TRACKER™

TR User's Manual v.3.3

COMPONENTS RECEIVED	PART NUMBER
1. TRACKER™ TR-1	TR1
2. Sensor Assembly	TSA1
3. Current version user's manual	
1. TRACKER™ TR-2	TR2
2. Sensor Assembly	TSA1
3. Sensor Assembly	TSA1
4. Current version user's manual	

REQUIRED COMPONENTS NOT INCLUDED

1. HDMI TV Screen (720p compatible, HDMI input only)
2. HDMI Cable (recommend high quality cables)
3. USB Keyboard and Mouse (wired or wireless)
4. Additional and updated manuals, technical documents, and diagrams available online at:
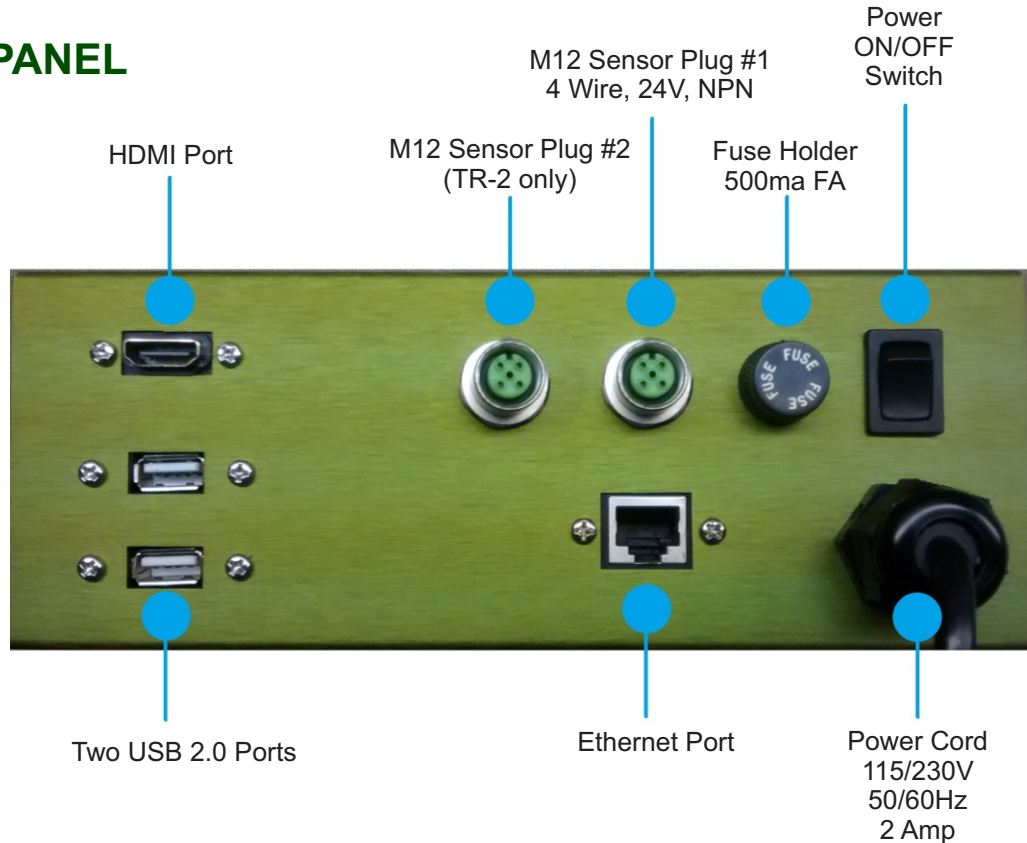   TrackMyOps.com/documents.html

OTHER AVAILABLE COMPONENTS	PART NUMBER
• Sensor Assembly: NPN Retroflective 3M with mounting hardware and reflective plate, variable to 36" sense range	TSA3
• Sensor Assembly: NPN Inductive 3M with mounting hardware, requires TSM12 adapter purchase	TSA4
• Sensor Assembly: Hand activated switch	TSA5
• Sensor Assembly: Foot activated switch	TSA6
• 25' Shielded Sensor cable extension	TSC25
• 50' Shielded Sensor cable extension	TSC50
• M12 Crossover adapter	TSM12
• 24" TV w/HDMI input	TV24
• 32" TV w/HDMI input	TV32
• 43" TV w/HDMI input	TV43
• TV Mount (fits TV sizes 24"-32")	TVBCKT
• TV Mount (fits TV sizes 43"-50")	TVBCKT2
• 6' HDMI Cable	HDMI6
• 10' HDMI Cable	HDMI10
• 25' HDMI Cable	HDMI25
• 1 x 2 HDMI Splitter	HDMIS
• USB Wired Keyboard	KYBD wired
• USB Wireless Keyboard/Mouse	KYBD/MOUSE wireless
• USB Wireless Mini Keyboard/Mouse	KYBD/MOUSEmini wireless
• TR Upright mount arm; includes hardware	UPR
• USB WIFI Access point	WIFI
• Tracker™ HUB	HUB

CONNECTION PANEL

HDMI Port

M12 Sensor Plug #2
(TR-2 only)

M12 Sensor Plug #1
4 Wire, 24V, NPN

Fuse Holder
500ma FA

Power
ON/OFF
Switch

Two USB 2.0 Ports

Ethernet Port

Power Cord
115/230V
50/60Hz
2 Amp

INSTALLATION

Steps Prior to Powering Up Your TR

1. Plug in USB keyboard and mouse.
2. Plug in HDMI Cable to the HDMI port in your **TR**.
3. Plug in HDMI Cable to TV HDMI port. **Note which HDMI input number.**
4. Mount included sensor(s) to production line in a position best suited to track the process.
5. Ensure power switch is set to OFF (down). Plug in **TR** power cord to standard 115V/230V wall outlet. If using a power strip, use a high quality 3-prong, grounded power strip.
6. Turn on TV and set to correct HDMI input number.

Powering Up Your TR

7. Switch the **TR** power switch ON (up).
8. Power up will last about 15 seconds.
9. Verify sensor is working properly and is in correct position. Ensure when powered up the sensor is lit yellow for each product as it passes. If sensor light is steady on then it is reflecting on a background object. If sensor light does not turn yellow at all it is not "seeing" or reflecting off any object. Reposition as necessary.
10. The Detected Count field will increment at all times when the **TR** is powered up and the Sensor is detecting objects. The Detected Speed field will display line speed at all times when the **TR** is powered up and the sensor is detecting objects. This is true when system is in START JOB or END JOB mode.

TRACKER™ TR Quick Start Guide

On power up the **TR** is in END JOB mode. The END JOB mode is identified by the red background behind the Detected Counts and Detected Speed (counts per hour) fields.
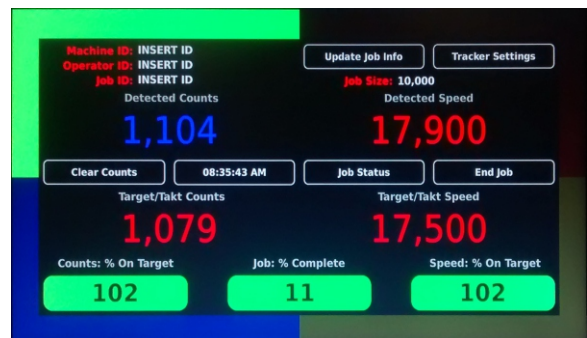
Click the **Start Job** button to enter START JOB mode. START JOB mode is identified by no color highlighting the Detected Counts and Detected Speed fields.

Click the **Job Status** button to use the various JOB/EVENT STATUS options to record different running conditions and downtime while stopping and starting your production line before the END JOB mode is re-entered. The current status will display within the JOB STATUS button. (See page 7 for additional information on JOB STATUS modes.)

Click the **End Job** button to exit the START JOB mode and re-enter the END JOB mode.

Click the **Clear Counts** button to reset both of the Counts fields to zero.

TR-2 Users Please Note: For units with two active sensor inputs, the Detected Counts field will alternate between Sensor 1 input and Sensor 2 input. Sensor 2 input display is identified by the blue background or text. Activate Sensor 2 and set the screen duration in the "Tracker Settings" screen.

TRACKER™ HUB Users Please Note: If the **TR** is connected to either a Tracker HUB or the internet, the **Start Job** and **End Job** button will display the time that the Job was started or stopped.

Data capture only occurs in START JOB mode. Information is captured every sixty seconds and for each Status change; a timestamp is included for all data captures. All items displayed on TR screen can be displayed on the Tracker HUB and Tracker WEB. All items displayed are Tracked in the downloadable data files available on the Tracker WEB.

If you would like to change any of the default colors, text labels, statuses, or turn off any portion of the TR display, you can easily do this with the Tracker **HUB.** Learn more at: **TrackMyOps.com**

"UPDATE JOB INFO" Screen

Operator ID: Enter alpha-numeric characters only. Multiple operator IDs can be entered and separated by commas.

Job ID: Title given to current job or shift. Enter alpha-numeric characters only.

Job Size: Total number of pieces for one job or shift. Enter numeric characters only.

Target/Takt Speed: Intended number of counts per hour. Enter numeric characters only.

For example, enter "100" for a target of 100 counts per hour, enter "50" for a target of 100 per two hours, or enter "200" for a target of 100 per half hour.

The **TR** calculates the number of pieces that should have been produced at the rate of the Target/Takt Speed, and displays this value in the Target/Takt Counts field. This field will continue to increment as the system is in START JOB mode and in a JOB STATUS that enables the target. (See page 7 for additional information on JOB STATUS modes.)

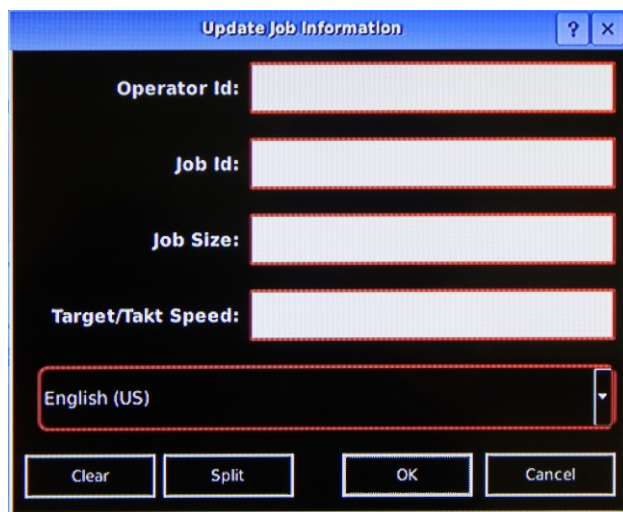**Language:** The default Language for the TR controller is English (US).

TRACKER™ HUB Users Please Note: Additional languages and different terminology can be easily configured with the Tracker **HUB**. See **HUB** user's manual section "System Menu > Languages," for more information.

Please note: A barcode scanner can be used for quick data entry by plugging a USB Scanner into a USB port. Each field can be represented by its own barcode where you will need to click in each field and scan the applicable barcode. To enter all fields at once, click in the Operator ID field, separate the fields with an underscore in the barcode data, scan the barcode, and then click the **Split** button.

To delete text from all fields, click the **Clear** button.
To discard any changes made, click the **Cancel** button.
To save changes, click the **OK** button.

"TRACKER SETTINGS" Screen

To view the "Update Tracker Settings" screen, click the **Tracker Settings** button.

Once set, these settings should typically be constant and not need to change unless the **TR** is moved to another line or process.

Machine ID: Title given to work station or equipment. Enter alpha-numeric characters only.

Count and Speed Multiplier: Enter numeric value to increment the speed/count fields by. The default is 1. The multiplier can also be a fractional number to equate to non-unit items.

For example, you are running a 12-pack of cans and the sensor only detects the box, but you would like to know the total number of cans. Change value to 12.

Pulse Timeout: Duration of time (in seconds) before the **TR** will go into an "UNDEFINED" STATUS mode. Depending on the JOB STATUS selected, the system will either be expecting sensor pulse inputs or not. If the system is detecting inputs when the JOB STATUS does not expect any (or vice versa, if the system detects no inputs when the JOB STATUS does expect them) it is in the wrong JOB STATUS mode and after the Pulse Timeout time duration has been reached the system will flash all of the Andon lights to alert the operator to select the correct JOB STATUS mode. (See page 7 for additional information on JOB STATUS modes.)
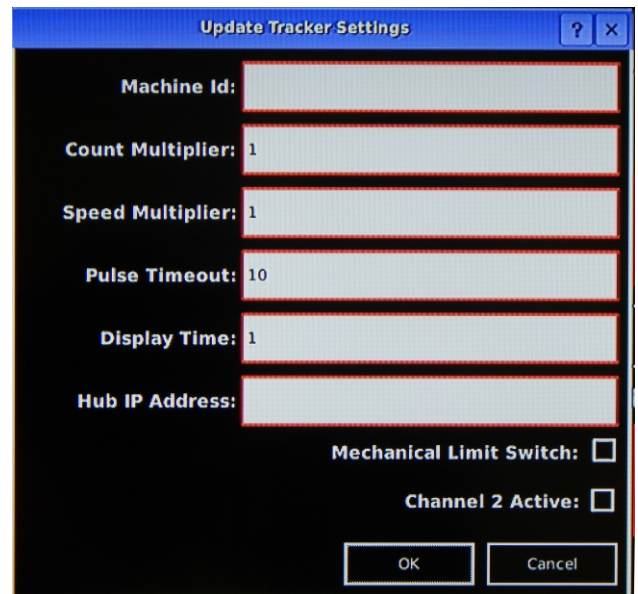
Display Time: Only applicable to TR-2 users. This value sets the screen duration the TR will display Detected Counts for each sensor. This value is in seconds.

HUB IP Address: Only applicable to Tracker HUB users. Please note that this field should be left blank if your TR is not connected to a Tracker HUB.

Mechanical Limit Switch: Check this box only if using a variation of a mechanical switch which might have a bounce that could generate multiple pulses. By default this option is not selected.

Channel 2 Active: Only applicable to TR-2 users. Check this box only if you are using the second sensor of your TR-2.

To discard any changes made, click the **Cancel** button.
To save, click the **OK** button.

ANDON LIGHTS

There are four Andon Lights on the **TR** screen, one in each corner of the screen, to provide a visual display system for your operations. Please refer to readily available on-line Lean Manufacturing and 5S information for best practices and process implementation of the Andon Lights. Each Andon Light has three (3) states: Off, On, and Blinking On. In the Off state, the color is faintly displayed so the operator knows where each color is located. By default, the Andon Lights are:

Green Andon Light: Upper Left   **Red** Andon Light: Upper Right
Blue Andon Light: Lower Left   **Yellow** Andon Light: Lower Right

"JOB STATUS" Screen

The **TR** is pre-configured with 9 JOB STATUS modes. For each Job/Event Status mode there is a predefined Andon Light combination turned-on. The current status will display in the JOB STATUS button. By default, the Job Status Modes are:

	Andon Light	Expects Pulses	Timeout Active	Target Active
Running	Solid Green	√	√	√
Job Set-up	Flashing Green	√		
Low on Product	Solid Red	√	√	√
Product Out	Flashing Red			√
Call for Service	Solid Yellow	√	√	√
Down for Service	Flashing Yellow		√	
Shift Changeover	Solid Blue		√	
Break Time	Flashing Blue		√	
Paused	No Lights		√	

TRACKER™ HUB Users Please Note: For **TR** units connected to a **HUB**, you can change the default Job/Event Statuses and add up to 22 more, for a total of 30 custom Job/Event Statuses.

PERCENTAGE FIELDS

Counts: % On Target =

$$\text{Counts: \% On Target} = \frac{\text{Detected Counts}}{\text{Target/Takt Counts}}$$

By default, the field background is:

0 to 79% background is Red.
80 to 94% background is Yellow.
95 % and greater background is Green.

Please note: If you place system in END JOB mode and click on **Clear Counts** button to set both Counts to zero, the Counts: % On Target field will turn to zero.

Speed: % On Target =

$$\text{Speed: \% On Target} = \frac{\text{Detected Speed}}{\text{Target/Takt Speed}}$$

By default, the field background is:

0 to 79% background is Red.
80 to 94% background is Yellow.
95 % and greater background is Green.

Job: % Complete =

$$\text{Job: \% Complete} = \frac{\text{Detected Counts}}{\text{Job Size}}$$

By default, the field background is:

0 to 99% background is Green.
100% and greater background is Red.

Please note: If no Job Size is entered the Job: % Complete field will remain at zero.

ERROR CODES (Only applicable to TRACKER™ HUB users.)

"Unable to connect to HUB IP Address 192.168.150.2" – TR is unable to connect to Tracker Network. Check that all network cables are plugged in correctly and that the HUB is powered on.

"Error Code 400" – There are already 16 active TR units visible on the HUB screen. To add another, you will need to deselect one in the HUB's *Tools Menu > Trackers* and retry connecting.

"Error Code 401" – A previously connected TR is attempting to re-connect but is no longer visible on the HUB screen. You will need to re-select the TR in the HUB's *Tools Menu > Trackers*.

TROUBLE SHOOTING

**Please note: all TR systems are fully inspected prior to shipment
and will ship in good working condition.**

1. Ensure TV is a 720p or compatible screen. The **TR** will work with higher resolution TVs, including 1080p systems, which can display 720p. We recommend using a TV provided by Output Technology, or a minimum screen size of 24 inches. We have found that some of the low cost TVs smaller than 24 inches do not have proper grounding and/or line filtering and if connected to same power strip as the **TR** may cause interference that prevents display from working correctly.
2. Ensure high quality HDMI cable is working and correctly connected to the **TR** system and to the TV.
3. **HDMI converters are not recommended.**   HDMI converters must be independently powered. If TR screen does not display when using an HDMI converter, use a high quality HDMI cable and a TV described in step 1.
4. Ensure TV is turned on, working properly, and set to the HDMI input that the HDMI cable from the **TR** system is plugged into before turning on the **TR.**
5. If **TR** screen does not display ensure steps 1, 2, and 3 above are correct. Turn **TR** system off for 20 seconds, and then turn on again. If **TR** screen does not display:
   a. Use a high quality power strip. If both the **TR** and TV are plugged into low cost power strips there can be grounding interference that causes the screen not to display.
   b. If using a smaller TV, we recommend one with a 3 prong AC plug and cable for best results. Small TVs with 2 prong external DC converters should be avoided.
   c. Open **TR.** Power up the **TR** unit and see if the "blue lights" on the CPU board come on correctly. See Video under Support on web site. If you do not see the light sequence: power off, wait 20 seconds, then power on again. If blue lights on CPU board do not come on correctly, check cable connections in the **TR** unit.
   d. Check the HDMI cable connections in the **TR** unit. Check the micro cable connection to the CPU board. Check the internal HDMI connection to the pass through connector on **TR** unit frame. Check the external HDMI cable connection to the **TR** unit.
   e. After checking the above, if **TR** screen does not display correctly, contact factory.
6. If mouse or keyboard do not work: verify they are plugged in or wireless USB fob is plugged in correctly. Turn **TR** off for 20 seconds, remove USB, replace USB, and then turn on again. **TR** system cannot be ON when plugging in the USB or HDMI devices. The **TR** system needs to "discover" these devices when turning on or booting up.
7. 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 **TR.** Ensure sensor cable is properly connected and screwed into the sensor.

TECHNICAL INFORMATION

- Power Requirements: 115V, 50/60Hz, 500ma FA
- HDMI Connection: 720p or equivalent, Type A, Full Size Female Connector
- USB Connection: 2.0, wired and wireless, Type A Female Connector
- Standard Sensor: Diffuse Reflective, NPN, 12 to 24 VDC, 24 Volt Provided By **TR,** 150mm (6") range
- Sensor Connection: M12 Connector. Pin 1: 24V, Pin 2: Signal, Pin 3: 0V
- If utilizing a relay input, please note we provide the 0VDC 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, **TR** will detect state change.

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