

# DAVIS & SHIRTLIFF

know **H<sub>2</sub>O** through experience

# ENGINEERING

## PROJECT PORTFOLIO



**WATER PUMPS • SOLAR EQUIPMENT • BOREHOLE SERVICE • WATER TREATMENT • DIGITAL ENGINEERING**  
**GENERAL MACHINERY • SWIMMING POOLS • IRRIGATION • CHEMICALS**



# FOR OVER 75 YEARS,

Davis & Shirliff has been committed to providing innovative and customized solutions to address the diverse challenges our customers face in the water and energy sectors across the region. As a trusted partner in the Commercial and Building Engineering segment, our extensive experience and expertise have enabled us to successfully deliver a wide range of projects that meet and exceed our clients' expectations.

Our dedicated team of specialists encompasses a broad range of disciplines, including Pumping Solutions, Water Treatment, Wastewater Management, Renewable Energy, Swimming Pools, Irrigation, Control & Instrumentation, Building Management Systems, and IoT. We collaborate with a global network of suppliers who share our commitment to innovation and excellence, ensuring that we can offer unparalleled problem-solving capabilities in the water and energy sector throughout Africa.

At Davis & Shirliff, we believe in fostering strong partnerships with our clients to gain a comprehensive understanding of their unique challenges. By working together, we are able to develop sustainable, tailor-made solutions that cater to their specific needs. Our state-of-the-art Engineering and Manufacturing Centre is equipped to assemble complex, custom-designed products that fulfill individual customer requirements.

In this booklet, we are proud to showcase a selection of projects that demonstrate our vast capabilities and the impact we have made in the Commercial and Building Engineering sector. These case studies serve as a testament to our unwavering dedication to delivering high-quality, innovative solutions that improve the lives of our customers and contribute to a more sustainable future.

Eng. Philip Holi  
GROUP TECHNICAL DIRECTOR



BY CHOOSING **DAVIS & SHIRTLIFF** AS YOUR PARTNER, YOU CAN EXPECT EXCEPTIONAL EXPERTISE, A CUSTOMER-CENTRIC APPROACH, AND CUTTING-EDGE TECHNOLOGY THAT WILL HELP BRING YOUR PROJECTS TO LIFE. WE LOOK FORWARD TO COLLABORATING WITH YOU AND MAKING A LASTING, POSITIVE IMPACT ON YOUR OPERATIONS.





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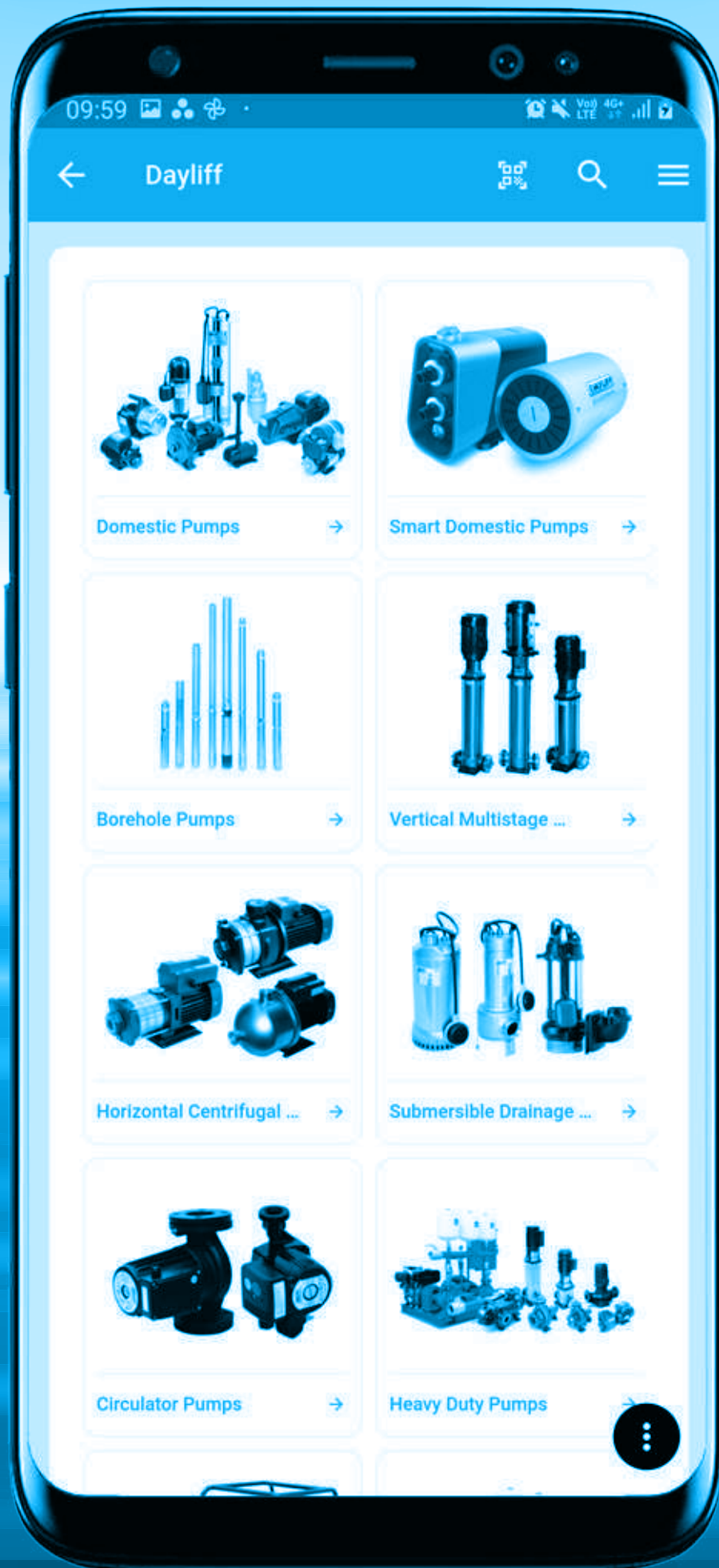
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# 1 Digital Online Tools

D&SFLO







## 1.1 D&S Flo App

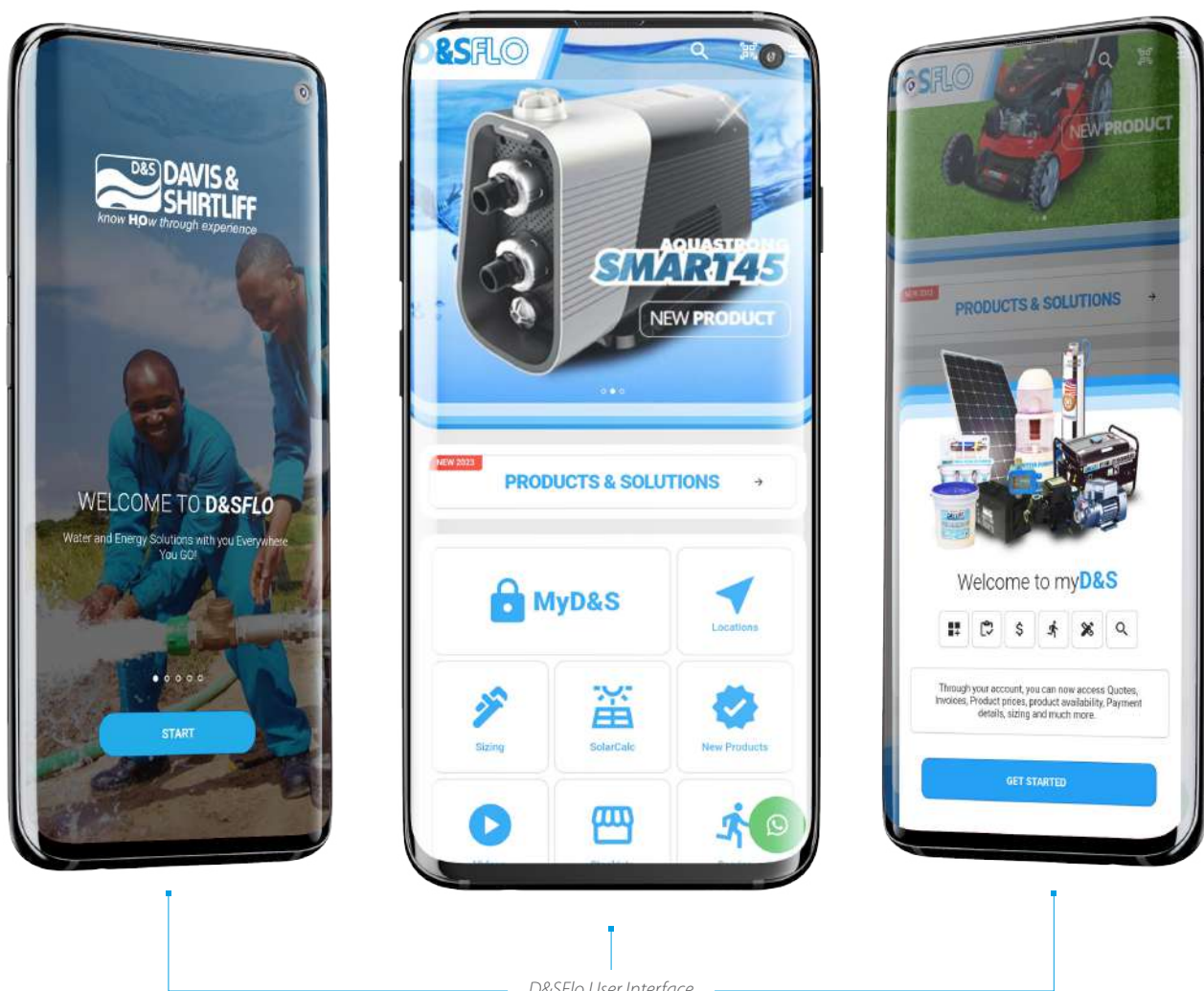
D&S FLO is an online tool that empowers users to explore and select D&S products with ease and accuracy.



The app is available on both iOS and Android platforms, and is offered by Google Play and the App Store through any smart phone interface and can be easily downloaded.

**Key features of D&S FLO include;**

- Full and up to date D&S Product Manual complete with datasheets
- Access to the e-shop
- Branch contacts
- Live chat support
- The engineer's toolbox
- Equipment sizing software
- Service and support advice
- Spare parts directory
- Company news and updates





## 1.2 PumpCalc

PumpCalc is a web based tool developed in-house by D&S Engineers that digitizes pump system selection, design and specification for the wide range of Dayliff pumps and has an advanced sizing function for borehole and industrial pumping solutions.

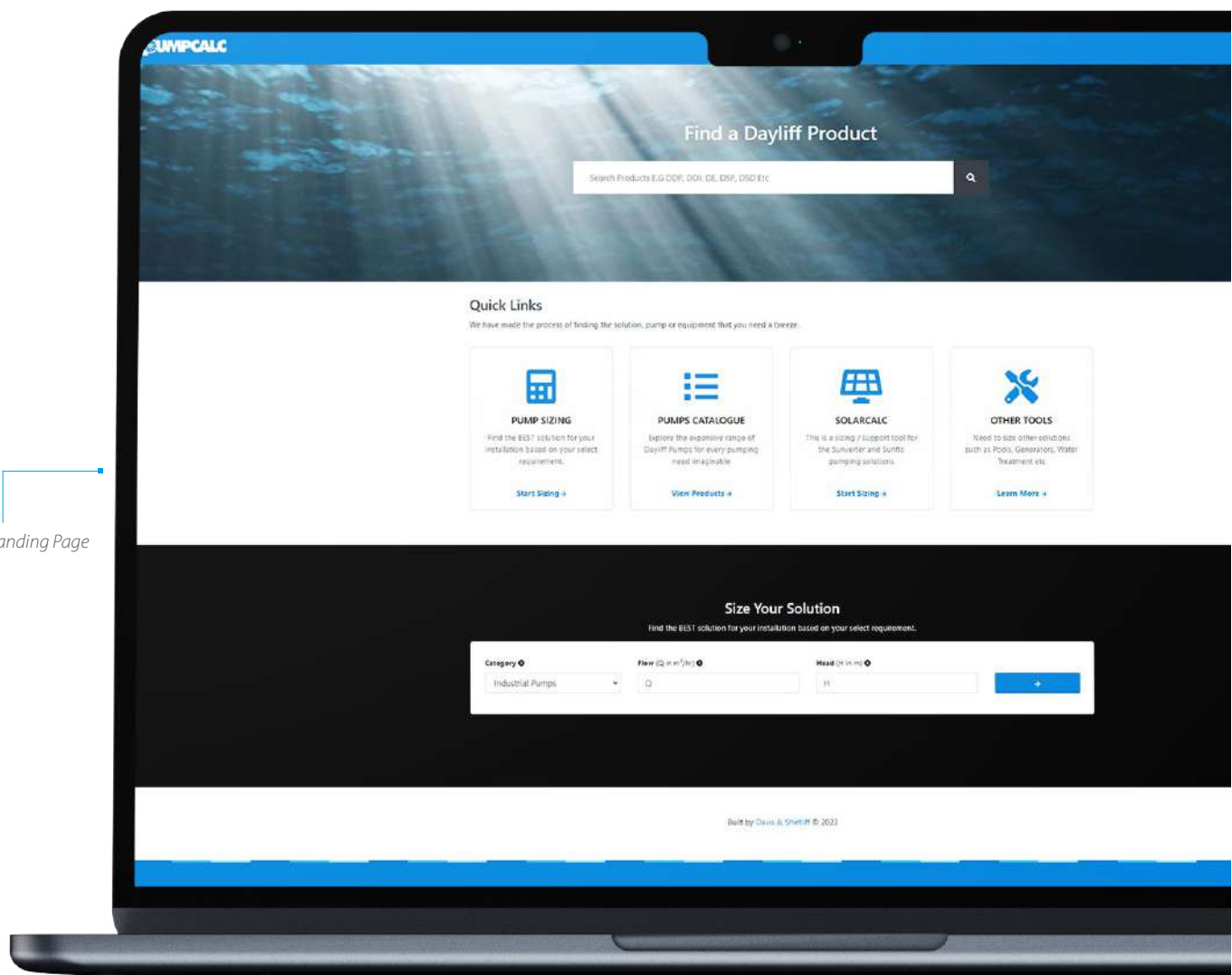


**Key features of PumpCalc include;**

- Pump Performance, Efficiency, NPSH and Power Curves
- Pump Comparison feature
- Pump Details – Documents, Datasheets, Inventory, Pricing, Spare Parts and Videos
- Cable length, TDH, Friction Losses
- Integration to Website and D&S FLO App
- Optimized pump system selection and report generation downloadable in PDF format

PumpCalc is available on web at <https://pumpcalc.davisandshirliff.com>

PumpCalc Landing Page



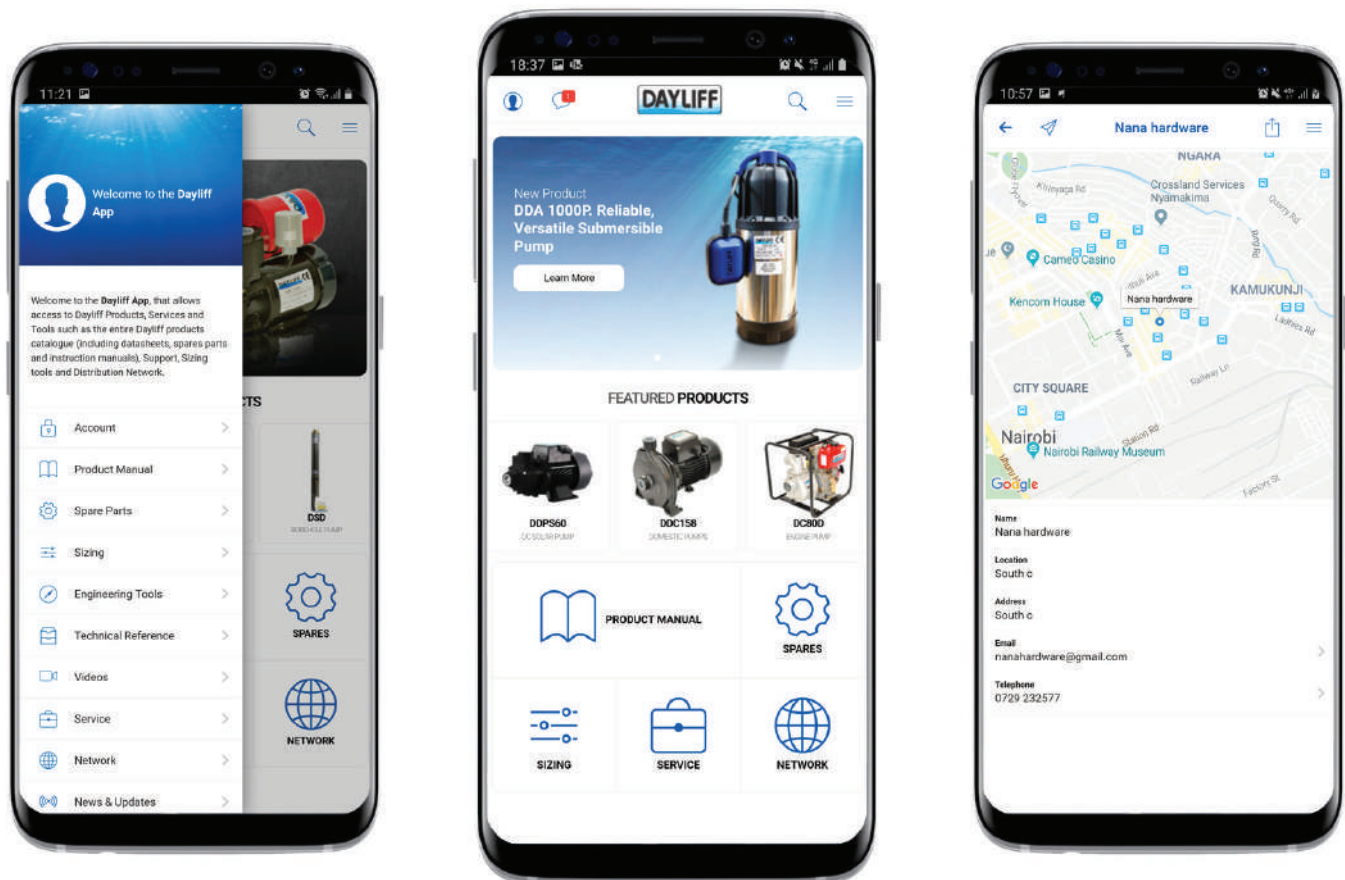
## 1.3 DAYLIFF App

The DAYLIFF App assists users to explore and select Dayliff products and solutions with ease and accuracy. The solution enables customers access to support of the entire Dayliff range of products and is available on Google Play for Android users and App Store for iOS users.



Key features of the DAYLIFF App include;

- Dayliff product details such as Datasheets, Images, Spare Parts, Models
- MyDayliff selection with option to add and map their Dayliff products
- Stocklists across the region
- New Dayliff products
- Integration to SolarCalc, PumpCalc and other sizing tools



DAYLIFF App User Interface





SCAN the QR Code on the side of the DAYLIFF packaging using a SMART phone to access support

## 1.4 SolarCalc

Proprietary software SolarCalc enables easy calculation of Solar pumping solutions.



### Key points and features of SolarCalc;

- Integrated with Google Maps APIs, Microsoft and NASA to give customers, engineers or consultants accuracy in selecting their location which can be used to calculate expected irradiation
- Easy to use sizing tool that enables the users to accurately calculate the best solar solution based on a few pieces of key information
- Once the input parameters are keyed in, the tool generates a report indicating the pump curve, pump, inverter and panel details including a wiring diagram

SolarCalc is available on web at <https://solarcalc.davisandshirliff.com> and on the Dayliff App for Android and iOS.

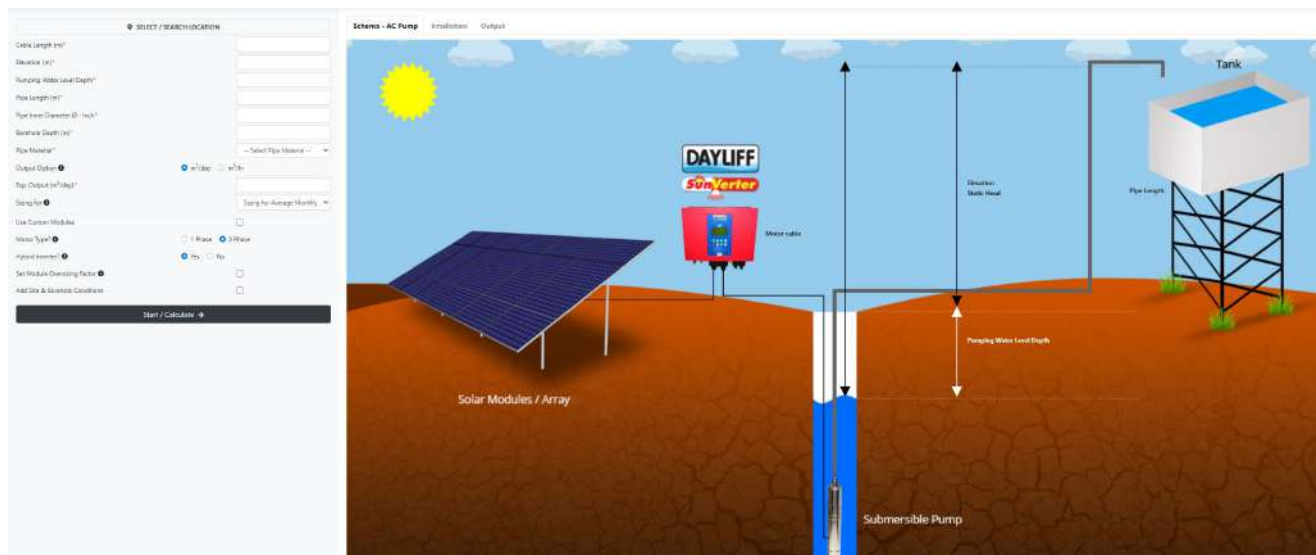
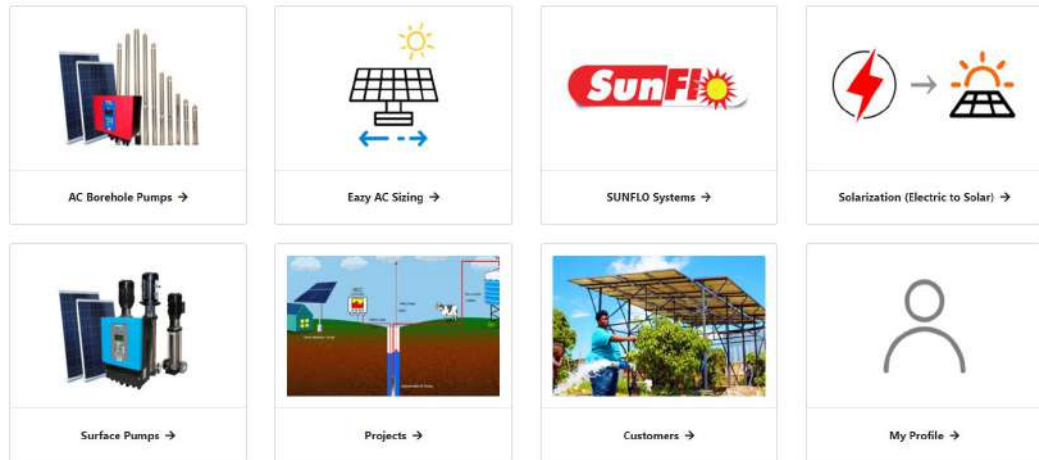
Optimized pump system selection and report generation downloadable in PDF format.



Ideal for laptop or mobile use



## 1.4.1 SolarCalc User Interface



7 - DUNDORI ROAD, NAIROBI, KENYA

Head (m)120

Output Optionm<sup>3</sup>/daym<sup>3</sup>/hr

Output (m<sup>3</sup>/hr) - 29.70m<sup>3</sup>/day\*

Sizing forSizing for Average

Use Custom Modules

Motor Type?1 Phase3 Phase

Hybrid Inverter?YesNo

Module Oversizing Factor

Include iDayliff option

Start / Calculate

Schema - AC PumpIrradiationOutputReport

| Pump     | Curve | Motor (kW) | Inverter              | Solar array power (kW) | Total Peak Voltage | Module Arrangement | Panel Model | Cable              | Pump Outlet (") | Suitability | Pump Efficiency | Report |
|----------|-------|------------|-----------------------|------------------------|--------------------|--------------------|-------------|--------------------|-----------------|-------------|-----------------|--------|
| DSP 5/32 | lit   | 3          | SV3/3.7T - 3x415V 9A  | 4.5                    | 630                | 36 x 1 string(s)   | TPS125      | 1.5mm <sup>2</sup> | 1½              | 99.58%      | 56.0%           |        |
| DS 5/33  | lit   | 3          | SV3/3.7T - 3x415V 9A  | 4.5                    | 630                | 36 x 1 string(s)   | TPS125      | 1.5mm <sup>2</sup> | 1½              | 90.43%      | 56.31%          |        |
| DSP 8/23 | lit   | 4          | SV3/5.5T - 3x415V 13A | 5.8                    | 641                | 15 x 1 string(s)   | AS400 Mono  | 2.5mm <sup>2</sup> | 2               | 90.34%      | 54.83%          |        |
|          |       |            |                       | 5.6                    | 636                | 17 x 1 string(s)   | YL330       |                    |                 |             |                 |        |
| DS 8/30  | lit   | 5.5        | SV3/5.5T - 3x415V 13A | 7.2                    | 648                | 18 x 2 string(s)   | TPS200      | 2.5mm <sup>2</sup> | 2               | 83.11%      | 54.47%          |        |
|          |       |            |                       | 8.1                    | 648                | 18 x 3 string(s)   | TPS150      |                    |                 |             |                 |        |
| DSD 8/33 | lit   | 5.5        | SV3/5.5T - 3x415V 13A | 7.2                    | 648                | 18 x 2 string(s)   | TPS200      | 2.5mm <sup>2</sup> | 2               | 71.96%      | 56.86%          |        |
|          |       |            |                       | 8.1                    | 648                | 18 x 3 string(s)   | TPS150      |                    |                 |             |                 |        |
| DS 8/37  | lit   | 5.5        | SV3/5.5T - 3x415V 13A | 7.2                    | 648                | 18 x 2 string(s)   | TPS200      | 2.5mm <sup>2</sup> | 2               | 69.66%      | 55.77%          |        |
|          |       |            |                       | 8.1                    | 648                | 18 x 3 string(s)   | TPS150      |                    |                 |             |                 |        |
| DSP 8/32 | lit   | 5.5        | SV3/5.5T - 3x415V 13A | 7.2                    | 648                | 18 x 2 string(s)   | TPS200      | 2.5mm <sup>2</sup> | 2               | 66.4%       | 58.2%           |        |
|          |       |            |                       | 8.1                    | 648                | 18 x 3 string(s)   | TPS150      |                    |                 |             |                 |        |
| DS 8/44  | lit   | 7.5        | SV3/7.5T - 3x415V 18A | 10.9                   | 603                | 16 x 2 string(s)   | AS340       | 4mm <sup>2</sup>   | 2               | 55.56%      | 57.15%          |        |
|          |       |            |                       | 11.2                   | 636                | 17 x 2 string(s)   | YL330       |                    |                 |             |                 |        |
|          |       |            |                       | 10.8                   | 604                | 19 x 2 string(s)   | AS285       |                    |                 |             |                 |        |

2

**iDayliff**



IoT  
**iDAYLIFF**  
One Step Ahead





## 2.1 iDayliff

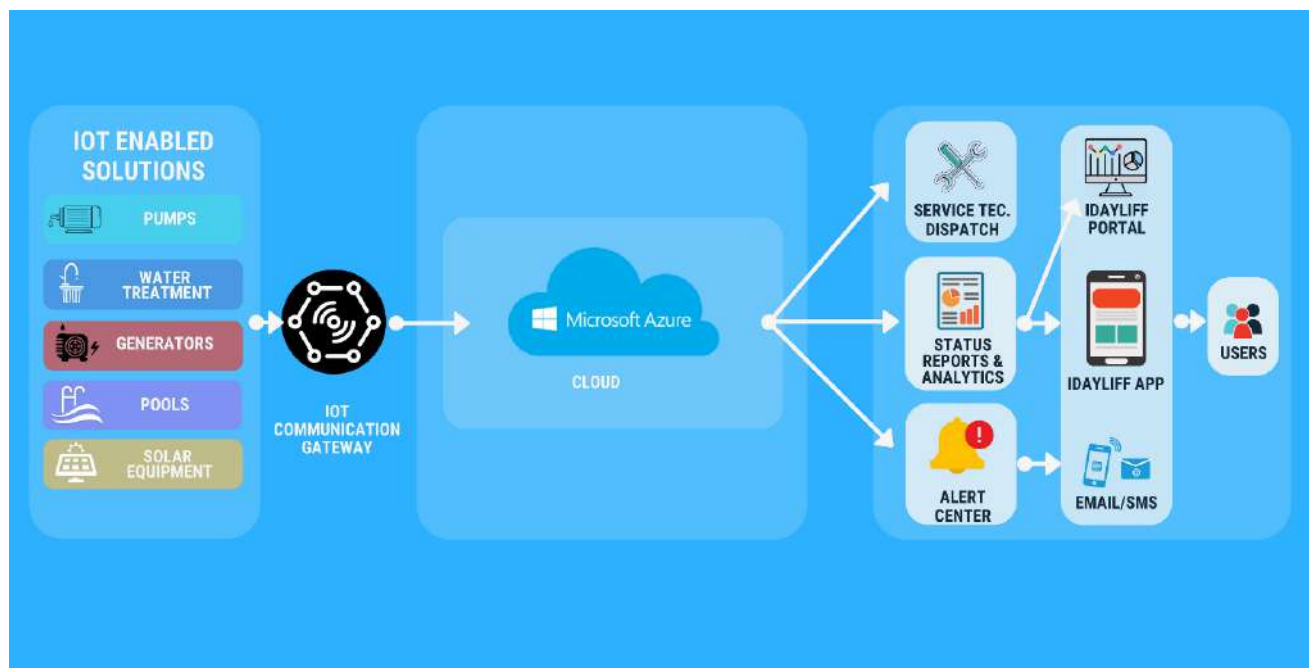
iDayliff is a high specification internet-based communication system for remote monitoring and control of all Dayliff and other Davis & Shirliff supplied equipment and installations.

Depending on system specification and fitted sensors, the iDAYLIFF user is able to see real time equipment operation status, alarms and parameter readings including;

- Status of pumps (on/off/trip) and equipment run hours
- Log of alarm conditions such as low water levels, power anomalies, process alarms and equipment alarms
- Water pipe pressures and flowrates
- Total water production
- Power and energy consumption
- Water quality as per installed instruments such as pH, ORP and TDS
- Water and chemical levels as per installed level switches and transmitters

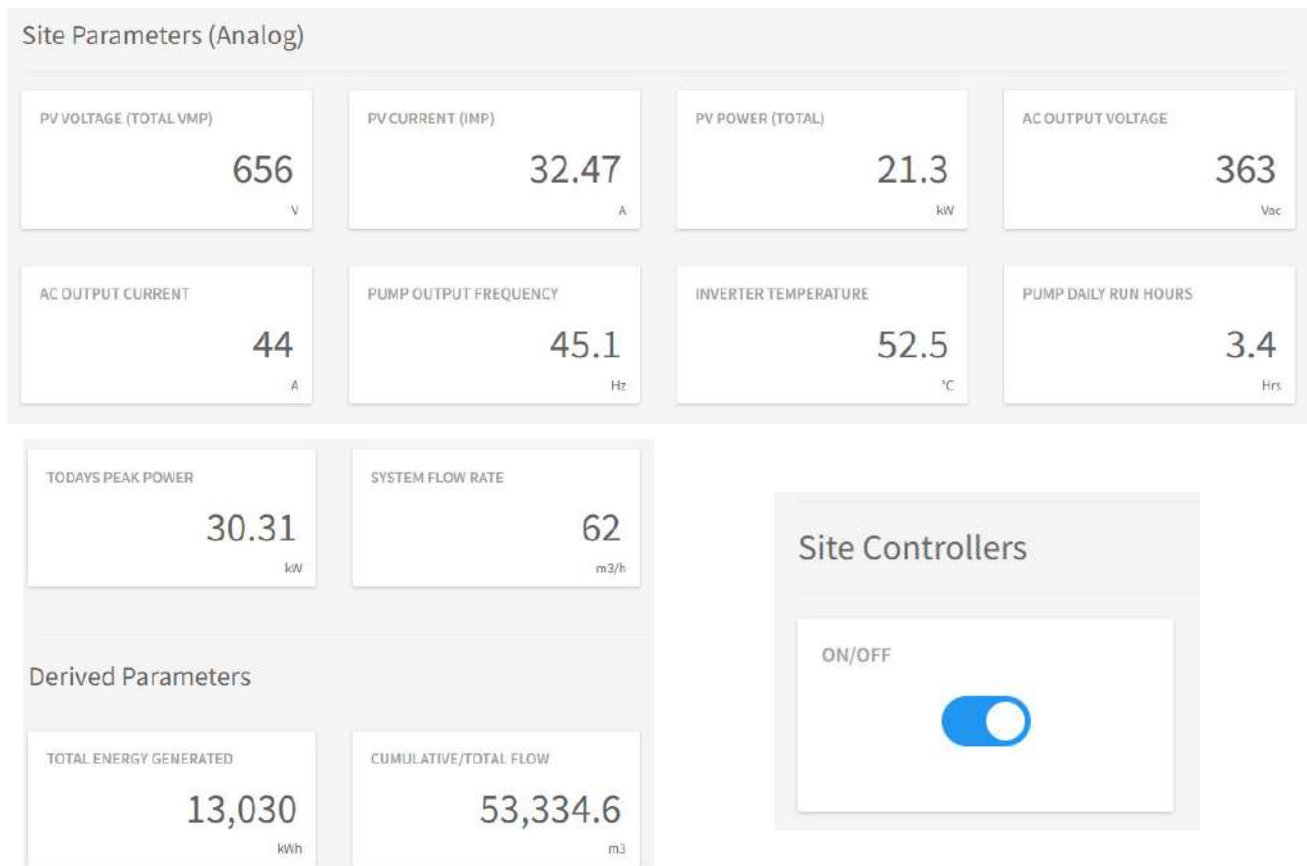
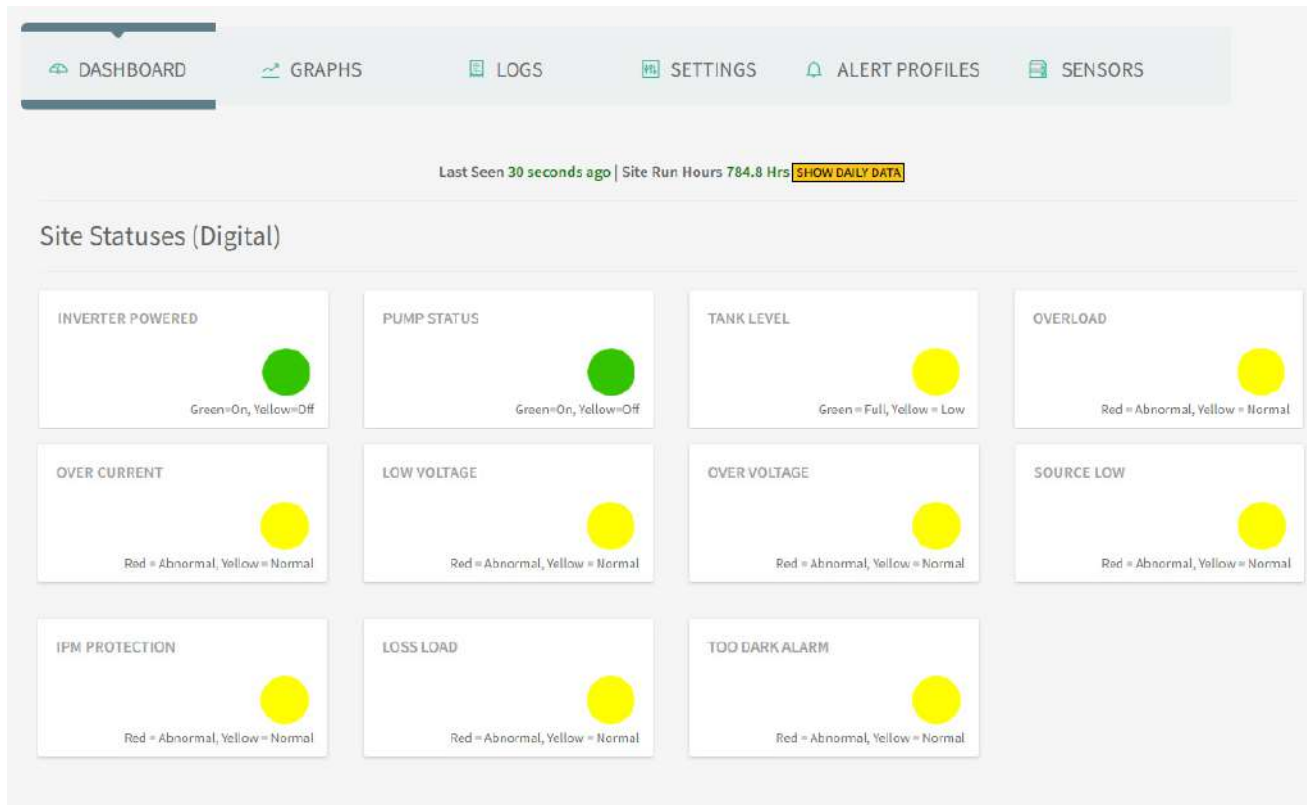
The user is also able to perform the following:


- Start and stop equipment
- Schedule equipment operations and setup alerts to be delivered via email or SMS
- Report emergency conditions to iDAYLIFF Field Service Team in order to allow for pre-emptive maintenance



iDayliff Schematic

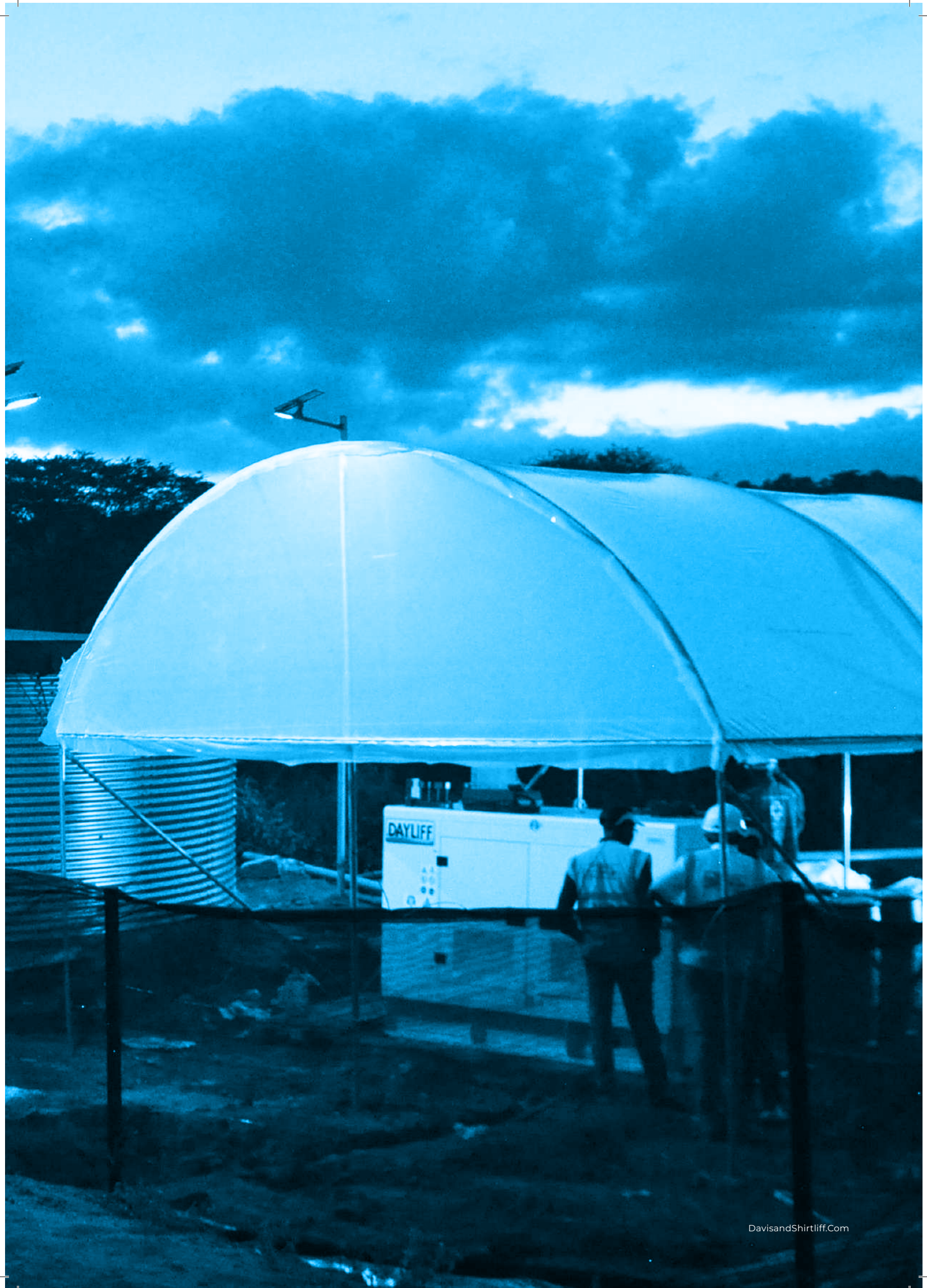
## 2.2 iDayliff Live Site Dashboard



The background of the page is a blue-tinted photograph. On the right side, there is a tall street lamp with a light fixture at the top. Behind the lamp, there is a building with a corrugated metal roof. The sky is filled with clouds. The overall color scheme is monochromatic blue.

# 3 **Digital Engineering Solutions**





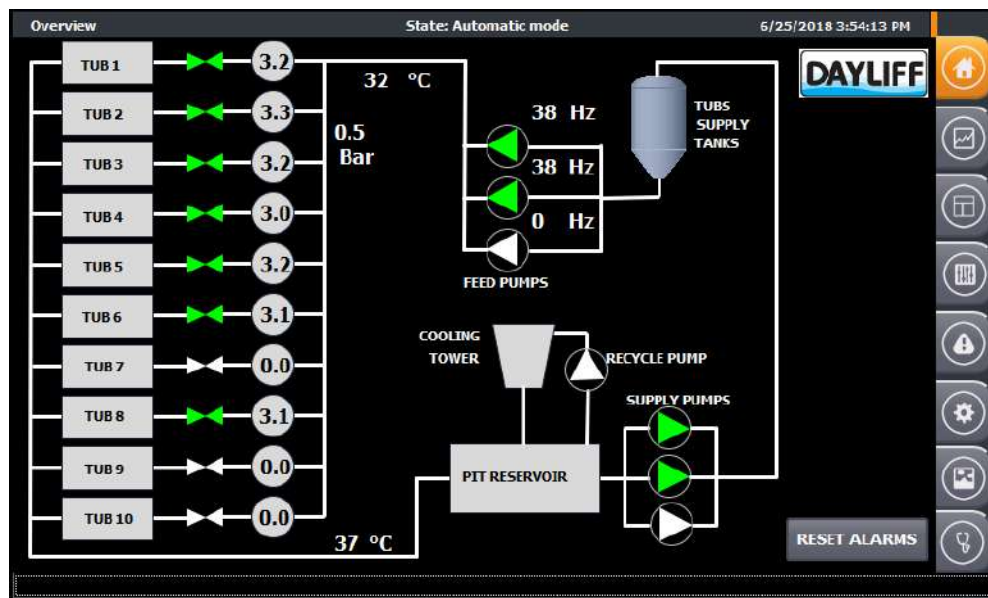
## PROJECT CASE STUDY

### 3.1 Industrial Automation for a Battery Manufacturer

The system involved automation of factory cooling systems by controlling water flow rates, ensuring optimum battery charging temperatures and charging rates for defect free battery production. The cooling system is controlled from a single smart control panel that varies flow rates to the various battery tubs intelligently based on different system characteristics.

Key features include;

- Water conservation and improved quality control
- Improved system reliability and 10% improvement in production numbers



Monitoring Screen



Picture of the Factory



## PROJECT CASE STUDY

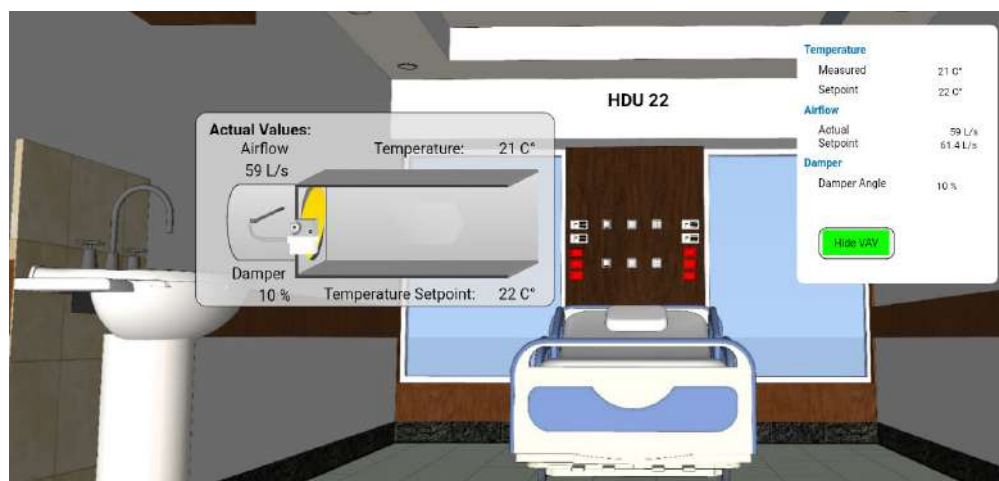
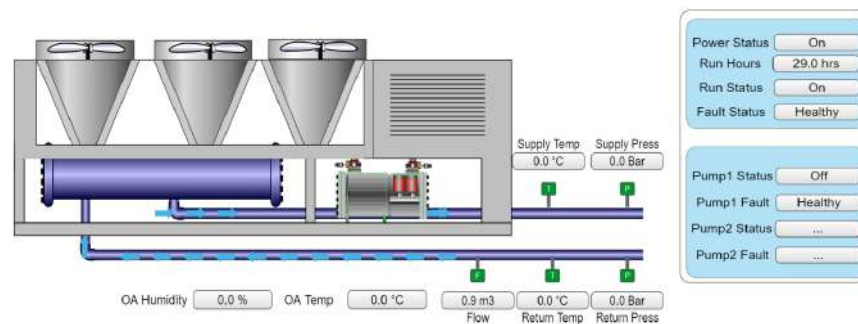
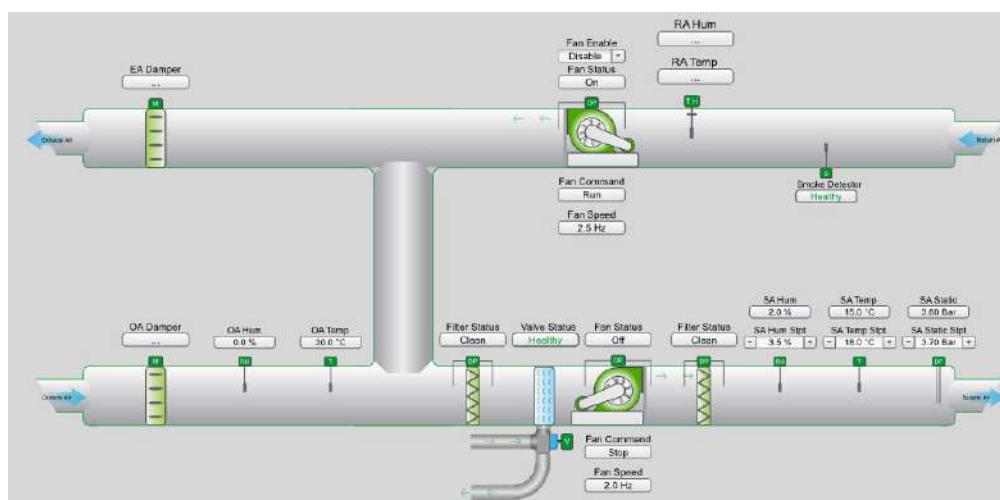
## 3.2 BMS System for a Hospital in Nairobi

A Schneider Electric Automation Server AS-B was used to control and monitor the third floor HDU units HVAC system.

The system integrates third-party HVAC devices to the automation server through BACnet and Modbus RTU to display real time room temperature and airflow and equipment status.

Key system features include;

- Graphical display accessible through the intranet
- Automatic report generation and notification through emails
- Display and record of room condition trends





## PROJECT CASE STUDY

### 3.3 Power Monitoring System for a Food Factory, Rwanda

The installation comprises of two advanced PM8240 power meters connected to a Ecostruxure Power Monitoring Expert server through the facility LAN for monitoring power at the supply and load distribution boards.

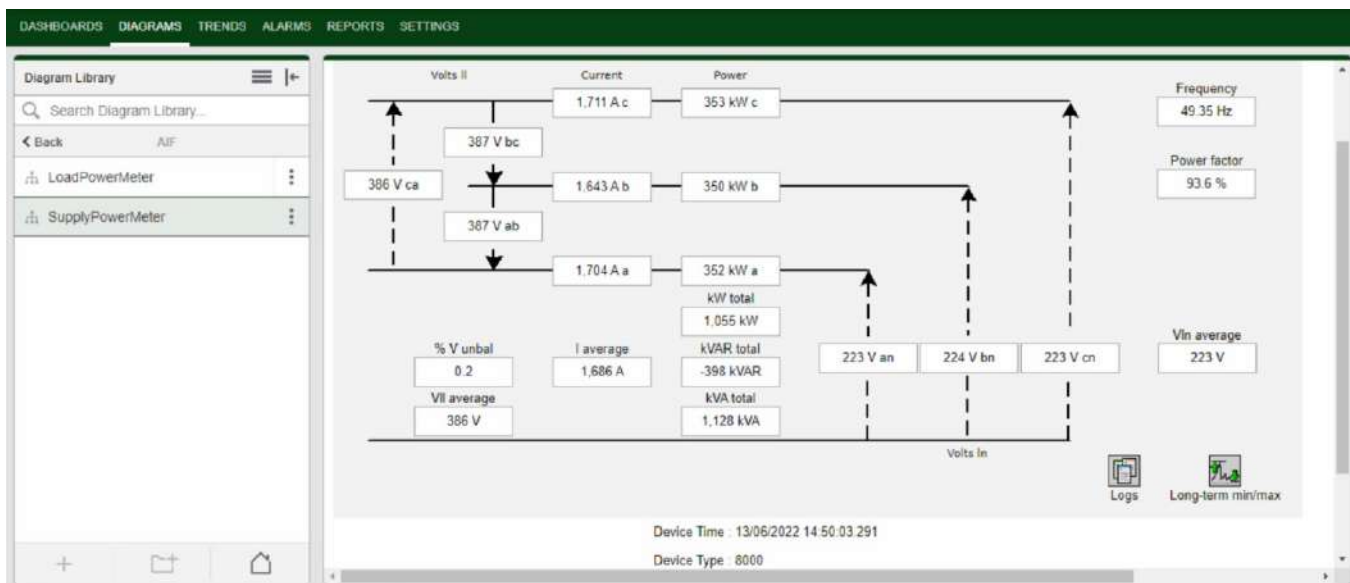
The meters are customized to perform counts for voltage and frequency going below/beyond the thresholds as prescribed by AIF.

**Key features of the installation include;**

- Advanced power meters accessible through their internal web pages
- Volts/Hertz threshold violation detections
- Automatic daily energy usage and power quality report emailing
- Monthly energy consumption trend comparison

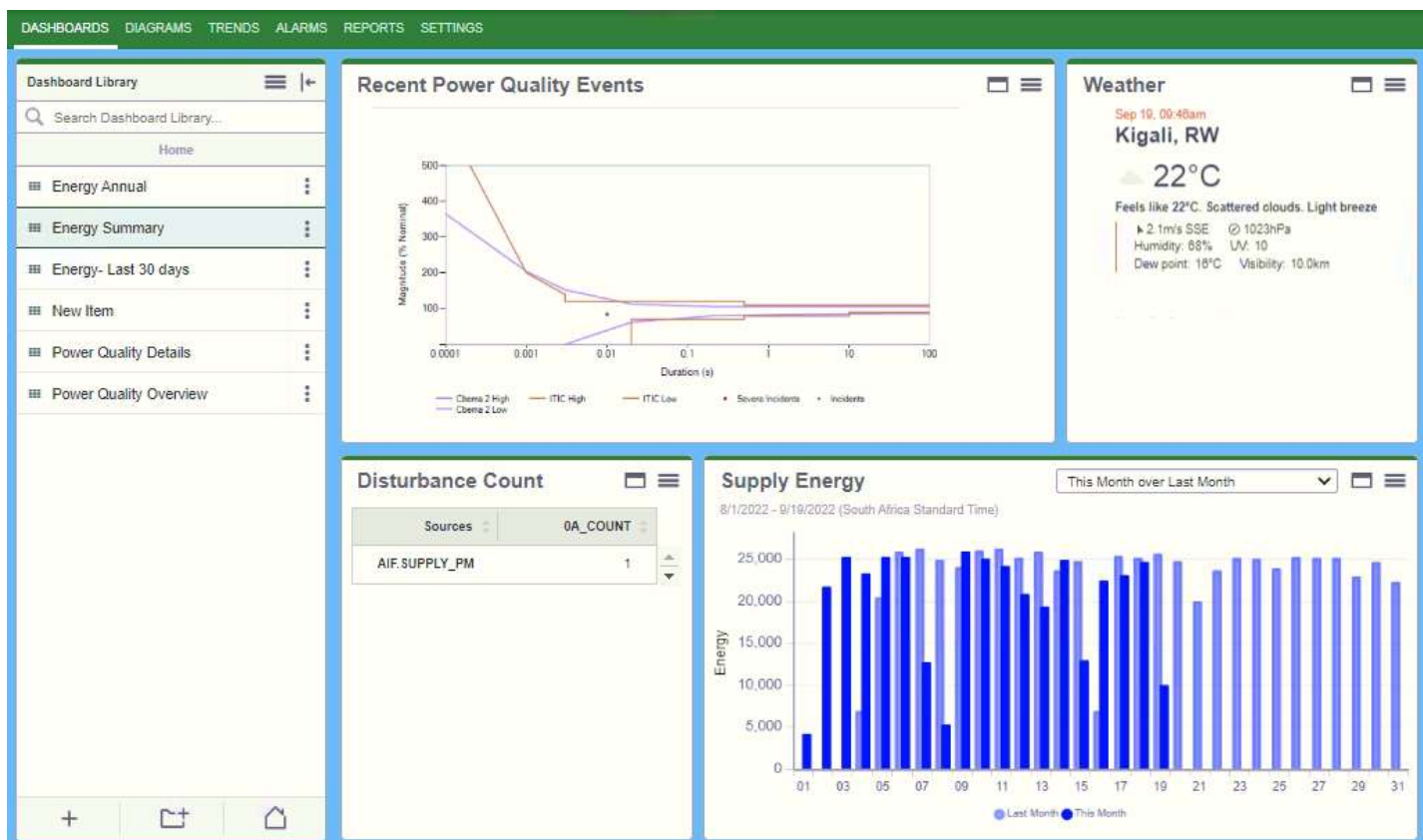
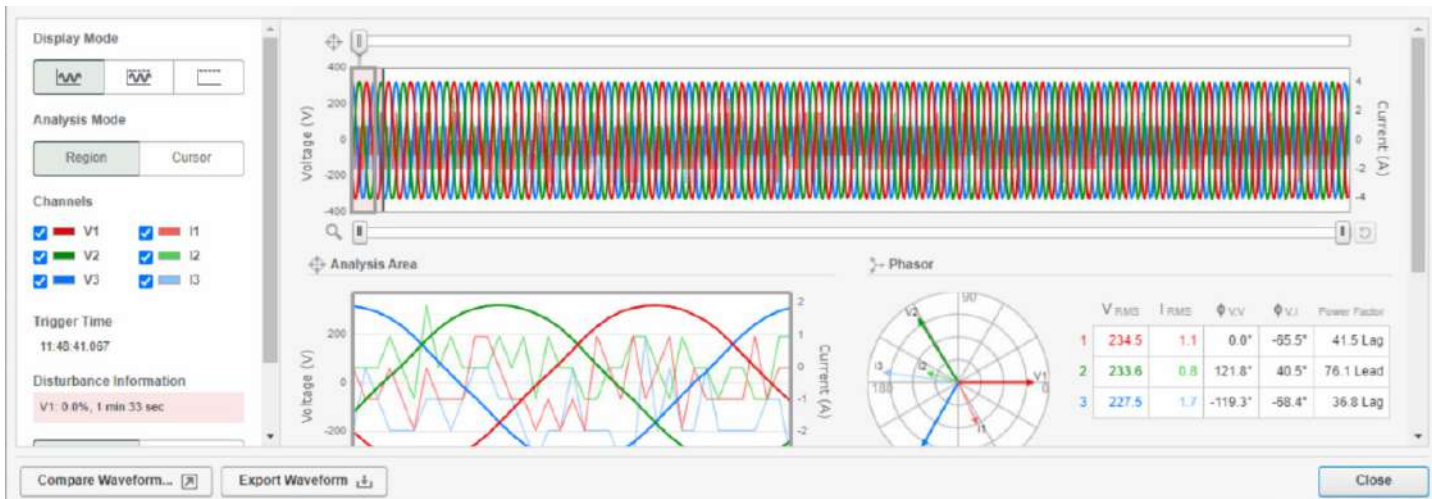
The deployed Power Monitoring Expert software simplifies power management providing rich energy visualization and power event analysis for more efficient and reliable operations. It features a comprehensive set of web-based applications including dashboards, diagrams, trends, alarms and reports to deliver deep insights into electrical system performance, energy efficiency and power quality. It is powerful, scalable, easy to use and designed to integrate into other management systems.

The PM8240 is a multi-functional power meter with advanced power quality analysis up to 63<sup>rd</sup> harmonic and energy measurement for reliability and efficiency of power-critical facilities. It reveals complex power quality conditions enabling action to be taken to mitigate any issue. It features patented Disturbance Direction Detection, sags and swells detection, revenue grade accuracy, multiple communication ports, onboard power quality analysis, web interface and a color graphical LCD display with configurable passwords.



## PROJECT CASE STUDY

## 3.3 Power Monitoring System for a Food Factory, Rwanda (cont'd)



Control Interface



# **4 Water Supply Solutions**





## 4.1 Intelligent Water Pump - Dayliff DBE

The Dayliff DBE Booster is a compact water boosting unit ideal for water supply in domestic and commercial applications for single and two booster pump systems.

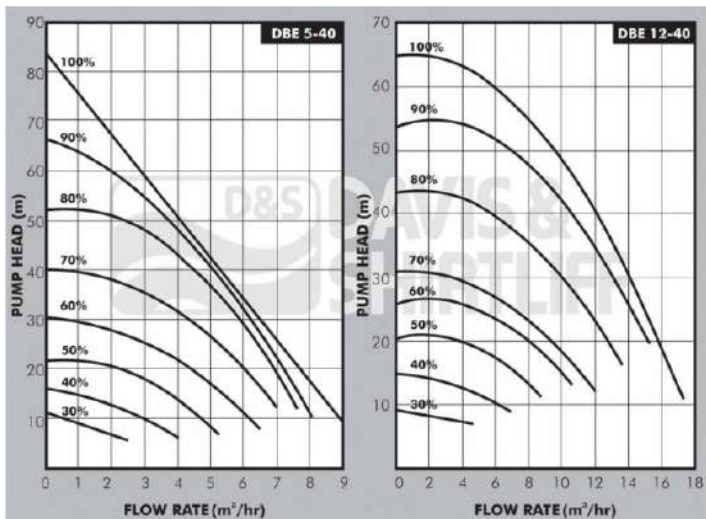


The pump features special functional aspects including;

- Variable speed controller
- Compact for simple installation
- Quiet with low operating noise level
- Robust design for long life
- Automatic pump alternation in multi-pump setup
- Remote Wi-fi connectivity



Product pictures



Product performance sheet



Twin Pump setup under workshop testing

## PROJECT CASE STUDY

## 4.2 VFD Controlled Pumpset for a Dairy

A demand-driven variable speed pumpset to supply pressurized water to a milk processing plant.



Key pump set features;

- Dayliff DIN Vertical Pumps
- Dayliff Pumpverter VFD
- High quality fittings and manifolds



Product pictures



## PROJECT CASE STUDY

### 4.3 VFD Controlled Pumpset for a Private Hospital in Mombasa

A smart pumping system for water supply capable of delivering 60,000L of water per hour at constant pressure.

Key pump set features;

- 4No Dayliff DIN Vertical Pumps
- 4No Dayliff Pumpverter VFD
- High quality fittings and manifolds



Pictures of the equipment under workshop testing

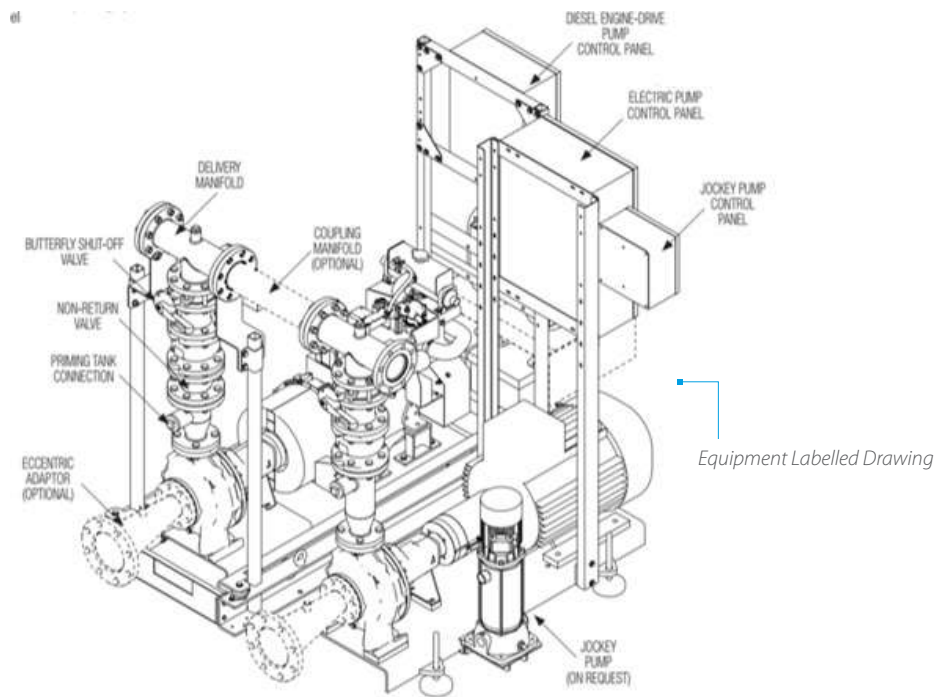
## PROJECT CASE STUDY

### 4.4 Dayliff FLEN Fire Pump for a Shopping Mall

The supplied solution, a Dayliff FLEN packaged Fire Set, is specially designed to provide automatic water supply to fixed automatic firefighting installations. The set combines single duty diesel and electric power supply pumps to ensure serviceability in all conditions as well as a jockey pump to maintain system pressure.

#### Key Fire Set features;

- Conform to the BS EN12845 standard
- Short Leadtime: Delivery at a maximum of 2 weeks from order.
- Support: Unmatched support in terms of spares, field support with 24-hrs
- Pricing: Competitively priced



Equipment Labelled Drawing



Fire Set undergoing workshop testing



Another unit under workshop assembly



# 5 Solar





**PROJECT CASE STUDY****5.1 132kW Solar Grid Connect Power Generation Plant**

A solution for a community based water treatment plant serving over 65,000 people, an equivalent of 7,500 households, in Matayos and Teso South Sub-Counties.

The Water Supply Plant operates on electricity from the utility power supplier with some of the major loads consisting of 90kW induction motors, 30kW induction motors, 22kW induction motor for the blower, and 0.75kW synchronous motors for chemical stirrers. The County decided to undertake a Grid Tie Solar system to develop a reliable and efficient system that will use mostly solar energy during the day and electricity at night hence helping in reducing the power bills.

D&S Engineering installed and commissioned a 132kWp Solar Grid Tie System to power the Water Treatment plant, based on the available mounting space provided by the County.

The system is expected to generate about 200MWh of solar energy annually and will help to reduce power bills significantly.



Site Pictures



**PROJECT CASE STUDY****5.2 100kW Solar Grid Connect System for a Refugee Camp**

A 100kW solar system with batteries and generator to power the compound of a refugee camp run by UNHCR, with estimated load of 120kW.

**Key system features;**

- 400No 250W Yingli modules, ground mounted
- 5No SMA STP20000TL Tripower Inverters
- 9No SMA SI6.0 Sunny Island Inverters
- 96No 2160, 2VDC batteries
- 150kW Perkins generator
- Sunny manager for remote monitoring



Installed Site Pictures



## PROJECT CASE STUDY

## 5.3 Joska Solarized Boreholes

A solarization solution was required by a commercial supplier of piped water to local residents from several boreholes powered by mains electricity.

D&S Engineering proposed a series of designs to optimize cost savings and long term sustainability.

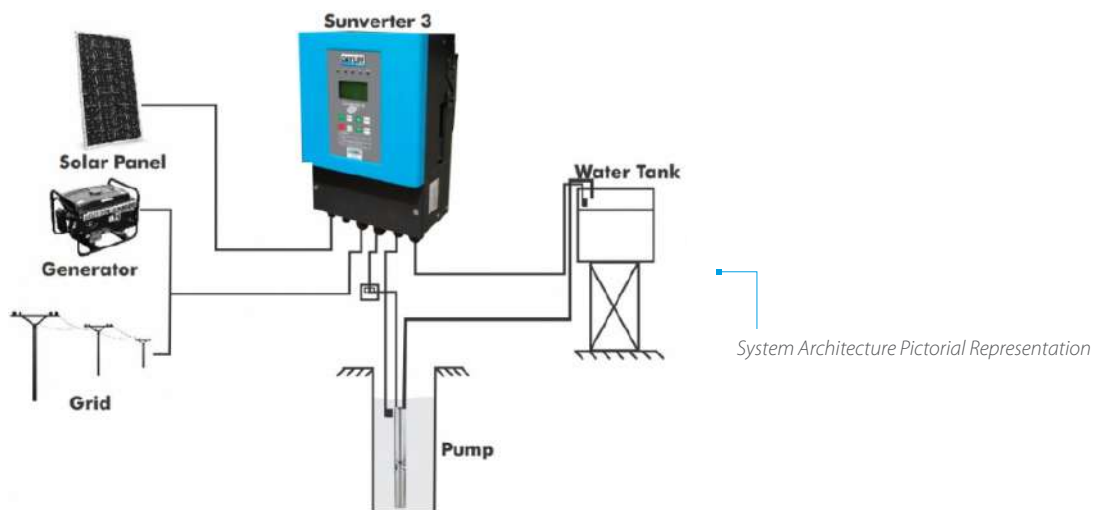
**4No sites included;**

- 108No 335W Solar Modules
- 22kW Dayliff Sunverter SV3

**2No sites included;**

- 72No 335W Solar Modules
- 15kW Dayliff Sunverter SV3

Electricity cost savings - >80%, and the client is able to remotely monitor the system through iDayliff remote monitoring and control.



## PROJECT CASE STUDY

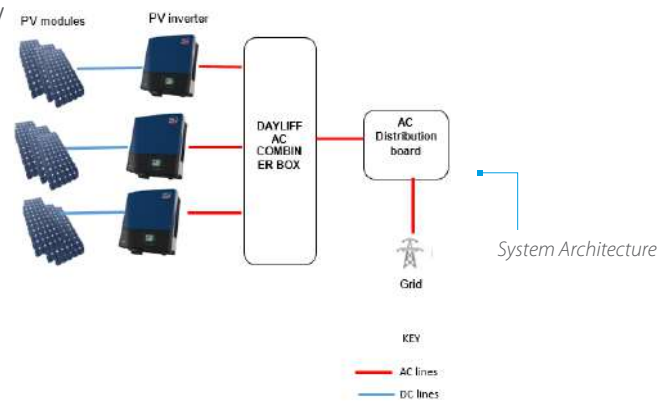
## 5.4 A Resort and Conference Centre in Nairobi

The institution was facing high electricity bills, and contacted D&S Engineering to carry out a power audit to identify specific power consuming areas where renewable energy options were required including;

- Cold swimming pool
- Use of Geysers
- Use of mains power for lights, sockets and laundry

### Proposed Solution;

- 70kW Grid-Tie Solar PV System
- Heat Pump for swimming pool heating
- 600 Micron Pool cover to retain heat
- 12,000L Solar Water Heating System



Site Pictures





# 6 **Water Treatment**





**PROJECT CASE STUDY****6.1 Nano-Ultrafiltration Plant for a Hospital****System Stages;**

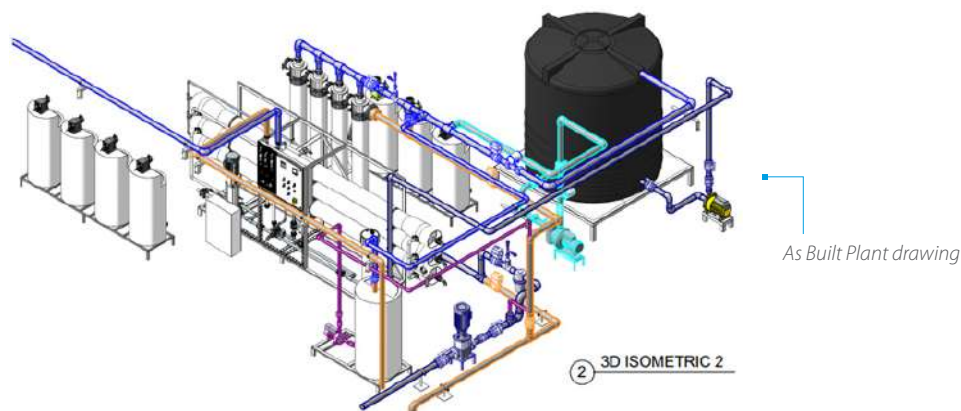
- Dayliff Ultrafiltration
- Dayliff Nanofiltration
- Chlorination

D&S Engineering were commissioned to design, manufacture, supply and install an Ultrafiltration-Nanofiltration water purification plant to provide clean water for a large hospital in Nairobi.

The 15m<sup>3</sup>/hr Dayliff Ultrafiltration (UF) plant was used as a pre-treatment for the 12m<sup>3</sup>/hr Dayliff Nanofiltration (NF) Plant.

This technology typically operates at a lower feed pressure compared to Reverse Osmosis Plant translating into significantly lower operational costs.

The Hospital now uses the Dayliff UF - NF plant for removal of colour, organic molecules, hardness and heavy metals in the borehole water at the site, providing clean potable water for use to the hospital and community.



Completed Installation on site



## PROJECT CASE STUDY

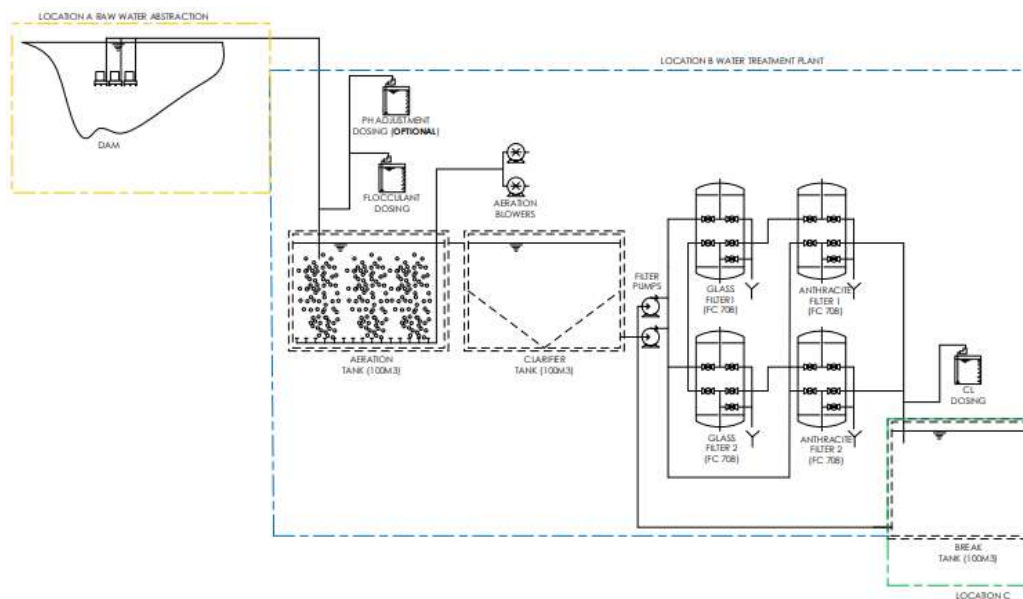
## 6.2 Engineered Solutions for an Industrial Estate

### 6.2.1 2500m<sup>3</sup>/h Water Treatment Plant

A Water Treatment System designed for a development client to treat dam water at a specified volume of 2,500m<sup>3</sup>/day with provisions for future expansion to 5,000m<sup>3</sup>/day. The Plant is a self-contained unit, with five water treatment stages and is ideal for large scale water supplies. The stages in sequential order are Flocculation, Aeration which serves to aerate the raw water, Settlement of the raw water sediments, Filtration, and Chlorination.

The Dayliff 2,500m<sup>3</sup>/day Water Treatment Plant during operation starts with incoming raw water flowing through the first dosing pump where it is dosed with a flocculant to aid in particle settlement.

Water then flows via a supply pipe to the base of the Aeration Tank from where it slowly rises and overflows into the clarifier tank and pumped through a Glass & Anthracite media filter for filtration. The water is then dosed with chlorine as it goes to the control tank before it's pumped to the consumption point. The chlorine dosed at this point is used to kill bacteria and pathogens present in the pre-treated water before consumption.



Plant Schematic Diagram



Site Pictures



**PROJECT CASE STUDY****6.2 Engineered Solutions for an Industrial Estate (cont'd)****6.2.2 Pontoon and Power generator**

In the same site, D&S Engineering was also tasked to design, fabricate and install a floating pontoon to anchor the raw water abstraction pumps deep and towards the center of the dam.

The pontoon eventually served as a floating bridge which improved the aesthetic appeal of the dam.

To provide back up power for the treatment plant, Davis and Shirtliff also supplied and installed a standby 30kVA prime rated power generator which is capable to power the whole plant in case of mains power blackout.



The Pontoon as installed on site



Installed generator

**PROJECT CASE STUDY****6.3 Water Treatment Plant for a Religious Organization**

Plant stages;

- Pre-filtration
- Iron Removal
- Activated Carbon Filtration
- Reverse Osmosis

The organization is located in Nairobi and has a borehole which they have been dependent on for the provision of water within their facility. However, this water tested high in Iron and Flouride, rendering it unfit for human consumption.

D&S Engineering designed a suitable and cost-effective solution for removing these elements. The design entailed four main stages; Pre-filtration, Iron Removal, Activated Carbon Filtration and Reverse Osmosis with a capacity to treat their borehole yield of 4m<sup>3</sup>/hr to produce at least 2m<sup>3</sup>/hr.



Site Pictures

## PROJECT CASE STUDY

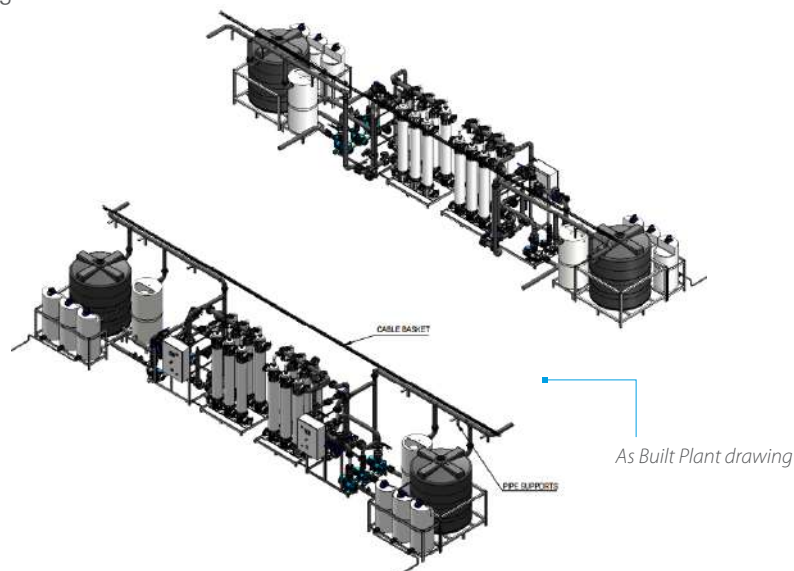
## 6.4 Containerized WTP for a Hospital in Lusaka

The hospital located in Lusaka, Zambia, required a packaged water treatment solution to treat the water fed into the hospital from the municipal line as well as provide pre-treatment of their borehole water to suitable levels for feeding into a reverse osmosis plant.

D&S Engineering was engaged to design two water treatment plants each of similar capacity, 40m<sup>3</sup>/hr, which included;

- Multicyclone centrifuge filters for the removal of larger suspended particles of 40 – 80 micron to increase the filtration cycle of the Ultrafiltration plant
- Ultrafiltration treatment system c/w robust UF modules with a recovery of 97.7%  
For ease of transportation and handling the plant was designed using 12No IP-51 modules achieving a flux of 70LMH and all the equipment fitted into a 20ft container

The Ultrafiltration system is based on size exclusion and is effective in the removal of all suspended material to the size of 0.02mic. The system comes complete with post-chlorine disinfection to provide for residual disinfection of the treated water and the hospital now has a consistent source of clean potable water that meets WHO and local drinking standards.



Plant Pictures

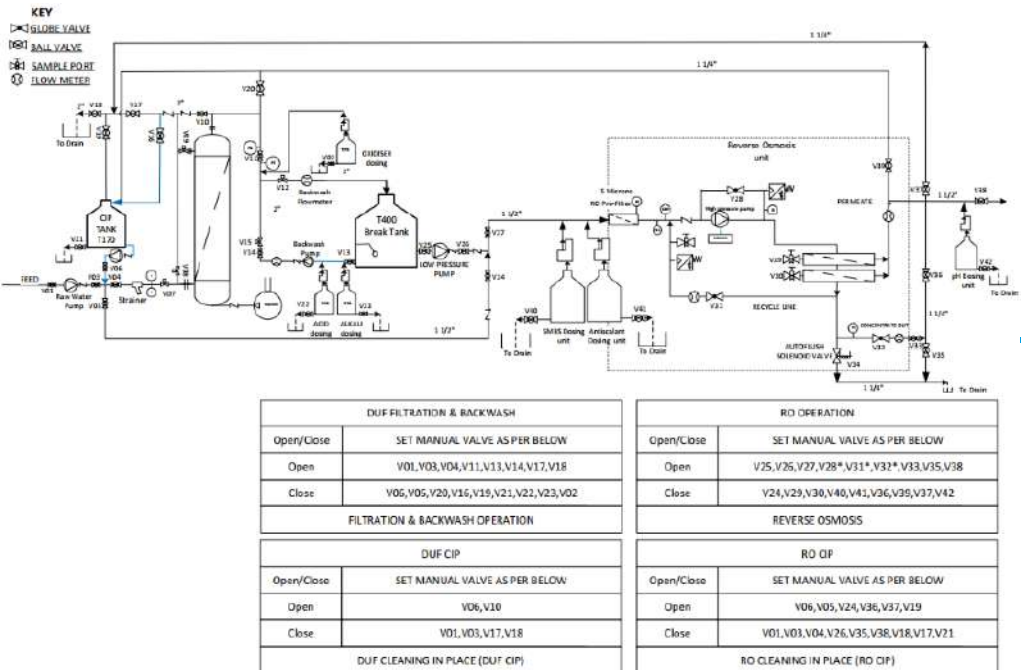


PROJECT CASE STUDY

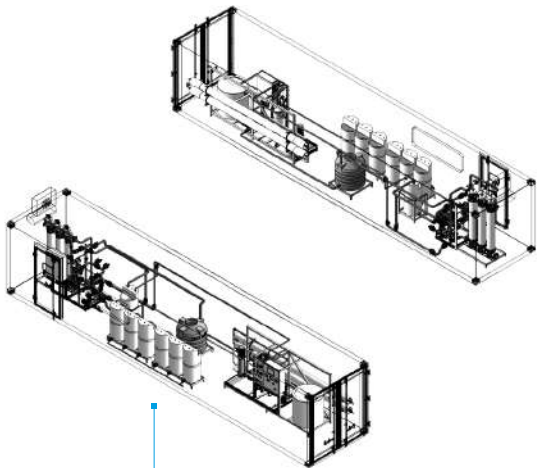
6.5 Containerized WTP for an NGO in Somali

The plant included a 10m<sup>3</sup>/hr Dayliff Ultrafiltration Plant upstream of the 6m<sup>3</sup>/hr Dayliff Reverse Osmosis plant. The Dayliff Ultrafiltration acted as a pretreatment to the Dayliff Reverse Osmosis plant and included smart PLC based Control Panel that controlled the operation of the electric actuated ball valves and pressure transducers that controlled the different Ultrafiltration plant processes for the smooth operation of the plant.

Pre-treated water from the Ultrafiltration plant was then transferred to the 600l break tank (T600) where the Dayliff Reverse Osmosis Plant low pressure pump would draw the water and transfer the water to the High Pressure pump of the Dayliff Reverse Osmosis plant for treatment before finally being transferred to the clean water storage tank. The break tank included several float switches controlled from both the Ultrafiltration and reverse osmosis control panels to ensure smooth operation of two plants within the container.



Design P&ID



As built Plant Drawing



Completed assembly of the water treatment plant



# **Pools & Water Features**







## PROJECT CASE STUDY

### 7.1 Swimming Pool for High-end Apartments, Nairobi

An ultra-luxury pool design was developed for high-end apartments located in Nairobi, at the top of a 19-storey central building. The developer contracted D&S Engineering to design and install swimming pool and water features on the top of the building and at the reception area.

The scope included design and installation of equipment for;

- 3 No infinity swimming pools
- Jacuzzis (4 indoor and outdoor)
- Steam and Sauna



Bar Swimming Pool & Ground water feature under construction



Bar pool and 19<sup>th</sup> floor fountain



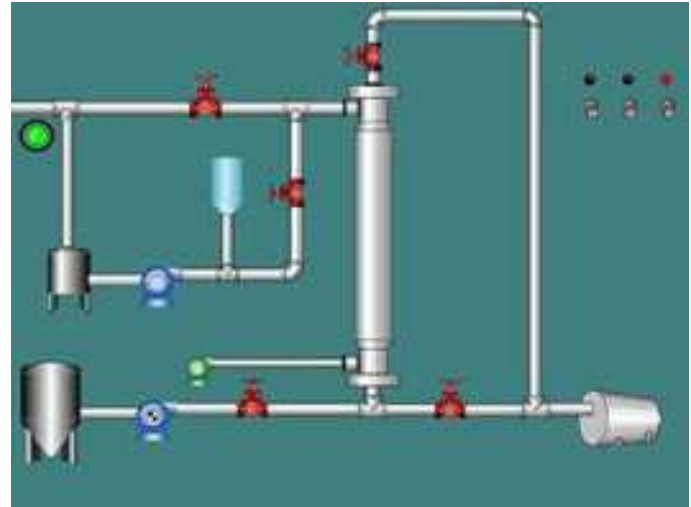
Main Pool and reception fountain

## PROJECT CASE STUDY

## 7.2 Water Feature for a Mall in Nairobi

D&S Engineering developed an artificial river with water filtration system and waterfall features at a leading leisure mall in Nairobi. The projected scope included filters, pumps and controllers for the dancing fountains installed on a 500m artificial river and holding 3,000,000l of water including a 20m wide waterfall.

D&S Engineering designed and assembled the BMS control panels to control all the 23 pumps supplying the river and waterfall for the mall.



Computer generated control panel prototypes



Site Pictures



## 7.3 Water Play Park for a Mall in Nairobi

The Water Play Park consists of activators and controllers that sequence the flow of water to various water features creating an interactive play environment for children. D&S Engineering was contracted by the mall developer to equip and install water play park with sustainability in mind.

### Key project features included;

- Installation of water feature components (water jets, cascade water features and soft flooring at water play area)
- Installation of water filtration system for the water spray park.
- Installation, testing and commissioning of the pumping units and interactive water spray park



Water play area under construction



Water play area on completion



## 7.3 | Water Play Park for a Mall in Nairobi (cont'd)



Site Pictures

# 8 **Irrigation**







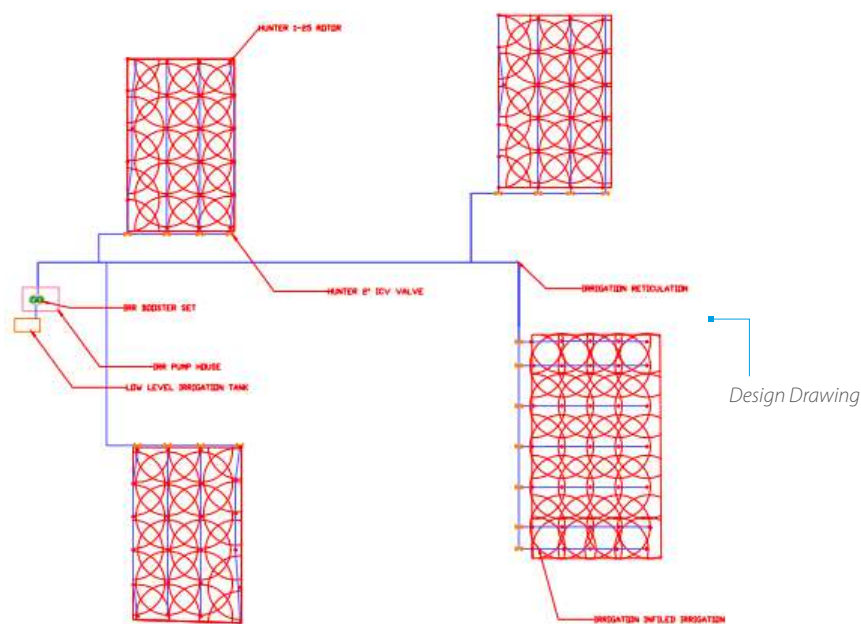
## PROJECT CASE STUDY

## 8.1 National Sports Ground

D&S Engineering designed, installed and commissioned a fully automated irrigation system for a sporting complex which included 3 No football pitches and 1 No rugby pitch.

The complete irrigation system included;

- Pumping station with a capacity of 30m<sup>3</sup>/h at 5.5bar pressure set for duty standby operation
- Hunter controller per field
- Hunter pop up sprinklers
- Rain/moisture sensor for automatic system shut off when there is rainfall



Site Pictures



**PROJECT CASE STUDY****8.3 | A Learning Institution**

D&S Engineering installed a fully automated Irrigation system on all playing fields for an Academy in Thika, Kenya. The school has a student population of approximately 600 and will have a total of 7 grassed Football, Rugby & Cricket fields irrigated using Hunter equipment. Scope included design, supply, installation and user training to enable sustainable operation of state of the art facilities suitable for sporting events all year round.

The installation included Hunter I-25 lawn (pop-up) sprinklers, WiFi enabled irrigation Controllers, Electric Control valves and a complete pumping station.



Site Pictures



**PROJECT CASE STUDY****8.4 Play Fields for a College in Nairobi**

D&S Engineering installed and commissioned a fully automated irrigation system for 4 playing fields at a college in Nairobi.

The project involved design and installation using Hunter equipment and is operated by an irrigation controller with GPRS remote operation capability.



Newly installed pop-up sprinklers at one of the playing fields



Same field 2 years later

# 9

## Generators







## PROJECT CASE STUDY

### 9.1 700kVA Generator for a Government Parastatal

D&S Engineering was selected as the best qualified supplier to undertake the provision of an emergency power requirement in the Oil and Gas sector.

The project scope included supply, installation and commissioning of a 700kVA Prime Rated Cummins engine generator for reliable back up power provision.



Site Pictures

**PROJECT CASE STUDY****9.2 Synchronised Genset for a Hospital in Parklands, Nairobi**

A large Hospital Group headquartered in Nairobi, with several clinics in key towns in the country required emergency backup power for a ultra-modern 7 storey 140 bed capacity facility.

D&S Engineering successfully supplied, installed and commissioned 2No 350kVA Prime Rated Cummins engine synchronized generators to meet the power requirements and provide standby power availability when one generator is being serviced.



Site Picture

**9.3 1313kVA Genset for a Fruit Processing Plant**

D&S Engineering successfully supplied, installed and commissioned a 313kVA Prime Rated Cummins generator with a 300kVA Automatic Voltage Regulator (AVR) to protect Plant equipment against utility power voltage surges.

In addition the iDayliff remote monitoring and control solution was provided to enable both Factory Engineers as well as Davis & Shirliff Field Service Teams to be able to monitor the operation of the equipment and provide pre-emptive maintenance.

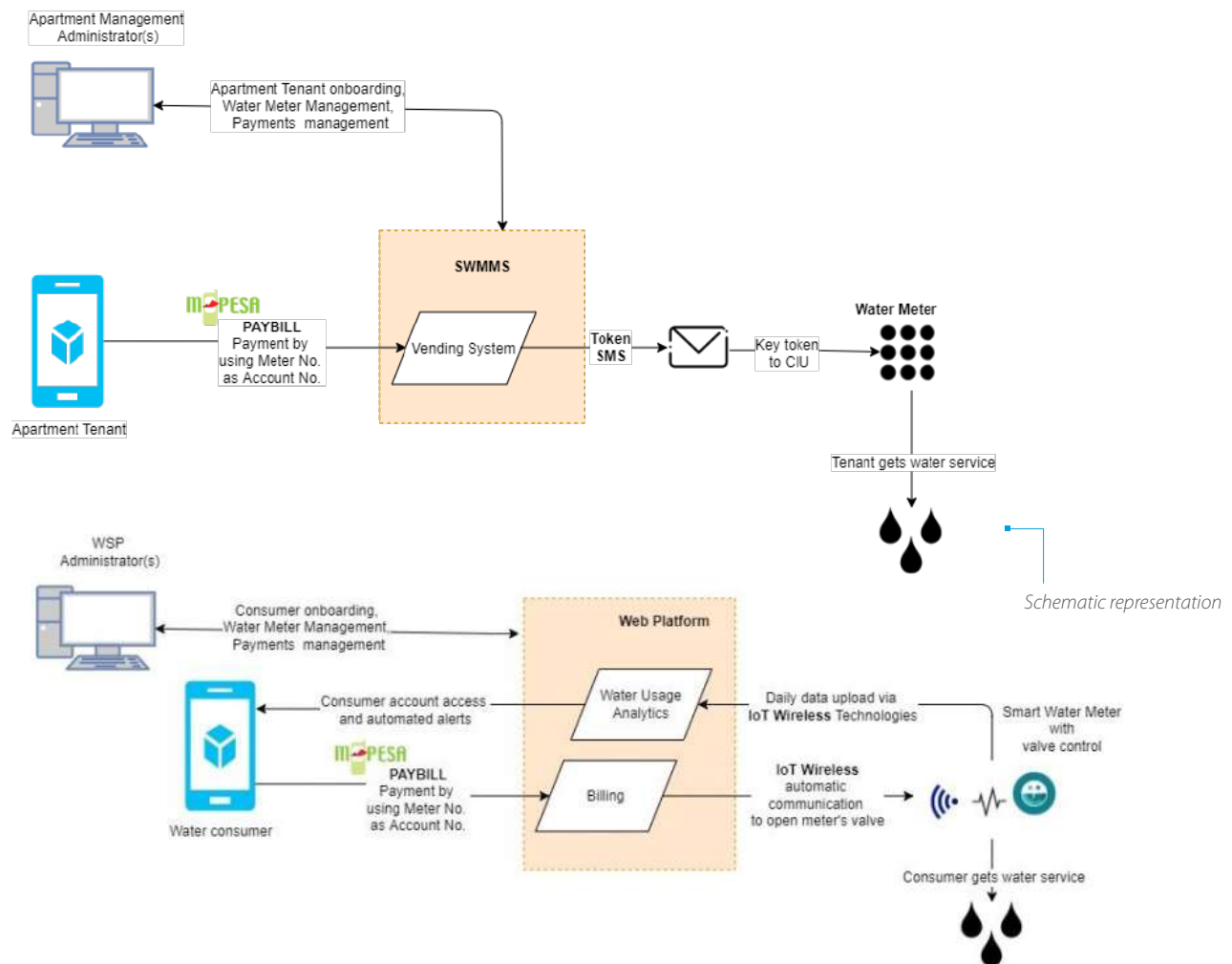


Site Pictures

# 10 Digital Water Metering

Dayliff Prepaid Water Metering is a high specification end to end solution that delivers water meter management for apartment owners and water utilities. It consists of industry standard compliant prepaid water meters with integral electronic valve control and software platform for water credit token generation. Meter recharge is via 20-digit token delivered to water service consumer by SMS or mobile app or by smart card enabled water credits.

By providing real-time status information about water service usage and enforcing prepayment for service provision, the solution enhances water conservation, delivering important benefits to water service providers such as non-revenue water management, lower operational costs, defaulter management and improved efficiencies.





## 10.1 Digital Water Metering - Product pictures



*Split Type Prepaid Meter*



*Prepaid Meter with Integrated Keypad*



*Ultrasonic Smart Water Meter*



**Water Pumps**



**Boreholes**



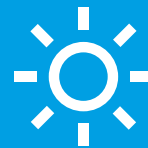
**Pools**



**Water Treatment**



**Generators**



**Solar**



**Irrigation**



**Chemicals**



**Digital Engineering**

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