Series 9 Handheld

Gauge Interface Guide

Publication Reference : 120/16937-01

Issue A

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Series 9 Handheld Gauge Interface Guide

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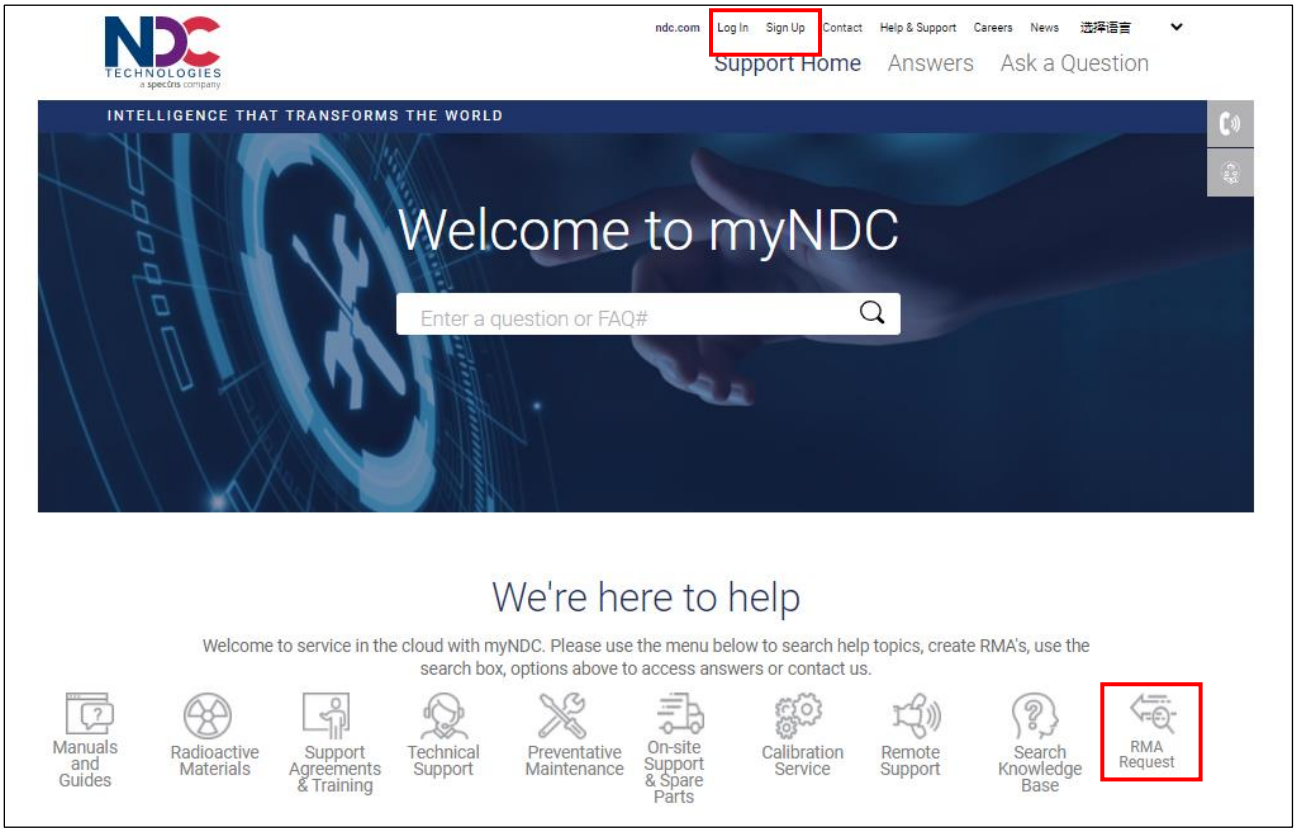

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CHAPTER 1

1 Overview

The following Handheld User guide should be read in conjunction with the Series 9 User guide supplied with the equipment.

The Series 9 Handheld GI (Gauge Interface) is a rugged 10-inch tablet with an Android operating system with the NDC application installed. It connects to the PH (Power Hub), OT (Operator Terminal), GCI (Gauge Control Interface) and GCP (Gauge Control Port) via an RJ45 Ethernet cable.

The tablet runs NDC Gauge Interface software application. It can connect to multiple Series 9 gauges simultaneously, but can only view one at a time. Its features include:

- Automatic discovery of gauges on the network
- Measurement Display and Trending
- Product sampling
- Selecting, creating and editing products
- Gauge diagnostics
- Gauge hardware configuration tools
- Selectable language
- Remote view display of a Series 9 GCI or GCP on the network (responsiveness can be slow), allowing:
    - Accessing and configuring Analog Outputs and Digital I/O in the GCI/GCP
    - Remote view of Multi-gauge display in the GCI/GCP
    - Access to the onboard GCI Calibration tools

1.1 Connections to the Handheld

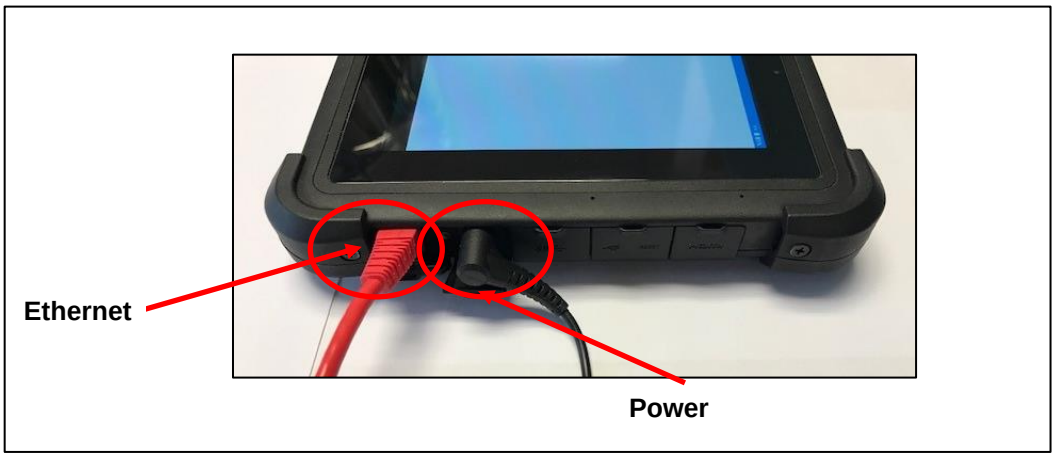

Figure 1-1 Connections to the Handheld

Figure 1-1 shows the connections to the Handheld. Connect dc power from the supplied power supply module to the DC input jack of the Handheld, and the supplied Ethernet patch cable to the Handheld Ethernet port.

Note: The designations in the photo will differ, depending on the type of Handheld supplied, but will essentially be the same.

1.2 Connections to Series 9 GCP (Gauge Control Port)

Figure 1-2 Ethernet connection to GCP

Peel back the elastomer sealing cap over the Ethernet port on the left side of the GCP and connect the supplied Ethernet patch cable (Figure 1-2).

1.3 Powering Up the Handheld

Switch on the Handheld by pressing the power button.

1.4 Connection Diagram

Figure 1-3 A GI connected to a Power Hub

Figure 1-3 shows a GI that connects to a Power Hub. The connection is through an RJ45 patch cable. The GI is positioned near the gauge for sampling and configuration. There is an optional Docking station located in the control room for measurement viewing.

CHAPTER 2

2 Handheld App

The Handheld Gauge Interface runs a turnkey Android Series 9 application. On power up, it automatically displays a screen similar to Figure 2-1.

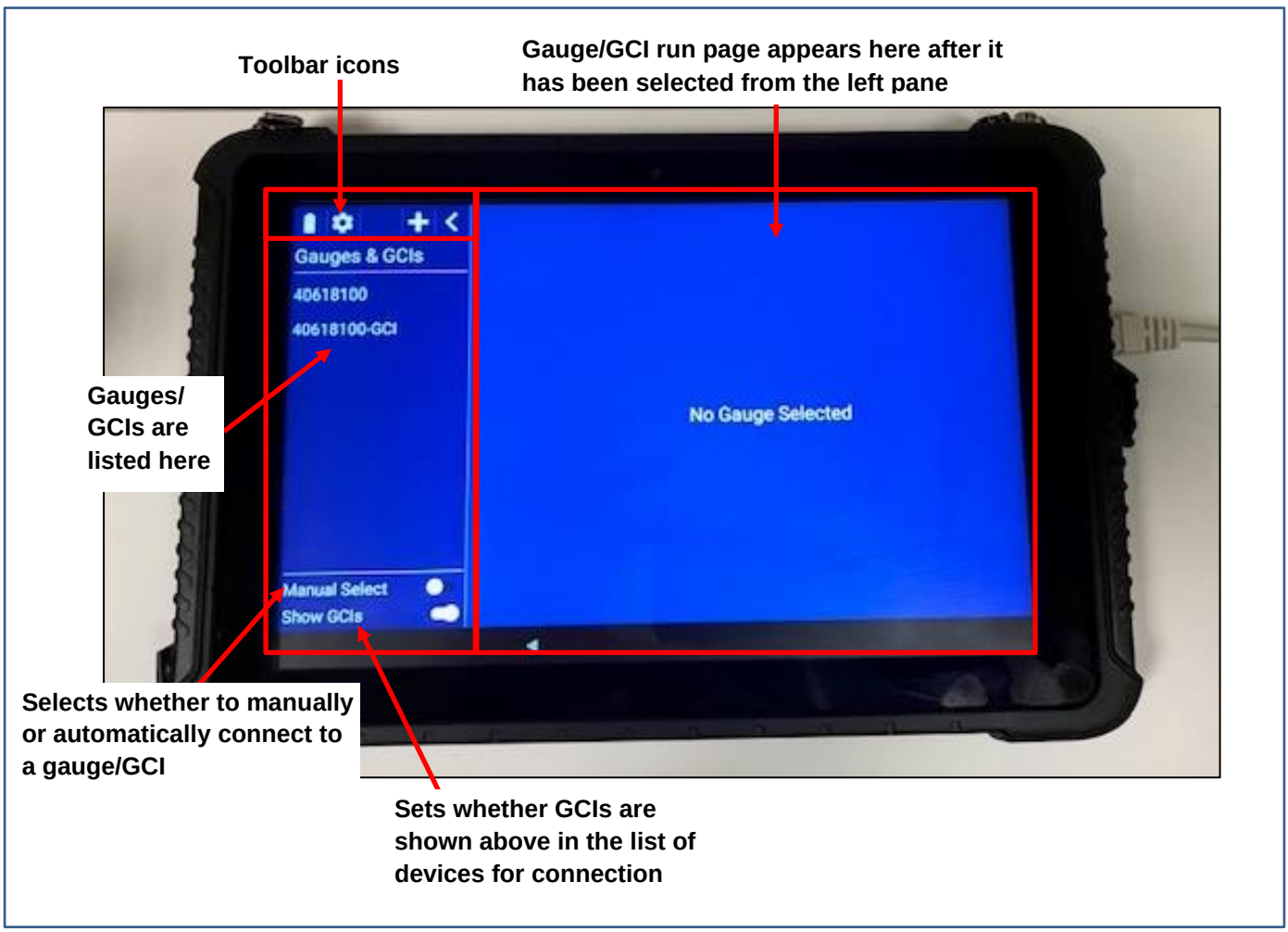

Figure 2-1 Initial Screen

The left pane displays a row of toolbar icons on the top, and if gauges/GCIs (Gauge Control Interfaces) have automatically been discovered on the network, they are listed underneath. Figure 2-1 shows a Sensor and GCI with a name that matches the serial number on the physical device.

The **Show GCIs** switch enables GCIs to be shown in the list of devices for connection to the App. Connection to the GCI is used for start-up configuration of the discrete inputs and outputs. As this is a remote web server type connection, be aware that the response may be a little slow.

The window to the right of the left pane initially shows the message “No Gauge Selected.” Touch the device name in the left pane to highlight it, and the window will update with the run page of the gauge/GCI (Figure 2-2).

Figure 2-2 Run page of selected gauge/GCI

If the device is not reachable, showing the message in Figure 2-3, then the Ethernet IP settings in the Handheld need to be changed to make them compatible with the device, as per Section 2.1 - Changing the Handheld IP Settings.

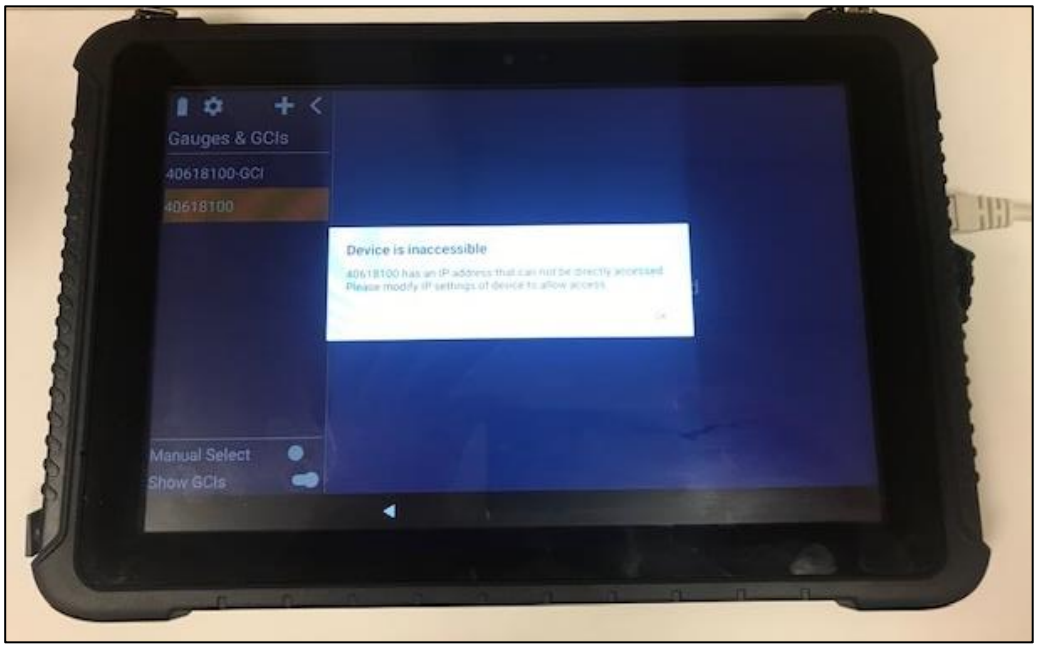

Figure 2-3 Unable to connect message

2.1 Changing the Handheld IP Settings

This section describes how to change the IP settings in the Handheld to make them compatible with the Series 9 device.

1. Find the Ethernet IP address of the discovered devices by pressing the  icon to reveal their Ethernet IP address, which in Figure 2-4 for the sensor 40618100 is 169.254.216.28.

Figure 2-4 Sensor IP Address

2. To change the Handheld Ethernet IP settings, touch the  **Settings** icon to show the Settings dialog (Figure 2-5).

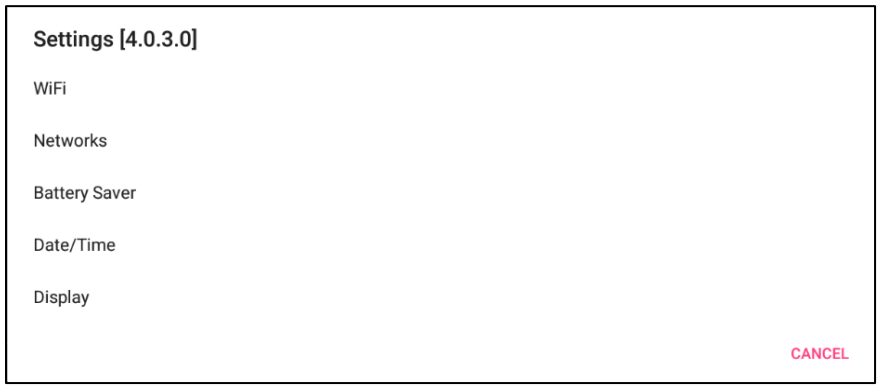

Figure 2-5 Settings dialog

3. Next, follow the procedure under **MSI Handheld** or **Teguar Handheld**, depending on the type of Handheld that you have.

MSI Handheld

a. Touch **Networks > Advanced > Ethernet**, and then **Ethernet Ip mode** to show the Ethernet Ip mode dialog (Figure 2-6).

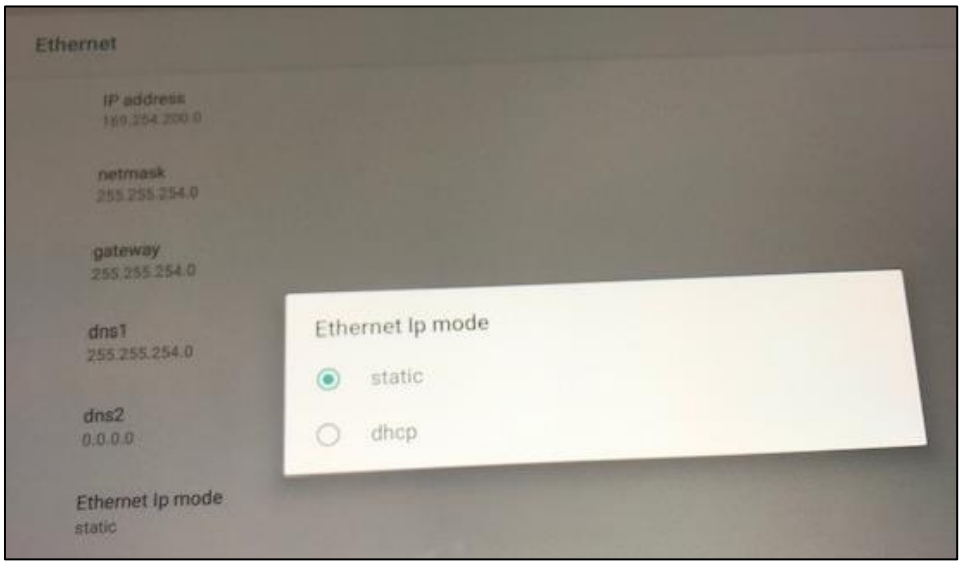

Figure 2-6 Ethernet Ip mode dialog

b. Touch **static** to show the Ethernet IP settings dialog (Figure 2-7).

Figure 2-7 Ethernet IP settings dialog

Teguar Handheld

a. Touch **Networks** > **Ethernet setting** > **Ethernet configuration** to show the Ethernet IP settings dialog.

b. Touch **Static IP** to reveal and enter the Ethernet IP settings (Figure 2-8).

Figure 2-8 Ethernet IP settings dialog

4. Set to static IP address.

   Given that the Ethernet IP address of the 40618100 sensor is 169.254.216.28, the Handheld Ethernet IP address needs to be set to a different IP address, but on the same subnet.

   To do this, use the same first three numbers of the sensor IP address 169.254.216, and then add a different number for the last number. In this this case, say 169.254.216.0.

5. Press **CONNECT** and go back to the main run page.

It should now be possible to highlight and connect the 40618100 sensor to the application to show the run page in Figure 2-9.

Figure 2-9 Run page of 40618100 sensor

2.2 Disable WiFi

In order for the RJ45 Ethernet connection to be enabled and connect to the devices, the WiFi must be disabled on the Handheld. Check that the WiFi is off and if not, follow the procedure below:

1. Touch the **Settings** icon to show the Settings dialog (Figure 2-5).

2. Select **Networks** to show the Network & internet dialog (Figure 2-10).

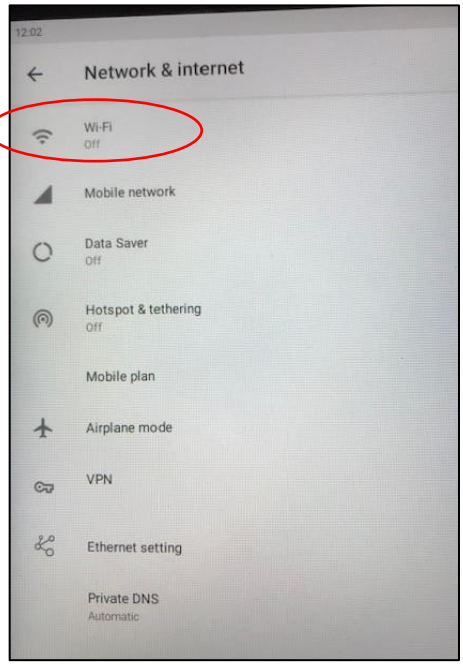

Figure 2-10 Network & internet dialog

3. Check whether **Wi-Fi** is Off.

   If **Wi-Fi** is On, touch the Back button to return to the Settings dialog and select **WiFi** to show the Wi-Fi dialog (Figure 2-11).

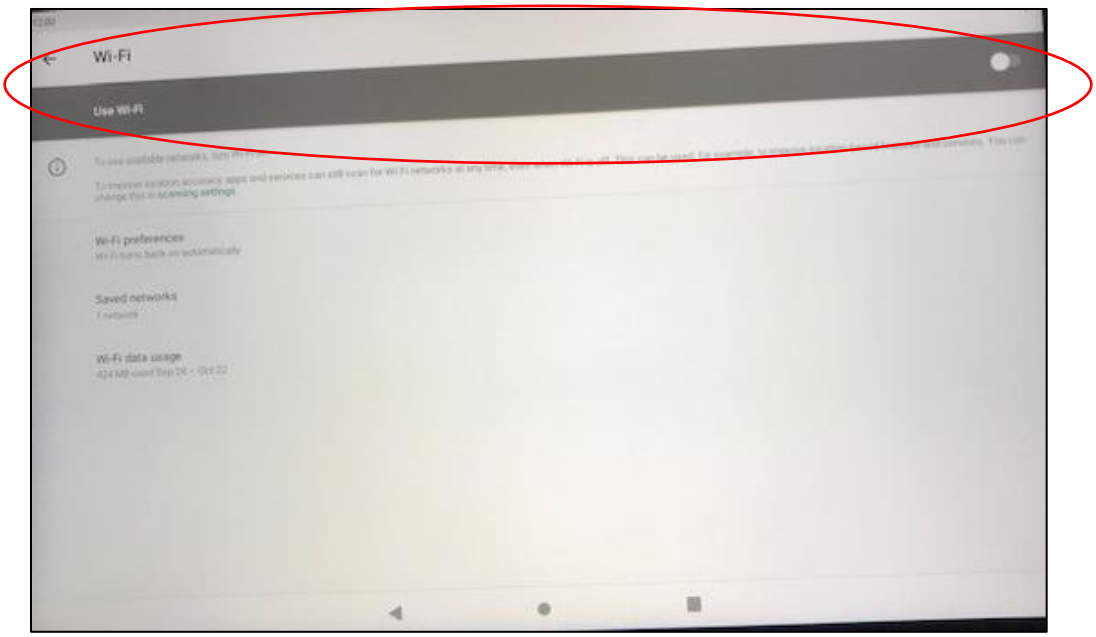

Figure 2-11 Wi-Fi dialog

4. Set **Use Wi-Fi** to Off to disable WiFi.

2.3 Connecting to a Gauge/GCI (Gauge Control Interface)

2.3.1 Auto Selection

By default, the **Manual Select** switch on the bottom left pane is set to Off, causing gauges on the network to be automatically discovered and their device names to be displayed in the gauge listing. Additionally, if the **Show GCIs** switch is set to On, GCIs will also be automatically discovered and included in the gauge/CGI listing.

Touch the device name to highlight it, and the run page of the Gauge/GCI will appear on the right (Figure 2-2).

2.3.2 Manual Selection

To manually connect to a gauge/GCI:

1. Set the **Manual Select** option to On.

   A box will appear for entering an IP address (Figure 2-12).

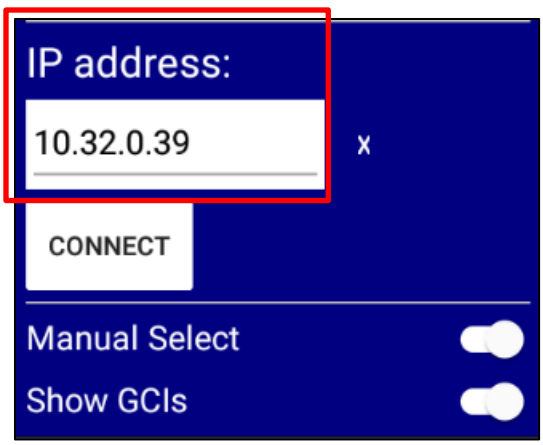

Figure 2-12 Enter IP address of gauge/GCI

2. Enter the IP address of the gauge/GCI in the box and select **CONNECT**.
   The IP address that you entered is initially displayed beneath the “Gauges & GCIs” title. If the device is subsequently discovered, the IP address will be replaced by the device’s name.

3. Touch the IP address/device name listed to select the gauge/GCI.

   The Gauge/GCI run page will appear on the right (Figure 2-13).

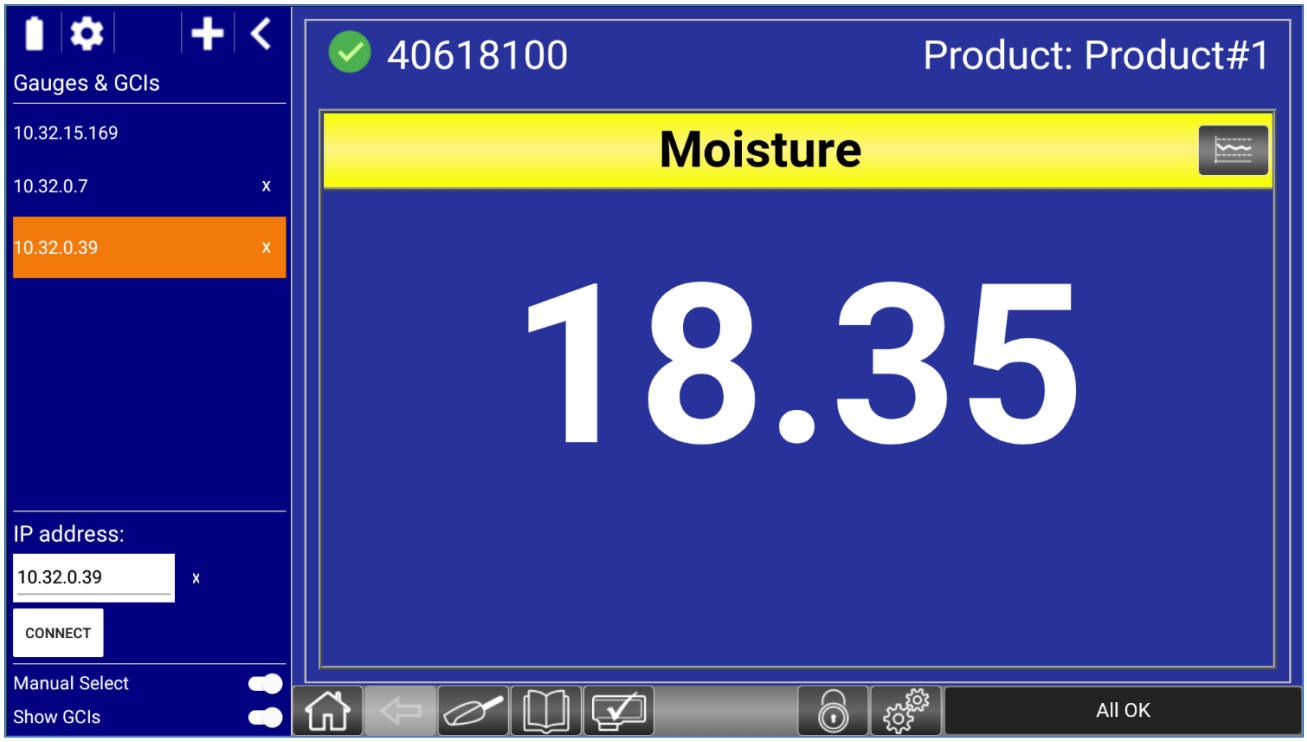

Figure 2-13 Gauge/GCI run page

2.3.3 GCI User Interface

When connecting to a GCI, the user interface is identical to what is shown in the Series 9 General Full Guide (p/n 120/16549-00). Please refer to that guide for a complete description of the screens.

2.3.4 Gauge User Interface

When connecting to a gauge, the user interface is as described in Chapter 3 - Gauge Interface − Overview and Chapter 4 - Gauge Interface – Guide to Commonly Used Features and Functions of this manual.

2.3.5 Disconnecting from a Gauge/GCI

To disconnect from a gauge/GCI, touch the "**X**" to the right of the device name/IP address (Figure 2-14).

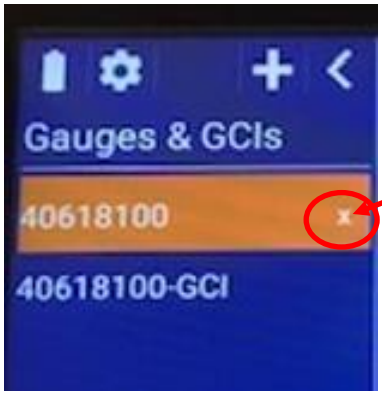

Figure 2-14 Disconnect from a gauge/GCI

2.4 Toolbar Icons

Icons in the toolbar on the left pane include:

Icon	Description
	**Battery Status** – Displays the battery charge level.
	**Settings** – Displays a dialog for configuring WiFi, Networks, Battery Saver, Date/Time and Display.
	**Show/Hide Gauge/GCI Status** – When touched, this button expands the gauge/GCI listing to show the current gauge/GCI status (whether it is online and its IP address). This button will then be replaced by a  button, which when touched, hides the expanded gauge/GCI listing.
	**Collapse/Expand Gauge/GCI Listing Pane** – When touched, this button hides the gauge/GCI listing pane on the left. It will then be replaced by a  button, which when touched, redisplays the gauge/GCI listing pane.

2.4.1 Broadcast Date/Time

This feature will set the date/time for any Series 9 device on the network to match the current date/time on the Handheld.

1. Select the  Settings toolbar icon.

2. Select **Date/Time** in the Settings dialogue (Figure 2-15).

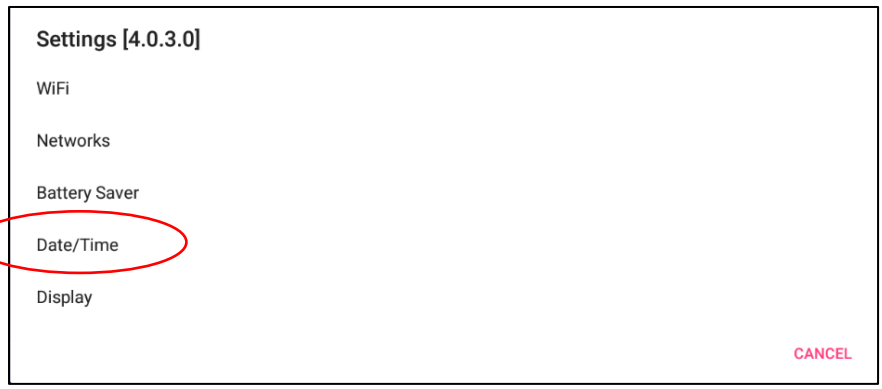

Figure 2-15 Select Date/Time in Settings dialogue

3. Select **Broadcast time** (Figure 2-16).
   (Note that the **Time Settings** option opens the Android date/time settings dialogue.)

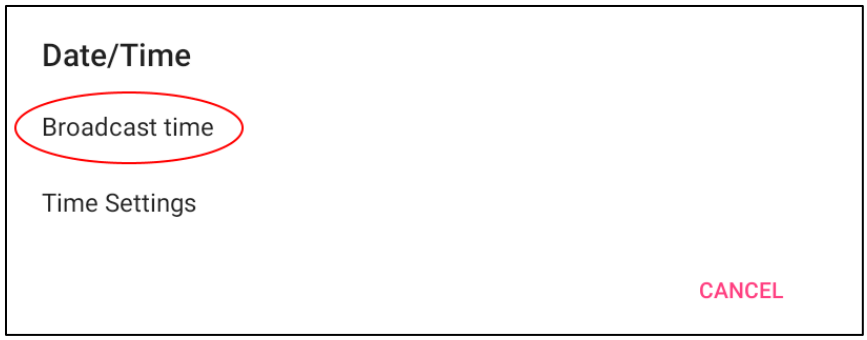

Figure 2-16 Select Broadcast time

The current Handheld date/time will be broadcast to the network. This will set the date/time in any Series 9 device on the network.

2.4.2 Display Settings

Set the display settings for the Handheld by following the procedure below:

1. Select the  Settings toolbar icon.

2. Select **Display** in the Settings dialogue to view the Display Settings (Figure 2-17).

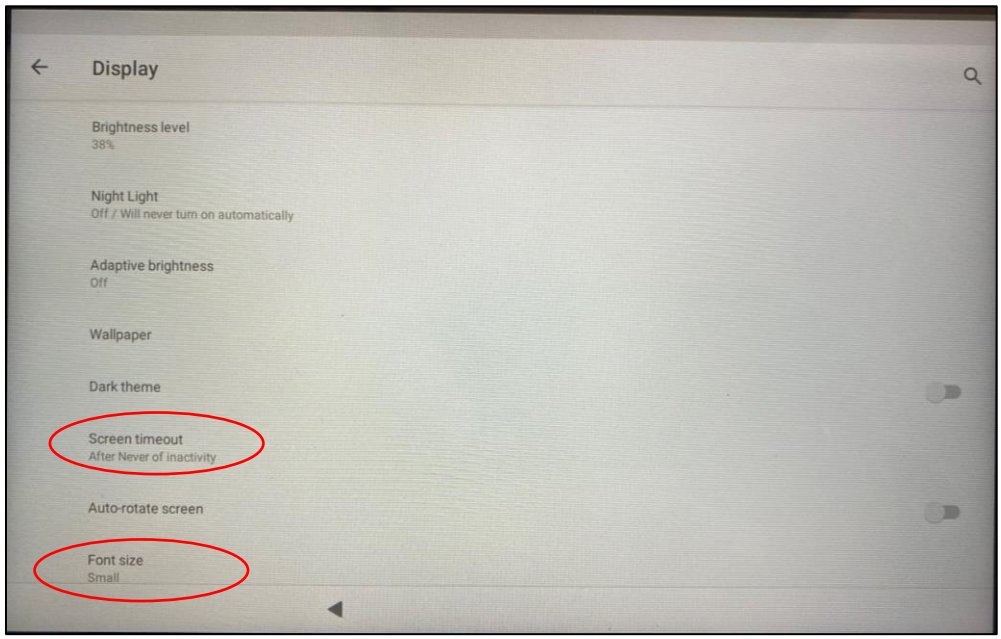

Figure 2-17 Display Settings

3. For the Teguar handheld, set **Font size** and **Display size** to small.

4. Select **Screen timeout.**

5. Set **Screen timeout** to Never (Figure 2-18).

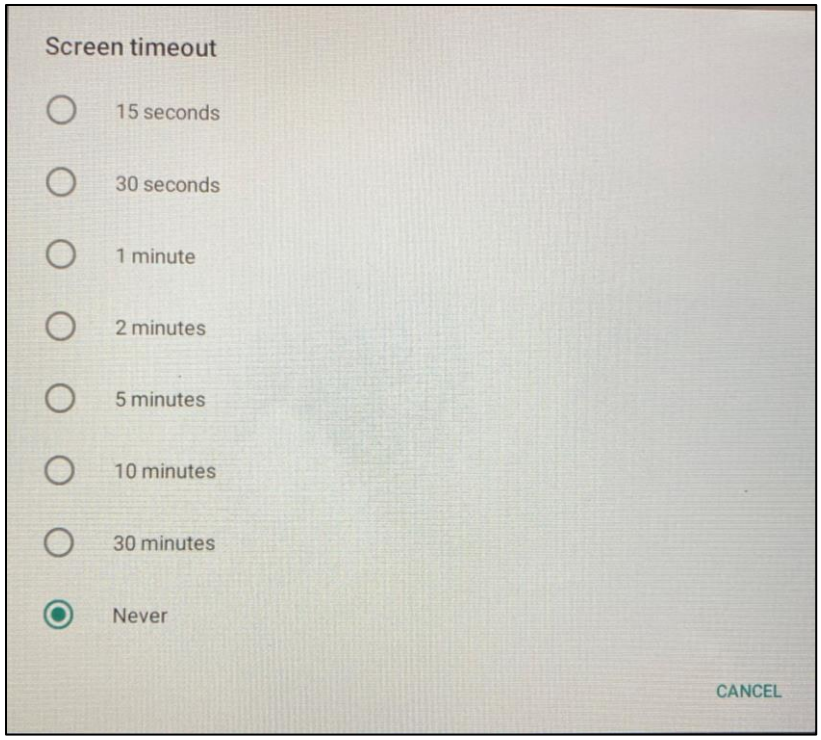

Figure 2-18 Set Screen timeout to Never

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CHAPTER 3

3 Gauge Interface − Overview

This chapter provides an overview of the user interface shown when the Handheld app connects to a gauge.

3.1 General

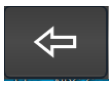
Operation of the gauge is carried out via the button icons displayed on the screen. This will be more easily understood by referencing the flow chart, included at the end of this chapter, that shows the page structure and icon names.

3.2 Home Page and Touch Buttons

Access to various functions are through touch buttons with specific Icons as described in the following sections.

3.2.1 Navigation Buttons

Home  Available on all pages and takes you back to the home page.

Back  Takes you back to the previous page.

3.2.2 Home Page

The Home page is the main page shown when the Handheld app connects to a gauge, as per the example below (Figure 3-1).

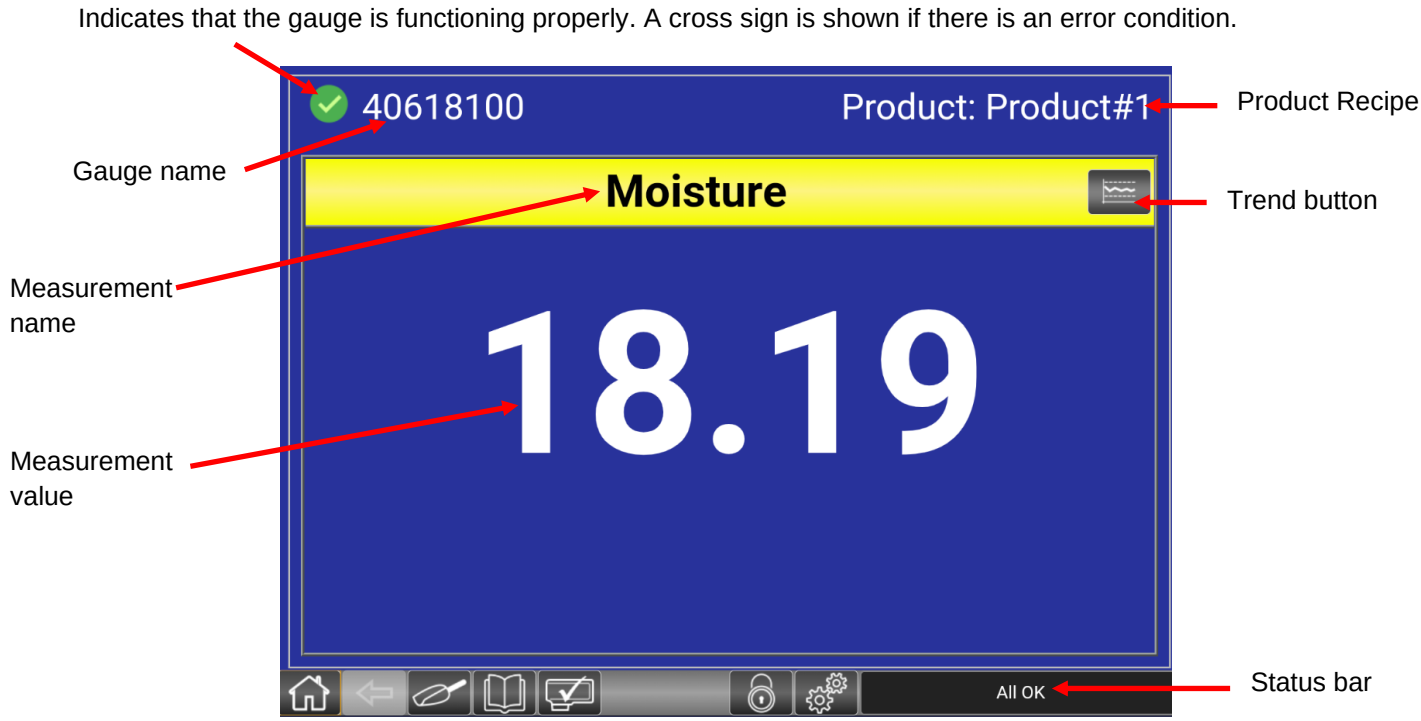


Figure 3-1 Home page

3.2.3 Toolbar Buttons

− Sample 

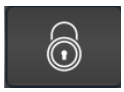
The Sample function enables the average gauge measurement to be computed over either a preset or manually terminated time period. At the end of the sample, the mean and standard deviation of all the enabled measurement channels in the gauge are shown.

− Product Selection 

Used to select a Product Recipe containing predefined calibration settings from a list.

− Gauge/Reference Check 

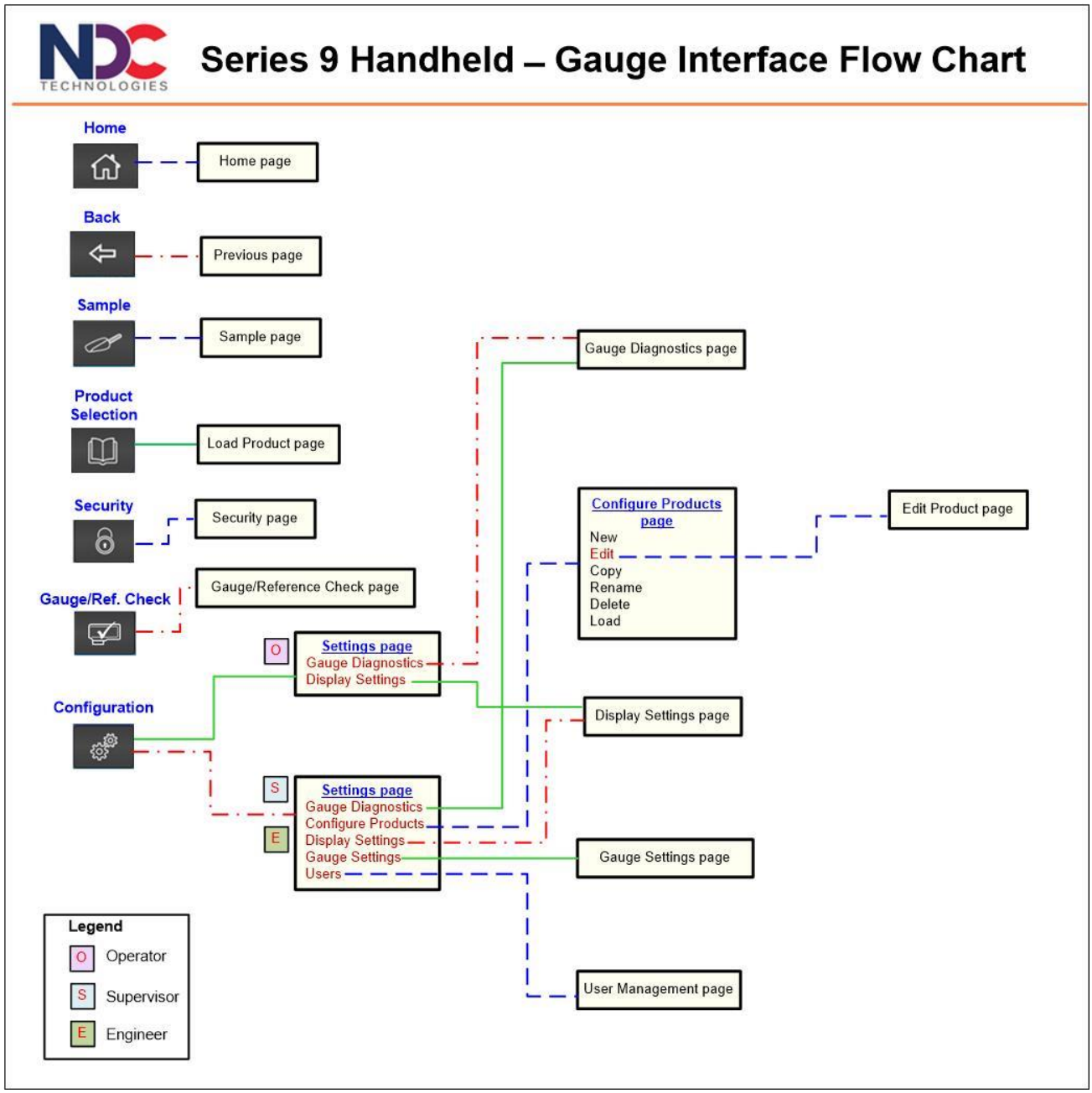
Used to view the results of a gauge check, reference or internal reference. Supervisors/Engineers can use this button to carry out a gauge check. Additionally, Engineers have the capability to carry out a re-reference or internal reference.

− Security 

Used to select the permitted access level, with Operator being the basic default level, and Supervisor and Engineer allowing more advanced access, with default password as 1111 and 2222, respectively.

− Configuration 

Used to view Gauge diagnostics and display settings. Additionally, Supervisors and Engineers can use this button to manage configuration settings, including Product recipes.



CHAPTER 4

4 Gauge Interface – Guide to Commonly Used Features and Functions

4.1 Introduction

The graphical procedures in this chapter illustrate how to set-up the following commonly used functions when the Handheld app connects to a gauge:

- How to enable the onscreen keyboard
- How to change the security levels
- How to change the language *
- How to sync the gauge time to the Handheld time *
- How to change the gauge and measurement channel names *
- How to view, edit and save Product Recipes (Span, Trim, Application, Response time) *

*** These functions are accessible only to a Supervisor or Engineer.**

4.1.1 How to Enable the Onscreen Keyboard

To enable the onscreen keyboard:

1. Touch the  **Configuration** button to bring up the Settings page.

   Icons appearing on this page vary, depending on whether the current user is an Operator or Supervisor/Engineer. Figure 4-1 shows the Settings page as viewed by an Operator.

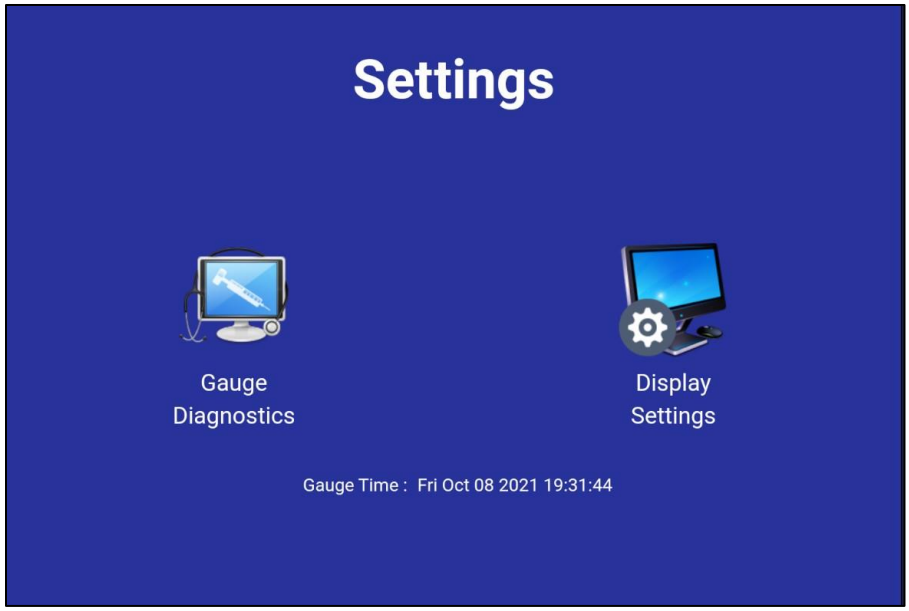


Figure 4-1 Settings page - Operator user

2. Touch the **Display Settings** icon to show the Display Settings page (Figure 4-2).

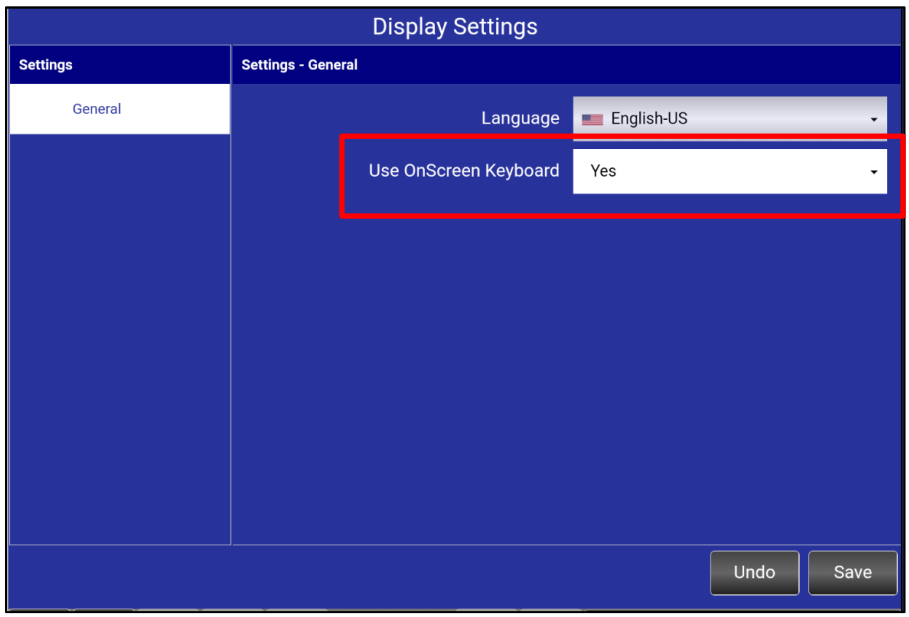


Figure 4-2 Display Settings page

3. Set **Use OnScreen Keyboard** to Yes, and select **Save**.

This will set up the application to display an onscreen keyboard whenever text entry is required. A sample onscreen keyboard is shown in Figure 4-3.

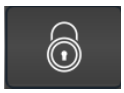
Figure 4-3 Sample onscreen keyboard

4.1.2 How to Change the Security Levels

Operator is the default user. The other two security levels are Supervisor and Engineer. Those levels require a password.

− Logging in as a Supervisor or Engineer

To log in as a Supervisor or Engineer:

1. Touch the  **Security** button. The User Login page will appear (Figure 4-4). The user that is currently logged on is shown on the top-right corner.

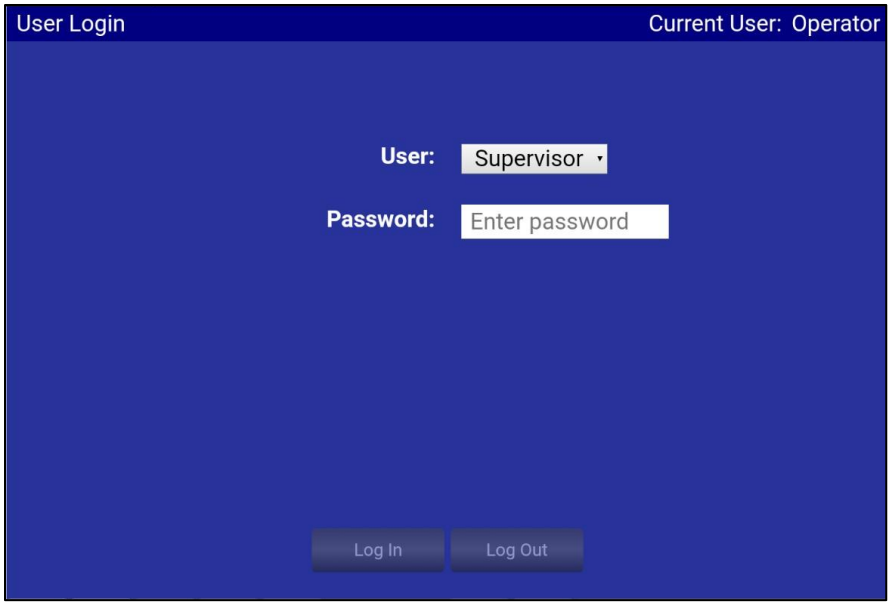


Figure 4-4 User Login page

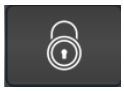
2. Touch the **User** list box and select Supervisor or Engineer.

3. Touch the **Password** box and enter the password for Supervisor or Engineer using the displayed keyboard.

4. If the password that you entered is correct, the **Log In** button will be enabled. Touch that button, and you will be logged in as a Supervisor or Engineer.

− Logging Out

The Log Out function is only relevant if you are currently logged on as a Supervisor or Engineer. To log out:

1. Touch the  **Security** button. The User Login page will appear (Figure 4-4).

2. Touch the **Log Out** button.

This will cause the current user to be set to Operator, and the Home page to be displayed.

4.1.3 How to Change the Language

To change the language:

1. Touch the  **Configuration** button to bring up the Settings page.

   Figure 4-5 shows the Settings page as viewed by a Supervisor/Engineer.

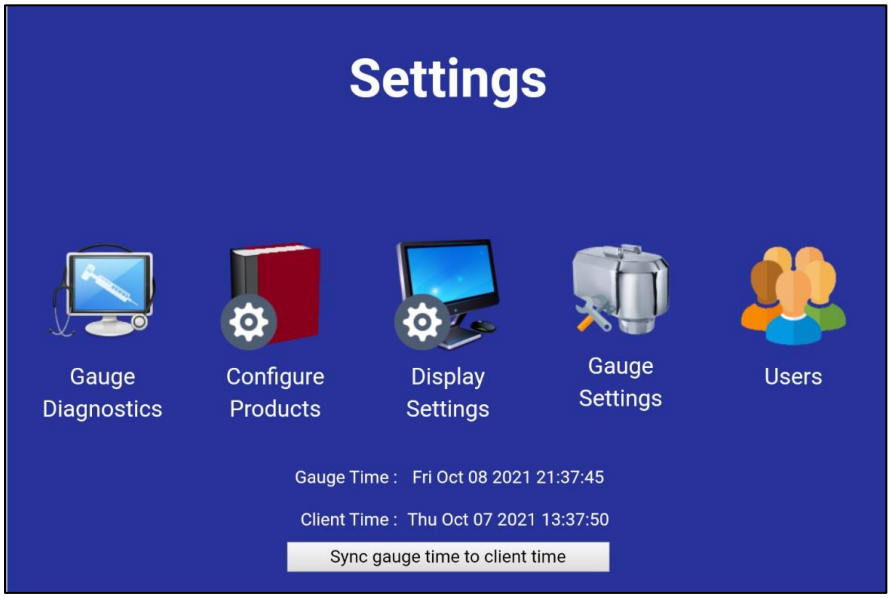


Figure 4-5 Settings page – Supervisor/Engineer user

2. Touch the **Display Settings** icon to bring up the Display Settings page.

3. Touch the **Language** box, select the desired language, and select **Save**.

4.1.4 How to Sync the Gauge Time to the Handheld Time

To sync the gauge time to the Handheld time:

1. Touch the  **Configuration** button to bring up the Settings page (Figure 4-5).

2. The current gauge time and client (Handheld) time are shown.
   Touch the **Sync gauge time to client time** button to set the gauge time to match the Handheld time.

4.1.5 How to Change the Gauge and Measurement Channel Names

To change the gauge and measurement channel names:

1. Touch the  **Configuration** button to bring up the Settings page (Figure 4-5).

2. Touch the **Gauge Settings** icon to bring up the Gauge Settings page (Figure 4-6).

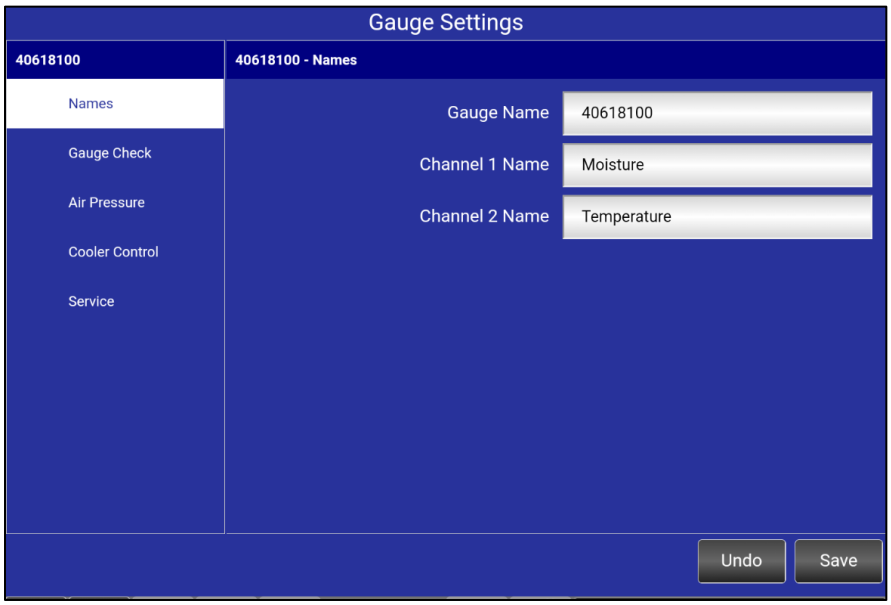


Figure 4-6 Gauge Settings page

3. To change the gauge name, touch the **Gauge Name** box and enter the new gauge name.
   To change the measurement channel name, touch the **Channel x Name** box and enter the new measurement channel name.

4. Select **Save**.

4.1.6 How to View, Edit and Save Product Recipes (Span, Trim, Application, Response Time)

The measurement Response Time may be set to suit the characteristics of the Product being measured. This is done by editing a product definition for that product.

To view or edit the contents of a Product Recipe:

1. Touch the  **Configuration** button to bring up the Settings page (Figure 4-5).

2. Touch the **Configure Products** icon.

   The Configure Products page will appear (Figure 4-7).

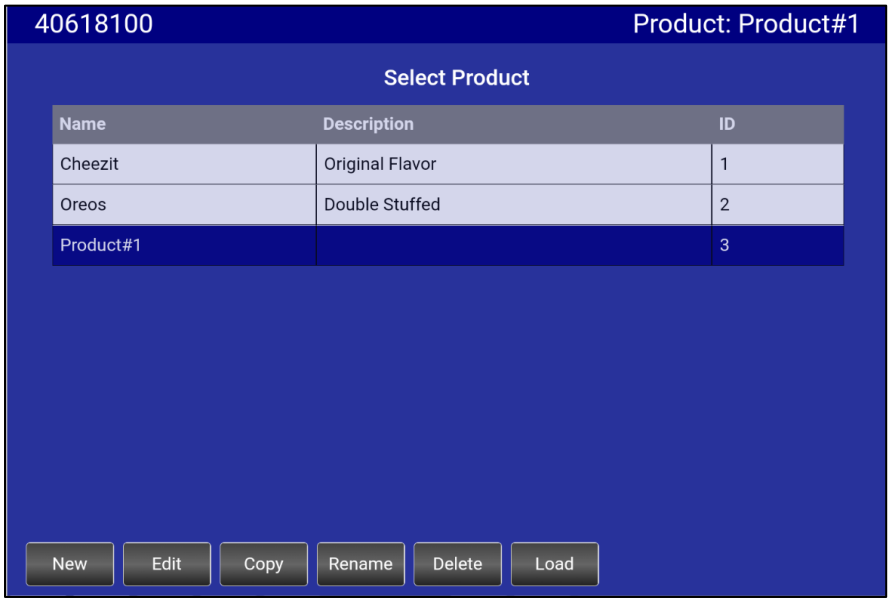


Figure 4-7 Configure Products page

3. Under “Select Product”, select a Product from the list.

4. Touch the **Edit** button.

   The contents of the selected Product will be displayed (Figure 4-8). Select a measurement channel from the left pane. Simply touch the scroll bar on the right side to scroll the settings.

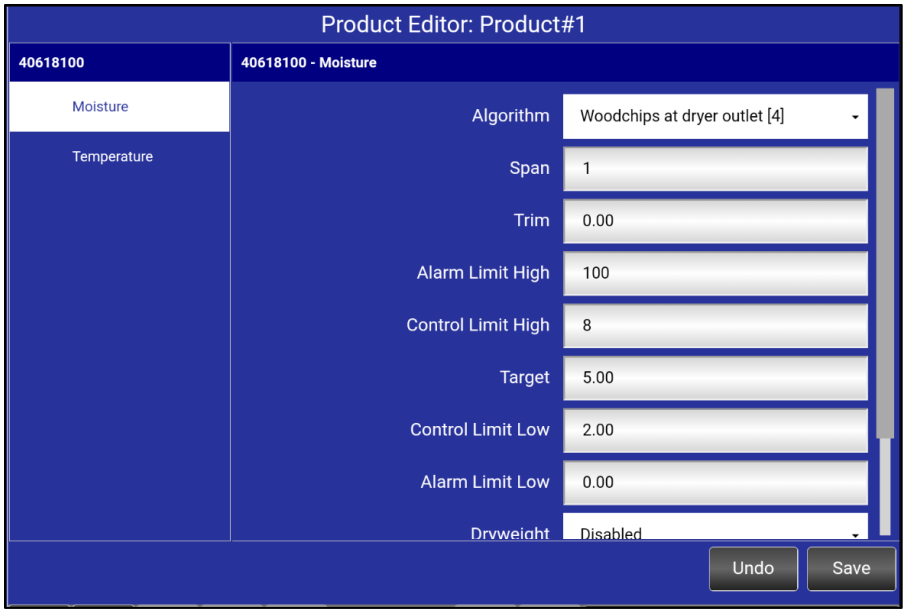


Figure 4-8 Contents of selected Product

5. To change a setting, touch the appropriate box and enter the new value or select from the list shown. Common settings are **Span**, **Trim, Algorithm** and **Response Time**.

6. To save the changes to the Product, touch the **Save** button.
   Otherwise, if the **Undo** button is touched, the changes will not be saved to the Product.
   Note that the change will not take effect on the current measurement until loaded.

CHAPTER

5

5 Servicing, Returns and Recycling

5.1 Servicing and Returning your Equipment

Your instrument was carefully inspected electrically and mechanically prior to shipment. It should be free of surface mars and scratches, and it should be in perfect working order upon receipt. If any indication of damage is found, file a claim with the carrier immediately, prior to using the instrument. If no damage is apparent, proceed by using this manual to install and setup this instrument.

Save the shipping carton and packing material for future storing or shipment of the instrument. If, at some future time, the instrument must be returned to the factory for service, include a full description of the instrument failure and the mode of operation the instrument was in at the time of failure. Also include a contact person to discuss the instrument failure.

When returning equipment for service, it is important to first obtain a Return Material Authorization (RMA) number. The RMA number is needed for proper handling of returned equipment.

- To obtain an RMA, go to https://ndc.custhelp.com/.
- To create a myNDC account, click the **Log in or Sign up** button. After creating the account, you will be immediately logged in. To log in on subsequent visits to myNDC, click the **Log in or Sign up** button, enter your username and password, and then click **Log in**.
- To submit an RMA, click on the **RMA Request** link and follow the on-screen instructions.

Ship the instrument in the original carton, or, if the original carton is unavailable, ship in a car- ton providing sufficient protection. Send the instrument to the Asia, Europe, or USA office, whichever is closest to you or to the office indicated by your sales engineer. Place the RMA number on the outside of the carton and include a purchase order number and any other information specific to your instrument. Field warranty service is available if the customer pays travel expenses by advance purchase order. All service operations should be performed by skilled electronics technicians, who have been trained by NDC Technologies.

5.2 Recycling, Disposal and Sustainability

NDC Technologies provides intelligent measurement and control solutions to help you focus on your unique mission in a more sustainable way. Better for your people. Better for your bot- tom line. Better for the planet. For this reason, NDC Technologies encourages its customers to recycle and dispose of equipment in a way which is responsible and encourages sustainability.

Please check the following before disposing of your equipment:

- Is the equipment worth repairing? If in doubt, contact NDC Service.
- If you are aware of any hazardous materials in your equipment, ensure qualified personnel take responsibility for its disposal. Some examples of hazardous substances include lead, mercury, cadmium, chromium VI, flame retardants, plasticizers, fluorescent tubes, monitors containing cathode ray tubes and products containing capacitors. NDC is compliant with the European WEEE and the most current RoHS Directive.
- Can you re-use or recycle any constituent parts? For example, if the housing/chassis is made of metal, it can be recycled by your local authority. Ensure qualified personnel take responsibility for dismantling the equipment.

If the equipment does need to be disposed of, please dispose of it in a way that does not harm the environment.

Warranty

1. All sales of NDC Technologies products are subject to the contractual terms and conditions of the Order pursuant to which they were sold to Buyer, including Warranty terms. The following terms are a general summary of the contractual Warranty terms, NOT a revision or alternative to the contractual terms, and are presented as merely a point of reference for your information. The contractual Warranty is the complete and exclusive statement of all NDC Technologies warranties to Buyer. In the event the following terms are in conflict with any of the contractual Warranty terms, the contractual Warranty terms shall be deemed to control.

   The warranty terms contained herein are expressly in lieu of any and all other warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose. In no event shall NDC Technologies be liable for any incidental, consequential or special damages, including but not limited to, any loss of business, income or profits, expenses incurred for time when the system is not in operation, and any labor costs relating to or arising out of the performance, functioning or use of the system.

   Purchaser assumes the risk for use of this product and agrees to indemnify and hold NDC Technologies harmless for any and all damage to person or to property resulting therefrom.

   NDC Technologies grants no license under any patent rights except the right, under only such patents as may be owned or acquired by NDC Technologies, to use the product sold hereby for the purpose for which it is sold. NDC Technologies does not warrant that the product or its use does not infringe any patent owned by persons other than NDC Technologies.

2. NDC Technologies guarantees all products to be free from defects in material and workmanship for the following periods[1]:

   - Product and peripherals – 2 years from shipment
   - Source lamp – 5 years from shipment
   - Filter wheel motor – 5 years from shipment
   - Spare parts – 1 year from shipment
   - Replacement lamps and motors supplied under warranty – 1 year or up to the original 5 year warranty from shipment of the sensor, whichever is longer

   [1] Refer to the contractual terms and conditions of the Order for usage of the warranty.

   During this period, NDC Technologies will repair or at its option replace, free of all charges for parts and labor, any NDC Technologies parts determined by it to have been broken or damaged due to causes other than improper application, abuse or negligence. NDC Technologies' obligation to repair or replace shall not extend to expendable parts which are subject to normal operating wear.

   Nothing in this paragraph 2 will require NDC Technologies to make repairs or replacements where:

A. The product has been repaired, other than by an authorized NDC Technologies dealer or an NDC Technologies employee, or altered in any way without the prior written consent of NDC Technologies; or

B. The product has not been properly maintained in accordance with any operating and maintenance manual supplied therewith; or

C. The product has been damaged as a result of fire, flood, war, insurrection, civil commotion, acts of God or any other cause beyond the control of NDC Technologies or Buyer.

3. NDC Technologies' liability shall be limited to the obligations set forth in Paragraph 2. These shall be the Buyer's sole and exclusive remedies, whether in contract, tort or otherwise, provided, however, that in lieu thereof, NDC Technologies at its option may replace the entire product on an exchange basis or refund the purchase price against the return of the defective product.

4. NDC Technologies will not be responsible for failure to provide service or parts due to shortage of materials, labor or transportation strikes or delays, or any causes beyond NDC Technologies' control.

5. Unless otherwise specified by NDC Technologies, all warranty repairs will be made at NDC Technologies' facility. The customer shall be responsible for all expenses of packing, freight and insurance in connection with the shipment of products to NDC Technologies for repair. NDC Technologies will pay the cost of returning the equipment to customer.

   If it is mutually determined by the buyer and NDC Technologies that the examination, replacement or repair takes place at the buyer's facility, then the buyer will be responsible for NDC Technologies' travel and living expenses incurred in traveling to and from the buyer's facility, and during the time of the visit, as well as the cost of field labor and replacement parts unless the parts being repaired or replaced are determined to have been defective, in which event the cost of said repaired or replacement parts shall be borne by NDC Technologies. These travel and living expenses will be billed to the buyer at actual cost to NDC Technologies.

6. No person, including any NDC Technologies distributor, agent or representative, is authorized to assume any liability on behalf or in the name of NDC Technologies, and NDC Technologies shall not be bound to any understandings, representations, or agreements with respect to warranties except as set forth in this policy.

7. NDC Technologies requests immediate notification of any claims arising from damage in transit in order to determine if carrier responsibility exists. If damaged equipment arrives, save the shipping container for inspection by the carrier and telephone NDC Technologies as soon as possible.