



Consolidator+

MasterClass

Week 7 – Basics of Configuration

Today's Key Topics

- How to Setup an “Input”
- Turning your Input into a “Channel”
- Creating a “Screen” – and adding Channels
- How to Setup an “Output”
- Turning your Output into a Channel



ConsoliDator+

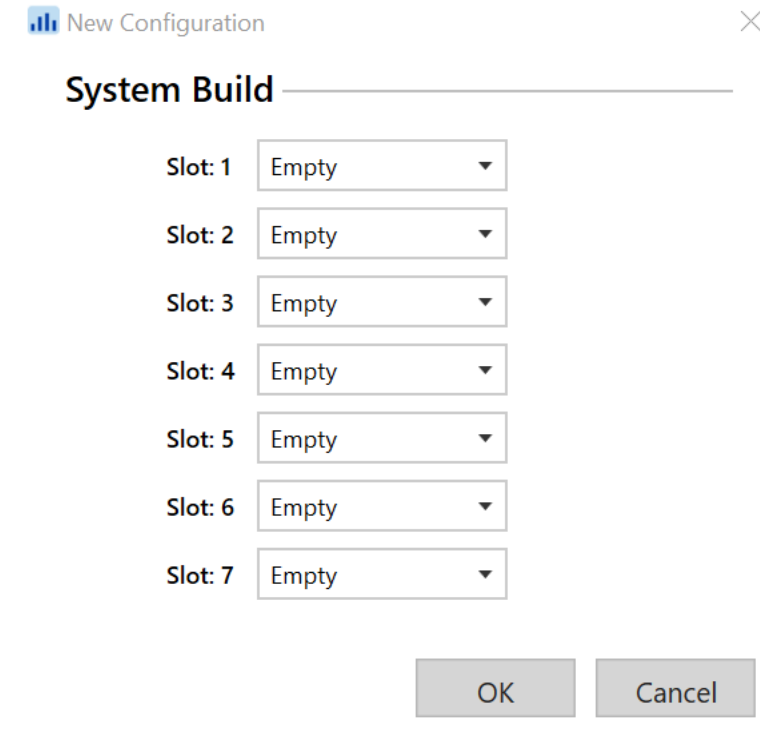
MasterClass

Configuring Your “System Build”

When you first open the ConsoliDator+ Configuration Software, the first thing you want to do is a “New Configuration”.

This is where you tell the software which I/O cards are in which slots.

NOTE: *The software will NOT automatically recognize these I/O cards.*



New Configuration

System Build

Slot: 1	Empty
Slot: 2	Empty
Slot: 3	Empty
Slot: 4	Empty
Slot: 5	Empty
Slot: 6	Empty
Slot: 7	Empty

OK Cancel

Setting Up Your Inputs

All of the available “Inputs” on your ConsoliDator+ unit will be listed right on the left side of the screen and are organized by input type:

Analog Inputs

Pulse Inputs

Digital Inputs

Modbus Inputs

The screenshot shows the ConsoliDator+ v2.1.2-PREDIG web interface. At the top, it indicates the device is 'Disconnected' and 'No devices were found.' The left sidebar contains a menu with 'Inputs' selected, showing a tree view of input types: mA Input (AI-1. 2a (mA) to AI-4. 2d (mA)), Pulse Input (PI-1. 1a (Pulse) to PI-4. 1d (Pulse)), Digital Input (DI-1. Digital In 1 to DI-5. Digital In 5), and Modbus Input. The main area displays the 'INPUT SETTINGS OVERVIEW' for two mA inputs:

- 2a : mA Input**
 - Display Tag: AI-1. 2a (mA)
 - Filter: WIN 8 sec
 - Bypass: 0.5 Percent of Full Scale
 - Break Below: 0.010 mA
- 2b : mA Input**
 - Display Tag: AI-2. 2b (mA)
 - Filter: WIN 8 sec
 - Bypass: 0.5 Percent of Full Scale

Setting Up Your Inputs

Now, let's choose the very first "mA Input".

You will notice the "name" of this input is rather unusual, but there is a purpose for this seemingly weird input name.

The "name" tells a user what type of input it is, and physically where it is located in the back of the unit!

The screenshot shows the software interface for the ConsoliDator+ v2.1.2-PREDIG. The top bar indicates the device is "Disconnected" and shows "No devices were found." Below this is a menu with "File", "Connections", and "About". A sidebar on the left lists various input types: Timers, Alarms, Inputs (expanded), mA Input (expanded), Pulse Input, and Digital Input. Under "mA Input", the first option "AI-1. 2a (mA)" is selected. The main panel displays the configuration for "2a : mA Input". It includes a "Display Tag" field set to "AI-1. 2a (mA)", a "Filter" dropdown set to "WIN 8 sec", a "Bypass" field set to "0.5" with the label "Percent of Full Scale", and three checkboxes: "Glitch Filter" (unchecked), "Break Below" (checked) with a value of "0.010 mA", and "Disable Input Channel" (unchecked).

For Example:

"AI-1. 2a (mA)" means... it's an analog input, it's in slot number two and it's the first input in the slot

Setting Up Your Inputs

To make things easier as the ConsoliDator+ gets busier, I STRONGLY RECOMMEND that you name your channels with something meaningful.

Whether it be where the signal is coming from, the serial number of the transmitter....

Name your inputs something meaningful!

The screenshot shows the ConsoliDator+ v2.1.2-PREDIG software interface. The top status bar indicates 'Disconnected' and 'No devices were found.' The left sidebar shows a tree view of settings: Timers, Alarms, Inputs (expanded), mA Input (expanded), AI-1. Level Sensor (selected), AI-2. 2b (mA), AI-3. 2c (mA), AI-4. 2d (mA), Pulse Input (expanded), PI-1. 1a (Pulse), PI-2. 1b (Pulse), PI-3. 1c (Pulse), PI-4. 1d (Pulse), and Digital Input. The main configuration area for '2a : mA Input' is shown, with the following settings: Display Tag: AI-1. Level Sensor (Name for the mA input channel, 15 characters max.); Filter: WIN 8 sec (Filter time window. If you need a more stable reading, select IIR 16 or 32 sec.); Bypass: 0.5 Percent of Full Scale (If the signal change is greater than the bypass value, the reading jumps to the actual value ± Bypass % of full scale.); Glitch Filter: unchecked (Eliminates short duration noise spikes); Break Below: checked, 0.010 mA (Set the mA value at which a sensor break is reported to the system); Disable Input Channel: unchecked (Turns off the power to the input. This should only be used to save power on unused inputs.).

For Example:

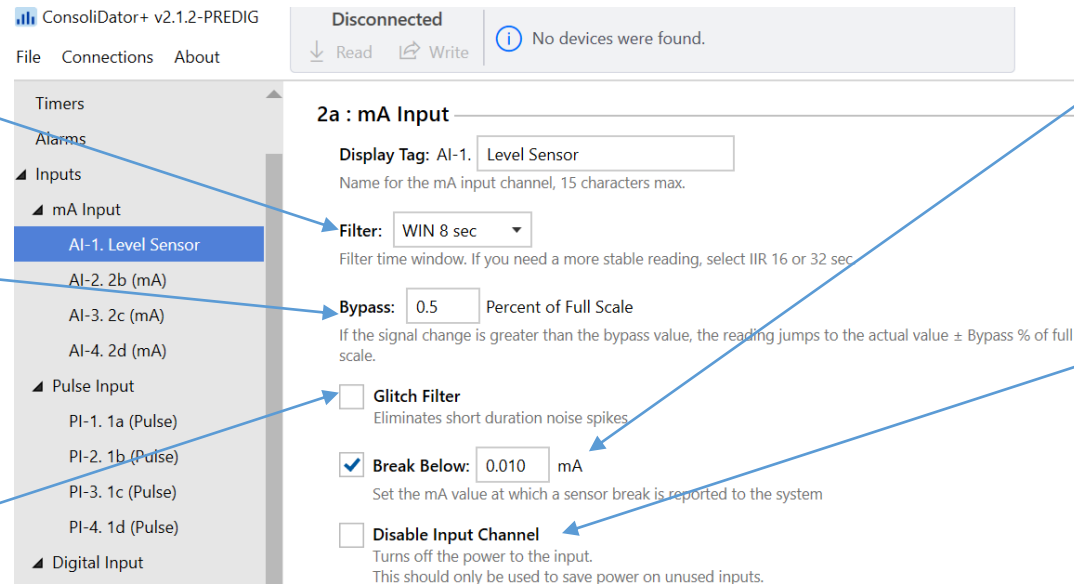
If you had to configure 28 inputs, wouldn't it get a little confusing having to differentiate which inputs go to which process?!

Setting Up Your Inputs

Filter: Filters out any possible signal noise, makes the signal less “jumpy”

Bypass: This helps make sure the filtering isn't going to ignore REAL signal fluctuations

Glitch Filter: More filtering for signal noise



Break Below: This allows you to report a loss in signal which can then be used to trip an alarm.

Disable Input Channel: This feature allows you to turn the channel completely off. This is done to conserve power since each input has a 24 VDC power supply

Turning Your Input Into a Channel

The very first step is to find the “Channels” option on the left side of the software, and then click on the “NEW” button highlighted in yellow!

The screenshot shows the ConsoliDator+ v2.1.2-PREDIG software interface. The top status bar indicates "Disconnected" and "No devices were found." The main window is titled "CHANNELS SETTINGS OVERVIEW" and features a "New" button highlighted with a yellow circle. On the left, a sidebar menu lists various input types: Channels, Totals, Timers, Alarms, Inputs (mA Input, Pulse Input, Digital Input), and their respective sub-items. A "New Channel" dialog box is open, allowing configuration of a channel. The dialog includes fields for Channel (1), Display Tag (1), Color Scheme (Default), Function (None), Input (None), Units (None), and Decimals (2). A "Bargraph" checkbox is checked, with 0% and 100% values set to 0.00 and 100.00 respectively. "Save" and "Cancel" buttons are at the bottom right of the dialog.

Turning Your Input Into a Channel

Display Tag: Just like with the input names, it is VERY wise to name your channels

Function: This is where you choose the function of the channel. Do you want to perform math? Or just have a 2-point scale? Etc.

Input: From which “object” this channel should be taking its direction

New Channel

Channel: 1.

Display Tag: 1. Tank 1
Name for the Channel, 15 characters max.

Function: None

Input: None

Units: None

Decimals: 2 + -

Color Scheme: Default

Bargraph 0% 0.00
100% 100.00

Save Cancel

Units: Select the engineering units for the channel, from a pre-defined library of engineering units, or choose your own custom units!

Color Scheme: This is where you can change the “color scheme” of your bar graph, channel, and text. You can even create custom color schemes here.

Bargraph: This checkbox allows you to have a bargraph show up on the screen as well as numbers and engineering units.

Turning Your Input Into a Channel

New Channel

Channel: 1.

Display Tag: 1. Tank 1
Name for the Channel, 15 characters max.

Color Scheme: Default

Function: Scale Linear 2-Pt

Bargraph

0% 0.00

100% 100.00

Input: AI-1. Level Sensor

Units: %

Decimals: 2

Scale:	Input	Output (%)
1.	4.000	0.00
2.	20.000	100.00

Cutoff: 0.00 %

Save Cancel

For simplicity's sake, we just want to setup a channel to monitor the level in a tank from 0-100%.

We chose "Level Sensor" as our 4-20 mA input.

We decided to just measure the level in "percentage"

Scaling our input is SUPER simple with this software. You simply type in your mA values (defaults at 4 and 20 mA, but you can change to any range you want) and then tell the device what you want the channel to display at the top and bottom of your scale.

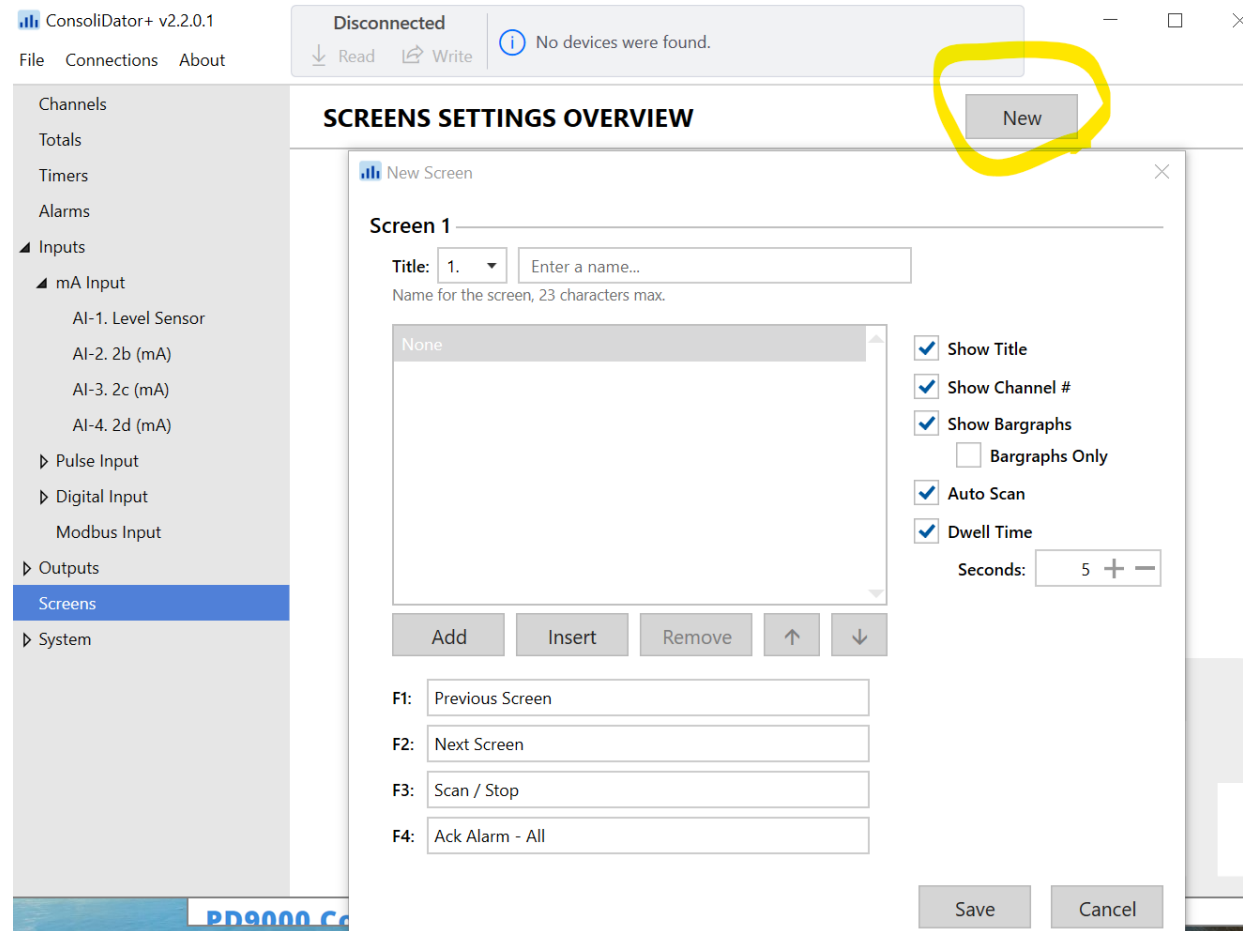
For this example, we just want it to be scaled from 0-100%

PLEASE refer to the corresponding Study Guide for this week to receive a much more detailed explanation for how a channel can be configured.

How to Create a Screen and Add Channels!

Simply find the “Screens” option on the left side of the software window, and click the “NEW” button highlighted in yellow...

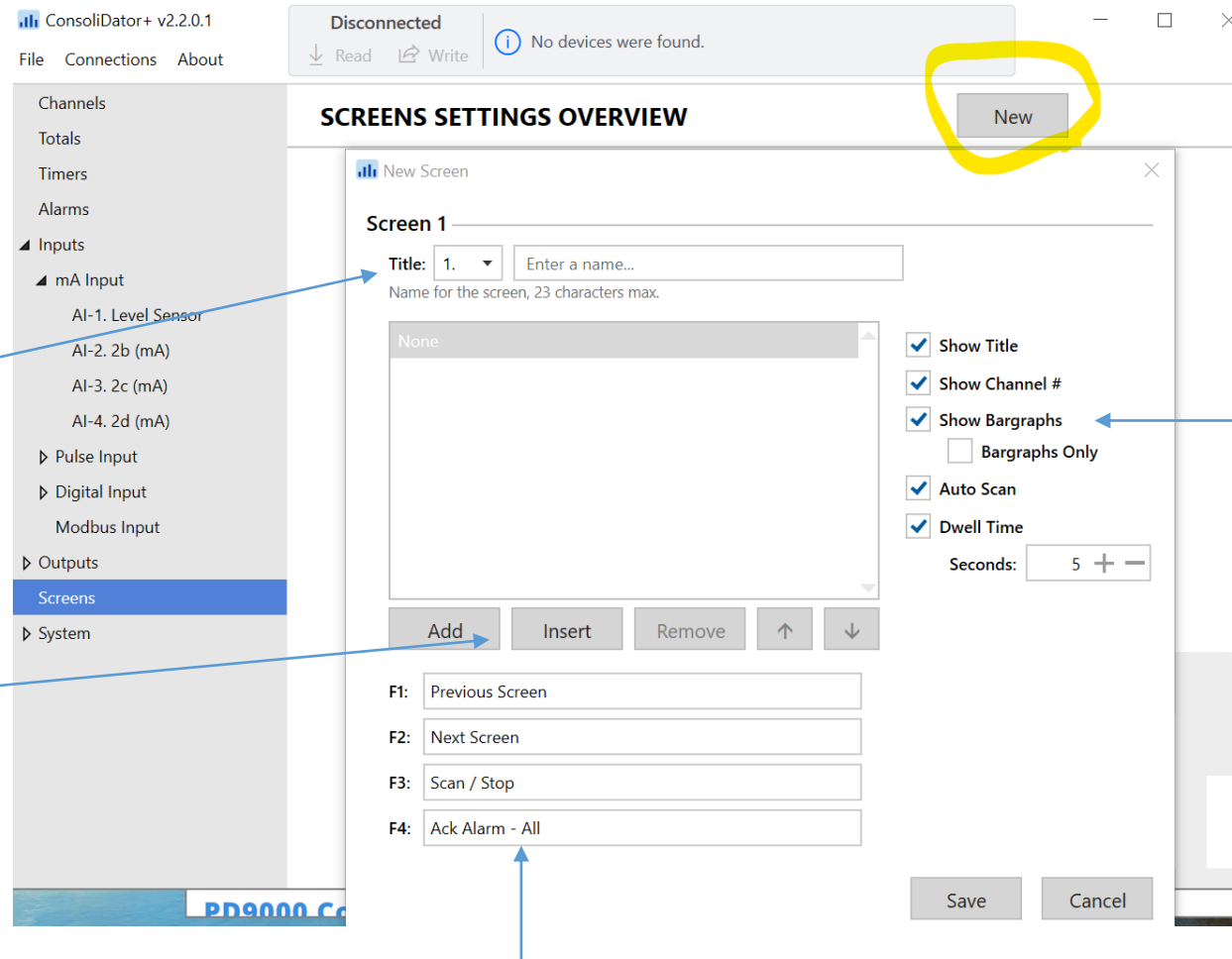
You may be noticing a pattern here...



How to Create a Screen and Add Channels!

Title: As with everything else we have created, we can even name the screens, and yes, I STRONGLY suggest you do so!

Add/Insert: This allows you to add/insert different “Objects” you have created. For example, our “Tank 1” Channel



For a more detailed explanation of these checkboxes, and what they can do, please refer to the Study Guide for this session as it is too much to type in a slide deck.

F1 – F4: These are how you can program different “Soft Keys” that appear on the screen. Details on programming these in next week’s class.

How to Setup an Output

Find “Outputs” on the left side of the software window and select the output you want to configure.

For this example, let’s just take a look at how to setup a relay as an output!

The screenshot shows the 'ConsoliDator+ v2.2.0.1' software interface. The top status bar indicates 'Disconnected' and 'No devices were found.' The left sidebar contains a tree view with 'Outputs' selected. The main panel displays the 'OUTPUT SETTINGS OVERVIEW' for four mA outputs:

- 4a : mA Output**
Display Tag: AO-1. 4a (mA)
Name for the mA output channel, 15 characters max.
Input: None
Fixed: 4.000 mA
- 4b : mA Output**
Display Tag: AO-2. 4b (mA)
Name for the mA output channel, 15 characters max.
Input: None
Fixed: 4.000 mA
- 4c : mA Output**
Display Tag: AO-3. 4c (mA)
Name for the mA output channel, 15 characters max.
Input: None
Fixed: 4.000 mA
- 4d : mA Output**
Display Tag: AO-4. 4d (mA)

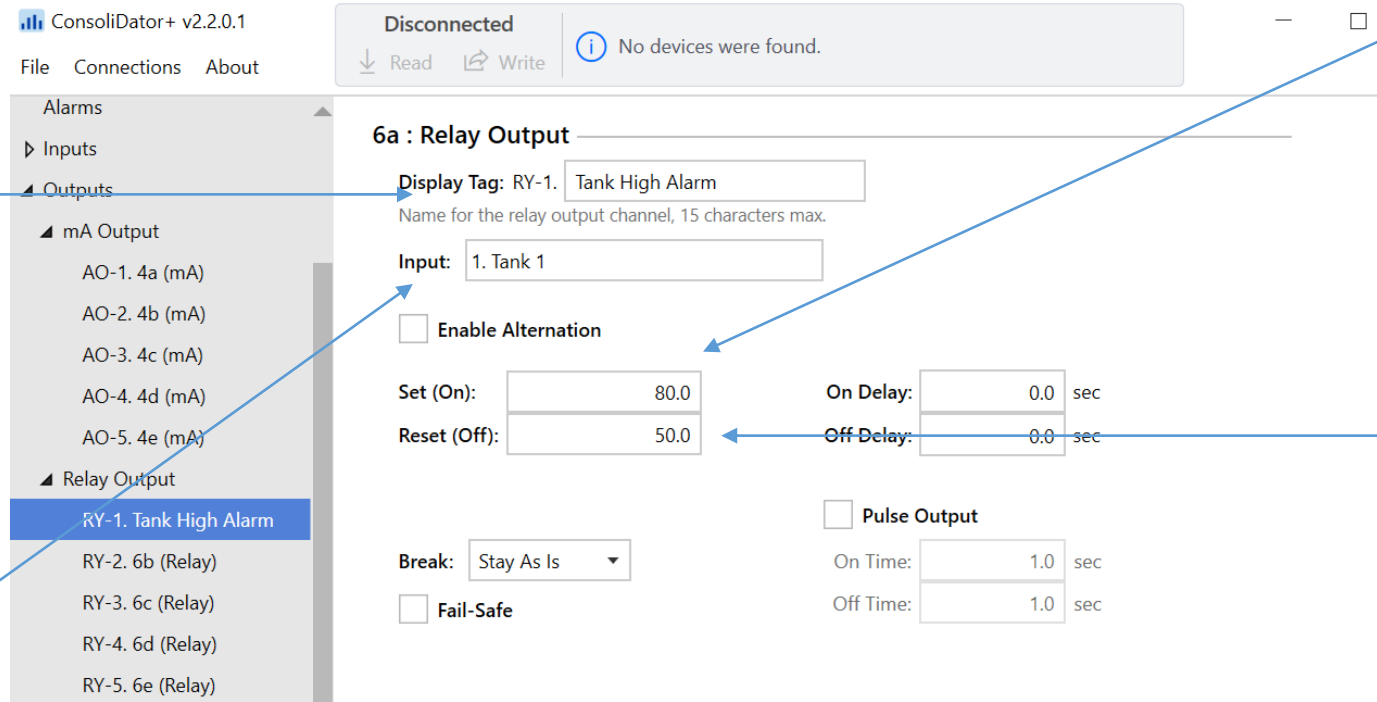
NOTE: Only outputs which were configured in the “System Build” will appear here. The device will NOT automatically recognize I/O cards.

How to Setup an Output

Display Tag: Are you sick of hearing me suggest that you name EVERYTHING you can?

Well, either way, it's a good idea to label the relay output you want to use.

Input: Tell the device which "object" is going to control the relay's behavior



Set: At which point in your scale (the scale we used for "Tank 1" channel) you want the relay to energize.

Reset: At which point in your scale you want the relay to return to its "normal state" – or, de-energize.

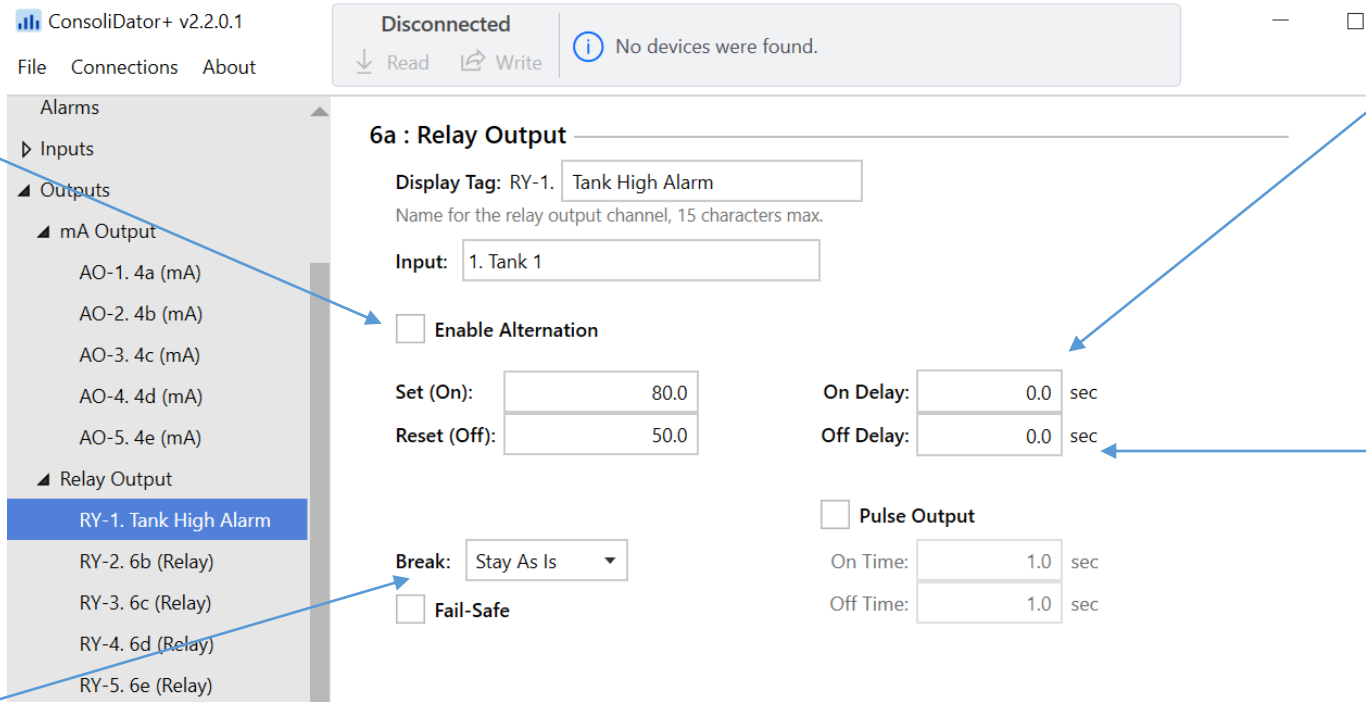
NOTE: This relay is setup to energize when our "Tank 1" reaches 80% capacity, and return to its normal state when our Tank 1 reaches 50%

How to Setup an Output

Enable Alternation: This setting is used for pump alternation, or duplex pump control. We will learn more about this in a future session, so ignore it for now.

Break: If we get a signal loss on “Tank 1” ... How do you want the relay to behave? It can...

Stay on, Turn off, Stay as Is



On Delay: How long the relay should wait before energizing once the setpoint is reached

Off Delay: How long the relay should wait before returning to its normal state once the reset point has been reached.

NOTE: We are not going to worry about the “Pulse Output” or the “Fail-Safe” in this session, but there is a description of each in the Study Guide.

Making Your Output a Viewable Channel

By this point, I bet you can figure this one out without my help!!

In certain situations, it may be nice to have a relay output as a viewable channel on a screen. For example, if you wanted a visual confirmation that a pump is actually running, you could configure a relay on a screen.

Or, let's say you have a customer who wants to view what their analog output is truly sending to their PLC, they could have that output as a viewable channel on a screen.

To do this, it's actually REALLY simple...

Create a new "Channel" and select the relay output you want as the "Input" to your Channel (I know, it gets sort of confusing) and then add that channel to a Screen you configured.

It's quite literally THAT simple! If you know how to setup a typical channel, you know how to configure an output as a viewable "Object" on a screen!