

IQ2 OPERATORS MANUAL



ENABLING IIoT

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Change Log:

Date	Author	Change	Version Number
Oct 2023	Matt Crites	Initial draft	1.0

Section 1.0: Overview**1.1: OVERVIEW**

The following guide is a walkthrough of the processes and procedures to navigate and configure through the iQ2 Platform. The guide will provide detailed instructions for:

- Setting up User Account(s)
- Creating/Editing Tags
- Creating/Editing Alarms
- Entering Set Points for Operations and Automation, Low-, and High-Level Alarms
- Acknowledging Alarms

The guide will also provide instructions for basic navigation through the iQ2 portal.

1.2: SUPPORT INFORMATION

Client requests for LEC product support, resources, and personnel will require the submission and assignment of a formal ticket via **SolveIT** in order to initiate any and all support activities.

In order to initiate a support ticket in LEC's **SolveIT** system, please visit the link below, and click “new support ticket” to complete the online ticket submission form.

solveIT Ticket Submission: <https://solveit.lecinc.com/support/home>

Section 2.0: Basic Navigation

2.1: My ACCOUNT

The My Account section of iQ2 is where a user can:

- Change Password
- Set Alarm Notification Preferences
- Change Cellular Number for Alarms
- Change Carrier Used

Once an account is created for a user, the system will deliver via email the users login credentials which includes a temporary password. Once logged in, this user can use the My Account page to change their password. It is recommended to use strong passwords that use upper/lower case letters, special characters, and symbols.

MY ACCOUNT

FIRST NAME	Richland Demo
LAST NAME	
EMAIL	demo@richland.com
NEW PASSWORD	
CONFIRM NEW PASSWORD	
RECEIVE EMAIL NOTIFICATIONS	<input type="checkbox"/>
RECEIVE TEXT NOTIFICATIONS	<input type="checkbox"/>
PHONE NUMBER	
PHONE CARRIER	Verizon
TIME ZONE	America/Chicago

SAVE

After entering the new password into each field, click SAVE to save the changes.

NOTE: A forgotten password can be reset from the login page of iQ2.

Users can easily select how Alarms will be delivered upon detection. The iQ2 alarm detection system can deliver notifications via SMS and/or email. A user can choose which they prefer to receive these alarms. They may choose one or the other or they may prefer to receive both at the same time. Place a check into the box for the desired notification. Click SAVE when done.

MY ACCOUNT

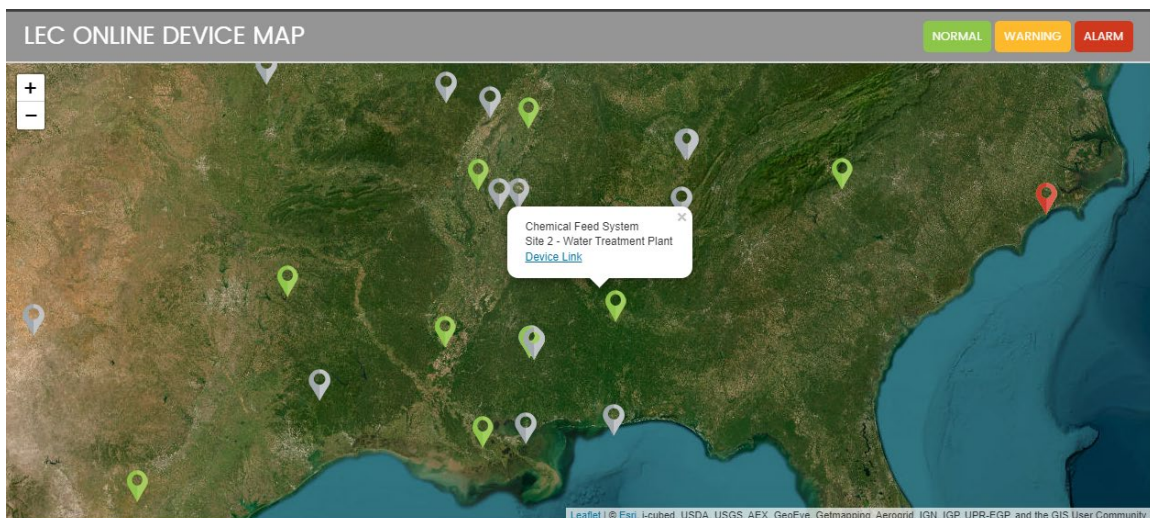
FIRST NAME	Richland Demo
LAST NAME	
EMAIL	demo@richland.com
NEW PASSWORD	
CONFIRM NEW PASSWORD	
RECEIVE EMAIL NOTIFICATIONS	<input type="checkbox"/>
RECEIVE TEXT NOTIFICATIONS	<input type="checkbox"/>
PHONE NUMBER	
PHONE CARRIER	Verizon
TIME ZONE	America/Chicago

SAVE

2.2: DASHBOARD

In the upper right corner of the iQ2 web page, there are three horizontal lines. Clicking here will provide the navigation tool bar for moving from page to page within the portal. Clicking DASHBOARD will bring a user to the dashboard of the devices they have access to view given the setup process.

The top of the page will have an interactive map with drop pins of all the panels/gateways/endpoints currently setup in the iQ2 portal. Each drop pin will be color coded based on the alarm state that site is currently in. For example, if there are not active alarms, the drop pin will show "Green" however, if an alarm is active, that drop pin will display "Red". A user can click any of the drop pins on the map for each access to that site's page.



Scrolling further down the DASHBOARD page, there are operationally segmented sites that have been setup in iQ2. These sites will list the panels/gateways/endpoints related to that site, by request.

Each of these sites, once expanded, will display the devices that are relevant for that site.

MAIN ELEVATED TANK (JACKSON, MS)

SHOW

10

ENTRIES

SEARCH:

DEVICE NAME	SERIAL NUMBER	STATUS	TAGS	ALARMS	SUBSCRIBED
WELL #1	C72225036601B101	ONLINE	15	300	
WELL #2	C72225020801B101	ONLINE	16	300	
TRANSPORT TANK WELL #3	C72225023201B101	ONLINE	32	300	
WELL #7	C72225033101B101	ONLINE	17	300	

SHOWING 1 TO 4 OF 4 ENTRIES

PREVIOUS

1

NEXT

SECONDARY ELEVATED TANK (JACKSON, MS)

SHOW

10

ENTRIES

SEARCH:

DEVICE NAME	SERIAL NUMBER	STATUS	TAGS	ALARMS	SUBSCRIBED
CLEARY TANK WELL #5	C72226045102B101	ONLINE	34	500	
WELL # 6	C72224002102B101	ONLINE	20	300	
RICHLAND EAST TANK	CD2272007102B101	ONLINE	9	201	

Each device listed under their respective site will show:

- Online Status – Green indicates online/Red indicates offline.
- Number of Tags – How many data points the device is monitoring or controlling.
- Alarms – How many alarms are configured for each site and the current state of that alarm.
- Subscribed – Each user can manually select to specific devices they want to receive alarm notifications from. Red X indicates a user is not subscribed. A Green Check means that the user is subscribed and will get alarm notifications.

SECTION 2.3: DEVICE PAGE

To view a device page, click the device name of the desired device. This will bring the user to that specific panel/gateway/endpoints page. From this page, a user can:

- View current tag values
- Reorder tags within each tag table
- Control assets
- Trend tag data
- View Logs i.e., Device and Alarm Logs
- Acknowledge current active alarms
- Add/Edit individual tags
- Subscribe

SECTION 2.3.1: MONITORING CURRENT TAG VALUES

Each data point that is being monitored by the iQ2 system has a human readable name or tag assigned to it. This tag name is user defined and can be edited from within the portal. Tags are set up one of two ways: with or without animations. The tags that have animations assigned will display text and/or color to represent a certain status. Those tags that do not have animations configured will display only the current value on the tag ribbon.



Ex. Tag with Animations Configured

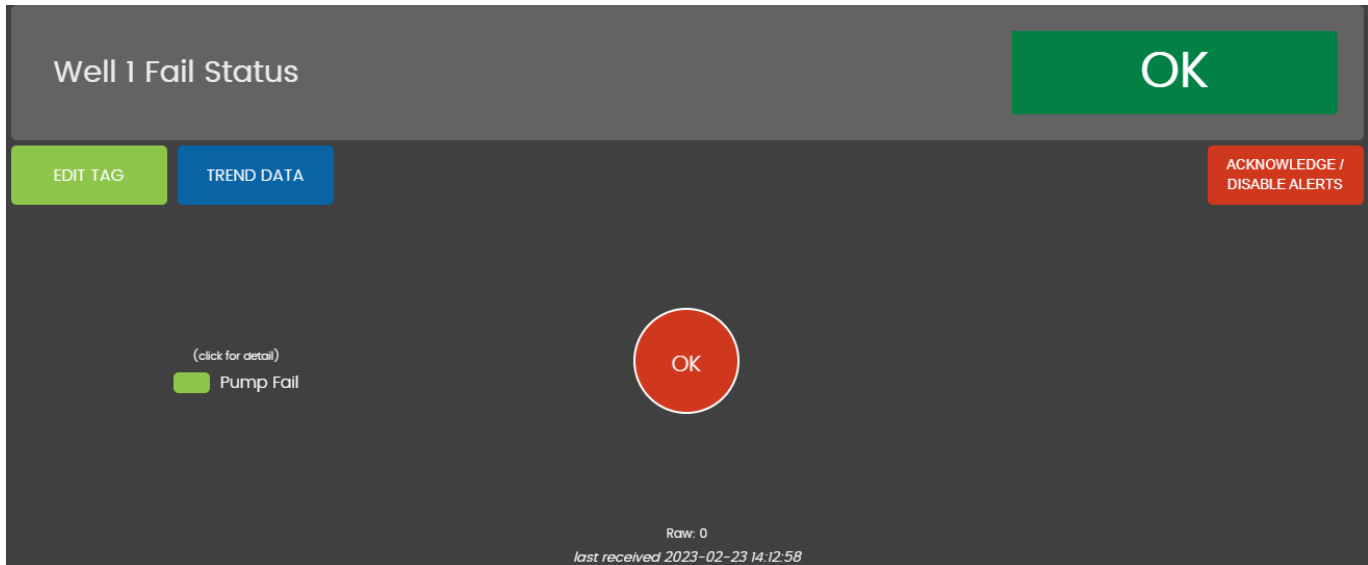


Ex. Tag without Animations Configured

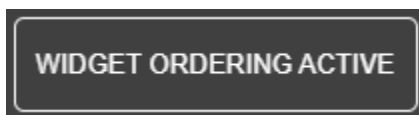
NOTE: Animations can be added and/or removed on any tag by editing the desired tag.

Each tag's ribbon can be expanded to provide more information about the data point being monitored. Clicking on the tag ribbon will expand the tag to display:

- Editing capabilities
- Trending capabilities
- Alarm Acknowledgment
- Assigned Alarms
- Raw Data Value and Time Stamp
- Current Value represented by a widget or the value only



The order of the tags in each table are listed based on the order in which they were configured. This order can be changed if there are more important data points that need to be listed towards the top while other less important data points can be listed towards the bottom. To reorder tags, click the “Widget Ordering Active” button at the top left of the Input Tag List Tag. Once clicked, the button will become Active.



Inactive



Active

Once active, click and hold the left mouse button and drag the tag to the desired place then release the mouse button. When done, click the “Widget Ordering Active” button again to go Inactive.

NOTE: Tag reordering is universal. Reordering tags for one user will also place the tags in the same order for ALL users with proper permissions to view the device.

SECTION 2.3.2: DATA TRENDING

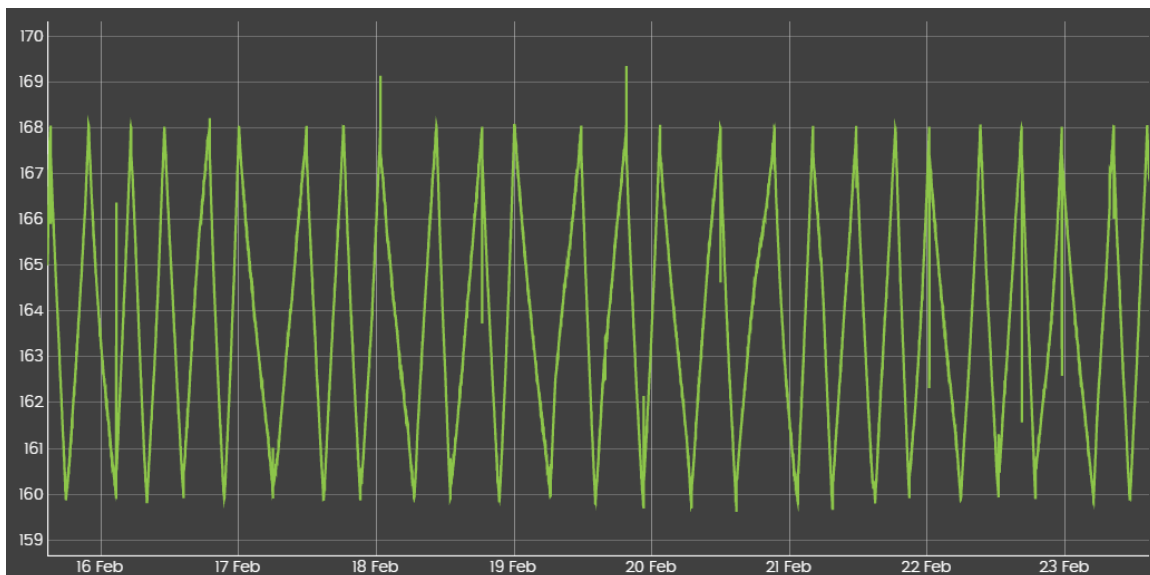
All tags listed within each tag table can be trended. These data trends can be used to view pump operations, or tank level changes, just to name a few. Data trends can be generated in one of two ways:

- Single Tag
- Multi-Tag

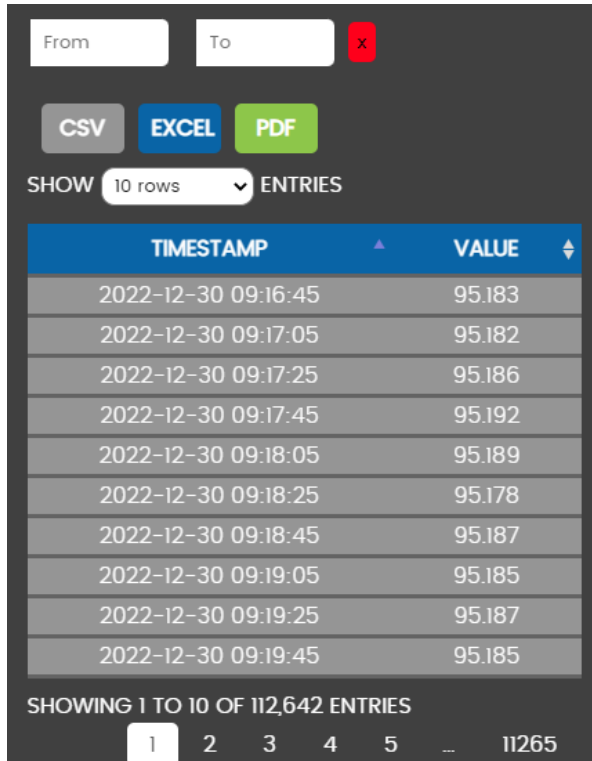
In a single tag trend, only the data relevant to the tag currently being viewed will be placed on a graph. However, in a multi tag data trend, up to 5 tags can be overlayed and placed on the same graph. This multi trend can be used to view pump operation as it relates to a tank level, for example. The trends will populate all the received data points onto a graph for the previous 7 days. To pull up the trend selection screen, click “Trend Data” under the desired tag.



To view a single tag data trend, click View under “Single Tag Plot”. To view multiple tags on the same graph, place checks into the boxes next to the additional data points to be placed on the trend graph along with the current tag selected. For example, if a user clicked the “Trend Data” button under Tank Level and wanted to view the Pump Called tags as well, place checks into the boxes next to the tags then click “View”.



On each single point tag trend, iQ2 provides a value table. The value table is a historical record of the data values received by iQ2 and the time that value was received. These values can be converted to either a pdf, csv, or excel format and downloaded for record keeping or trending using a 3rd party software.



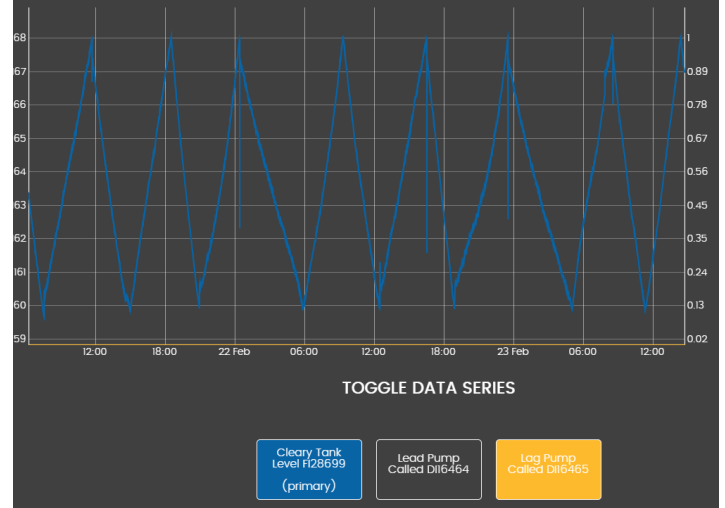
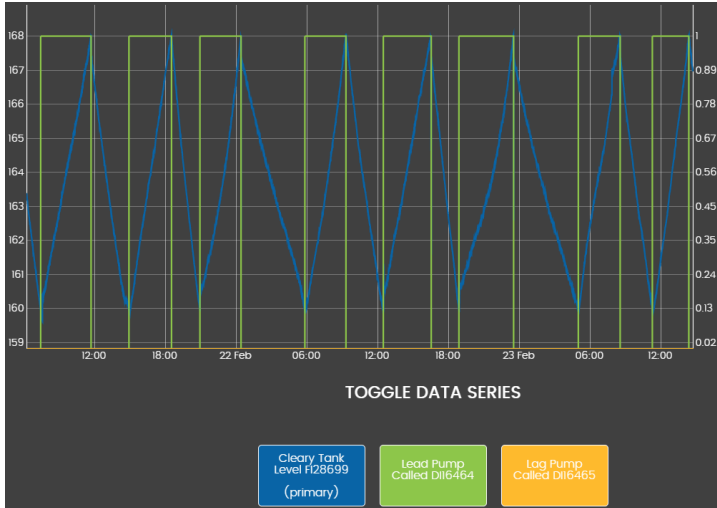
TIMESTAMP	VALUE
2022-12-30 09:16:45	95.183
2022-12-30 09:17:05	95.182
2022-12-30 09:17:25	95.186
2022-12-30 09:17:45	95.192
2022-12-30 09:18:05	95.189
2022-12-30 09:18:25	95.178
2022-12-30 09:18:45	95.187
2022-12-30 09:19:05	95.185
2022-12-30 09:19:25	95.187
2022-12-30 09:19:45	95.185

To download the file, choose a from date and a to date. Once the data processing completes, the new value table with that date range will be available. Click the file format to download.

NOTE: The downloaded file will NOT have all the rows from within that date range included. The file will only include the rows visible on the screen. For example, if 10 rows are visible on the screen, the downloaded file will display 10 rows. If 20,000 rows are visible, the file will contain those 20,000 rows. The iQ2 software does this to keep the files from becoming too large. A user can change how many rows are viewable on screen by choosing a different row selection in the Show Entries dropdown.

NOTE 2: Setting a date range will NOT change the data trend on the graph. The graph will always display the last 7 days' worth of data.

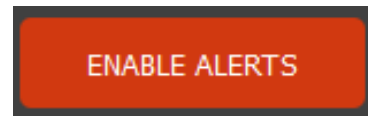
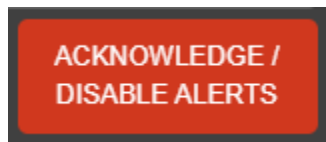
A multi trend graph will plot the chosen tags, up to 5 total. Each tag will be color coded, shown at the bottom which color represents which tag. Tags information can be removed from the graph by simply clicking on that tag name/color underneath the graph.



SECTION 2.3.3: ALARM ACKNOWLEDGEMENT

All data tags created in the iQ2 portal may have an alarm assigned. This alarm will monitor for a change in condition whether that is a state change or exceeding a user defined threshold. When an alarm triggers, that alarm is sent to all subscribed users via SMS and/or email.

Once an alarm triggers, the notification goes out immediately. The alarm notification will continue to send out notifications every 15 min until that alarm is acknowledged by a user. To acknowledge an alarm, a user will need to click the “Acknowledge/Disable Alerts” button under the tag the alarm triggered from.



Once a user clicks the Acknowledge Alerts button, the user will need to verify that they want to continue twice with their selection. After verifying the selection, the Alert button will switch to “Enable Alerts.” That button MUST be pressed again after the alarm has been addressed and is no longer in an alarm state as this alarm is no longer being evaluated by the system until that has happened. The iQ2 software provides this functionality for instances when maintenance is taking place, and this will prevent nuisance alarms from being sent.

NOTE: This is VERY IMPORTANT. If a user does not click the “Enable Alerts” button after the alarm has been addressed or maintenance is completed, the iQ2 system will continue to ignore alarms for the tag/data it is monitoring, and no notifications will be sent to users should the alarm condition occur again.

SECTION 2.3.4: LOGS/REPORTING

The iQ2 system has available two on demand reports for viewing. These reports are:

- Alarm Log
- Device Log

The alarm log is a historical record of all alarms that have triggered for any device. This log will also maintain a record of when the alarm condition cleared. In the log, each row will display the user defined alarm name, the condition that caused the alarm to trigger and/or clear, and the date/time stamp of that occurrence. A digital copy of the log can be manually generated by choosing the desired file format.

CSV

EXCEL

PDF

SHOW 10 rows ENTRIES

ALARM	ACTION	DATE
WELL 6 PUMP FAIL	Alarm Well 6 Pump Fail: CLEARED. Value:0	02/21/23 - 14:14
WELL 6 PUMP FAIL	Alarm Well 6 Pump Fail: ALARM TRIGGERED **DANGER!!**. Value:1	02/21/23 - 14:07
WELL 6 PUMP FAIL	Alarm Well 6 Pump Fail: CLEARED. Value:0	02/21/23 - 13:47
WELL 6 PUMP FAIL	Alarm Well 6 Pump Fail: ALARM TRIGGERED **DANGER!!**. Value:1	02/19/23 - 15:59
POWER FAIL	Alarm Power Fail: CLEARED. Value:1	02/14/23 - 16:35
POWER FAIL	Alarm Power Fail: ALARM TRIGGERED **DANGER!!**. Value:0	02/14/23 - 16:05
HIGH LEVEL ALARM	Alarm High Level Alarm: CLEARED. Value:0	02/14/23 - 14:55
HIGH LEVEL ALARM	Alarm High Level Alarm: ALARM TRIGGERED **DANGER!!**. Value:1	02/14/23 - 14:51
LOW LEVEL STATUS	Alarm Low Level Status: CLEARED. Value:0	02/14/23 - 14:47
LOW LEVEL STATUS	Alarm Low Level Status: ALARM TRIGGERED **DANGER!!**. Value:1	02/14/23 - 14:31

SHOWING 1 TO 10 OF 50 ENTRIES

PREVIOUS

1

2

3

4

5

NEXT

Similar to an alarm log, a device log also maintains a historical record. However, the records that this log maintains are the actions performed by users. A device log will keep track of:

- Edited/Created Tags
- Alarm Acknowledgments
- Output data published to Process Logic Controller (PLC)
- Users who subscribe and unsubscribe to alert notifications
- Online/Offline events

Each device log is device specific and will detail all user interactions. The log will record the username, what action was taken, and the date/timestamp that they performed that action.

CSV

EXCEL

PDF

SHOW 10 rows ENTRIES

USER	ACTION	DATE	CONTACT
LECINC	Edited Tag Configuration for DI 16424: Booster Pump in Hand Alarm	02/28/23 - 11:08	
LECINC	Created Device Alarm: Booster in Hand too Long	02/28/23 - 11:05	
LECINC	Created Tag DI 16242: Booster Pump in Hand Alarm	02/28/23 - 11:03	
LECINC	Edited Tag Configuration for DI 16419: Local Pump Auto	02/28/23 - 10:59	
LECINC	Edited Tag Configuration for DI 16420: Local Pump Hand	02/28/23 - 10:59	
LECINC	Edited Tag Configuration for DI 16421: Local Chlorine Booster Auto	02/28/23 - 10:58	
LECINC	Created Tag DI 16420: Local HOA in Hand	02/28/23 - 10:48	
LECINC	Created Tag DI 16421: Local Chlorine Booster HOA	02/28/23 - 10:48	
LECINC	Created Tag DI 16422: Local Chlorine Booster Hand	02/28/23 - 10:48	
LECINC	Created Tag DI 16419: Local HOA in Auto	02/28/23 - 10:41	

SHOWING 1 TO 10 OF 256 ENTRIES

PREVIOUS

1

2

3

4

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...

26

NEXT

Similar to the Alarm log, a digital copy of the device log can be downloaded in CSV, Excel, or PDF format directly to a user's PC. Neither log is editable. Once an action has been captured, that action will remain.

These reports can also be automated for scheduled delivery, rather than generated on-demand. iQ2 provides the ability for a user to subscribe to these reports and receive either and/or both delivered to their email daily.

The iQ2 system also provides data reports that can be automated and delivered to a user's inbox at a given interval. These reports are:

- Daily Report
- Weekly Report
- Monthly Report

These reports are in relation to data collection. For example, a daily report is a csv with every monitored tag for a device and all the data points received for that tag from the

past 24 hrs. Weekly reports will have all the data points received from the week, Sunday – Saturday and a monthly report will be for the past 30 days.

To subscribe to these reports, navigate to Device Config – Reporting.



To subscribe to any of the above-mentioned reports, click the desired report name. A green checkmark will indicate which reports a user will be receiving.

The screenshot shows a dark-themed interface for managing report subscriptions. It is titled 'DEVICE ALARM NOTIFICATIONS'. Under this title, there is a green checkmark and a button labeled 'SUBSCRIBED'. Below this, the section 'SUBSCRIBE TO DEVICE TAG REPORTS' contains three buttons: 'DAILY REPORTS', 'WEEKLY REPORTS', and 'MONTHLY REPORTS'. Each of these three buttons has a green checkmark to its left, indicating they are all subscribed to. The final section, 'SUBSCRIBE TO DAILY DEVICE AND ALARM LOGS', contains two buttons: 'DAILY DEVICE LOGS' and 'DAILY ALARM LOGS'. Each of these two buttons has a red 'X' to its left, indicating they are not subscribed to.

From this screen, a user can request an entire database download of ALL historical data records OR between a specified time frame. Similar to how an on-demand report can be generated for one particular tag, this field not only allows a user to specify a data range but a time frame in hours (24 hr. format) and minutes, up to 90 days, and max 150k points per tag.

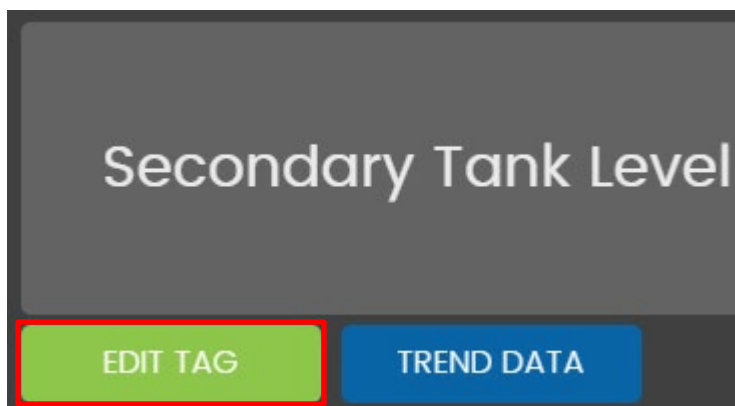
The screenshot displays the 'EXPORT ALL TAG DATA' modal in the iQ2 interface. The modal features a calendar for March 2023, a time selection dropdown (15:01), and buttons for 'EMAIL EXPORT' and 'DOWNLOAD EXPORT'. The background shows a 'SUBSCRIBE TO DAILY DATA' section with options for 'DAILY REPORTS', 'WEEKLY REPORTS', 'DAILY DEVICE LOGS', and 'DAILY ALARMS'.

Once the date range is selected, the user can select how that report is delivered. They may choose to download the report, which may take time to generate and iQ2 will not be navigable until the process has completed, or a user may choose to have the report emailed to them once the parsing of all the data has completed. Either choice will generate a CSV file.

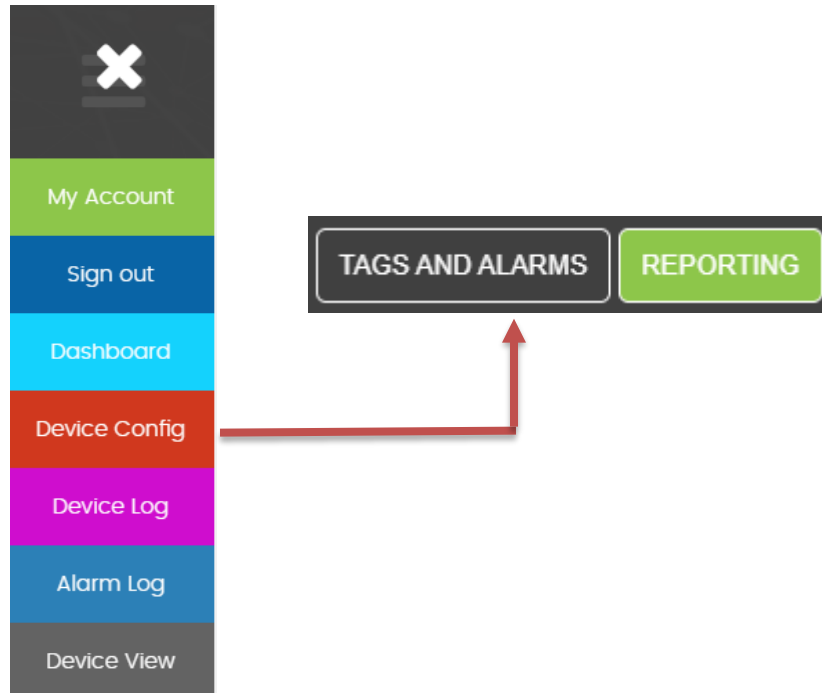
SECTION 2.4: TAG EDITING/CREATION

To edit previously populated tags, a user can do so in two ways:

- Clicking Edit under the desired tag, taking a user directly to the tag edit page



- Navigating to Device Config – Tags and Alarms



On the Tags and Alarms screen, all tags are separated into input tags and output tags. Locate the tag that needs to be edited within their given table and click the blue edit button under the “Actions” column of the tag table.

TAG NAME	REGISTER	WIDGET	ORDER	UNITS	ACTIONS
TANK LEVEL	FO28717	none	1	FT	  

From the Edit Tag Screen, a user may:

- Change the Tag Name
- Enable/Disable Animations
- Change Animations
- Add/Change/Remove Widgets
- Change Widget Min and Max Values
- Enable Scaling, if applicable
- Change Scaling, if applicable

It is not recommended to change the register type or the register number without first consulting with LEC Engineering or requesting assistance through SolveIT

NOTE: Every edit made to a tag is recorded and added to the Device Log.

EDIT INPUT TAG	
ENABLE INPUT SCALING?	<input type="checkbox"/>
RAW OR SCALED FROM RTU	raw
TAG NAME	Secondary Tank Level
DATA TYPE	numeric
ENABLE ANIMATIONS?	on
ANIMATION TYPE	level
SELECT LEVEL GAUGE COLOR	<div style="background-color: blue; width: 20px; height: 10px; border: 1px solid black;"></div>
WIDGET	narrow tank - selected
UNITS	Ft
INPUT TYPE	FI
REGISTER NUMBER	28699
PAIRED OUTPUT	Selected Output
DISPLAY MIN (0 FOR BOOL)	135.0
DISPLAY MAX (1 FOR BOOL)	175.0
<div>CANCEL SAVE </div>	

After all needed changes are complete, click SAVE to retain those changes or CANCEL to return to the previous page without saving changes.

New tags can be added to the device dashboard by any user. There may be times where tags may need to be added, for instance, if wiring a new sensor into the PLC or a new data point needs to be added such as pump runtimes, etc. To create new tags, on the Device Config Screen, click +Add Tags to be taken to the Create Tag screen.



On the Create Tag Screen, select whether the newly created tag needs to be an Input (Monitor) or an Output (Control).



Enter the information into each field.

- | | |
|--------------------------|---|
| • Raw or Scaled from RTU | raw/scaled |
| • Tag Name: | Enter Tag Name |
| • Data Type | Numeric/Bool |
| • Enable Animations | Enable/Disable |
| ○ Animation Type | Status |
| | Level |
| | DI/DO |
| | Range |
| • Widget | Select desired Widget |
| • Units | Enter units i.e., Vdc, PSI, if applicable |
| • Input Type | Digital/Analog/Float/Long |
| • Register Number | Enter Modbus register number |
| • Display Min | Enter Min value to display |
| • Display Max | Enter Max value to display |


For scaling, place a check mark into the “Enable Input Scaling” check box. Four additional text boxes will be available to enter those values. If Scaling is not needed, remove the check mark and the text boxes will be hidden.

- | | |
|--------------|------------------------------------|
| • Raw Min | Enter Raw value Min |
| • Raw Max | Enter Raw value Max |
| • Scaled Min | Enter Scaled value Min for Raw Min |
| • Scaled Max | Enter Scaled value Max for Raw Max |

When done, click “Add”. This will move the newly created tag to the configuration summary on the far right of the tag creation page, separated into Input tags and Output tags. Once all tags are completed, click “Save Configuration” to move those data tags to the Device dashboard.

Configuration Summary

INPUTS:

High Level: DI100 

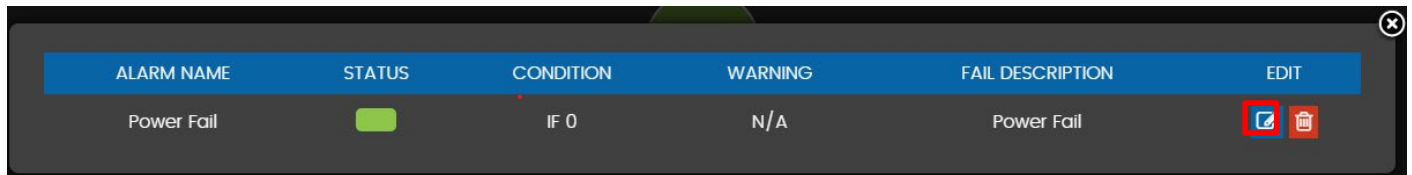
OUTPUTS:



[SAVE CONFIGURATION](#)

NOTE: The steps provided for creating tags is meant as informational only and it is NOT recommended to add tags without first consulting with LEC Engineering or requesting support through SolveIT. Any data tag added to iQ2 must also be added to the cellular gateway in order to collect the needed data from the connected field devices and publish to iQ2. adding a data tag into iQ2 only will not ensure data will be collected for that newly created tag.

SECTION 2.5: ALARM EDITING/CREATION

All data tags being monitored can have an alarm associated in order to monitor conditions and provide notifications to subscribed users when the condition has been met. To edit an alarm, locate the alarm under the tag ribbon on the device dashboard page. Click the alarm name to show the alarm details. Click the blue Edit button to edit the tag.



ALARM NAME	STATUS	CONDITION	WARNING	FAIL DESCRIPTION	EDIT
Power Fail	■	IF 0	N/A	Power Fail	 

A user may also edit an alarm from the “Tags and Alarms” screen. Locate the Alarms table and click the blue edit button under the Actions column of the Alarm that needs editing.



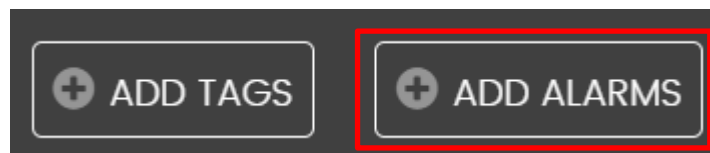
ALARM NAME	TAG NAME	LOGIC OPERATOR	TEST CONDITION	ACTIONS
HIGH LEVEL ALARM	FO28717	GEQ	225	 

From the edit screen, edit the needed fields and click “Save”.

NAME	Power Fail
REGISTER TYPE	input
ALARM TAG	DII6408: Power Status - selected
LOGIC OPERATOR	IF
TEST CONDITION	0
WARNING THRESHOLD (NUMERIC)	
DESCRIPTION	Power Fail

CANCEL SAVE 

To create a new Alarm, navigate to the “Tags and Alarms” page under Device Config. Click “Add Alarms” to bring up the alarm creation page.



Fill in the following information:

- | | |
|---------------------|--|
| • Name | Enter name of the Alarm |
| • Register Type | Input/Output |
| • Alarm Tag | Select the data tag to monitor |
| • Logic Operator | Choose the evaluation method |
| • Test Condition | Enter the value to evaluate as the alarm |
| • Warning Threshold | Enter the value to evaluate as a warning |
| • Description | Enter a description of the alarm. |

When done, click save. This will move the newly created alarm to the Configuration Summary page.


NAME	Pump Fail
REGISTER TYPE	input
ALARM TAG	D116405: Well 5 Run Status
LOGIC OPERATOR	IF
TEST CONDITION	1
WARNING THRESHOLD (NUMERIC)	
DESCRIPTION	Well Pump has failed

CANCEL ADD

After all alarms are entered, click “Save Configuration”. The newly created alarms are now being monitored by the iQ2 system.

Configuration Summary

ALARMS

Pump Fail : Well Pump has failed 

SAVE CONFIGURATION

SECTION 2.6: ANIMATIONS

All data being monitored and/or controlled by the iQ2 system can have an animation assigned to make tag viewing easier and more meaningful. Without animations, the data on a tag ribbon will be displayed as a data value only i.e., 1 or 0 for on/off for a pump status. Displaying a 1 or 0 on the tag ribbon is not as meaningful as displaying text and color to represent a change in state. (i.e., green for running or gray for idle).

Tag animations come in 4 different types:

- Status
- Level
- DI/DO
- Range Value
- Range Text

Each of the above types can be used to represent various kinds of collected data. The Status type is used to represent different state changes that are more than simply on or off. For example, depending on how a PLC program is set up to monitor a pump, the values here could be:

- 0 – Idle
- 1 – Running
- 2 – Called
- 3 – Fault


Each of those values can have text to represent the value and a color making viewing what state that pump is in much easier.

VALUE	COLOR	TEXT
0	Grey	Idle
1	Green	Running
2	Yellow	Called
3	Red	Fault

ADD STATUS DEFINITION



Well 5 Called **CALLED**

The Level animation is for setting levels in a tank and is only adding a color to the value being reported to the iQ2 system.

ANIMATION TYPE	level
SELECT LEVEL GAUGE COLOR	





Tank Level	118.917 FT
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The DI/DO animation is for Boolean tags that show an asset as being in only two states either on or off, for example. For DI/DO, a user can enter the text to display when tag is in an active or enabled state and when in an inactive or disabled state, a pump running status for example.

ANIMATION TYPE	di-do
ENABLED TEXT	RUNNING
SELECT ENABLED COLOR	
DISABLED TEXT	PUMP IDLE
SELECT DISABLED COLOR	

Well 5 Run Status	RUNNING
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The Range Value animation allows a user to enter a min and max range to represent a condition, for example, discharge pressure. A user enters the min and max values and the color to represent that range for up to 5 ranges. On the tag ribbon, when a data value is received, the ribbon will display that received value as well as the color associated with that range.

ANIMATION TYPE		range value
LOWER LIMIT	UPPER LIMIT	COLOR
100	80	
79	55	
54	45	
44	0	
<div>ADD RANGE DEFINITION</div>		



Range Text is similar to Range Value however instead of displaying the value on the tag ribbon, the tag can be configured to display text instead. Using the same discharge pressure example, the min and max range is entered as well as the color associated with that range. A user will then enter text to represent that range/color for up to 5 ranges. On the tag ribbon, when a data value is received, the ribbon will display that received value as well as the color associated with that range.

The configuration interface for "range_text" animation type. It has columns for LOWER LIMIT, UPPER LIMIT, COLOR, and TEXT. Below the table is a button "ADD RANGE TEXT DEFINITION".

LOWER LIMIT	UPPER LIMIT	COLOR	TEXT
0	30	Red	Danger
31	50	Orange	Elevated
51	70	Green	Normal

Below the configuration interface is a tag ribbon showing "Pressure Reading" and "Normal" in a green box.

Section 3.0: Control:

Controlling operation of assets in iQ2 is very easy but some control requires a certain series of steps to perform the task correctly. The next sections will walk through those steps to ensure a user performs the needed tasks correctly

NOTE: Not all LEC systems have the control capabilities outlined below. The below is being used as examples of control options that may be available and how to use these capabilities. Please contact LEC engineering or submit a ticket to SolveIT for verification of such capabilities within your system.

SECTION 3.1: CHANGING SET POINTS, IF APPLICABLE

Some installations may have user defined set points to instruct the local PLC when to call the lead pump, call the lag pump, turn off pumps, and setting the low- and high-level thresholds. Sometimes these setpoints need to be adjusted. Instead of hardcoding those setpoints in the PLC, iQ2 permits a user to enter their own set points for these tags. There may be times when set points need to be changed to accommodate a change in the operational of system. All set points available are located in the Output tag list.

To change a set point, locate the set point tag and expand that tag to view the details of the tag.



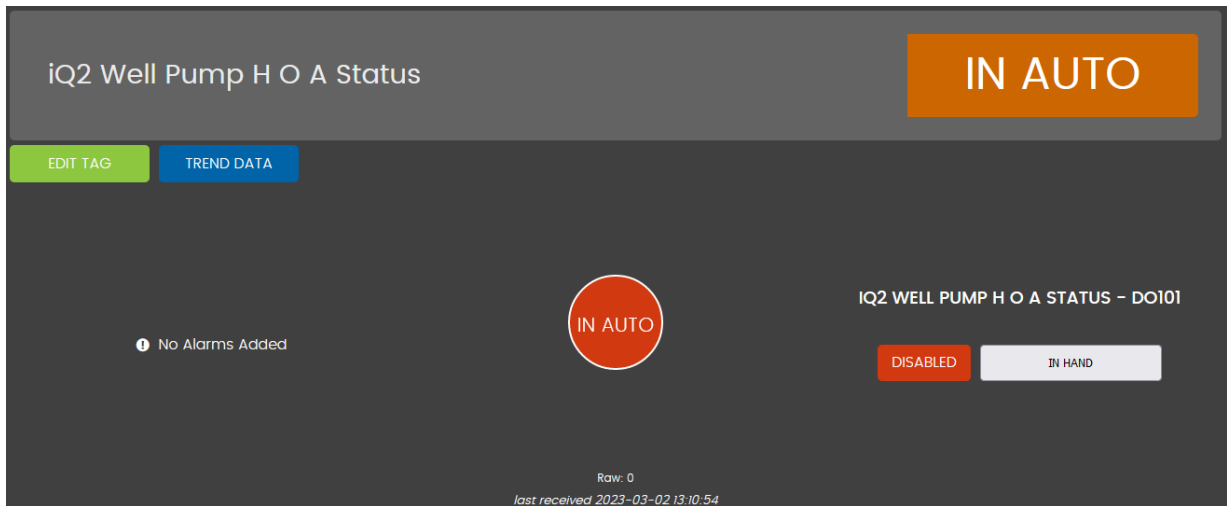
To the right of the value, there is a text box. This text box is used to send the new value to the PLC. Enter the new value into the text box and click “Send”. This will send the value to the cellular gateway which will send the update to the PLC to execute the new value.



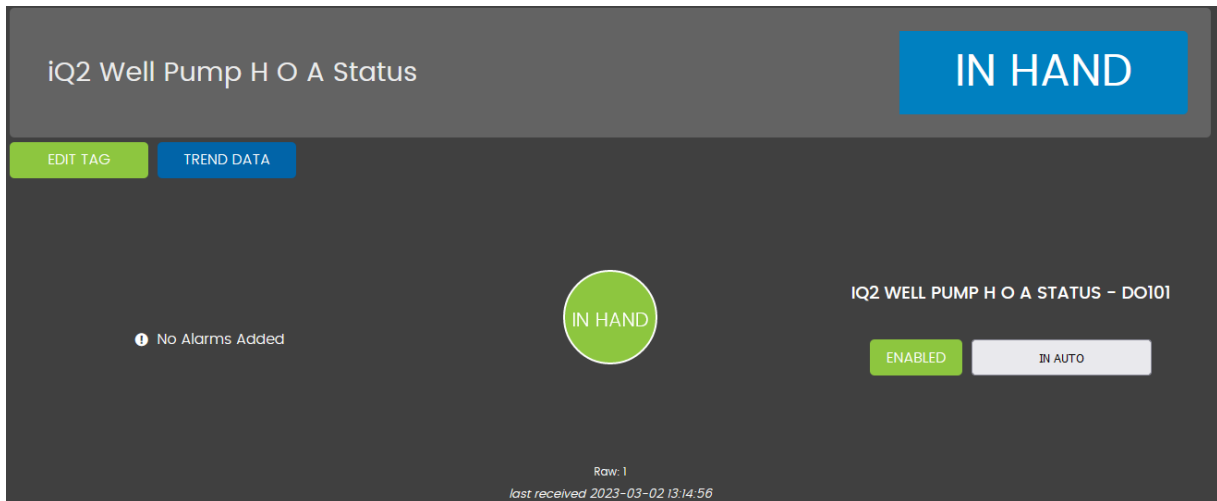
If the process executes successfully, the value will be retained in the text box as well as update the current value on the tag ribbon.

SECTION 3.2: H O A SELECTION, IF APPLICABLE

iQ2 has the ability to allow for manual operation during times when automated operation fails or for testing. Before that can be done, a user must take the system out of “In Auto” and into “In Hand”. To do put a PLC into one of these two states, locate the H O A Status tag and expand that tag to view the details of the tag.



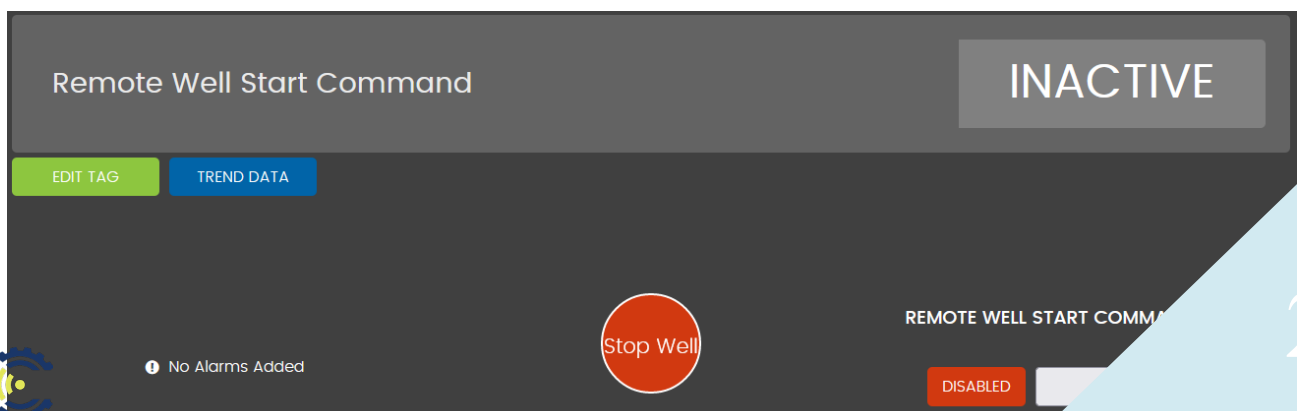
To the right of the widget, there is a button. This button is used to send the change request to In Hand or In Auto. Click the button to send the request. Once the request is executed, the tab ribbon and widget if set, will signify that change.



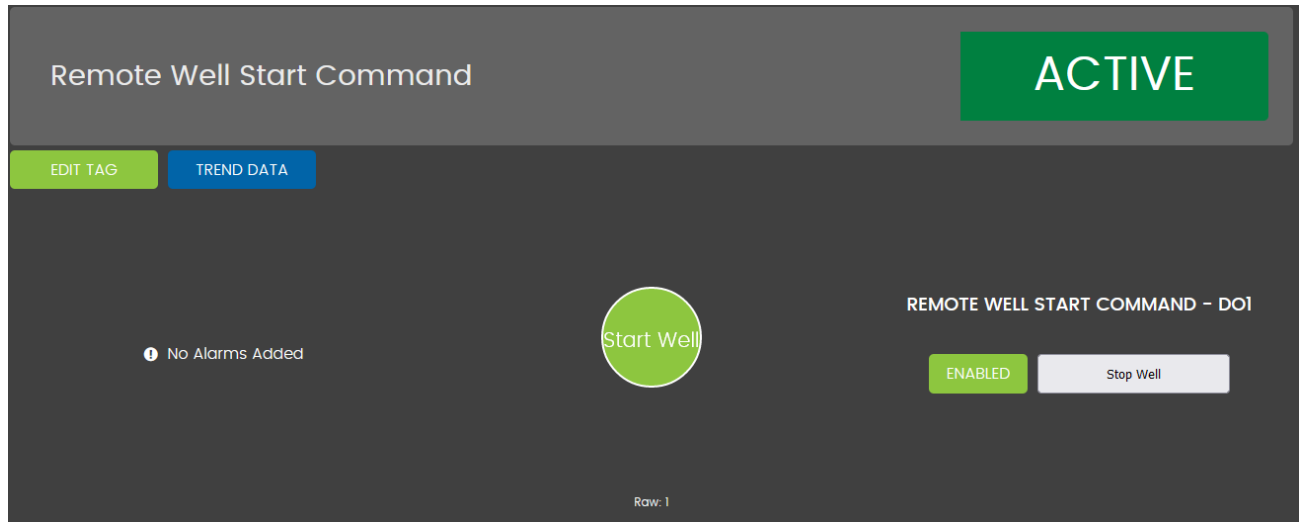
Now function can be called manually. To return the operation back to In Auto, click the button again.

Section 3.3: Manual Pump Operation

The iQ2 system allows for manually running a pump. To run manually, the system must be set to "In Hand" operation. Once the system has been set to "In Hand", locate the Well Pump Start Command tag and expand the tag to view the tag details.



To the right of the widget, there is a button. This button is used to call the well pump to run. Click the button to send the request. Once the request is executed, the tab ribbon and widget if set, will signify that change.



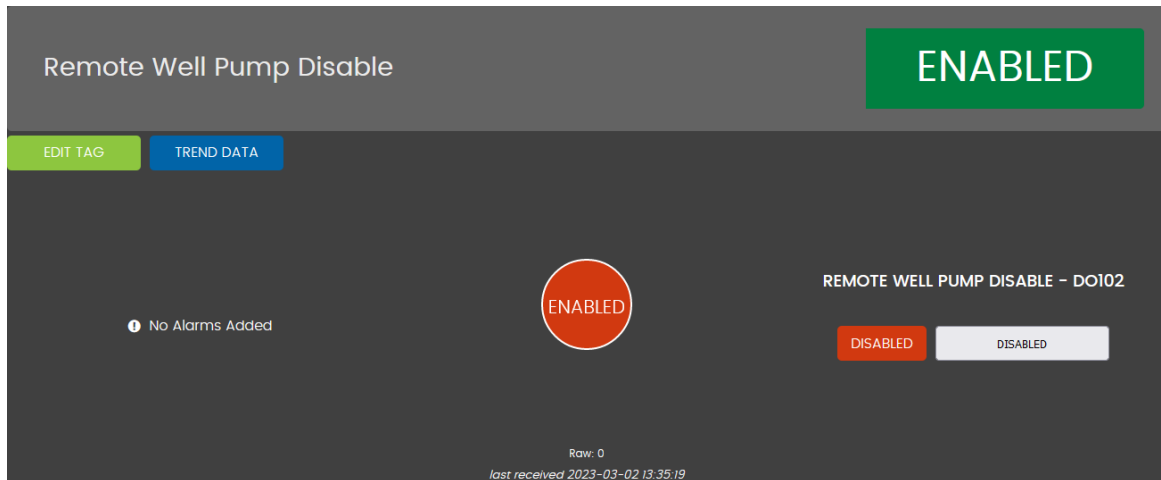
The well pump will not start. Check the pump running status tag to verify the operation has succeeded. To stop the pump, click the "Stop Well" button. Place the system back into "In Auto" to return to normal operations.

NOTE: The system MUST be placed "In Hand" to run the pump manually remotely. If the system is still "In Auto", the pump run request will not execute.

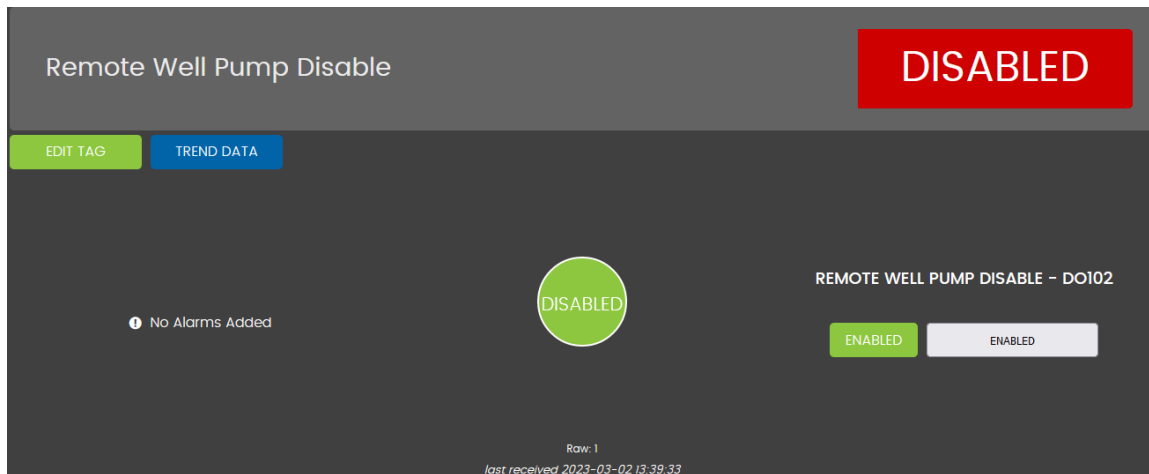
Section 3.4: Pump Disable

The iQ2 system allows a user to disable pumps that maybe in out of service or not operating correctly and requiring repair. To disable a well pump, locate the output tag for the well pump to be disabled and expand the tag to view tag details.

Normal operation will display the tag as "Enabled". To disable the pump, locate the button to the right of the widget. Click the button to send the "Disable" command to the PLC.



The tag ribbon will update signifying the state change has been successful.



To return the pump to normal operation, click the “Enabled” button.

NOTE: It is recommended to first put the pump into “In Hand” before sending the “Disable” command to the PLC. This will take the pump out of rotation and will not be called by the PLC. If the well pump is left “In Auto” and “Disabled”, the PLC may still call for the pump to run but, if it does receive a successful run status, the PLC will trigger a fail to run alarm.