LORENTZ CONNECTED

Operating Manual and User Guide.

LORENTZ

The Solar Water Pumping Company

Contents

1 Introduction . . . 3

2 Access and user rights . . . 4
2.1 General access to pump systems . . . 4
2.2 DataModule licenses . . . 4
2.3 User level access rights . . . 4
2.4 Access for customers . . . 4

3 PumpScanner . . . 5
3.1 Pre-requisites and planning . . . 6
3.2 PumpScanner setup . . . 6
3.2.1 Smartphone requirements . . . 6
3.2.2 Download and install of the PumpScanner App . . . 7
3.2.3 Synchronize the clock on first start . . . 8
3.2.4 Updating the PumpScanner App . . . 8
3.3 Using PumpScanner . . . 9
3.3.1 Settings . . . 10
3.3.2 PS and first generation PSk2 Pumps . . . 11
3.3.3 PSk2 pumps with SmartSolution support . . . 19
3.3.4 Communicators . . . 33
3.3.5 Sites . . . 35
3.4 Troubleshooting . . . 39
3.4.1 PumpScanner . . . 39
3.4.2 Bluetooth connection . . . 39

4 PS Communicator & pumpMANAGER . . . 40
4.1 PS Communicator . . . 41
4.2 pumpMANAGER . . . 41

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.

New LORENTZ PSk2 systems with SmartSolution support have an embedded DataModule with advanced pump system control options. Pre-requisites and rights management for these systems are the same as for other LORENTZ systems but additional pump control settings are available.

For PumpScanner setup of PS and first generation PSk2 pumps please refer to 3.3.2 „PS and first generation PSk2 Pumps“ on page 11.

For PumpScanner setup of PSk2 pump systems with SmartSolution support please refer to 3.3.3 „PSk2 pumps with SmartSolution support“ on page 19.

2 Access and user rights

2.1 General access to pump systems

General access to CONNECTED products is managed through "Sites" under the "Support" tab on partnerNET. A pump system must be registered on Sites in order to be able to access it through PumpScanner or pumpMANAGER.

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.

2.2 DataModule licenses

Access to unlicensed DataModules is restricted to DataModule setup. The DataModule can be licensed on partnerNET Sites. Controllers shipped after March 2015 have the license included.

2.3 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 4 for an overview.

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

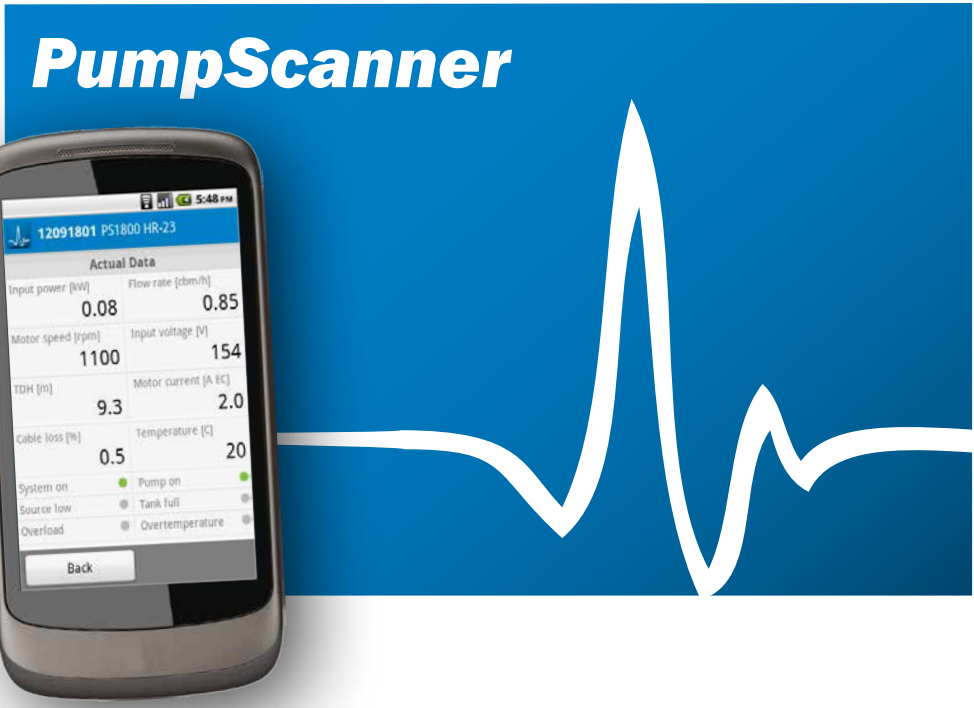
2.4 Access for customers

To give customers access to PumpScanner or pumpMANAGER they must be registered on partnerNET in Support >> Customers. 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 through their email address. An invitation will be send to each of them where they can then login to customerNET and download PumpScanner.

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

Table 1: User rights

	Partner			Customer		
	Free	Licensed		Free	Licensed	
		Normal	Tech		Normal	Tech
View LED status	✓	✓	✓	✓	✓	✓
View data		✓	✓		✓	✓
Change installation settings	✓	✓	✓			
Change operational settings		✓	✓			✓
Change feature settings	✓	✓	✓			✓
Upgrade firmware	✓	✓	✓			✓



3 PumpScanner

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, 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 PS DataModule functionality you will need the following:

- A PS Controller with either a PS DataModule installed (PS, PSk2) or with an embedded DataModule (PSk2 with SmartSolution support)
- A registration of the pump system components on Sites in the LORENTZ partnerNET
- An Android smartphone or tablet with running Android 2.3.3 or above with Bluetooth
- A LORENTZ partnerNET account to access your Pump-Scanner 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 PS DataMod-ule 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 PS DataModule cannot be accessed without setting up a Site on partnerNET and updating the license list within PumpScanner, this process is effectively your access key.

PumpScanner has a Site creation and upload feature, see 3.3.5 „Sites“ on page 35.

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 2.3.3.

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 of the PumpScanner App

Our Apps and the updates are not available through Google Play (Android Marketplace). You will find the latest version of PumpScanner on partnerNET under the Support section.

Since the PumpScanner App cannot be downloaded from Google Play you must allow the installation of Apps from unknown sources. To do this

- Enter the main menu, where all other Applications are located, then go to

  Settings > Applications

- Make sure that the item **"Unknown Sources"** is checked (Figure 1 on page 7).

Note: After the installation of the PumpScanner App you can disable the installation of Apps from unknown sources again.

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 „Allowing unknown sources" on page 7).

Figure 1: Allowing unknown sources

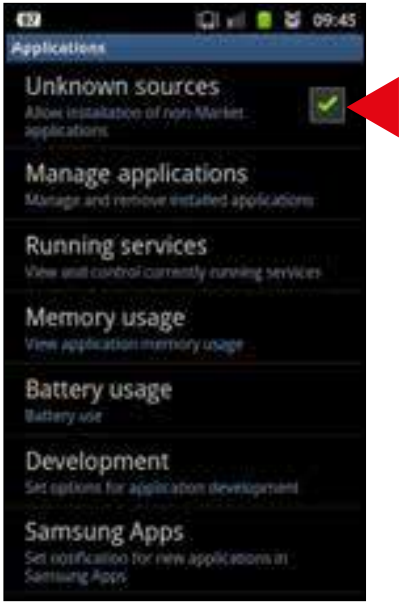
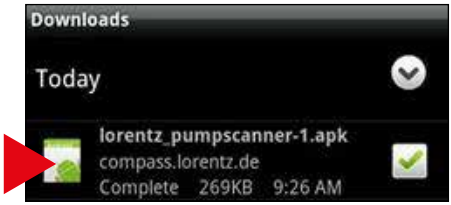


Figure 2: Start installation



Another way to download the PumpScanner App is by using a QR code scanner (see Figure 3 „QR code scanning“ on page 8). 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.

Figure 3: QR code scanning

3.2.3 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 PS DataModule. If you do not have correct and synchronized times then data may not be correctly downloaded.

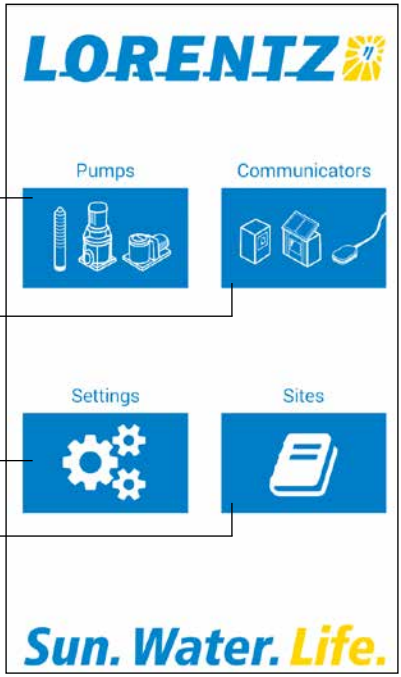
3.2.4 Updating the PumpScanner App

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 4 „PumpScanner start screen“ on page 9.

Figure 4: 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 11

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

See 3.3.4 „Communicators“ on page 33

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

See 3.3.1 „Settings“ on page 10.

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 3.3.5 „Sites“ on page 35

3.3.1 Settings

To use PumpScanner 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. Note 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.

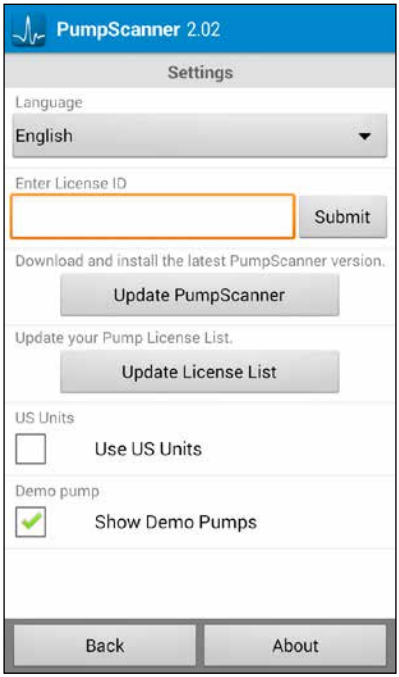
To change the PumpScanner app from English to either French or Spanish, select your language from the dropdown menu.

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.

Figure 5: PumpScanner settings



3.3.2 PS and first generation PSk2 Pumps

Note: This section refers to LORENTZ PS and to first generation PSk2 pumps only. For PSk2 pumps with SmartSolution support please refer to 3.3.3 „PSk2 pumps with SmartSolution support“ on page 19.

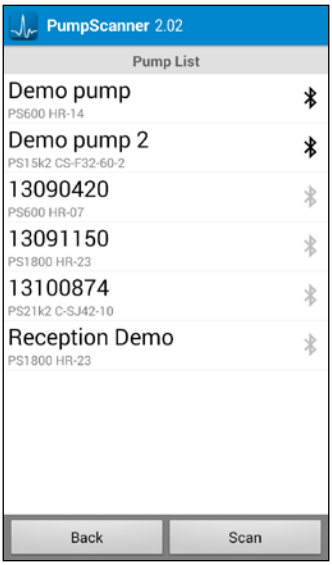
When the pumps list is accessed, PumpScanner will search for pumps immediately. If Bluetooth is not activated you will be prompted to do so. This will take a few seconds. When the application finds a pump it will be shown on the list. Choose the pump you want to use (Figure 6 „Pump list“ on page 11). 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. Older PS Data-Modules can be licensed online for additional functionality, controllers shipped after March 2015 have the DataModule license included. Please see the "PS DataModule Licenses" module on LORENTZ partnerNET which can be found on the Support tab.

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

Figure 6: Pump list



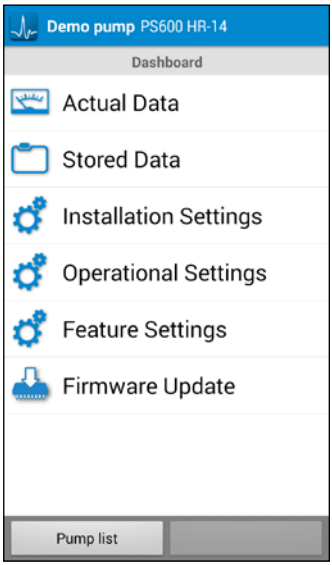
3.3.2.1 Pumps – System Overview

Tap 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 PS DataModule you should first make sure that your Pump profile is correct and saved (Figure 8 „Installation settings“ on page 13).

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

Figure 7: 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.

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.

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.

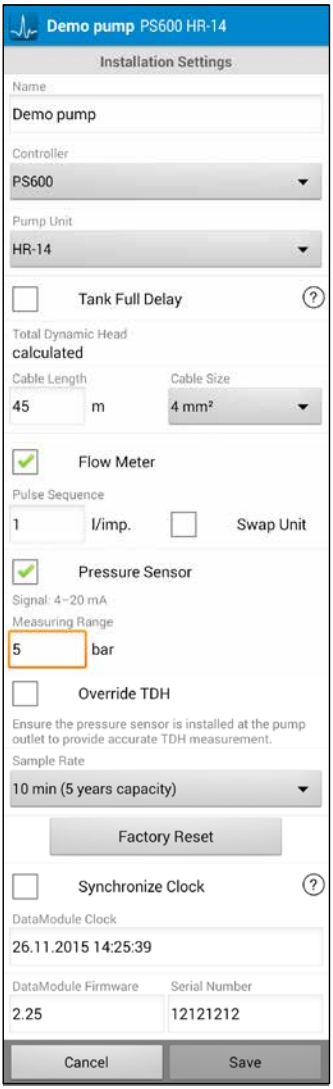
Flow Meter – a flow meter can be installed for precise flow measurement. The amount of water per impulse from the flow meter must be set up correctly, please refer to the datasheet of your flow meter.

Pressure sensor – if any sensor is connected to the pressure sensor terminal (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 15). Measuring range is the max. pressure in bar/psi according to the datasheet of the pressure 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.

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

Figure 8: Installation settings

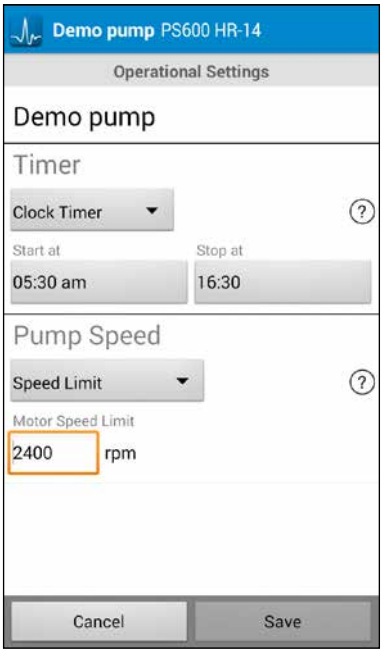


3.3.2.3 Pumps – Operational Settings

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 a maximum motor speed limit 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 pumpMANAGER). The hardware "on/off" switch is overridden by the software switch off.

Figure 9: Operational settings



3.3.2.4 Pumps – Feature Settings

To access some feature settings for a pump an appropriate sensor must be registered with the pump system on partnerNET Sites.

From the drop down menu in "feature settings" select the function according to what is installed at the sensor input, see Figure 10 on page 15.

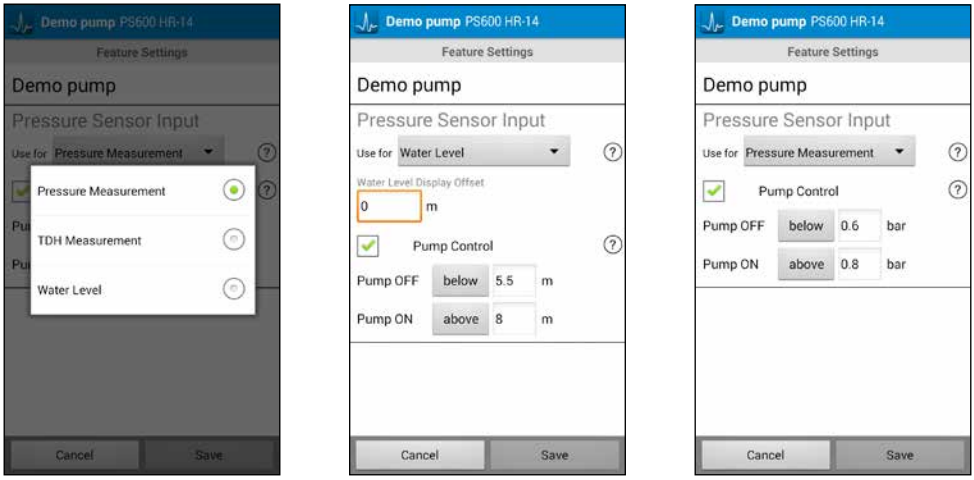
Pressure measurement – requires a pressure sensor. The pressure readings from the sensor will be recorded by the DataModule. "Pressure sensor" must be enabled in installations settings, see Figure 8 „Installation settings" on page 13.

TDH Measurement – the pressure measured at the pump outlet will replace the calculated TDH value. "Pressure sensor" and ""Override TDH" must be enabled in installation settings, see Figure 8 „Installation settings" on page 13.

Water level – with a LORENTZ liquid level sensor installed the level of the fluid above the sensor can be measured. An offset can be defined that will only affect the displayed water level to account for installation specific details and/or requirements, such as the installation depth of the sensor. "Pressure sensor" must be enabled in installations settings, see Figure 8 „Installation settings" on page 13.

Pump control – Using a pressure or liquid level sensor, the pump system can be configured to stop automatically when the pressure/water level drops below a specific setting ("Pump OFF below x bar/psi/meter/ft") and to restart, when the pressure rises above a specific setting ("Pump ON above x bar/psi/meter/ft") and vice versa. To switch between modes, tap either "below" or "above".

Figure 10: Feature settings



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. The controller LED status indicators are also replicated on the display (see Figure 11 „Actual data" on page 16). 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 [m³]) per year, month or day. In Mode four (Hour) you have buttons to switch between flow rate, motor speed, voltage and the current.

Figure 11: Actual data

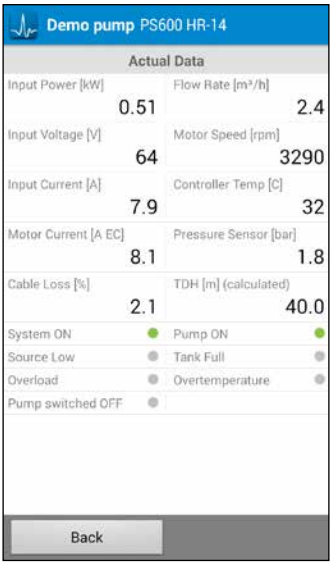
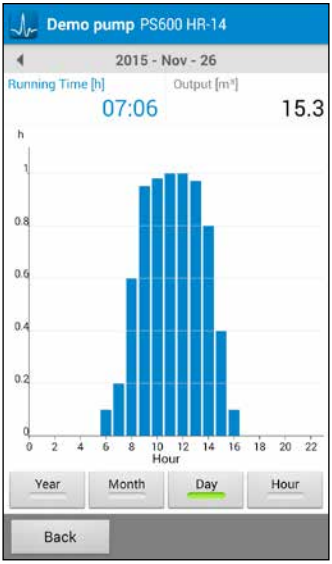
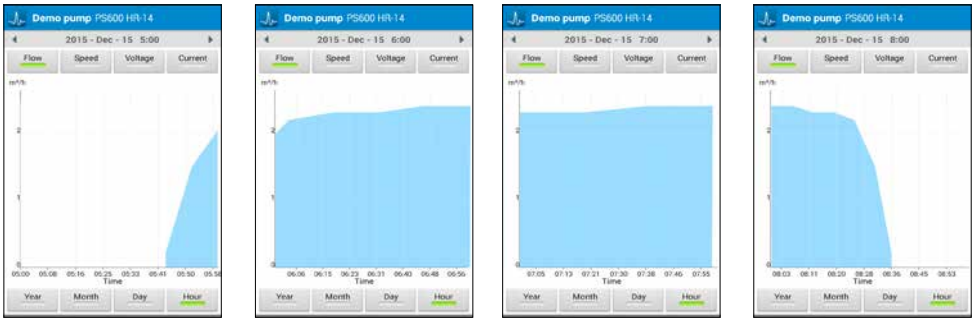


Figure 12: Stored data



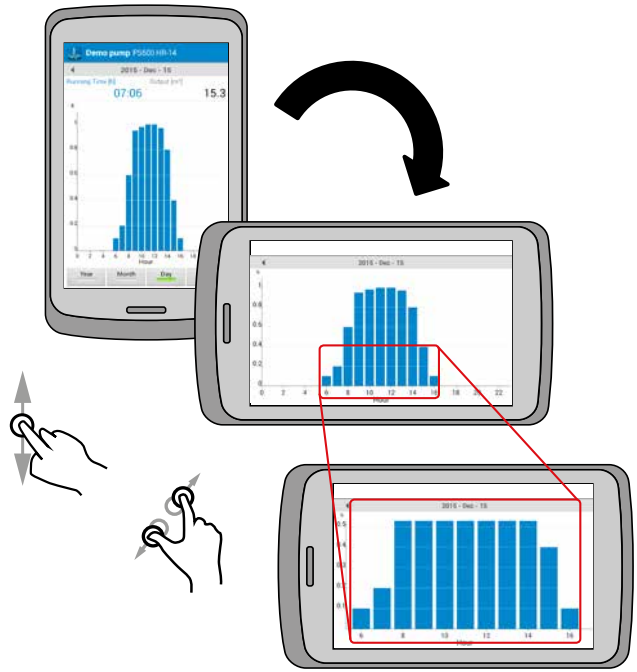
You can navigate in the mode windows by sliding the date / time left or right.

Figure 13: 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 14: Navigating in data II



3.3.2.7 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.

Note: You can only update firmware when you have a connection by Bluetooth to the PS DataModule.

To upgrade the PS DataModule follow the onscreen instructions.

Note: 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 15: Firmware update

3.3.3 PSk2 pumps with SmartSolution support

Note: This section refers to LORENTZ PSk2 pumps with SmartSolution support only. For other systems please refer to 3.3.2 „PS and first generation PSk2 Pumps“ on page 11.

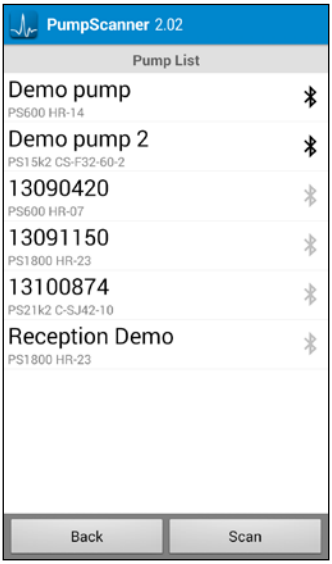
When the pumps list is accessed, PumpScanner will search for pumps immediately. If Bluetooth is not activated you will be prompted to do so. This will take a few seconds. When the application finds a pump it will be shown on the list. Choose the pump you want to use (Figure 16 „Pump list 2“ on page 19). 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 PSk2 Smart-Solution systems have an embedded DataModule and the DataModule license included.

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

Figure 16: Pump list 2



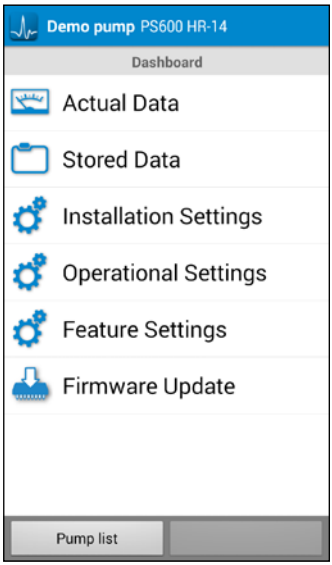
3.3.3.1 Pumps – System Overview

Tap 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 PS DataModule you should first make sure that your Pump profile is correct and saved (Figure 8 „Installation settings“ on page 13).

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

Figure 17: Pump data and settings



3.3.3.2 Pumps – Installation Settings

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

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.

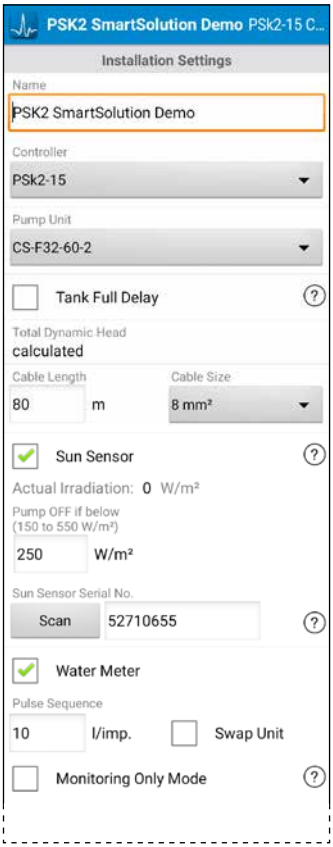
Sun Sensor – if a LORENTZ Sun Sensor is installed it can be configured to stop the pump system below a defined irradiation value. Please make sure to register the correct Sun Sensor serial no. for increased accuracy of the measurement.

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.

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 18: Installation settings 2



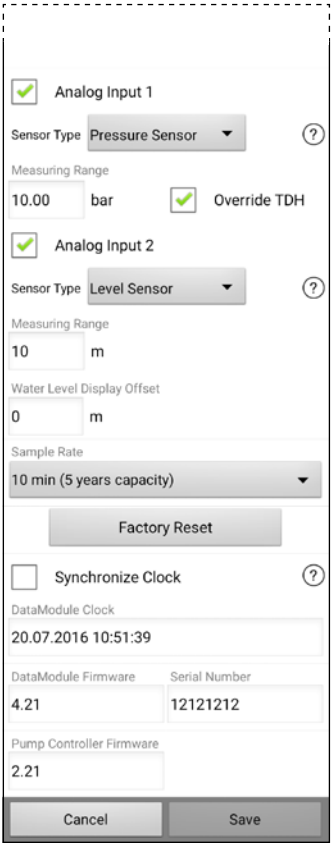
Analog Inputs – if any sensor is connected to the analog inputs (pressure / liquid level sensor) it must be activated in "installations settings", then configured in "feature settings" (see 3.3.3.4 „Pumps - Feature Settings 2" on page 24). Measuring range is the max. pressure in bar/psi or depth in m/ft 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 to offset the measured and stored reading from level sensors by a specific value.

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

Figure 19: Installation settings 3



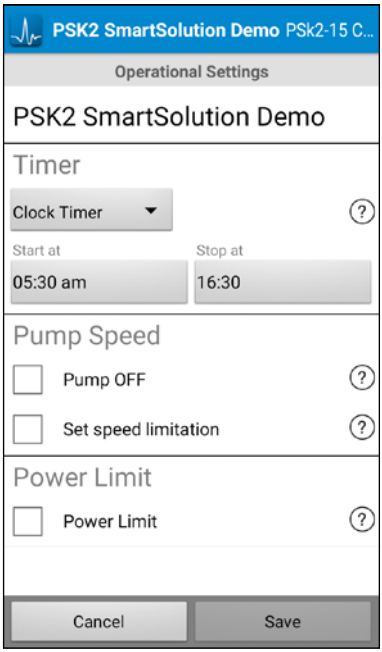
3.3.3.3 Pumps – Operational Settings

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 a maximum motor speed limit 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 pumpMANAGER). 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 20: Operational settings



3.3.3.4 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" (refer to 3.3.3.2 „Pumps - Installation Settings" on page 21) advanced options for pump control are available.

(1) Select the type of sensor to automaticaly control the pump with. Only installed and configured sensors will be available.

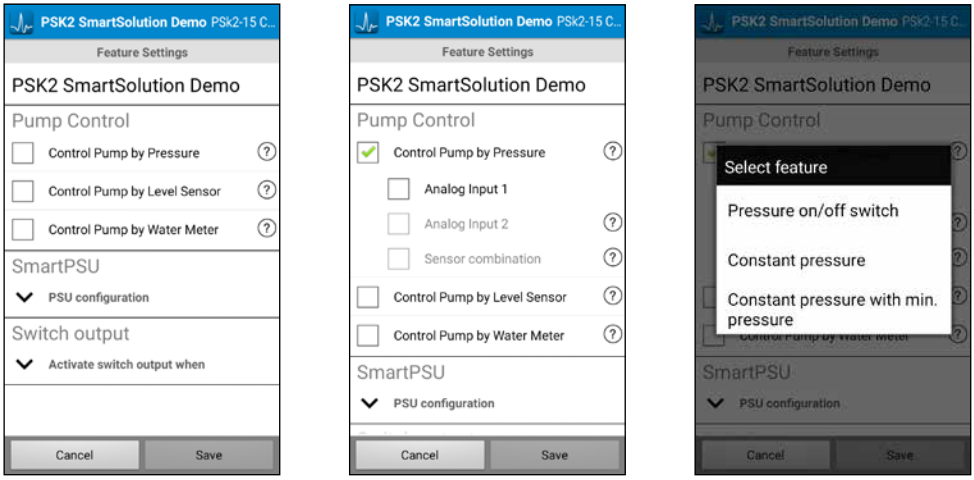
(2) Select which sensor to use for pump control. This is only relevant when two sensors of the same type are installed and configured. In this case the pump can also be controlled by the differential reading.

(3) Select the pump control feature. For detailed information please refer to „Pump Control by Pressure" on page 25, „Pump Control by Level Sensor" on page 26 and „Pump Control by Water Meter" on page 27.

SmartPSU – when running PSk2 systems with SmartSolution support and installing and registering a SmartPSUk2 on Sites, SmartPSU configuration options become available. For detailed information please refer to „SmartPSU configuration" on page 28.

Switch output / SmartStart ancillary output – if a SmartStart is installed with the PS2 system with SmartSolution support, an output switch can be configured based on events. For details please refer to „Output switch configuration" on page 29.

Figure 21: Feature settings 2



Pump Control by Pressure – with a LORENTZ pressure sensor installed and configured at either analog input then "Control Pump by Pressure" is available with three options:

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

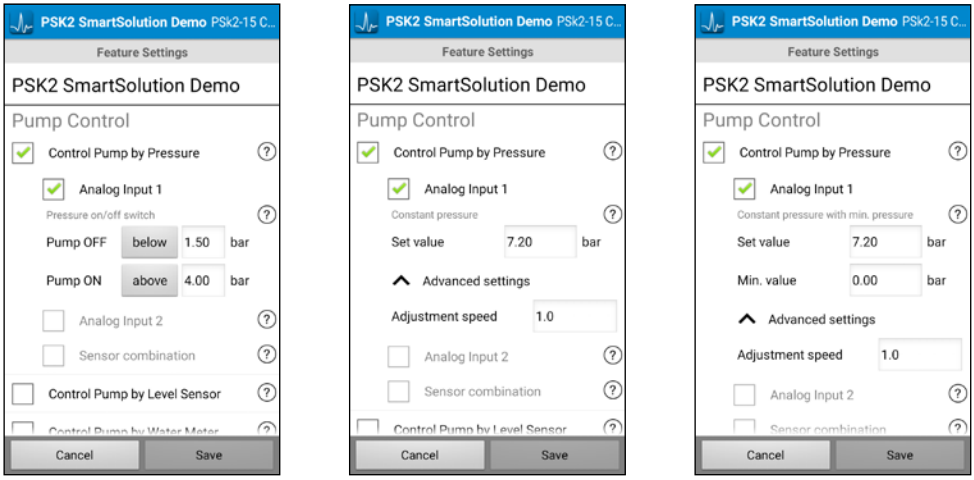
Constant pressure – the pump can be configured to constantly deliver a specific pressure if the pressure sensor is installed accordingly. The "adjustment speed" controls how aggresive the pump system approaches the set value. If the set pressure value can not be reached the pump will continue to run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

Caution – Setting a high adjustment 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.

Constant pressure with min. pressure – the pump can be configured to constantly deliver a specific pressure if the pressure sensor is installed accordingly. "Min. value" allows to define a minimum pressure below which the pump will shut down if it can not be reached. The "adjustment speed" controls how aggresive the pump system approaches the set value.

Caution – Setting a high adjustment 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.

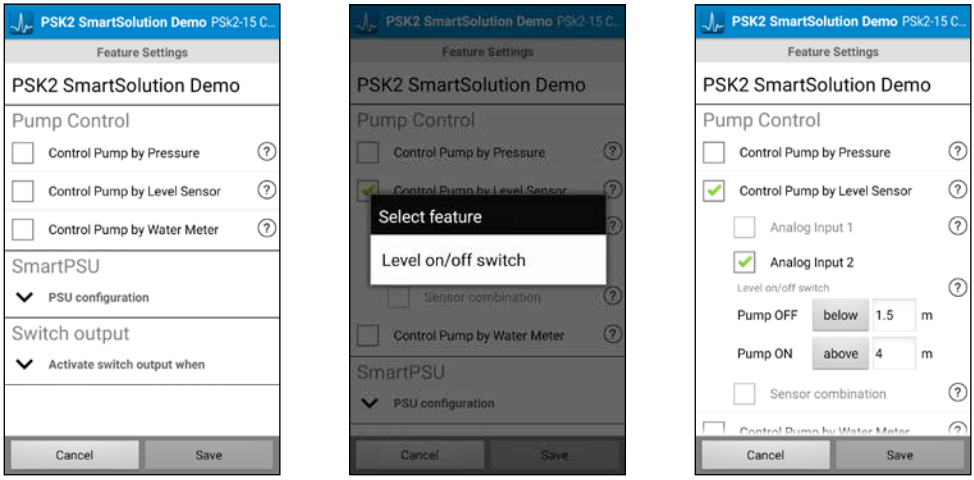
Figure 22: Pump control by pressure



Pump Control 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 23: Pump control by level sensor



Pump Control 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.

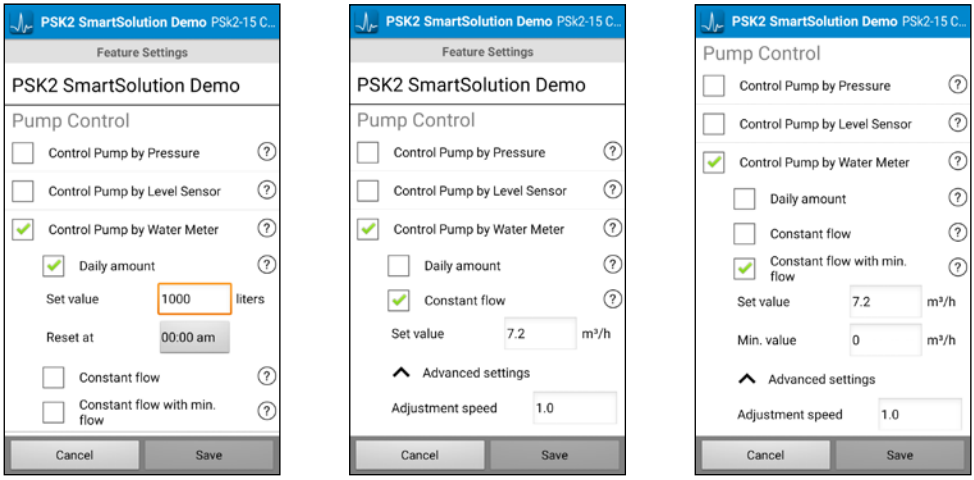
Constant flow – the pump can be configured to deliver water at a constant flow. The "adjustment speed" controls how aggresive the pump system approaches the set value. If the set flow can not be reached the pump will continue to run at max. speed.

Caution – Setting a high adjustment 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.

Constant flow with min. flow – the pump can be configured to deliver water at a constant flow. "Min. value" allows to define a minimum flow below which the pump will shut down if it can not be reached. The "adjustment speed" controls how aggresive the pump system approaches the set value.

Caution – Setting a high adjustment 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 24: Pump control by water meter



SmartPSU configuration – to access SmartPSU configuration options for PSk2 systems with SmartSolution support the SmartPSUk2 must be registered on Sites in partnerNET with the related PSk2.

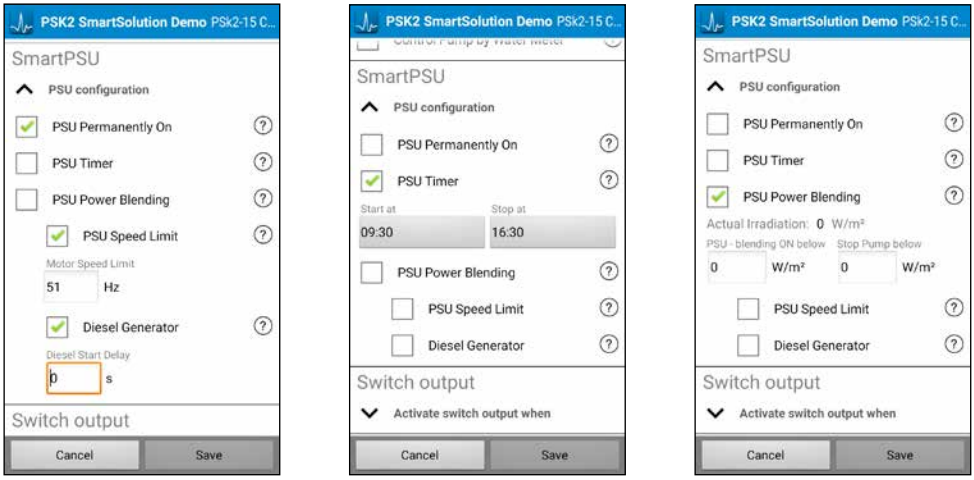
There are three main operational modes:

- **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 powersource only within configurable irradiation boundaries.

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 25: SmartPSU configuration



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

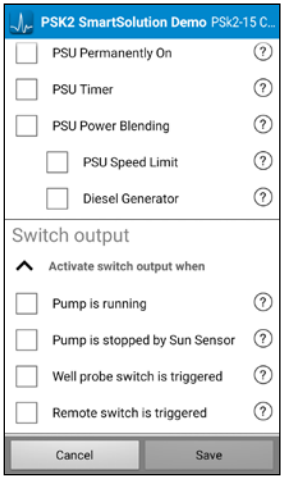
Pump is running – the switch output is activated (closed) when the pump is running.

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 26: Output switch configuration



3.3.3.5 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. The controller LED status indicators are also replicated on the display (see Figure 27 „Actual data 3" on page 30). Note that the Pump switched Off is a virtual LED indicating a software switch off, this is not replicated on the pump controller.

3.3.3.6 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 [m³]) per year, month or day. In Mode four (Hour) you have buttons to switch between flow rate, motor speed, voltage and the current.

Figure 27: Actual data

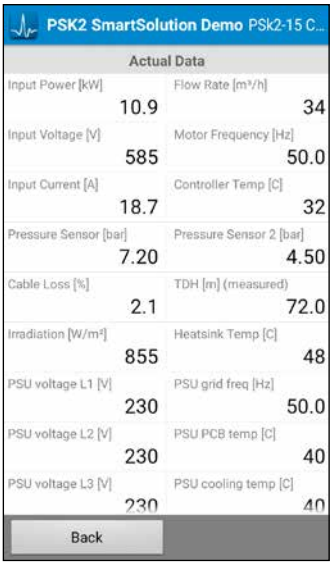
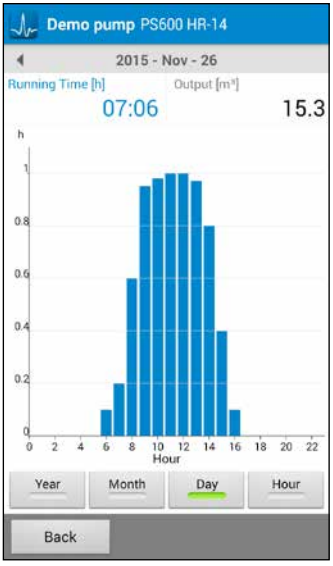
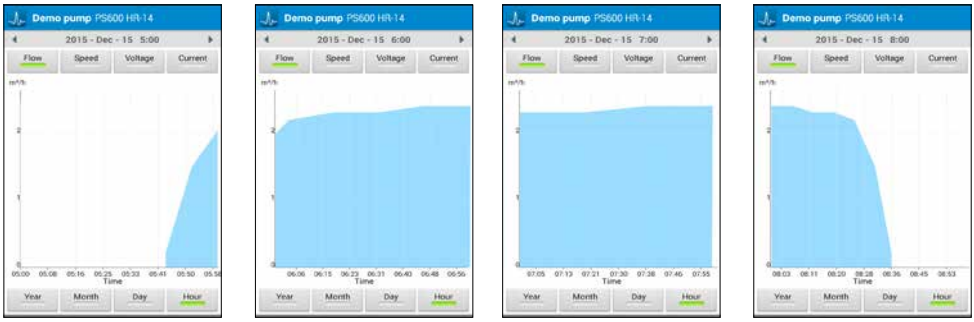


Figure 28: Stored data



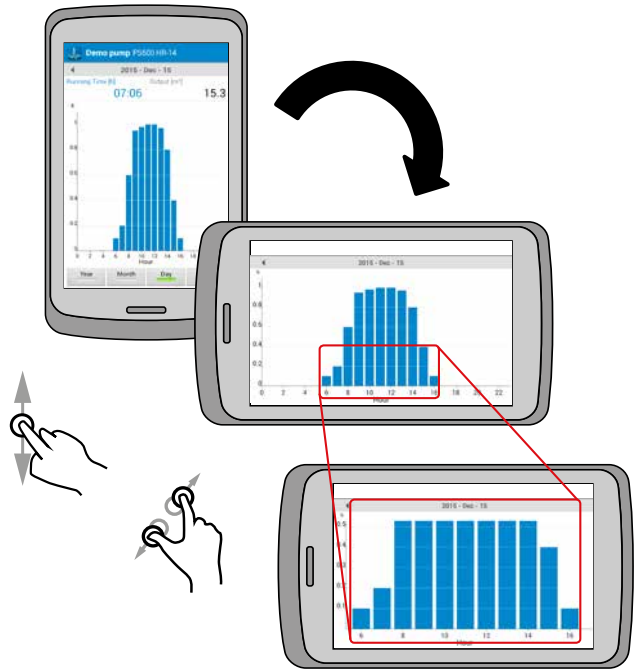
You can navigate in the mode windows by sliding the date / time left or right.

Figure 29: 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 30: Navigating in data II



3.3.3.7 Pumps – Firmware Update

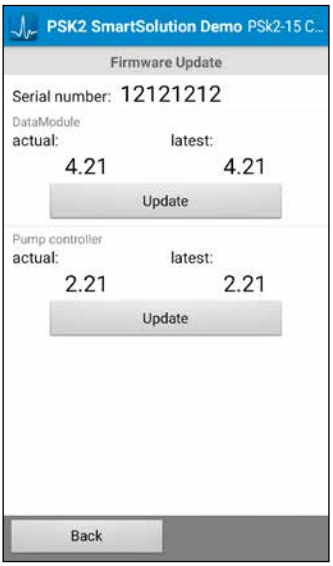
Access to firmware updates is role-based and available for technical users only. The Firmware update option will check the version of the PS DataModule against the latest available.

You can only update firmware when you have a connection by Bluetooth to the PS DataModule.

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 31: Firmware update



3.3.4 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 32 on page 33, to check network details, amend settings or to trigger a new pairing process with LORENTZ pump controllers.

3.3.4.1 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 33 „System overview" on page 33.

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 32: List of PS Communicators

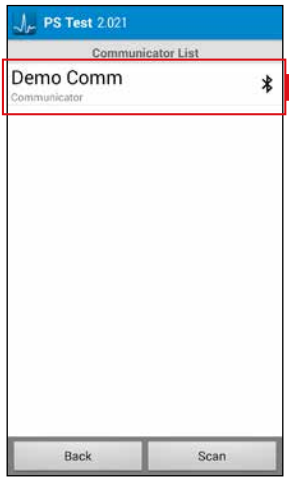
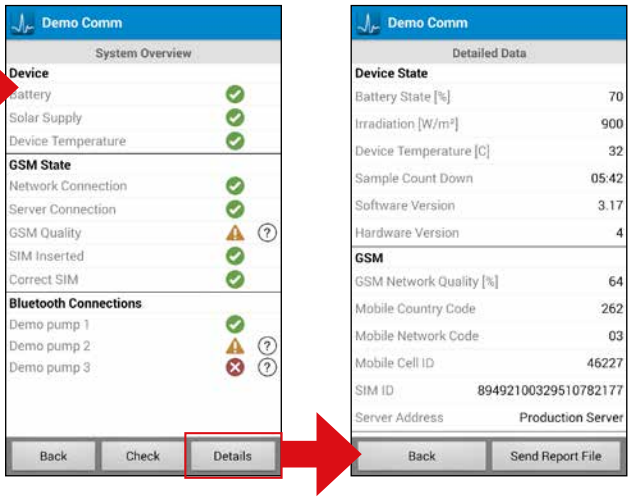


Figure 33: PS Communicator system overview and detailed view



3.3.4.2 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".

3.3.4.3 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.

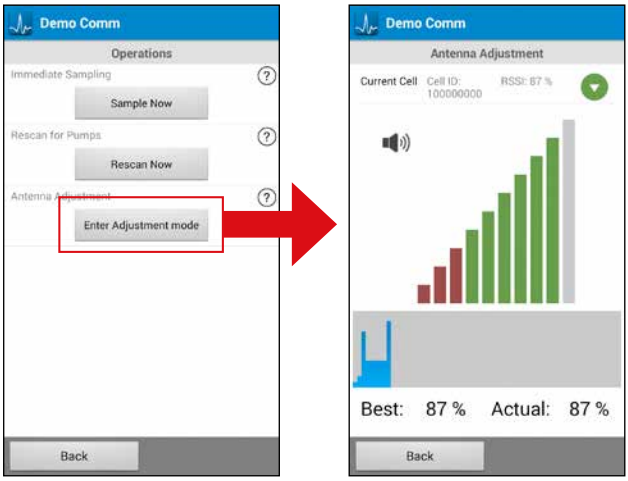
3.3.4.4 Communicators – Firmware update

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 34: PS Com. settings

Figure 35: Operations and antenna adjustment

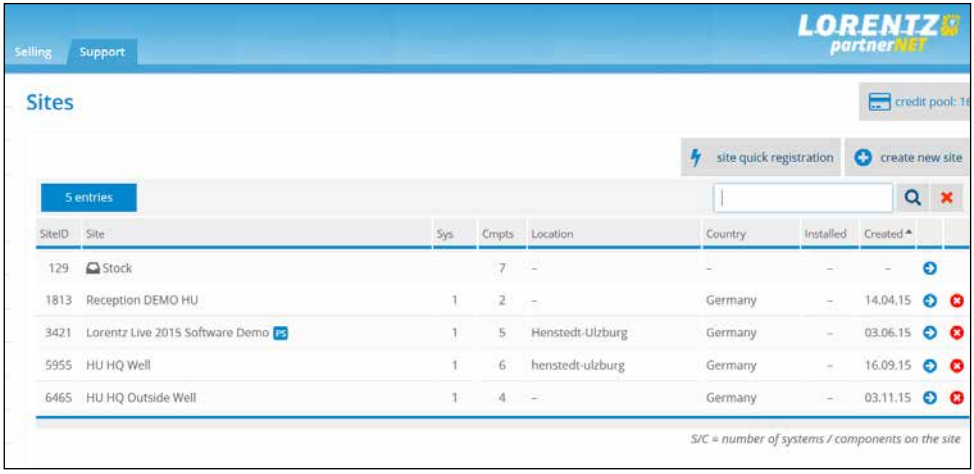


3.3.5 Sites

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 36 „partnerNET "Sites" area" on page 35).

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 10) you will gain access to the pump system you uploaded to partnerNET.

Figure 36: partnerNET "Sites" area



Creating a "Sites" record from PumpScanner:

(1) Open the "Sites" function.

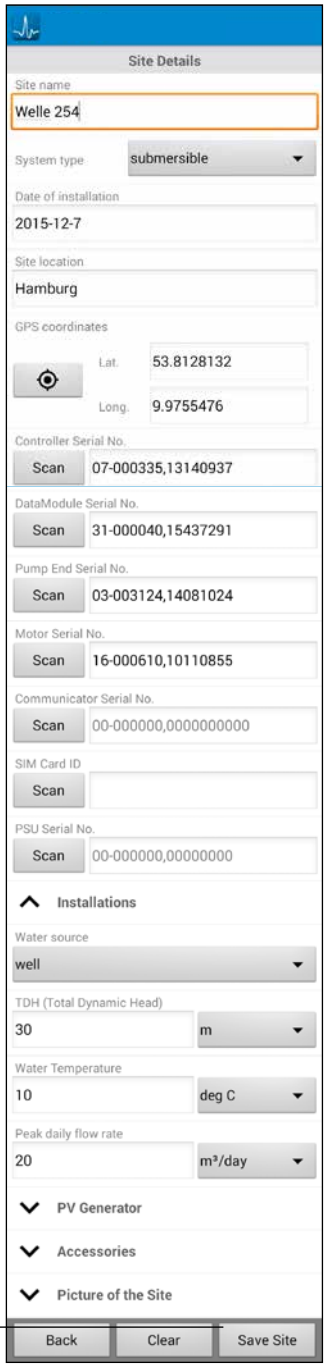
(2) Select "New Site".

(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 37: Site setup process

Figure 38: 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.

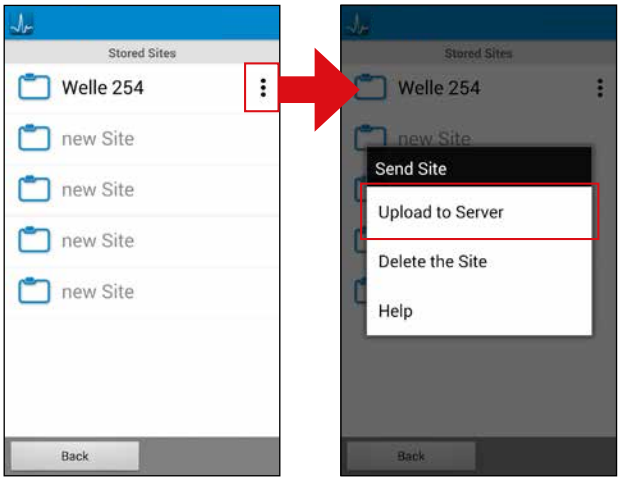
Save your site after entering all parameters. The file is now saved locally on your smartphone.

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.

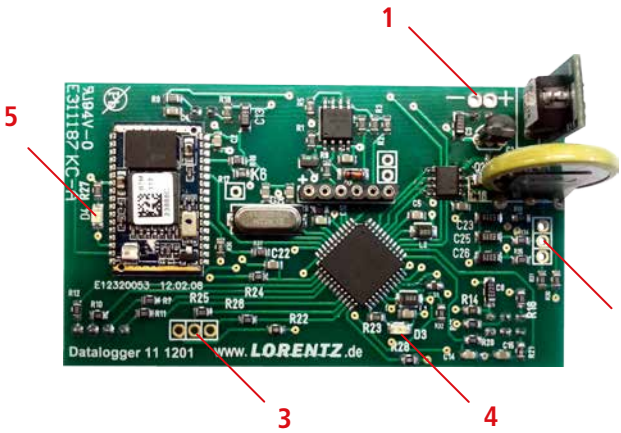
(2) Select "Upload to Server". The Site will remain stored on your system until you upload it.
Any data that was collected at the installation site with PumpScanner can be held within the application until you are ready to send it. PumpScanner will hold up to 5 sets of site data. You can send the data 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 39: Sites upload



3.4 Troubleshooting

Figure 40: PS DataModule PCB with cable connections



(1) Supply:
15V supply for optional sensors

(2) Pressure:
External pressure sensor 4-20 mA

(3) Flow rate:
External flow meter (simple pulse type)

(4) PS DataModule LED (green):
Indicates current system status

(5) Bluetooth LED (red):
Indicates current connection status

Note: In PSk2 controllers with SmartSolution support the DataModule is embedded on the mainboard

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 6)?
- Did you register the pump system on Sites in partnerNET?
- 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:

- Does the PS DataModule have power? The PS Controller must be on.
- Is the PS DataModule PCB correctly seated in the socket?
- Are PS DataModule and PumpScanner versions up to date, check on partnerNET?
- Is the system registered on Sites and the PumpScanner license list updated?
- Are you within Bluetooth operating range?

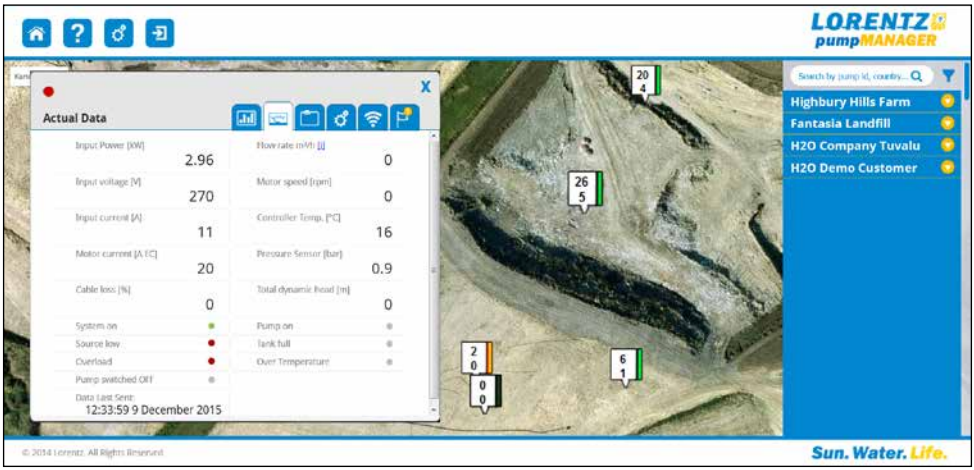
4 PS Communicator & pumpMANAGER

The LORENTZ PS Communicator 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 sends data from each pump across the cellular (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 using your standard partnerNET credentials and see the demo features today without any additional equipment or investment.

Figure 41: pumpMANAGER view of installation site



4.1 PS Communicator

The communicator 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 please refer to the PS Communicator 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 42 „System view in partnerNET "Sites" with pumpMANAGER control bar" on page 41). Follow onscreen instructions.

For detailed instructions please refer to the partnerNET Knowledge base.

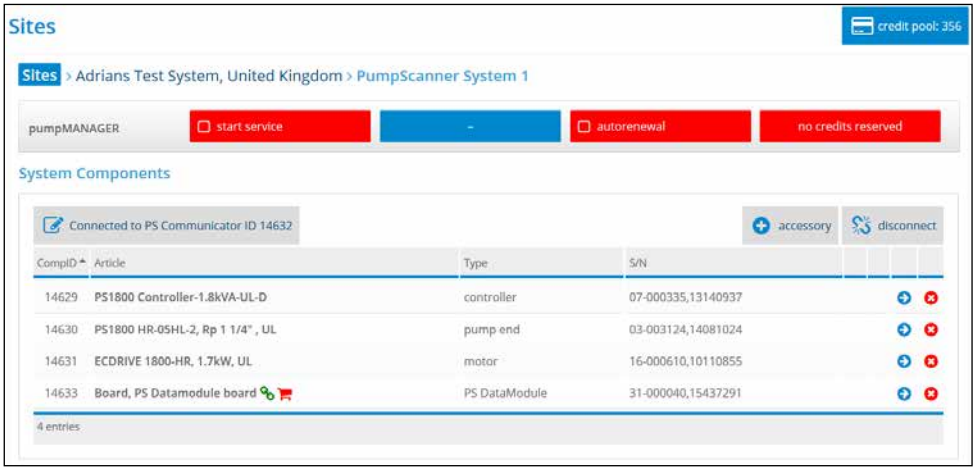



Figure 42: System view in partnerNET "Sites" with pumpMANAGER control bar