

# TrackIt<sup>®</sup>

## Web Console

### TrackIt Delivery Cycle Monitoring

Version: 1.0

Hardware Installation Guide

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**Command  
Alkon**

# TrackIt Delivery Cycle Monitoring Hardware Installation

TrackIt Delivery Cycle Monitoring is a hardware and software configuration setup used on concrete trucks to gauge drum rotation speeds and direction. Installation of the sensors occurs around the flange of the hydrostatic transmission for the drum. The hardware is then configured using the TrackIt Web Console and TrackIt Android apps. Upon successful setup, the rotation speed and direction of the drum may be tracked, logged, and adjusted via TrackIt.

The following is an outline of the steps required to complete the hardware installation:

1. [Meet the hardware and software requirements](#)
2. [Install the Sensor Link](#)
3. [Install the Drum Rotation Sensor and magnet assembly](#)
4. [Install the Water Flowmeter \(optional\)](#)



## Hardware & Software Requirements

This system consists of the Sensor Link interface box, Drum Rotation Sensor, drum magnets, cables, and mounting equipment. The TrackIt Delivery Cycle Monitoring hardware is all provided as part of the same kit. Optional components, like water flow meters, are not included or supported by Command Alkon Incorporated.

### Minimum compatibility requirements

The tablet is shipped with the required hardware and software configurations in place.

For troubleshooting purposes, the following requirements exist:

- ▶ Android OS 6.0.1+
- ▶ Android System WebView 62+
- ▶ Event Service Manager (ESM) v2.0.3+
- ▶ TrackIt Android v14.4.46+
- ▶ Tablet with cellular
- ▶ Full MDM or TrackIt Remote Support
- ▶ Sensor Link application 5.5.7.10+

## TrackIt Delivery Cycle Monitoring assembly components

This TrackIt Delivery Cycle Monitoring assembly consists of three main elements: the Sensor Link interface box, Drum Rotation Sensor, and drum magnets.



### Component

*Sensor Link Interface Box*

### Description

- ▶ The central component that all sensor pieces connect to. This powers the Drum Rotation Sensor and routes all communication between the sensor and magnets.



### Component

*Sensor Link Power Cable*

### Description

- ▶ M12 connector





**Component**     *Drum Rotation Sensor*



**Description**

- ▶ Senses passing magnets attached to the truck drum to retrieve data for calculating speed and direction of the drum rotation
- ▶ Attaches to the mounting bracket with two bolts and connects to the Sensor Link

**Component**     *Mounting Bracket*



**Description**

- ▶ Includes two pre-attached pieces for mounting to the concrete truck. The Drum Rotation Sensor is attached to the truck via the mount.
- ▶ Compatible with other sensors, such as DOT sensors.

**Component***Bolt Magnets***Description**

- ▶ Four (4) Bolt magnets are included in a basic kit
- ▶ Four (4) Disc magnets may also be used
- ▶ If magnets have previously been installed, these may vary in shape and number



**Component**     *Drum Rotation Sensor Cable*

**Description**

- ▶ Current available length(s) of cable: 10m
- ▶ Attaches to the Drum Rotation Sensor and feeds into the Sensor Link





**Component**    *Waterflow Meter Cable*  
(optional)



The TrackIt Delivery Cycle Monitoring assembly is not shipped with a water flow meter, but the assembly is compatible with water flow meters via this cable.



**Description**

- ▶ Current available cable length(s): 10m
- ▶ Connects the flow meter and Sensor Link
- ▶ Compatible with flow meters with a 5-pin M12 connector





## Required tools & equipment

Use the following additional tools and equipment to install the TrackIt Delivery Cycle Monitoring assembly:

- ▶ Cable ties for securing the assembly cables
- ▶ 3/4" deep socket and 3/4" shallow for bracket mount
- ▶ 6" extension and ratchet to clear the bracket depth and get into the nook of the drum transmission support
- ▶ 10mm socket for bracket hardware
- ▶ Flush cutters
- ▶ Electrical tape
- ▶ Tape measure
- ▶ Pry tools of fiber or plastic for mounting magnets
- ▶ Wire crimpers
- ▶ Wire strippers
- ▶ Any other tools required to mount the sensor and magnets

## Install the Sensor Link

The Sensor Link is used as a communication interface between the various electrical devices on the truck, and wirelessly shares signal data to the driver tablet interface.

### Installing the Sensor Link

The Sensor Link interface box should be located inside the cabin of the truck, as it is not designed to be exposed to the elements. Ideally, it should be located behind or under a seat. Otherwise it should be installed at an easy access location, preferably on the back wall of the cabin and with the reset button located on the top.

Install the Sensor Link and secure it using appropriate fasteners. Its cable configuration is detailed in the following section.

The Sensor Link utilizes multiple cable connections to facilitate communication between devices. The following connections must be made to properly utilize the DRS:

- ▶ To power the Sensor Link interface box, connect the cable to the top-right connector (Power) and then to the truck's fuse box.
- ▶ To connect to the Drum Rotation Sensor, utilize the bottom-middle connector (Flow 2 (4)).
- ▶ To connect to an optional flowmeter, connect the cable to the bottom-right connector (Flow 1 (3)).

### Power connection to the truck

For the power connection, we use the Sensor Link Power cable with M12 connector as displayed below.



Wire connections should be as follows:

Wire Color	Function
Black	GND
Red	+12V to 24V (with in-line 5A fuse)
White	Ignition Input

## Install the Drum Rotation Sensor

Installation of the Drum Rotation Sensor consists of two components: the sensor magnets and the sensor itself. One is installed on the drum, whereas the other is attached to the hydrostatic transmission case. The process of installing these components is quite straightforward and described further below.



Position the Drum Rotation Sensor Assembly independent from any other existing sensors on the truck. Sometimes other sensors and magnets interfere with the Drum Rotation Sensor Assembly.

### Installing the magnets



Typically, four (4) magnets are installed with even spacing around the flange. These are often done between existing bolts on the flat flange surface as shown above.

Three types of magnets may be used with the Novotron sensors.

- ▶ Bolts: Three (3) magnets instead of the typical four (4)
- ▶ Existing: Include different mounts

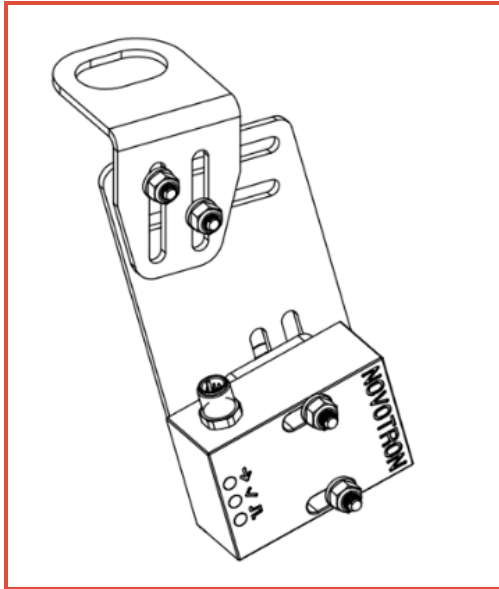


▶ Disc magnets: Four (4) magnets

Magnets are provided to signal speed and direction of the drum. As these magnets pass in proximity to the sensor, the sensor is able to determine rotation and speed. These magnets should be installed evenly around the flange of the hydrostatic transmission for the drum.

## Installing the sensor bracket

Once the magnets are installed, you should now install the drum rotation sensor.

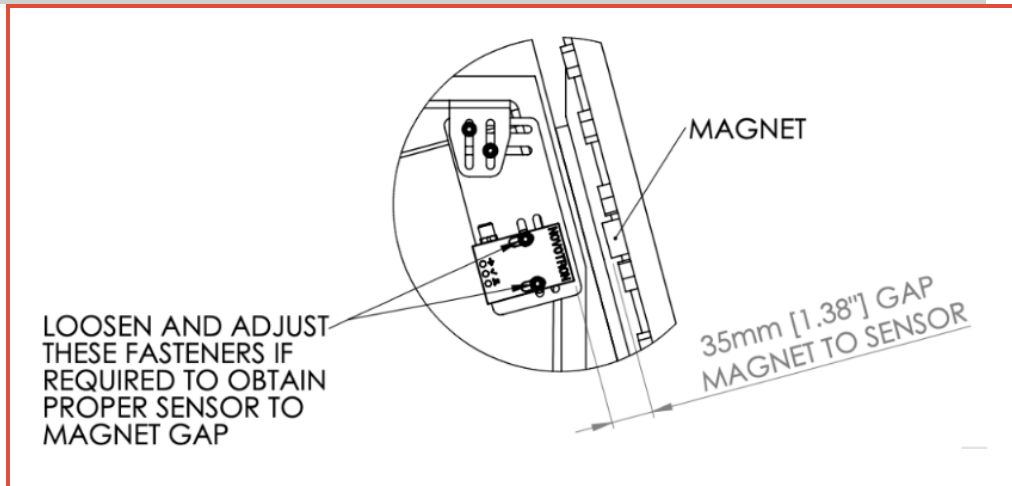


When installing the sensor, we suggest that you position the sensor in proximity to the magnets on the drum flange.

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### ***To install the sensor bracket***

1. Remove the bolt from the transmission case.
  2. Install the bracket below the case.
  3. Reinstall the existing washer and hex nut to attach bracket to case, leaving loose enough to adjust the sensor's position.
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4. Slide the upper bracket in or out to position the center of the magnetic sensor in line with the magnet path.
  5. Re-tighten the large nut to hold the bracket in position.
  6. If needed, loosen the small hardware to adjust the lower bracket so the long edge is parallel to the drum.
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### *Bolt Magnet installation with pencil sensor*





## Attaching sensor to bracket



Before tightening the sensor to the bracket, loosely attach the sensor to the bracket arm, mount the bracket tightly, and check spacing as specified below. This will give you more flexibility as you find the optimal position for the sensor.

### Spacing the sensor from the magnets

It is important that the spacing between the sensor and the magnets be set correctly. If the sensor is positioned too far away from the magnets, it may not pick up the magnets. Position the sensor too close and contact may occur between the sensor and magnets under extreme conditions.

The table below outlines the ideal proximity between the sensor and magnets.

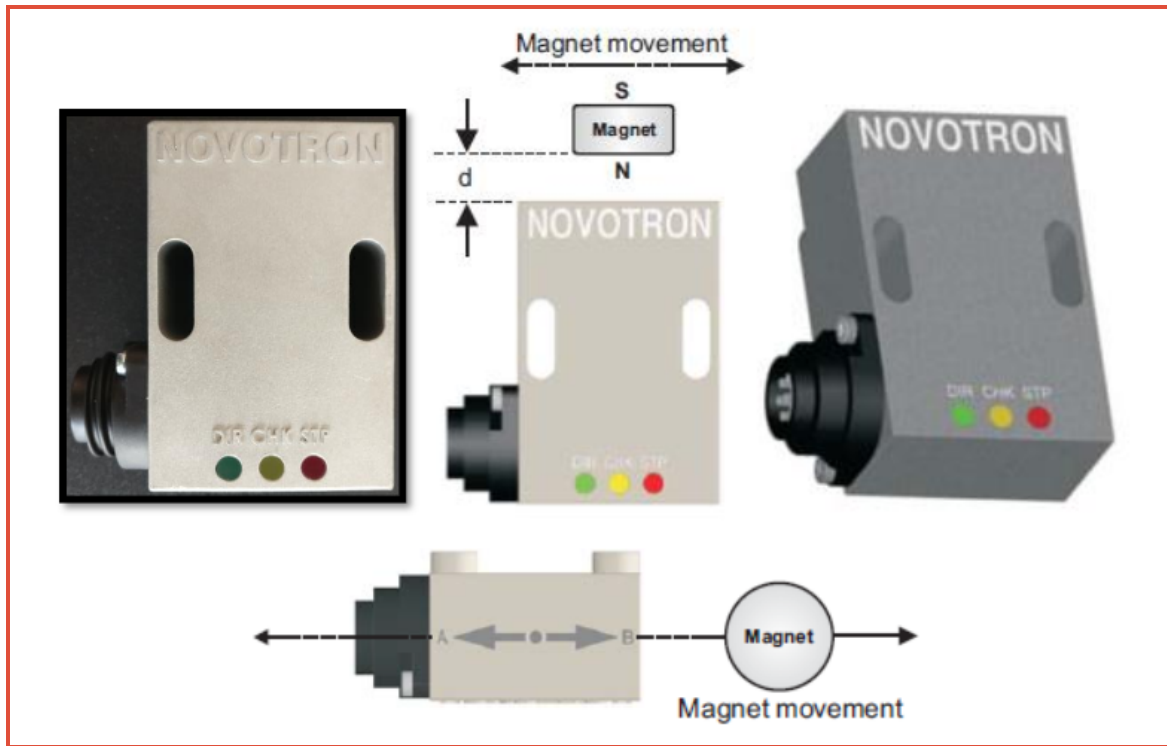
	Bolt Magnets	Disc Magnets
<b>Compatible Sensor</b>	Novotron V2	Novotron V1
<b>Ideal Space</b>	1" (25mm)	1-3/8" (35mm)
<b>Minimum Space</b>	5/8" (15mm)	7/8" (20mm)
<b>Maximum Space</b>	1 3/8" (35mm)	1-9/16" (40mm)

## Ensuring power to the sensor

After connecting the Drum Rotation Sensor and cabling, make sure it is powered by turning on the truck ignition. You may then confirm functionality of the sensor using the magnet and the three LED's on the sensor as follows:

- ▶ One side of the sensor is marked by an arrow and the letters **A** and **B**. When moving a magnet along the arrow, the sensor will detect the magnet moving direction and switch the output relay **DIR** accordingly. The green LED **DIR** (direction) will indicate the current output state.
- ▶ Each time the magnet passes, the output relay **STP** (stop) provides a one-second pulse.
- ▶ If the magnet passes close enough to the sensor close to generate a safe signal amplitude, the yellow **CHK** (check) will be switched on for one second.

Make sure that the magnet's center moves aligned with the arrow marking on one side of the sensor, and that the `CHK` LED switches on when the magnet passes.



## Install the Water Flowmeter Cable



While the TrackIt Delivery Cycle Monitoring assembly is compatible with certain water flow meters, a flow meter is not included with the assembly. Customers must supply their own. If you have a water flow meter that is not compatible with the Sensor Link, Command Alkon Incorporated recommends you replace them with compatible flow meters.

You may also wish to monitor water added to a load after it leaves the plant. Water flow meters are available to measure water added, and send electrical pulses to a measurement system (e.g., 100 pulses per gallon). The Sensor Link can also receive these signals and report water added to the driver as well as web reporting services.



A common flowmeter is the CX8 series from Universal Flow Meter, with a 5-pin M12 connector. A 5-pin M12 connector is required if you choose to use a different type of flowmeter.



For proper installation the flowmeter must be installed and mounted inline with the drum water feed. Do not install in the wash water feed.



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### ***To install the flowmeter***

1. Run the water flowmeter cable between the flowmeter and the Sensor Link inside the vehicle cabin.
2. Ensure the Sensor Link power cable is connected to the Sensor Link. Power is provided to the flowmeter from the Sensor Link box at the same voltage wired to the Sensor Link's power input.



Use pipe dope + hand tight and then .25 to .5 of a turn as over-tightening can cause damage.



# Troubleshooting the Drum Rotation Sensor

The following section describes common and uncommon behaviors along with steps to solve any problems that may arise while using the Drum Rotation Sensor.

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## *How do the sensor lights normally operate?*

With the drum turning, each time a magnet passes the magnetic sensor, the LEDs should light up as follows:

**POWER (ON)**     **YELLOW** is ON solid, and blinks while the magnet passes

**DIRECTION A > B**     **RED** and **GREEN** both flash ON while magnet passes

**DIRECTION B > A**     **RED** flashes ON while magnet passes

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## *Why aren't the sensor lights on?*

If no lights are blinking on the sensor, we suggest that you check the Sensor Link Power LED to confirm that vehicle power is present. If power is flowing to the Sensor Link, then the yellow light should be on. Additionally, check to make sure the Sensor Link to Drum Rotation Sensor cable is plugged in at both ends.

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## *How do lights on the Sensor Link function?*

If the cable connections are properly connecting the sensor to the Sensor Link, then the LEDs for both FLOW 2 and FLOW 4 should flash when a magnet passes by the sensor.

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### *What's next?*



Now that the hardware assembly is installed, it must be configured to communicate with the TrackIt Web Console and TrackIt Android. Instructions regarding this process are found in the [TrackIt Delivery Cycle Monitoring Software Configuration Guide](#)