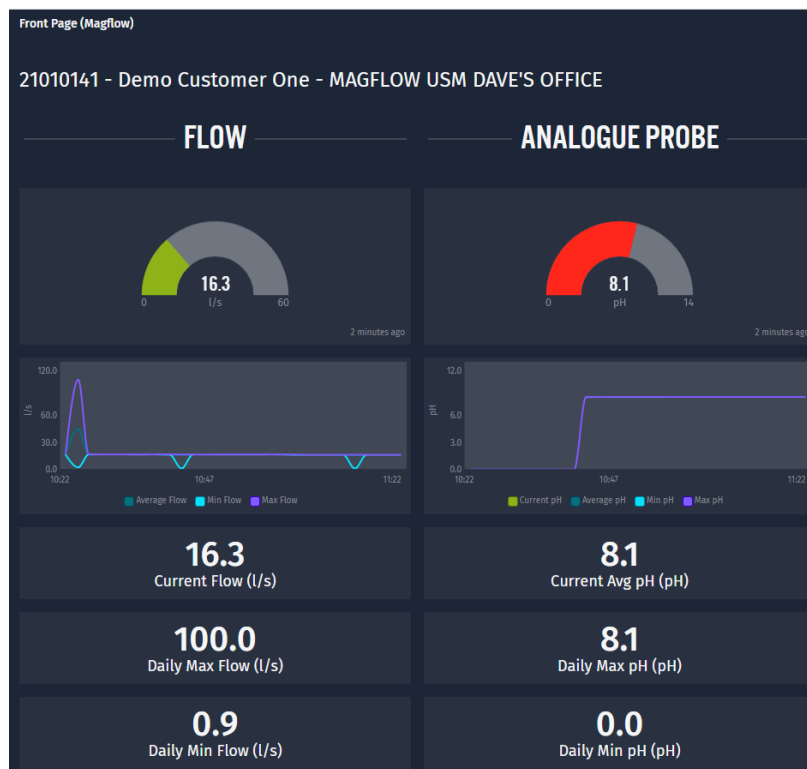


## REMOTE MONITORING WEBPAGE GUIDE



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# 1. INTRODUCTION

The Smart Storm range of Instrumentation can be coupled with the Robustel 1520- 4L global 4G modem to provide remote monitoring of the equipment via an interactive Webpage. The Web Page is typically updated every two minutes to maintain effective Real-Time Monitoring.

A range of User-Friendly features are included, such as configurable displays to allow easy indication of alarm conditions, SMS alarm configuration and downloading of daily reports and historic data.

Global cellular coverage across a wide range of networks is provided via the KORE SIM card alongside the ability to transmit data to the Webpage via connection to a local Router.

## 2. WEB PAGES.

The various Web Pages are available via a series of Links at the top of the page.

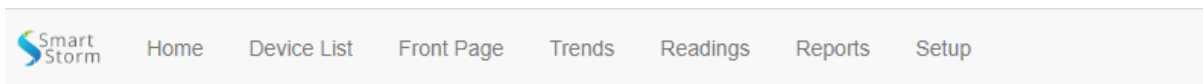


Figure 1 Page Links.

The Front-Page link and links to the left of it refer to the current device being viewed.

### 2.1. DEVICE LIST.

The Device List Page displays the Devices which are available to be displayed by the customer.

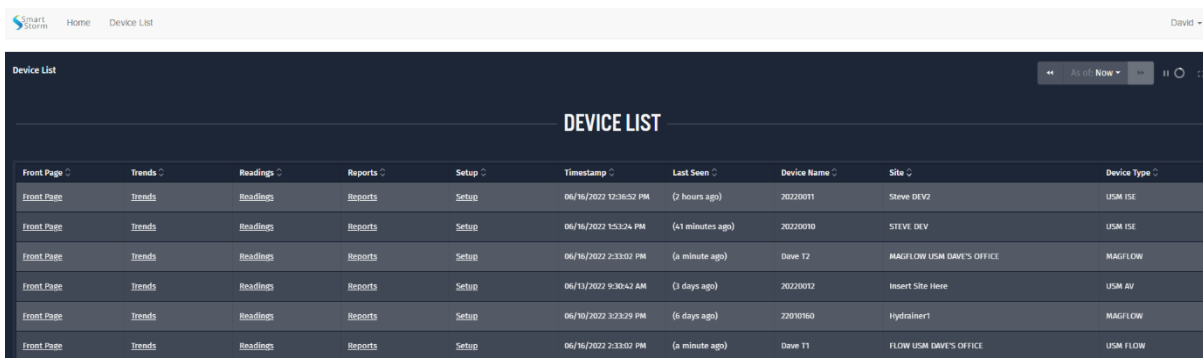



Figure 2 Device List.

All the pages are accessible from this page via the links and the devices can be ordered by clicking on the  button next to the headings.

## 2.2. FRONT-PAGES.

Depending on the Device, there will be a number of pages which show the main monitored variables of the device. These are referred to as the Front-Pages.

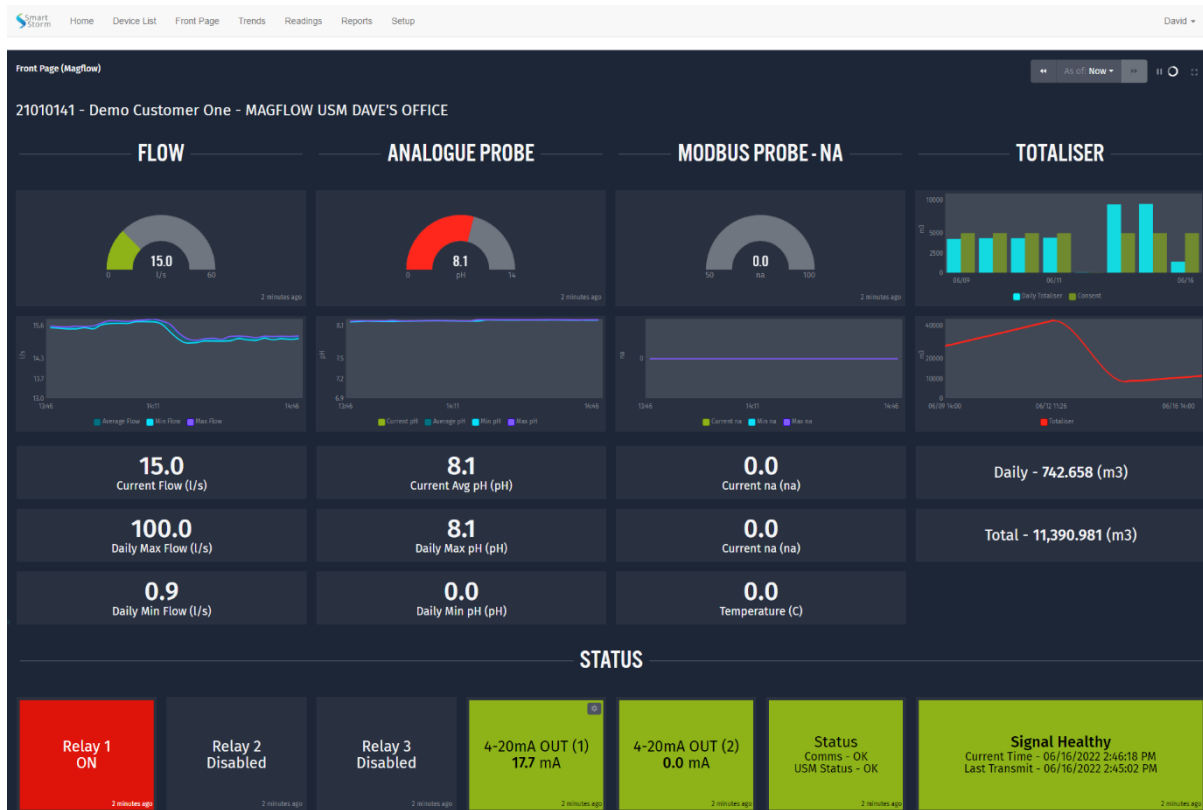


Figure 3 USM Magflow Front-Page.

Figure 2.3 shows the Front-Page on a USM Magflow and demonstrates a range of variables monitored by the Smart Storm Instrumentation.

### 2.2.1. ELEMENTS

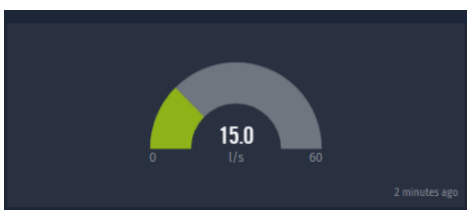


Figure 4 Speedo Dial Green.

The Speedo Dial shows the graphical representation of the average value of the variable since the last transmission (typically every 2 minutes).

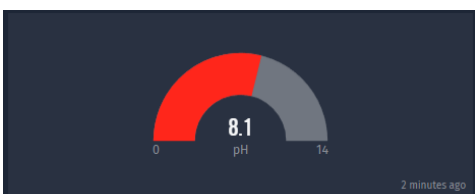


Figure 5 Speedo Dial Red.

The Range of the Speedo (0-14 in Fig 2.4b) is configurable in the Set Up Page.

The level at which the Dial colour changes (red on green) is also configurable in the Set Up Page.

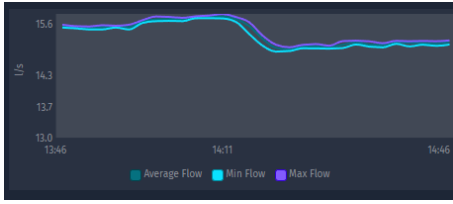


Figure 6 Trend Graph.

The Trend graph show the history of the variable over the last 60 minutes and includes the maximum and minimum values of the variable over the two minutes between transmissions.

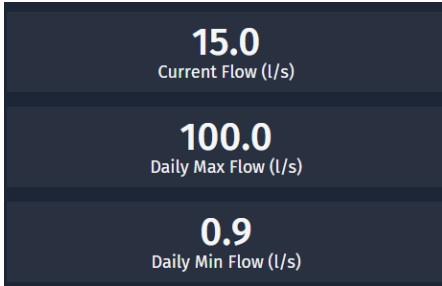


Figure 7 Max and Min Values.

For Analogue Probes and Flow variables, the Maximum and Minimum Values in the last 24 hours are shown

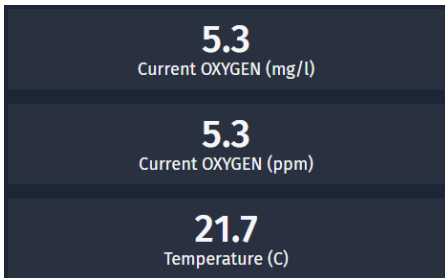


Figure 8 Digital Parameters.

If the readings refer to values from a Digital Probe, the 3 other available parameters from the Probe are displayed

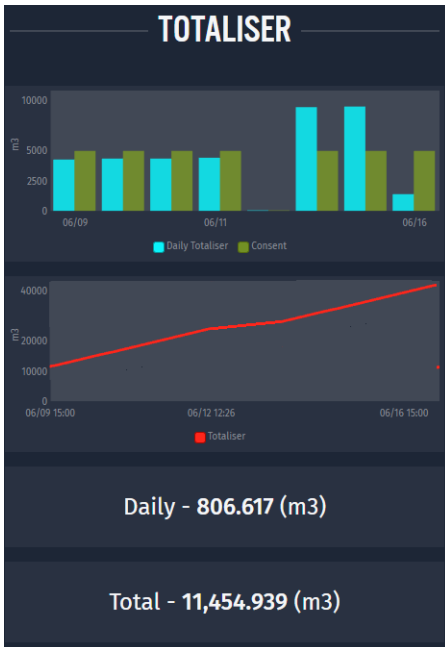


Figure 9 Totaliser.

If the instrument records Flow a graphical representation of the Daily Flow Totals is displayed. The turquoise bar shows the daily total alongside a green bar showing the Daily consent, which is configurable in the Set Up Page.

A graph to show the change in the overall Totaliser against time is also provided along with the 24 Hour and overall Totaliser.



Figure 10 Status Bar.

The Status provides information on the system and the IO status of the instrument.

The relay state is colour coded and shows the state of the relays since the last transmission:

**RED** – the Relay has been permanently ON.

**Green** – the Relay has been permanently OFF.

**Orange** – the Relay has been both OFF and ON.

### 2.3. TREND GRAPHS

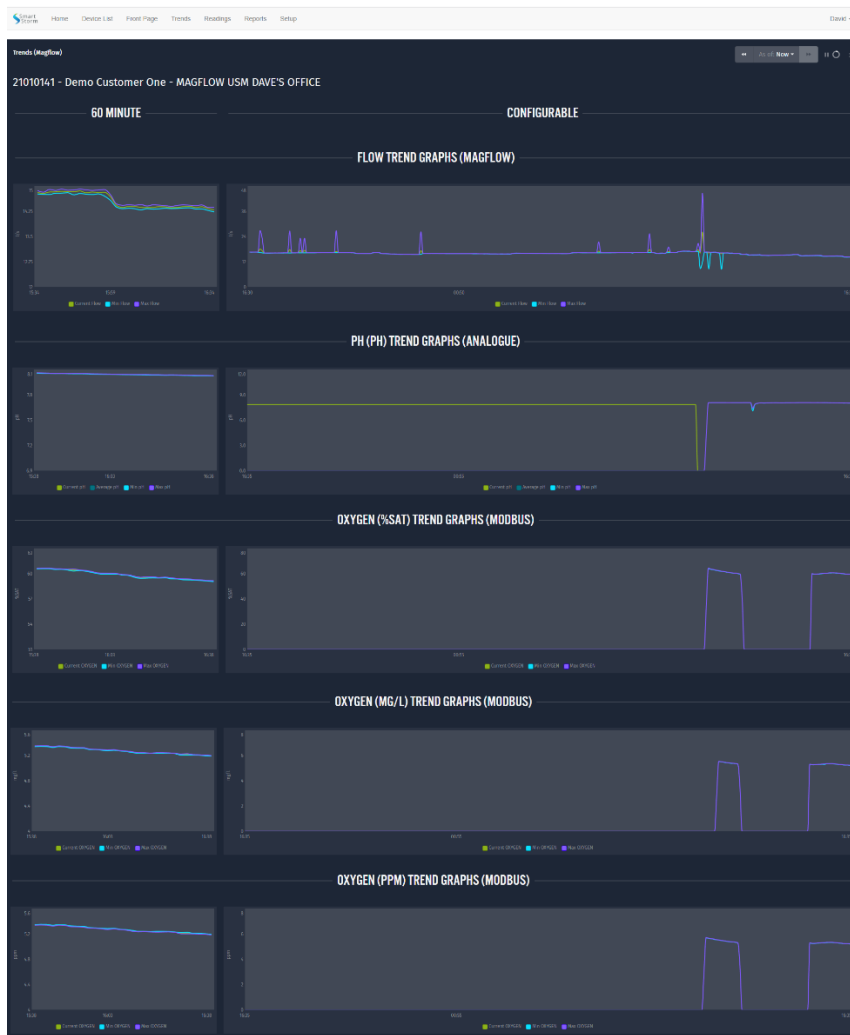


Figure 11 Trend Graphs page.

The trend graphs page shows the history of the monitored variable. Two graphs are provided large graph with a configurable time and a smaller graph showing the trend over 60 minutes.

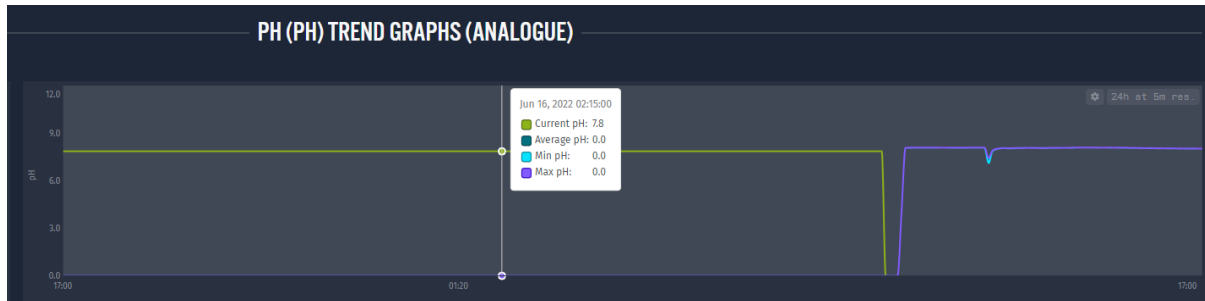


Figure 12 Reading the Trend Graphs.

Hovering the cursor over the Trend Graph reveals a pop-up box, to show the Time Stamp and values of the variable at that time.

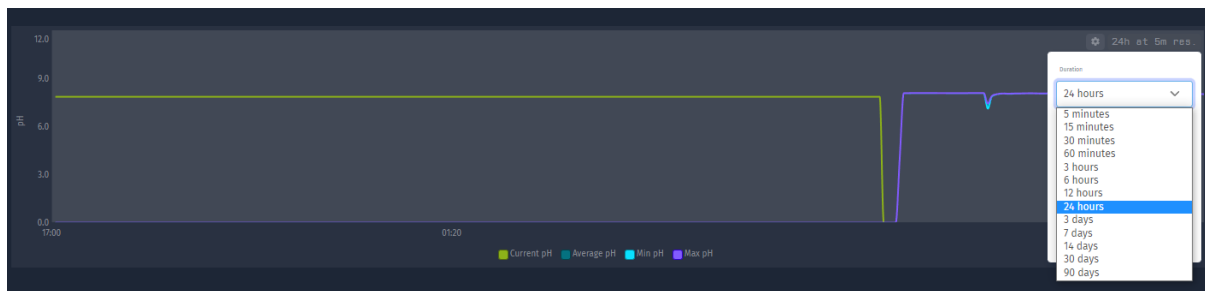


Figure 13 Configuring the Timeline.

The Time Period can be configured by clicking on the Settings Icon and using the drop-down menus. With the values of Duration and resolution selected, click the update button to apply. At long durations it may be necessary to the resolution of the graph to obtain a display. The graph is limited to approximately 10,000 points.



## 2.4. READINGS PAGE.

Timestamp	SN	Device Name	pH (pH)	pH (pH) Min	pH (pH) Max	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (mg/l)	OXYGEN (mg/l)	OXYGEN (ppm)	OXYGEN (ppm)	Flow Avg	Flow Min	Flow Max	Daily Totaliser	Totaliser
16/06/2022 17:11:02	21010141	Dave T2	8.02	8.01	8.02	58.81	58.77	58.85	5.15	5.17	5.15	5.17	14.55	14.50	14.61	869	11,517
16/06/2022 17:09:02	21010141	Dave T2	8.02	8.01	8.02	58.85	58.82	58.88	5.16	5.17	5.16	5.17	14.55	14.50	14.62	867	11,516
16/06/2022 17:07:02	21010141	Dave T2	8.02	8.01	8.02	58.83	58.79	58.88	5.15	5.16	5.15	5.16	14.57	14.49	14.66	866	11,514
16/06/2022 17:05:03	21010141	Dave T2	8.02	8.01	8.02	58.72	58.68	58.80	5.16	5.16	5.16	5.16	14.60	14.52	14.66	864	11,512
16/06/2022 17:03:03	21010141	Dave T2	8.02	8.02	8.02	58.83	58.77	58.89	5.16	5.17	5.16	5.17	14.49	14.43	14.54	862	11,510
16/06/2022 17:01:02	21010141	Dave T2	8.02	8.02	8.02	58.72	58.63	58.81	5.14	5.17	5.14	5.17	14.46	14.42	14.52	860	11,509
16/06/2022 16:59:02	21010141	Dave T2	8.02	8.02	8.02	58.77	58.72	58.85	5.14	5.16	5.14	5.16	14.47	14.42	14.52	859	11,507
16/06/2022 16:57:02	21010141	Dave T2	8.02	8.02	8.02	58.71	58.66	58.76	5.14	5.17	5.14	5.17	14.52	14.44	14.60	857	11,505
16/06/2022 16:55:03	21010141	Dave T2	8.02	8.02	8.02	58.71	58.66	58.75	5.15	5.17	5.15	5.17	14.51	14.46	14.56	855	11,503
16/06/2022 16:53:02	21010141	Dave T2	8.02	8.02	8.02	58.76	58.66	58.83	5.16	5.17	5.16	5.17	14.51	14.48	14.55	853	11,502
16/06/2022 16:51:02	21010141	Dave T2	8.02	8.02	8.02	58.67	58.62	58.93	5.17	5.17	5.17	5.17	14.51	14.46	14.56	852	11,500
16/06/2022 16:49:03	21010141	Dave T2	8.02	8.02	8.02	58.89	58.82	58.95	5.17	5.18	5.17	5.18	14.55	14.50	14.63	850	11,498
16/06/2022 16:47:03	21010141	Dave T2	8.02	8.02	8.02	58.85	58.82	58.91	5.17	5.17	5.17	5.17	14.61	14.56	14.66	848	11,497
16/06/2022 16:45:03	21010141	Dave T2	8.02	8.02	8.02	58.86	58.79	58.97	5.17	5.18	5.17	5.18	14.66	14.62	14.71	846	11,495

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Figure 14 Readings Page.

The readings page stores the individual records that have been written to the Webpage. Up to 30 days of records are stored.

Navigation through the records can be achieved using the scroll bars or by clicking on the Now Icon and using the drop-down menus.

Timestamp	SN	Device Name	pH (pH)	pH (pH) Min	pH (pH) Max	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (mg/l)	OXYGEN (mg/l)	OXYGEN (ppm)	OXYGEN (ppm)	Flow Avg	Flow Min	Flow Max	Daily Totaliser	Totaliser
16/06/2022 17:43:43	21010141	Dave T2	8.01	8.01	8.01	57.54	57.48	57.59	5.03	5.04	5.03	5.04	14.33	14.08		11,545	
16/06/2022 17:43:03	21010141	Dave T2	8.01	8.01	8.02	57.70	57.64	57.73	5.04	5.05	5.04	5.05	14.22	14.13		11,543	
16/06/2022 17:39:03	21010141	Dave T2	8.01	8.01	8.01	57.68	57.64	57.73	5.05	5.05	5.05	5.05	14.21	14.14		11,542	

Figure 15 Record Navigation.

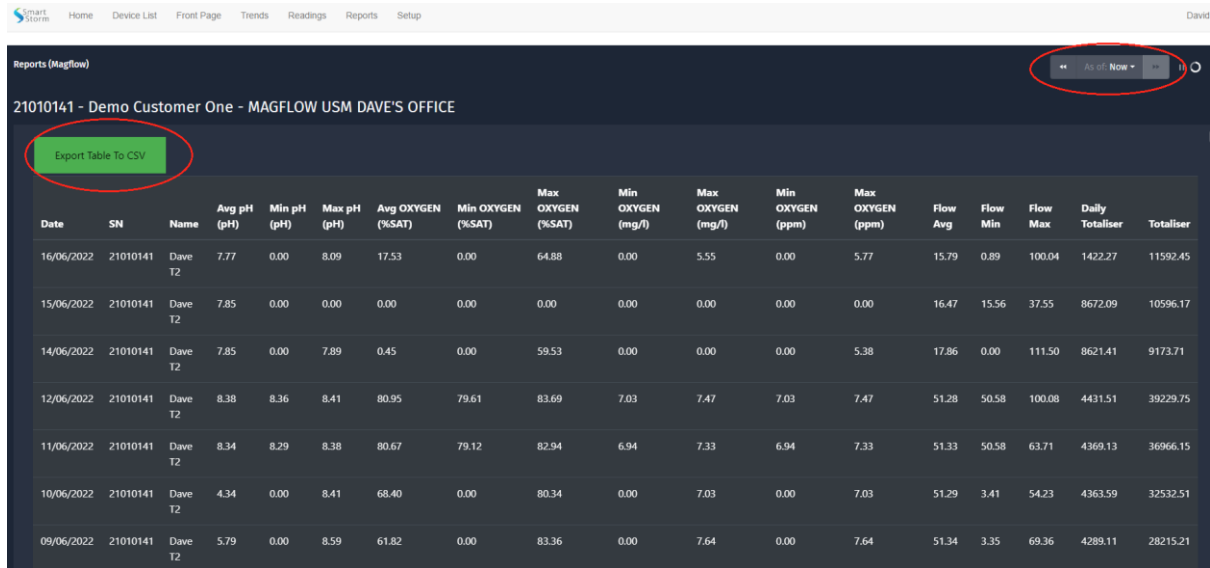
The records can be download by clicking on the Settings Icon and selecting the Download as CSV option.

Timestamp	SN	Device Name	pH (pH)	pH (pH) Min	pH (pH) Max	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (%SAT)	OXYGEN (mg/l)	OXYGEN (mg/l)	OXYGEN (ppm)	OXYGEN (ppm)	Flow Avg	Flow Min	Flow Max	Daily Totaliser	Totaliser
16/06/2022 17:47:02	21010141	Dave T2	8.01	8.01	8.01	57.27	57.24	57.30	5.01	5.01	5.01	5.01	14.17	14.14	14.22	900	
16/06/2022 17:45:02	21010141	Dave T2	8.01	8.01	8.01	57.43	57.38	57.48	5.01	5.03	5.01	5.03	14.18	14.16	14.21	898	

Figure 16 Downloading the records.

## 2.5. REPORTS PAGE

The Reports Page gives daily summaries of the recorded variables.



The screenshot shows the 'Reports (Magflow)' page for '21010141 - Demo Customer One - MAGFLOW USM DAVE'S OFFICE'. The page includes a navigation menu at the top with options like Home, Device List, Front Page, Trends, Readings, Reports, and Setup. A user profile 'David' is visible in the top right. The main content area features a table with columns for Date, SN, Name, and various pH and OXYGEN measurements. A green button labeled 'Export Table To CSV' is highlighted with a red circle. In the top right corner, there is a scroll bar and a dropdown menu labeled 'All of Now' with a circular refresh icon next to it, both also highlighted with red circles.

Date	SN	Name	Avg pH (pH)	Min pH (pH)	Max pH (pH)	Avg OXYGEN (%SAT)	Min OXYGEN (%SAT)	Max OXYGEN (%SAT)	Min OXYGEN (mg/l)	Max OXYGEN (mg/l)	Min OXYGEN (ppm)	Max OXYGEN (ppm)	Flow Avg	Flow Min	Flow Max	Daily Totaliser	Totaliser
16/06/2022	21010141	Dave T2	7.77	0.00	8.09	17.53	0.00	64.88	0.00	5.55	0.00	5.77	15.79	0.89	100.04	1422.27	11592.45
15/06/2022	21010141	Dave T2	7.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.47	15.56	37.55	8672.09	10596.17
14/06/2022	21010141	Dave T2	7.85	0.00	7.89	0.45	0.00	59.53	0.00	0.00	0.00	5.38	17.86	0.00	111.50	8621.41	9173.71
12/06/2022	21010141	Dave T2	8.38	8.36	8.41	80.95	79.61	83.69	7.03	7.47	7.03	7.47	51.28	50.58	100.08	4431.51	39229.75
11/06/2022	21010141	Dave T2	8.34	8.29	8.38	80.67	79.12	82.94	6.94	7.33	6.94	7.33	51.33	50.58	63.71	4369.13	36966.15
10/06/2022	21010141	Dave T2	4.34	0.00	8.41	68.40	0.00	80.34	0.00	7.03	0.00	7.03	51.29	3.41	54.23	4363.59	32532.51
09/06/2022	21010141	Dave T2	5.79	0.00	8.59	61.82	0.00	83.36	0.00	7.64	0.00	7.64	51.34	3.35	69.36	4289.11	28215.21

Figure 17 Reports Page.

Navigation through the records can be achieved using the scroll bars or by clicking on the Icon in the top right hand corner (see Readings Page) and using the drop-down menus.

The Reports Page can be downloaded in a CSV format by clicking on the Export Table To CSV Icon.

## 2.6. Set Up Page.

The Set Up Page gives information about the set up of the instrumentation and is used to configure the SMS alarms and Limits and Consents for the Front Pages.

The screenshot shows the 'Setup (Magflow)' interface for a 'Demo Customer One - MAGFLOW USM DAVE'S OFFICE'. The page is organized into several functional areas:

- DEVICE PARAMETERS:** Includes fields for Serial (21010141), ISE TYPE (ISE/ModBus DO), 4-20mA (1) Settings (Type: ISE (Analogue Probe), 4mA Value: 0, 20mA Value: 17.5), and 4-20mA (2) Settings (Off).
- SITE DETAILS:** Includes Site Tag (Short Name) (MAGFLOW USM DAVE'S OFFICE), Site Address, and Notes.
- RELAY PARAMETERS:** Includes Relay 1 (OFF), Relay 2 (Type: ISE, ON: 6, OFF: 7), and Relay 3 (Type: MODBUS PARA 2, ON: 1, OFF: 200).
- SMS ALARM SETTINGS:** Contains two identical alarm configuration panels. Each panel includes SMS Alarm Number, SMS Alarm Logic (e.g., 'Analogue Probe Greater Than'), Recipient Phone Number, Trigger at Threshold, and Hysteresis Value.
- PROBE SETTINGS:** Includes Flow Consent (200), Daily Totaliser Consent (5000), and a list of probes: Analogue Probe - pH (pH), Modbus Probe 1 - OXYGEN (%SAT), Modbus Probe 2 - OXYGEN (mg/l), Modbus Probe 3 - OXYGEN (ppm), and Flow - MAGFLOW (l/s).
- DASHBOARD SPAN & THRESHOLD SETTINGS:** Contains settings for Analogue Probe (High Span: 14, High Threshold: 8, Low Threshold: 5, Low Span: 0) and Modbus Probe 1 (High Span: 100, High Threshold: 95, Low Threshold: 85, Low Span: 50).

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Figure 18 Set Up Page

## 2.6.1. ELEMENTS.

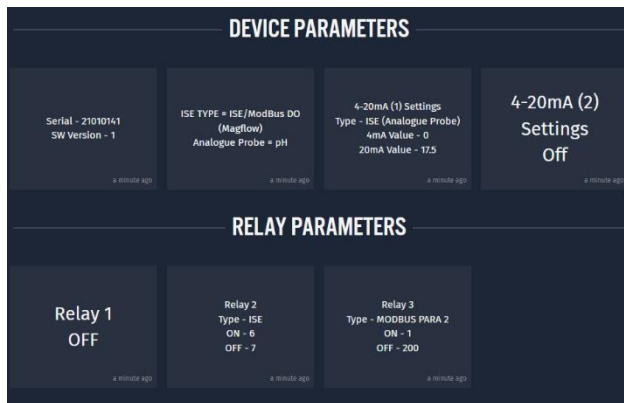


Figure 19 Device Parameters.

Provides Information on the configuration of the Instrument.

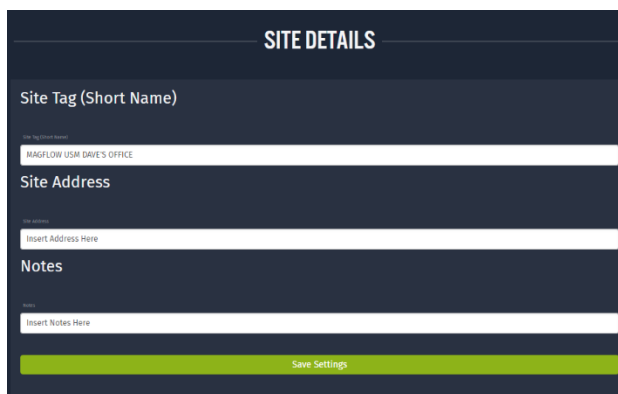


Figure 20 Site Details.

Site Tag – is the name used on the Device List to reference the instrument.

Site Address – Text field to indicate where the instrument is situated.

Notes – Text Field for notes about the instrument.

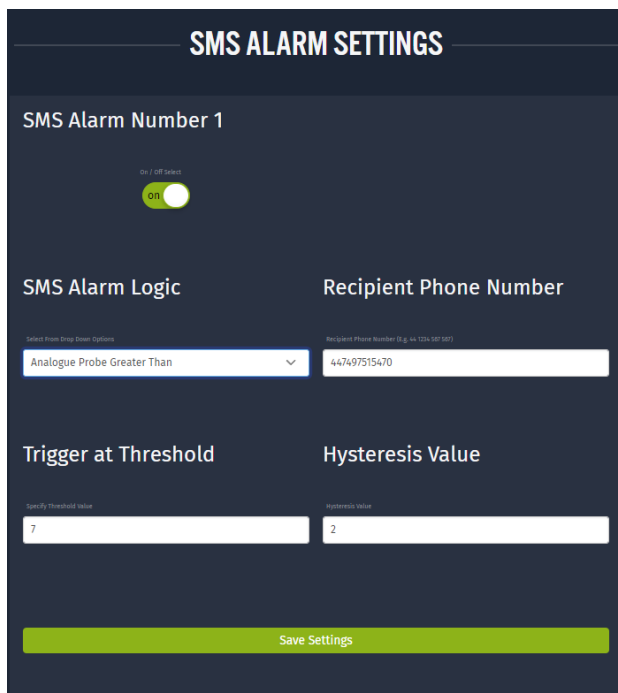


Figure 21 SMS Alarm Set Up

Two SMS alarm are provided on the Webpage. To use this facility the customer will need a Twilio account.

The alarm is triggered according to the comparison – selected from the drop down menu - and the Trigger at Threshold value (e.g., Analogue Probe greater than 7).

The hysteresis value is the level at which the alarm is reset and a further SMS is sent. In Set Up shown in Figure 21. No further Alarm will be sent until the pH falls below 5 and resets the alarm condition.

Analogue Probe High Span: 14

Analogue Probe High Threshold: 8

Analogue Probe Low Threshold: 5

Analogue Probe Low Span: 0

Save Settings

Figure 22 Dashboard Span and Threshold Settings.

The Dashboard Span and Threshold Settings are used to configure the Speedos on the Front-Pages.

The High and Low Span set the range of the Speedo.

The High and Low Threshold set the values above which (high) and below which (low) the Speedo will turn Red. (N.B. the change will be triggered when the next record is received).

If no Threshold is required the Span and Threshold should be set to the same value.

The Span and thresholds for the Speedo on the Flow USM are controlled by the Span of the device set up on the USM and the Flow consent (see below).

Flow Consent: 200

Daily Totaliser Consent: 5000

Save Settings

Analogue Probe - pH (pH)  
 Modbus Probe 1 - OXYGEN (%SAT)  
 Modbus Probe 2 - OXYGEN (mg/l)  
 Modbus Probe 3 - OXYGEN (ppm)  
 Flow - MAGFLOW (l/s)

3 minutes ago

Figure 23 Flow Consents

The Daily Totaliser Consent sets the height of the Consent Bar on the Bar Graph on the Front-Page to provide a visual confirmation if the consent is exceeded.

The Flow Consent ( Flow USM only) is used to set the Threshold for the Speedo on the Front\_page.

# *Declaration of Conformity*

---

We  
Smart Storm Limited  
The Old Mill  
Wainstalls  
Halifax  
HX2 7TJ

Declare under our sole responsibility that the products:

USI, Hydrocell, USM, Avocet 9000, Mudsens, Greasebuster FS

to which this declaration relates, is in conformity with the following directive.

The Electromagnetic Compatibility (EMC) Directive 2004/108/EC

And the following harmonised European Norms (EN standards), IRC and Environment Agency standards.

<u>Standard</u>	<u>Issue</u>
BS EN 50081-1 Emissions	1992
BS EN 50082-2 Immunity	1995
IEC 801 Immunity	1992
BS EN61010-1 Low Voltage	1993

We also declare that the products:

Named above

are of UK origin and are manufactured and tested to Smart Storm internal quality standards defined in the company's formal ISO9001:2015 quality manual.

Dr John Duffy  
Managing Director

