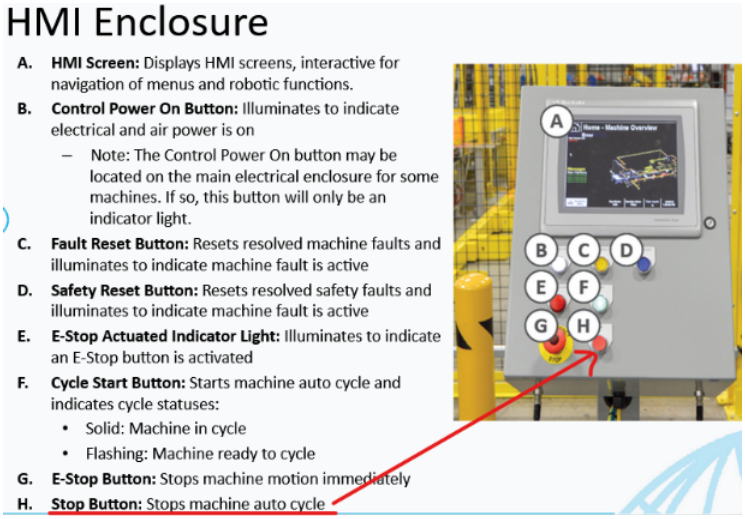
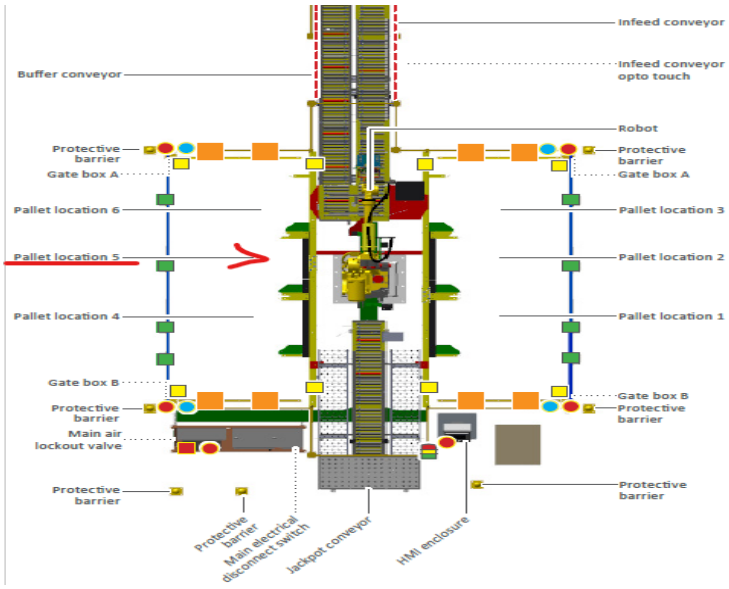
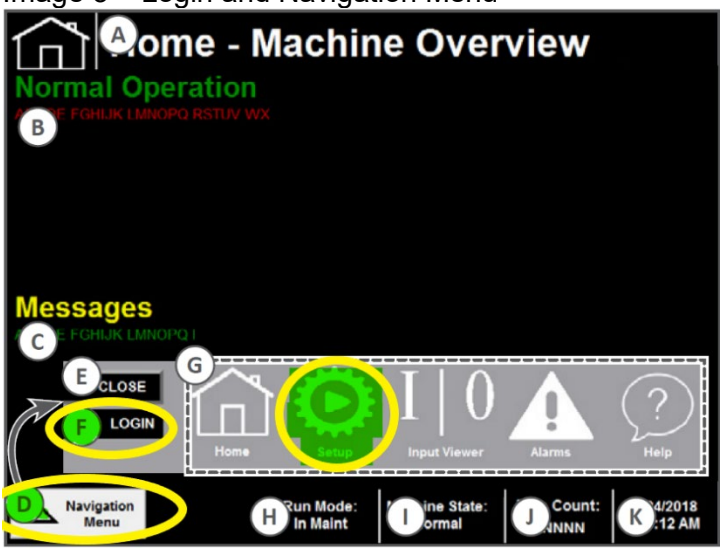
RWC4 EoAT Tote Presence Sensor Calibration Procedure

1.1	**Moving Robot to Maintenance Position 1**	
	Step 1: Press cycle stop and wait for Robot to finish current operation. (Image 1)	Image 1 - Stop button
	Step 2: Enter light curtain and remove pallet 5. **a.** Once robot has stopped, safely pass through outer light curtain area using one of the guard keys from side of the workcell where pallet 5 is located (Image 2). View this video for instructions on how to safely enter the workcell. **b.** Remove pallet 5 using pallet jack and set it aside in the designated location. **Leave the pallet 5 location empty**. **c.** Complete request to enter, by placing the guard key back into gate box and pushing yellow button (video).	Image 2 – Pallet 5 location and side to enter from
	Step 3: Move Robot to Maintenance Position 1. **a.** Log in to HMI using Maintenance credentials – marked as F in image 3. **b.** On HMI Navigation Menu, select "Setup" - marked green in image 3. **c.** Select “Robot Control” marked as D in image 4. **d.** On Robot Control screen (image 5) click on 1. “Machine To Manual Mode”. 2. “Side Clamps To Work”. 3. On the HMI panel hit Reset fault button, if any faults are present. 4. “Move to Maint. Pos. 1”. **e.** Robot should be move to Maint. Pos. 1 as shown in image 6.	Image 3 – Login and Navigation Menu







Step 4: Safely pass through outer light curtain area using one of the guard keys from side of the workcell where pallet 5 is located (Image 2). View this video for instructions on how to safely enter the workcell.

Please note, if the guard key is locked, you may have to hit e-stop on the gate box to unlock it.

Image 4 – Robot Control option in Setup menu

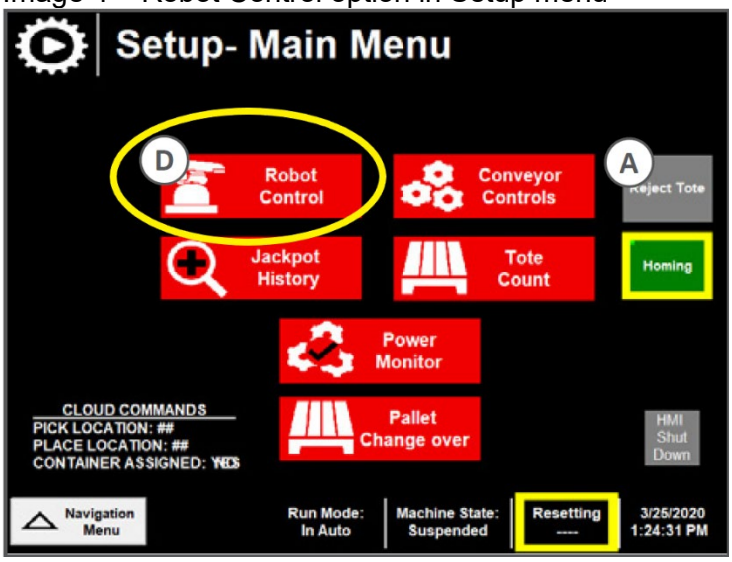


Image 5 – Robot Control screen

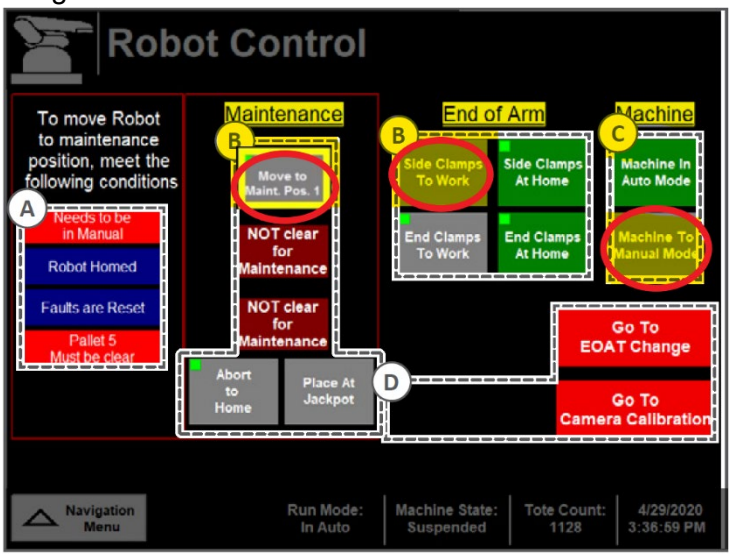
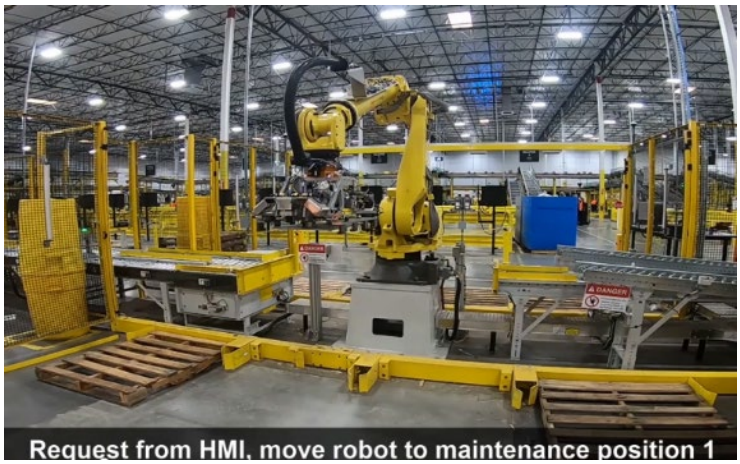
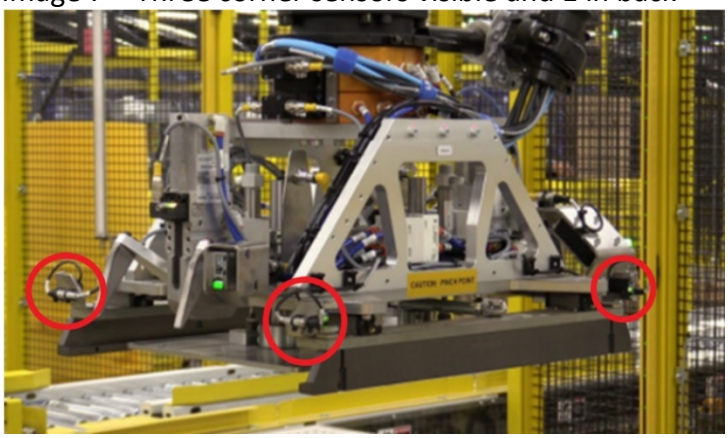
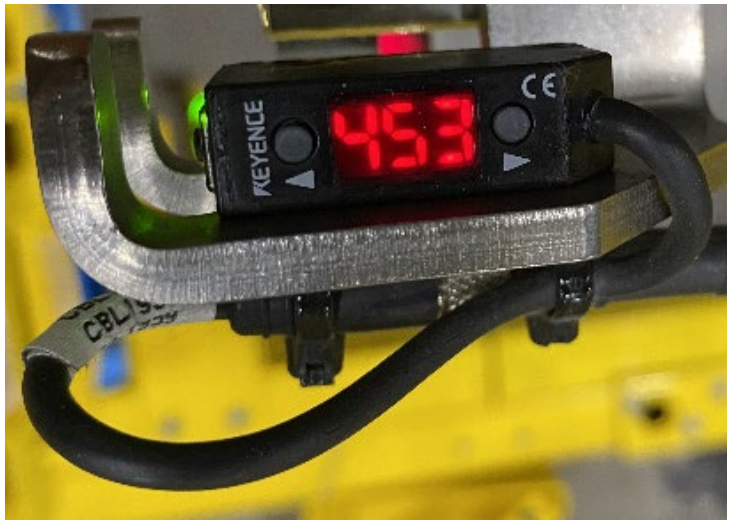


Image 6 – Robot at Maint. Pos. 1



1.2	**Calibrating sensors - “Max Sensitivity -50 Calibration Method”**	
	Step 1: Using Microfiber cloth, clean all four corner sensors on EoAT (Image 7) and side clamps where corner sensors are pointed (Image 8).	Image 7 – Three corner sensors visible and 1 in back  Image 8 - Side clamps where corner sensors are pointed 
	Step 2: Calibrating sensors - Max Sensitivity Minus 50 a. Ensure that sensor is displaying a numeric value (Image 9). If it is not displaying a numeric value or if it displays “Loc”, refer image 10, to get the steps to change display selection or key-lock state. b. Once displaying a value, press and hold “SET” button (Image 11) on the sensor until you see SEt blinking on the display. This step sets initial value for the sensor which represents max reading the sensor can achieve. Please note, max value for each sensor will be different. c. Now the sensor will display a value. Note that value and subtract 50 from it.	Image 9 – Sensor displaying a numeric value 

i. For example, in image 9, max value is 453 after pressing the set button. After subtracting 50, the set value would be 403. Please note this is just an example, max/set value for each sensor will be different.

d. Using ▶ or ◀ button decrease the value by 50 points.
   i. Continuing on example from previous step “c.i.”, you will keep decreasing the value on display until it reaches 403 and then leave it for it to set. Please note this is just an example, values for each sensor will be different.

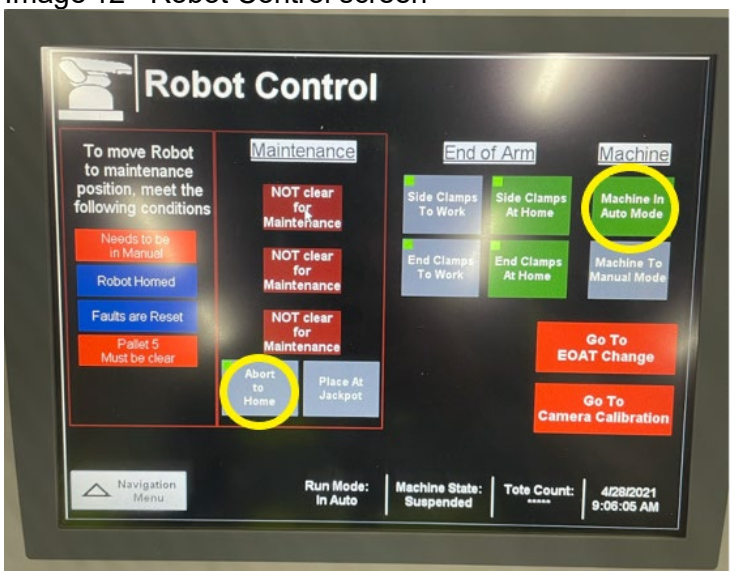
e. Press both ▶ and ◀ buttons at the same time for ~3 seconds (until the blinking “Loc” is shown and blinks for ~2 seconds). Loc Blinking This will “lock” the calibration value.

Step 3: Repeat Step 2 above for remaining 3 sensors.

Image 10 – Display selection and Key-lock settings

Function	Operation	Description	Display
Display selection	Press the ◁ and ▷ buttons simultaneously and release them.	Change the display as shown on the right	ON OFF 123 ⟷ --- - Distance display / ON/OFF display
Key-lock	Press the ◁ and ▷ buttons simultaneously for three seconds or more.	Lock the operation buttons to avoid the preset value from being accidentally changed.	Loc flashes and then the normal display appears.
Key-lock cancel	Press the ◁ and ▷ buttons simultaneously for three seconds or more.	Unlock the operation buttons to allow the preset value to be changed.	unL flashes and then the normal display appears.

Image 11 - SET button on the sensor

1.3	**Returning Robot back to Operation**	
	Step 1: Walk out of the workcell and place guard key into gate box. Reset e-stop on gate box if you engaged it earlier. **Step 2**: Hit Reset button on HMI panel. Navigate to Robot control screen. Please note you might have to Log in to HMI using Maintenance credentials as the system logs you out after some time has elapsed. **Step 3**: On Robot control screen, press and hold "Abort to Home" button and Robot should move to its home position above infeed conveyor. (Image 12) **Step 4**: On Robot control screen press "Machine In Auto Mode". (Image 12) **Step 5**: Navigate to home screen on HMI and Log out. Push Fault Reset button and Push Cycle Start button on HMI panel. Ensure workcell begins normal operation.	Image 12 - Robot Control screen 
	Additional Resources:	Sensor Name: PZ-V (Digital Type) Sensor APN: 1000770 OEM Name: KEYENCE PZ-V/PZ-M Series Setting Guide