

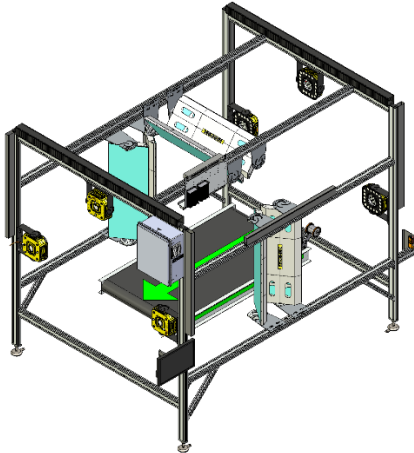
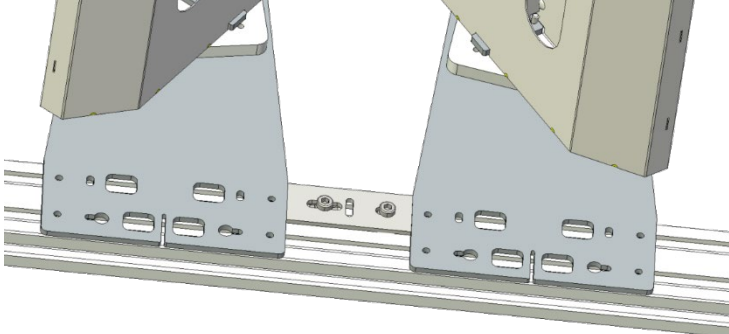
1. Please use this checklist to help you troubleshoot the critical components of the Cognex system.
2. If you complete the checklist, and an issue hasn't been resolved, please include a copy of this checklist to your support ticket to Cognex, along with any additional helpful information to Cognex's tech support.
3. For technical support, please contact the dedicated support line via phone or email.
 - For repairs, hot swaps and in warranty replacements, please email (ts.global@cognex.com) and include the following:
 - a) Serial number
 - b) Part number
 - c) Description of the issue
 - d) The site address/contact information

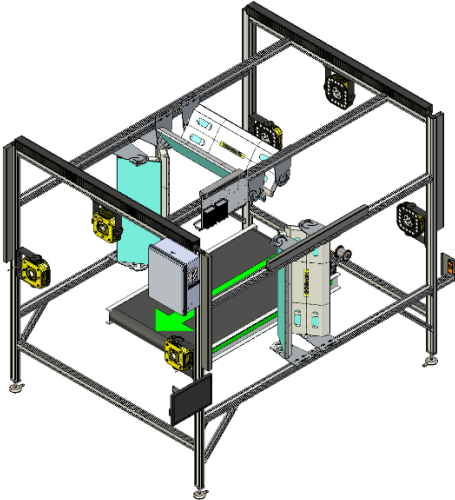
Verify the following steps in the order listed and check the box to acknowledge completion. Record information in the Notes column where requested.

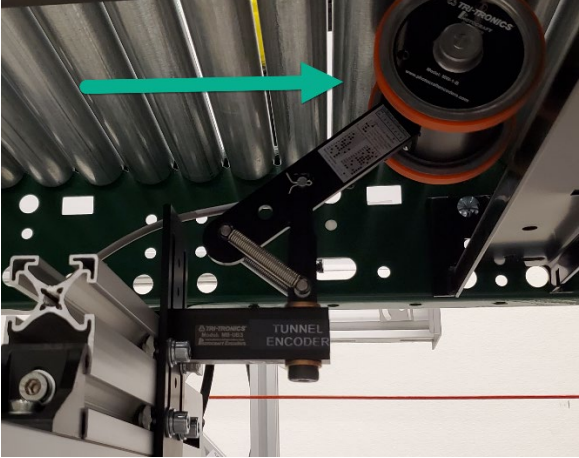
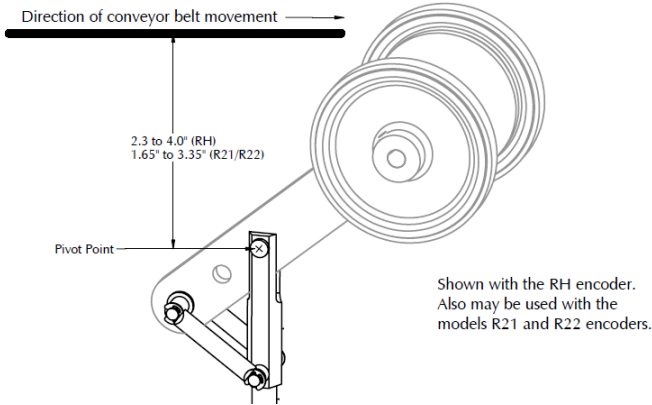
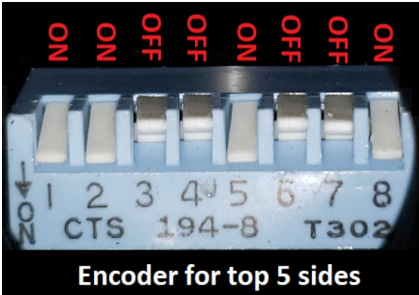
Modular Vision Tunnel with DataMan 380s Troubleshooting Guide

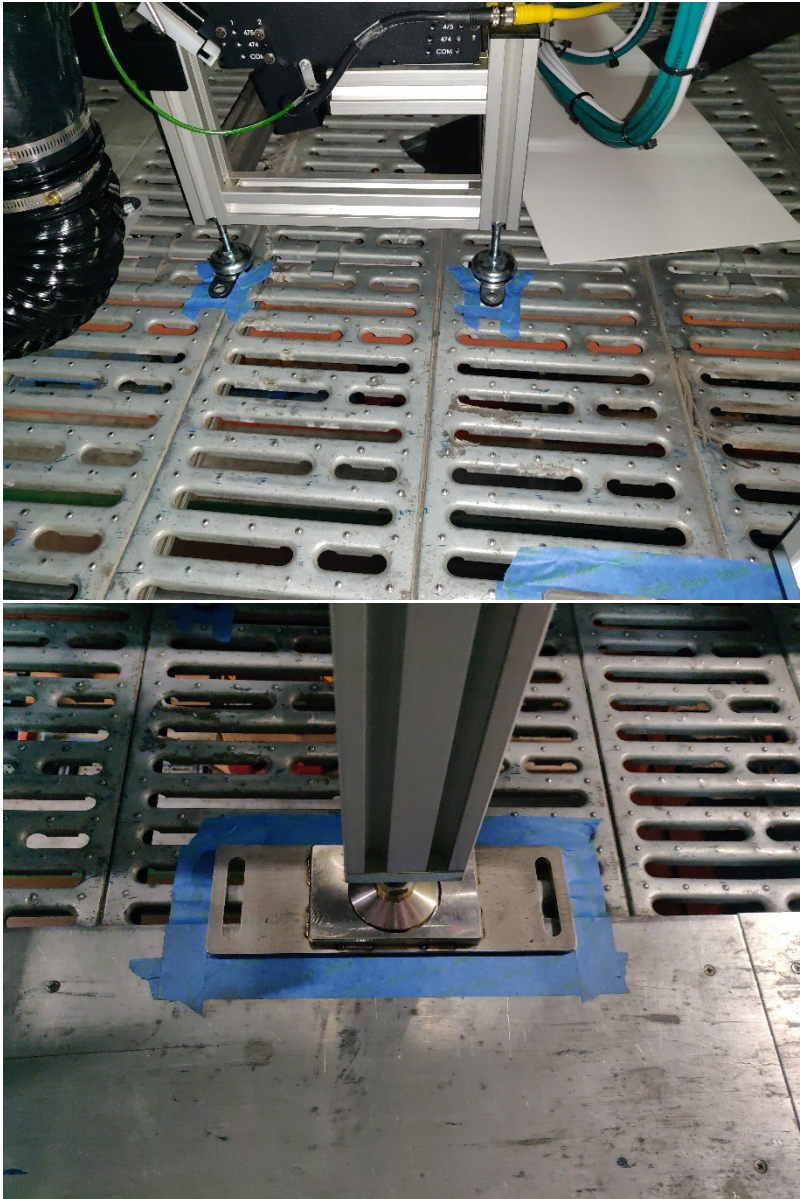
Maintenance			What's causing the issue?	
Cleaning And Operational Upkeep				
Mechanical	Electrical	EI Control Box	Network	CIO
Correct Measurements	Checking Power	.Net Framework Installation	Reader Lights	Rotary Switches
Encoder Placement	Power Wiring Instructions	EI Connection		Web Interface Login
Reader, Light, or Hybrid Switch Replacement	Lighting Cable Instructions	Photo Eye Instructions		
	Tunnel Triggering			

1 Mechanical

Mechanical Checklist	Potential Issue	Notes
<i>i</i> Note: Make sure the frame and assembly are in the correct positions and heights according to the original drawings.		
☐ Make sure the Cognex Tunnel is squared and mounted physically per original design and all bolts tightened per specifications. 	If not tightened, vibration could cause readers to become misaligned.	A visual inspection can help identify damage or misalignment of parts. Look and compare the different components and note anything that is out of the ordinary.
☐ Ensure that all mirror brackets are flush against the spacer. 	Poor read rates or no reads.	

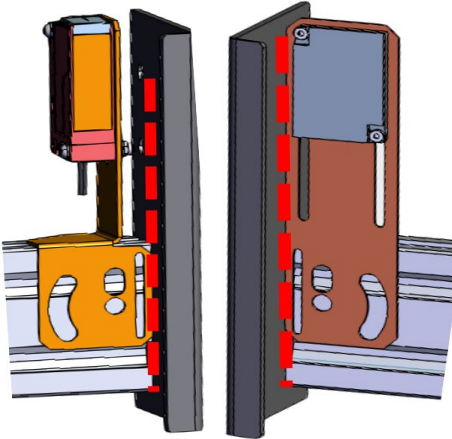
Mechanical Checklist		Potential Issue	Notes
☐	Check for loose bolts, leftover stickers on the framing, and end caps. 		
☐	Check that cables are plugged in correctly, flush, tightened down, and not in the FOV of any readers. 		

Mechanical Checklist	Potential Issue	Notes
□ Encoder operational? Check Encoder, ensure its powered, triggering and not slipping.  	Common issues are: - Encoder bracket comes loose and encoder loses contact with the belt, which causes dragging issues. - Encoder is not tight against the belt and it is bouncing up and down. - Dip switch settings are not set correctly, which leads to erratic results. - The tunnel will not trigger because there is no steady encoder signal while the belt is moving. - Results are timing out or "No Code" received by the PLC. Dimensioner stops sending out dimensions: without encoder input the dimensioner cannot calculate length.	Encoders provide the following critical functions to Cognex Modular Identification Systems: 1. Allow the System to Delay the start of Trigger. 2. Allow the System to Delay sending the result. 3. Allow the Dimensioner to measure the length of the box. 4. Allow the Bottom Side Readers to perform the Image-Stitching process.
□ Check that the Tri-Tronics encoder for the top 5 sides uses the correct dip switch settings.  Encoder for top 5 sides		

Mechanical Checklist		Potential Issue	Notes
☐	Has the system moved from the tape outlines? 	Poor read rates or no reads.	Mark the area around the leveling feet with blue tape and with the bolting holes on the outside to ensure consistent positioning.

	Mechanical Checklist	Potential Issue	Notes
☐	For the CIO modules, check that the correct devices are plugged into the correct side. The diagram shows a Cognex CIO Base Kit BA-2 PSU connected to various modules. It includes two Cognex Power Supply PSUs (PSU-BK-TL), two Cognex I/O Modules (CIO-MOD), and two Cognex Vision Stations (VS). The wiring is color-coded: red for power, blue for ground, green for signal, and yellow for Ethernet. Labels indicate cable lengths and connection points like PWR1, PWR2, ETH1, ETH2, etc.		Visually inspect all the CIO components for damages.
☐	Wipe down mirrors and glass.	Check that there are no smudges or dirt to obscure the field of view.	
☐	Check that all cables are connected.		
☐	In the I/O Box, are all fans and vents open, working, and clear of debris? A photograph showing a white Cognex I/O box mounted vertically on a black metal frame. Below the box, a yellow fan unit is visible. The background shows an industrial setting with overhead lights and other equipment.	Check the I/O box for debris and blocked vents.	This ensures the network and power boxes do not get too hot and can function properly.

2 Electrical

Electrical Checklist		Potential Issue	Notes
	Photo eye (PE) operational? Check photo eye, ensure its powered, triggering, and aligned.	There should always be a green light on indicating power and an orange light indicating a trigger. If the orange light doesn't change status when the PE is blocked from the reflector, please check alignment. Possible symptoms of PE failure include: 1) The reader lights will not turn on when the box passes by the scan tunnel. 2) The conveyor will stop after a large consecutive number of boxes that do not trigger. 3) If No Read images look legitimately readable but is flagged as No Read. 4) The PLC will sometimes report a No Code or No Scan Result. 5) Symptoms: Boxes are being assigned and diverted to the wrong chute. 6) Wrong photo-eye length can cause multicode and no-read issues. 7) Abnormally high multicode rate.	Troubleshooting the PE. Simple steps include: ✓ Check the PE lights for presence of power. If no power is present, check the cable for breakage. If cable is good, trace the wiring inside the I/O box. ✓ Check the PE status light for detection of an object. PE light should blink once when an object passes through. If not, check the alignment with the reflector. If there are multiple blinks per carton, there could be a mounting issue or box issue.
	 		

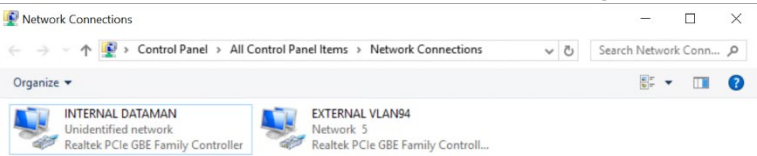
Electrical Checklist		Potential Issue	Notes
□	Is there power to Readers? Check to make sure the green power LED is lit on the back of each reader. 	If a reader doesn't seem to have power, but the hybrid switch is powered up, check the black cable and make sure: 1. It is connected correctly to each reader. 2. It is connected correctly to the I/O box. 3. No visible damage to the cable along the travel path. 4. Disconnect and connect again. 5. Replace the cable with a spare.	Please pay attention to the pins on the connector back of the reader as they might get bent/damaged with improper alignment. Do not use force, look for the right alignment and gently insert it. Bent pins are considered a misuse damage and are not covered under warranty.
	Is the lighting operational? Check lights on reader modules. 	If the light is off and the reader has power, do the following: 1. <i>Verify Connection:</i> Make sure the cable is plugged in correctly. 2. <i>Reset Connection:</i> Unplug both cables and plug back in again. 3. Replace the cable with a spare.	There are different types of cameras based on the application.

Electrical Checklist		Potential Issue	Notes
If you need to power cycle...		1. Turn the power off to the tunnel by pressing the power rocker switch under the cover on the PDU supply strip. 2. Wait 20 seconds. 3. Turn the power on by pressing the rocker switch under the cover on the PDU supply strip.	

Electrical Checklist	Potential Issue	Notes
Does the tunnel trigger when the PE changes state? <u>Tunnel not triggering when the photo eye changes state?</u> <pre> graph TD START[START] --> Q1{Is tunnel triggering when PE flagged?} Q1 --> no A1[Check the PE documentation first. Verify the PE is wired correctly.] A1 --> R1{Resolved?} R1 --> no Q2{When the PE is flagged, does the trigger LED on the nearest Hybrid Switch change state?} Q2 --> no A2([There is a hardware/wiring issue between the PE and the relay in the I/O box.]) Q2 --> yes A3[This means the 24V DC signal is being distributed within the system.] A3 --> Q3{When logged into SetupTool, can you see any triggers occur when the PE is flagged?} Q3 --> no A4[This means the Primary reader or encoder or both are not setup correctly.] A4 --> Q4{Is the encoder installed properly?} Q4 --> no A5([Check all documentation relating to encoder mounting, wiring and dip switch settings.]) Q4 --> yes A6[If the PE and Encoder are verified working correctly, then the issue is with the Primary Reader.] A6 --> Q5{Does the Primary Reader have the correct firmware with the latest back-ups installed?} Q5 --> no A7([Contact the PM to obtain the latest configuration.]) Q5 --> yes A8[Verify the physical setup of the Primary reader. Verify all wiring and status lights. As a last resort factory reset the Primary Reader and start from scratch.] </pre> Quick tip: The 4 main components that effect tunnel triggering are: 1. Photoeye 2. Encoder 3. Primary Reader 4. I/O Box Quick tip: If you change the output delay from 'Distance' to 'none' and the tunnel triggers normally, then you have narrowed it down to an encoder issue.		

3 EI Control Box

3.1 RTM

RTM Checklist		Potential Issue	Notes
☐	Check the Ethernet adapter names in Network Settings. 	This helps identify the networks for troubleshooting.	Name the DataMan connection, INTERNAL DATAMAN . Name the Store/Tunnel connection, EXTERNAL VLAN94 .

3.2 EI

EI Checklist		Potential Issue	Notes
☐	Are both ports active for the EI box? 	You will not be able to connect if the network ports are not active.	

4 Network

Network Checklist		Potential Issue	Notes
Check that the yellow network LED is lit on the back of each reader. 		If one or more readers doesn't have network connection LED lit, but the I/O box and reader are powered (previous steps), do the following: <i>Verify Connection:</i> - Check the teal cable and make sure: - It is Connected correctly to each reader. - It is connected correctly to the I/O box. - It has no visible damage to the cable along the travel path. - Disconnect both ends and connect again. - Replace the cable with a spare.	The tunnel has one master/primary camera. It receives communication from the other cameras and passes that output. All of those cameras need to be on the network in order to communicate to each other.

4.1 CIO

CIO Checklist		Potential Issue	Notes
☐ Are the Hybrid Switch LEDs solid green? 	Errors with readers or communications.		
☐ Are the Rotary Switches on the Hybrid Switch set to 000? 		Set the dials to 000 .	

5 Maintenance

Recommended cleaning schedule:

- **Weekly:**
 - If included, check that the DataMan Bottom Side motor is running and that the plexiglass is clear of debris.
- **Monthly:**
 - Check for loose bolts.
 - Clean the readers with a lint-free cloth.
 - Remove dust and debris from dimensioner glass, mirrors, and readers.
 - Wipe the dimensioner glass, mirrors, photo eye, readers, and reflector with alcohol wipes (no solutions or formulas).
 - Check that the fans are running inside of the EI box.
 - Check the status indicators on the power supplies:



Modular Vision Tunnel with DataMan 380s

Troubleshooting Guide

DataMan readers **require no routine maintenance**. Monitoring read rates will indicate if a reader needs inspection or service. Below is a maintenance schedule for inspecting common items on a Cognex system and optimizing their performance.

Item No.	Interval					Item to be Inspected (Station type)	Procedures	Estimated Time (min.)	Observation
	S	D	14	28	84				
1			■			Glass surfaces (all): • Mirrors • Lenses • Dimensioner Glass	Clean glass surfaces daily with a microfiber cloth. Use isopropyl alcohol (80% proof or higher) for any stains on the glass or mirrors. Make sure there are no streaks. Recommend using lens wipes designed for optics.	20	☐ OK ☐ Repair
2				■		Mechanical screws (all)	Inspect all mechanical screws to make sure they have not come loose due to station vibration. This includes all photo-eye mounts, extrusions, and accessories mounting.	60	☐ OK ☐ Repair
3			■			DataMan Readers (all)	Confirm status lights are illuminated (including power and network).	15	☐ OK ☐ Repair
4				■		DataMan Readers	Inspect all M12 connectors to make sure they are tight. Check if all readers trigger when the photo eye is blocked.	45	☐ OK ☐ Repair
5			■			Encoder(s)	Check encoders for good tension and contact against the belt surface. There should be no bouncing against the conveyor, should be a smooth continuous motion. Verify no belt slippage is occurring.	10	☐ OK ☐ Repair
Sixth Side (Bottom) Only – Not applicable on all systems									
6			■			BSLS or DMBS	Inspect the top cover and mirror for dust, debris, spills, etc.	5	☐ OK ☐ Repair
7		■				DMBS	Maintenance should inspect the top cover and mirror. The blower will handle most debris but will still need daily inspection.	5	☐ OK ☐ Repair

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8			■			DMBS	Inspect the camera lens covers for dust or other obstructions.	5	☐ OK ☐ Repair
9			■			DMBS	Inspect the light for dust.	5	☐ OK ☐ Repair
10			■			DMBS	Clean the blower motor air filter as needed by using compressed air on the surface of the filter. You may also use compressed air along the veins or from the inside outward. Unplug prior to cleaning.	30	☐ OK ☐ Repair

Abbreviation	Description
S	Shift
D	Daily
14	14 Days
28	28 Days
84	84 Days
BSLS	Bottom-Side Line Scan
DMBS	DataMan Bottom Side
MVT	Modular Vision Tunnel



Recommended Cleaning

-Lens Wipes-

Pre-Moistened lens wipes designed to clean optics and glass



-Compressed Gas Duster-

Disposable option, designed for electronics, contains no oil



-Compressed Gas Duster-

Non-Disposable option, designed for electronics, contains no oil



-Duster-

Multi surface duster with long handle to reach top mirrors



Last Resort – Only utilize if necessary

-Isopropyl Alcohol-

Must be safely stored. Wear gloves. Follow all applicable chemical guidelines



-Cleaning buds or swabs-

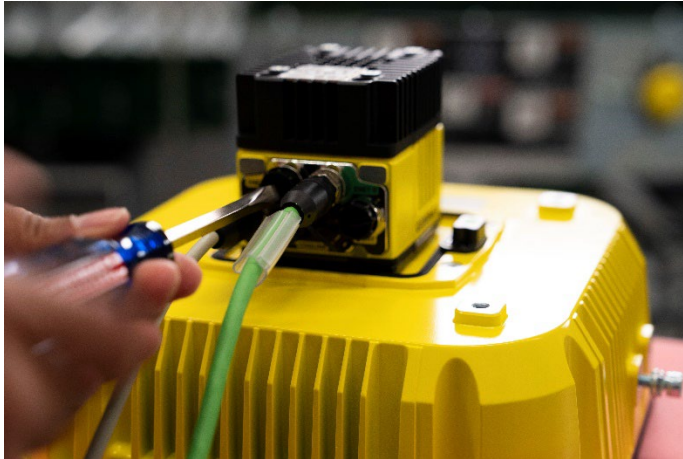
Lint-free, designed for optical lens and electronics



5.1 Replacing Readers



WARNING: Damage may occur unless power is disconnected any time you make physical changes to the tunnel. Cognex recommends removing the power cable prior to installation or removal of any components on the system.



1. Disconnect cables from Reader.
2. Remove the mounting screws.
3. Replace Reader with new unit.
4. Swap out SD Card.
5. Replace mounting screws.
6. Re-mount in **exact position** as before.
7. Connect cables.



NOTE: Swap out faulty readers **without** moving or changing reader positions, focus, or settings.

5.2 Replacing Hybrid Switches



1. Disconnect cables from Hybrid Switch.
2. Remove the mounting screws.
3. Replace with new unit.
4. Replace mounting screws.
5. Re-mount in **exact position** as before.
6. Connect cables.