



ScreenSTOP Installation Guide



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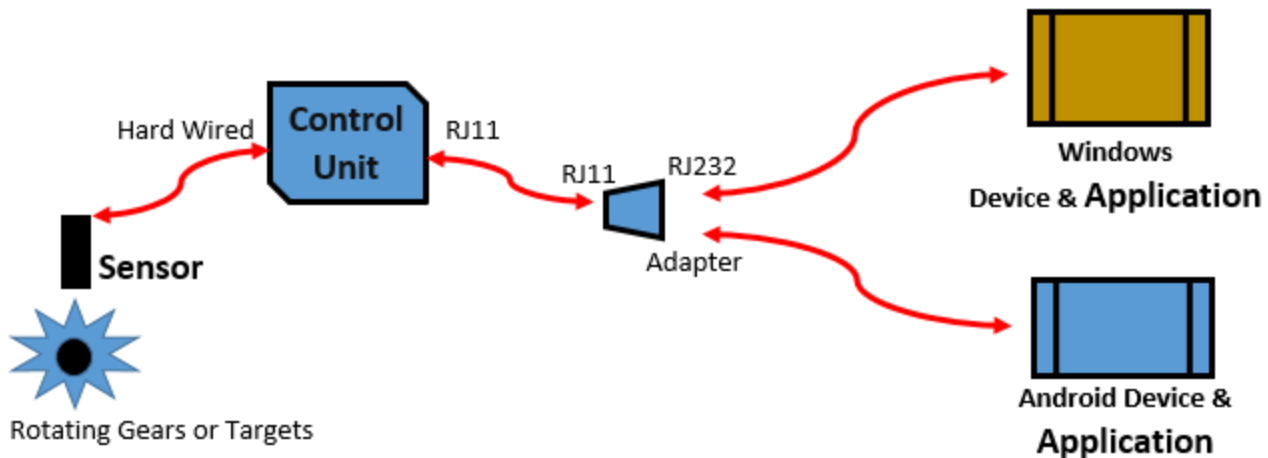
ScreenSTOP Installation Guide
May 2019

ScreenSTOP

ScreenSTOP prevents an operator of an industrial transport vehicle (i.e.; lift truck) from being distracted while driving, by the computer device/screen typically mounted on the dashboard of the vehicle to supply the operator with information to perform the duties of their job.

The ScreenSTOP system consists of three components:

1. The **sensor** that reads the motion of the vehicle from a rotational part of the vehicle
2. The Programmable Logic Control or **Control Unit**, that responds to the signals from the sensor and provides a signal to the computer device being read by the driver
3. The **application** installed on the computer device that will establish a mask over the screen on the device when the truck or industrial transport vehicle goes into motion



A sensor in our ScreenSTOP system records the movement of the vehicle and applies that information to our software which is running constantly on the computer device in the industrial vehicle. The signal of vehicle motion causes the existing screen on the computer device to be covered or 'masked' with an opaque screen.

ScreenSTOP will mask the existing screen on the device when the vehicle goes into motion, (forward or backward) thereby reducing the probability of the operator being distracted as they proceed. When the vehicle stops, the original or underlying screen returns. A short amount of time to return to the original screen means that there is no loss in productivity waiting for the screen to come back on.

The ScreenSTOP works on the computer devices with both a Windows/Microsoft and an Android/Google operating system.

Notes

NOTE: a note indicates important information that will assist with the installation of the ScreenSTOP system.

Diagram Measurements

The measurements in the diagrams are listed first in millimetres then also in the square brackets in inches. In **Figure 1**, the length of the gap between gear-teeth or rotating targets needs to be at a minimum of 2.00 millimetres or 0.08 inches.

Installing The Sensor

Sensor Wiring

Requirements

- SC-BXX Kit (CONTROL UNIT, power supply mounted to DIN rail, sensor, sensor wiring, power wiring, 6' RS232 Com Cable)
- Wire Strippers (**Not supplied**)
- Mounting bracket (**Not supplied**)
- Fasteners (**Not Supplied**) for Control Unit x2 and Magnetic Pick Up x1
- Means of securing the internal wiring from the Sensor to the Control Unit and from the Control Unit to the computer device mounted at the front of the lift truck (**Not Supplied**)
- Gear or other set of rotating targets which meet the minimum requirements (**see Figure 1**)

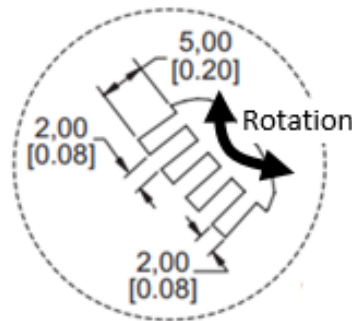
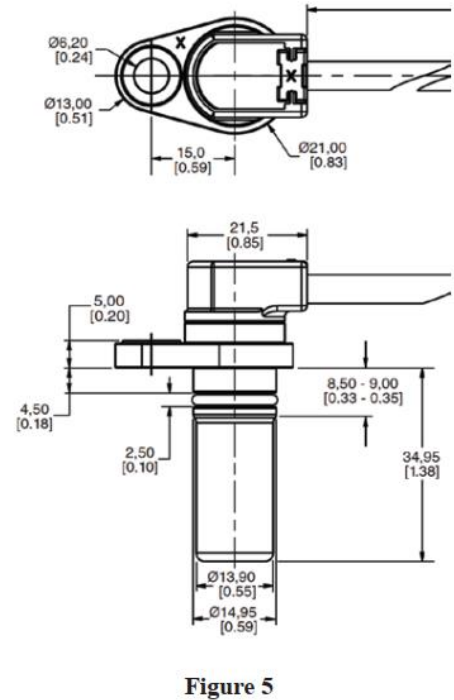
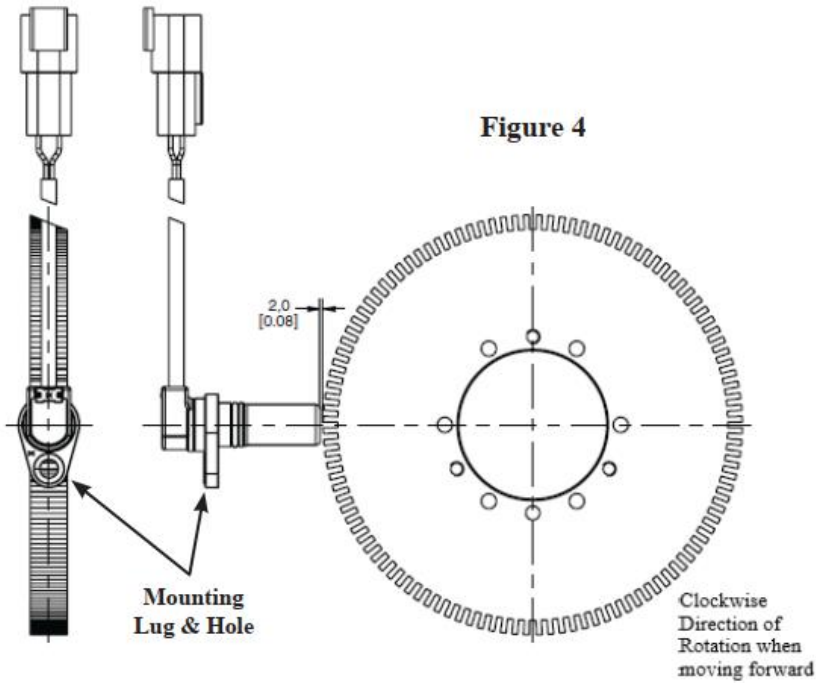


Figure 1
Rotational Gear
(Sensor Target) Sizing

Sensor Mounting

1. Ensure that the gear or targets use meet the required specification (**see Figure 1**)

2. Fabricate a bracket to mount the sensor so that there is a 2 mm (0.08") gap between the sensor face and the targets (*see Figure 4*). Refer to Figure 5 for the holes required to mount the sensor in a bracket
3. The mounting hole of the sensor (*see Figure 5*) and the sensor face MUST be aligned with the plane of the rotation (*see Figure 4*), otherwise unintended operation may occur
4. For proper operation of the control unit when the truck is moving forward, the targets must pass the mounting hole and then sensor face in that order



Installing The Control Unit

Control Unit Mounting

The Control Unit comes with a DIN Rail (a metal rail of a standard type widely used for mounting circuit breakers and industrial control equipment inside equipment racks).

1. Mount the control unit on a flat surface in a dry location, that is 8" x 6" with 4" in clearance (within an electrical cabinet on the lift truck is recommended)
2. Place the unit with the DIN Rail horizontal and flat against the mounting surface. Secure in place using bolts or screw thru the perforations (25 mm x 5 mm) in the DIN Rail. Place one on each end (*see Figure 2*)

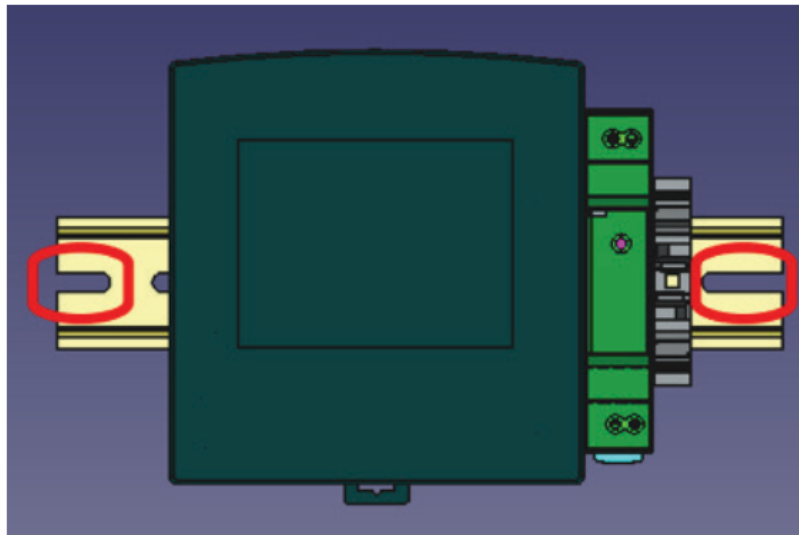


Figure 2

Control Unit Wiring and Power Supply

The Control Unit wiring is shown in **Figure 6**.

1. Ensure that power is off during wiring process
2. Connect the sensor's quick disconnect to the cable from the control unit (they are keyed and will only connect in one position)
3. Connect the Red supply wire to V+ of an appropriate DC supply capable of supplying 0.75 A, after trimming to the correct length
4. Connect the Black supply wire to 0 V of an appropriate DC supply capable of supplying 0.75 A, after trimming to the correct length
5. Plug Serial Connector in to the Control Unit port and connect to the screen
6. Verify all connections and wires are routed/secured according to local electrical codes

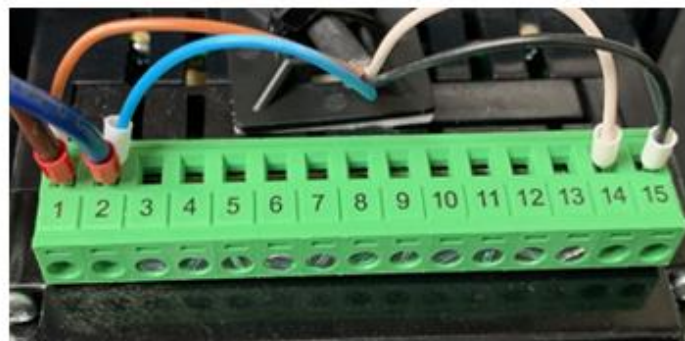


Figure 6

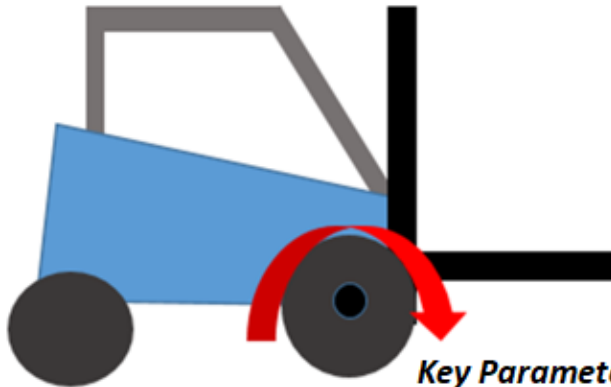
Sensor wiring locations attaching to the Control Unit
 - Gold, Lt. Blue, White and Black are from the Sensor
 - Thicker Brown wire is power, Dark Blue is ground for power to the Control Unit

Key Parameters

In order to install the ScreenSTOP application, there are two key parameters that will be needed to be measured to complete the installation:

1. The number of gear-teeth or targets that pass the sensor with one rotation of the truck wheel
2. The diameter (in inches) of the truck wheel

Together these parameters will determine the speed of the lift truck as seen through the Sensor.



Key Parameters:

1. For one rotation of the truck wheel, the number of targets or gear-teeth that go past the Sensor
2. The diameter of the truck wheel (in inches)

Windows Application Installation

Windows System Requirements

Windows 10 version 1607, 1609, 1703, 1709 and 1809.

Acquiring the Windows Application File

1. Send an email to GroupMobile support to receive steps on how to get the Windows MSI Installation file
2. After you've received the Windows MSI Installation file, store it into a USB drive

Windows Installation

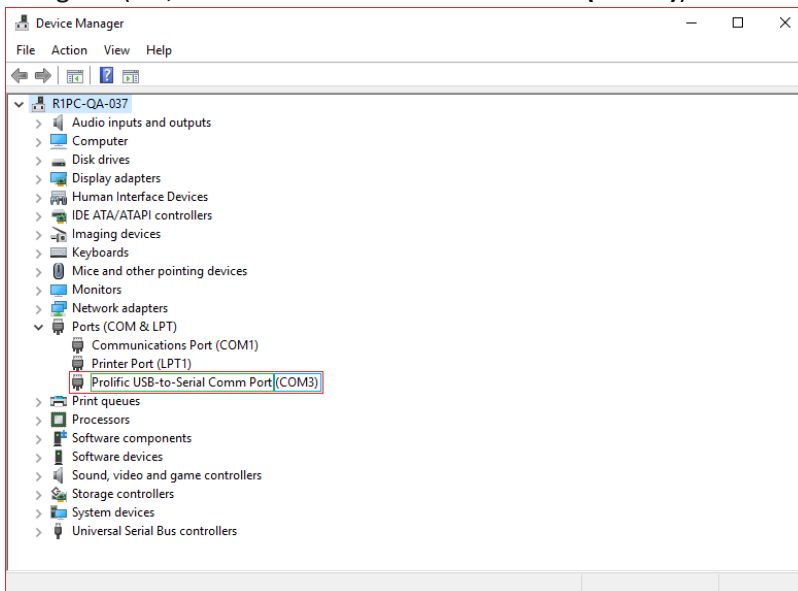
1. Run the provided ScreenSTOP.exe installation file

2. When asked if you want to allow this app to make changes to your device, click on “Yes” (contact your administrator if an administrative account is required to click “Yes”)
3. When the installer loads, click on “Install”
4. After it finishes, click on “Finish”

Setting the Windows Parameters

There are parameters which are required to be entered into the application to ensure accuracy with the lift truck and the computer device.

1. Open up Notepad with administrative rights by clicking on the start menu (the bottom left windows icon).
2. After the start menu opens, type in “notepad”
3. The search will yield a “Notepad” app as a result. Right click on it then click “Run as Administrator” (Contact your Administrator if elevated privileges are required to continue)
4. After Notepad has been opened, click on File -> Open
5. Navigate to C:\Program Files\Route1\ScreenSTOP\
6. Find the ScreenSTOP.properties file and double click it (If it is not visible, you must find the drop down menu on the bottom right which says “Text Documents (*.txt).” Click on it and choose “All Files (*.*)”.)
7. Adjust Sensor.Port to the correct COM port being used. Set to COM1 if the CONTROL UNIT is directly connected to the device (**this is almost always the case**). If a COM-to-USB adapter is used to connect the CONTROL UNIT to the device, Sensor.Port will need to be changed to the correct COM port (noted by the “Prolific” entry in Device Manager)
 - Click on the Windows Start Button (bottom left)
 - Search for Device Manager and open it
 - Look for “Ports (COM & LPT) and expand it
 - Find the COM entry with “Prolific” in its name to see the COM number it has been assigned (i.e., **Prolific USB-to-Serial Comm Port (COM3)**)



8. Adjust the Sensor.Mode by setting it to either Character (1) or Frequency (2); Frequency is the default
9. Adjust the Sensor.WheelDiameterInches by putting in a number in inches

10. Adjust the Sensor.PPR (number of gear-teeth or targets in one rotation of the lift truck wheel)
11. Adjust the Sensor.ThresholdMPH to enable a speed in MPH that the mask is to engage and then disengage while in the forward direction.
12. Adjust the following three properties to enable “Mask-on-Disconnect” functionality:
 - **Sensor.UnpluggedCommand** – Takes a value of **F** or **X**. **F** represents “Mask” and **X** represents “Do not mask”
 - **Sensor.ReadTimeoutMillis** – Takes a value of **X** (e.g: 1000) in milliseconds. Example: 1000 milliseconds after the cable has been pulled from the Windows device, perform Sensor.UnpluggedCommand
 - **Sensor.ReadTimeoutIsError** – Enables “Mask-on-Disconnect” functionality. Takes a value of 1 (ON) or 0 (OFF)

Below is an example scenario using the properties and values below:

Scenario:

When the Control Unit cable is pulled from the Windows device, mask the screen after 3000 milliseconds.

Properties & Values:

Sensor.UnpluggedCommand=F

Sensor.ReadTimeoutMillis=3000

Sensor.ReadTimeoutIsError=1

NOTE: The ScreenSTOP application is setup to immediately mask the screen with any reverse speed or movement.

13. Save the file
14. The application must be re-launched to apply the changes. This can be done by following the steps below:
 - a. Right click on the taskbar and click on “Task Manager”
 - b. Click on “More details” on the bottom right. If it says “Fewer details,” skip to step (c)
 - c. Navigate to the “Details” tab
 - d. Find “sstop.exe”
 - e. Right click on “sstop.exe” and click “End Task”
15. After the ScreenSTOP task has been ended, it can be relaunched by clicking on the bottom left windows icon. Typing in “ScreenSTOP” will yield a search result for the ScreenSTOP app. Simply click on it and it will launch.

Attaching to a Windows Device

If the Windows device has a COM Port, simply plug the cable from the Control Unit directly into the device using the RJ11 to COM cable. If the device does not have a COM Port, an RJ11 to COM cable can be extended by using a COM to USB adapter. As mentioned earlier under the Parameters section for Windows, ensure that the correct Sensor.COM value is set.

NOTE: In the Properties section, if the “Mask-on-Disconnect” functionality was enabled, *the Windows Device at this point will mask when the cable to the device is unplugged*. To stop “Mask-on-Disconnect” functionality, perform the following:

1. Plug the cable from the Control Unit into the Windows device
2. Open up Notepad with administrative rights by clicking on the start menu (the bottom left windows icon).
3. After the start menu opens, type in “notepad”
4. The search will yield a “Notepad” app as a result. Right click on it then click “Run as Administrator” (Contact your Administrator if elevated privileges are required to continue)
5. After Notepad has been opened, click on File -> Open
6. Navigate to C:\Program Files\Route1\ScreenSTOP\
7. Find the ScreenSTOP.properties file and double click it (If it is not visible, you must find the drop down menu on the bottom right which says “Text Documents (*.txt).” Click on it and choose “All Files (*.*)”.
8. Edit the following properties as follows:

```
Sensor.ReadTimeoutIsError=0
```

```
Sensor.UnpluggedCommand=X
```

9. Save the file
10. The application must be re-launched to apply the changes. This can be done by following the steps below:
 - a. Right click on the taskbar and click on “Task Manager”
 - b. Click on “More details” on the bottom right. If it says “Fewer details,” skip to step (c)
 - c. Navigate to the “Details” tab
 - d. Find “sstop.exe”
 - e. Right click on “sstop.exe” and click “End Task”
11. After the ScreenSTOP task has been ended, it can be relaunched by clicking on the bottom left windows icon. Typing in “ScreenSTOP” will yield a search result for the ScreenSTOP app. Simply click on it and it will launch.

Android Application Installation

Android System Requirements

Android 7.x, 8.x or 9.x

Acquiring the Android Application File

1. Send an email to GroupMobile support to receive steps on how to get the APK file
2. After you've received the APK file, store it into a USB drive

Android Installation

1. Plug the USB Drive into your Android Device (by using a USB Drive to USB-C converter, or USB-Micro depending on what port your Android Device has; USB-C is Oval Shaped while USB-Micro has a trapezoid shape)
2. In the Android Device, navigate to the "My Files" application
3. Wait for the "USB Storage" device to appear on the left hand side (it will usually appear below "Internal Storage" and "SD Card")
4. Tap on "USB Storage" and find the .apk file that was moved to the USB Drive
5. Begin the installation by tapping on the provided apk file
6. If asked about unknown sources, tap "Settings," otherwise skip to step 12
7. This will open "Lock Screen and Security" in the settings app
8. Find the entry on the right that is labeled "Unknown sources"
9. There will be a white switch to the right of the "Unknown sources" text
10. Tap it to make an "Unknown Sources" dialog popup
11. Tap "Ok"
12. Click "Install"
13. A "Send app for scanning?" dialog pop may pop up. Tap on "Don't Send," otherwise skip to step 14
14. After the app is installed, click "Done"

Setting the Android Parameters

NOTE: In order to set the parameters in an Android system, you will be required to manipulate the parameters file in an Android 'text editor' application. There is no native application that comes with the Android stock set of applications on most devices. It is necessary to download a text editor application before proceeding.

1. Before modifying the parameters, the parameters file (screenStop.properties) must be created by launching the app. After its first launch, it will create the properties file and store it in the device's internal storage under `"/Downloads/data/ScreenSTOP/"`
2. If "Allow ScreenSTOP to access photos, media, and files on your device?" appears, tap "Allow"

3. If “APPS THAT CAN APPEAR ON TOP” appears, for ScreenSTOP, enable the “Allow Permission” switch by tapping on the switch (the switch will then become blue and shift to the right)
4. Click on the Back Button of your device to return to the home screen
5. At this point, ScreenSTOP will be running (indicated by the Route1 shield icon on the top). This means that the ScreenSTOP properties file will have been created. If the Route1 shield icon is not appearing on the top, find the app and launch it (the app is called “ScreenSTOP”)
6. Navigate to a text editor such as “Text Editor”
7. On the top left, click the 3 lines
8. Tap on “Open file...”
9. The screenStop.properties file may appear before you. If you do not see it, navigate to /Downloads/data/ScreenSTOP/ (in the internal storage directory)
10. Tap on “screenStop.properties” to open the file
11. Adjust the Sensor.Mode by setting it to either Character (1) or Frequency (2); Frequency is the default
12. If Sensor.Mode is set to Frequency (2), adjust the Sensor.WheelDiameterInInches, Sensor.PPR (number of nodes) and Sensor.ThresholdMPH as needed
13. Tap on “Save & Close” to finish editing

Attaching to an Android Device

From the Control Unit, the RJ11 to COM cable must be connected to a COM to USB adapter. This adapter can then be connected to a USB-to-USB C dongle (or USB-to-USB micro dongle depending on which port the Android device has). Alternatively, if charging is required alongside usage of the Application, a USB-C (or USB micro) Multi-Port adapter can be used (**Figure 12**).

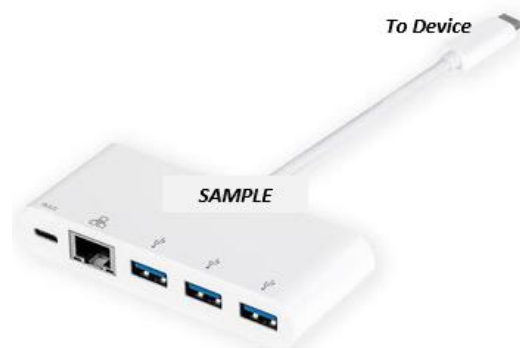


Figure 12

As in **Figure 12**, the RJ11 to COM cable from the Control Unit would be plugged into a COM-to-USB adapter. The COM-to-USB adapter would then plug into the USB port of the Multi-Port adapter. A USB-C charging cable would then go into the USB-C slot of the Multi-Port adapter (the same would apply with a USB Micro scenario). The main USB-C cable from the Multi-Port adapter would then plug into the device.

Once the USB-C is plugged into the device, a USB Permission pop-up will appear. Check “Use ScreenSTOP Application for USB by default” and click “Ok.” ScreenSTOP will now start to function.

NOTE: The Android Device at this point will mask when the cable to the device is unplugged. If the cable has been unplugged, and in order to have ScreenSTOP work properly again:

1. Plug-in the main cable back into the device
2. Re-Start the device by holding down the power button and choosing 'Restart'.

Adjusting the Control Unit

The Control Units ship with the Frequency mode enabled. Below are steps to enable and adjust the two different modes for the Control Unit.

Enabling Frequency Mode in the Control Unit

1. Observe the Control Unit LCD screen to see if it says "Frequency"
2. If it says "Frequency," continue to the next section, "Adjusting the Control Unit in Frequency Mode"
3. If it says "Character," on the LCD screen, tap "Setup" on the bottom left
4. Tap the "Character" button under "Com Mode"
5. Frequency Mode is now enabled; tap "Main" on the bottom right to exit the Setup Screen

Adjusting the Control Unit in Frequency Mode

There are no adjustments required when the Control Unit is in Frequency mode.

Enabling Character Mode in the Control Unit

The Character Mode can be used for testing purposes.

1. Observe the Control Unit LCD screen to see if it says "Character"
2. If it says "Character," continue to the next section, "Adjusting the Control Unit in Character Mode"
3. If it says "Frequency," on the LCD screen, tap "Setup" on the bottom left
4. Tap the "Frequency" button under "Com Mode"
5. Character Mode is now enabled; tap "Main" on the bottom right to exit the Setup Screen

Adjusting the Control Unit in Character Mode

1. Tap the "Setup" button on the bottom left
2. Numerous variables can be modified on the Setup screen
 - **Wheel Dia** – Diameter of the Wheel in inches
 - **Encoder** – Number of nodes that come into contact with the sensor in 1 revolution
 - **Display as** – Changes the metric that is used when displaying speed
 - **Disable Speed** – Used when "Blank Mode" is set to "Slow FWD." Threshold for the Control Unit to go from "Slow" to "Fast."

- **Blank Mode** – Can be set to “Stationary” or “Slow FWD.” When set to “Stationary,” the Control Unit only considers sends “Fast” or “Stopped.” In “Slow FWD,” the Control Unit interprets values between 0 and “Disable Speed” as “Slow”
3. After the adjustments have been made, simply tap the “Main” button on the bottom right to save any changes

Route1 Support

For assistance with installation, the below contact information can be used to communicate with our Group Mobile support team.

Network Operations Support

support@route1.com

1-866-371-1781 (Available from 12 am on Monday to 11 pm on Friday, and 8 am to 8 pm on each of Saturday and Sunday. All times are Eastern)

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