

# LORENTZ CONNECTED

**Operating Manual and User Guide.**



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## 1 Introduction

LORENTZ CONNECTED products open up new opportunities to improve customer service and for new commercial models.

Most LORENTZ solar water pumping systems are equipped with a DataModule. This is an integral data logger and remote control device for our range of solar water pumps. The DataModule, combined with the LORENTZ PumpScanner App for Android™ and LORENTZ pumpMANAGER open new opportunities in drinking water supply for people and livestock, irrigation and swimming pool applications. The PS DataModule collects performance data from the pump system and stores it for periodic collection. It uses Bluetooth® to communicate with the LORENTZ PumpScanner App for Android and – for remote monitoring – with the LORENTZ PS Communicator and pumpMANAGER, allowing secure data collection without physical connections.

LORENTZ PS2 and PSk2 systems with SmartSolution support have an embedded DataModule with advanced pump system control options.

For PumpScanner options related to PS and the first generation PSk2 pumps please refer to the archived CONNECTED manual on LORENTZ partnerNET. This manual refers to PS2 and PSk2 system with SmartSolution support.

## 2 Access and user rights

### 2.1 General access to pump systems

Lorentz PS2 and PSk2 SmartSolution systems can be accessed after registering the device on partnerNET Sites or via user name and password



**Note: Registering the system on Sites is recommended. The installer remains in control of system access and can remove access rights of individual users if required. Site and system data on partnerNET Sites can be used for record keeping, for creating references and for support tickets. A site record is also required for using the LORENTZ remote monitoring service.**

#### 2.1.1 Access via partnerNET Sites registration

Access to CONNECTED products is managed through "Sites" under the "Support" tab on partnerNET. A pump system registered on Sites will allow related users to access it via PumpScanner. The remote monitoring service pumpMANAGER can be started on Sites for any system that is linked to a PS communicator.

For PumpScanner, after registering the system on partnerNET Sites then the "License list" in PumpScanner settings must be updated.

For pumpMANAGER, after registering the system and setting up the hardware pumpMANAGER credits must be obtained in partnerNET and the service must be started within partnerNET >> Support >> Sites >> System.

#### 2.1.2 Access via username and password

PS2 and PSk2 pumps with SmartSolution support running a firmware version higher or equal to 1.41 (PS2) and 4.29 (PSk2) are equipped with a password based direct access feature. Unconfigured controllers with a firmware older than 1.41 (PS2) and 4.29 (PSk2) offer a firmware update option without prior registration of the device to enable the password based access feature.

This feature can be disabled in the password menu of each pump system, refer to 3.3.2.9 „Pumps - Password settings menu“ on page 28.

Controllers are delivered with three default username and password combinations that grant a specific user level access right, equal to the roles granted through registration on partnerNET. An overview of userroles and default passwords can be found in LORENTZ partnerNET on the PumpScanner page.

For details concerning access levels refer to 2.2 „User level access rights“ on page 4.

### 2.2 User level access rights

The available setup and control options in PumpScanner and pumpMANAGER depend on individual user rights. Some functions are limited to technical users only. Refer to Table 1 „User rights“ on page 5 for an overview.

The setting can be changed by Business Managers in partnerNET in Partner Program >> User Management by editing the individual user.

### 2.3 Access for customers

Customers can gain access to pumps with PumpScanner through registration by the partner on partnerNET (recommended) or by username / password.

To give customers access to PumpScanner they can be registered on partnerNET in Support >> Customers. For access to pumpMANAGER registration is mandatory. Create a "new customer", then edit it to link it to a specific Site by using the "assign to Site" button and invite individual users to this customer using their email address. An invitation will be sent granting login to customerNET. The login credentials can also be used for access to pumpMANAGER.

Edit the invited users in partnerNET under Support >> Customer to change the rights setting from "normal" to "technical" user if required.

At his own discretion the installing partner can pass either username / password combinations to the customer, granting the related level of access without registration on partnerNET.

Table 1: User rights

	Partner [Admin]		Customer	
	Normal	Tech	Normal [Guest]	Tech [User]
View LED status	✓	✓	✓	✓
View data	✓	✓	✓	✓
Change installation settings	✓	✓		
Change operational settings	✓	✓		✓
Change feature settings	✓	✓		✓
Upgrade firmware	✓	✓		✓



# PumpScanner



## 3 PumpScanner

The LORENTZ PumpScanner App for Android App connects to any LORENTZ controller equipped with a DataModule. It allows access to more detailed setup options, timers, advanced features and real time performance data.

- Quickly identify any pump performance issues
- Reduce fault finding time and cost
- Improve technician image – very professional tools available on low cost Android smart phones
- Provide clear pump and water source performance information for customers
- Identify any pro-active service work that needs to be carried out ahead of potential failures

PumpScanner can also be used to access a PS Communicator for detailed status information, changing settings and assisted troubleshooting.

PumpScanner also has a barcode scanning feature that will allow fast and easy setup of "Sites" on partnerNET. You can create a Site record on your smartphone by scanning the product barcodes and entering some simple additional installation information. This record can then be uploaded to partnerNET where a site is automatically created.

Sites are used to help you to secure data access, keep a record of installs, create references, raise technical support tickets and other time saving features.

## 3.1 Pre-requisites and planning

To setup the features and functions of the PumpScanner App and the LORENTZ pump controller you should have the following:

- A PS Controller with either a PS DataModule installed (PS, PSk2) or with an embedded DataModule (any PS2, PSk2 with SmartSolution support)
- A registration of the pump system components on Sites in the LORENTZ partnerNET
- An Android smartphone or tablet running Android 4.3 or above with Bluetooth
- A LORENTZ partnerNET account to access your PumpScanner license ID
- An internet connection to download PumpScanner software and to update your PumpScanner license list

Before going to the work site to configure the LORENTZ pump controller it is recommended to set up a Site on partnerNET, access your PumpScanner license ID, download PumpScanner and update the license list in PumpScanner.

The embedded DataModule in PS2 and PSk2 controllers with SmartSolution support can also be accessed via user name and password without prior registration.

PumpScanner has a Site creation and upload feature, see 3.3.4 „Sites“ on page 32.

## 3.2 PumpScanner setup

### 3.2.1 Smartphone requirements

To run the PumpScanner App use an Android Smartphone with operating software version not less than 4.3.

You can check your actual Version by going to

**Settings** > **About phone**  
> **Software information**  
> **Android version**

The version number is shown below.

The Smartphone has to be Bluetooth-compliant. (Most Android-Smartphones are Bluetooth-compliant.)

### 3.2.2 Download and install from Google Play Store

- (1) Open Google Play Store on your Android Smartphone.
- (2) Search for "lorentz pumpscanner" in the main search console at the top of the page.
- (3) Tap "PumpScanner - LORENTZ solar water pumps".
- (4) Tap "INSTALL".
- (5) After the installation is complete tap "OPEN" to start using PumpScanner immediately or start the App from your App drawer later.

Figure 1: Play Store app

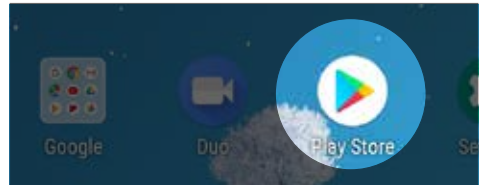


Figure 2: Search for "lorentz pumpscanner"

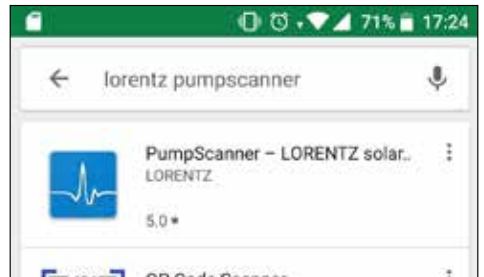
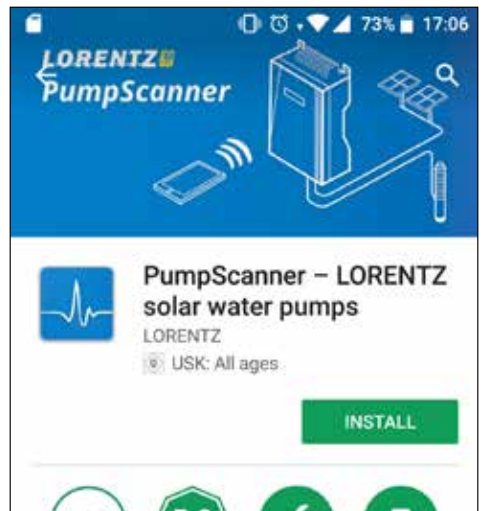



Figure 3: Tap "INSTALL"



### 3.2.3 Download and install from LORENTZ server

If installing PumpScanner from the Google Play Store is not possible you will find the latest version of PumpScanner on partnerNET under the Support section in "CONNECTED".

When you have downloaded the PumpScanner App, start the installation of the file. Look for the file in the taskbar or the download folder  on your mobile phone.

Click on the file and start the installation (Figure 1: „Start installation“ on page 10).

Since the PumpScanner App cannot be downloaded from Google Play you must allow the installation of Apps from unknown sources ( „Allow unknown sources (1)“ and Figure 6 „Allow unknown sources (2)“ on page 10).

Figure 4: Start installation

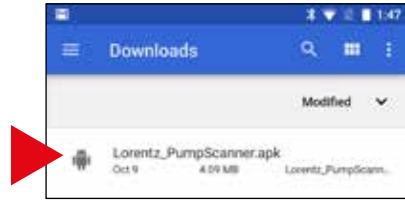


Figure 5: Allow unknown sources (1)



Figure 6: Allow unknown sources (2)



Another way to download the PumpScanner App is by using a QR code scanner (see „QR code scanning“ on page 11). Search in the Android Marketplace for such an application (for example Google goggles), if you do not already have such a scanner.

After scanning the code, follow the link and the download will start immediately. Install the application as mentioned before.

Follow the instructions given by the software. It needs a few seconds to install the application. When it finished you can open PumpScanner.



**Note:** Upon first start of the app enter and save your personal PumpScanner license ID in “Settings”. Your PumpScanner ID is displayed on your PumpScanner download page on partnerNET.

### 3.2.4 Synchronize the clock on first start



**Note:** It is important that the time and date on your Android device is correct. You will be given the option to synchronize this time with the LORENTZ pump controller. If you do not have correct and synchronized times then data may not be correctly downloaded.

Figure 7: QR code scanning



### 3.2.5 Updating the PumpScanner App

When an internet connection is available PumpScanner will check for new versions and prompt you to install the latest. The installation of the new software version will replace the old one. The previous user data will be saved.

## 3.3 Using PumpScanner

PumpScanner has four main areas, as shown in Figure 8 „PumpScanner start screen“.

**Pumps** – Scan for and access local pump controllers to configure the pump system or to view performance data.

See 3.3.2 „Pumps“ on page 14

**Communicators** – Scan for and access local PS Communicators to view network data or change network settings.

See 3.3.3 „Communicators“ on page 30

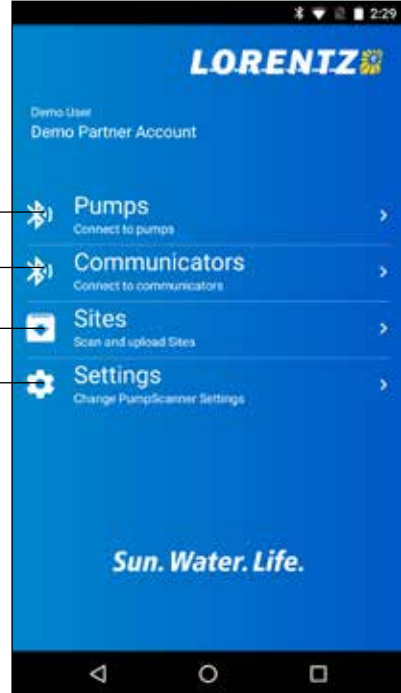
**Sites** – Automatically setup complete Sites on partnerNET by using this integrated barcode scanner, entering the required installation parameters and directly uploading the data to your partnerNET account.

See 3.3.4 „Sites“ on page 32

**Settings** – enter your personal PumpScanner license ID, update your license list and change general PumpScanner settings.

See 3.3.1 „Settings“ on page 13

Figure 8: PumpScanner start screen



### 3.3.1 Settings

To use PumpScanner with registration of systems on partnerNET Sites you must enter your personal license ID. From the PumpScanner start page select settings, you can now enter the License ID. Your license ID can be found on LORENTZ partnerNET in the Support section under PumpScanner. This is a unique license key for you, do not share it.

After entering your license ID you need to update your license list. This will grant access to any pump registered within your company's partnerNET Sites area.



**Note: Registering your pumps in partnerNET Sites and updating your PumpScanner license list subsequently is required to access the pumps.**

To change the PumpScanner app from English to either French or Spanish, select your language from the dropdown menu.

To display US units rather than metric units, check "use US units".

"Show Demo Pumps" provides you with two virtual pumps that you can use to demonstrate PumpScanner features to potential customers.

Some features of PumpScanner are role based and for technical users only. This role must be set within "User management" in your partnerNET account.

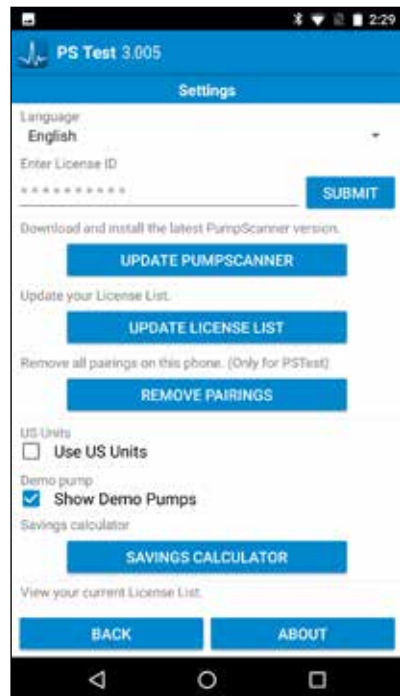
**Savings calculator** – the savings calculator options allow you to select a hypothetical alternative energy supply (grid / diesel generator), cost per delivered unit of fuel, currency and in case a generator is selected, average efficiency.

This data is then used on your pump dashboard to calculate an estimate of money saved from the pumped amount of water in the selected timeframe.



**Note: "Savings" is an estimation of savings based on the power required to pump the same amount of water using an alternative energy source. It is not an exact calculation.**

Figure 9: PumpScanner settings



## 3.3.2 Pumps



**Note: This section refers to LORENTZ PS2 and PSk2 pumps with SmartSolution support only.**

When the pumps list is accessed, PumpScanner will search for pumps immediately. If Bluetooth is not activated you will be prompted to do so. This will take a few seconds. When the application finds a pump it will be shown on the list. Choose the pump you want to use (Figure 10 „Pump list 2“ on page 14). Pumps that are in range will have a bold Bluetooth symbol next to them.

To delete a pump from the list, long-click on the pump name.

PumpScanner can only pair

- with pumps which were registered on your Sites page within partnerNET and after updating the license list in PumpScanner. All PS2 and PSk2 SmartSolution systems have an embedded DataModule and the DataModule license included.
- with pumps that support password based access (PS2 and PSk2 SmartSolution systems with a firmware higher or equal to 1.41 (PS2) and 4.29 (PSk2)).

If you have any problems with the connection please see the trouble shooting section of this manual.

Figure 10: Pump list



### 3.3.2.1 Pumps – System Overview

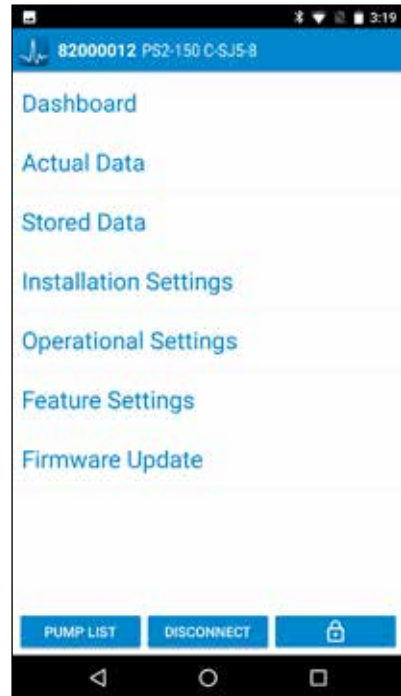
Tab a pump to access detailed settings and performance data for it. This is only possible while in Bluetooth range.

Once you are connected via Bluetooth to a LORENTZ controller you should first make sure that your pump profile is correct and saved (refer to „Pumps - Installation Settings“ on page 16).



**Note: Your actual and historic data will not be correct if the controller is not configured correctly.**

Figure 11: Pump data and settings



3.3.2.2 Pumps – Installation Settings

Please configure “Controller”, “Pump Unit”, “Cable length” and “Cable size” according to your installation.

**Total dynamic head** – if not calculated or measured (“override TDH”) by using a pressure sensor, the correct TDH has to be configured to correctly calculate the flow rate of the pump system.

**Sun Sensor** – if a LORENTZ Sun Sensor is installed it can be configured to stop the pump system below a defined irradiation value. Please make sure to register the correct Sun Sensor serial no. for increased accuracy of the measurement.

**Water Meter** – a water meter can be installed for flow measurement. The amount of water per impulse from the water meter must be set up correctly, please refer to the datasheet of your water meter.


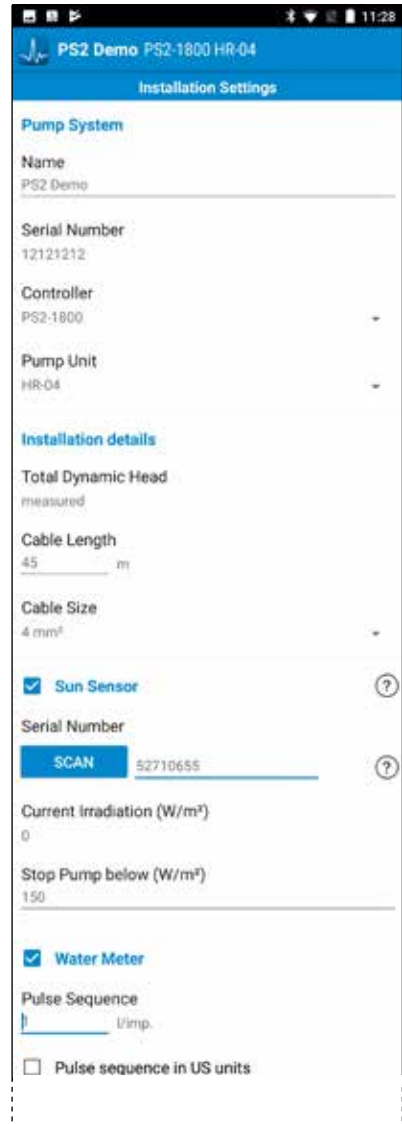
 **Note: You will not be able to save settings unless you have a connection via Bluetooth to the controller.**

Figure 12: Installation settings



**Analog Inputs** – if any sensor is connected to the analog inputs (pressure / liquid level sensor) it must be activated in "installations settings", then configured in "feature settings" (see 3.3.2.4 „Pumps - Feature Settings" on page 19). Measuring range is the max. pressure in bar/psi or depth in m/ft according to the datasheet of the sensor.

**Override TDH** – This function is for use when a pressure sensor is installed at the well head. The override TDH option results in PumpScanner reporting the pressure measurement from the sensor rather than a calculated TDH.

**Water Level Display Offset** – This function allows offsetting the measured and stored reading from level sensors by a specific value.

**Liquid Density** – change this parameter to correctly measure the level of liquids other than water. The default value of 1000 kg/m<sup>3</sup> is for pure water at 4°C.

**Battery Mode** – enables low voltage disconnects to prevent over discharging of batteries on a battery powered system.

**Tank full delay** – will force a 15 minute delay before restarting the pump after the tank full event has cleared. Forcing a delay can lower the number of repeated starts and stops and can extend the product life.

**Factory Reset** – reset all settings and data. This will cause loss of all historic data.



**Note: You will not be able to save settings unless you have a connection via Bluetooth to the controller.**

Figure 13: Installation settings 2

Analog Input 1

Sensor Type ?  
Level Sensor

Measuring Range  
10.00 m

Water Level Display Offset  
0 m

Analog Input 2

Other settings

Battery Mode ?

Tank Full Delay ?

DataModule info and settings

Sample Rate  
10 min (5 years capacity)

DataModule Clock  
Nov 2, 2017 11:29:36 AM

Synchronize Clock ?

DataModule Firmware  
1.41

Pump Controller Firmware  
1.41

Factory Reset

CANCEL SAVE

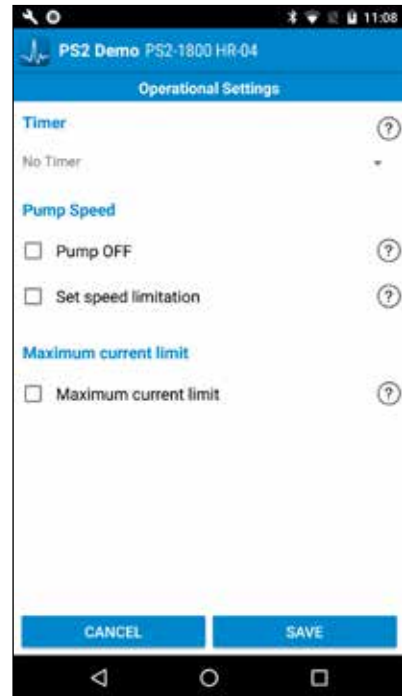
### 3.3.2.3 Pumps – Operational Settings

Using the “Timer” function a pumping interval can be defined where the pump will repeatedly run for a set time, then pause for a set time. It can also be configured to always pump during a specific time each day.

“Pump speed” allows to define maximum and minimum motor speed limits or to switch the pump off. When the pump has been switched off by PumpScanner it cannot be restarted unless this is done from PumpScanner (or pump-MANAGER). The hardware “on/off” switch is overridden by the software switch off.

“Power limit” allows to define a maximum power limit for the pump which shall not be exceeded.

Figure 14: Operational settings



### 3.3.2.4 Pumps – Feature Settings



**Note: This section contains descriptions of the software functions only. For typical pump setup combinations please refer to the application notes on the partnerNET Knowledge Base.**

Feature settings offer advanced automatic control functions:

**Pump Control** – with a LORENTZ pressure sensor, a LORENTZ liquid level sensor or a water meter installed and configured in “installation settings” (3.3.2.2 „Pumps - Installation Settings” on page 16) advanced options for pump control are available.

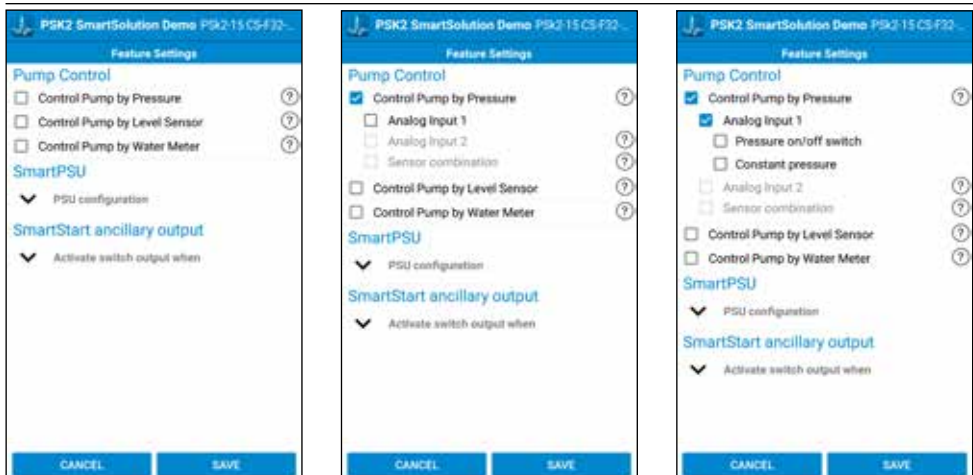
- (1) Select the type of sensor to automatically control the pump. Only installed and configured sensors will be available.
- (2) Select which sensor to use for pump control. This is only relevant when two sensors of the same type are installed and configured. In this case the pump can also be controlled by the differential reading.

- (3) Select the pump control feature. For detailed information please refer to „Control pump by Pressure” on page 20, „Control pump by Level Sensor” on page 19 and „Control pump by Water Meter” on page 22.

**SmartPSU** – when running PSk2 systems with SmartSolution support SmartPSU configuration options become available. For detailed information please refer to „SmartPSU configuration” on page 23.

**Switch output / SmartStart ancillary output** – if a SmartStart is installed with the PSk2 system with SmartSolution support or for any PS2 controller, an output switch can be configured based on events. For details please refer to „Output switch configuration” on page 24.

Figure 15: Feature settings 2



**Control pump by Pressure** – with a LORENTZ pressure sensor installed and configured at either analog input then “Control Pump by Pressure” is available with two options:

**Pressure on/off switch** – the pump can be configured to stop and start above / below specific pressure readings from the sensor.

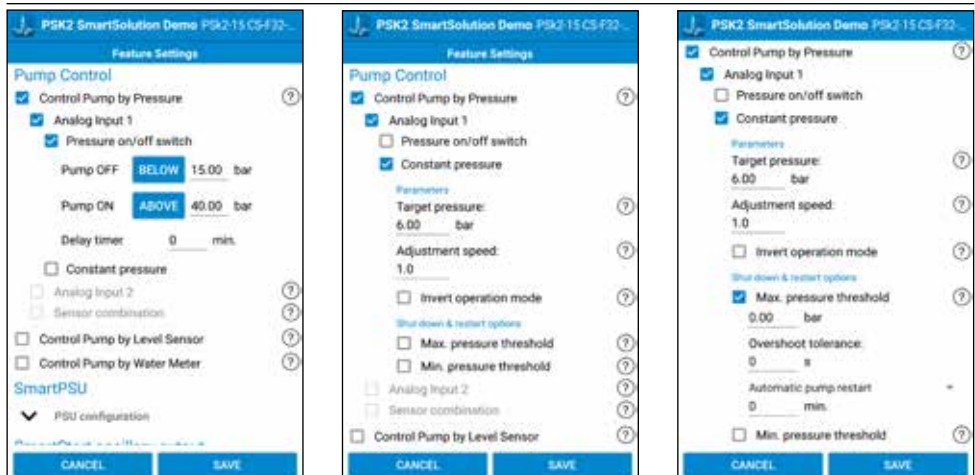
**Constant pressure** – the pump can be configured to constantly deliver a specific pressure if the pressure sensor is installed accordingly. The “ramp speed” controls how aggressive the pump system approaches the set value. If the set pressure value can not be reached the pump will continue to run at max. speed.

Optionally for constant pressure a maximum and/or minimum pressure threshold can be defined. The pump will stop when the maximum pressure threshold was exceeded and/ or the minimum pressure threshold could not be reached for longer than the configured “overshoot tolerance” time. For both situations the pump system can be configured to either restart automatically after a set amount of time, or to shut down until it is manually restarted.



**Caution – Setting a high ramp speed can lead to overshooting of the constant pressure function, temporarily delivering a higher pressure than set. Adjust with caution. LORENTZ cannot be held liable for damages to connected systems.**

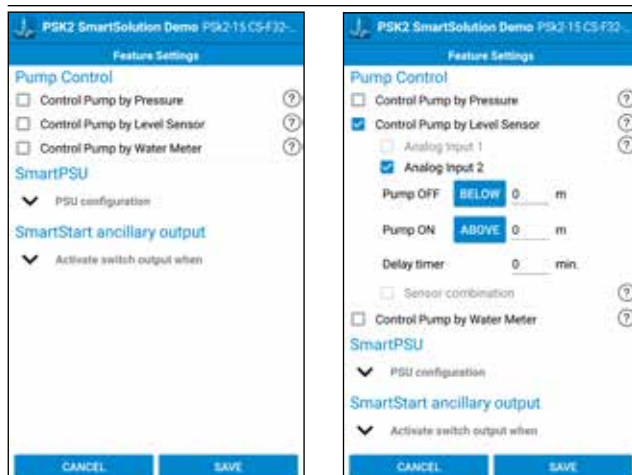
Figure 16: Control pump by pressure



**Control Pump by Level Sensor** – with a LORENTZ liquid level sensor installed and configured at either analog input then “Control Pump by Level Sensor” is available.

**Level on/off switch** – the pump can be configured to stop and start above / below specific level readings from the sensor.

Figure 17: Control pump by level sensor



**Control Pump by Water Meter** – with a LORENTZ water meter installed and configured then “Control Pump by Water Meter” is available with three options:

**Daily amount** – the pump can be configured to stop after pumping a specific amount of water within 24 hours. The reset time can be changed to suit the application.

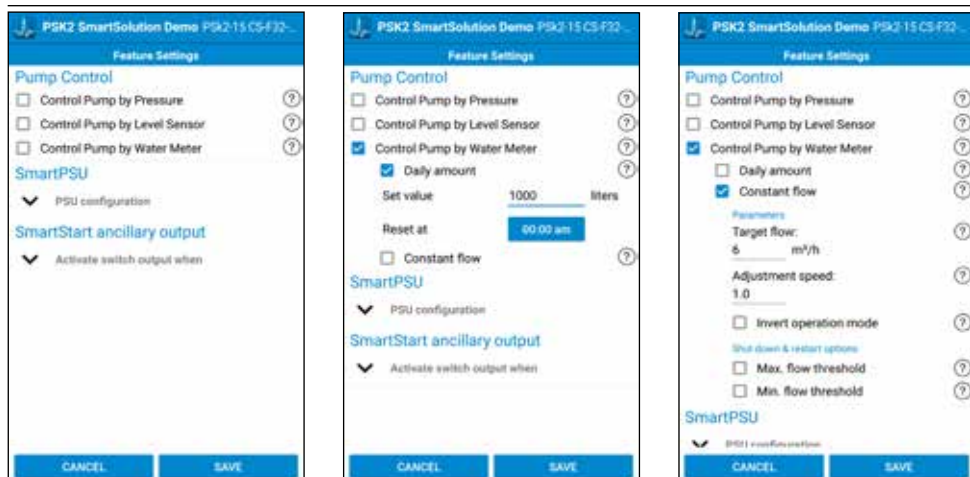
**Constant flow** – the pump can be configured to deliver water at a constant flow. The “ramp speed” controls how aggressive the pump system approaches the set value. If the set flow can not be reached the pump will continue to run at the maximum possible speed.

Optionally for constant flow a maximum and/or minimum flow threshold can be defined. The pump will stop when the maximum flow threshold was exceeded and/or the minimum flow threshold could not be reached for longer than the configured “overshoot tolerance” time. For both situations the pump system can be configured to either restart automatically after a set amount of time, or to shut down until it is manually restarted.



**Caution – Setting a high ramp speed can lead to overshooting of the constant flow function, temporarily delivering a higher flow than set. Adjust with caution. LORENTZ cannot be held liable for damages to connected systems.**

Figure 18: Control pump by water meter



## SmartPSU configuration

There are three main operational modes:

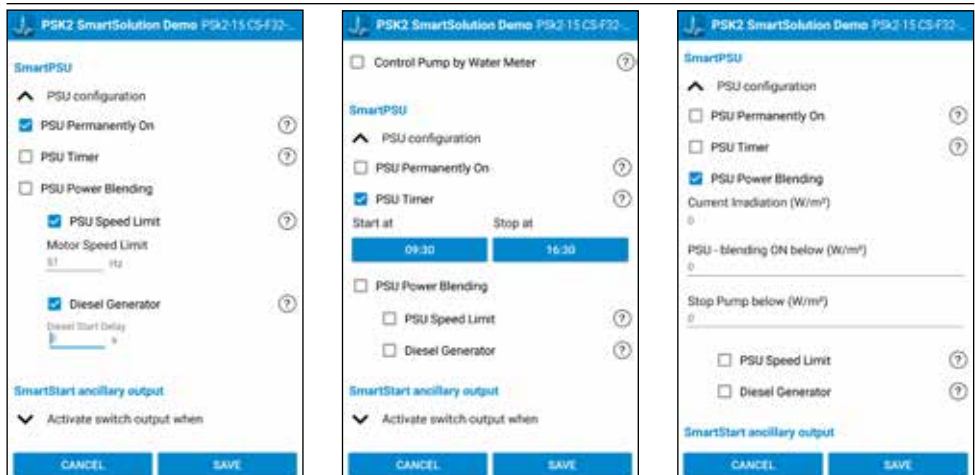
- **PSU Permanently On** – The SmartPSUK2 will run 24 hours a day and blend in as much power from the secondary power source as is required to run the pump with the selected pump settings.
- **PSU Timer** – The SmartPSUK2 will only run in the selected timeframe and blend in as much power from the secondary power source as is required to run the pump with the selected pump settings. If secondary power is supplied from a diesel generator the generator will automatically be switched off outside the set time period.
- **PSU Power Blending** – The SmartPSUK2 will blend in power from a secondary power source only within configurable irradiation boundaries.

Secondary setup options:

**PSU Speed Limit** – the pump can be configured to run at a maximum speed when blending in power from a secondary power source with a SmartPSUK2.

**Diesel generator** – when the secondary power is supplied by a diesel generator this option must be activated. A start delay for the generator can be set to prevent fast subsequent starts and stops of the generator. If the SmartPSUK2 is operating in "PSU Timer" mode, the generator will automatically be switched off outside the set time period.

Figure 19: SmartPSU configuration



**Output switch configuration** – if a SmartStart is installed with the PSK2 system with SmartSolution support and for every PS2 system, an output switch can be configured based on events:

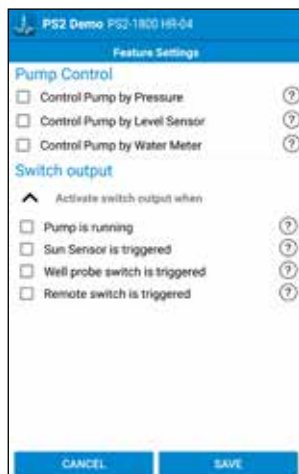
**Pump is running** – the switch output is activated (closed) when the pump is running.

**Pump is stopped by Sun Sensor** – the switch output is activated (closed) when the Sun Sensor function stopped the pump due to low irradiation.

**Well probe switch is triggered** – the switch output is activated (closed) when the well probe switch was triggered and stopped the pump.

**Remote switch is triggered** – the switch output is activated (closed) when the remote switch was triggered and stopped the pump.

Figure 20: Output switch configuration



### 3.3.2.5 Pumps – Actual data

The “Actual data” shows the key running data of the pump system that is currently connected. Displayed are the input power, flow rate, motor speed, input voltage, total dynamic head, motor current, cable loss and controller temperature. Note that the “Pump switched Off” is a virtual LED indicating a software switch off, this is not replicated on the pump controller.

### 3.3.2.6 Pumps – Stored data

“Stored Data” allows you to view data that has been recorded in the PS DataModule. You can choose between 4 modes:

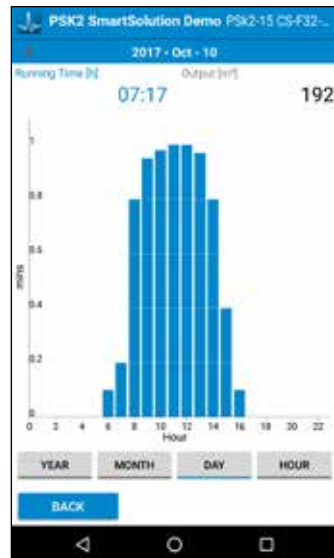
- (1) Year
- (2) Month
- (3) Day
- (4) Hour

You can switch between these modes by clicking on the buttons. In the first three modes you can read out the running time (in [h]) and the pumps output (in [m<sup>3</sup>]) per year, month or day. In mode four (Hour) you have buttons to switch between flow rate, motor speed, voltage and the current.

Figure 21: Actual data



Figure 22: Stored data



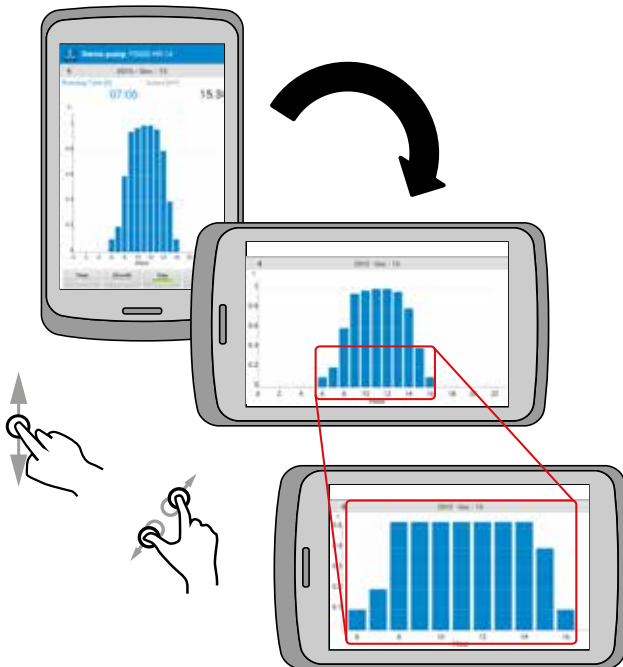
You can navigate in the mode windows by sliding the date / time left or right.

Figure 23: Navigating in data



When you rotate your smartphone into landscape – auto-rotate screen should be activated – you can zoom in and out on the graph view. Use finger spread and pinch to zoom and navigate with finger swipe.

Figure 24: Navigating in data II



### 3.3.2.7 Pumps – Dashboard

The “Dashboard” shows a customizable selection of actual and stored data for the pump system.

- **System and Pump status LED** – the dashboard replicates the controller LEDs for system and pump.
- **Operational status** – displays any settings that stop the system from pumping at maximum speed, e.g. a manually set motor speed limitation.
- **System errors** – displays any current system errors detected by the controller.
- **Actual data** – displays selected system parameters. Analog sensors are displayed in a graphic including any operational settings, if configured.
- **Performance** – displays system performance over time (total flow, savings). To correctly display savings the savings calculator must be set up within the general PumpScanner settings menu.


 **Note: “Savings” is an estimation of savings based on the power required to pump the same amount of water using an alternative energy source. It is not an exact all-purpose calculation.**

Figure 25: Dashboard

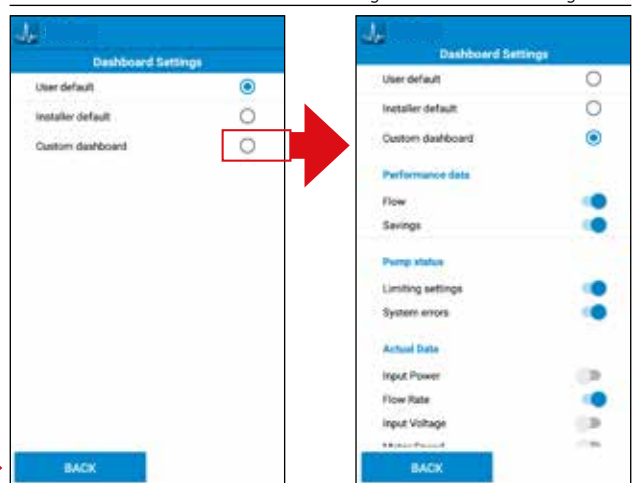


### 3.3.2.8 Pumps – Dashboard configuration

Tap “Config” in the dashboard menu to open the dashboard configuration options. Three options are available

- **User default** – shows system and pump status; operational status; system errors; actual flow and - if connected - analog sensor data; system performance.
- **Installer default** – shows system and pump status; operational status; system errors; actual flow, input power, input voltage, motor speed, input current, motor current and - if connected - analog sensor data.
- **Custom dashboard** – allows to configure the dashboard to show any selected parameters, see Figure 26 „Dashboard configuration” on page 27.

Figure 26: Dashboard configuration



### 3.3.2.9 Pumps – Password settings menu

From the main pump menu the password access configuration menu can be accessed through the “lock” button at the bottom right of the screen, see Figure 27 „Password access settings” on page 28.

The available options depend on the rights level of the connected user. Registered partners or users accessing the pump via “Admin” password can use the “Allow password access” toggle to deactivate the password access to the controller. The ability to change password for the three access types follows the general partner and user hierarchy, see Table 2 „Password menu options” on page 28.



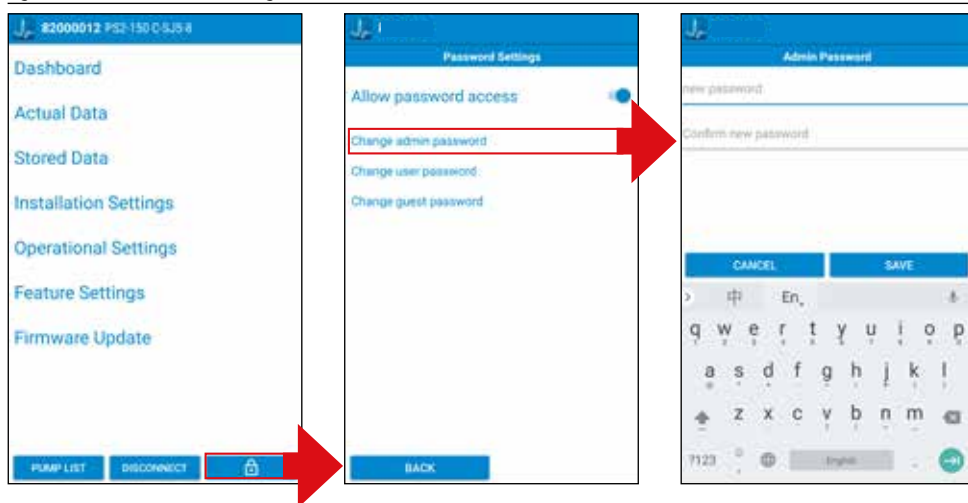
**Note: If password access is deactivated for an unregistered system, registration on partnerNET Sites is required to regain access to the controller.**

**Note: Reactivating the password feature will reset any password to factory default.**

Table 2: Password menu options

User type	Ability to deactivate password	Ability to change password for		
	access to controller	Admin	User	Guest
Partner / Admin	✓	✓	✓	✓
Customer technical user / User			✓	✓
Customer normal user / Guest				✓

Figure 27: Password access settings



### 3.3.2.10 Pumps – Firmware Update

Access to firmware updates is role-based and available for technical users only. The Firmware update option will check the version of the PS DataModule against the latest available.



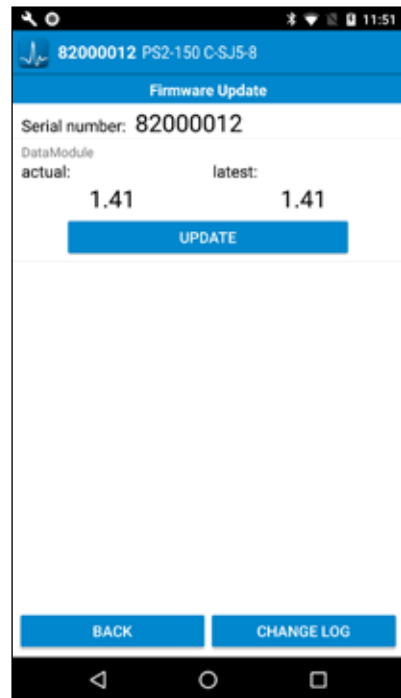
**You can only update firmware when you have a connection by Bluetooth to the controller.**

To upgrade the PS DataModule follow the onscreen instructions.



**You should only perform a firmware update when you are sure that the power to the pump controller will not be interrupted for 2 minutes.**

Figure 28: Firmware update



3.3.3 Communicators

A PS Communicator is required to use the remote online pump monitoring and management service pumpMANAGER. If a PS Communicator is installed and powered it can be accessed using PumpScanner by selecting it from the "Communicator List", see Figure 29 on page 30, to check network details, amend settings or to trigger a new pairing process with LORENTZ pump controllers.

3.3.3.1 Communicators – System Overview

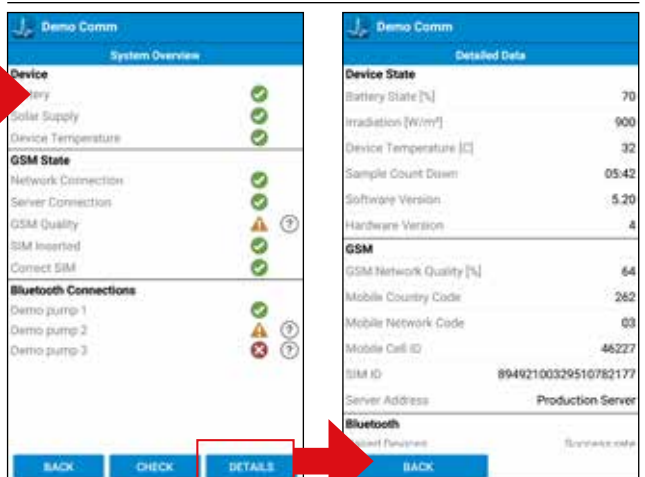
The system overview area shows an aggregated overview of the PS Communicators' hardware status as well as of mobile network and local Bluetooth connectivity, see Figure 30 „System overview“ on page 30.

Within "Details" exact information about the current device status is available and a report file can be generated. This is required if network troubleshooting is necessary.

Figure 29: List of PS Communicators



Figure 30: PS Communicator system overview and detailed view



### 3.3.3.2 Communicators – Settings

The PS Communicator name and network selection mode can be changed. The standard setting for network operator selection is “automatic”. Only if LORENTZ supplies a specific mobile country code and mobile network code, select “manual mode” to enter the settings and tap “save”.

### 3.3.3.3 Communicators – Operations

Within the “Operations” menu immediate sampling, a rescan for pumps and the adjustment mode for external antennas can be triggered.

**Immediate sampling** – will force an instant transfer of data from all paired pumps to the PS Communicator.

**Rescan now** – drops all existing Bluetooth pairings and rescans for pumps. If a new pump is installed after the PS Communicator was activated, a rescan for pumps must be triggered.

**Enter adjustment mode** – When using an external antenna the adjustment mode can be used to align the antenna for best network signal.

### 3.3.3.4 Communicators – Firmware update

For technical users only - follow on-screen instructions.



**CAUTION – Do not run a firmware update unless declared necessary by LORENTZ. Do not interrupt the Bluetooth connection during the update. A failed firmware update can damage the PS Communicator.**

Figure 31: PS Com. settings

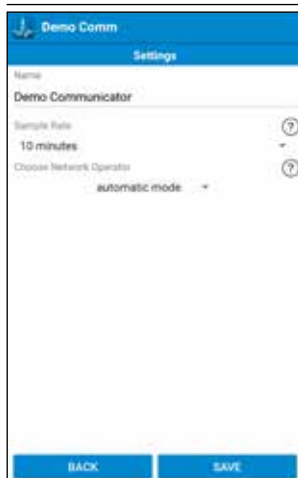
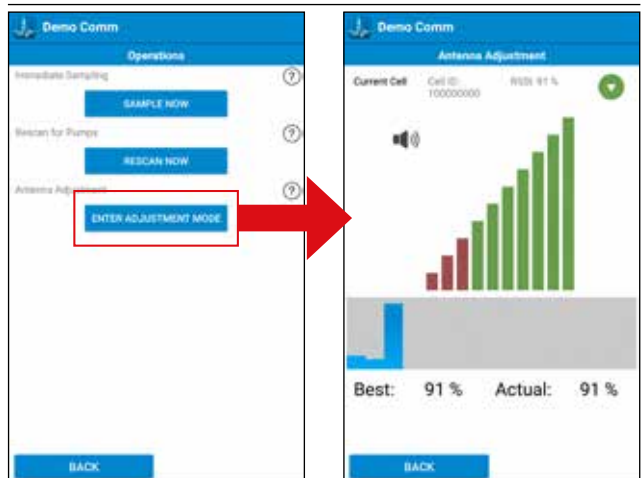


Figure 32: Operations and antenna adjustment



### 3.3.4 Sites

LORENTZ pump systems must be registered on partnerNET "Sites" to gain access to the pump with PumpScanner or to use the remote monitoring and management software pumpMANAGER. "Sites" also optimizes your link to LORENTZ as it works as a database of pump installations which can be automatically referred to if necessary, e.g. to raise a technical ticket (see Figure 33 „partnerNET "Sites" area" on page 32).

The "Sites" function in PumpScanner makes the process of registering a pump system on partnerNET "Sites" even easier: With an integrated barcode reader you can scan the barcodes on LORENTZ product boxes, enter the necessary installation details, take photos of the installation and then upload the set of data to partnerNET. A new entry in your partnerNET "Sites" list will be automatically created. Upon updating your PumpScanner license list (see 3.3.1 „Settings" on page 13) you will gain access to the pump system you uploaded to partnerNET.

Figure 33: partnerNET "Sites" area



The screenshot shows the 'Sites' management interface in the partnerNET system. At the top, there are navigation tabs for 'Settings' and 'Support', and the LORENTZ partnerNET logo. Below the header, there are buttons for 'site pack registration' and 'create new site'. A search bar is present above the table. The table lists 5 entries with columns for SiteID, Site, Sys, Comp, Location, Country, Installed, and Created. At the bottom right, a note states: 'S/C = number of systems / components on the site'.

SiteID	Site	Sys	Comp	Location	Country	Installed	Created *
129	Stock		7				
1813	Reception DEMO HU	1	2		Germany		14.04.15
3421	LORENTZ Livk 2015 Software Demo	1	5	Henstedt-Utzburg	Germany		03.06.15
5955	HU-HQ Well	1	6	henstedt-utzburg	Germany		16.09.15
6405	HU-HQ Outside Well	1	4		Germany		03.11.15

S/C = number of systems / components on the site

**Creating a "Sites" record from PumpScanner:**

- (1) Open the "Sites" function.
- (2) Select "New Site".
- (3) Select the system type to set up.
- (4) Enter the installation details. The parameters to enter differ based on the pump type you are setting up. All parameter inputs are mandatory to make full use of the "Sites" features.

Figure 34: Site setup process

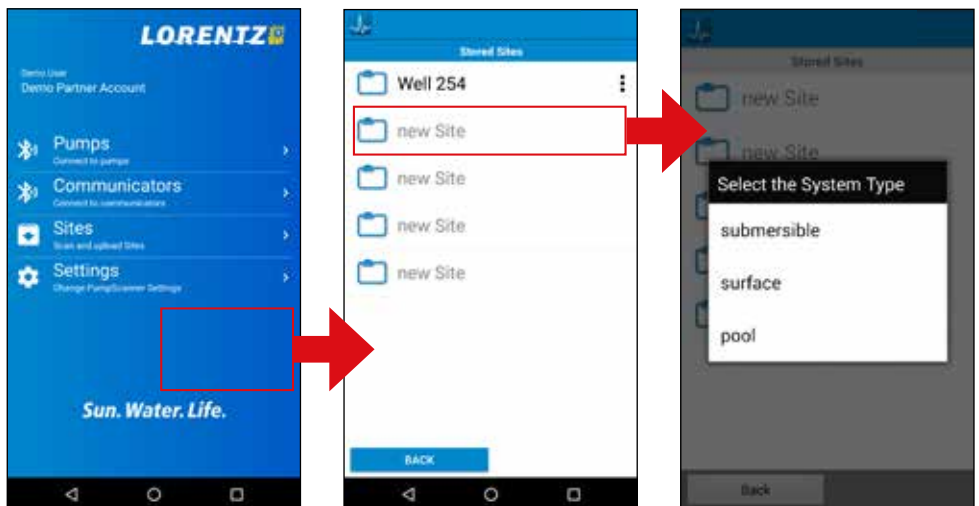





Figure 35: Parameter input for Sites

Enter a name for your Site, select the date and enter a location.

Activate GPS to pinpoint your location.

Scan or enter the component serial numbers.

Tap each list to expand the menu, select/enter the installation parameters and optionally attach photos of the installation or technical details.

 Save your site after entering all parameters. The file is now saved locally on your smartphone.

### Uploading the Site to partnerNET

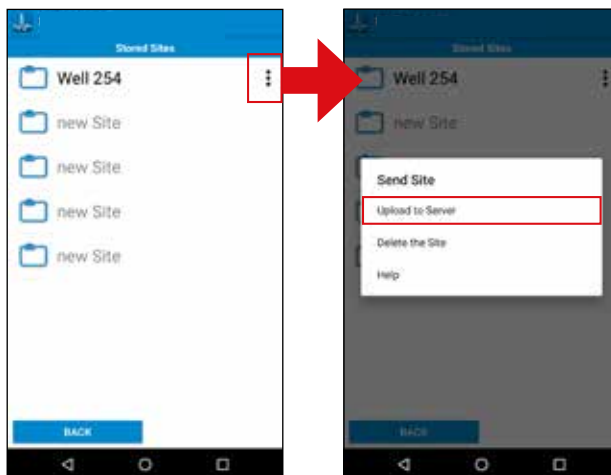
(1) From the list of stored Sites, tap the “browse” button labelled with three dots to the right of your stored Site.

(2) Select “Upload to Server”. The Site will remain stored on your system until you upload it.

Any data that was collected at the installation site with PumpScanner can be held within the application until you are ready to send it. PumpScanner will hold up to 5 sets of site data. You can send the data when you have a mobile internet or a WiFi connection. If you are including multiple pictures or do not have a good mobile internet connection on site please use WiFi.

To access a pump via PumpScanner the upload of the site data should be done and then subsequently the PumpScanner license list should be updated.

Figure 36: Sites upload



### 3.4 Troubleshooting

#### 3.4.1 PumpScanner

Be sure you have installed the latest version of the PumpScanner App. If you have any problems check the following:

- Is the smartphone compatible (see 3.2.1 „Smartphone requirements“ on page 8)?
- Did you register the pump system on Sites in partner-NET?
- Did you update the license list in PumpScanner?
- If synchronizing of “Stored data” does not finish then ensure PS DataModule and PumpScanner Versions are both the latest
- If PumpScanner cannot find the pump, deactivate and reactivate Bluetooth on your mobile phone

#### 3.4.2 Bluetooth connection

When the LED is permanent on, the Bluetooth connection is set up.

If you are having problems check the following:

- Is the Controller powered
- Is the system registered on Sites and the PumpScanner license list updated?
- Are you within Bluetooth operating range?

## 4 PS Communicator 3G & pumpMANAGER

The LORENTZ PS Communicator 3G and pumpMANAGER service combine to offer customers a cost effective full management and monitoring system for their LORENTZ pump estate. This is attractive to commercial farms, industrial processes, government or NGO monitoring and anywhere that water is critical to people, livestock or crops.

The PS Communicator 3G sends data from each pump across the 2G / 3G (mobile) data network to a secure central web server application called pumpMANAGER. The pumpMANAGER application can be accessed from any web connected device anywhere in the world making access to information and control of your solar pumps simple and convenient. As the connection is two ways the pumps can be programmed, speed controlled or switched off, providing full remote control. The pumpMANAGER application also monitors the status of your LORENTZ pump systems and will alert you if there are any unexpected events.

You can login to pumpMANAGER at [www.lorentz.de](http://www.lorentz.de) using your standard partnerNET credentials and see the demo features today without any additional equipment or investment.

Figure 37: pumpMANAGER view of installation site



## 4.1 PS Communicator 3G

The PS communicator 3G is used to control and read the values and stored data of a pump system (equipped with a LORENTZ DataModule) via remote control comfortably from home, office or on the road. It is possible to handle several pump systems.

For installation instructions for the PS Communicator 3G please refer to the PS Communicator 3G manual.

## 4.2 pumpMANAGER

To activate a system on pumpMANAGER, attain pumpMANAGER credits in partnerNET/Support, then navigate to the System view within partnerNET/Sites and click "start service" (see Figure 38 „System view in partnerNET "Sites" with pumpMANAGER control bar" on page 38). Follow onscreen instructions.

For detailed instructions please refer to the partnerNET Knowledge base.

Figure 38: System view in partnerNET "Sites" with pumpMANAGER control bar

