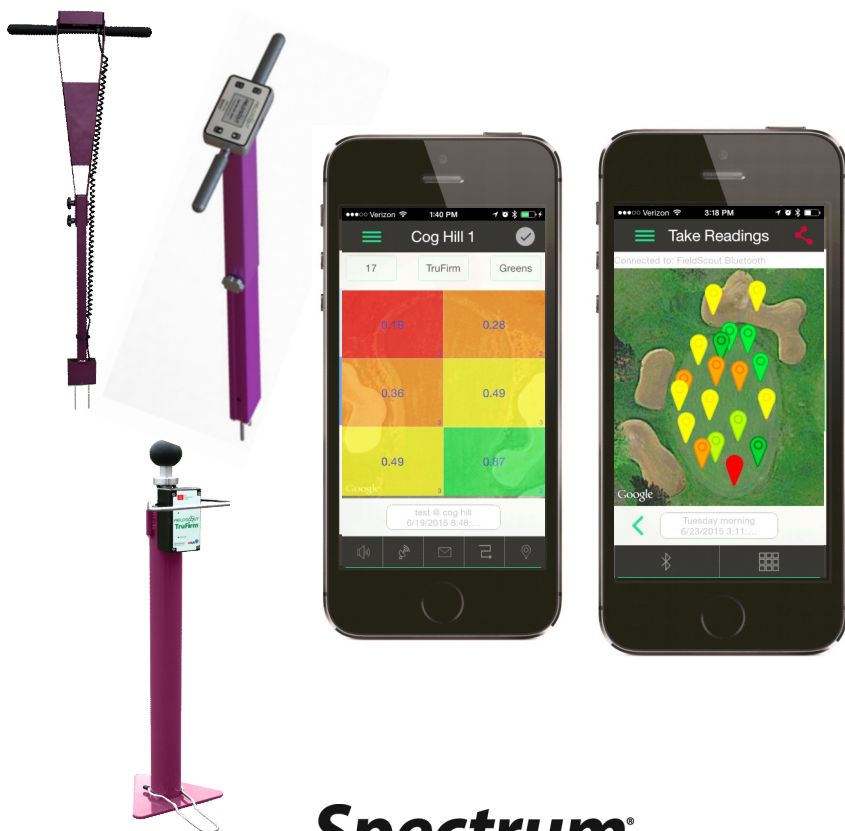




FieldScout Mobile App

PRODUCT MANUAL

Bluetooth-enabled
TDR and TruFirm meters



Spectrum[®]
Technologies, Inc.

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This manual will familiarize you with the features and operation of your new Bluetooth-enabled Field Scout device and FieldScout Mobile.

Please read this manual thoroughly before launching the units.

For customer support, or to place an order, call

Spectrum Technologies, Inc. at
(800) 248-8873 or (815) 436-4440
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OVERVIEW

Bluetooth Low Energy technology allows FieldScout data to stream to a smartphone when paired with the free iPhone or Android **FieldScout Mobile** app (item 6453BT). FieldScout Mobile is designed to collect, store, and analyze measurement data from FieldScout meters equipped with a Bluetooth Low Energy radio.

To log in as a **FieldScout Mobile—Pro** user requires a **SpecConnect FieldScout Pro** subscription (item 3035A, B, or C) and uses the same login credentials as the SpecConnect web portal & app (purchased separately, contact Spectrum to place an order). The FieldScout Mobile - Pro app automatically uploads measurement data to the SpecConnect web portal and launches enhanced features in the app not available in FieldScout Mobile - Basic. Enhanced features include Guided mode & Freeform mode, overlaying measurements on satellite imagery, writing notes/ comments associated with zones or sessions, and sharing information with other FieldScout Mobile—Pro users.

The TDR350 (item 6435) and TruFirm (item 6490S) meters are already equipped with Bluetooth functionality. Bluetooth functionality for the TDR150 meter (item 6445) can be unlocked by purchasing item 6445GU. Bluetooth capability can be added to older TruFirm meters with the TruFirm Bluetooth radio board (item 6491S). Bluetooth capability can be added to TDR 300 with the FieldScout Bluetooth Device (item 6453BT) which mounts to the frame. The device plugs into the TDR's computer port.

HOME SCREEN

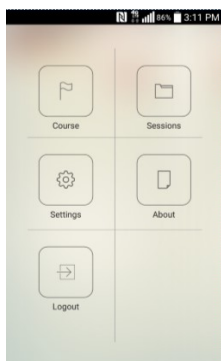


Fig. 1: Home screen



Fig 2. App menu button

The **Home** screen (fig. 1) is displayed when the app is opened and the user has logged in. From the **Home** screen, you can navigate immediately to a Course/Farm, an existing Session, the Settings screen, and the About Spectrum page. From any other screen, the **Home** screen can be accessed by tapping the icon with 3 parallel, green lines (fig. 2) and selecting “Home” from the menu.

SPECIFICATIONS

Compatibility

- Apple Bluetooth Low Energy devices
 - ⇒ iPhone (4S and later)
 - ⇒ iPad (Air, Mini, or 3rd generation or later)
 - ⇒ iPod Touch (5th generation or later)
- Android Bluetooth Low Energy devices (partial list)
 - ⇒ Samsung Galaxy series
 - ⇒ HTC One and later
 - ⇒ Motorola Droid RAZR, Maxx, Mini, Moto G, X
 - ⇒ Nexus 4 and later
- Spectrum devices
 - ⇒ TDR 350
 - ⇒ TDR 150 with Bluetooth activated via item 6445GU
 - ⇒ TDR 300 with the FieldScout Bluetooth device (item 6453BT)
 - ⇒ TruFirm item 6490S
 - ⇒ Trufirm item 6490 with Trufirm Bluetooth Radio board (item 6491S)

GETTING STARTED

Get your Bluetooth-enabled FieldScout TDR or TruFirm working with FieldScout Mobile in the following eight steps.

1. Get the app: FieldScout Mobile

Search 'FieldScout' in the Apple App Store or Android Google Play Store.

2. Attach Bluetooth Device (TDR 300 only). Turn on FieldScout Meter and Bluetooth

TruFirm: Press the ON button to power-up both the meter & the Bluetooth.

TDR 150/350: Enable the Bluetooth capability on the meter's menu screen.

TDR 300: Press the ON button on both the meter & the Bluetooth Device to power-up. (LED will indicate the Bluetooth status, flashes red when ready to pair)

3. Open FieldScout Mobile

Select Basic login or use SpecConnect credentials for FieldScout Pro login.

4. Add New Course or Farm

Select Course/Farm or add New Course/Farm. Each course/farm is a location.

5. Start New Session

A session represents a sampling date/time. SpecConnect reports use sessions to organize data.

Select meter type and give session a name.

6. Connect App to Bluetooth

Select Session mode (grid or freeform).

For Grid Mode, select the desired hole & surface. Tap a zone. Initiate pairing procedure by tapping the "Connect FieldScout Device via Bluetooth" button.

For Freeform Mode, activate Location capability on the phone. Pairing procedure will begin automatically.

7. Take Measurements

Readings will stream to the app,

For Grid Mode, use grid icon to return to the main grid screen to select the next sampling zone.

For Freeform Mode, the locations are tracked automatically by GPS.

PAIRING FIELDSCOUT DEVICE WITH FIELDSCOUT MOBILE

The Bluetooth radio (internal or external) must be paired with the smartphone running FieldScout Mobile. For the TDR 300 meter, activate the Bluetooth Accessory. For the TruFirm and TDR 150/350 meters, the radio is activated when the meter is powered up. For some smartphone operating systems, it may be necessary to manually enable Location Services.

1. Activate Bluetooth feature on the smartphone.
2. Open the app.
3. Tap the Course/Farm icon. Select an existing course or create, name, and select a new course.
4. Select an existing session or create, name, and select a new session. This will bring up the **Select Session Mode** screen (Fig. 1). Select whether you are using Grid or Freeform (Pro version only) mode to collect data.
5. a. For Grid mode, the **Main Grid** screen (Fig. 2a) will appear. Confirm that the meter you are using appears at the top of the screen. If not, a new session must be created. Tap any of the zones to bring up the **Take Reading** screen (Fig. 2b).
b. For Freeform mode, the app will immediately transition to the **Take Reading** screen (Fig. 3).

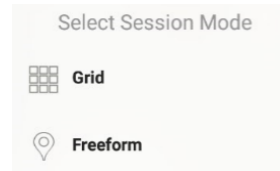


Figure 1. Session Mode screen

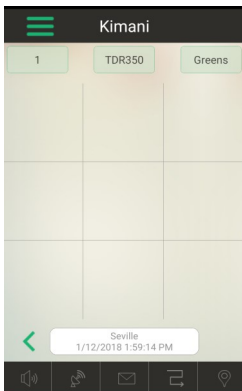


Figure 2a. Main screen

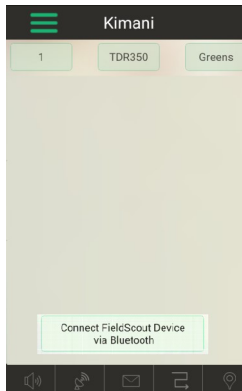


Figure 2b. Bluetooth Connect button (grid)

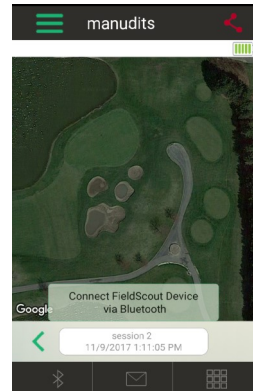


Figure 3. Bluetooth Connect button (freeform)

6. Tap the **Connect FieldScout Device via Bluetooth** button. If the Bluetooth feature has not been activated, you will be prompted to do so.
7. The app will search for the Bluetooth device. It should then appear in the list of scanned devices (Fig. 4).

After selecting the device, the App will be ready to take readings (p. 11).

Note: Although the device appears in the app, it may not show up on the phone's list of Bluetooth devices.

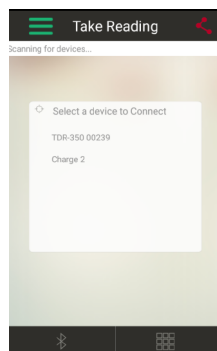


Figure 4. Scanned device list

MANAGING COURSES/FARMS

Before a new data collection session can be created, the location where that data will be taken must be selected. For the Golf setting, this will be a *Course*. For the Agriculture setting, this will be a *Farm*.

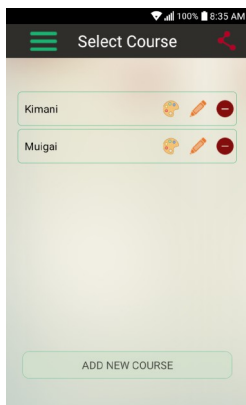


Figure 1. Select Course screen

Selecting an Existing Course/Farm

From the Home screen, tap the Course/Farm button. This will bring up the **Select Course/Farm** screen (Fig 1). Select the desired Course/Farm name from the list.

Creating a New Course/Farm

From the **Select Course/Farm** screen, tap the **Add New Course/Farm** button. Enter the new name on the **Course/Farm Name** screen (Fig 2) and tap the **Start** button. This will take you back to the **Select Course/Farm** screen with the new course included in the list.

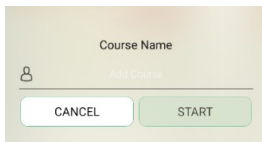


Figure 2. Create Course screen

Changing the Color Profile

Tap the color palette icon to bring up the list of color profiles. This sets the color palette for sites on this course/farm (see Settings Screen, p. 15).



Editing the Course/Farm Name

Tap the pencil icon to change the name of the course or farm.



Deleting a Course/Farm

A course or farm can be deleted from the list by tapping the red button.



MANAGING SESSIONS

Sessions

A data session identifies the date and time when data was collected. After selecting a course or farm location, the app will take you to the **Select Sessions** screen (Fig. 1). If you are beginning a new session, tap the **Start a New Session** button. This will bring up the **Name Sessions** screen (Fig. 2). Name the session and identify the type of meter you are using. Tap the **Save** button to return to the **Select Sessions** screen. Otherwise, if you would like to continue an existing session, select it from the list.

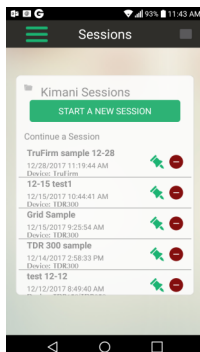


Figure 1. Select Sessions screen

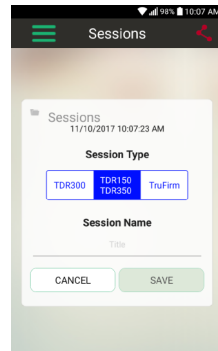


Figure 2. Name Sessions screen

If you are logged in to the Basic version of the App, your only data collection option is grid mode and you will be taken to the **Main Grid** screen (p. 10)

If you are logged in to the Pro version of the App, after selecting a session, you will be taken to the **Select Session Mode** screen (Fig. 3). Select whether the data will be collected in Grid or Freeform mode. You will then be taken **Main Grid** screen (p. 10) or the **Freeform Data** screen (p. 12).

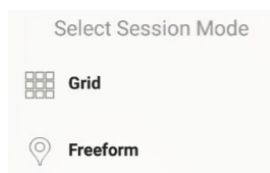


Figure 3. Session Mode screen

Once in the data collection screen, it is also possible to navigate between sessions for the same surface/field and hole (golf mode only) by tapping the green arrows on either side of the session identifier window.

The red "minus" button allows you to delete a session. The green thumbtack icon allows notes to be included with the session (Fig. 4).

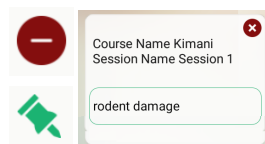


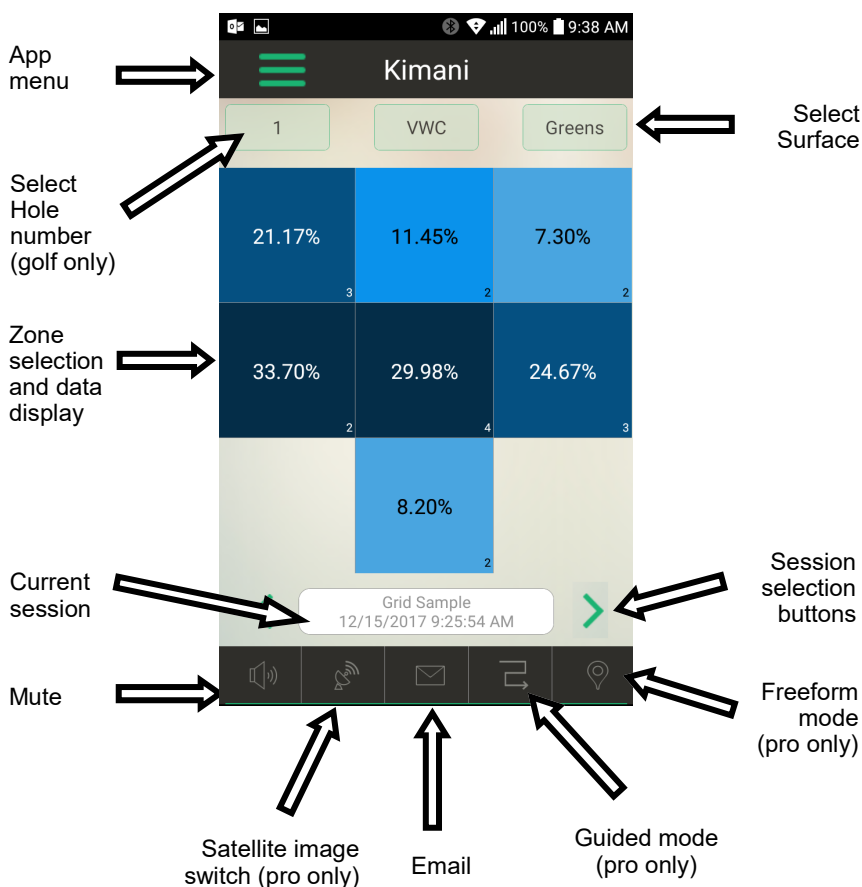
Figure 4. Session note

MAIN GRID SCREEN

After selecting a grid mode session (p. 9), you will be taken to the **Main Grid** screen. Here you can review the averaged data by hole and surface or access the measurement screen.

In Golf mode, select the hole number and surface type. Tap a zone to access the **Take Reading** screen (p. 11) and begin recording data to the app from the meter. Tap and hold on a zone to begin the process of creating a user-definable configuration of zones (p. 14).

Farm mode (see **Settings Screen**, p. 15) is similar but has no *Select Hole* option and the golf-specific surface names are removed.

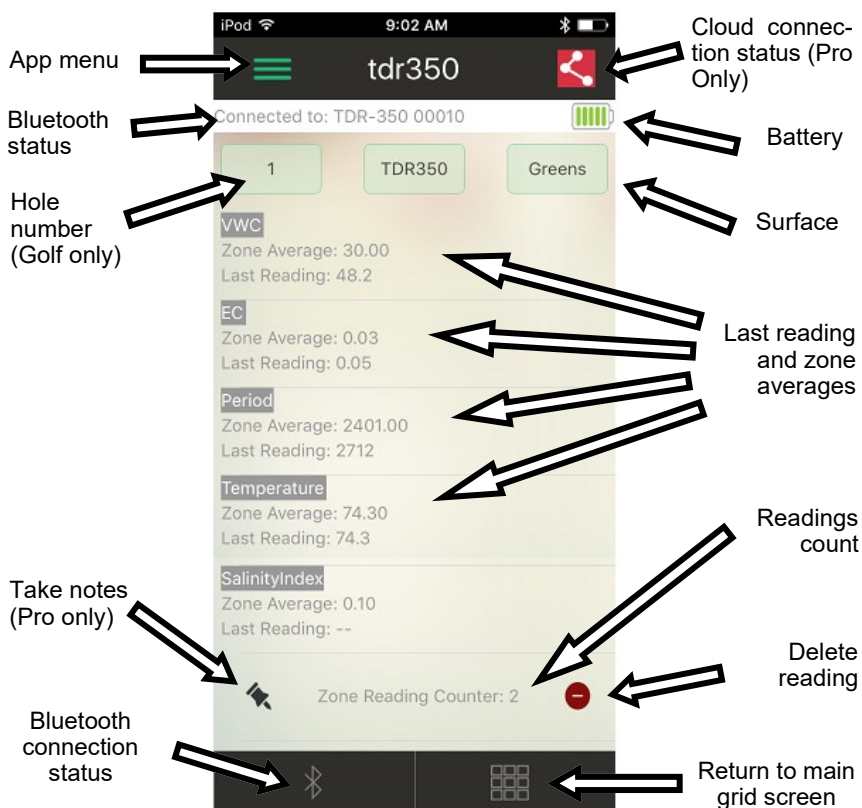


TAKE READING SCREEN

The **Take Reading** screen is displayed while making measurements in grid mode.

The value(s) measured by the FieldScout meter will be instantly transmitted to the app. Readings are automatically accepted and the zone's reading counter and average value(s) are modified. Tap the **Delete** button to delete the most recent reading or all readings for this zone. When a reading is deleted, you are taken back to the **Main Grid** screen (p. 10). Tapping the grid icon will also return you to the **Main Grid** screen. Continue taking measurements by selecting another zone or moving to a different surface/field. Tapping the **Notes** button allows you to enter notes on this specific zone.

Note: The hole number, meter type, and surface/field cannot be modified from this screen.



FREEFORM MODE



Fig. 1. Freeform sampling

Freeform mode (Pro version only) allows the user to take measurements without the constraint of grid zones. Instead of averaging all measurements taken in a zone, each measurement taken in freeform mode will be shown independently as a color-coded pushpin icon (Fig. 1). The **Freeform Data** screen can be reached by selecting the **Freeform** option in the **Select Session Mode** screen (p. 9) or by clicking the **Freeform Mode** icon on the **Main Grid** screen (p. 10).

Any pushpin can be moved. Press and hold the pushpin until it moves slightly above its current location. Slide your finger to the new position. When you release your finger, the pushpin will be placed in the new location. When a data point is moved, the GPS coordinates for that data point are also adjusted based on where they appear in the satellite image.

A snapshot of the data for any individual data point can be seen by pressing and quickly releasing one of the pushpins. This will bring up a data summary screen (Fig. 2). A note can be added to the data point by clicking the thumbtack icon. The red "minus" button allows you to delete the point. The red "x" button closes the data summary screen.

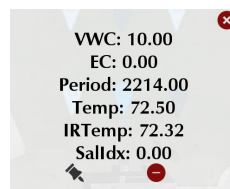


Fig. 2. Freeform Data Summary

There are 3 icons at the bottom of the screen.



The Bluetooth icon turns the Bluetooth radio on or off.



The envelope icon opens up the phone's email app and allows you to send a snapshot of the freeform map as an attached file.



The grid icon takes you to the Main Grid screen (p. 10).

GUIDED MODE

Guided mode allows taking a complete set of grid readings at a surface (or field) without having to tap the grid location before entering each zone. It is selected by tapping the **Guided Mode** icon from the bottom of the **Main Grid** screen (p. 10).

First, choose how many readings per zone to take (Fig. 1). This number can be modified by tapping the small pencil icon at the bottom of the zone sampling pattern screen (Fig. 2). Second, choose a horizontal or vertical serpentine path by tapping the appropriate button at the bottom of the zone sampling pattern screen.

Click the first zone to start and begin taking measurements with the FieldScout meter. The app automatically progresses to the next zone after the required number of readings has been taken.

The app will track progress by highlighting the current zone and showing a readings counter in the bottom right corner of the zone.

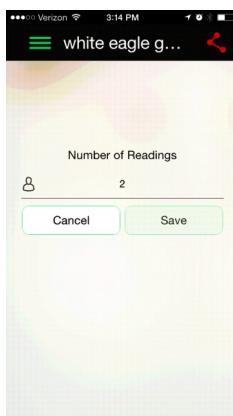


Fig. 1. Selecting number of readings per zone

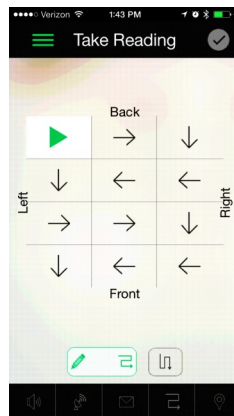


Fig. 2. Guided zone sampling pattern.

CUSTOMIZING THE SHAPE OF THE SAMPLING SITE

The **Zone Editing** menu (Fig. 1) is accessed by pressing and holding on any zone in the **Main Grid** screen (p. 10). From here you can customize the configuration of zones at a given sampling location. This is useful for non-rectangular shaped sites such as a golf course green.

When a column is added, it is added on the far right side. When a row is added, it is added at the bottom. When a row or column is deleted, the row or column removed is the one in which that cell is located. The grid has a maximum of 5 rows and 5 columns. If the **Delete this Cell** option is selected, that individual cell will be de-activated and grayed out. The **Add Cell** option can only be used to re-activate cells that have already been removed. When a cell is added, the reading from that cell will re-appear. Figure 2 shows some examples of manipulating the default 3 x 3 grid to create a customized shape.

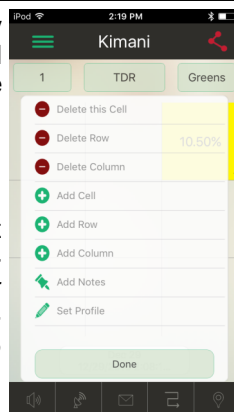


Figure 1. Zone Editing Menu

The final 2 options are only available for the Pro version. The **Add Notes** option is specific to the selected zone and is the same as the notes button on the **Take Reading** screen (p. 11). The **Set Profile** option allows you to change the color profile associated with this site (see **Settings** screen, p. 15). If this option is set to "Default", the course profile (p. 8) is used.

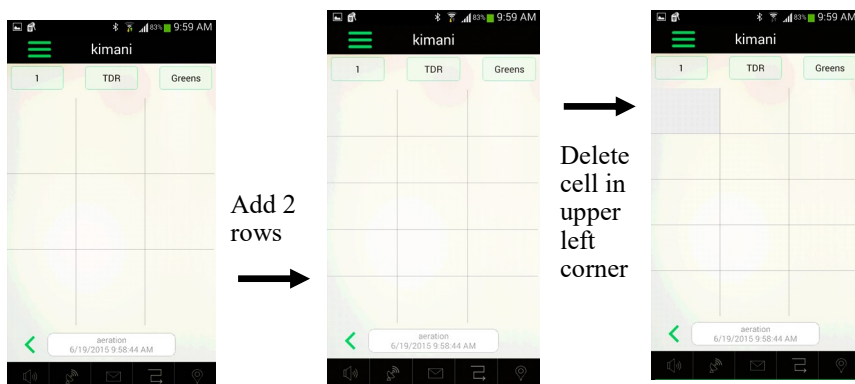


Figure 2. Modifying the zone configuration to better approximate the shape of the area being sampled.

SETTINGS SCREEN

The **Settings** screen (Fig. 1) can be accessed from the **Settings** button on the **Home** screen. This screen is used to select whether the app runs in **Golf** or **Farm** mode. If it is being used with the TDR 350, select the units temperature data. Within either mode, it is possible to choose which color profile is used in the data screen (p. 10 or 12) and how that color scheme is sub-divided. Click the "Configure Profiles" button to display the current list of available color profiles (Fig. 2). Initially, only the Default profile will be displayed. Click the "Add New Profile" button to create a new profile. Type in the name of this profile and click "Save. Otherwise, select the profile you wish to use for the course or session of interest. The app then displays the legend scale screen (Fig. 3). The top toggle button allows you to indicate the data parameter for this scale. The options are TruFirm, VWC, EC, Period, and Temperature. To adjust the current values, enter values in the top (minimum value) field and bottom (maximum value) field. Only the high value for the lowest range and the low value for the highest range are entered in with the keypad. The rest of the legend is auto-filled. Pressing and holding one of the color panels will take you to the Color Profile screen (Fig. 4). You have the choice of 4 color schemes (Fig. 4). Select the desired scheme and tap the "OK" button to return to the legend scale screen. Tap the "Cancel" button to ignore the changes. The app will then return to the **Home** screen (p. 3).

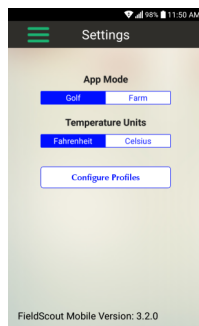


Figure 1.
Settings Screen

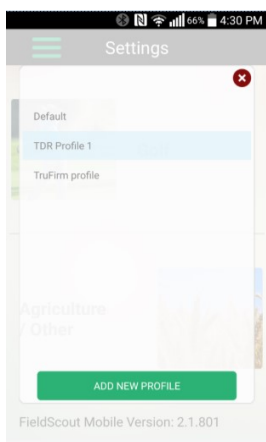


Figure 2. Profile selection screen

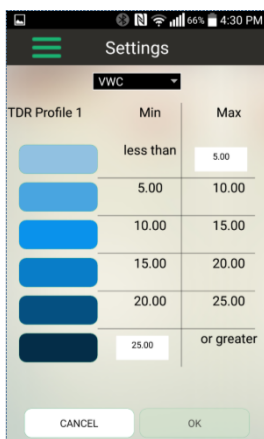


Figure 3. Legend scale screen

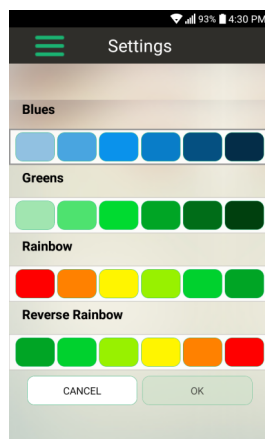
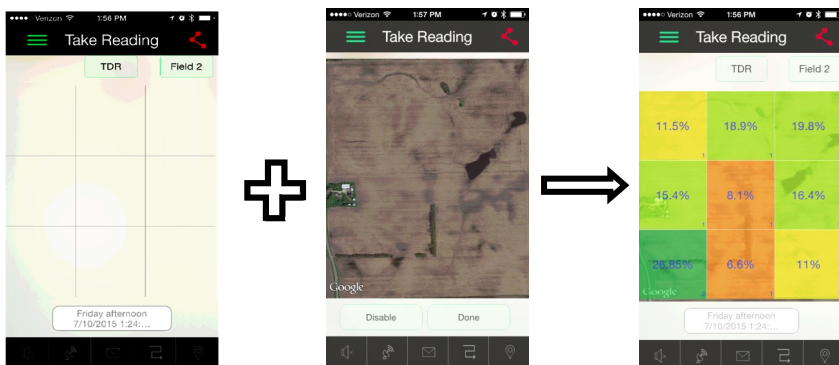


Figure 4. Color profile screen

SATELLITE IMAGES

FieldScout Pro users can overlay measurement data on top of a satellite image of their site. The far-right image below illustrates how the combined data screen will look. Click the satellite button at the bottom of the **Main** screen to add the map. Initially, the map will be centered at the phone location. But, the image can be re-sized, moved, and rotated by pinching and swiping with your fingers. The GPS coordinates associated with the data laid over the image are for the center of the zone location. This enhanced image can be replicated in SpecConnect if it is assigned a GPS location in the app (see p. 17).



E-MAILING IMAGES

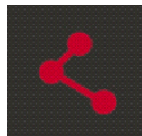
Both FieldScout Basic and Pro users can email images of their measurement grids. Click the email button at the bottom of the **Main** screen. Tap “Select Session” and select the session of interest from the list. Only sessions for the current Course/Farm will be listed. Tap the “Send Email” button to open the email app on your phone. Type in the destination of the email. The default email Subject is the date and time of the sampling session. This can be modified to something more descriptive. Text can also be entered into the body of the email. The images of the currently visible grid for that session will be sent as an attached file.



MANAGING DATA IN SPECCONNECT

Sending Data

FieldScout Pro users will automatically transmit their measurement data, as it's taken, from the app to their SpecConnect web portal account when their phone is connected to a WiFi network or allows the use of cellular data. The SpecConnect icon in the top right indicates if the data is synced (red) or not (gray).



Viewing Data

There are two ways to view data in SpecConnect. Identify the desired date range and select the session from the dropdown menu.

1. To view grid (Fig. 1) or freeform data for a selected parameter just as it appears in the app, select the device from the Equipment page. For data taken in Golf mode, use the surface dropdown list to scan to the selected hole and surface. Click the "Settings" button in the lower right corner to select a color profile and adjust the range scale in the same way as it is done in the app (p. 15).

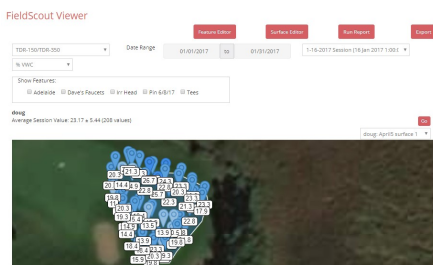


Fig. 1. Freeform Data Map

2. SpecConnect also offers a Trend Report (Fig. 2) for data taken with FieldScout meters. Select the surface and parameter of interest. The Trend Report will create box plots by date or by session. The average, maximum, and minimum values for each segment can be viewed by hovering the mouse over that segment.

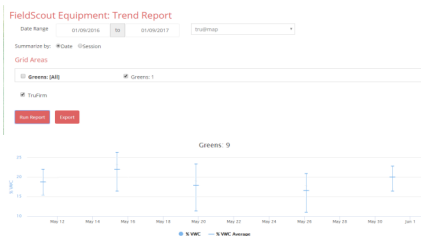


Fig. 2. Trend report

Exporting Data

Use the Export button to download a comma delimited (.csv format) file of the selected session to your computer. Only the average data for a grid zone will be transferred to the exported data file.

TROUBLESHOOTING

1. Getting the "You have exceeded your SpecConnect FieldScout Pro device subscription limit. Please contact support." message.

FieldScout devices require subscriptions to connect to SpecConnect. Contact Spectrum Technical Support if have purchased a subscription for this device, or Sales if you wish to purchase a subscription.

WARRANTY

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.

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