TRACKER™
TR-1

User's Manual v1.2

COMPONENTS RECEIVED

1. *TRACKER™* Control Box: Part Number – (OT-60002) TR1
2. Sensor Assembly:
    a. Diffuse Reflective Sensor: Part Number – (OT-6000208)
    b. Sensor Cable: Part Number – (OT-6000209)
    c. Mounting Assembly: Part Number – (OT-6000213)
3. Manual: Available On-Line

COMPONENTS NOT INCLUDED

1. HDMI Monitor or TV (720p or compatible)
2. Keyboard and Mouse (USB Cable or Wireless USB)
3. HDMI Cable

CONNECTION PANEL

1. 115/230 Volt, 50/60Hz, 2 Amp Power Cord
2. Power On/Off Switch
3. Fuse Holder (Fuse Size 500ma FA)
4. M12 Sensor Plug (4 wire, 24V, PNP)
5. Female Ethernet Port (Wired)
6. Female HDMI Standard Port (720p or compatible)
7. Female USB 2.0 Port (Wired or Wireless)
8. Female USB 2.0 Port (Wired or Wireless)
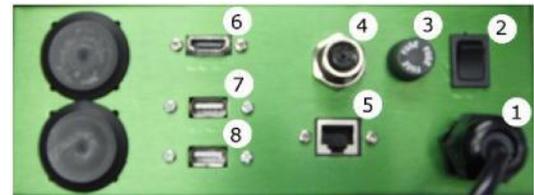
TRACKER™ Rear Panel

INSTALLATION

1. Plug in user provided keyboard and mouse. **Must be plugged in prior to power up.**
2. Plug in user provided HDMI Cable to *TRACKER™* controller.
3. Plug in HDMI Cable to 720p TV/Monitor. **Note which HDMI Input Number. Must be plugged in prior to power up.**
4. Mount included *TRACKER™* Sensor to manual or automated production line in a position best suited to track the line process. Plug in Sensor to *TRACKER™*.
    a. Sensor provided has an approximate 2 inch range. See sensor specs for optional sensors.
    b. Ensure when **powered up** the sensor light is flashing yellow for each product as it passes.
        i. If Sensor Light is steady on then it is reflecting on a background object.
        ii. If Sensor Light does not turn yellow at all it is not "seeing" or reflecting off any object.
        iii. Reposition as necessary.
5. Plug in *TRACKER™* controller power cord to standard 115V/230V wall outlet.
6. Turn On TV/Monitor and set to correct HDMI Input Number.
7. Switch *TRACKER™* controller On.
8. *TRACKER™* will Power Up in about 15 seconds. *TRACKER™* screen will display on TV/Monitor.
9. Verify Sensor is working properly and is in correct position per instruction 4 above. On power up if sensor is in correct position, the *Detected Count* field on the screen will be incrementing – **this is normal.**
10. The *Detected Count* field will **increment at all times** when the *TRACKER™* Controller is powered up and the Sensor is detecting objects. The *Detected Speed* field will display **line speed at all times** when the *TRACKER™* controller is powered up and the **Sensor** is detecting objects. This is true when system is in **Start** or *Stop* mode. The *Detected Count* field will reset to ("0") zero when the *Clear* button is clicked on.

TRACKER™ OPERATIONS

1. **Quick Start Guide:**
   a. If desired, enter any optional Operator, Job ID, Job Size, and Target/Takt speed information in the **Update Job Information** screen, with left mouse click on the **Update Job Info** button. Left mouse click *OK* to save, or hit "enter" on keyboard to save.
   b. If desired, enter any optional Machine ID, Count Multipliers, Language (if option ordered) and Pulse Time Out information in the **TRACKER™ Settings** screen, with left mouse click on the **TRACKER™ Settings** button. Left mouse click *OK* to save, or hit "enter" on keyboard to save.
   c. Left mouse click on the **Clear** Button to ("0") zero **Detected Count** and **Target Counts** fields.
   d. Left mouse click on the **Start Job** Button
   e. Start the manual or automated production line the **TRACKER™** system is attached to.
   f. **TRACKER™** will display **Detected Speed, Detected Count, Target/Takt Speed** (if entered), **Target/Takt Counts** (if Target/Takt Speed entered), **Job Size** (if entered), **Counts % On Target** (if **Target/Takt Speed** entered), **Job % Complete** (if **Job Size** entered), **Speed % On Target** (if **Target/Takt Speed** entered), **Machine, Operator,** and **Job ID** information (if entered).
   g. Left mouse click the **Stop Job** button when job is complete.

2. **Update Job Information** Screen:
   a. To Enter the **Update Job Information** screen, left mouse click on the **Update Job Info** button.
   b. Optional: Enter alpha-numeric **Operator ID, and Job ID.** Any characters accepted. These fields should be filled in per job. Information in these fields will be saved with the job file.
   c. Optional: Enter numeric only **Job Size.** Information in this field will be saved with the job file. Enter numeric only **Target/Takt Speed** as a rate per hour. For example: 100 per hour or 6,000 per hour. Information in this field will be saved with the job file.
   d. To Save: left mouse click on **OK. Update Job Information** screen will close and entered data will display on TV/Monitor in their respective fields.
   e. **Target/Takt Speed** field only displays as a rate per hour.
   f. **Target/Takt Counts** field: Based on entered **Target/Takt Speed,** the **TRACKER™** system will calculate the number of pieces that should have been produced at this **Target/Takt Speed** from the **Start** of the job, and will display and update this value in the **Target/Takt Counts** field.
      i. This calculated value is also commonly referred to as in Lean Manufacturing as just the TAKT value.
      ii. If the job has not been started by clicking on the **Start Job** button, the **Target/Takt Counts** field will display the number ("0") zero.
      iii. The **Target/Takt Counts** field can be reset to ("0") zero at any time by clicking on the **Clear** button – this is true if system is in **Start** or **Stop** mode.
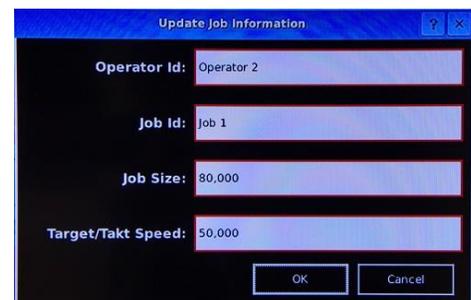
      iv. The *Target/Takt Counts* field will continue to increment at the calculated rate for as long as the system is in *Start* mode. Even if the production line is stopped and the *Detected Counts* is no longer incrementing.

  g. Please refer to readily available on-line **Lean Manufacturing and 5S** information for best practices and use of the *Target/Takt Speed* and *Target/Takt Counts* fields.

3. *Update TRACKER™ Settings* **Screen:**

  a. To Enter the *Update TRACKER™ Settings* screen, left mouse click on the *TRACKER™ Settings* button. *TRACKER™ Settings* once set, should typically be constant and not need to change unless, *TRACKER™* is moved to another line or process.

  b. Optional: Enter alpha-numeric *Machine ID.* Any characters accepted. This field should not be left blank. Information in these fields will be saved with the job file.

  c. Optional: Set *Count Multiplier* and *Speed Multiplier* as required.

      i. *Count Multiplier*: default value is 1. Every time the sensor changes states (senses a product), the value increments one. If you would like value to increment by more than 1, change *Count Multiplier* value. Example, if you are running a 12 pack of cans on a tray and sensor just sees the tray, but you would like to know how many cans have been run, change *Count Multiplier* to 12.

      ii. *Speed Multiplier*: default value is 1. Displays speed of line calculated on 1 sensor input per product. Enter any value to multiple the speed by the *Speed Multiplier* value. For example, if you would like speed value to display the speed calculated on the *Count Multiplier*, change value to equal the *Count Multiplier* value.

  d. Optional: Set *Pulse TimeOut* as required.

      i. Depending on the **Job Status** mode selected, the system knows if it should be receiving sensor pulse inputs because line is running or if it should receive no sensor pulse inputs because line is not running. If the system detects it is in the wrong **Job Status** mode, after the *Pulse TimeOut* time period (in seconds) has expired, the system will start flashing all 4 of the Andon lights letting the operator know they need to select the correct **Job Status** mode.

      ii. For example, if the *Pulse TimeOut* value is set to 60 seconds and the system is in the *Running* mode, but the production line has stopped and no sensor input pulses are received for 60 seconds, the system will start flashing all 4 Andon lights. When operator selects a **Job Status** mode that is not expecting sensor inputs, like *Down for Service*, the system will turn off the 4 flashing Andon lights and activate the correct Andon light configuration for that **Job Status** mode. See Section 8 below for additional information on **Job Status** modes.
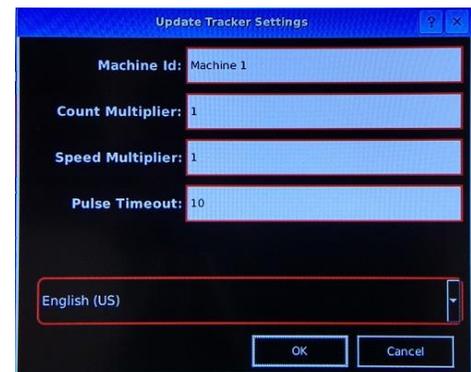
4. *Start* and *Stop Mode*

  a. On power up the *TRACKER™* system is in *Stop* Mode.

  b. *Stop* Mode is identified by the **red background** behind the *Detected Speed* and *Detected Counts* fields.

  c. To enter the *Start* Mode, left mouse click on the *Start* button.

    d. The *Start* Mode is identified by <u>**no color**</u> behind the *Detected Speed* and *Detected Counts* fields.

    e. To exit the *Start* Mode and enter the *Stop* Mode, left mouse click on the *Stop* button.

    f. When the *Start* button is clicked on, the red background behind the *Detected* fields will turn off, and the *Target/Takt Counts* will start incrementing.

        i. *Target/Takt Counts* will start incrementing from the last calculated number displayed.

        ii. For example, if *Target/Takt Counts* displays the number 398 and system is in *Stop* mode. When *Start* button is clicked on, the *Target/Takt Counts* will next display 399.

        iii. Please note: If you want to start *Target/Takt Counts* at ("0") zero, left mouse click on the *Clear* button, then left mouse click on the *Start* button.

    g. When the *Stop* button is clicked on, the red background behind the *Detected* fields will turn on, and the *Target/Takt Counts* will stop incrementing. The last *Target/Takt Counts* number will remain on the screen until:

        i. The *Clear* button is clicked on to turn *Target/Tatk Counts* to ("0") zero, or

        ii. The *Start* button is clicked on to start incrementing from last saved number.

5. *Clear* **Button**

    a. When *Clear* button is clicked on with left mouse button:

        i. *Detected Counts* turns to ("0") zero. **Please note:** if the production line is running the *TRACKER™* sensor will continue to detect counts and the *Detected Counts* field will continue to increment starting over from ("0") zero.

        ii. *Target/Takt Counts* turns to ("0") zero. **Please note:** if the system is in *Start* mode, the *Target/Takt Counts* will start incrementing again from ("0") zero. If the system is in *Stop* mode, the *Target/Takt Counts* will stay at ("0") zero until system is placed in *Start* mode

6. Percentage Fields

    a. *Counts % On Target* field: This displays the ratio between *Detected Counts* and *Target/Takt Counts* as a (%) percentage. Formula is *Detected Counts/Target/Takt Counts.*

        i. For 0 to 79% background is Red.

        ii. For 80 to 94% background is Yellow.

        iii. For 95 % and greater background is Green.

        iv. Please note: if you place system in *Stop* mode and click on *Clear* to set *Target/Takt Counts* to ("0") zero, the *Counts % On Target* field will remain at ("0") zero.

    b. *Speed % On Target* field: This displays the ratio between *Detected Speed* and *Target/Takt Speed* as a (%) percentage. Formula is *Detected Speed/Target/Takt Speed.*

        i. For 0 to 79% background is Red.

        ii. For 80 to 94% background is Yellow.

        iii. For 95 % and greater background is Green.

        iv. Please note: If the production line is stopped and the sensor does not detect an object for about 15 seconds the *Speed % On Target* field will turn to (0") zero.

    c. *Job % Complete* field: This displays the ratio between *Detected Counts* and *Job Size* as a (%) percentage. Formula is *Detected Counts/Job Size.*

        i. For 0 to 99% background is Green.

        ii. For 100% and greater background is Red.

        iii. Please note: if no *Job Size* is entered the *Job % Complete* field remains at ("0") zero.

    d. Please note: All percentage fields will continue to calculate and display if system is in both the *Start* and the *Stop* modes, unless otherwise noted above.

7. **ANDON LIGHTS**

    a. There are (4) **Andon Lights** on the ***TRACKER™*** screen, one in each corner of the screen. Please refer to readily available on-line **Lean Manufacturing and 5S** information for best practices and use of the **Andon Lights.**

        i.   Each **Andon Light** has (3) states: Off, Steady On, and Blinking On.

        ii. In the Off state, the color is faintly displayed so the operator knows where each color is located.

            1. Green Andon Light: Upper Left
            2. Red Andon Light: Upper Right
            3. Blue Andon Light: Lower Left
            4. Yellow Andon Light: Lower Right

8. **Job Status Mode Screen**

    a. The ***TRACKER™*** is pre-configured with 9 **Job Status** modes: *Running, Job Set-up, Low on Product, Product Out, Call for Service, Down for Service, Shift Changeover, Break, Pause.* For each Job Status mode there is a predefined Andon Light combination turned-on:

        i.   *Running*: Solid Green
        ii.   *Job Set-up*: Flashing Green
        iii. *Low on Product*: Solid Red
        iv.   *Product Out*: Flashing Red
        v.   *Call for Service*: Solid Yellow
        vi.   *Down for Service:* Flashing Yellow
        vii. *Shift Changeover*: Solid Blue
        viii. *Break*: Flashing Blue
        ix.   *Pause*: No Lights

    b. When job is started, system is placed into *Running* mode. If product is getting low, operator should click on *Low on Product*. If operator needs service assistance and line is still running, operator should click on *Call for Service*. If line stops, operator should click on *Down for Service, Shift Changeover, Break, or Pause.*

    c. If company would like to capture *Job Set-up* time, then click on **Start Job**, then click on *Job Set-up.* When ready to run, click on *Running.*

    d.   If in the middle of a job and **Job Status** is not in *Running mode*, and the line is running, operator should click on *Running.*

    e. The **Job Status** modes that are highlighted white indicate that when these modes are selected, the **Target/Takt Count** will not increment while in this mode. If one of these modes is selected the red background behind the **Target/Takt Count** and **Target/Takt Speed** will turn on, indicating no **Target/Takt Count** will increment. The red background will turn off if any of the black background **Job Status** modes is selected. No red background behind the **Target/Takt Count** and **Target/Takt Speed** indicates **Target/Takt Count** will increment.

    f. The **Job Status** button display will intermittently flip between "Job Status" and the current selected **Job Status**.

TROUBLE SHOOTING

Please note: all TRACKER™ Systems are fully inspected prior to shipment and will ship in good working condition.

1. Ensure TV/Monitor is a 720p or compatible monitor. The *TRACKER™* will work with higher resolution TV/Monitors, including 1080 systems, that can display 720p.
2. Ensure HDMI cable is working and correctly connected to the *TRACKER™* system and to the TV/Monitor.
3. ***DO NOT USE*** an HDMI to DVI converter.
4. ***If you use a HDMI to VGA converter, the converter must be powered. The system will not work with an unpowered converter.*** *Also make sure your VGA monitor has the ability to* **turn off the screen timeout function**. *The TRACKER™ system will not repower the monitor if the screen is timed out. If this happens, screen must be powered off, then on again.*
5. Ensure TV/Monitor is turned on and set to the HDMI input that the HDMI cable from the *TRACKER™* system is plugged into.
6. If *TRACKER™* screen does not display, ensure steps 1, 2, and 3 above are correct. Turn *TRACKER™* system off for 20 seconds, then turn on again.
7. If mouse or keyboard do not work: verify they are plugged in or wireless USB fob is plugged in. Turn *TRACKER™* off for 20 seconds, then turn on again. *TRACKER™* system cannot be On when plugging in the USB or HDMI devices. The *TRACKER™* system needs to "discover" these devices when turning on or booting up.
8. If Sensor does not light up when hand placed in front, ensure the sensor cable is properly connected and screwed into sensor connector on back of the *TRACKER™.* Ensure sensor cable is properly connected and screwed into the sensor.

Technical Information

1. Power Requirements: 115V, 50/60Hz, 500ma FA
2. HDMI Connection: 720p or equivalent, Type A, Full Size Female Connector
3. USB Connection: 2.0, wired and wireless, Type A Female Connector
4. Sensor: Diffuse Reflective, PNP, 12 to 24 VDC, (24 Volt Provided By *TRACKER™,* 50mm (2") range.
5. Sensor Connection: M12 Connector. Pin 1: Power, Pin 3: Ground/Common, Pin 4: Signal. Any style compatible sensor or relay input can replace provided sensor.
6. If utilizing a relay input, please note we provide the 24VDC power that needs to go through the dry contact side of user provided relay. Does not matter if user provided relay contacts are Normally Open or Normally Closed. *TRACKER™* will detect state change.