CODI
CRAFT CANNING SYSTEM

Pneumatic Troubleshooting

In this walkthrough we will address a couple different issues, all pertaining to a pneumatic error.

Whether your main air/CO2 is showing zero, a single fill head showing **.*, or a module block showing red lights. All of these issues will be addressed.

It should be noted that not every possible outcome can be addressed, and more so that these are processes by which we find the problem.

Main air/CO2 showing 0 psi

If you fired up your filler with air and CO2 connected and open, and your HMI is showing a 0 psi value for both, this section will walk you through the steps to remedy the issue.

Following process is for machines V19 and older, newer machines perform this upon startup

If filler is V20 or newer, close off valve 4 into tank and power cycle filler. The following process is performed on its own upon startup.

After confirming flow from compressor/CO2 tank to the filler, verify that the regulators on the Codi filler are showing a value, and the air/CO2 are making it to the machine.

Main Air Regulator - 115psi

Main CO2 Regulator - 55psi
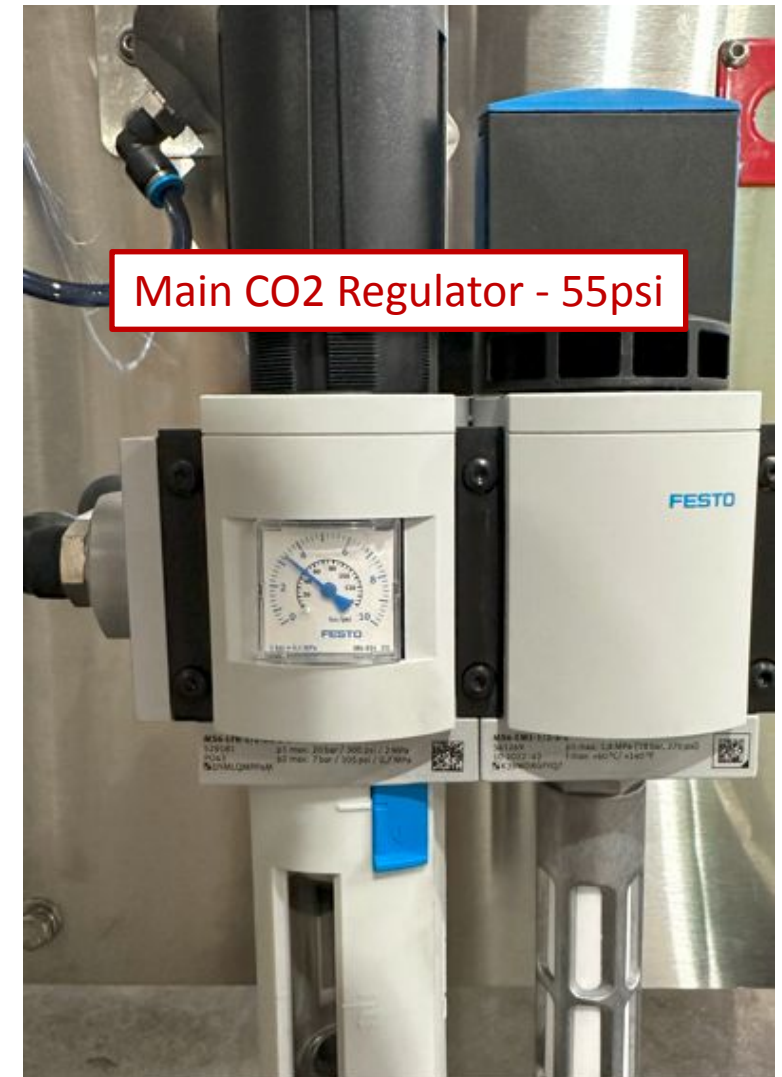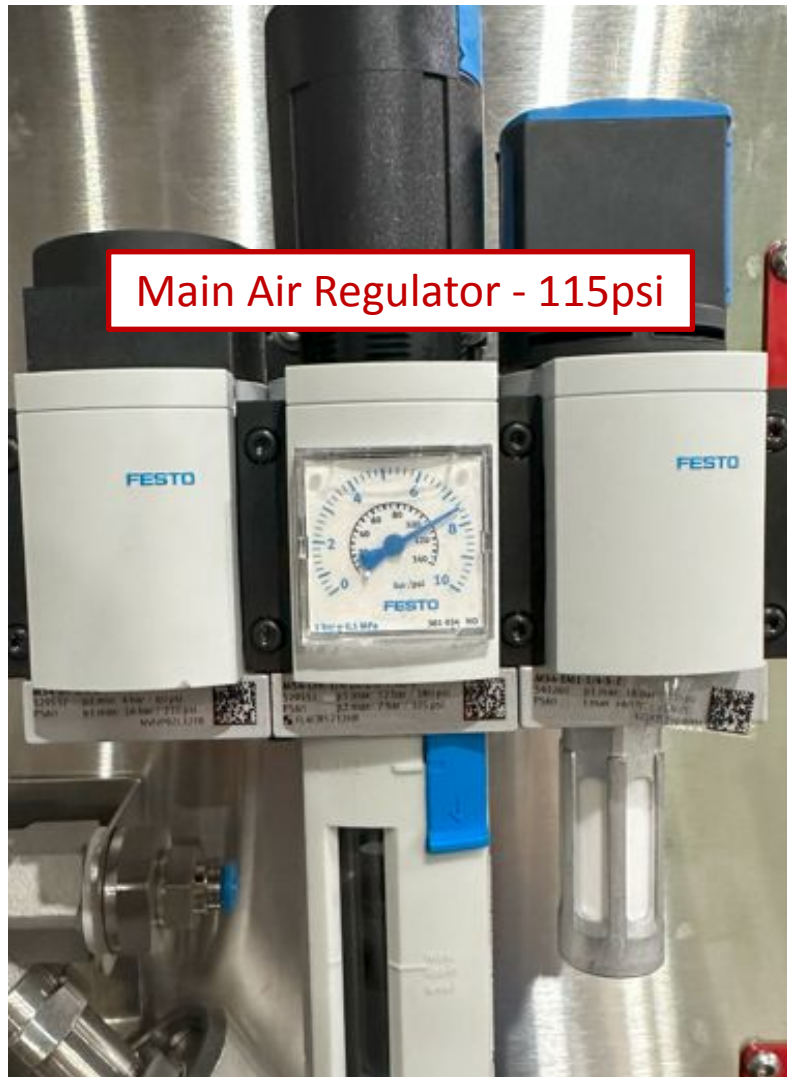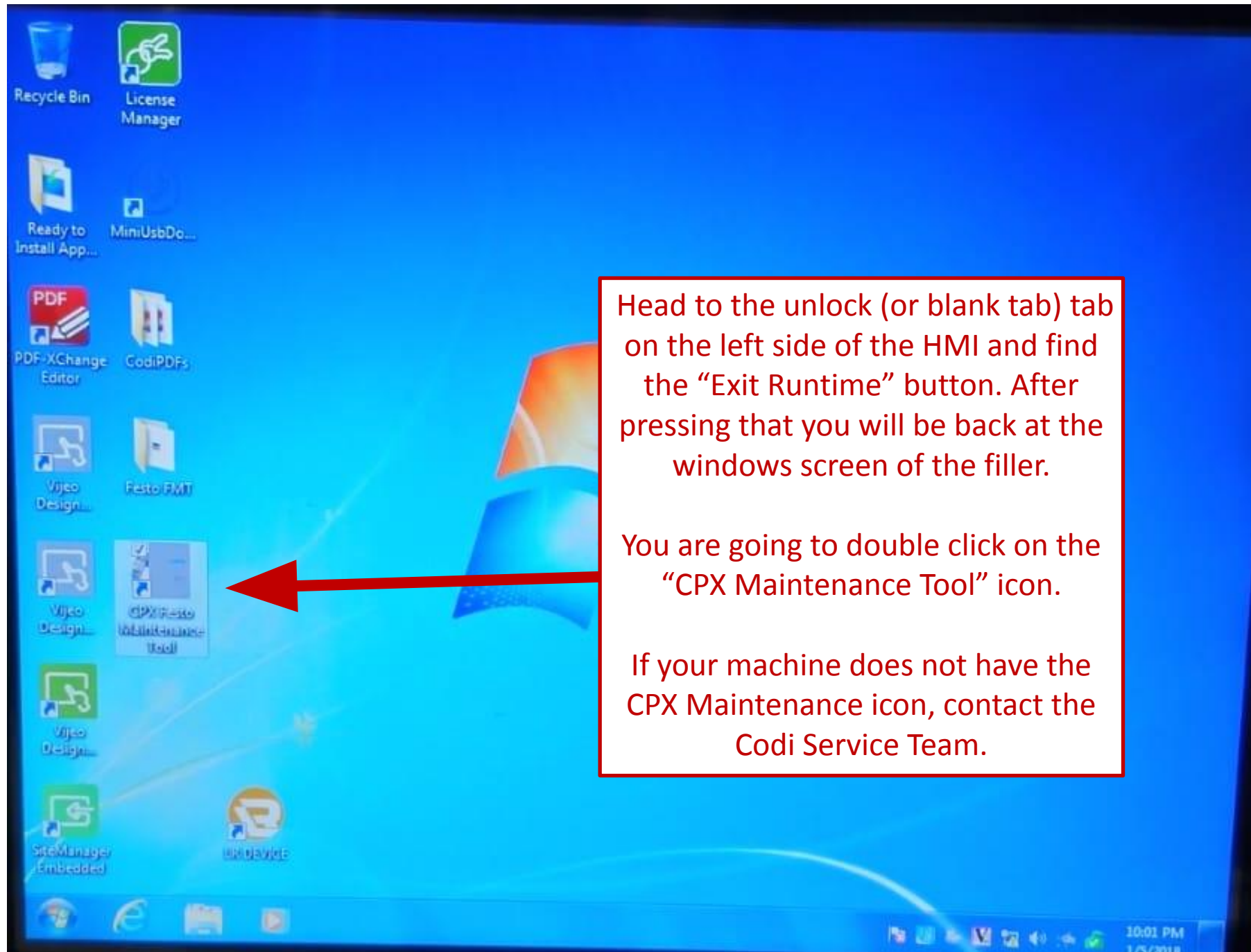
Head to the unlock (or blank tab) tab on the left side of the HMI and find the "Exit Runtime" button. After pressing that you will be back at the windows screen of the filler.

You are going to double click on the "CPX Maintenance Tool" icon.

If your machine does not have the CPX Maintenance icon, contact the Codi Service Team.
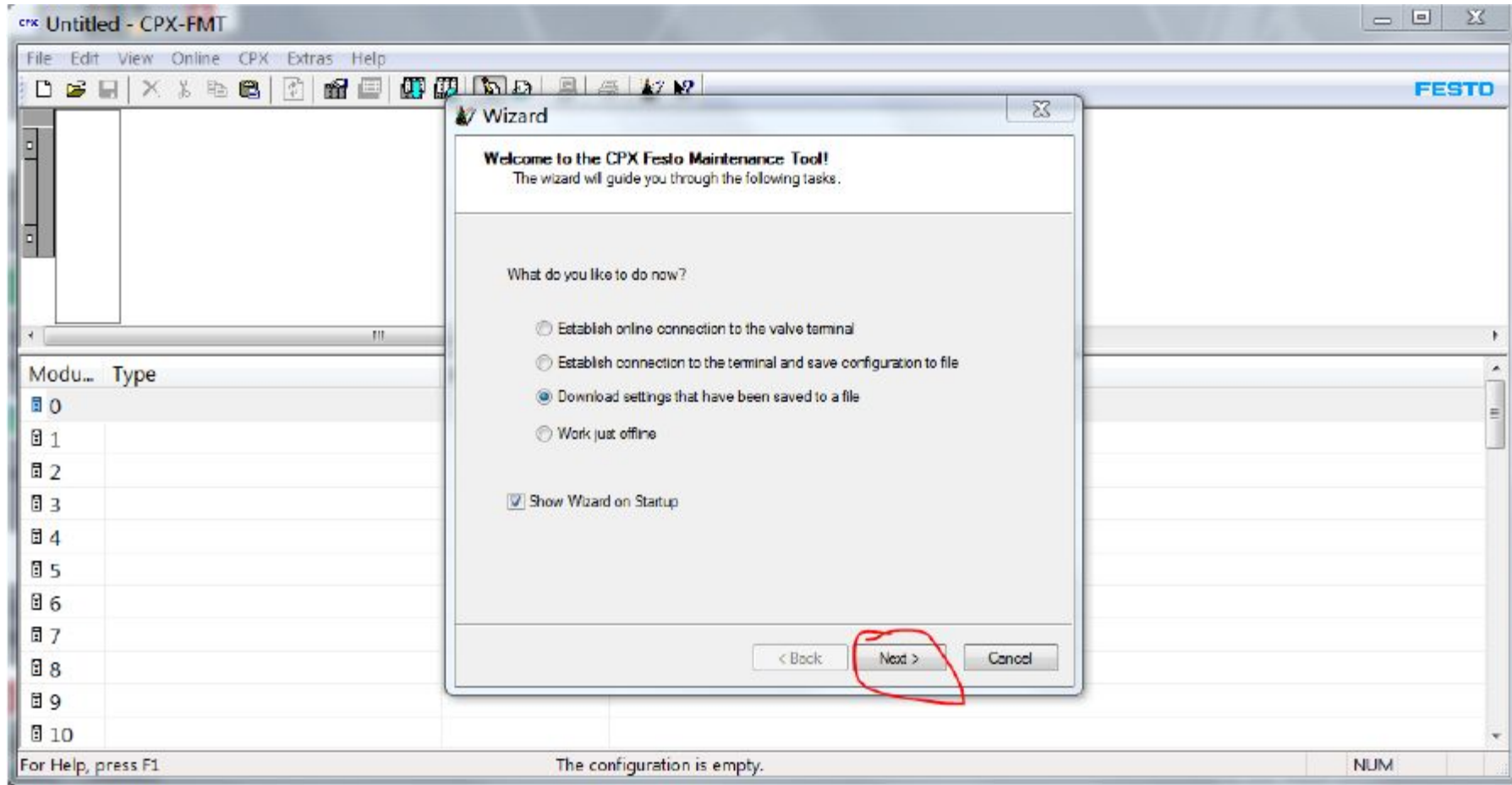
After the program has opened, it will look like this. Click the next button to begin operation of the maintenance tool.

The next screen shows the file being uploaded to the valve manifold. If you need to browse and locate it, it will be a .cpx file extension.

After selecting the file, click the next button.
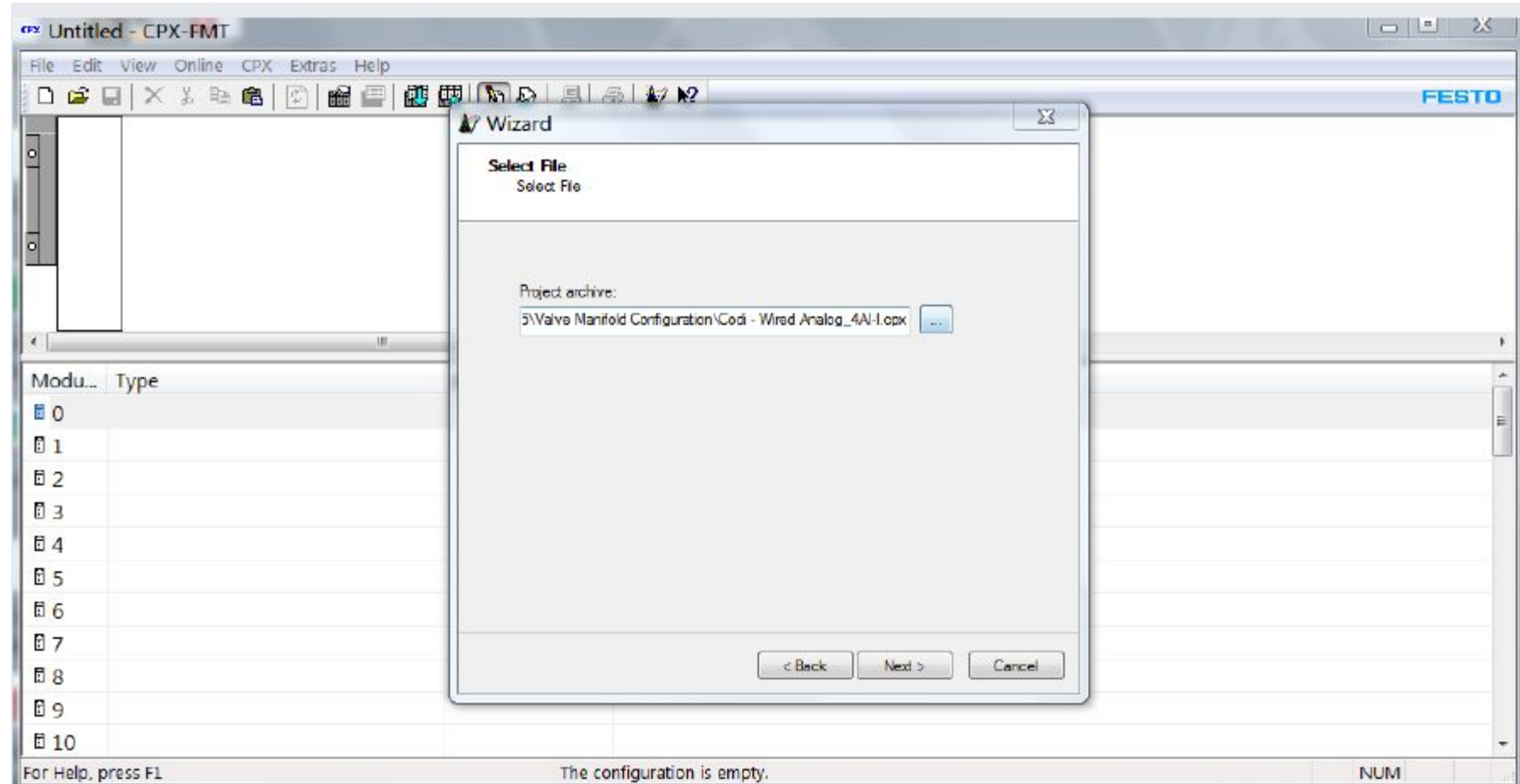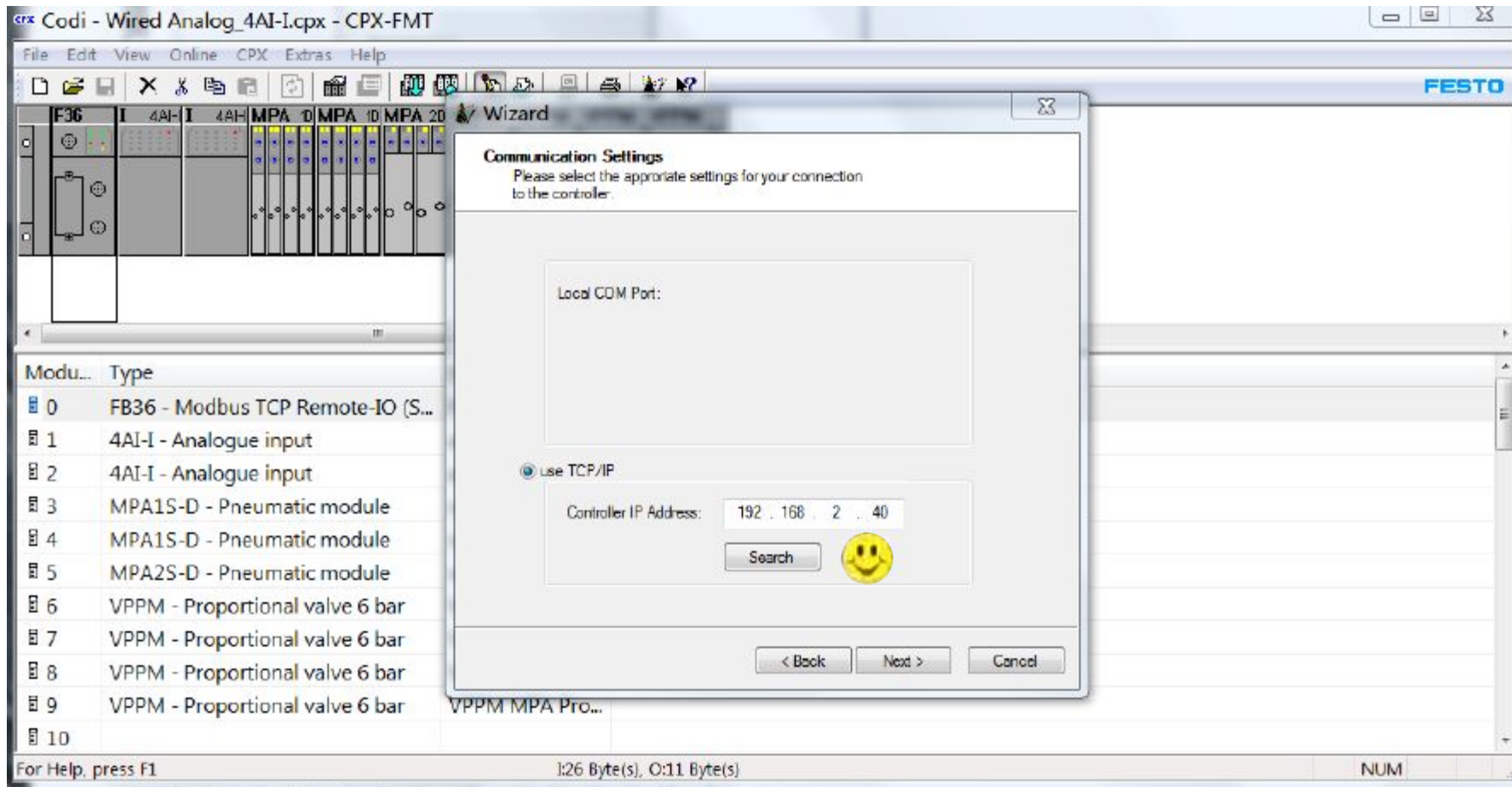
There will be a couple different prompts where you will hit the next button till you get to this screen.

Ensure that the IP Address in the window is exactly as you see here.

If you see any face other than a normal smiley face, exit out and start the process over again. If this issue persists, contact the Codi Service Team.

If everything looks like what you see here, click the next button.

The final screen of the wizard will look like this. Click the finish button, exit the program.

Once you are back to the windows screen, to re-enter the Codi OS, you will need to double click on the green "Vijeo Design" icon.

Hit continue and head back into the runtime as usual. You should now have a main air and CO2 reading.
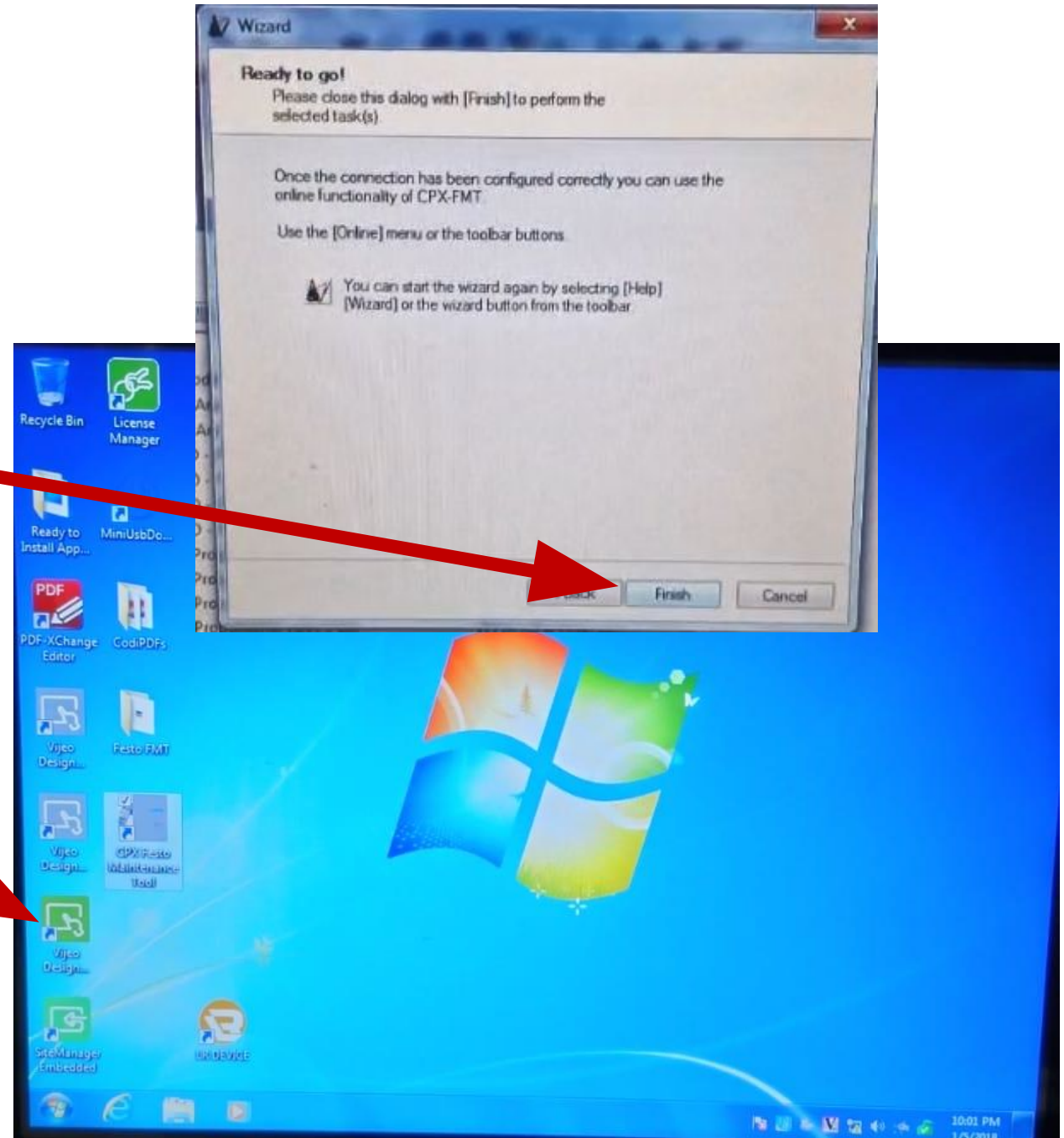
The issue we repaired was the Festo Valve Manifold had lost its values and they needed to be reloaded onto the unit from the PLC. This issue may happen twice in a week, once a year, or every power cycle, the fix is always the same.

Fill head pressure showing **.*

In this section we will cover the steps to tracing a fill head that is showing asterisks instead of a 0 psi value.

As we move forward in this section, we have a few culprits that could be causing the issue. Our objective is to make the problem move, most often, getting the outlier to move to a different fill head. After each swap, we will put everything back to its original location before continuing to the next step.

In the photo below we see that can 4 is not registering a value, this this issue could be caused by the transducer, the cable, the module block, or the connections at any of those points. We need to isolate the issue.

We will use this example moving forward with Fill Head 4 being the issue, however, no matter the fill head,
these steps will work just the same.

Can 1	Can 2	Can 3	Can 4	Can 5
0.0 psi	0.0 psi	0.0 psi	**.* psi	0.0 psi

For potential causes of the **.*, we have a cable running from transducer to the Festo Manifold at the back of the machine.

We have the first connection point.

We have a transducer at that fill head plugged into the T quick connect for the choke throttle.

We have a connection point of the cable and module with 2 seated wires and a jumper inside the connector.

And finally we have the module itself.

Disconnect here and the quick connect to swap over.

Our first order of business is going to be to swap the "problem" transducer with the fill head next to it and see if the asterisks move to that fill head.

In the photo below, we will swap the transducer on fill head 4 with the one on fill head 5 and see if the asterisks move over to that head.
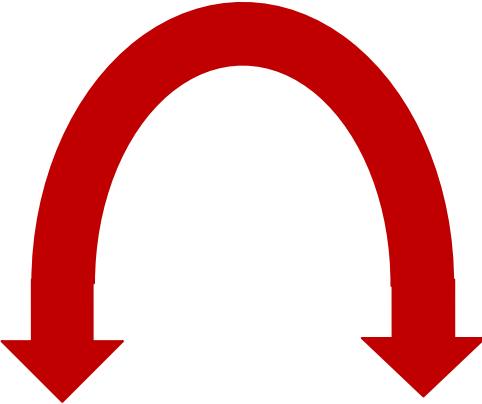
Can 1	Can 2	Can 3	Can 4	Can 5
0.0 psi	0.0 psi	0.0 psi	**.* psi	0.0 psi

If the issue moved fill heads, you have a bad transducer and it will need to be replaced.

Part number - XP001060

If the problem persists, continue to step 2

Just disconnect here and swap over. Leave the transducer at that fill head and just swap the cables.

If there was no change by swapping the transducer itself, our next step is going to be to swap the "problem" cable with the fill head next to it and see if the asterisks move to that fill head.

In the photo below, we will swap just the cable on fill head 4 with the one on fill head 5 and see if the asterisks move over to that fill head.
By doing this, the readout for Can 5 will be the transducer on fill head 4 and Can 4 will be the readout for the transducer on fill head 5.
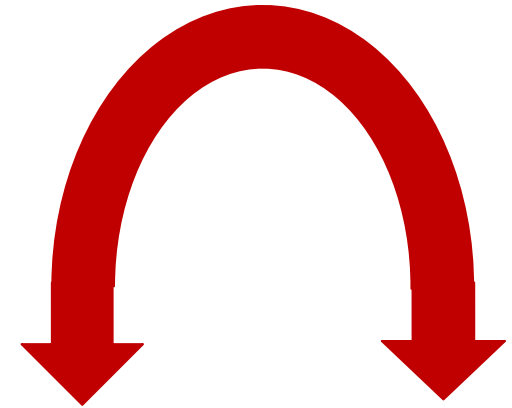
Can 1	Can 2	Can 3	Can 4	Can 5
0.0 psi	0.0 psi	0.0 psi	**.* psi	0.0 psi

If the issue moved fill heads, you have a bad cable and it will need replaced.

Part number - XP001315

If the problem persists, continue to step 3

ETHERNET

AIR PSI

CAN 1

CAN 3

CAN 5

POWER

CO2 PSI

CAN 2

CAN 4

CAN 6

If there was no change, our next step is going to be to swap the "problem" connection with the fill head next to it at the module and see if the asterisks move to that fill head.

In the photo to the left, you will see a map of the connections at the festo manifold.

If the issue is at fill head 4, unscrew the black connector from the module. Before we swap the connection of fill head 4 with the one for fill head 5, see if simply unplugging the connection changed the HMI reading for can 4. If asterisks remain, skip to step 4. If the reading goes to 0.00, swap the connection from fill head 4 with the fill head 5 connection.
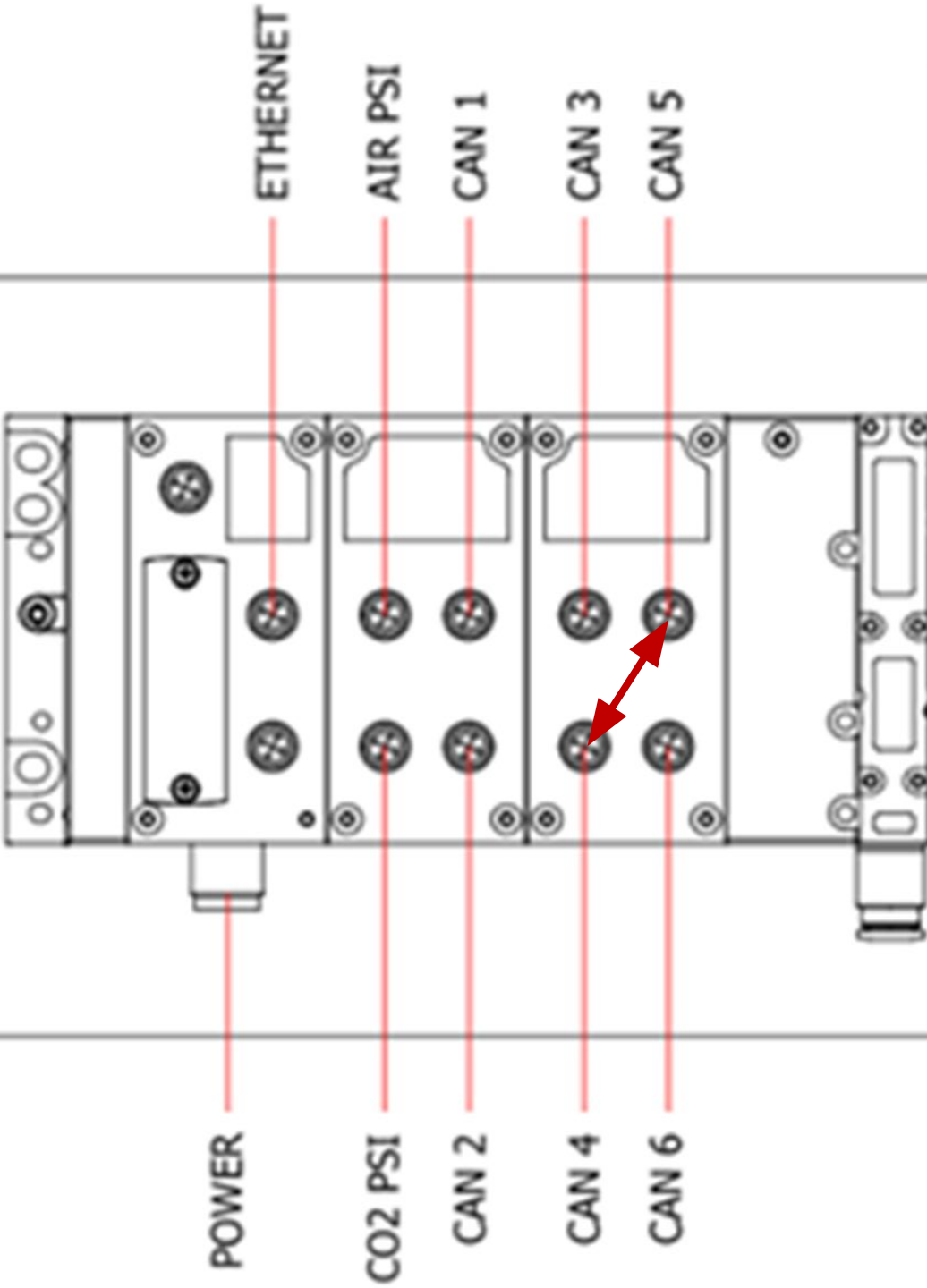
Unscrew here at closest knurling to disconnect from the module.

Unscrew these 2 points to open up the connector

If the problem moved to fill head 5, our next step is going to be to reseat the wires inside the black connector.

In the photo below, You can see that there is a brown and blue wire from the grey cable, as well as a jumper cable. The same needs to be accomplished whether you trim the wire back and reseat fresh, or keep the wires the same.
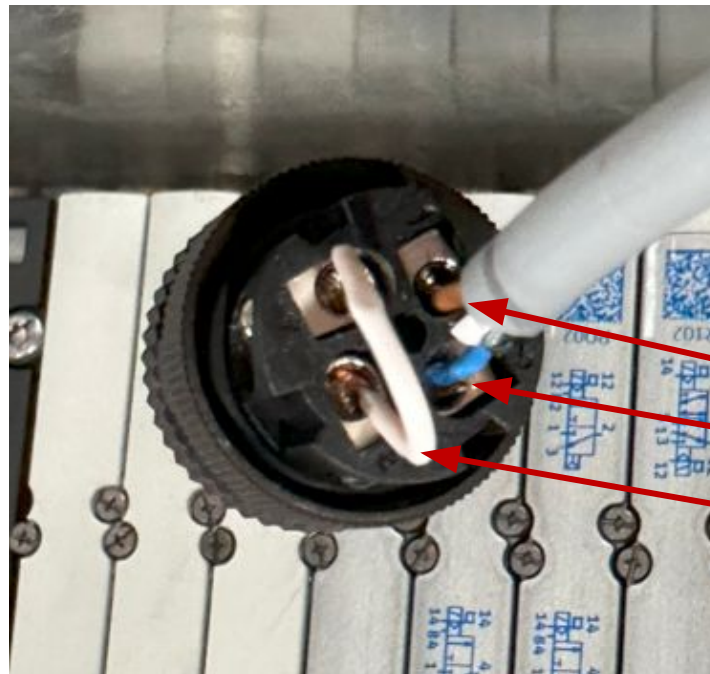
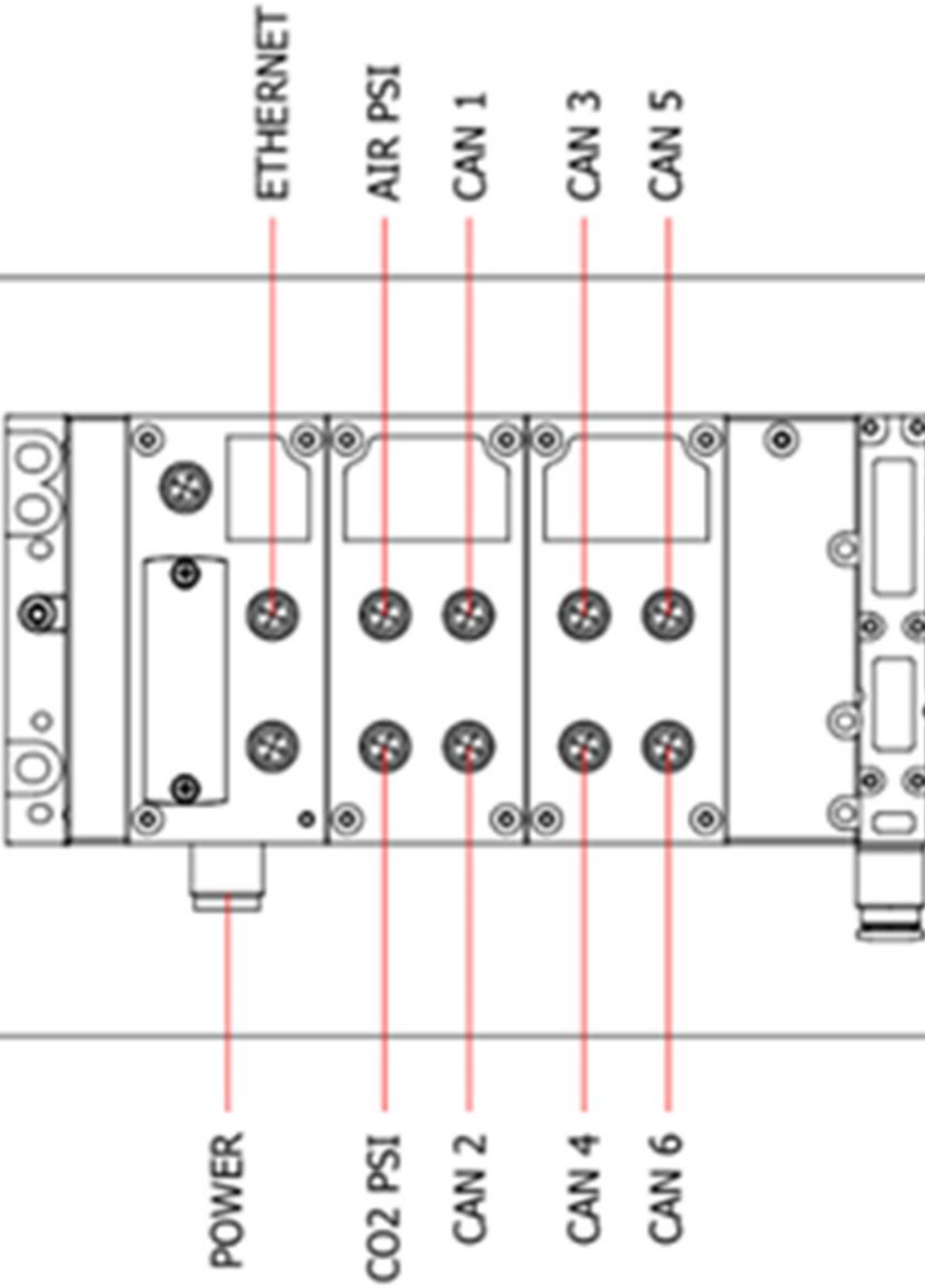Connection 1 - Brown
Connection 2 - Blue
Connections 3,4 - Jumper

If reseating the wires did not resolve the issue, you will need a new connector for cable to module.

Part number - XP000468

If the problem persists, continue to step 4

ETHERNET

AIR PSI

CAN 1

CAN 3

CAN 5

POWER

CO2 PSI

CAN 2

CAN 4

CAN 6

Step 4

With no change to this point, the only piece of the puzzle we haven't moved is the module block itself.

In the photo to the left, all the swapping back and forth that we have done to this point has stayed on the same block. Can 4 and 5 are sharing that same module, as well as its backing plate.

We have the choice of trying a couple earlier steps but swapping to the other block. ie: swapping the transducer on can 4 with can 2, or swapping module connections. The reason we have not done so thus far has to do with truly isolating the problem.

ETHERNET
AIR PSI
CAN
CAN 5

POWER
CO2 PSI
CAN 2
CAN 4
CAN 6
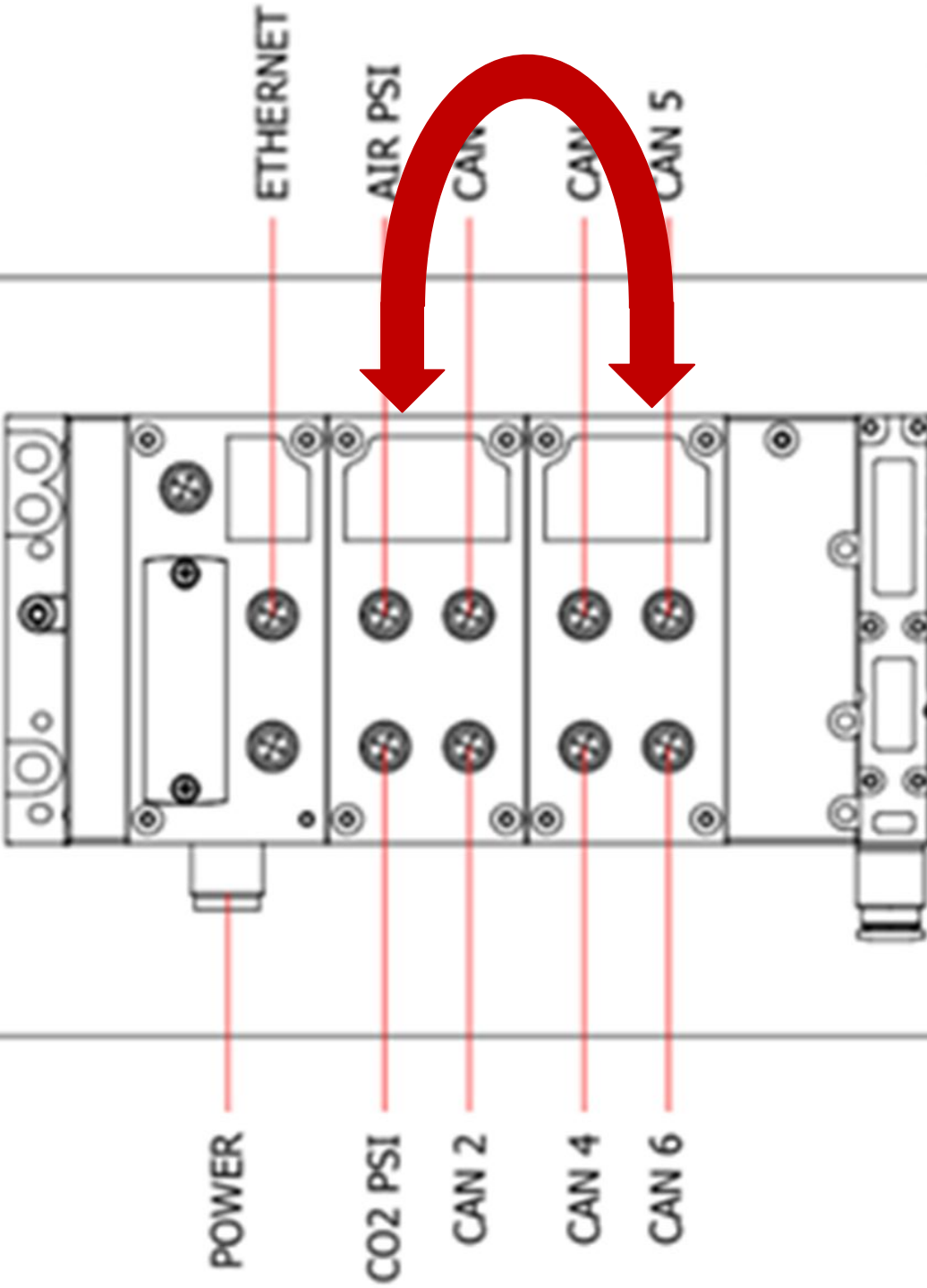
To truly move ahead, we are going to swap the 2 module blocks. If can 4 has been the issue through this, then we should see the asterisks move to the main CO2 value.

To swap the blocks, we need to unplug all black connectors from the module. Be sure to document their locations in some way. In the photo below, a customer going through this same troubleshooting opted to use color coded tape, as well as number them 1-4 for both rows
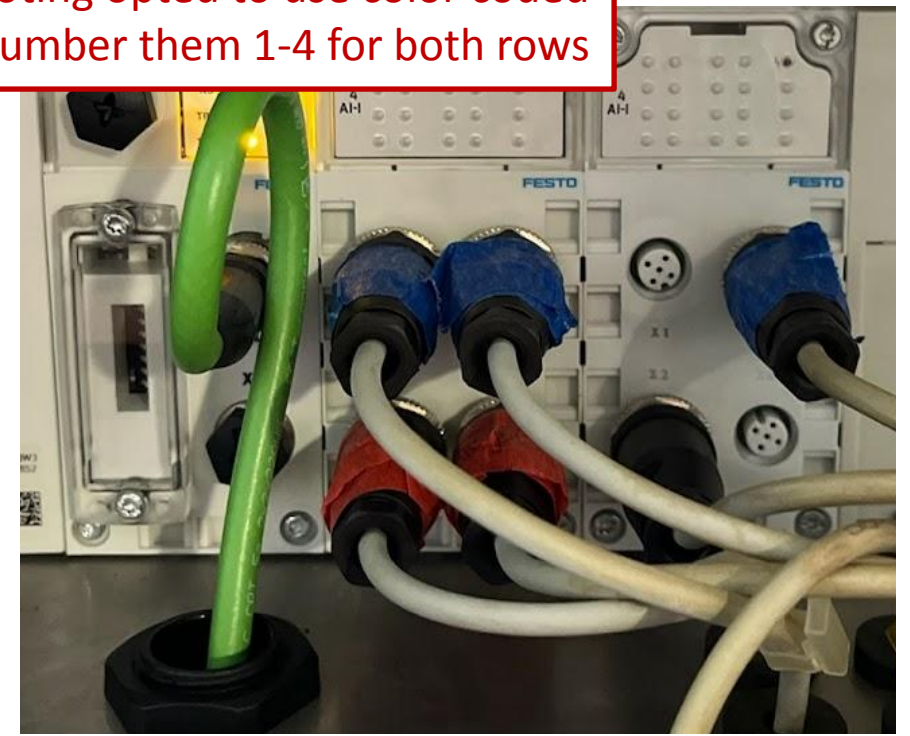
After removing all the black connectors, it is now time to swap the blocks. You can do so by unscrewing the 4 screws at the corners of the blocks. The modules are in 2 pieces, front and back (shown below).

Because of this, we can run this test 3 times. Swapping just front plates, swapping just the back plates, and finally swapping the entire modules with each other.

For each of those 3 tests, reconnect all your black connectors in their original orientation.
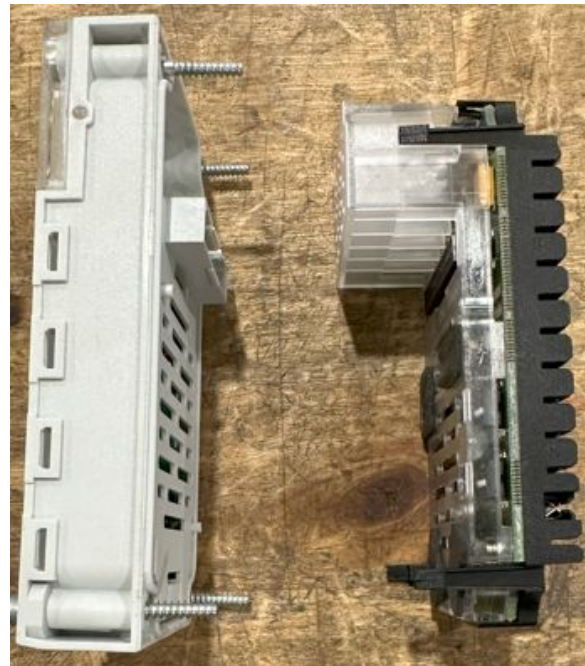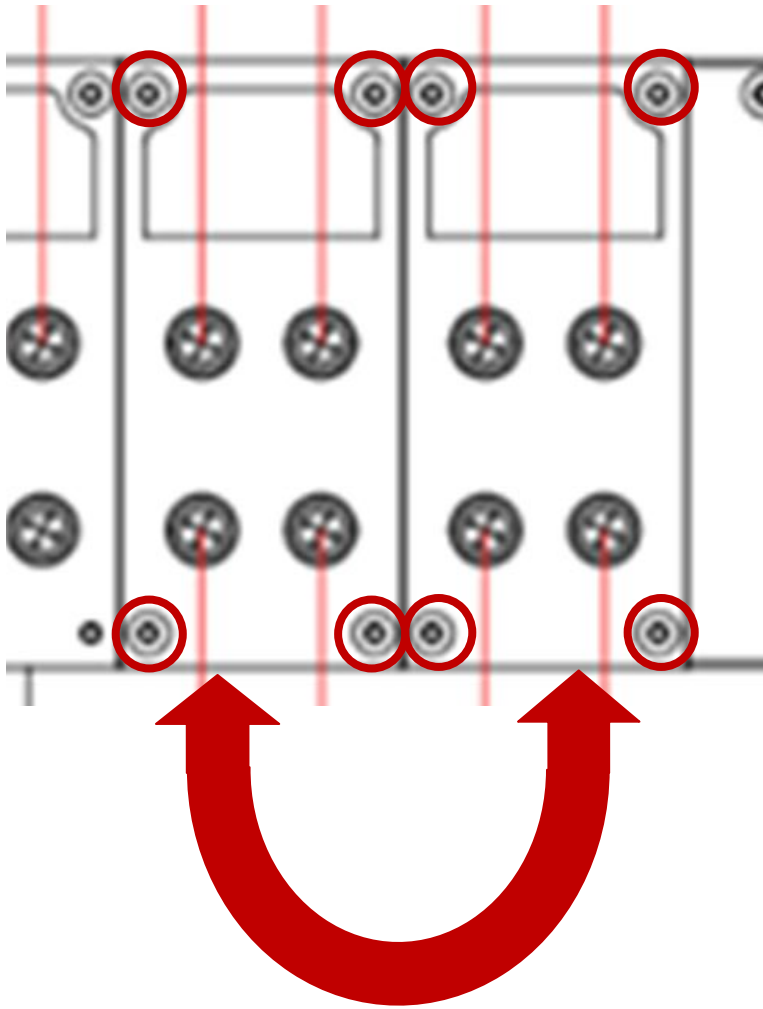
If the issue moved from can 4 to the main CO2 reading during any of the swapping, then you will need a new module. Contact the Codi Service Team for exact part number needed.

If the problem persists, contact the Codi Service Team
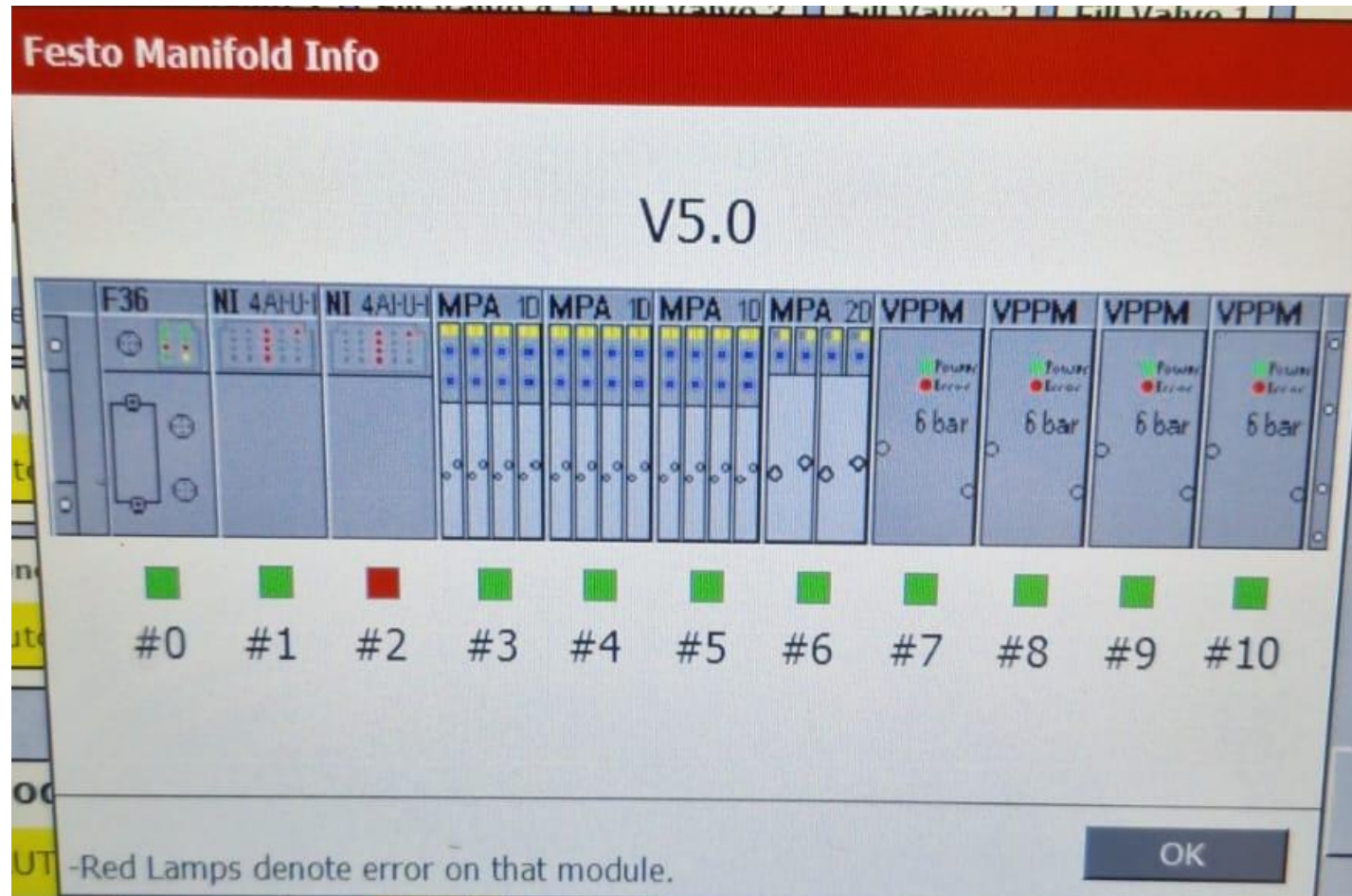
Red Lights on module block

We will now walk through the steps to find the issue of red lights on a terminal block on the Festo Manifold.

When red lights are showing on the Module of the Festo Manifold, this information will correlate with the HMI's valve manifold info button.

Festo Manifold Info

V5.0

F36	NI 4AI-U-I	NI 4AI-U-I	MPA 1D	MPA 1D	MPA 1D	MPA 2D	VPPM	VPPM	VPPM	VPPM

#0 #1 #2 #3 #4 #5 #6 #7 #8 #9 #10

-Red Lamps denote error on that module.

OK

Fill Valve 6	Fill Valve 5	Fill Valve 4	Fill Valve 3	Fill Valve 2	Fill Valve 1
Closed	Closed	Closed	Closed	Closed	Closed
**.* psi	**.* psi	**.* psi	**.* psi	2.0 psi	0.0 psi
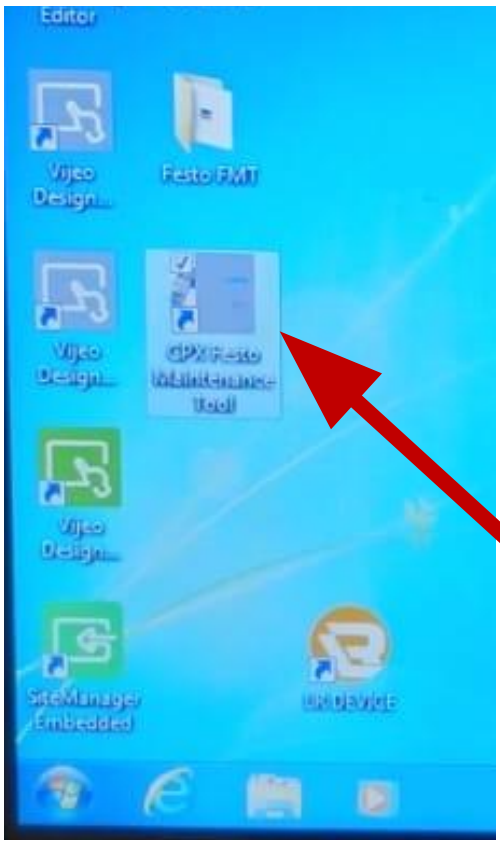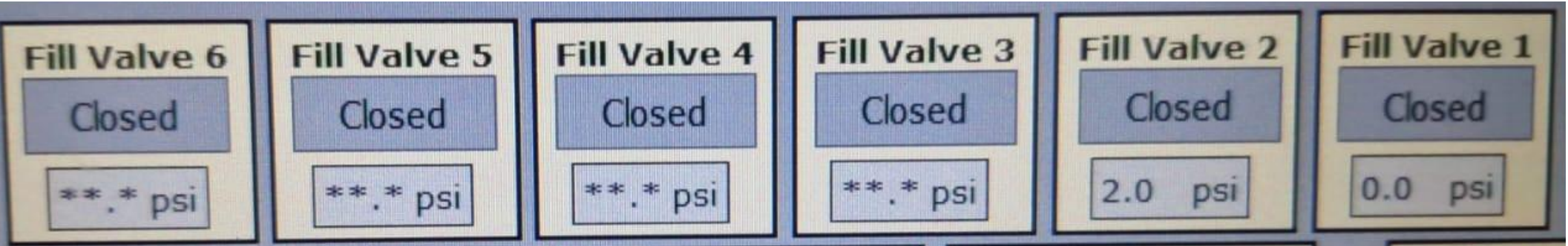
Most often, the can pressure readings on the HMI will appear like the photo above when the module is showing red lights. As you can see, all connections for module 2 are showing an asterisk, while cans 1 and 2 are on module 1 with the main air and CO_2.

The first step is to run the CPX maintenance tool like we walked through in the first part of this document. Back out of the runtime, go through the prompts of the maintenance tool and head back into the Codi runtime.

If this brought no change to the red lights on the module block, we are going to do a physical swap of the 2 modules. Notate your black connector locations so that they plug back exactly where they were.

We can run this test 3 times. Swapping just front plates, swapping just the back plates, and finally swapping the entire modules with each other.

For each of those 3 tests, reconnect all your black connectors in their original orientation.

CO2 PSI

CAN 2

CAN 4

CAN 6
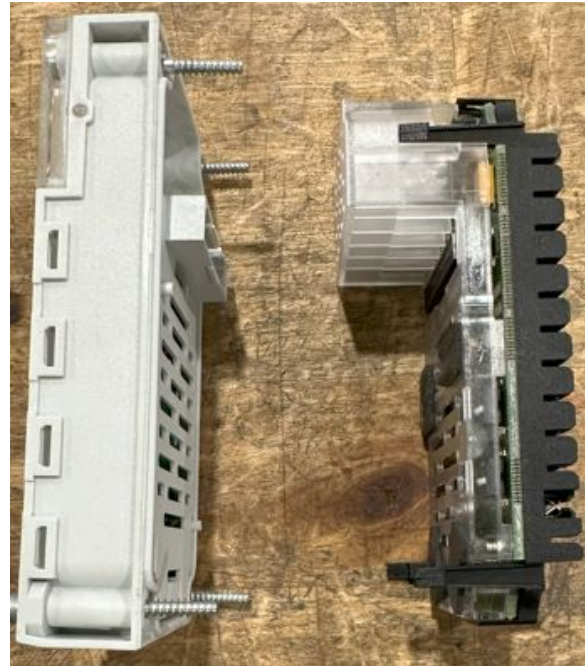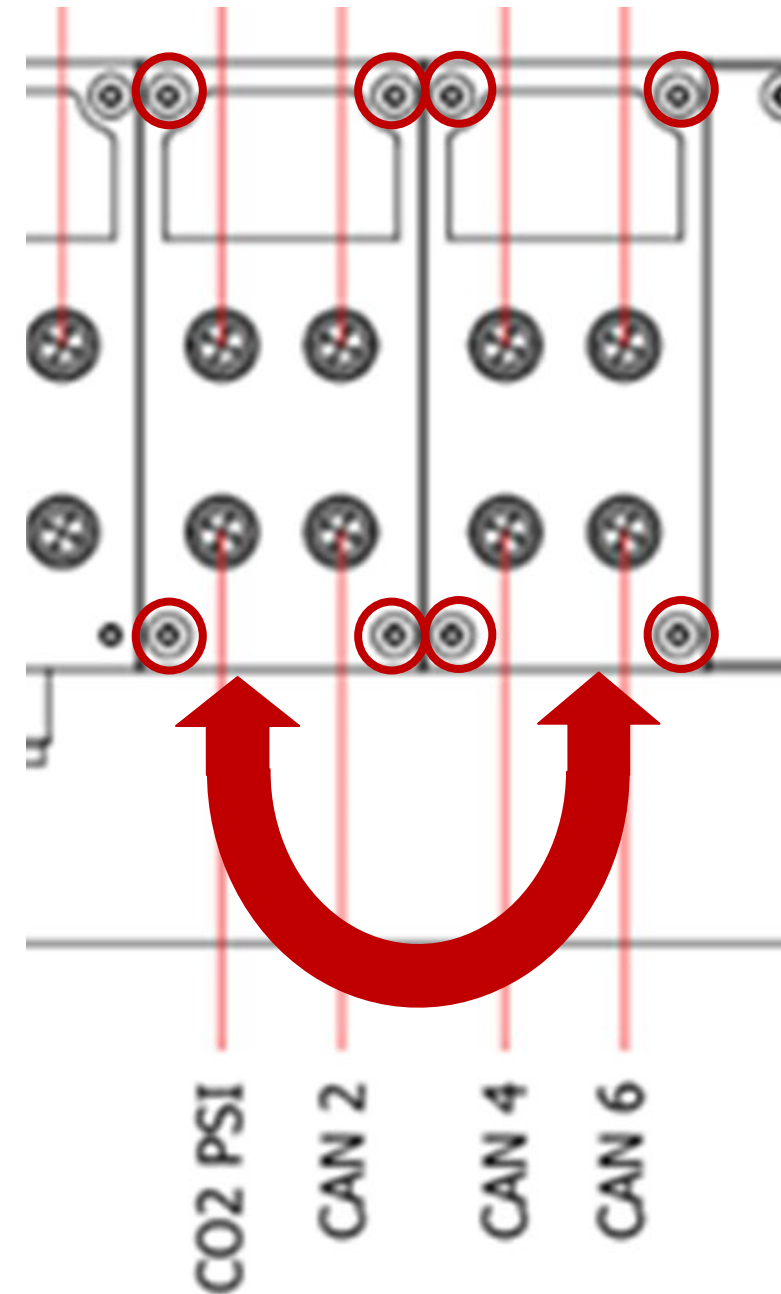
Just disconnect here, not at T fitting

6 fill head connections behind carriage

If there was no change, our next step is going to be to disconnect all the transducers on the problem module. In the photos at left and below, we will disconnect just the cable of the transducer.

Module 1: Main air, Main CO2, Cans 1 and 2
Module 2: Cans 3 - 6

After unplugging all module connections at the transducer, if the red lights stay on, proceed to next step.

If the lights go out with everything unplugged, reconnect one cable at a time to see which transducer is causing the issue.

Main air/CO2 connections under Festo manifold

Closing Statements and Notes

- When troubleshooting issues of this kind, keep an open mind, let new data point you in the right direction.
- These steps may not always track down the culprit right away, but will at least rule out functioning pieces of the chain of information.
- The point of all these processes is to make the problem move, or change.
- Limit the amount of changing factors to keep as much constant as you can.
- Don't hesitate to reach out to the Codi Service Team. We might notice something you don't, especially if you've been staring at the same problem for a while, let's get some fresh eyes on it.

If you have any further questions, please email: service@codimfg.com or call (303) 277-1542. For parts email: orders@codimfg.com