CMD and n_FWD_CMD. Releasing n_OVR_CMD, the ZPA control algorithm resumes the configured operations of overridden signals.

Zone Actuation Type

This setting is used to set the type of actuator signaling used, including short circuit and overload thresholds.

Producing Signal Sources (PSS) Channels

Produced Signal Source (PSS) is a signal internal to an Accumulation Control Engine (ACE) which is output in the cyclic data of the producing ACE for consumption by other ACEs. An individual PSS can be 1 of 13 defined signals within the producing ACE. Each ACE can produce up to 4 individual signals in its cyclic data space. A typical application for a PSS is the source for a System Signaling Channel (SSC).

- **NOTE:** Only TWO PSS Channels (Channel 1 and Channel 2) can be configured from this screen. The remaining PSS Channels (Channel 3 and Channel 4) are available from "DZC Settings" Tab.

SWD NODE ADDRESS

Help Menu

About EZLogic® OS

EZLogic® OS is a setup and diagnostic tool for configuring Hytrol EZLogic® Zone Controllers. EZLogic® OS, EZLogic® and Hytrol are trademarks of Hytrol Conveyor Company, Inc.

FIGURE 38



EZLogic® OS
Version 4.1110.4
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Hytrol Conveyor Company, Inc.

EZLogic® OS is a setup and diagnostic tool for configuring
Hytrol EZLogic® Zone Controllers. EZLogic® and Hytrol are
trademarks of Hytrol Conveyor Company, Inc.

NOTE: The Version number is based on the installer installed. If the user needs to connect to EZLogic® 4.0 controllers (Dual Zone Controller), then EZLogic® OS 4.x.x (where x.x is the Latest Firmware Version.Minor Version) can be installed. EZLogic® OS 4.x.x is also compatible with Gen3 Standard/Enhanced controllers.

Email Support

This function will be available only if connected to a zone controller. This will generate and submit files with information that helps the Hytrol support team to troubleshoot any issues you may be experiencing.

2.2 EZLOGIC® NET

2.2.1 File Menu

Open

A saved configuration file may be uploaded onto an EZLogic® NET Gateway, Integrated Network Motor, or Network Zone Controller through this page. Upon browsing the file directory and choosing an EZLogic® NET Configuration file, the values from that configuration will be displayed in the table on the screen. This should be used to compare the current configuration with the saved configuration which will be uploaded to the Gateway, Integrated Network Motor, or Zone Controller should the user click the “Save” button on the bottom right of the screen.

- **NOTE:** All configurations that will be changed should the user click save will be displayed in a bold font in the “New Value” column. See Figure 39 for reference, specifically the zone transportation mode and the motor speed.

FIGURE 39

Parameter	Current Value	New Value
Version	0	0
Transportation Mode	Slug	Singulate
Motor Type	60W24	60W24
Motor Speed	67%	37%
Startup Current Limit	4 A	4 A
Current Limit	4 A	4 A
Startup Time	2 s	2 s
Overload Current	0.5 A	0.5 A
Reset Current	0.2 A	0.2 A
Overload Time	Disabled	Disabled

Save Configuration

Saving the Configuration will open a file explorer dialog box allowing the user to select a place to save and store the configuration file. The file will be saved as a “*.eznet” Configuration file.

- **NOTE:** Only the configuration for the currently selected zone in the “Zone Configuration” tab will be saved.

Backup & Restore

This option in EZLogic OS allows the user to save the configuration of each zone connected in a branch (Backup) or write to the gateway (Restore) a branch configuration that is already saved in the computer being used.

Backup

When Backup is selected, two options are presented: “Save to Local SD Card” and “Save to this computer”:

- “Save to Local SD Card” will store the current configuration of the branch in the SD Card. When the center LED of the Gateway blinks blue three times, the configuration has been saved.
- “Save to this computer” will open a Browse window to select the location on the computer where the configuration will be saved. After selecting the location and clicking save, a folder will be created with the branch configuration. Once the file is saved in that folder, the screen will show a message indicating the procedure was successful.

FIGURE 40

Name	Date modified	Type
 EZ_Backup_20260618_140400	6/18/2026 2:04 PM	File folder

The folder will include individual files for the gateway’s configuration as well as each zone’s configuration.

FIGURE 41

EZ_Backup_20260618_140400				
				
Name	Date modified	Type	Size	
 gateway.eznet	6/18/2026 2:04 PM	EZNET File	1 KB	
 zone1.eznet	6/18/2026 2:04 PM	EZNET File	1 KB	
 zone2.eznet	6/18/2026 2:04 PM	EZNET File	1 KB	
 zone3.eznet	6/18/2026 2:04 PM	EZNET File	1 KB	

Restore

When Restore is selected, a Browse window will open to choose the location on the computer where the configuration needed to restore is currently saved. When restoring the configuration, the folder should be selected rather than an individual zone configuration file.

Once the procedure is finished, a message of successful restore will be presented. This message will also mention the need for a reset/refresh to the branch in order for the restored configuration to take effect. This can be accomplished by doing a Refresh from EZLogic OS or with the reset/refresh button located next to the config port on the Gateway. With a paper clip, push the button until one blue light is shown at the center LED of the Gateway.

To restore a configuration located at the SD Card, it is necessary to use also the reset/refresh button on the Gateway.

With a paper clip, push the reset/refresh button for about 3 seconds.

Keep it pushed until center LED in the Gateway flashes blue three times indicating that the stored configuration has been retrieved.

Exit

This closes the currently running EZLogic® OS application.

2.2.2 Gateway Configuration Menu

Zone Count

Defines the number of zones in a branch. If auto detect is selected, the branch will operate with the number of zones it finds. If auto detect is not selected, a fault will be generated if the number of zones discovered does not match the branch zone count value.

Ethernet/IP Settings

Enable Dynamic Host Configuration Protocol (DHCP) for automatic configuration of the EtherNet/IP. Disable this feature for manual, static configuration.

Smart IO Reassignment

FIGURE 42

Input/Output	Description
Local Speed Inhibit In	When active, this signal causes the local analog input to be ignored, and the zone speed reverts to the default network speed.
Branch Run	All motors connected will run.
Branch Kill	Branch activity is immediately stopped, and all motors are driven to hold position.
Branch Slug	All zones are set to run and spacing between objects is not controlled. If there is a zone downstream from the first zone in the branch set to accumulation, then the object will be held.
Branch ZIP	Increases throughput by allowing a second object to enter a Zone once the first object has been transported to the downstream edge photoeye sensor. • NOTE: This operation mode results in a gap between objects equal to the Zone length less the object length.
Branch Singulate	A transportation technique that assures objects are separated by some minimum distance. This operation mode ensures objects never touch and that there is one object per zone.

CONTINUED ON NEXT PAGE

Branch Reverse	This will reverse package flow and logic of all zones connected in the branch.
Network In	This function provides a general-purpose input that can be used as an extension to a PLC.
Supply V+	This signal is always active with the intent of providing 24 VDC power to an external device. This output can source 300mA.
Branch No Fault Output	This signal is active when there are no faults reported in the Branch.
Network Output Bit 0	These four options provide general purpose outputs that can be used as an extension to a PLC. There are four bits available, so any Smart I/O configured to the same output "Bit" number will change state accordingly. For example, Smart I/O 1 & 2 could be assigned to Network Output Bit 3. When "Bit 3" is toggled, Smart IO 1 & 2 will change state.
Network Output Bit 1	
Network Output Bit 2	
Network Output Bit 3	

2.2.3 Zone Configuration Menu

Transportation Mode

FIGURE 43

Mode	Description
Disable	Zone motor is disabled. To prevent automatic Branch operation following a loss of power, this mode prevents the Branch from automatically starting.
Kill	Zone activity is immediately stopped, and the motor is driven to hold position.
Slug	The zone is set to run and does not control spacing between objects. If the downstream Zone is in accumulation, then the object will be held.
ZIP	Increases throughput by allowing a second object to enter a Zone once the first object has been transported to the downstream edge photoeye sensor. NOTE: This operation mode results in a gap between objects equal to the Zone length less the object length.
Singulate	A transportation technique that assures objects are separated by some minimum distance. This operation mode ensures objects never touch and that there is one object per zone.
Forced Run	Zone runs under all circumstances, without regard to the photoeye sensors.

FIGURE 44

Mode	Description
Zone Reverse	The normal flow direction moves packages from left to right (last zone of a branch towards the Gateway Master.) This feature reverses package flow. NOTE: The installation of the secondary sensor is required for proper operation. The secondary sensor will then be the downstream sensor.
Zone Hold	When in Slug, ZIP, or Singulate, this will hold the next package that is detected by the photoeye sensor. This implies the zone must be empty, not blocking the sensor, when the hold is applied.
Zone Half Speed	When in Singulate or ZIP, if the downstream zone is not empty at the time that an object is entering, then the target speed is cut in half for the duration of this object in the zone.
Local Speed Inhibit	When active, this causes the local analog input to be ignored and makes the speed of the zone to the default network speed.

Motor Speed

Controls the Zone speed in % of full scale and is dependent upon the Motor Selection.

The speed of the Zone can also be controlled locally by a 0-10 VDC analog signal (Speed In of the I/O connector on the Zone Controller). The signal must be over 0.5 VDC to enable analog speed control.

FIGURE 45

Voltage	Operation
<0.5 VDC	Zone operates at configured speed
0.5 to 9.0 VDC	Zone speed is proportional to the input within the full range of the motor selected
>9.0 to 24 VDC	Zone operates at full speed

Motor Current

Startup Current Limit defines the maximum allowable motor current when starting the motor from a complete stop. Reducing the current will correspondingly reduce the available torque.

Current Limit defines the maximum allowable motor current during regular usage, after the startup current limit timer has expired.

Startup Time defines the time duration that the Startup Current Limit will be active. After this time, the regular Current Limit will take effect.

For example, a motor can be configured to operate at 4.0 A for 2.5 sec to initially get started, and then the current limit would switch to 2.0 A.

Zone Overload Warning

Overload Current defines the current level threshold that you determine is when current overload occurs.

Reset defines the current level threshold where you want the overload current notification to clear, so essentially you're controlling the desired hysteresis.

Overload Time defines the time that the motor current must be equal to, or greater than the Overload Current, then the notification bit is set.

An example:

- Overload Current Limit: 1.9 A
- Reset Current Limit: 1.7 A
- Overload Time: 10 sec
 - If the motor current is equal to or greater than 1.9 A, the 10 sec timer starts counting.
 - If the motor current falls below 1.9 A, then the timer will reset.
 - If the motor current stays above 1.9 A, the timer will continue to count and if it reaches 10 sec, then you'll get the Zone Overload Warning notification. Once you have reached this point, the motor current must fall below 1.7 A to clear the notification.

Sleep Timer

When an object leaves a Zone (passes the downstream zone sensor), and there are no upstream objects that result in the motor needing to run, then the motor continues to run for a short time period, the idea being to handle any stray objects that might be present.

Jam Protection Timer

The Jam Protection feature helps prevent product pileups should a carton become jammed during operation. When a Zone is discharging a box (that is, the motor is running) and the box remains at the downstream sensor for longer than the defined timeout period.

Loading Zone Function

When in Singulate mode, the Zone holds an object placed at (as opposed to being transported to) the downstream-edge sensor for a fixed time delay, the idea being to allow placement of a box without the zone running and interfering with the placement mechanism.

Unloading Zone Function

When in Singulate mode, this feature holds off the upstream for a fixed amount of time after an object leaves (exits or is grabbed from) its downstream-edge sensor, to allow a mechanism to grab a box without the zone running.

Cascade Slug Release

A feature for Slug mode where there is a delay releasing held objects, and the idea is to insert a bit of space between objects. When an object that is being held (is accumulated) is to be released, there is a delay between starting the motor and giving permission to the upstream zone.

Accumulation Delay Timer

When in Singulate mode, this feature ensures an object passes a specific sensor point by delaying accumulation for a defined time period. Often used on incline conveyors, to allow a package to travel for a short time after detected by the Zone sensor.

Lost Box Timer

When an object leaves the upstream Zone but does not reach the downstream sensor within the defined timeout period, the Zone will consider the box lost and once again give permission upstream.

Transport Delay Timer

When in Slug mode, this feature delays giving upstream permission until one of the following occur:

- The delay timer expires
- OR, the downstream sensor is triggered

This is to occur only when the downstream zone is running (and not if the downstream zone is holding or accumulated).

Run Delay Timer

This timer delays a Zone from running after its upstream Zone requests entrance. When a Zone is accepting an object, it will not run until the Run Delay timer has expired or the Lost Box Timer expires. This feature was designed to handle an L-merge, whereby a box is pushed onto another lane, and that Zone must wait until the upstream zone has enough time to fully push the box into the Zone.

Motor Rotation

This feature will invert the normal motor rotational direction. The direction of rotation is defined as viewed from the back side of the motor with the shaft extending away from the viewer.

- **NOTE:** This does not invert the logic, only the motor.

Sensor Invert

This feature will invert the output signal from the proximity sensors. This allows the use of Light-On or Dark-On sensors.

FIGURE 46

Input/Output	Description
Forward Permission/ Reverse Request In	Forward (normal) Flow Permission In from downstream: This signal grants permission to discharge from this zone. Reverse Flow Request In from upstream: This signal is a request to enter this zone. • NOTE: The Zone Controller will logically OR this Smart I/O signal with the normal zone-to-zone Permission/Request signal.
Forward Request/ Reverse Permission In	Forward (normal) Flow Request from upstream: This signal is a request to enter this zone. Reverse Flow Permission from upstream: This signal grants permission to discharge from this zone. • NOTE: The Zone Controller will logically OR this Smart I/O signal with the normal zone-to-zone Permission/Request signal.
Forward Sensor In	This input will be logically OR'd with the input signal from the physical Primary Sensor.
Reverse Sensor In	This input will be logically OR'd with the input signal from the physical Secondary Sensor.
Motor Run Select In	When active, this signal will force the motor to run, regardless of the state of the Primary or Secondary Sensors, or the Transportation Mode selected.
Zone Kill Select In	When active, this signal will stop the motor immediately and place the motor in Zero Motion Hold (ZMH).
Hold In	When active, this signal will hold objects when they reach the downstream sensor.
Local Speed Inhibit In	When active, this signal causes the local analog input to be ignored, and the zone speed reverts to the default network speed.
Network (Unassigned) In	This function provides a general-purpose input that can be used as an extension to a PLC.
Reverse Forward Select In	When active, this signal will cause this Zone to operate in Reverse Package Flow. When inactive, this Zone will operate in Forward Package Flow.

Forward Permission/ Reverse Request Out	Forward (normal) Flow Permission to upstream: This signal grants permission for entry into this zone. Reverse Flow Request to upstream: This signal is a request to discharge from this zone. • NOTE: The Zone Controller will logically OR this Smart I/O signal with the normal zone-to-zone Permission/Request signal.
Forward Request/ Reverse Permission Out	Forward (normal) Flow Request to downstream: This signal is a request to discharge from this zone. Reverse Flow Permission to upstream: This signal grants permission to enter this zone. • NOTE: The Zone Controller will logically OR this Smart I/O signal with the normal zone-to-zone Permission/Request signal.
Active Downstream Sensor Out	This signal is active when the downstream-edge sensor (based on Branch flow) is active. • Forward (normal) Flow: Primary Sensor • Reverse Flow: Secondary Sensor
Supply V+ Out	This signal is always active with the intent of providing 24 VDC power to an external device. This output can source 300 mA.
Active Upstream Sensor Out	This signal is active when the upstream-edge sensor (based on Branch flow) is active. • Forward (normal) Flow: Primary Sensor • Reverse Flow: Secondary Sensor
Zone No Fault Out	This signal is active when there are no faults reported in the Zone.
Motor Running Out	This signal is active when the motor is running.
OBT (Object) Held Out	This signal is active when an object is held, for any reason, at the downstream-edge sensor (based on Branch flow). • Forward (normal) Flow: Primary Sensor • Reverse Flow: Secondary Sensor
Network Output Bit 0	These four options provide general purpose outputs that can be used as an extension to a PLC. There are four bits available, so any Smart I/O configured to the same output "Bit" number will change state accordingly. For example, Smart I/O 1 & 2 could be assigned to Network Output Bit 3. When "Bit 3" is toggled, Smart IO 1 & 2 will change state.
Network Output Bit 1	
Network Output Bit 2	
Network Output Bit 3	
Pneumatic Control Out	This function provides a 24VDC signal to emulate the output of a pneumatic control.

2.2.4 Information Menu

Zone Status Monitor

Displays the status of the selected zone's smart I/O's, motor state, inputs, and outputs.

FIGURE 47

Zone Status Monitor

Smart IO	Input	Output
1	False	False
2	False	False
3	False	False
4	False	False

Motor State	RUNNING
-------------	---------

Zone Inputs		Zone Outputs	
Request	False	Permission	False
Permission	False	Request	False
Next Zone's Sensor	False	Upstream Sensor	False
Prior Zone's Sensor	False	Downstream Sensor	False
Zone Hold	False	Fault	False
Flow Reversed	False	Package	False
		Blocked & Stopped	False

Gateway Status

Displays the status of the Gateway's inputs, outputs, firmware version, network addresses, etc.

FIGURE 48

Gateway Status

Inputs	State
1	False
2	False
3	False
4	False

Firmware Ver.	0.0.0-dev0
Product Id	

Network	
Active IP	0.0.0.0
Active Subnet Mask	0.0.0.0
Active Gateway	0.0.0.0
Branch Cycle Count	0
Branch Error Count	0
Eth/IP Cycle Count	0

2.2.5 Help Menu

About EZLogic OS

EZLogic® OS is a setup and diagnostic tool for configuring Hytrol EZLogic® Zone Controllers. EZLogic® OS, EZLogic® and Hytrol are trademarks of Hytrol Conveyor Company, Inc.

FIGURE 49



- **NOTE:** The Version number is based on the installer installed. If the user needs to connect to EZLogic® NET, then EZLogic® OS 5.x.x(where x.x is the Latest Firmware Version.Minor Version) can be installed. EZLogic® OS 5.x.x is also compatible with 4.0 (Dual Zone Controller) and Gen3 Standard/Enhanced controllers.

Email Support

This function will be available only if connected to a zone controller. This will generate and submit files with information that helps the Hytrol support team to troubleshoot any issues you may be experiencing.