LIGHT LIQUID MANUAL ADDENDUM

-6 Option w/Z100 Controller

YZ® SYSTEMS

An Ingersoll Rand Business

Light Liquid Manual Addendum Instruction & Operating Manual

Version: 10-2025
-6 Option w/Z-100 Controller

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Section 1: First Things To Know About The -6 Addendum

How to Use this Manual

This addendum addresses the Liquid Sampler -6 option with the Z-100 controller. This addendum is to be used with the liquid sampler system manual. This addendum provides a step-by-step guide to calculating the pumping parameters and programming the Z-100 to meet your sampling requirements.

The Z-100 controller is a modern control unit that accepts 4-20mA or pulse flow signals and controls a solenoid to stroke the sampling pump. It can run for more than one year on the internal battery with typical stroke rates. Or, the battery can be removed and IS power can be provided.

Typographic Conventions

To aide in readability, this manual uses several typographic conventions. References to illustrations, photographs, and other related content will appear in italicized text along with the location of where to find the item in the manual. Digital versions of the manual, available in Adobe Acrobat™ PDF format, will be highlighted further in blue italic text indicating the copy retains a hyperlink to the referenced item.

Measurement units are listed in italic parenthesis text following their US standard equivalent. As an example, for defining a distance, 15′ (4.5 meters), is how the text will appear throughout the manual.

Items that require action, for example the pressing of a key for programming the controller, will feature the action item in sentence case B**old Text** followed in normal text by the item such as, the **Up Arrow** key or **Main Power** switch.

Getting Help

This manual provides solutions to typical questions about the Liquid Sampler -6 option with the Z-100 controller system. If the answer can not be found within this manual, contact YZ Systems at:

For Technical Support: 1-281-362-6500
1-800-NJEX-HELP
(1-800-653-9435)
Email: techsupport@yzsystems.com

When calling, have this manual close at hand. Whether calling or writing, please include in your communique the following information:

- The model and serial number of the Liquid Sampler System and the version number of the manuals.
- A description of the problem and, if applicable the actions of the technical personnel when the problem occurred.

Section 1: First Things To Know About The -6 Addendum

Notes

Section 2: System Control & Electronics

Overview

The electronic control package provided with your sampling system consists of a Z-100 Timer/Counter. The Z-100 drives a low power solenoid that in turn drives a pneumatic relay valve capable of actuating a pneumatic pump.

The Z-100 Controller will control the timing of the pump based on the controller settings and mode of operation, either proportion to flow or time.

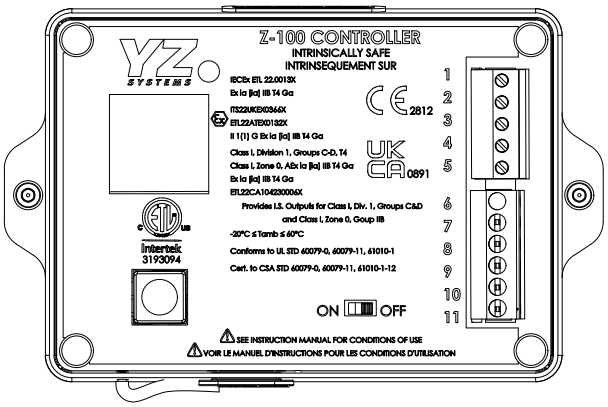
The control package is powered by a customer supplied 24 VDC intrinsically safe power supply connected to terminals 6 and 7. The customer is required to connect to pins 3 & 4 if a 4-20 mA input is used or pin 9 & 7 if a pulse input is provided.

SAFETY NOTES: Always take the necessary measures to verify whether the area has an explosive atmosphere and obtain necessary work permits are obtained and safety protocols followed as requried by the areas of installation. Use the wiring label in the door of the enclosure, also shown to the right, to make your connections to the Z-100 controller. Please note some connections may share a common Ground connection. All wiring connected to the Z-100 controller must be done in accordance with the Wiring Control Document, see *page 43*. The Z-100 rated for use in Class I, Division 1, Groups C&D and IECEx/ATEX Zone 1 hazardous locations.

WARNING:

- Electrostatic Discharge Hazard – Wipe with a damp cloth only.
- The Z-100 controller is in a housing with more than 10% aluminum. Non-sparking tools must be used while servicing the Z-100 controller to avoid an ignition hazard due to impact or friction.

Figure 1



Z-100 Controller Approvals:

IECEx ETL 22.0013X
Ex ia [ia] IIB T4 Ga
ITS22UKEX0366X
ETL22ATEX0132X
II 1(1) G Ex ia [ia] IIB T4 Ga
Class I, Division 1, Groups C-D, T4
Class I, Zone 0, AEx ia [ia] IIB T4 Ga
Ex ia [ia] IIB T4 Ga
ETL22CA104230006X
Provides I.S. Outputs for Class I, Div. 1, Groups C&D and Class I, Zone 0, Goup IIB
-20°C ≤ Tamb ≤ 60°C
Conforms to UL STD 60079-0, 60079-11, 61010-1
Cert. to CSA STD 60079-0, 60079-11, 61010-1-12

RELAY +	1
RELAY -	2
ANALOG IN	3
COMMON	4
N/A	5
EXT. POWER	6
COMMON	7
NBS IN	8
COUNT IN	9
SOLENOID -	10
SOLENOID +	11

Section 2: System Control & Electronics

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Section 3: Programming the Z-100 Controller

Controller Overview

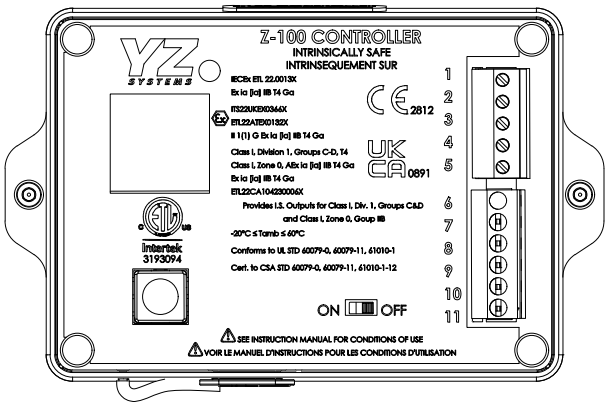
To begin initial setup of the Z-100 Controller, move the Power switch, located on the front panel, to the ON position. The YZ logo will be shown while the controller is initializing then the Home Screen will be displayed when ready to operate.

The navigation switch has 5 functions: UP, DOWN, RIGHT, LEFT, and ENTER (center press). Press the switch in the appropriate direction to move between menus, and a center key to select sub menus or to modify, select, and save settings. To open sub-menus, enter parameters, etc. you will use the navigation like a push button and push by pressing in the center of the switch.

When moving between screens arrows will be shown on the display indicating what keys are active and their functions. Example illustration: the small down arrow indicates pressing the down key will allow you to scroll to additional Home Screen information. The right arrow next to “Menu” indicates pressing the right arrow will take you to the “Menu” Screen. See detailed navigation switch functionality in Section 05, menu screens.

When viewing a screen, note if there is an arrow at the top or bottom of the screen. If a small arrow is shown, it indicates you can scroll down or navigate in that direction. On some screens, additional instructions may be shown in the bottom corners.

Figure 2



Section 3: Programming the Z-100 Controller

Z-100 operating modes

Time based: In timer mode, the controller actuates the pump at a set time interval. The time interval can be set to 0.1 min to 180.00 min. in 0.01min. increments.

Proportion-to-Flow Pulse Counter: In counter mode, the Z-100 controller functions as a pulse divider. The controller monitors and counts incoming pulses at the count input. When the number of pulses equals the pulse divider setting the controller operates the pump The pulse divider can be set from 1 to 10,000 in increments of 1.

Proportion-to-Flow 4-20mA Analog: In Analog mode, the Z-100 controller monitors a 4-20mA signal and operates the pump at a rate proportional to the 4-20mA signal as configured in the proportional to flow settings. See Section 5, Analog mode.

Home Screen:
Total signaled count is displayed on the main Home Screen. This screen resets at midnight each day. Where the display shows DAILY TOTALS, this line will alternate between showing DAILY TOTALS and the running mode. It will display TIMER or COUNTER or ANALOG followed by OFF or ON.

Signaled:
Signaled is the count of how many times the controller sent a signal to the solenoid to stroke the pump.

Totalizer
From the Home Screen, you can navigate to the Totalizer by pressing down on the navigation button. The totalizer is a running total of how many strokes have been pumped. The date the totalizer was started will be displayed at the top, along with the current date and time. The totalizer can be reset by pressing the navigation button in and holding until the value and date resets.

Section 3: Programming the Z-100 Controller

Using The Z-100 Controller

The Z-100 user interface has been designed for easy navigation and setting of parameters.

The following sections outline the various screens and the steps needed to change and save settings.

Menu Screens

To navigate to a Menu or Sub Menu screen, use the navigation switch and push up or down to highlight the desired option. The selected option will be highlighted with an asterisk to the left. To open that menu item and press the navigation switch. Note the instructions on the bottom row of the screen for additional information or how to navigate back to the previous screen.

Modifying Controller Settings: Z-100 Controller settings will either be a value that must be changed, an item selected from a list, or a multiple-choice parameter option.

For items requiring a number to be edited, INITIAL PERCENT FLOW below, each digit will need to be changed individually. Note the arrow underneath the digit that is currently being edited. Press the left or right arrow to change which digit is updated. To change the value, press the navigation switch up or down. Move to the next digit as needed. To cancel the change, navigate to the back button and Press enter on the navigation switch to go back to the previous screen. To save the change, navigate to the Save option and Press enter on the navigation switch to save.

For an item that must be selected from a menu such as MODE, the option that is currently selected will be shown with a dash next to it on the left. To change the selection, use the navigation switch and move up and down to the desired option. The possible selection will be shown with an asterisk to the left. Press the navigation switch to confirm the selected option.

Lastly, for the alarm sources, you can select multiple options to turn on or off each alarm source. The alarms will be shown with a dash next to it to indicate the alarm is active. The activate or deactivate an alarm, press the navigation switch up or down to the desired alarm source, the elected alarm will have an asterisk to the left. Press the navigation switch to enable or disable the alarm, if disabled the dash will be removed.

Section 3: Programming the Z-100 Controller

System ON/OFF

This menu, is used to start and stop the system. Select ON to start odorizing as per the settings on the controller. Actuate the pump once immediately after turning the system ON and then begin odorizing as per the current operating mode and settings. Settings cannot be modified while the system is ON, If a settings change is attempted while the system is ON, the controller will display a popup notification prompting to STOP the system. Selecting Yes will turn the OFF and display the setting to be modified. Selecting No will leave the system ON and return to the previous menu.

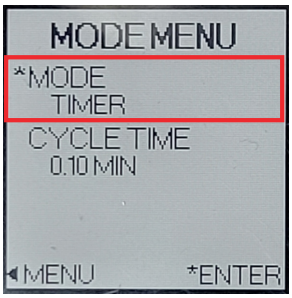
The system must be re-started once settings changes are completed.

Section 3: Programming the Z-100 Controller

Selecting the Z-100 Operational Mode

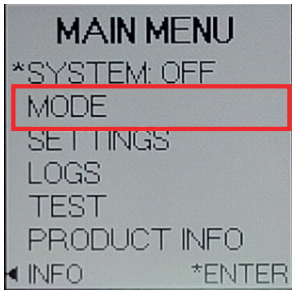
The Z-100 controller can operate your Liquid Sampler -6 option with the Z-100 controller system in timer mode, counter mode, or analog mode. To select the Z-100 mode of operation, navigate to the Main Menu and select Mode. The Mode Menu will open showing the currently selected operating mode and mode specific settings.

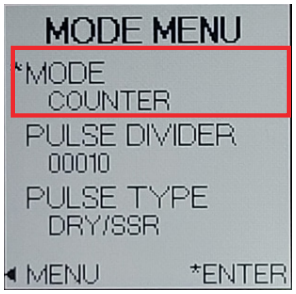
Select Mode to access the list of modes available an * indicates the currently selected mode.
Once a mode has been selected, press the left key to exit back to the Mode Menu



Time Based

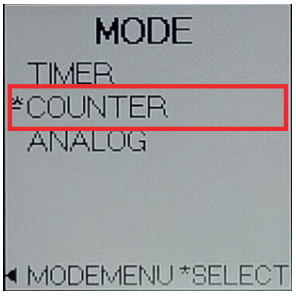
In timer mode, the controller actuates the 2000 pump at a set time interval as per the CYCLE TIME setting. The CYCLE TIME range is 0.1 minutes to 180.00 minutes in 0.01 minute increments. To modify the CYCLE TIME, move the * to CYCLE TIME and press enter to select. Use the navigation switch to modify the value then navigate to SAVE and press enter.





Proportion-to-Flow Pulse Counter

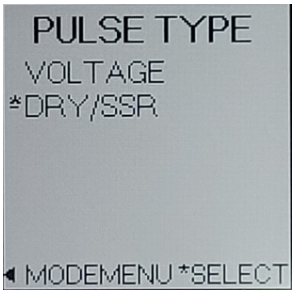
In counter mode, the Z-100 controller functions as a pulse divider. The controller monitors and counts a customer provided pulse signal at the COUNT input. When the number of pulses counted equals the PULSE DIVIDER setting the controller actuates the 2000 pump. The PULSE DIVIDER can be set from 1 to 10,000 in increments of 1. When the counter mode is selected, the PULSE DIVIDER setting will determine the pumps injection rate in response to the incoming pulses. For example, a pulse divider of 10 will cause the pump to actuate once each time 10 pulses are counted. The minimum pulse width is 20ms with a maximum input frequency of 25Hz. The pulse types available are Voltage or Dry Contact/SSR. Navigate to the Pulse Type option submenu. Select the pulse type and navigate to the select button and press enter to save.



Section 3: Programming the Z-100 Controller

Pulse Types

Voltage: Positive voltage pulse (5-24VDC).
Dry/SSR: Voltage free contact closures.

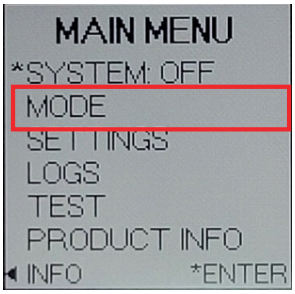


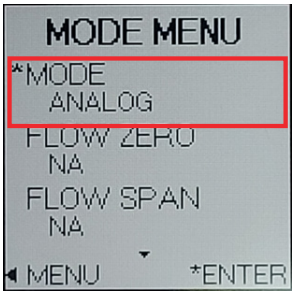
Proportion-to-Flow 4-20mA Analog

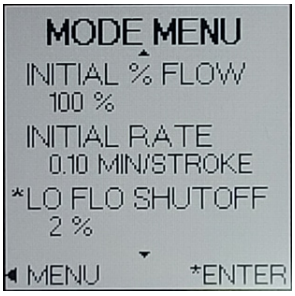
In Analog Mode the Z-100 controller monitors a 4-20mA flow signal provided by the customer. In this mode, the Z-100 controller monitors the incoming flow signal and with the INJECTION RATE and MAX FLOW settings calculates and varies the pump cycle time as needed to maintain a consistent odorization rate.

Analog mode settings include: INJECTION RATE, MAX FLOW. The Z-100 has a default calibration for the Analog Input. To obtain the best performance and accuracy perform the ZERO and SPAN calibration procedures below using the actual flow signal is recommended.

NOTE: The 4-20mA current signal is converted to a voltage prior to being displayed on the calibration screen.

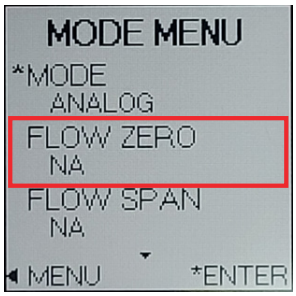


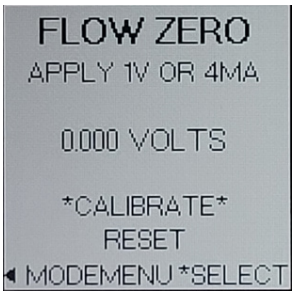




Calibration - Flow Zero

To begin setting parameters for Analog Mode, navigate to Main Menu->Mode->Flow Zero. Apply 4.0mA to the flow signal in TB(3) and TB(4) and press enter on the navigation switch to save the calibration. If successful, the voltage will read very close to 1.000V and the Flow Zero Screen will show CALIBRATED, indicating that a user calibration value is being used. If the flow signal is too far out of range, a RANGE ERROR message will be shown and there will be no change to the calibration state. The RESET function will clear the user calibration and return the unit to the factory calibrated values. Press the navigation switch to the left to return to the Mode Menu or navigate to Reset and press enter on the navigation switch in to cancel the calibration.

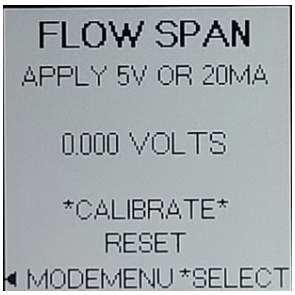




Section 3: Programming the Z-100 Controller

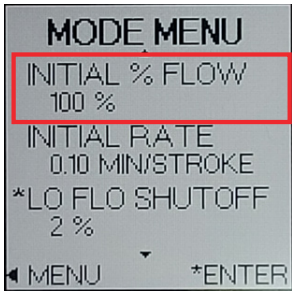
Calibration - Flow Span

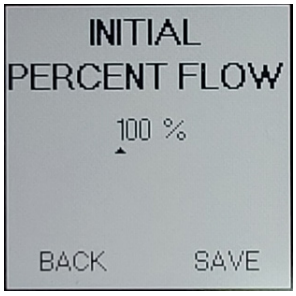
Apply 20.0mA to the flow signal in TB(3) and TB(4) and Press enter on the navigation switch to start calibration. If successful, the voltage will read very close to 5.00V and the Flow Zero Screen will show CALIBRATED, indicating that a user calibration value is being used. If the flow signal is too far out of range, a RANGE ERROR message will be shown and there will be no change to the calibration state. The RESET function will clear the user calibration and return the unit to the factory calibrated values. Press the navigation switch to the left to return to the Mode Menu or navigate to Reset and press enter on the navigation switch to cancel the calibration.



Initial Percent Flow

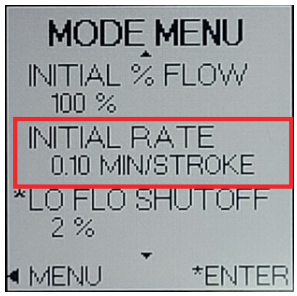
After calibrating the incoming flow signal, navigate to the Initial percent flow setting within the Mode menu. Press the navigation switch in to enter the Initial percent flow menu. Note the arrow located under the active digit. Press the navigation switch up or down to change the digit and press the navigation switch to the right to move to the next digit and repeat. Press the navigation switch to the right to navigate to the Save button and press the navigation switch in to save the update. To cancel the flow rate change, navigate to the back button by pressing the navigation switch to the left or the right and press the switch in to enter.





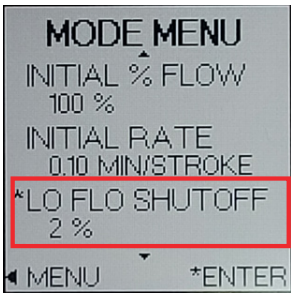
Initial Stroke Rate

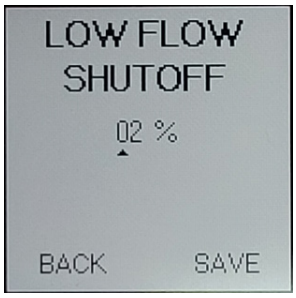
To run the Liquid Sampler -6 option with the Z-100 controller system proportional to the flow signal, you must enter an initial stroke rate. Open the initial rate option from the Mode Menu. Note the arrow located under the active digit. Press the navigation switch up or down to change the digit and press the navigation switch to the right to move to the next digit and repeat. Press the navigation switch to the right to navigate to the Save button and press the navigation switch in to save the update. To cancel the flow rate change, navigate to the back button by pressing the navigation switch to the left or the right and press the switch in to enter.



Section 3: Programming the Z-100 Controller

Low Flow Shut Off





The low flow shutoff setting determines the percentage of the max gas flow the Liquid Sampler -6 option with the Z-100 controller system will enter standby in low flow conditions. While in standby the pump will not be actuated but the Z-100 will continue to monitor the inputs and report system status.

Loss of Flow Signal

The Loss of flow signal option allows you to set a time per stroke pat in the case of loss of flow signal. To set this option, open the Flow No Signal option from the Mode Menu. Note the arrow located under the active digit. Press the navigation switch up or down to change the value. A flow signal below 0.10 min/stroke is considered a loss of flow signal.

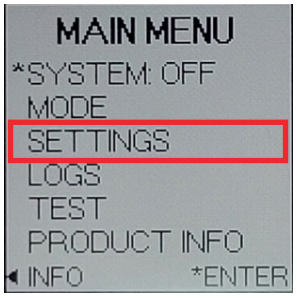
Press the navigation switch to the right to navigate to the Save button and press the navigation switch in to save the update. To cancel the flow rate change, navigate to the back button by pressing the navigation switch to the left or the right and press the switch in to enter.

Section 3: Programming the Z-100 Controller

Change Z-100 Settings

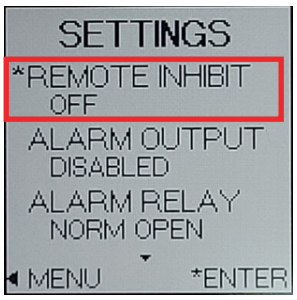
Go back to Main menu and scroll down to Settings tab and press Enter.

In order to run the pump system to the proper sampling rate, the settings must be set within the settings menu. From the Home Screen, open the Main Menu and navigate to the Settings parameter and press the navigation button in to open. To modify each setting, navigate to the setting and press the navigation button in to open. The active setting will be indicated with an asterisk (*) on the left side. Press the left arrow to return to the Main Menu. The small arrow at the bottom or top of the screen indicates there are additional parameters to scroll through.



Remote Inhibit

The Remote Inhibit setting determines the functionality of the Remote inhibit. To use this feature, set the REMOTE INHIBIT setting to ON. If the signal drops from this connection, the Liquid Sampler -6 option with the Z-100 controller system will run to the set parameters.



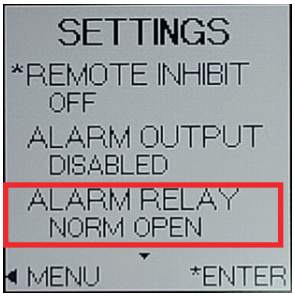
Alarm Output

The Alarm Output screen allows you to test the alarm output is being sent properly to the customer monitoring system. To test, ensure that the alarm output option has been enabled from the settings menu and the relay type selected as normally open or normally closed. Open the Test Alarm Output option by pressing the navigation button in to enter. The Test Alarm Output screen will display whether the alarm output is normally open or normally closed. Press the navigation button in to toggle the alarm. While the alarm is toggled, check your monitoring system to ensure the alarm is being monitored and enables when toggled.

Section 3: Programming the Z-100 Controller

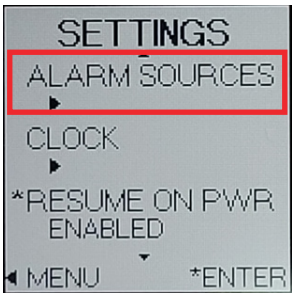
Alarm Relay

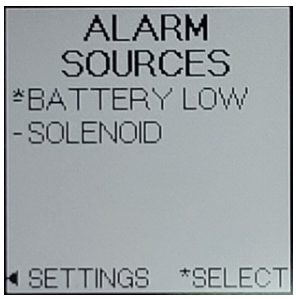
For the alarm output, the user has the option of selecting the relay to be normally open or normally closed. Select which option best suits the monitoring needs. In the Settings menu, scroll down to get more choices. Press the navigation switch left to exit the sub-menu.



Alarm Sources

Selecting Alarm Sources will open a sub-menu to select the alarm sources in which to be notified. The two alarm options are Battery Low, Solenoid. The selected alarm will be highlighted with an asterisk (*). Navigate to each alarm in the list and press the navigation button in to select or deselect each option. If an alarm source is activated, it will have a single line dash (-) next to the alarm.
Press the navigation switch left to exit the sub-menu.





Battery Low

The Battery Low alarm is an indication the battery voltage is low and should be replaced. If enabled, the Relay Output will be aWctivated. The remaining battery capacity is dependent on the settings and ambient temperature the system is installed. The more often the pump is actuated with ambient temperatures approaching minimum or maximums of the operating range will result in considerably shorter battery capacity.

Solenoid

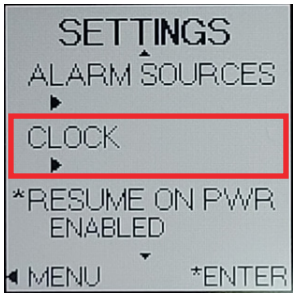
The solenoid alarm is an indication the solenoid fuse (F1), needs to be replaced. A low supply voltage could also cause a solenoid alarm. If replacing fuse (F1) does not remove the solenoid alarm, verify supply voltage is within the required operating range using the Battery Test function.

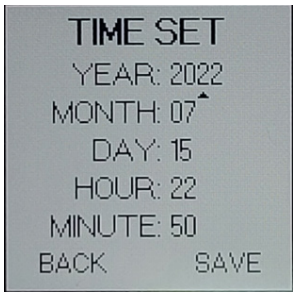
NOTE: The battery test function can also be used to verify external supply voltage. If these steps do not remove the solenoid alarm, please contact YZ System Tech Support for help.

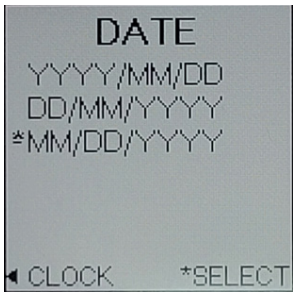
Section 3: Programming the Z-100 Controller

Clock Menu

Use the Clock Menu to configure the date and time settings. Having the correct time and date is important for the accuracy of Z-100 event logs and daily odorant usage estimates (DOU). The time can be formatted as a 12- or 24-hour clock. The date can be formatted three ways (YYYY/MM/DD, DD/MM/YYYY, or MM/DD/YYYY). To set the CLOCK, move * to SET TIME and press enter on the navigation switch. The TIME SET will open. Press RIGHT and LEFT on the navigation switch to move to each editable setting, and UP and DOWN to modify each setting. Press RIGHT to move to the next setting or to move to BACK or SAVE. To change the date formatting, move * to DATE FMT and press enter. Select the desired formatting and press enter to select.
When changes are complete press the left key to exit to the CLOCK menu.

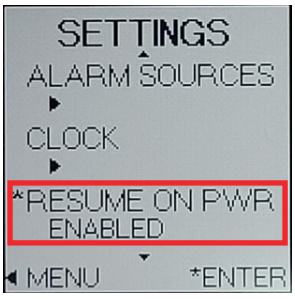


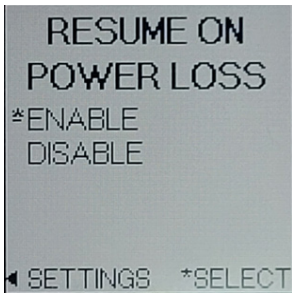




Resume on Power Loss

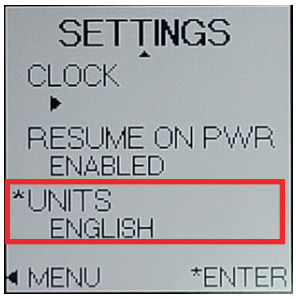
If the Liquid Sampler -6 option with the Z-100 controller system loses power during normal operation, the Resume on Power loss function can be enabled to allow the system to resume sampling when power is restored. system is OFF when power is lost, it will remain OFF when power is restored. To enable, open the Resume on Power Loss submenu. Press navigation switch up or down and press enter to select an option.
Press navigation switch left to exit the sub-menu.





Units

The Z-100 can be assigned either English or Metric units. Navigate to the Units sub-menu and press navigation switch up or down for available options and enter to *SELECT.
Press navigation switch left to exit the sub-menu.



Section 3: Programming the Z-100 Controller

Go back to Main menu and scroll down to Logs tab and press Enter.

Logs

The Z-100 logs the Sampler usage, parameter changes, alarms, and other events to the Liquid Sampler -6 option with the Z-100 controller locally. To view the logged data, open the Main Menu and scroll to the Logs option and press the navigation button in to open.

MM-100 Memory module is available as needed to download the data.

DOU

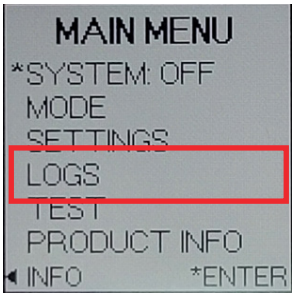
The DOU logs are the daily sample volume logs. Select the DOU option by pressing the navigation button in. This will open the latest DOU log. Note the small arrows displayed on the bottom and/or top of each DOU screen. Scroll up or down to view logs from other days.

Config

The config logs are logs of changes to the system configuration. Changes that are saved include settings that affect the system performance such as a stroke rate change, changing of the operational mode, input signal type change, and alarm changes.

Event Logs

Event logs are saved when an event happens in the Z-100 controller. The events that are recorded are totalizer resets, DOU reset, alarm count reset, device powered on, alarms turning on or clearing of alarms, alarm output turned on or off, and time changes.



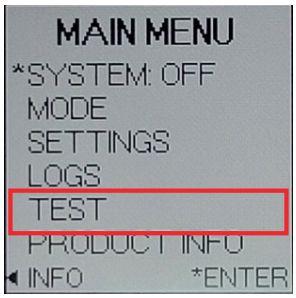
Section 3: Programming the Z-100 Controller

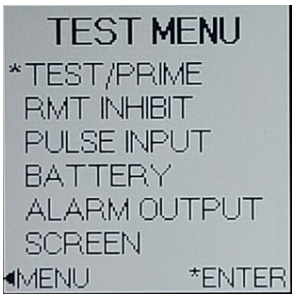
MM100

When ready to download the MM-100 Memory Module data, connect the memory module in the opening in the bottom of the enclosure. A rubber plug is provided to protect the opening when not in use. If the MM-100 is not plugged in or not recognized, the MM100 screen will display “Not Found”. If MM-100 is plugged in and recognized, you can download the module from the MM-100 screen.
Go back to Main menu and scroll down to Tests tab and press Enter.

Test Menu

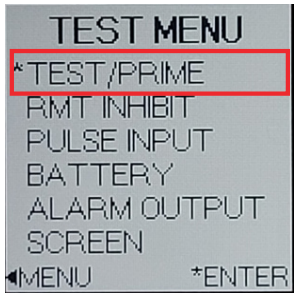
The test screen allows you to test the system functionality after installation or maintenance to ensure it is running as expected. To open the test screen, navigate to the Test option from the Main Menu and select the Test option by pressing the navigation button in to enter.

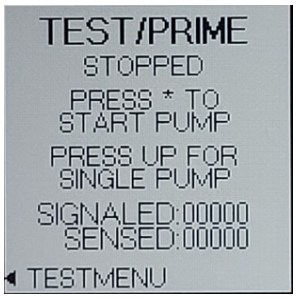




Test/Prime

The Test/Prime screen provides access to two functions.
Function 1, press enter on the navigation switch the UP direction for 1 to 2 seconds will actuate the solenoid a single time to stroke the 2000 pump.
Function 2, pressing the center button will initiate a prime cycle. The Prime cycle actuates the pump at a 2.5 second cycle time for 60 cycles, or until stopped by pressing the center button.
The pump actuations signaled will increment each time the pump is stroked. For Liquid Sampler -6 option with the Z-100 controller systems “SENSED” will always show N/A. This allows the system to be primed during installation and maintenance.
When running the system in the Test/Prime mode in a Liquid Sampler -6 option with the Z-100 controller model, the “SENSED” value should increment when the discharge line is fully liquid packed, and equals the discharge or pipeline pressure.





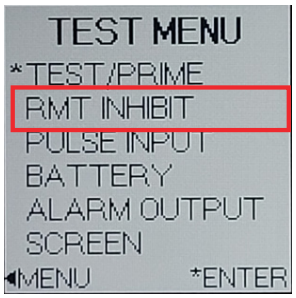
Section 3: Programming the Z-100 Controller

RMT Inhibit

The INHIBIT TEST can be used to verify the incoming remote inhibit signal is being properly read by the Z-100 controller at the DBS IN (Remote Inhibit) input terminal.

If the REMOTE INHIBIT input setting is OFF, the test function will be disabled and TEST status NA displayed. Go to the SETTINGS MENU to change the REMOTE INHIBIT input setting.

If the REMOTE INHIBIT input setting is ON or DBS, upon entry, the INHIBIT TEST screen will show the INHIBIT test type (INHIBIT ON, or INHIBIT DBS) with NOT TESTING status. Press enter on the navigation switch to start the test and begin monitoring the DBS IN input.



If an active input signal is not sensed, the red LED will flash and the test status will indicate INPUT INACTIVE. If an active input signal is sensed the GREEN LED flash and the test status will indicate INPUT ACTIVE.

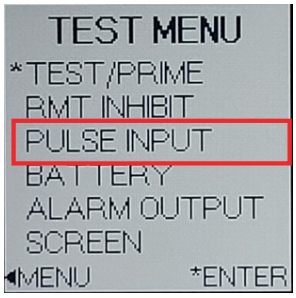
The difference between INHIBIT input types INHIBIT ON and NBS is the “active” voltage level of the incoming signal.

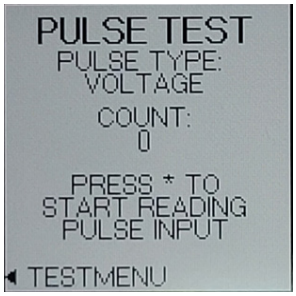
To stop the INHIBIT INPUT test press enter on the navigation switch.

Section 3: Programming the Z-100 Controller

Pulse Test

The PULSE TEST can be used to verify the incoming pulsed flow signal is being properly read by the Z-100 controller at the COUNT input. The PULSE TEST signal will be interpreted based on the PULSE TYPE setting for COUNTER mode. To test the pulse signal, ensure the type of pulse is selected from the Mode Menu when the Counter mode is selected. The pulse types are voltage, or dry contact/SSR.

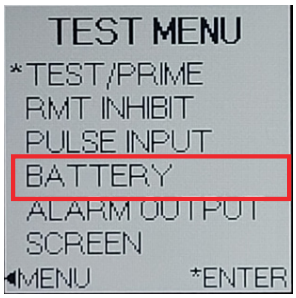


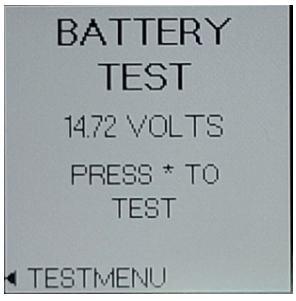


Navigate to the Pulse Input option from the Test Menu screen and press enter on the navigation switch to select. The Pulse Test screen will display what pulse type is selected. Press enter on the navigation switch to enter and start reading the pulse input. Send the pulse signal from the signal generator and confirm the counts on the Z-100 controller. The count will increase and the green LED will flash on every successful pulse reading.

Battery Test

The BATTERY TEST is used to verify the system power supply voltage read by the controller. The test is primarily used when to verify the voltage when the system is powered from the internal battery pack. The test can also be used to verify the voltage reading when the system is supplied by and external power source.





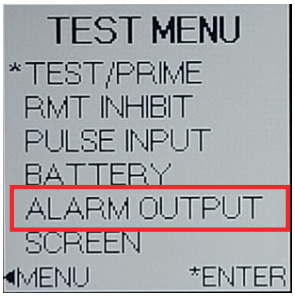
Select BATTERY TEST from the Test Menu and press enter on the navigation switch. The BATTERY TEST screen will open. The value shown initially will be from the previously run test and not a current reading. In order to get a valid test result, a solenoid must be connected to the system. Press enter to start the test, the solenoid will be actutated one time, the LED will flash and the battery voltage reading will be updated. A new battery will read approximately 11.5V during this test and the LED will flash GREEN.
If the battery voltage is found to be low during the test, the LED will flash RED.
A fully charged new battery pack will measure approximately 14.4V if measured with a DMM or voltmeter at the battery leads.

Section 3: Programming the Z-100 Controller

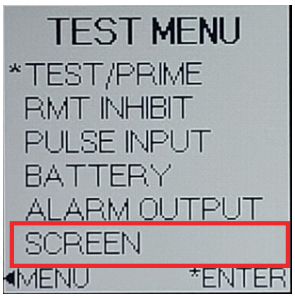
Alarm Output Screen

The RELAY OUTPUT test is used to the RELAY OUTPUT is being properly sensed by the users external SCADA or other control system.

If the RELAY OUTPUT setting is DISABLE, the test screen will indicate RELAY OUTPUT NOT CONFIGURED, CHECK SETUP. Change the RELAY OUTPUT setting to enable the output and test. If RELAY OUTPUT setting is ALARM OUT, the test display will show the relay config as ALARM OUT, the normal contact state, and ALARM OFF. Press enter to toggle the alarm ON or OFF and OPEN or CLOSE the output relay.

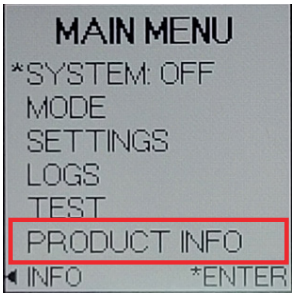


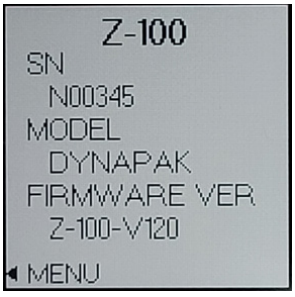
If RELAY OUTPUT setting is SAMPLING RATE, the test display will show the relay config as SAMPLING RATE, and normal output state. Press enter to initiate a single 40mS output pulse. The LED will flash GREEN to indicate the pulse was generated.



Screen Test

The Screen Test will cycle all pixels on the display on (black), then all off (blank), then back to the Test Screen. This test can help determine if any pixels are malfunctioning on the display.





Z-100 Product Info

Go back to Main menu and scroll down to product info tab and press Enter to show the product information. Light Liquid systems use the Dynapak model settings.

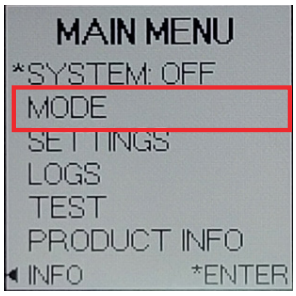
Notes

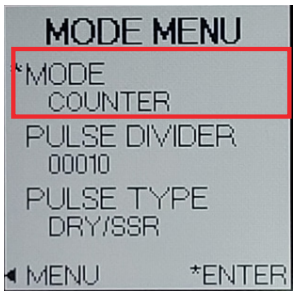
Section 4: Programming For Proportional To Flow Operation

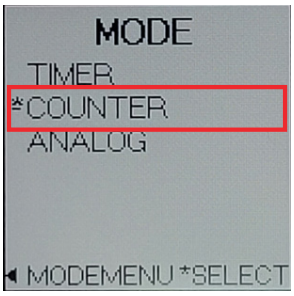
Setting Operator Input Values

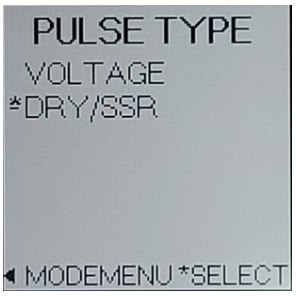
In this mode of operation, the Z-100 controller is used as a dividing counter to control the rate at which the pump is actuated. The desired time between pump strokes is controlled by the host computer or output device that will give an input pulse to the Z-100 controller.

- Determine if the incoming input is either a dry contact or voltage pulse.
- **If the input is a dry contact:** Set Pulse Type to DRY/SSR.
- **If the input is a voltage pulse:** Set Pulse Type to VOLTAGE.









Section 4: Programming For Proportional To Flow Operation

The Z-100 controller is used as a dividing counter to control the rate at which the pump is actuated. The desired time between pump strokes is controlled by the host computer or output device that will give an input pulse to the Z-100 controller.

Calculate the pump setting using the following formula:

- Pump Setting = (D X E) / (B X C)

  where, B = Avergae flow rate (Gal/day or BBL/day)

  C = sample period (days)

  D = Metered volume per pulse (Gal/Pulse or BBL/Pulse)

  E = 80% sample accumulator volume (cc)

- For 1.5 gallon accumulators, E = 4,750cc
- For 3 gallon accumulators, E = 8,750cc
- For 5 gallon accumulators, E = 16,750cc
- For 10 gallon accumulators, E = 30,000cc

The pump settinng must be within the range of 0.25 to 1.8cc/stroke.

Calculate the sampling rate using the following formula and example:

The two orange count totalization knobs should be set to achieve the final totalization to initiate a stroke of the pump. Use the following example to calculate your values:

5 gallon vessel X 80% = 4 gallons of product to be collected over the entire sample cycle

4 gallons X 3785cc/gallon = 15140cc of product to be collected over the entire sample cycle.

$\frac{15140cc}{30\ days} = 504cc/day$

$\frac{504cc/day}{1.8\ cc/pump\ stroke} = 280$ strokes per day

$\frac{600\ bbl/\ Day\ (Maximum\ Daily\ Flow\ Rate)}{280\ strokes/Day} = 2.14$ bbl/pump stroke

Since counts must be counted to the nearest whole count set the Z-100 totalization at 2.

Section 4: Programming For Proportional To Flow Operation

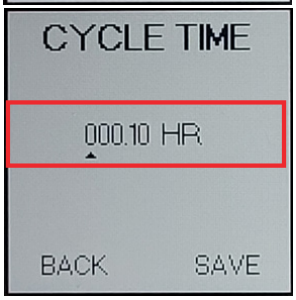
Notes

Section 5: Programming For Proportional To Time Operation

Go back to Mode menu and under Mode menu scroll down and select Timer tab and press enter.

The Z-100 controller sends a signal to the solenoid to actuate the pump at a set time interval. The cycle time must be selected. The cycle time is 0.10 hr.

The sample size of the sample pump is adjustable from 0.25 to 1.8cc/stroke. The sample grab size of the pump is adjusted by loosening the lock/seal nut on top of the pump and turning the volume adjustment screw in to decrease or increase the sample volume. Adjust the volume adjustment knob to the values shown below:



Sample Pump Displacement / Stroke	Number of turns open on the pump volume knob
.1cc	3
.2cc	6
.4cc	12

Time Based
Calculating Time:

Sample Volume Desired = **# of Pump strokes required / Sample Cycle**

Pump Displacement
Number of Minutes / Sample Cycle = Time in Minutes between Strokes

# of Pump Strokes required / Sample cycle

Example
15140 cc (5 gal vessel filled to 80% volume)
1.8cc pump displacement / stroke = 8411 pump strokes required / sample cycle
43200 (minutes in 30 days)

8411 pump strokes required / sample cycle = 5.13 minutes between strokes
(round upto the next whole minute)

6 minutes

The modes should be set to achieve desired time between strokes to initiate a stroke of the pump.

Section 5: Programming For Proportional To Time Operation

Notes

Section 6: System Maintenance

Preventative Maintenance Schedule

A preventative maintenance program serves to antici-pate maintenance issues prior to waiting until the systemrequires service. Like changing the oil & filters in anautomobile, by choosing to service the various parts andoperation in the Sampling System at regular intervals,the technician can perform the maintenance servicewhen desired, rather than when required, such as in themiddle of night.

The key is to perform maintenance before it is required.The preventative maintenance schedule implemented should consider the application of the sampler. Many ofthese considerations include: the weather environment;the condition of, the actuation gas, the product conditionand quality, and the pump stroke frequency. All of theseissues must be considered when establishing a preven-tative maintenance schedule.

Recommended Maintenance Schedule
Monthly Inspection

- Verify system pressure
- Check for leaks
- Test the battery.
- Test the system for leaks each time a fitting or connection has been made.

Annual Inspection

- Rebuild pump
- Clean and service the pneumatic relay valve
- Test the relief valve and service, as needed
- Test regulators and service, as needed
- Test the Sampler System performance and service, as needed
- Replace Z-100 Battery Assembly.

Bi-Annual Inspection

- Perform the annual inspection listed above.
- Replace solenoid.

Recommended Spare Parts List

Part #	Description	Recommended Quantity
A4-0036	Solenoid	1
E3-2005	Battery Pack	1
D3-0284	Z-100 fuse replacement kit	1
	3mm Tubing	as req'd

Section 6: System Maintenance

Notes

Section 7: System Trouble Shooting

How to Use This Section

The recommendations contained in this section should be used as a preliminary information resource to remedy operational issues with the Liquid Sampler -6 option with the Z-100 controller sampling system. It is important to read all of the definitions and notes prior to initiating work.

Each subsection contains a description of the indicators followed by a step-by-step trouble shooting procedure.

For Additional Help

Any issue that can not be resolved through the use of this reference, please contact YZ:

For Technical Support: 1-281-362-6500
1-800-NJEX-HELP
(1-800-653-9435)
Email: techsupport@yzsystems.com

SAFETY NOTES

- Always use extreme care when performing maintenance on Sampling Systems. Always take necessary measures to assure that electrical classification in the area is considered, before, and during all repairs, and that necessary steps are taken to maintain proper electrical procedures for the classification of the area.

- Take special care when disconnecting any fitting, to assure that product and/or pressure will not be released when the connection is broken. This system may contain liquid and/or gas high pressures.

Step-by-Step Resolution

Using a step-by-step method to resolve issues on the Sampling System will reduce maintenance time and assist in returning the system to service quicker.

The following represent the recommended chronology to resolve issues:

Resolve issues to the following order:

a. Actuation Gas system, *page 30*
b. Battery test, *page 31*
c. Replacing depleted battery, *page 32*
d. Solenoid maintenance, *page 33*
e. Battery Power, *page 34*
f. Controller Time mode; *page 35*
g. Controller Counter mode; *page 36*

Section 7: System Trouble Shooting

Actuation Gas System

The Sample Pump is a pneumatically actuated positive displacement pump. Pump performance is dependant on the controller, solenoid, pneumatic relay,actuation supply gas, and of course the pump itself. This section should be used to troubleshoot sampler perfor-mance, when the Sample Pump will not actuate.

Actuation GasTroubleshooting Steps

1. Verify the supply gas valves, and regulators supplying gas to the sampler system are properly functioning, and adjusted.

2. Disconnect the Pneumatic Supply connection at the top of the Sample Pump.

- There should NOT be any gas pressure present. Gas pressure should be present for ONLY seconds each time a sample pulse is generated by the Z-100 controller.
- Initiate a sample by pressing the TEST button on the Z-100 controller, and observe to see if aburst of gas is expelled from the connectionloosened in step 2 above.
- If a burst of gas is expelled from the connection loosened in step 2, the actuation system to the pump is functioning properly. Reconnect the Pneumatic Supply connection to the top of the Sample Pump. Proceed to pump performancetroubleshooting, if the problem seems to be with your pump, or proceed to step 3 to troubleshoot the Solenoid, or Pneumatic Relay

3. If a burst of gas was not detected in step 2c above,you should now begin troubleshooting the solenoid and pneumatic relay.

- Disconnect the plastic hose from the Filter/ Regulator to the solenoid and verify that gas is constantly present at that connection. If not the Filter/Regulator should be adjusted to 30-40psig, or repaired.
- Once gas is continually present as indicated in Step 3a, reconnect the plastic hose, and then remove the plastic hose that goes from the solenoid to the Pneumatic Relay.
- Gas should only be present at this connection for a second each time a sample is called for.Initiate a sample by pressing the TEST buttonon the Z-100 controller, and observe to see if aburst of gas is expelled from this connection.
- If no gas comes from the solenoid during the test, the solenoid should be replaced, and/or the controller tested.
- Once the solenoid functions properly, reconnect the plastic hose to the Pneumatic Relay, and repeat Actuation Test 2. If no there still is no burst of gas to the Pump, the Pneumatic Relay should be cleaned, and lubricated.

Z-100 Controller

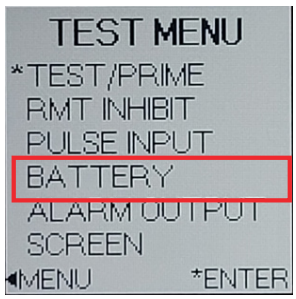
IMPORTANT NOTE: All electronics are rated for use in Class I,Division 1, Groups C and D hazardous locations.

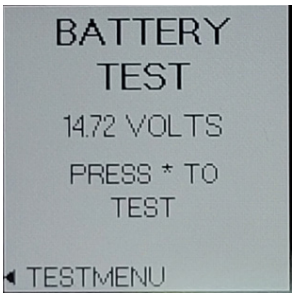
The power supply for the controller comes from acustomer supplied 24 VDC power supply. Verify that this power is reaching terminal pins 6 and 7. If proper voltage is not present, the customer supplied source of power should be resolved before proceeding. There is also fuse that are a part of the Z-100 electrical power circuit. Often electrical storms, or other electrical surges that occur at the sampler site may cause damage to the fuses. The typical symptoms to lead a technician to this step would be that the sample pump is not being actuated when the Actuation System checks out O.K.,the Z-100 LCD display is blank, or neither light comes on when the TEST button is pressed.

Section 7: System Trouble Shooting

Battery Test

The BATTERY TEST is used to verify the system power supply voltage read by the controller. The test is primarily used when to verify the voltage when the system is powered from the internal battery pack. The test can also be used to verify the voltage reading when the system is supplied by and external power source.





Select BATTERY TEST from the Test Menu and press enter on the navigation switch. The BATTERY TEST screen will open. The value shown initially will be from the previously run test and not a current reading. In order to get a valid test result, a solenoid must be connected to the system. Press enter to start the test, the solenoid will be actutated one time, the LED will flash and the battery voltage reading will be updated. A new battery will read approximately 11.5V during this test and the LED will flash GREEN.

If the battery voltage is found to be low during the test, the LED will flash RED. A fully charged new battery pack will measure approximately 14.4V if measured with a DMM or voltmeter at the battery leads.

Section 7: System Trouble Shooting

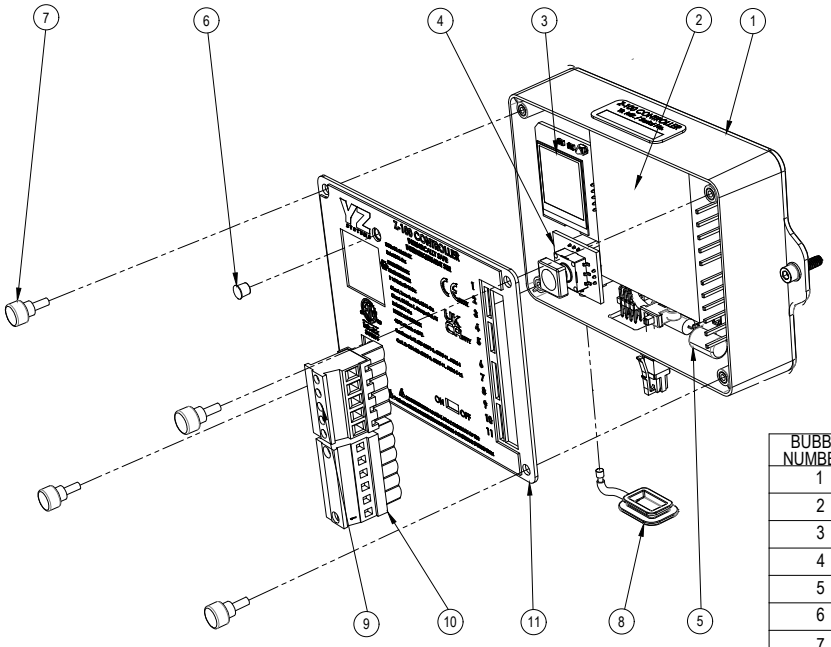
Replacing a depleted battery

- Remove the four thumb screws, cover plate and terminal connector.
- The battery is located in the upper right hand corner of the Z-100 controller assembly.
- Un-clip the battery plug from the battery receptacle.
- Replace the depleted battery with a fresh battery pack (part No. E3-2005).

IMPORTANT NOTE: Follow the illustration along with steps 1-5 to assure proper battery replacement in the Z-100 enclosure

- Restart the Z-100 controller.
- For Technical Support: 1-281-362-6500
  1-800-NJEX-HELP
  (1-800-653-9435)
  Email: techsupport@yzsystems.com

Figure 3



BUBBLE NUMBERS	PART NO.	DESCRIPTION
1	F2-0615	Z-100 Controller Assy
2	E3-2005	Battery Pack
3	G0-0096	Z-100 Display Board
4	G0-0097	Z-100 Navigation Switch
5	D3-0284	Z-100 Fuse Replacement Kit (2 Fuses per kit)
6	C0-1026	Stand Pipe
7	A9-1001	Thumb Screws
8	D5-0322	Z-100 MM Plug Cover
9	H1-0201	Z-100 5 Pin Terminal Block
10	H1-0202	Z-100 6 Pin Terminal Block
11	A9-3141	Z-100 Face Plate

Section 7: System Trouble Shooting

Solenoid Maintenance

- The solenoid assembly A4-0038 is made up of the solenoid A4-0036 and the manifold C1-0614. To replace the solenoid, remove only the two slotted head bolts as shown in figure. Removing any other screws to disassemble the solenoid voids the certification of the solenoid.

- For Technical Support: 1-281-362-6500
  1-800-NJEX-HELP
  (1-800-653-9435)
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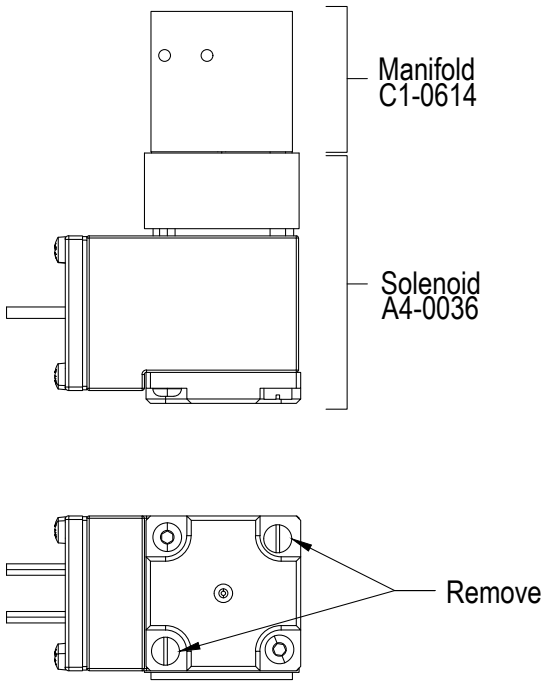
Figure 4



Section 7: System Trouble Shooting

Battery Power

The Z-100 controller and the low powered solenoid are normally powered by the Z-100 Battery assembly. The battery assembly is not a rechargeable type battery. Under normal conditions this battery may last two years. The Z-100 controller has an alarm that will advise when the battery needs replaced.

Battery Power TroubleShooting Steps

- The battery voltage can be tested with the battery test option under the test menu. Navigate to the battery test menu and press enter on the navigation switch.
- While in the battery test menu, press the navigation switch in to test the battery.

NOTE: The battery test will send a signal to the solenoid to stroke the pump - the pump will stroke odorant into the discharge line if open. This provides the most accurate load on the battery pack to be representative of the available battery life.

- The battery voltage will be displayed on the screen and the LED will flash green or red, depending if the battery voltage is acceptable or low. It is recommended to replace the battery when it reaches 11.5 volts as shown on the controller in the battery test screen with the solenoid connected.

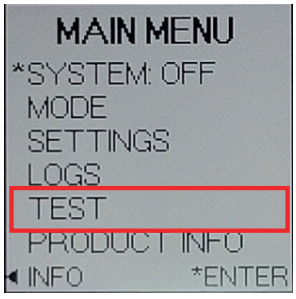
Section 7: System Trouble Shooting

Trouble Shooting: Timer Mode

Go back to Mode menu and under Mode menu scroll down and select Timer tab and press enter.

Mechanical Operation Test

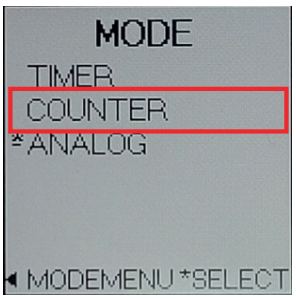
1. Set the mode to Timer.
2. This mode enables the user to increase the solenoid output rate at a set time interval.
3. Go to Main Menu, scroll down to TEST and push to choose TEST.
4. Scroll down to SCREEN. Push to choose that.
5. Press once and the screen should go to all black, then all white. It's fast - you can repeat it to double check. Push left to return to test.

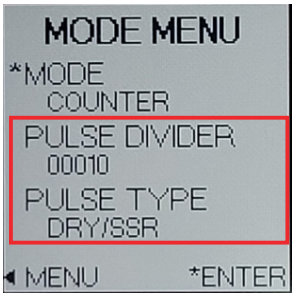


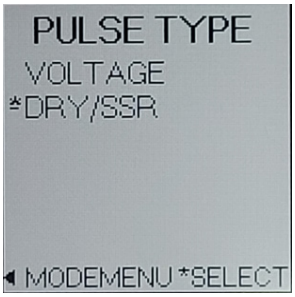
Section 7: System Trouble Shooting

Trouble Shooting: Counter Mode

Go back to Mode menu and under Mode menu scroll down and select Counter tab and press enter.







The Z-100 controller monitors a pulse input signal provided by the customer. In this mode, the Z-100 controller is used as a dividing counter to control the rate at which the solenoid output is activated to stroke to the pump. When the counter mode is selected, the pulse divider must be input to determine how often the pump will stroke in response to the incoming pulses. Navigate to the Pulse Divider option and press the navigation button in to enter the Pulse Divider screen. The arrow at the bottom of the number will indicate which digit is being modified. Press the navigation button up ro down to adjust the digit and then press the right arrow to move to the next digit. Use the right arrow to navigate to the back button and press the button in to cancel, or navigate to save and enter to save. The pulse types that can be selected are Voltage or Dry Contact/SSR. Navigation to the Pulse Type option from the Mode Menu to open the Pulse Type submenu. Select the pulse type and navigate to the select button and press enter to save, or press the navigation button to the left to discard the change.

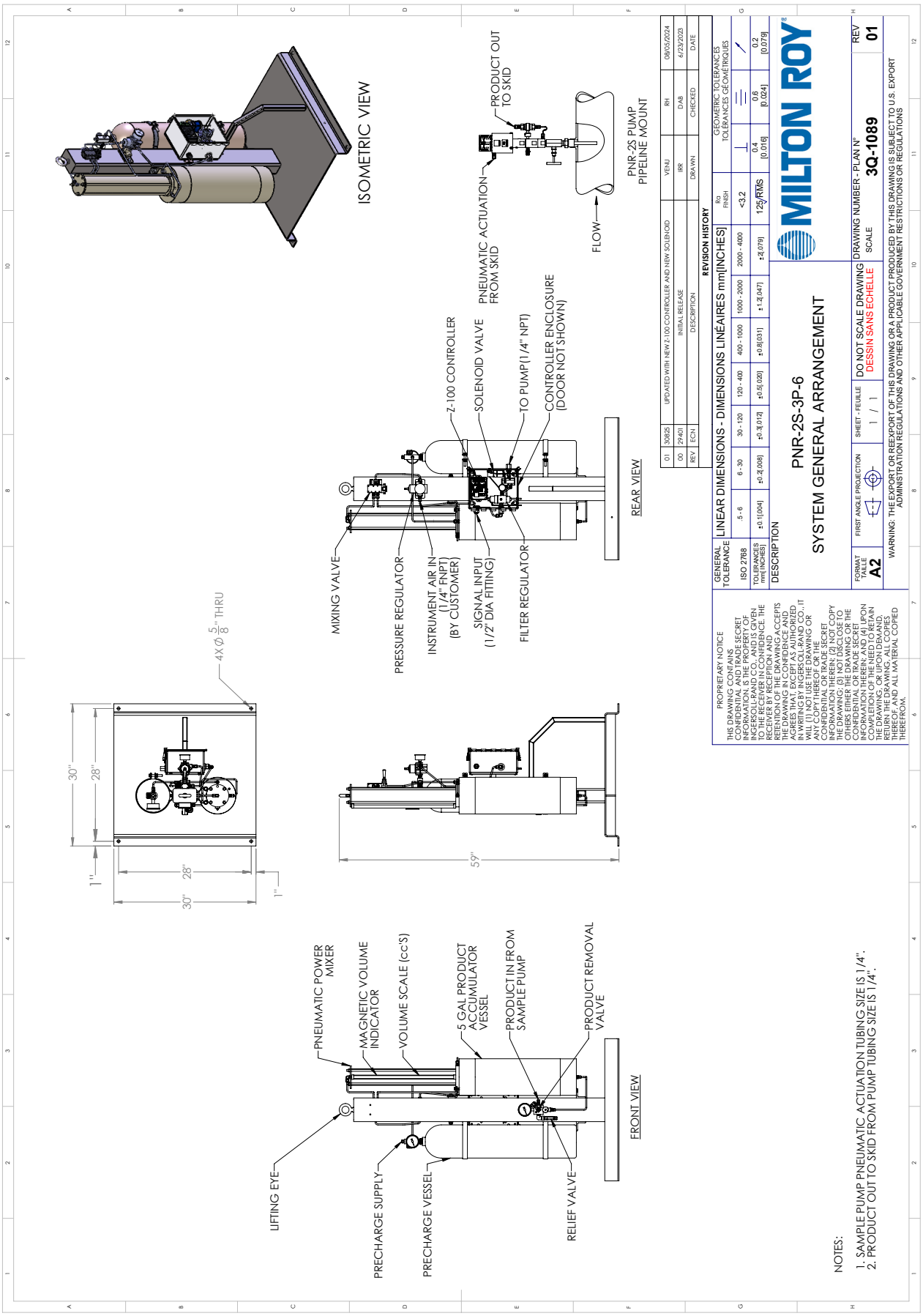
Fuse Replacement

- If the Z-100 display will not power-up, from battery or external power supply, replace F2.
- If the Z-100 powers up, but the solenoid does not activate, replace F1.

Section 7: System Trouble Shooting

Notes

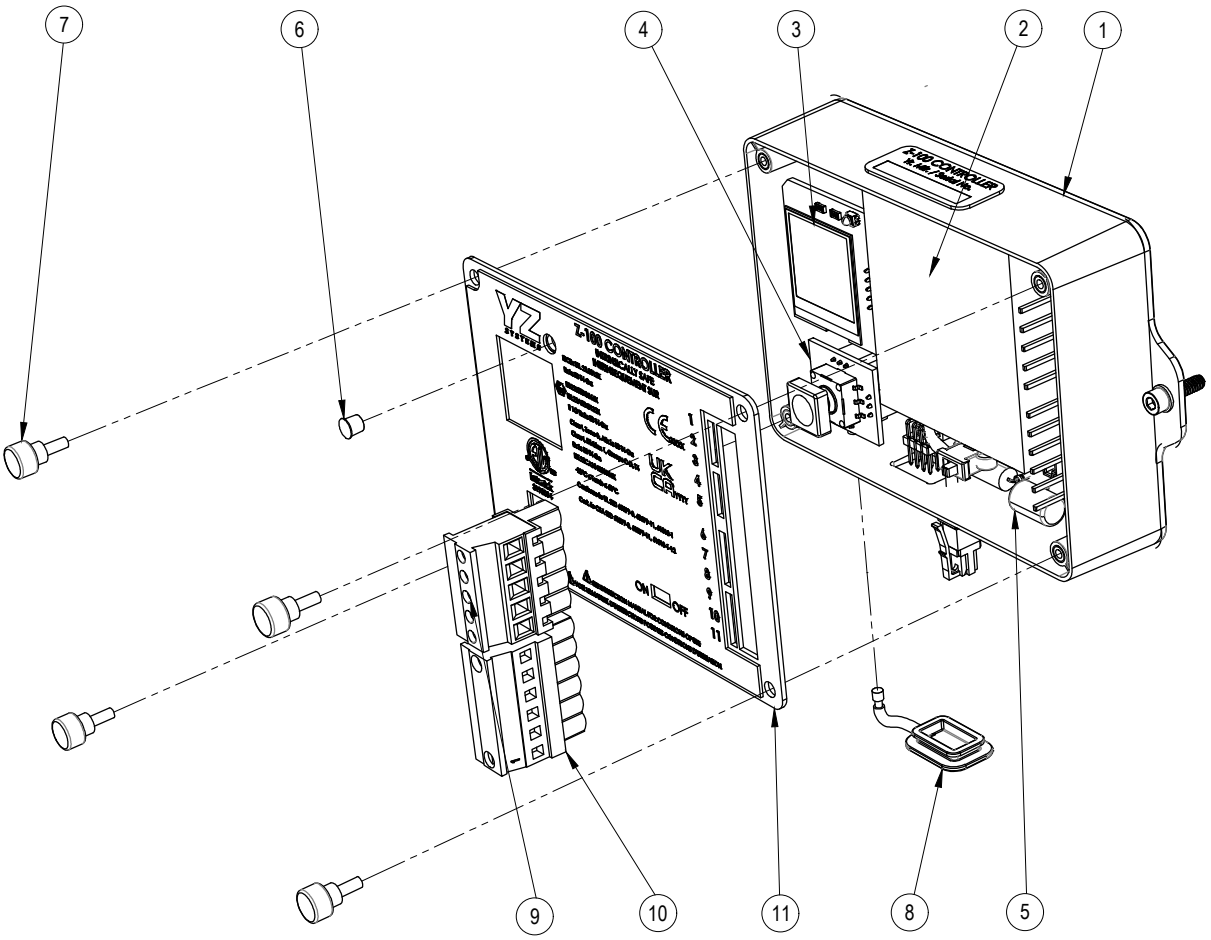
Appendix A: Illustrations



Appendix A: Illustrations

Z-100 Controller

Figure 5



BUBBLE NUMBERS	PART NO.	DESCRIPTION
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3	G0-0096	Z-100 Display Board
4	G0-0097	Z-100 Navigation Switch
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6	C0-1026	Stand Pipe
7	A9-1001	Thumb Screws
8	D5-0322	Z-100 MM Plug Cover
9	H1-0201	Z-100 5 Pin Terminal Block
10	H1-0202	Z-100 6 Pin Terminal Block
11	A9-3141	Z-100 Face Plate

Appendix A: Illustrations

Z-100 Installation Drawing

Z-100 ELECTRONIC CONTROLLER
HAZARDOUS AREA INSTALLATION INSTRUCTIONS AND DRAWINGS

The following instructions apply to equipment covered by the following certificate numbers:

IECEx:	IECEx ETL 22.0013X
ATEX:	ETL22ATEX0132X
UKEX:	ITS22UKEX0366X
NORTH AMERICA:	ETL22CA104230006X

APPLICABLE STANDARDS:
Class I, II, and III, Division 1, Hazardous (Classified) Locations
UL 913:2013 Ed.8+R:06 Dec2019
UL 60079-0:2019 ED.7 + R:15 APR 2020, UL 60079-11:2013 ED.6 + R:14 SEP2018
CSA C22.2#60079-0 : 2019 ED.4, CSA C22.2#60079-11 : 2014 ED.2)(R2018)
IEC 60079-0 : 2017 ED.7, IEC 60079-11 : 2011 ED.6
EN 60079-0 : 2018, EN 60079-11 : 2012

The Z-100 controller assembly (F2-0615) is an intrinsically safe electronic controller that can reside in a hazardous area and is used to control and monitor chemical injection or sampling applications. The Z-100 also provides several entity rated intrinsically safe customer inputs and outputs. These include 2 digital inputs, 1 digital output, and 1 analog input for interfacing to suitably certified equipment located inside or outside the hazardous area.

The Z-100 Controller may be used in hazardous area locations with flammable gas and vapors of Class I group IIB Zone 0 or Division 1 Group C-D with a temperature class rating of T4 with an ambient temperature range of -20C to +60C.

Z-100 Intrinsically Safe Controller Assembly F2-0615, shall be housed in a general purpose enclosure with or without factory interconnect wiring and mechanical components. The minimum IP rating of the system enclosure shall be IP54.

For safe operation and installation the information in this document, and the end applications system level instruction and operating manual shall be observed.

The Z-100 Controller shall only be installed and maintained by qualified personnel in accordance with all local laws, national laws, directives, and standards applicable to the country and area of installation.
Factory wiring shall not be modified.

DATE	ECN	DESCRIPTION	UPD BY	APR BY	REV
02/16/2023	28238	PRODUCTION RELEASE	GSS	YZT	00
12/14/2022	26682	PRELIM: UPDATED ENTITIES, ADDED WARNING,	GSS	YZT	C

REVISION HISTORY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE INCH[mm]
INTERPRET DIM AND TOL PER ASME Y14.5-2009
TOLERANCES:

.X	± .050[1.27]
.XX	± .010[.254]
.XXX	± .005[.127]
∠	± .5°
FRACTIONS	± 1/64[.397]

FINISH: 125 √RMS

THIRD ANGLE PROJECTION

MILTON ROY
www.miltonroy-americas.com MILTON ROY, LLC

TITLE
INSTALLATION DRAWING
YZ SYSTEMS
Z-100 CONTROLLER

DO NOT SCALE DRAWING | SIZE A | DRAWING NO 2E-0042 | REV 00 | SCALE 1 : 1 | SHEET 1 of 4

Appendix A: Illustrations

Z-100 Installation Drawing

Z-100 ELECTRONIC CONTROLLER
HAZARDOUS AREA INSTALLATION INSTRUCTIONS AND DRAWINGS

WARNING: Substitution of components may impair intrinsic safety.
AVETISSEMENT: La substitution de composants peut compromettre la sécurité intrinsèque.

WARNING: Explosion Hazard - To prevent ignition of an explosion atmosphere remove power before disconnecting any equipment or wiring unless the area is known to be non-hazardous.
AVERTISSEMENT: **Risque d'explosion -** Pour éviter l'inflammation d'une atmosphère d'explosion, coupez l'alimentation avant de déconnecter tout équipement ou câblage, à moins que la zone ne soit connue pour être non dangereuse.

WARNING: Replace removable fuses with the same type and rating to provide protection against the risk of fire and shock.
AVERTISSEMENT: Remplacez les fusibles amovibles avec le même type et les mêmes caractéristiques pour vous protéger contre les risques d'incendie et de choc.

WARNING: If battery powered, use only YZ Systems replaceable battery pack assembly, Part Number: E3-2005
AVERTISSEMENT: Si alimenté par batterie, utilisez uniquement l'ensemble de batterie remplaçable YZ Systems, numéro de pièce : E3-2005.

WARNING: F2-0615 Z-100 Controller contains lithium primary battery (VBAT1) under encapsulation. Unit may explode if mistreated. Do Not Recharge, Disassemble or Dispose of in fire.
AVERTISSEMENT: Le contrôleur F2-0615 Z-100 contient une batterie primaire au lithium (VBAT1) sous encapsulation. L'appareil peut exploser s'il est maltraité. Ne pas recharger, démonter ou jeter au feu.

WARNING: POTENTIAL STATIC CHARGING HAZARD - To avoid static buildup, use a damp cloth to clean all painted or other non-metallic surfaces.
AVERTISSEMENT: RISQUE DE CHARGE STATIQUE POTENTIEL - Pour éviter l'accumulation d'électricité statique, utilisez un chiffon humide pour nettoyer toutes les surfaces peintes ou non métalliques.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE INCH[mm]
INTERPRET DIM AND TOL PER ASME Y14.5-2009
TOLERANCES:

.X	± .050[1.27]
.XX	± .010[.254]
.XXX	± .005[.127]
∠	± .5°
FRACTIONS	± 1/64[.397]
FINISH:	125 √RMS

THIRD ANGLE PROJECTION

MILTON ROY
www.miltonroy-americas.com MILTON ROY, LLC

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INSTALLATION DRAWING
YZ SYSTEMS
Z-100 CONTROLLER

DO NOT SCALE DRAWING | SIZE A | DRAWING NO 2E-0042 | REV 00 | SCALE 1 : 1 | SHEET 2 of 4

Appendix A: Illustrations

Z-100 Installation Drawing

HAZARDOUS AREA INSTALLATION INSTRUCTIONS AND DRAWINGS

Conditions for safe use:

The system shall not be connected to any associated apparatus which uses or generates more than 250VRMS.

Installations:

USA- Installations shall be in accordance with the National Electric Code (NEC), NFPA-70, and ANSI/ISA-RPI206.1
Canada - Installation shall be in accordance with Canadian Electrical Code (CEC) Part 1 (CSA22.1).
ATEX/IECEx - Installations shall be in accordance with all applicable local and national electrical codes, EN60079-14, IEC60079-25, and all Essential Health and Safety Regulations of Directive 2014/34/EU.

Z-100 Controller Assembly F2-0615 is rated and shall be marked as follows:

Z-100 Controller
Ex ia IIB T4 Ga
Ⓔx II 1 G Ex ia IIB T4 Ga
Class I, Zone 0, AEx ia IIB T4 Ga
Class I Division 1, Groups C-D, T4

NOTES:

1. INTRINSICALLY SAFE INTERCONNECT WIRING BETWEEN DEVICES SHOWN MAY BE FACTORY INSTALLED.
2. SUBSTITUTION OF COMPONENTS COULD IMPAIR INTRINSIC SAFETY.
3. CABLE(S) X SHALL BE SHIELDED TWISTED PAIR TYPE. CABLE SHIELDS SHALL BE EARTHED PER 60079-14 IN NON-HAZARDOUS AREA.
4. WHEN USING MULTI-CORE TYPE CABLE(S) FOR CABLE X THE CABLE SHALL BE TYPE A OR B PER 60079-25 CLAUSE 9.
5. IF USING DIODE SAFETY BARRIERS, FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS FOR PROPER SAFETY GROUNDING TO PROTECTIVE EARTH.
6. ANALOG FLOW INPUT (TB2) AND COUNT INPUT (TB2) SHALL NOT BE CONNECTED AT THE SAME TIME.
7. INTRINSIC SAFETY BARRIERS OR ISOLATORS SHALL BE COMPLIANT WITH THE SAFETY PARAMETERS LISTED FOR EACH INPUT OR OUTPUT.
8. THE AMBIENT TEMPERATURE RANGE FOR F2-0615 IS -20C TO +60C.
9. F2-0615 INTRINSIC SAFETY PROTECTION LEVEL IS: "ia".
10. EXTERNAL I.S. SUPPLY AND BATTERY PACK E3-2005 SHALL NOT BE CONNECTED AT THE SAME TIME.
11. REPLACEABLE INTRINSICALLY SAFE BATTERY PACK ASSEMBLY, E3-2005, CONTAINS LITHIUM PRIMARY CELLS. DO NOT STORE OR USE IN TEMPERATURES EXCEEDING 85C. DO NOT CHARGE, DISASSEMBLE, OR INCINERATE. DEPLETED BATTERY PACKS SHOULD BE DISPOSED OF PER LOCAL REGULATIONS.
12. ALTHOUGH RECOMMENDED TO VERIFY THE AREA IS SAFE, THE E3-2005 BATTERY PACK MAY BE REPLACED SAFELY IN A HAZARDOUS AREA. REPLACE **ONLY** WITH YZ PN: E3-2005 INTRINSICALLY SAFE BATTERY PACK ONLY, **SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.**
13. MM-100 MEMORY MODULE ASSEMBLY F2-0268 IS NOT NORMALLY CONNECTED TO THE CONTROLLER. TO PREVENT POTENTIAL DAMAGE OR SYSTEM RESETS WHEN MEMORY MODULE IS NOT IN USE, COVER THE CONTROLLER CONNECTOR WITH PROVIDED SEAL. SHORT CIRCUITS OR ESD DISCHARGE TO TO THESE CONNECTIONS COULD RESET OR DAMAGE THE CONTROLLER.
14. Z-100 CONTROLLER IS INTENDED FOR FIXED INSTALLATION.
15. Z-100 CONTROLLER F2-0615 SHALL BE MOUNTED IN AN ENCLOSURE WITH A MINIMUM IP54 RATING IN SYSTEM LEVEL OR FINAL INSTALLATION.
16. MATERIAL USED IN Z-100 COVER PLATE IS ALUMINUM WHICH EXCEEDS 10% IN TOTAL. PLEASE SEE APPLICABLE SYSTEM LEVEL USER MANUAL FOR INSTRUCTIONS TO AVOID IGNITION HAZARD DUE TO IMPACT OR FRICTION.
17. **SCHEDULE DRAWING - DO NOT MODIFY WITHOUT AGENCY APPROVAL.** ⟨Ex⟩

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE INCH[mm]
INTERPRET DIM AND TOL PER ASME Y14.5-2009
TOLERANCES:

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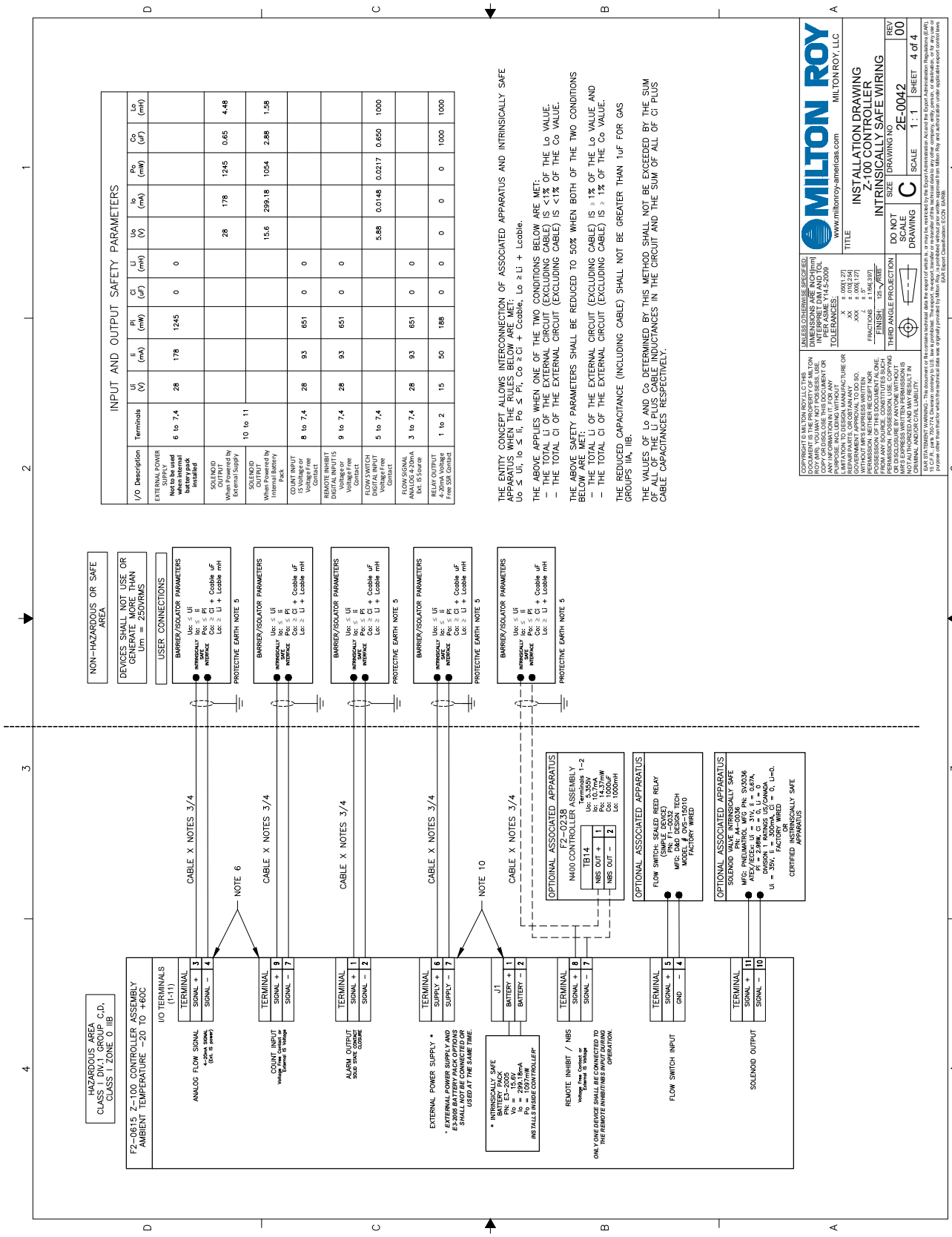
Appendix A: Illustrations

Z-100 Installation Drawing



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TechSupport@yzsystems.com

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