

# **ITS4mobility**

## **Snow Plow Driver Manual**

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# 1. Touch Screen Navigation

The touch screen allows you to navigate the various menus and functions of the interface.

We will from now on use the terms «press» and «touch» when we refer to using display soft buttons and making selections in menus.

- **Press a soft button or touch a menu row to activate a function or make a selection.**
- **To scroll a list, press the up/down arrows in the scrollbar. It is not possible to drag the list up or down like on an iPad or modern smartphone.**
- **To return to a previous view/the main view, press the «back»-button or anywhere outside the view area.**

**After 20 seconds the interface will automatically switch back to the main view if no action is taken.**

# 2. Sleep Mode and Boot Up

When the vehicle ignition is off, the vehicle computer is normally in sleep mode. When the ignition is turned on the computer wakes up within seconds.

If the ignition has been off for a longer period of time, or if new traffic data has been downloaded, the vehicle computer will have to boot up/reboot. This takes two to three minutes.

A boot up screen is displayed during system boot up.



Boot up Screen Image

After the system has booted the driver display switches to show the main view.

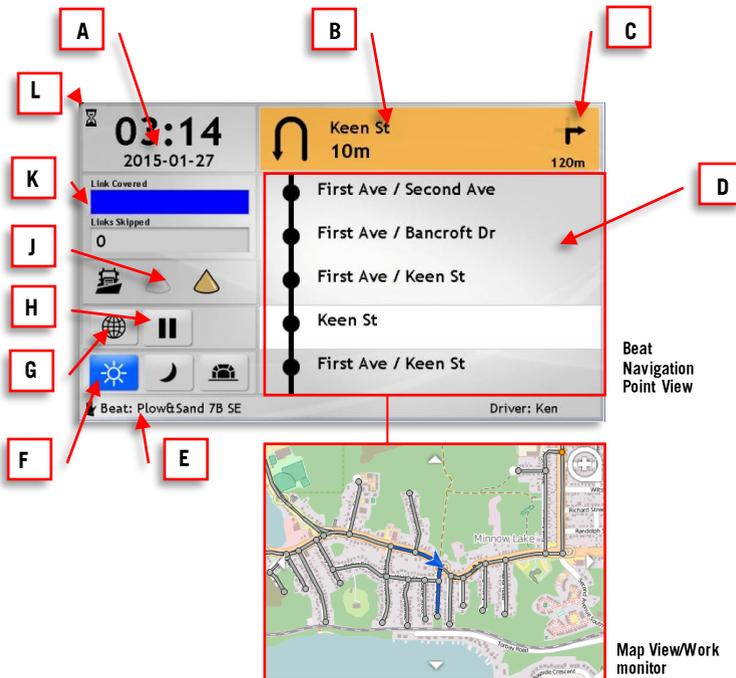
### 3. Main View: Overview

The main view displays work assistance information as you plow your assigned beat and provides access to all basic driver functions.

There are two alternative vehicle position/work monitoring views (see the image below). You can either view the plow beat and your current position along the beat as a simple navigation point sequence, or view the beat, your position and your work progress on a moving map. Regardless of view mode the top navigation field will display the next upcoming navigation point information, indicating where to go in the intersection or exit, where to make a U-turn etc.

- **Note: The map navigation view show your current position and GPS heading even when you have not selected a beat (when the vehicle is unassigned), but the navigation point view will of course not be active.**

On the following pages we will walk you through the various main view sections and their respective functionality.

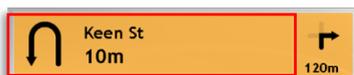


### 3.1 (A) Time, Date



In the top left time and date field, the current time (GPS, 24h clock) and date is presented.

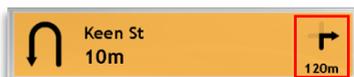
### 3.2 (B) Next Navigation Point



As you drive along the assigned beat the next upcoming navigation point is displayed in the top navigation field. Each navigation point along the beat has a name (the names of the crossing streets, exit etc.) and a turn-symbol telling you which way to go to follow the planned beat.

The current distance to the upcoming navigation point is displayed under the name. It is continuously updated.

### 3.3 (C) Following Navigation Point



To the right in the navigation field the following navigation point is displayed as a simple turn/path selection symbol with the distance indicated under it.

### 3.4 (D) Route Navigation Point View/Map View

Use the Navigation View selector button (H) to switch between the two navigation views.



The Navigation View selector button (activate map view).

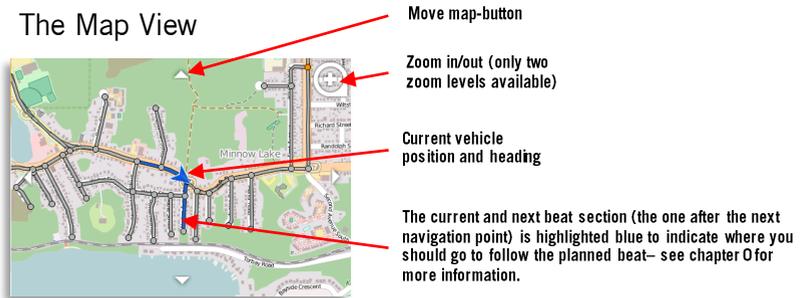
### 3.4.1 The Beat Navigation Point View



The route navigation point view presents the route as a series of navigation points with names indicating intersections, traffic circles, exits or positions where you need to switch lanes etc. This view provides a simplified way of “looking ahead” along the beat. As you get to know the beat it may be a good alternative to the more complicated and harder to decipher map view.

The current vehicle position is indicated both with a blue arrow along the line symbolizing the route, and numerically with the current distance to the next navigation point (see image above).

### 3.4.2 The Map View



The map view shows the current vehicle position and heading on a moving map. The map zoom level can be automatically adapted to the vehicle speed or be manually set with a soft button in the top right corner of the view. The assigned beat is displayed graphically, color coded to indicate work progress. See chapter 0 for more information about both the map controls and the beat presentation/work monitoring.

### 3.5 (F) Assignment, Shortcut



The assignment field in the bottom left corner displays the currently assigned beat. You can access the assignment menu directly by touching it.

### 3.6 (G) Interface Display Mode Selectors

The driver interface has three view modes: Day, Night and Tunnel mode. These modes can be easily selected using the display mode buttons in the main view. (The display mode can also be cycled using the Function Menu.)

- To activate Day mode, press the left Day mode button:
- To activate Night Mode, press the middle Night mode button:
- To activate Tunnel mode (an even darker view than Night Mode), press the right Tunnel Mode button:
- **Note. The active mode button is highlighted in blue.**



Day Mode



Night Mode



Tunnel Mode (even darker than night mode)

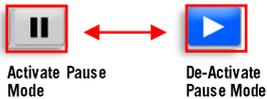
### 3.7 (H) Map/Route Navigation Point View Selector

This button switches between the two navigation views. When the button is highlighted (blue), the map view is active.



### 3.8 (I) Work Pause Button

The work pause button is used to activate/dactivate work pause mode when the route tracking and work monitoring is suspended during breaks or when getting more sand/salt etc. See chapter 0 for more information about this function.



### 3.9 (J) Work Action Information

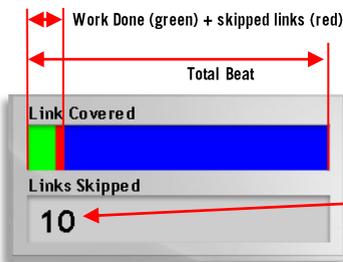
In this field the current planned work action is displayed. There are three separate symbols indicating Plowing, Sanding and Salt spreading. Actions not planned for the current beat (section) are greyed out, like in the image below.



### 3.10 (K) Work Monitor Overview

The Work Monitor Overview show, with a glance, both the work progress - how much of the beat has been plowed/sanded etc., and any missed/skipped beat sections/"links", that you may have to go back and plow later.

If you skip/miss a beat section this will be indicated both graphically, with a red section in the graph, corresponding to the skipped section, and numerically in the "Links Skipped" field.



Skipped (bypassed) beat links/sections that have not been plowed, if any. These sections are highlighted red in the graph above.

- **Note:** On the map skipped links are also highlighted red so if the work monitor overview indicate skipped links, the map can tell you exactly which roads remains to be plowed. The map view will also indicate where to start plowing to finish the skipped links, see chapter 4.5.2

### 3.11 (K) System Busy Indicator

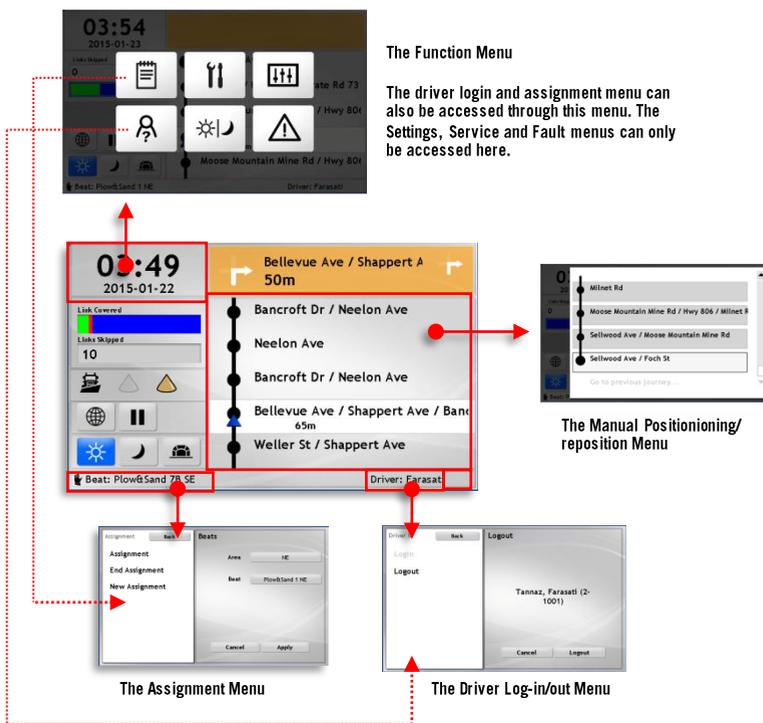
When downloading new traffic data the system may become unresponsive. To indicate this a “System Busy Indicator” lights up in the top left corner of the driver interface.



### 3.12 Main View Shortcuts

Several Main view fields provide links/shortcuts to individual function sub menus.

All sub menus, except the manual positioning menu, can alternatively be accessed through the Function menu. See image below and the Function menu description in chapter 5.



## 4. Driver Assistance Functions

In this section we will walk you through the driver interface functions designed to assist you in your work. Some of these functions have been covered briefly in the Main View Functions Chapter.

### 4.1 Driver Log-in

Normally, the first thing you do in the Driver interface is telling the system who is driving the vehicle.

You can access the **Driver login menu** through the Function menu (see chapter 5) but the main view Logon button first displayed when no one has logged in to the vehicle and no beat has been selected, and the driver login shortcut in the main view are more convenient, see images below.



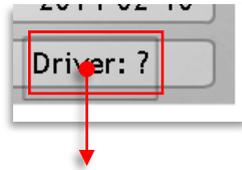
When no Beat has been selected and no driver has logged in a Login button is displayed in the navigation field, this opens the Driver login menu.



When a Beat has been selected, regardless if a driver already has logged in or not, you can access the driver login menu through the Driver ID shortcut.

## 4.1.1 Driver Log-In

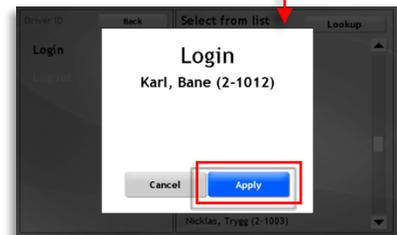
1. Touch the **Login** button or the **Driver-field** in the main view. The Driver ID menu opens.



2. In the Driver ID Login menu, the full driver list is presented in the section to the right. Scroll to your name and select it by touching it.



3. Click Apply in the pop up dialog to log in.



**Note:** If the driver list is long you may need to filter it to find and select your name. Then press the **Lookup** button in the top right corner to open the list filter.

In the list filter view, switch between numerical or alphabetical keyboard with the abc.../123... buttons.

For letters: Press one time on a soft button to write the first letter on the button, two times for the second letter and three times for the third letter. Wait a second until entering the next letter.



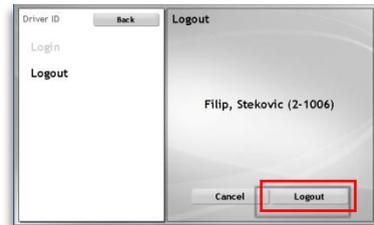
- Press "C" to reset the filter.
- Press "←" delete the last input.
- Press "—" to insert a blank space.

The list presentation will be updated to match the filter content.

Touch your name in the filtered list so select it. Confirm in the dialog presented.

#### 4.1.2 Driver Log-Out

1. Touch the driver field in the Main view to open the Driver ID menu. The Logout menu alternative is pre-selected.
2. Press **Logout** in the section to the right to log out, or Cancel, if you changed your mind about logging out.



## 4.2 Select Beat (Assignment)

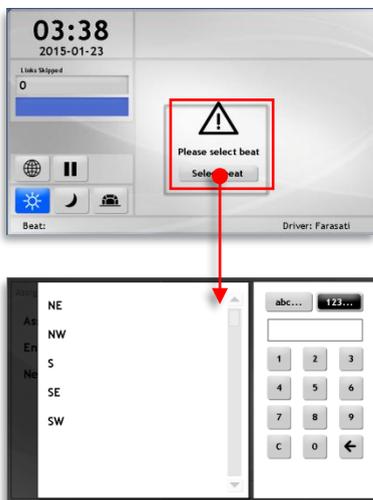
There are three ways to access the Assignment menu: Through the function menu (see chapter 0 and chapter 5), through the Main view shortcut and, when the vehicle is not assigned and a driver has already logged in, using the Select Beat button displayed in the navigation field.

Below the two latter ways are described as these are the most convenient.

### 4.2.1 When Vehicle is not Assigned : Select Beat Button

The main view will show a “Please Select Beat” warning in the navigation field when you have logged in but no assignment/plow beat has been selected (and the map view is not selected covering the navigation area).

- The “Select Beat” button provides a shortcut to the Assignment menu *Area sub menu*, where you select the Area and then proceed to select the Beat you are to plow/sand/salt.

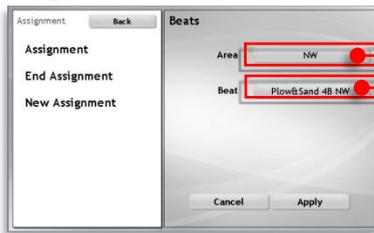


For area/beat selection, see chapter 4.2.3

## 4.2.2 When Vehicle Already is Assigned to a Beat: Main View Shortcut

When your vehicle already has an assignment that you want to change you can access the Assignment menu through the Main view Shortcut.

In the Assignment menu you then proceed to select the Area and then the Beat you are to Plow. You do not have to first end the current assignment to switch Beat.



Press the Area button to change Area, and the select Beat.

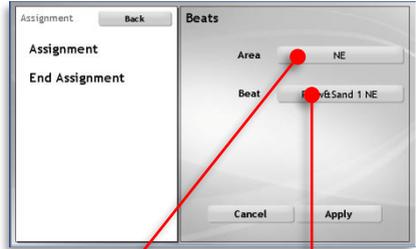
Press the Beat button to change Beat within the currently selected Area.

For area/beat selection, see the following chapter, 4.2.3

### 4.2.3 Select Area, Beat

1. All beats are sorted into areas. You assign your vehicle by first selecting the area and then the beat within this area that you are to plow. The area/beat buttons in the assignment menu is used to access separate sub menus for this selection.

In the sub menus, simply press the area/beat you want to select (scroll the list using the arrow buttons if needed). The menu closes and the button now display your selected alternative.

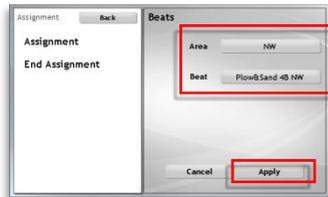


Select Area in the Area sub menu.



Select Beat in the Beat sub menu.

2. When you are satisfied with your selection, press the **Apply** button to assign the vehicle.



3. Press the Back button to return to the main view.

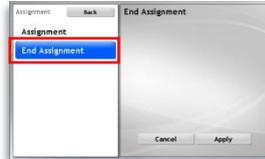


## 4.2.4 Cancel/End an Assignment

1. Press the Assignment field in the main view to open the Assignment menu.

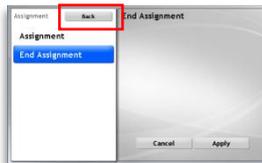


2. Select **End Assignment**



3. Press **Apply** to end the assignment.

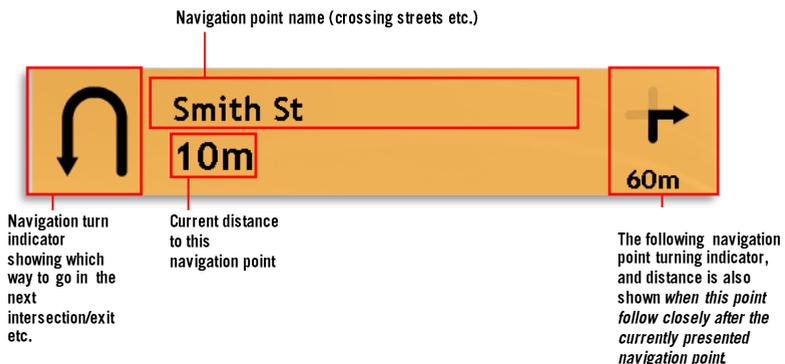
4. Press the **Back** button to return to the main view (or select Assignment in the menu to perform a new assignment).



## 4.3 Turn-By-Turn Navigation Field

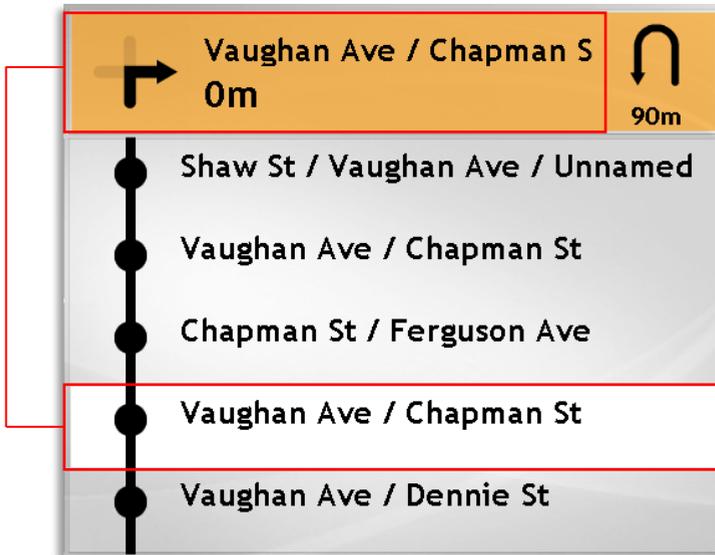
As you drive/plow your assigned route, the turn-by-turn navigator field will indicate how you are to turn at each intersection/exit, when to change lanes etc. to keep to the route.

- The upcoming (next) navigation point is presented in this field on top of both the navigation point list view and the map view *as soon as you are within 200 meters*.
- *When you are within 50 meters, the field turns orange to highlight the upcoming navigation point, where you may have to turn to keep to the planned route/beat.*
- The navigation point name consists of the name of the crossing roads, exit road etc.
- The distance to the navigation point is continuously updated.
- When the following navigation point *is positioned close to the upcoming point*, this will also be presented to let you plan ahead.



## 4.4 The navigation point list

When the Map navigation view is not active the beat ahead is presented as a series of navigation points. The next navigation point is also displayed on top of the field when you are within 200 meters.



## 4.5 Map Navigator and work Monitor

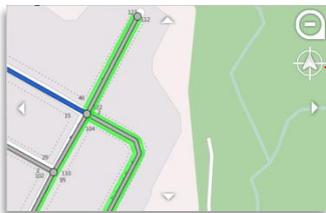
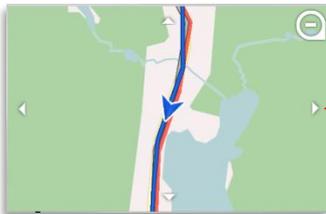
The map navigator view not only show the planned beat – where it starts, the line it takes, your current position and heading. The work you have performed along the route as well as beat sections you have bypassed/missed is indicated providing a work monitor function.

### 4.5.1 Map Controls

The map controls are very simple: IN follow mode the map follows the vehicle and the zoom level depends on the vehicle speed. Normally the map is zoomed in on the vehicle but if you drive fast it is zoomed out (there are only two zoom levels).

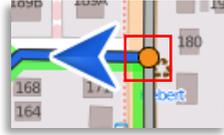
Unless you need to manually zoom out or pan the map – for instance to find bypassed/missed beat sections, you do not have to use the map controls at all.

- **Four arrow buttons and a simple Zoom out/in button allow you to control the map view.**
- **You can manually zoom out (using the zoom button) and still automatically follow the vehicle on the map, if you prefer a less detailed view showing a larger area.**
- **Whenever you have manually panned the map you can always return to the “follow vehicle” mode by pressing the “Follow vehicle button” shown under the zoom button, see image below.**



## 4.5.2 Vehicle Position, Beat Plot and Work Monitor

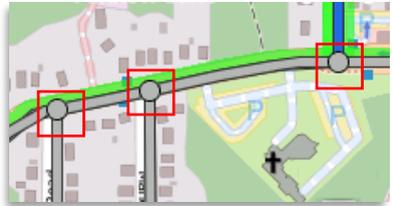
An **Orange circle** indicates the starting point of the beat.



The assigned beat is plotted as a gray line with darker outline on the map.



**Small dots** indicate navigation points along the beat, corresponding to the points in the navigation point view and the turn by turn navigation indicator field.



**Blue lines** highlight the beat sections you are currently driving, and the one that lay ahead. It forms a map version of the navigation point turn indicator.



**Green lines** along the gray beat lines indicate work done. Note that the work monitor lines are plotted beside the beat lines to clearly indicate plow direction even on narrow streets (which side of the road has been plowed).



**Red lines** indicate beat sections that should have been plowed/sanded/salted according to plan but have been bypassed. These are also plotted beside the gray beat line to differentiate between plow directions.



**A red circle indicates the beginning of a bypassed/missed beat section.** It shows where to start when you want to go back and plow the missed beat sections (in the planned order).

**A yellow circle indicates where along the beat you activated the pause mode.** This is where you need to resume your work when you end your work pause.

## 4.6 Off-Route Indication

When the vehicle system detects that you are not following the planned beat it will switch to “off-route”-mode.

If you use the beat navigation point list view it will be grayed out and the navigation field will be highlighted (orange) and show “Offroute” instead of the next navigation point.

- **Note:** The map view will still show your current position and heading and as the blue “current/next beat section” freezes you simply have to find your way back to this highlighted beat section to get back on route at the right place.



### 4.6.1 Back on route

When you return to the route and arrive at one of the stops on the planned beat the vehicle system will automatically reposition the vehicle to this stop. The navigation point view will switch from greyed out off-route to normal mode showing your position.

If you have bypassed any beat sections (links) this will be indicated both in the Work Monitor Overview and in the map presentation.

## 4.7 Manual Positioning

The automatic positioning function is very reliable but technical issues, necessary detours etc. can, in some rare instances, make manual positioning necessary.

You can manually position your vehicle to any navigation point along the planned beat.

- **Note:** To access this function you have to have the map view deactivated.

1. Touch the Navigation Point Viewer. The positioning menu with all navigation points along the beat will open.
2. Use the scroll arrows to navigate up/down in the menu.
3. Select the correct navigation point (by touching it).



A dialog will open where you have to confirm your selection. Press **Apply** to proceed, the dialog will close and you will return to the main view with the vehicle repositioned to the selected navigation point (if the actual position differs the automatic positioning may overrule your manual positioning).

Or press Cancel in the Dialog to return to the Stop Point menu.



To return to the main view without repositioning, touch the dark field to the left, outside the menu, or wait a few seconds for the view to switch automatically.

- **Note that if you make an incorrect manual position override, the vehicle system will first enter off-route mode, until the next stop is detected. Then the vehicle is automatically positioned at this stop.**

## 4.8 Pause/Suspend Work monitoring

Whenever you take a break or leave the route to get more spread material etc. you can pause the route tracker and work monitoring function.

When you are back to continue working, simply de-activate this function.

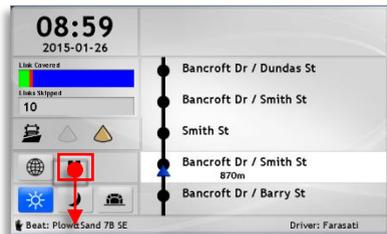
- **Note: On the map, the position along the beat where you enter pause mode is marked with a yellow circle. This is where you will have to get back on the beat after the pause, to complete the work.**



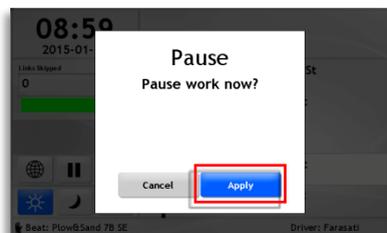
- **If you go back to the point where you activated pause mode (the yellow circle on the map) – the pause mode will be automatically deactivated.**

### Activate Pause Mode

1. Press the Pause button.



2. Confirm the Pause in the dialog by pressing the **Apply** button.



- The system is now in Pause mode (see image) and the pause button has changed into a “Play” button used to deactivate the pause mode.. Activate the map view to see your current position, as well as where along the beat you activated the Pause mode (the yellow circle).



### Automatic Pause Mode deactivation

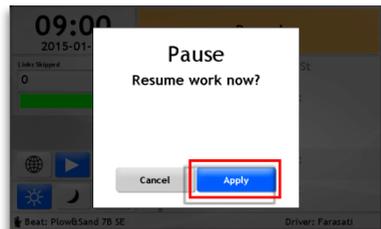
If you return to the position where you activated pause mode (the yellow circle on the map), the system will automatically detect this and deactivate pause mode to simplify getting back in the beat again.

### Deactivate Pause Mode Manually

- You can of course deactivate pause mode manually if you wish not to continue working where you left off. In pause mode, press the “Play” button.



- Confirm that you are to resume work in the dialog.



- Note:** When you manually deactivate pause mode, even when you are on the beat, the system may take a few moments to automatically position itself.

## 5. The Function Menu

The function menu provides access to all settings and functions “behind” the Main View.

### 5.1 Access the Function Menu

Touch the time and date field in the top left corner to open the Function menu.



#### 5.1.1 Return to the Main View

To return from the function menu to the main view, simply touch the dark area around the menu buttons, or wait 20 seconds for the view to switch back automatically.

## 5.2 Function Menu: Buttons

The Function Menu include buttons to access the specific features of the vehicle system.

- **Note: In the following chapter we will only describe the functions that cannot be accessed through the Main view, as these have already been described in the previous chapters.**



### Assignment

Manually select assignment (Beat)



### Driver login/-out

Log-in to/log-out from the system.



### Service

This section is for service people only and is pass code protected. See separate vehicle system installation and Service/trouble shooting manuals.



### Settings

Select interface language. See following chapter, 0



### Display Mode

An alternative way of setting the display mode to using the main view buttons. (This is the only way to set display mode for systems without touch screen). Press the button to switch mode (cycle).



### Active Faults

List of and information about active faults (system and connected equipment). Color coding show severity. See following chapter, 0

## 5.3 Service

The service section is used to access preferences and system tests. It is pass code protected and only available for installation or service personnel.

## 5.4 Settings

Here you can select interface language (French/English).

1. Touch **Language** (The menu item depends on the current selected language). The “Volume” menu item is not used by this system configuration.
2. All available languages are listed in the section to the right with national flag symbols. The interface language switches immediately as you touch to make your selection.



## 5.5 Display Mode

This Function Menu button cycles through the three display modes: Day Mode > Night Mode > Tunnel Mode > Day Mode. Every time you press the button the mode will switch and you will be returned to the main view.

## 5.6 Active Faults

When the internal Fault Management process in the vehicle system detects an internal fault or a problem with a connected hardware unit, this generates an alarm, or “fault”.

You can access information about any active faults through the Function Menu.

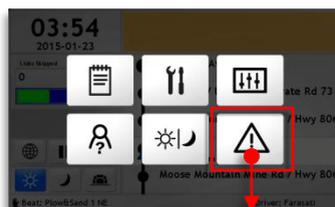
1. Touch the vehicle profile symbol in the Main View to open the Function Menu.

2. Press the **Active Faults** button.

3. Touch a fault in the active fault list to the left.

Information about and suggestions for possible solutions are presented in the field to the right, along with the fault code and time stamp, showing when the fault was detected.

(Example image, door signal faults are not applicable to snow plow systems)



## 6. Display Calibration and Brightness

### 6.1 Calibrate The Display

If the display does not react correctly when you touch to select or press soft buttons it may have to be calibrated:

1. Touch and hold anywhere on the display surface for at least 5 seconds.
2. Wait at least one second.
3. Repeat step one and two, two more times to enter calibration mode.

The display will turn white with a black hairline cross in the upper left corner (see image)



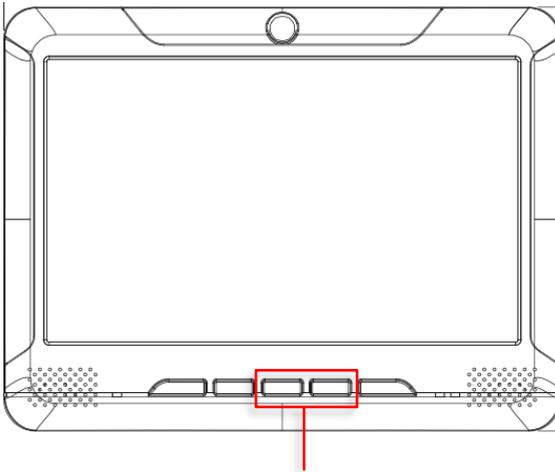
Touch the cross until it moves to another corner. Repeat until all four corners have been touch calibrated and you are returned to the Main View.

## 6.2 Set Display Brightness

The display brightness can be adjusted to maximize intelligibility; this is done using buttons under the display screen. See image below.

Press the + button to raise the brightness. Press – to decrease it.

- **Note that all other buttons on the display are deactivated**



Adjust the display  
brightness by pressing  
the +/- buttons.