



Badger Meter

**Product Configuration Utility
for ORION® Endpoints**



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SCOPE OF MANUAL

Badger Meter Product Configuration Utility (PCU) is a field deployment and programming application developed by Badger Meter to install, read, program and extract data from ORION® endpoints.

NOTE: The PCU performs the same functions as the original software, the *ORION Endpoint Utility (OEU)*. In addition, the PCU has improved compatibility with current operating systems, enhanced security, and improved functionality. It is the focus of software development going forward as it replaces the OEU.

This manual provides instructions for using the PCU software with ORION water endpoints. This manual is based on PCU version 1.9.X.

NOTE: To provide the best solution for our customers, Badger Meter continually improves software programs and periodically updates the manual to reflect changes. Therefore, there may be some differences between the installed software and this manual.

IR Programming Device - Required

The PCU software communicates via infrared (IR) with ORION® endpoints. An IR programming device (IR device), either the ACTISYS® ACT-IR224UN-L+ USB IR programming cable (IR cable) or the Badger Meter IR Communication Device, is required for IR reading and programming using the PCU. See *"Parts List" on page 4*.

NOTE: When used with a micro USB cable, the IR Communication Device can perform all the functions of an IR programming cable.

Additional Resources

ORION Water Endpoints Installation Guide

IR Programming Cable, Update for Windows® 11

MINIMUM SYSTEM REQUIREMENTS

BEACON® SaaS Download

Download the PCU software from BEACON Software as a Service (SaaS) as described in *"Accessing the PCU Software" on page 6*. Sign in to the PCU software using your BEACON SaaS sign in and password.

Computing Device

The software is designed to run on a computing device (PC, laptop, tablet) with a Windows® 10 operating system, version 1909 or higher.

Windows® Updates

Make sure the device on which the software is installed always has all the most recent Windows updates.

To check for updates, go to **Settings**> **Windows Update**. Then select **Check for Updates**. Install all updates if needed and restart the device before using the PCU.

ORION Endpoints

The software is designed to work with these ORION water endpoints:

- ORION Cellular water endpoints: C, HLD, CS, LTE-M, LTE-MS, HLA, HLB, HLC, LTE-MP, LTE-MSP, LTE
- ORION non-cellular water endpoints: Mobile M, ORION ME*, Fixed Network (SE), Classic (CE) endpoints

* Mobile solutions deployed prior to February 1, 2023 include ORION ME endpoints that are migratable to fixed network.

Product Firmware

- ORION Cellular endpoint firmware version 2.0.445 and later

PARTS LIST

Part Number	Description/Photo	Part Name
64436-041		ACTiSYS IR Programming Cable, USB
64436-042		Rugged Serial IR programming and data profile cable
64436-029		(Optional) Serial-to-USB Adapter (For use with Rugged Serial IR programming cable 64436-042)
68891-001		Badger Meter IR Communication Device Used with a customer-supplied micro USB cable (not shown) can perform as an IR programming cable
68779-001		IR Bracket alignment tool (Recommended) for ORION Cellular and ORION Mobile M endpoints
65917-001		IR head alignment tool (Recommended) for ORION SE, ME, CE endpoints

NOTE: Also see "[Appendix: RF Equipment Setup](#)" on page 27 for equipment required for a Quick Read.

IR ALIGNMENT TOOLS

To use the software for reading and programming ORION endpoints, connect an IR device—either the ACTISYS IR programming cable (Figure 1) or the IR Communication Device with micro USB cable (Figure 2)—to a USB port on your Windows device. See "[Setting the COM Port\(s\)](#)" on page 9 for instructions on setting the correct COM port for the IR device.

IR Programming Cable Driver

After upgrading to a newer operating system such as Windows 11, an issue may sometimes occur with the driver on the ACTISYS IR programming cable. If you experience a driver issue, refer to the [IR Programming Cable Update for Windows 11](#) application data sheet available at badgermeter.com for instructions on updating the driver.



Figure 1: ACTISYS IR programming cable



Figure 2: IR Communication Device with micro USB cable

Using the IR Alignment Tools

This step for using the IR alignment tools is optional but recommended for the best connection when reading or programming ORION endpoints. See the "[Parts List](#)" on page 4 for a photo of the IR alignment tools, which are designed for using an IR device while leaving your hands free. They also keep the IR device at the correct distance from the endpoint IR port.

1. Hold the endpoint upside down.

With *ORION Cellular* and *ORION Mobile M* endpoints, attach the IR bracket (68779-001) by inserting the tab into the slot at the base of the endpoint. The endpoint cable should remain outside the bracket opening.

With *ORION SE*, *ME*, *CE* endpoints, place the IR alignment tool (65917-001) over the bottom of the endpoint body.

When the bracket is securely connected to the endpoint, the IR LED port should be visible through the bracket opening.

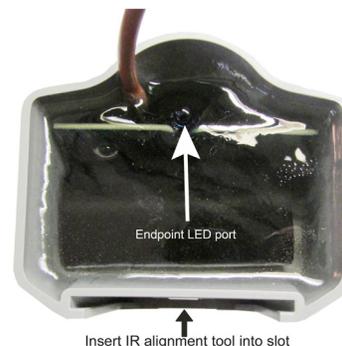


Figure 3: IR LED port ORION Cellular endpoint (bottom up view)

2. Place the IR device into the holder of the bracket/alignment tool. This allows you to use the IR device hands free to read or program the endpoint.
3. To remove the bracket, lift the bracket up and off the endpoint and remove the IR device.

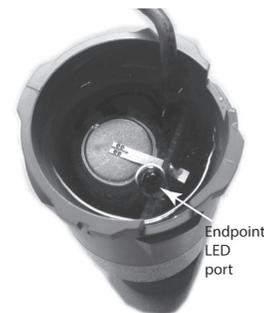


Figure 4: IR LED port ORION ME endpoint (bottom up view)

ACCESSING THE PCU SOFTWARE

Downloading the Software

1. On the BEACON SaaS website, go to **Utility Settings > Downloads** and select **Download** to access the *Badger Meter Product Configuration Utility (PCU)*.

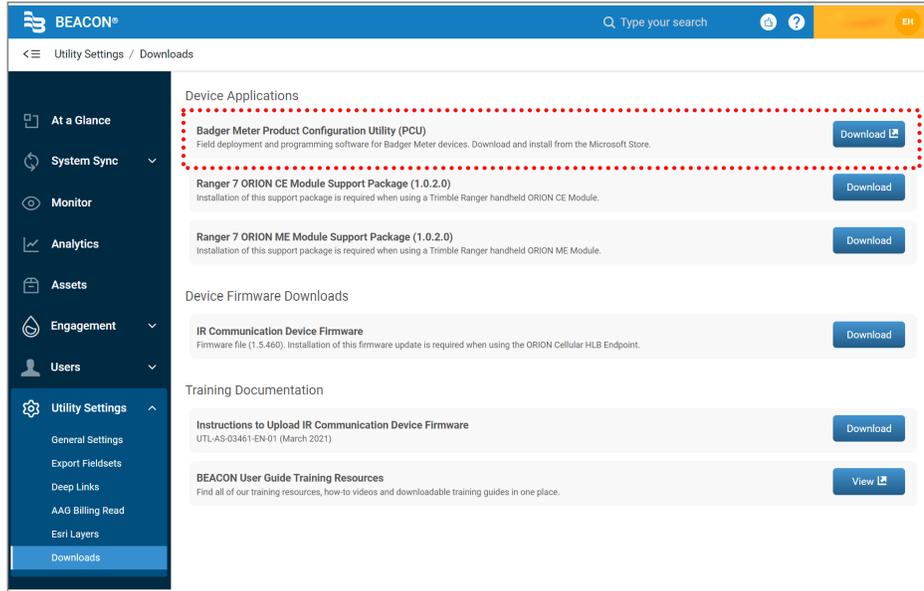


Figure 5: BEACON Downloads

NOTE: The screens shown here are examples of what to look for. Your screens may look slightly different based on your version of Windows and experience with the Microsoft® Store.

2. In the window that opens, select **Get**.

The installation window opens.



Figure 6: PCU in Microsoft Store

3. Select **Install**.



Figure 7: Install

4. A progress bar displays the download process.

At the end of the process, select **Launch**.

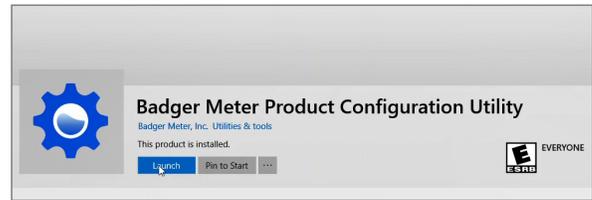


Figure 8: Select Launch

5. The *Sign In* window opens. Enter your BEACON email and password and click **Sign In**.

NOTE: If you close the PCU, you can get back to it by opening the Windows **Start** menu, and selecting **Badger Meter Product Configuration Utility**. See [Figure 10](#).

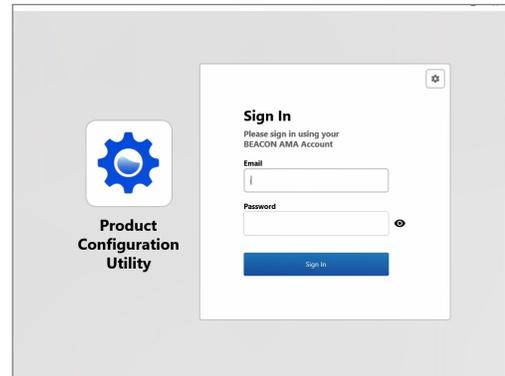


Figure 9: PCU Sign In

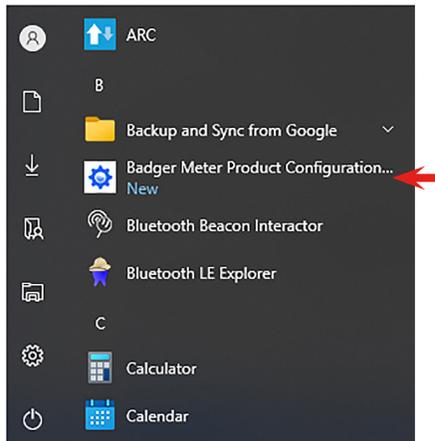


Figure 10: Windows Start menu showing *Product Configuration Utility*

Software Updates

When you launch PCU and there is an update available, a notification icon displays at the top right of the main screen ([Figure 11](#)).

Click the icon to go to the PCU notifications page to access a new PCU version.

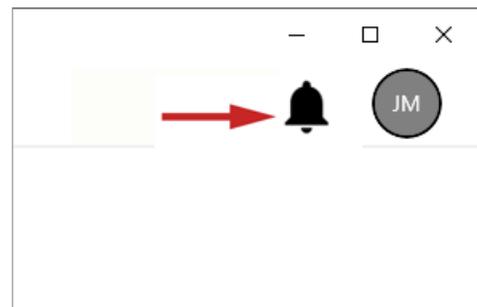


Figure 11: Software update notification icon

GETTING STARTED

1. Connect your IR device to a USB port on your Windows device.

Connect the IR device *before* you start the software to make sure the software recognizes the connection. If you are using an IR alignment bracket, see ["IR Alignment Tools" on page 5](#).

NOTE: If you are using an IR device with a serial port connector and your Windows device does not have a serial port, use a serial-to-USB adapter. See the ["Parts List" on page 4](#).

Sign In

2. Select **Badger Meter Product Configuration Utility** from the Windows **Start** menu. Alternatively, you can also open PCU by clicking the shortcut that displays in the **Start** menu ([Figure 12](#)).

The PCU Sign In window displays ([Figure 13](#)).

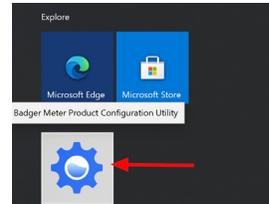


Figure 12: Software shortcut

3. Sign in with your BEACON email and password. Then click **Sign In**. The software Product Selector screen opens ([Figure 14](#)).

NOTE: You must be connected to the internet to sign in. Once signed in, you do not need an internet connection to use the PCU software.

If you do *not* logout, you can return to the PCU anytime without signing in and without an internet connection.

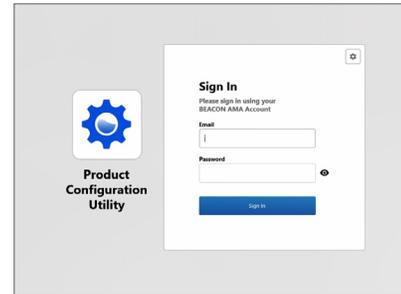


Figure 13: Sign In window

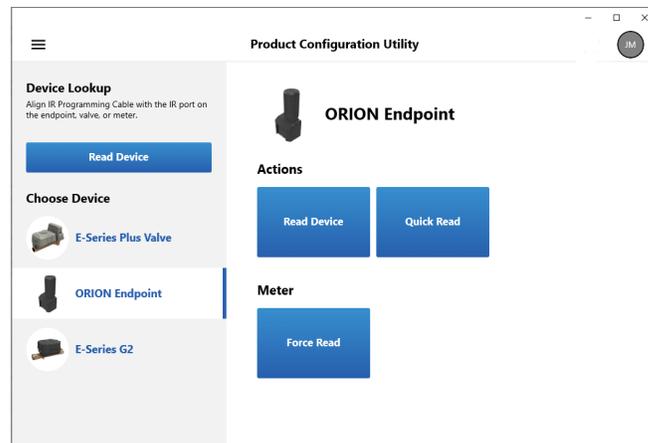


Figure 14: PCU Product Selector screen

Exiting the Software

To exit the software, click the **X** in the top right corner of the screen. You can return to the software anytime by selecting the PCU icon from the Windows **Start** menu. See [Figure 10](#) if you need help.

You can also logout of the PCU by clicking the circled initials in the top right corner of the screen and selecting **Logout** in the popup window that displays.

NOTE: If you logout, you are required to **Sign In** the next time you access the PCU.

Software Menu

Click  in the top left corner of the screen to access the software menu.

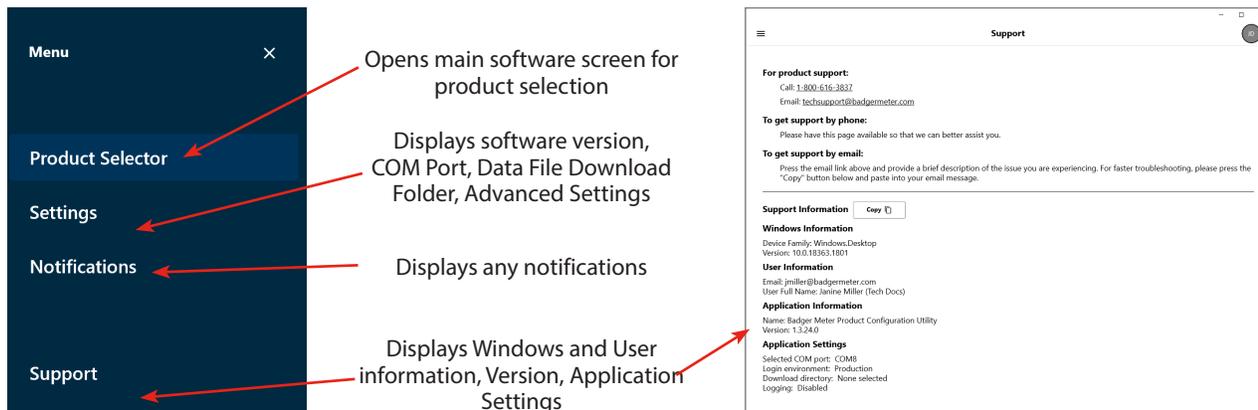


Figure 15: Menu options

Settings

Click  in the top left corner of the screen and select **Settings**.

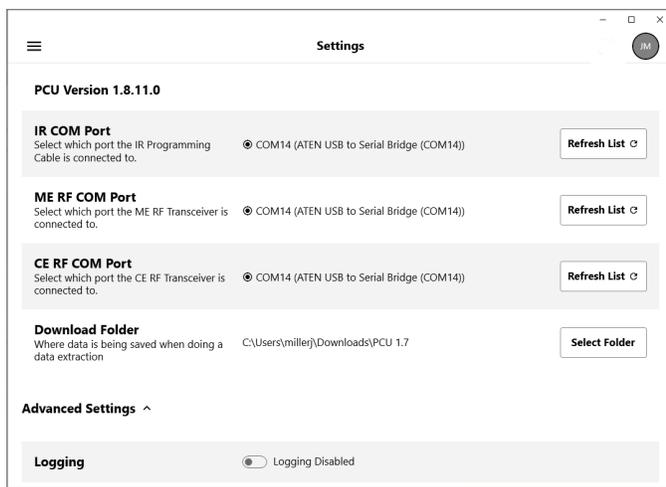


Figure 16: PCU Settings

Setting	Description
PCU Version	Displays the current PCU software version.
IR COM Port	Displays the COM port for a connected device. See "Setting the COM Port(s)" on page 9 .
ME RF COM Port	Displays the COM port for a connected ORION ME transceiver. See "Appendix: RF Equipment Setup" on page 27 .
CE RF COM Port	Displays the COM port for a connected ORION CE receiver. See "Appendix: RF Equipment Setup" on page 27 .
Download Folder	Select a folder where data files should be saved. See "Configuring Download Folder" on page 10 .
Advanced Settings	Opens additional settings
Logging	The <i>Logging</i> default position is "Disabled." Enable Logging <i>only</i> when working with Badger Meter Technical Support. A warning message opens when you enable Logging:

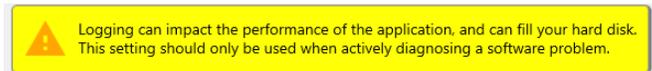


Figure 17: Logging warning message

Setting the COM Port(s)

You must set the communication (COM) port for the equipment/devices attached to your Windows device. For example, if you connect an ORION ME transceiver and an IR programming cable, you need to set the COM port for both devices.

NOTE: Contact Badger Meter ["Technical Support"](#) if you have questions about setting up the port for your IR device.

1. Click  at the top left corner of the screen and select **Settings**.

- Use the drop-down menu to select the correct COM port for IR programming cable and any other connected device(s). Click **Refresh List** if the device is connected but does not display.

NOTE: **Advanced** COM Port Configuration options are available, if needed, but are not required.

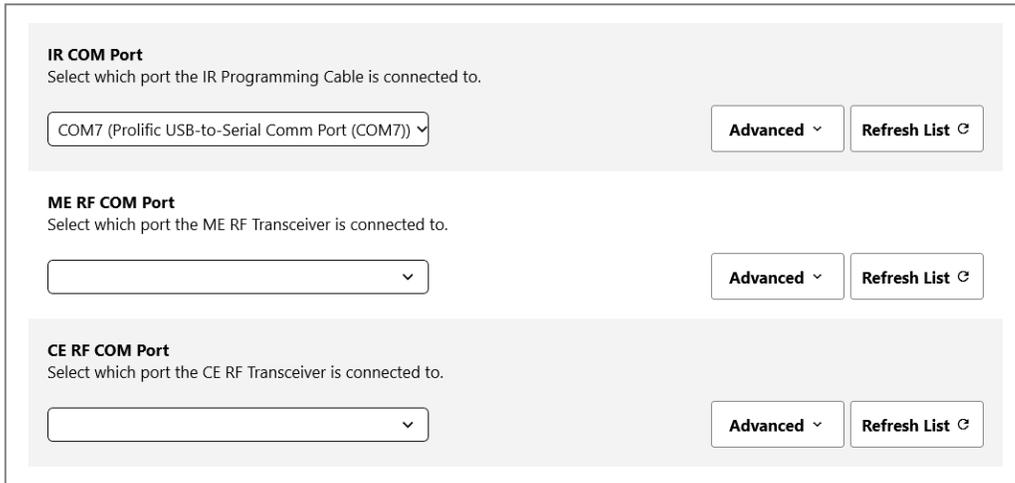


Figure 18: Refresh COM port list

- Click **☰** at the top left corner of the screen and click **Product Selector** to return to the main screen.

NOTE: Clicking the **X** in the top right corner of the *Settings* window closes the software application.

Configuring Download Folder

The *Download Folder* is a file you select for storing data files such as historical data extracted from the endpoint or any log files created by the software. To save time, set up the folder before you start using the software.

- Click **☰** at the top left corner of the screen and select **Settings**.
- Under *Download Folder*, click **Select Folder**.
- In the window that opens, find and select the folder on your Windows device where you want to save your downloaded files.

The folder location you select displays on the Settings screen. Any data or log files created in the PCU are automatically downloaded to the folder you select.

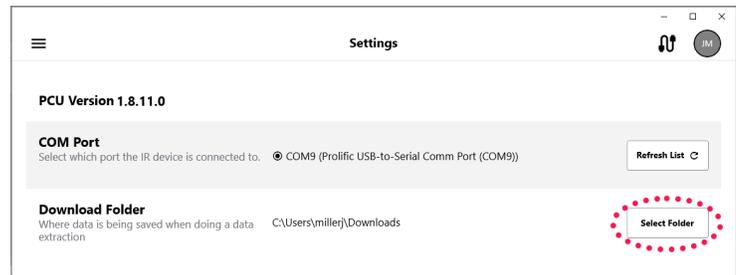


Figure 19: Select download folder

The software notifies you whenever a file is downloaded. See the example in [Figure 20](#).



Figure 20: Download notification example

MAIN SCREEN

Select **ORION Endpoint** in the navigation menu on the left side of the screen to see the main screen for ORION endpoints.

NOTE: The PCU main screen changes based on the device you select.

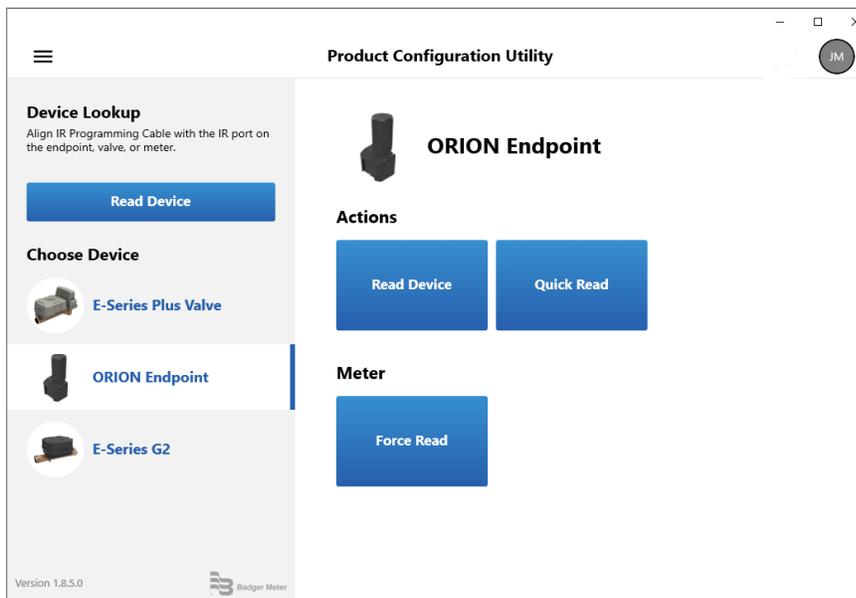


Figure 21: PCU main screen

ORION Endpoint Main Screen Functions

LEFT SIDE OF THE SCREEN	
Field	Description
	Gives access to settings, including the COM port; notifications; technical support information; software version. See "Software Menu" on page 9 .
Read Device*	When selected, the software automatically detects and reads the connected device.
Choose Device	Select the device you want to read.
RIGHT SIDE OF SCREEN (The right side of the screen changes depending on the device selected)	
Function	Description
Actions:	<i>Read Device:</i> Identifies and displays details of the selected device. See "Reading An Endpoint" on page 12 .
Read Device*	<i>Quick Read:</i> Displays RF readings for all selected ORION endpoints in range with the real-time value.
Quick Read	
Force Read*	<i>Force Read:</i> Updates the endpoint reading from the real-time meter/encoder odometer value. For more, see "Force Read" on page 24 .

* When reading a device or performing a Force Read, make sure the IR device is connected and aligned with the IR port on the ORION endpoint until the function is completed. See ["Using the IR Alignment Tools" on page 5](#) for correct positioning of an IR device. The IR device is NOT needed to perform a Quick Read.

READING AN ENDPOINT

IMPORTANT

Make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process. Using the correct IR alignment tool is recommended. See "Using the IR Alignment Tools" on page 5 if you need help.

1. Holding the IR device steady over the endpoint LED IR port, select **ORION Endpoint** on the PCU left side navigation menu and then select **Read Device** on the main screen.

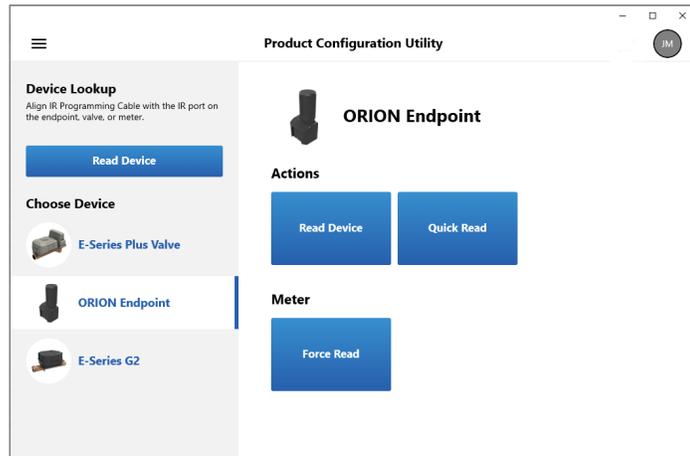


Figure 22: Select **ORION Endpoint** and **Read Device**

The screen displays the data and actions supported by the endpoint type (Figure 23).

2. Scroll down to see all the endpoint information and the programming functions available for the endpoint.

NOTE: The screen displays the data and actions supported by the endpoint type.

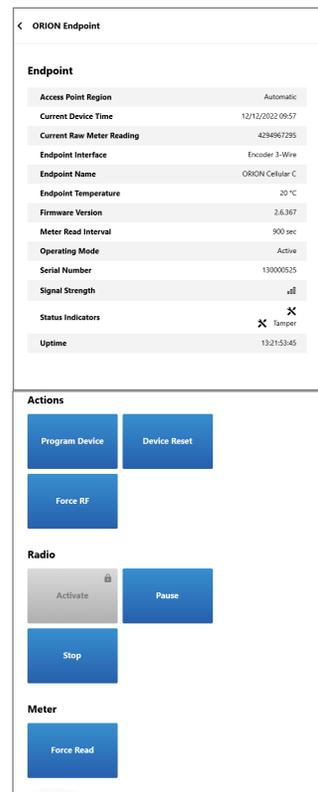


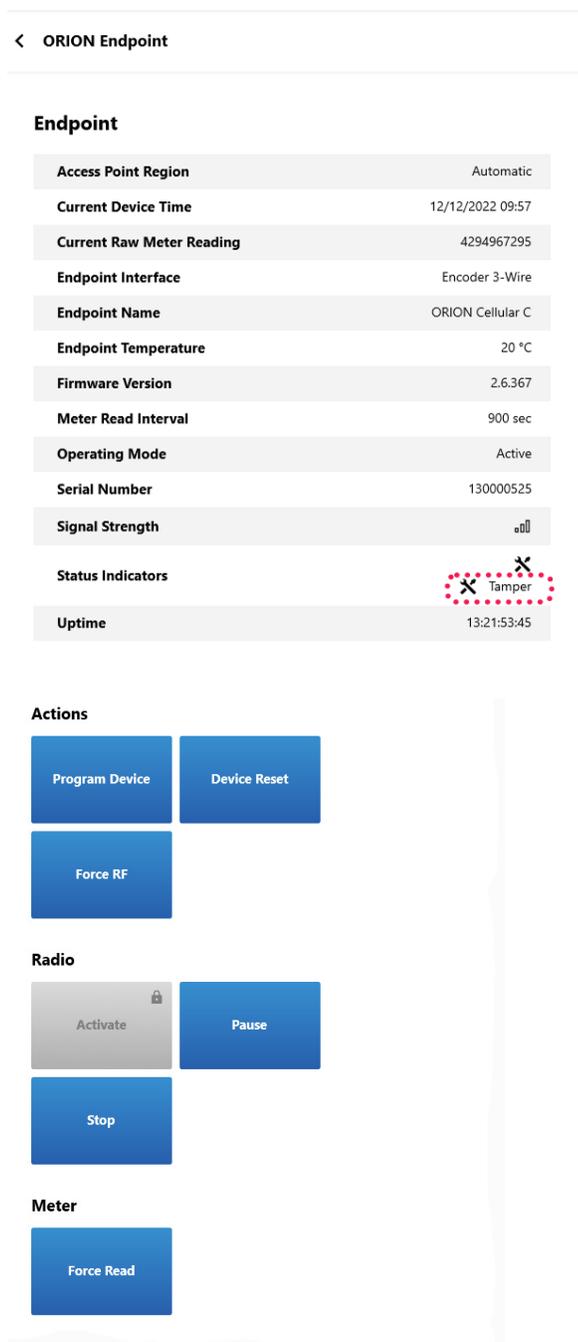
Figure 23: Read results screen example

3. Repeat steps 1 and 2 for each endpoint you want to read.

NOTE: For the descriptions of the fields and functional buttons on the screens, see screen examples on pages 13–18.

ORION Cellular Endpoint

See sample screen for an *ORION Cellular C endpoint (below)* and descriptions of the fields and buttons on the screen.



Select < **ORION Endpoint** to go back to the ORION endpoint main screen

Endpoint Fields	Description
<i>Access Point Region</i>	Designated region for endpoint location (See " Access Point Region " on page 22)
<i>Current Device Time</i>	Date and time from the endpoint
<i>Current Raw Meter Reading</i>	Current meter read without reading resolution applied (See " Change Raw Reading " on page 23)
<i>Endpoint Interface</i>	Connection protocol between endpoint and encoder
<i>Endpoint Name</i>	Endpoint type
<i>Endpoint Temperature</i>	Ambient temperature measured by the endpoint
<i>Firmware Version</i>	Firmware version of the endpoint
<i>Meter Read Interval</i>	Time between reads
<i>Operating Mode</i>	Current radio status: Active, Paused, Storage—current status is grayed out in the Radio options
<i>Serial Number</i>	Unique serial number of the endpoint
<i>Signal Strength</i>	Indicator of received cellular signal strength
<i>Status Indicators</i>	Displays any unexpected conditions—click the icon to see a description of the condition (as shown in sample screen)
<i>Uptime</i>	Time elapsed since endpoint was last reset. Reset can be triggered by actions such as a firmware update, " Device Reset ", or a command from BEACON. Reset does not occur with a tamper or if an endpoint is stopped. Uptime displays in Days:Hours:Minutes:Seconds

Actions:	
<i>Program Device</i>	Access to endpoint programming fields
<i>Device Reset</i>	Electronically resets endpoint to attempt recovery from an unexpected condition, mainly for troubleshooting
<i>Force RF</i>	Executes "Run Network Session" command to confirm endpoint is reporting as expected
Radio:	
<i>Activate, Pause, Stop</i>	Select to start, pause or stop endpoint—current selection grayed out
Meter:	
<i>Force Read</i>	Updates the endpoint reading from the real-time meter/ encoder odometer value. For more, see " Force Read " on page 24.

ORION LTE-MP Pulse Endpoint

See sample screen for an *ORION LTE-MP endpoint* (below) and descriptions of the fields and buttons on the screen.

< ORION Endpoint

Endpoint

Access Point Region	Automatic
Current Device Time	01/24/2023 15:17
Current Raw Meter Reading	0
Endpoint Interface	Pulse/RTR Mode
Endpoint Name	ORION Cellular LTE-MP
Endpoint Temperature	22 °C
Firmware Version	2.6.545
Meter Read Interval	900 sec
Number of Dials	9
Operating Mode	Active
Serial Number	120002306
Signal Strength	📶
Status Indicators	✖
Uptime	57:03:47:29

Actions

Program Device

Device Reset

Force RF

Radio

Activate

Pause

Stop

Select < **ORION Endpoint** to go back to the ORION endpoint main screen

Endpoint Fields	Description
<i>Access Point Region</i>	Designated region for endpoint location (See " Access Point Region " on page 22)
<i>Current Device Time</i>	Date and time from the endpoint
<i>Current Raw Meter Reading</i>	Current meter read without reading resolution applied (See " Change Raw Reading " on page 23)
<i>Endpoint Interface</i>	Connection protocol between endpoint and encoder
<i>Endpoint Name</i>	Endpoint type
<i>Endpoint Temperature</i>	Ambient temperature measured by the endpoint
<i>Firmware Version</i>	Firmware version of the endpoint
<i>Meter Read Interval</i>	Time between reads
<i>Number of Dials</i>	Number of dials from the register
<i>Operating Mode</i>	Current radio status: Active, Paused, Storage—current status is grayed out in the Radio options
<i>Serial Number</i>	Unique serial number of the endpoint
<i>Signal Strength</i>	Indicator of received cellular signal strength
<i>Status Indicators</i>	Displays any unexpected conditions—click the icon to see a description of the condition
<i>Uptime</i>	Time elapsed since endpoint was last reset. A reset can be triggered by actions such as a firmware update, " Device Reset ", or a command from BEACON. A reset does not occur with a tamper or if an endpoint is stopped. Uptime is shown in Days:Hours:Minutes:Seconds

Actions:	
<i>Program Device</i>	Access to endpoint programming fields
<i>Device Reset</i>	Electronically resets endpoint to attempt recovery from an unexpected condition, mainly for troubleshooting
<i>Force RF</i>	Executes "Run Network Session" command to confirm endpoint is reporting as expected
Radio:	
<i>Activate, Pause, Stop</i>	Select to start, pause or stop endpoint—current selection grayed out

ORION Mobile M Endpoint

See sample screen for an *ORION Mobile M endpoint (below)* and descriptions of the fields and buttons on the screen.

< ORION Endpoint

HR-E LCD

Current Raw Meter Reading	4294967295
Dials	Not Set
Meter Size And Type	Not Set
Protocol	Not Set
Reverse Flow Total	0
Status	
Unit of Measure	Cubic Meters

Endpoint

Battery Life	
Current Device Time	12/12/2022 11:13
Daily Reading	4294967295
Endpoint Interface	ME ELCD
Endpoint Name	ORION Mobile M
Firmware Version	1.1
Latitude	Not Set
Longitude	Not Set
Operating Mode	RF Mobile
Serial Number	60000119
Status Indicators	

Radio

Start Pause

Stop

Meter

Force Read

Select < **ORION Endpoint** to go back to the ORION endpoint main screen

Encoder Fields	Description
Current Raw Meter Reading	Current meter read without reading resolution applied (See "Change Raw Reading" on page 23)
Dials	Number of dials from the register
Meter Size and Type	Size and type of meter connected to the encoder/endpoint
Protocol	Method for how the endpoint recognizes and communicates with the meter
Reverse Flow Total	Reports backward water flow through the meter
Status	Displays any unexpected conditions—click the icon to see a description of the condition
Unit of Measure	Displays unit of measure for which meter is programmed

Endpoint Fields	Description
Battery Life	GOOD
	LOW, one (1) year remaining
	REPLACE, six (6) months remaining
Current Device Time	Date and time from the endpoint
Daily Reading	Time synced reading at 06:00:00 UCT
Endpoint Interface	Connection protocol between endpoint and encoder
Endpoint Name	Endpoint type
Firmware Version	Firmware version of the endpoint
Latitude	North/South position of the endpoint
Longitude	East/West position of the endpoint
Operating Mode	Current radio status: RF Mobile, Paused, Sleep
Serial Number	Unique serial number of the endpoint
Status Indicators	Displays any unexpected conditions—click the icon to see a description of the condition

Functions	Description
Radio:	
Start, Pause, Stop	Select to start, pause or stop endpoint
Meter:	
Force Read	Updates the endpoint reading from the real-time meter/encoder odometer value. For more, see "Force Read" on page 24 .

ORION SE/ME Endpoint with Encoder

See sample screen for an *ORION ME endpoint with encoder (below)* and descriptions of the fields and buttons on the screen.

< ORION Endpoint

HR-E LCD

Current Raw Meter Reading	2396642
Dials	8
Meter Size And Type	M25 Disc
Protocol	Ind.Standard
Reverse Flow Total	0
Status	
Unit of Measure	Gallon

Endpoint

Battery Life	
Current Device Time	12/12/2022 10:52
Daily Reading	2396642
Endpoint Interface	ME ELCD
Endpoint Name	ORION ME ADE
Firmware Version	2.15
Latitude	Not Set
Longitude	Not Set
Operating Mode	RF Mobile
Serial Number	33182351
Status Indicators	

Radio

Start

Pause

Stop

Meter

Force Read

Select < **ORION Endpoint** to go back to the ORION endpoint main screen

Encoder Fields	Description
Current Raw Meter Reading	Current meter read without reading resolution applied (See "Change Raw Reading" on page 23)
Dials	Number of dials from the register
Meter Size and Type	Size and type of meter connected to the encoder/endpoint
Protocol	Method for how the endpoint recognizes and communicates with the meter
Reverse Flow Total	Reports backward water flow through the meter
Status	Displays any unexpected conditions—click the icon to see a description of the condition
Unit of Measure	Displays unit of measure for which meter is programmed

Endpoint Fields	Description
Battery Life	GOOD
	LOW, one (1) year remaining
	REPLACE, six (6) months remaining
Current Device Time	Date and time from the endpoint
Daily Reading	Time synced reading at 06:00:00 UCT
Endpoint Interface	Connection protocol from endpoint and encoder
Endpoint Name	Name of the endpoint type and programmed encoder
Firmware Version	Firmware version of the endpoint
Latitude	North/South position of the endpoint
Longitude	East/West position of the endpoint
Operating Mode	Current radio status: RF Mobile, Paused, Storage
Serial Number	Unique serial number of the endpoint

Functions	Description
Radio:	
Start, Pause, Stop	Select to start, pause or stop endpoint
Meter:	
Force Read	Updates the endpoint reading from the real-time meter/encoder odometer value. For more, see "Force Read" on page 24 .

ORION SE/ME Endpoint with RTR

See sample screen for an ORION SE/ME endpoint with an RTR register (*below*) and descriptions of the fields and buttons on the screen.

< ORION Endpoint

Encoder

Meter Size And Type	M35 Disc
Unit of Measure	Cubic Feet

Endpoint

Battery Life	
Current Device Time	11/21/2022 10:22
Current Raw Meter Reading	0
Daily Reading	0
Endpoint Interface	ME RTR
Endpoint Name	ORION ME RTR
Firmware Version	1.12
Latitude	43.102715
Longitude	-88.061256
Operating Mode	Sleep
Serial Number	30000191
Status Indicators	

Actions

Program Device

Radio

Start

Pause

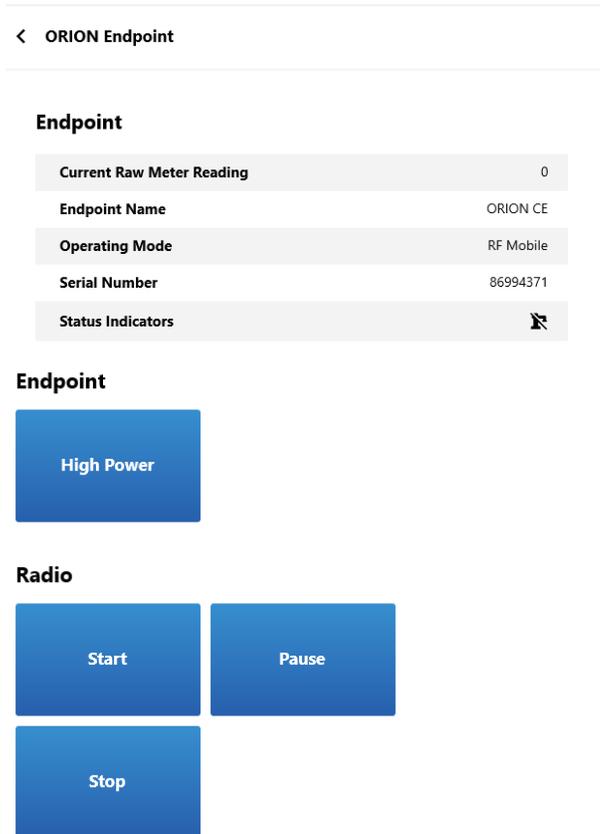
Stop

Select < ORION Endpoint to go back to the ORION endpoint main screen	
<hr/>	
Encoder Fields	Description
<i>Meter Size and Type</i>	Size and type of meter connected to the encoder/endpoint
<i>Unit of Measure</i>	Displays unit of measure for which meter is programmed
<hr/>	
Endpoint Fields	Description
<i>Battery Life</i>	GOOD
	LOW, one (1) year remaining
	REPLACE, six (6) months remaining
<i>Current Device Time</i>	Date and time from the endpoint
<i>Current Raw Meter Reading</i>	Current meter read without reading resolution applied (See "Change Raw Reading" on page 23)
<i>Daily Reading</i>	Time synced reading at 06:00:00 UCT
<i>Endpoint Interface</i>	Connection protocol from endpoint and register
<i>Endpoint Name</i>	Name of the endpoint type and programmed encoder
<i>Firmware Version</i>	Firmware version of the endpoint
<i>Latitude</i>	North/South position of the endpoint
<i>Longitude</i>	East/West position of the endpoint
<i>Operating Mode</i>	Current radio status: RF Mobile, Paused, Sleep
<i>Serial Number</i>	Unique serial number of the endpoint
<i>Status Indicators</i>	Displays any unexpected conditions—click the icon to see a description of the condition

Functions	Description
Actions	
<i>Program Device</i>	Access to endpoint programming fields
Radio:	
<i>Start, Pause, Stop</i>	Select to start, pause or stop endpoint

ORION CE Endpoint

See sample screen for an *ORION CE endpoint (below)* and descriptions of the fields and buttons on the screen.



Select < **ORION Endpoint** to go back to the ORION endpoint main screen

Endpoint Fields	Description
<i>Current Raw Meter Reading</i>	Current meter read without reading resolution applied (See " Change Raw Reading " on page 23)
<i>Endpoint Name</i>	Name of the endpoint type and programmed encoder
<i>Operating Mode</i>	Current radio status: RF Mobile, Paused, Sleep
<i>Serial Number</i>	Unique serial number of the endpoint
<i>Status Indicators</i>	Displays any unexpected conditions—click the icon to see a description of the condition

Functions	Description
Endpoint:	
<i>High Power</i>	Forces a brief high powered signal from the endpoint to a gateway receiver
Radio:	
<i>Start, Pause, Stop</i>	Select to start, pause or stop endpoint

High Power

This option is available for ORION CE endpoints only.

IMPORTANT

Make sure the IR device is connected and aligned with the IR port of the endpoint.

1. Select **ORION Endpoint** on the PCU left side navigation menu.
2. Select **Read Device**.
3. Select **High Power**.

A message displays ([Figure 24](#)) to show the endpoint is broadcasting at high power for 6 minutes.



Figure 24: High Power message

QUICK READ

An endpoint Quick Read is performed using RF (radio frequency). During a Quick Read, the PCU displays readings for all selected active ORION endpoints in range. Endpoints that are in *Pause* or *Stopped/Sleep* mode do not display.

See "[Appendix: RF Equipment Setup](#)" on page 27 to find directions for setting up the equipment you need to perform a Quick Read.

Quick Read Screen Examples

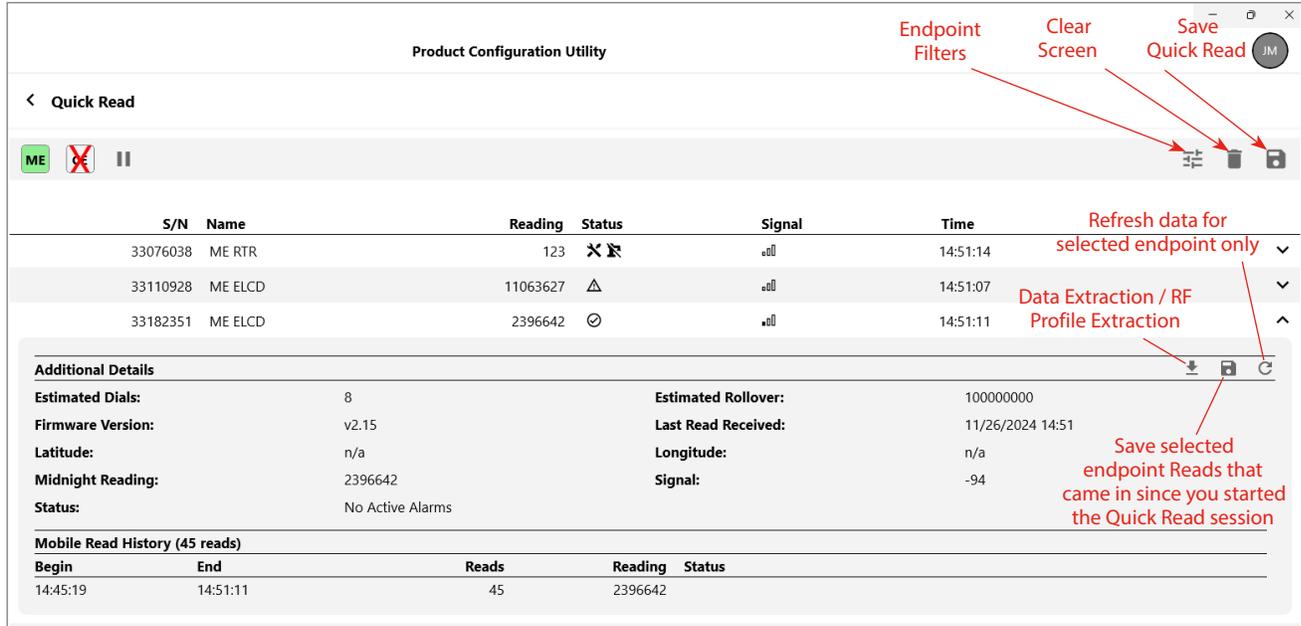


Figure 25: Quick Read with ORION ME transceiver

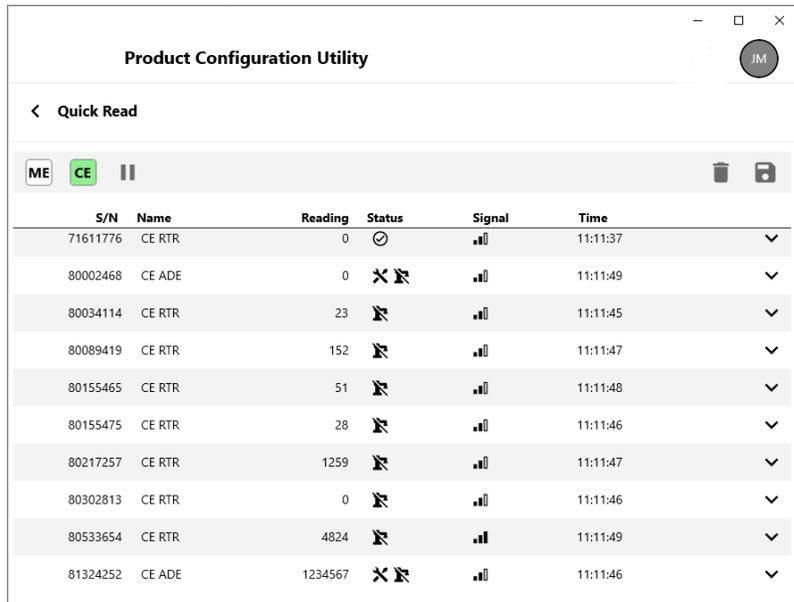


Figure 26: Quick Read with ORION CE receiver

Quick Read Setup

NOTE: Refer to ["Appendix: RF Equipment Setup" on page 27](#) to see detailed equipment setup for RF reading. If you are using the Trimble TSC7 (aka Ranger 7) or Trimble T7 (aka Yuma 7) handheld, make sure the ME and/or CE modules are connected.

ORION ME Quick Read: To perform an ORION ME Quick Read, connect the ORION ME mobile transceiver to your Windows device. With the ORION ME mobile transceiver connected, ORION ME, ORION Mobile M and ORION Cellular endpoints in RF range are displayed. See the example in [Figure 25](#).

ORION CE Quick Read: To perform an ORION CE Quick Read, connect the ORION CE mobile receiver to your Windows device. With the ORION CE mobile receiver connected, ORION CE endpoints in RF range are displayed. Make sure the ORION CE mobile receiver is connected to your Windows device. See the example in [Figure 26](#).

COM Port: Make sure to set the correct COM port for the equipment connected. See ["Setting the COM Port\(s\)" on page 9](#) for details.

RF Quick Read Fields

Field	Description
S/N	Endpoint serial number
Name	Endpoint type
Reading	Current endpoint reading—the reading is the raw value without reading resolution applied
Status	Symbols for endpoint status and any exceptions—if no exceptions are noted, a check mark  is shown in Status field.
Signal	Strength of endpoint RF signal
Time	Time of endpoint reading
	Click Down arrow to display Additional Details (See Figure 25)
	Choose Filters (serial number, model, register, alarms) to display specific endpoints
	Save a Quick Read as a .csv file to your designated download folder (See "Configuring Download Folder" on page 10)
	Clears the screen of endpoints currently displayed—Quick Read begins again automatically if RF is not paused and radio button(s) are enabled

Performing an RF Quick Read

1. With the appropriate equipment connected to your Windows device, select **ORION Endpoint** on the PCU left side navigation menu and then select **Quick Read** to open the Quick Read screen.
2. Click the **ME** button to read ORION ME, ORION Mobile M and ORION Cellular endpoints.
Click the **CE** button to read CE endpoints.
Click the **ME** and **CE** buttons to read both endpoint types.

The Quick Read screen opens and displays readings for the selected endpoints in RF range. Readings continue to display as endpoint signals are detected.

3. Click  to see Additional Details for an endpoint. Click  to close Additional Details.
4. Click  to temporarily clear the endpoint readings from the screen.

The running totals at the bottom of the screen stop and automatically restart as the endpoint readings begin again.

Duration Response Count Unique S/Ns
11s 65 29

5. Click stop/pause  to stop the Quick Read.
6. Select  **Quick Read** to stop the Quick Read and return to the main ORION endpoint screen.

Profile Data Extraction

Follow these steps to extract profile data from an endpoint during a Quick Read.

1. Click  to pause the Quick Read.
2. Click the down arrow  to display the endpoint additional details.
3. Click the download symbol  to open the Data Extraction window.
4. Choose the Test Circle, number of Days and Extract Format.
5. Click **Extract** button.

The information is saved in the Format you requested to your designated download folder.

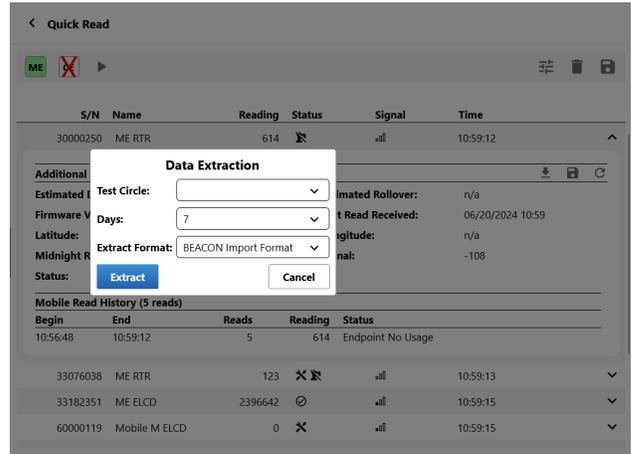


Figure 27: Endpoint profile data extraction

IR PROGRAMMING

Information on the programming screen varies depending on the technology. Not all endpoints have the option for **Program Device**.

IMPORTANT

To perform any programming function in this section, **make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process.** Using the correct IR alignment tool is recommended.

1. Click **Read Device** on the PCU left side navigation menu. The endpoint details and action buttons display.
NOTE: When you select the **Read Device** button on the left side navigation, the software automatically determines the device type, so you do not need to choose **ORION Endpoint** first.

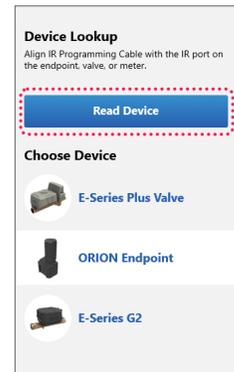


Figure 28: Left side navigation

2. Click **Program Device** to see the programming screen for the selected endpoint.
NOTE: If the **Program Device** button does not display when you read the endpoint, the endpoint does not have the programming option.
3. On the programming screen that opens, make changes as needed. See programming options that follow.
4. Click **Save** to save your changes. Or click **Cancel** to exit the screen without making changes.



Figure 29: Program Device button

Programming Options

Access Point Region

⚠ WARNING Contact Technical Support before making changes to Access Point Region

The Access Point Region for an endpoint is normally set to **Automatic** and should not be changed. This setting may be adjusted in border regions where the Automatic setting may be picking up the wrong region.

1. Select the Access Point Region drop-down menu on the Program Device screen.
2. Choose the Region as confirmed by Technical Support.
3. Click **Save** to save your changes, or click **Cancel** to exit the screen without making changes.

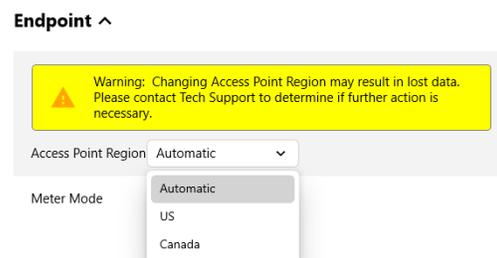


Figure 30: Access Point Region

Meter Mode

Available for: ORION Cellular C, HLD; Cellular HLB

The Meter Mode can be set to **Encoder** or **Pulse/RTR**.

1. On the Program Device screen, select the **meter mode** for the endpoint from the drop-down menu.
2. Click **Save** to save your changes. Or click **Cancel** to exit the screen without making changes.

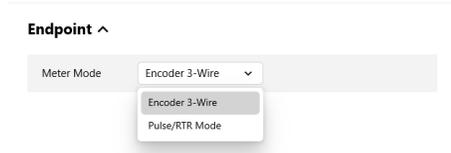


Figure 31: Meter mode

Change Raw Reading

Available for: ORION Cellular C, HLD, and HLB in Pulse Mode; Cellular LTE-MP; ORION ME/RTR; ORION CE RTR

This programming option allows you to change a reading for an RTR (pulse) endpoint. This option can be used when clearing a tamper alarm, or moving the endpoint to a different meter.

1. On the Program Device screen, enter the raw reading (up to 9 digits) for the endpoint in the Current Raw Reading field.
2. Click **Save** to save your changes. Or click **Cancel** to exit the screen without making changes.

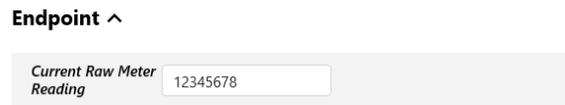


Figure 32: Current Raw Meter Reading

Dial Count

Available for: ORION Cellular C, HLD, and HLB in Pulse Mode; Cellular LTE-MP; ORION CE RTR

This programming option allows you to select the number of digits for the reading.

1. On the Program Device screen, choose the number of digits from the Dial Count drop-down menu.
2. Click **Save** to save your changes. Or click **Cancel** to exit the screen without making changes.

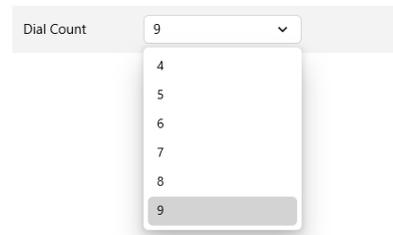


Figure 33: Dial Count

Additional Endpoint Functions

IMPORTANT

To perform any programming function in this section, **make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process.** Using the correct IR alignment tool is recommended.

Clock Sync

This option displays automatically when you read any endpoint—ORION ME/SE and newer—that does not have the same time/date as your Windows device. The button does not display otherwise. Follow these steps to re-sync the endpoint time.

1. Select **ORION Endpoint** on the left side of the screen.
2. Select **Read Device** and then select **Clock Sync**.

In a few seconds, a message displays (Figure 35) to show the Clock Sync was successfully completed.

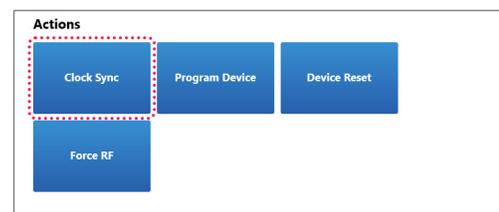


Figure 34: Clock Sync

3. Click **OK** to close the message.

When the message closes, PCU automatically performs a reading and updates the time for the endpoint, which you see in the Current Device Time field.



Figure 35: Clock sync confirmation

Device Reset

Device Reset electronically resets the Uptime counter field for an ORION Cellular endpoint. Uptime displays in Days:Hours:Minutes:Seconds.

1. Select **ORION Endpoint** on the left side of the screen.
2. Select **Read Device**.
3. Select **Device Reset**. The following message confirms the endpoint uptime field has been successfully reset.

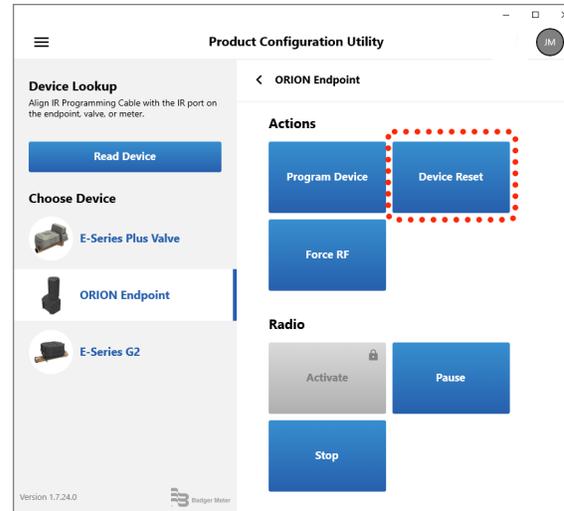


Figure 36: Device Reset

Force Read

A **Force Read** can be performed on an endpoint that is connected to a device with encoder output to get the latest real-time data from the meter.

This option can be used to verify a successful tamper repair.

1. Select **ORION Endpoint** on the left side of the screen.
2. Select **Read Device**.
3. Select **Force Read**.

The new reading displays in the Current Raw Meter Reading field on the endpoint Reading screen.

NOTE: This function can affect battery life. Do not overuse.

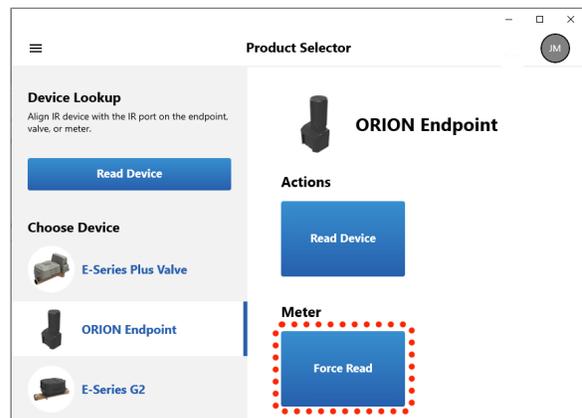


Figure 37: Force Read

ENDPOINT RADIO STATUS

When you read an endpoint, the Radio status displays on the screen. To change the current endpoint Radio status, follow the instructions in this section.

IMPORTANT

To perform any function in this section, **make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process.** Using the correct IR alignment tool is recommended.

Activating an ORION Endpoint

NOTE: Also see "[IR Communication Device for International Endpoints](#)" on page 28 if you are activating an international endpoint at a location outside North America.

Follow the steps below to Activate an ORION Cellular endpoint that is currently in Paused or Storage/Sleep mode.

IMPORTANT

Make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process. Using the IR bracket is recommended.

1. Select **ORION Endpoint** on the PCU left side navigation menu.
2. Click **Read Device**. Information for the endpoint displays.
3. Check the Operating Mode of the endpoint. You can activate the endpoint if the mode is **Storage/Sleep** or **Paused**.
4. Scroll down to see the **Action** buttons and under **Radio**, select **Activate or Start**.

The endpoint LED flashes during the activation process as the software goes through a series of checks that are displayed on the screen ([Figure 38](#)).

When the process is complete, an Activation Log file is created ([Figure 39](#)) and stored in the Download folder. For more information, see "[Configuring Download Folder](#)" on page 10.

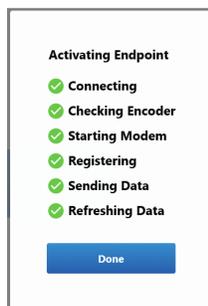


Figure 38: Activation check list

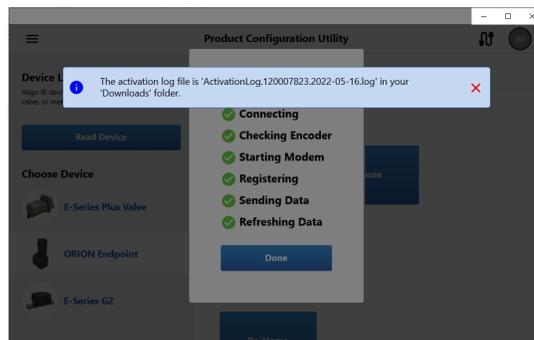


Figure 39: Endpoint activation completed

5. Click the **X** to close the Activation Log file message.
6. Click **DONE** to close the checklist window. When the window closes, the software automatically performs another READ and updates the properties on the screen to show the endpoint Operating Mode is **Active**.

IMPORTANT

Make sure the IR device remains connected and aligned with the IR port of the endpoint throughout the reading process.

NOTE: For complete information about ORION water endpoint installation, see the [ORION Water Endpoints Installation Manual](#) at badgermeter.com.

Stopping an ORION Endpoint

Follow the steps below to Stop an ORION endpoint that is currently in Active or Pause mode.

IMPORTANT

Make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process. Using the IR bracket is recommended.

1. Select **ORION Endpoint** on the PCU left side navigation menu.
2. Click **Read Device**. Information for the ORION endpoint displays.
3. Scroll down to see the **Action** buttons and under **Radio**, select **Stop**.

The software displays a warning that historical data is cleared when you restart the endpoint.



Figure 40: Stopping endpoint warning message

4. Click **Yes** to continue.
In a moment, the endpoint is stopped, and a confirmation message displays.



Figure 41: Stopped endpoint confirmation

5. Click **OK** to close the message window. When the window closes, the software automatically performs another READ and updates the properties on the screen to show the endpoint Operating Mode is **Storage/Sleep** (depending on the endpoint).

Pausing an ORION Endpoint

Follow the steps below to Pause an ORION endpoint that is currently in Active or Stopped/Storage mode.

IMPORTANT

Make sure the IR device is connected and aligned with the IR port of the endpoint throughout the process. Using the IR bracket is recommended.

1. Select **ORION Endpoint** on the PCU left side navigation menu.
2. Click **Read Device**. Information for the ORION endpoint displays.
3. Scroll down to see the **Action** buttons and under **Radio**, select **Pause**.

The software displays a confirmation message:



Figure 42: Paused endpoint confirmation

4. Click **OK** to close the message window. When the window closes, the software automatically performs another READ and updates the properties on the screen to show the endpoint Operating Mode is **Paused**.

APPENDIX: RF EQUIPMENT SETUP

Follow the directions for the type of device on which you are using the Product Configuration Utility (PCU).

- Transceiver and/or receiver *must be connected to power and to the Windows device*, and
- COM port *must be correctly set*

Trimble® RF Setup

If you are using a Trimble TSC7 (aka Ranger 7) or Trimble T7 (aka Yuma 7), make sure the ORION modules are connected for RF reading. Connect the appropriate module(s) and antenna(s)—ORION ME, ORION CE, or both. Directions come with the modules.

- ORION ME module is used for reading ORION ME, ORION Mobile M and ORION Cellular endpoints.
- ORION CE module is used for reading ORION CE endpoints.

No additional equipment is needed for RF setup if you are using the Trimble TSC7 or T7.

Tablet/Laptop (Dell® Latitude 7230 or Customer Supplied) RF Setup

If you are using a tablet/laptop, you need the following for RF meter reading.

- Magnetic mount antenna(s)
- Based on the type of endpoints you are reading, use an ME FHSS mobile transceiver (for ORION ME, ORION Mobile M and Cellular endpoints) and/or CE FHSS mobile receiver (for ORION CE endpoints)
- (Optional) Customer-supplied USB hub to accommodate multiple USB connections. Hubs can be purchased wherever electronic supplies are sold.
- DC power source

Setup should resemble the diagram below.

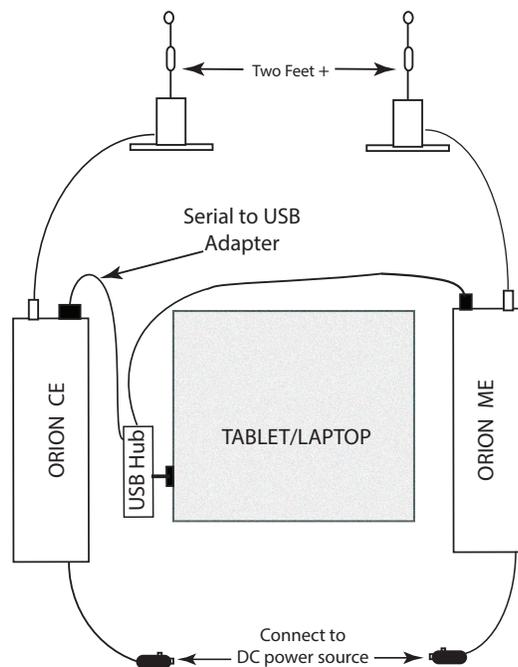


Figure 43: RF equipment setup for tablet/laptop

COM Port(s)

To establish communication with the PCU software, set the correct COM (communication) port(s) on your Windows device for the equipment that is connected. See ["Setting the COM Port\(s\)" on page 9](#) if you need help.

IR COMMUNICATION DEVICE FOR INTERNATIONAL ENDPOINTS

Use the IR Communication Device for international endpoint deployments outside North America.

1. Select **IR Communication Device** on the PCU left side navigation menu.
2. Follow steps 1...6 as shown on the screen to connect the device to your computer and configure the location of the endpoints.

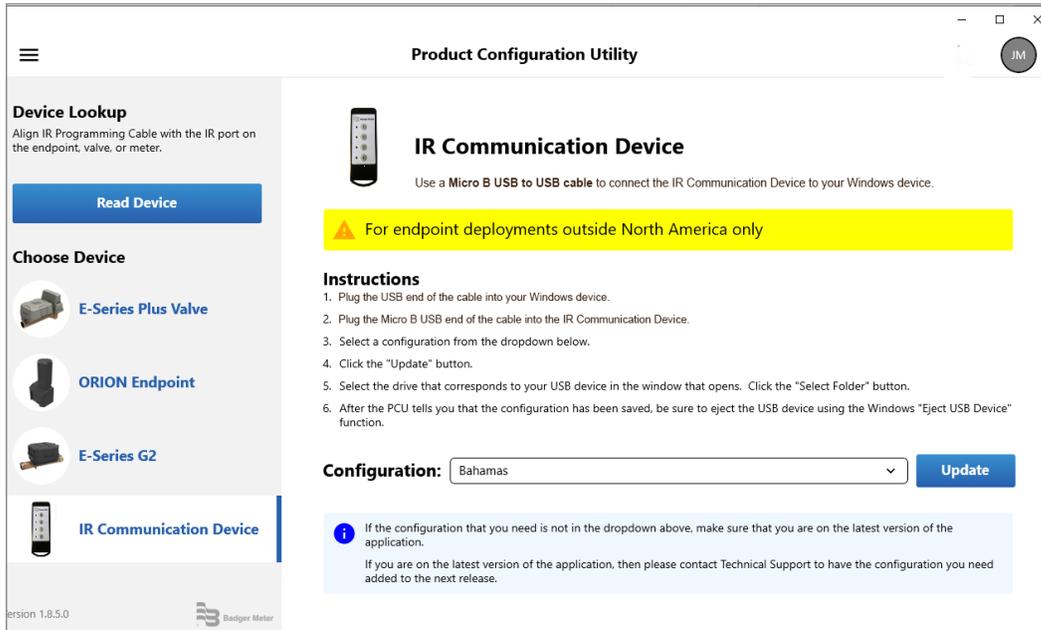


Figure 44: IR Communication Device configuration

TROUBLESHOOTING

Issue	Possible Cause	Solution
Error when setting the COM port	Bluetooth enabled	Disable Bluetooth while selecting the COM port.
PCU software does not install	OS; VPN	Check the operating system on your Windows device. It must be version 1909 or newer. Disable VPN if you have a VPN enabled. You can reconnect after installation.
Unable to sign in to software	No internet connection	You must be connected to the internet to sign in. Once you are signed in, you do not need to be connected to use the PCU software.
Quick Read does not start	Correct equipment not connected or COM port not set	Make sure the proper equipment is connected and the COM ports are set. See "Appendix: RF Equipment Setup" on page 27 .
<i>Error Message: Unsupported device detected. Please make sure device is compatible with software.</i>	Possible firmware issue	Occurs when trying to read a device that is not yet supported.
<i>Error Message: Unable to open communications.</i>	COM port not set or wrong COM port set	<ul style="list-style-type: none"> Close the error message. Go to Settings to set the COM port. See "Software Menu" on page 9 if you need help.
	IR device not aligned with IR port on endpoint IR device too close or too far from IR port on endpoint	<ul style="list-style-type: none"> Close the error message. Retry your command, making sure the IR device is 1/2...1-1/2 inches from the IR port. Hold the device steady while reading. Use the IR bracket for best results.

Technical Support

Contact Badger Meter Technical Support (800-616-3837) for any additional issues.

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