

# WaterPointer Quick Start Guide

Version 1.0, August 2018



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# 1 What is the WaterPointer

The WaterPointer is a mobile system to monitor surface water and take a sample into cooled sample canister if predefined conditions appear. The system is fully operated using your browser, no matter if you stand in front of the machine or 1000 kilometers away.

# 2 **Operation**

# 2.1 User Interface

### 2.1.1 Local:

After you powered up the unit wait about 1 minute until the internal computer is booted up, then connect your laptop to "User" marked LAN interface and start the laptop up. Now the laptop gets the right IP address from the WaterPointer to communicate with you. Open a modern browser of your choice and type 172.17.2.140 into the address line. The Login screen appears.

### **2.1.2 Remote:**

The unit need to be powered on and need to be connected to the internet. Open a modern browser of your choice and type in waterpointer-JJJJ-SSSSS.recordum.net. JJJJ-SSSSS is the serial number of your unit. Please note your serial number here:

# waterpointer-\_\_\_\_.recordum.net

### 2.1.3 Login:

Login into the user interface with

User:	admin
Password:	1AQuality

It is highly recommended to change this password using Setup->User Administration->Personal Settings because this login is default on all devices.

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	Set New Password     Change password now?       Old password     Old password       New password     1       Retype password     1	
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**Hint:** To open the menu tree on the left, click on the symbol with the three lines on the right upper corner!





#### 2.1.4 Main page:



On the left side you find the symbol of the pump and the percentage of power needed to reach the flow that is configured (30l/min default). In the middle the filter for sand or other heavy particles is displayed. This "sand filter" is drained and purged out every 4 hours (as default setup). On the right side the measuring probe is situated, and its measured values are shown.



All parameter measured are stored in the database in three averages in parallel, default is 1min, 5min and 30min. You are able to change the second and third average to your needs in Setup->Configuration->System Parameters->Timing.

**Hint:** There are some parameter twice in the list, one is for example Conductivity and the other Conductivity\_all. This needs a little explanation: In case of a status fail, an active maintenance (or a calibration in some cases) the final result of Conductivity is not taken into the average because it is not a correct measurement. To give the technician a chance to check these values also we store the parameter a second time with ALL data in, this results in the parameter xxxx\_all.

**Hint:** If you want to use this graph in Microsoft Office, click right and copy it. But you cannot use it directly in Word, paste it into Microsoft Paint, copy it again then you can paste it everywhere.

### 2.1.6 Download:

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			± Dissolved O2 Saturation [%]	12045								
			± Dissolved O2 Saturation_all [%]	12046								
			± Dissolved Oxygen conc [mg/L]	12039 🗌								
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With the download function you can copy data from the WaterPointer to your Computer. Choose the parameter in the average you need and setup the time and the output properties to your needs. With the resulting file you have data in csv or xml format that can be easily opened by Microsoft Excel.

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#### **2.1.8 Overview:**

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Flow [/min]       30.02       Ok OFS       (14:07:00)         Room Temp [°C]       35.1       Ok OFS       (14:07:00)         WaterSam MS3	CoolerTemp [°C]		34.8	Ok OFS	5 (14:07:00)	
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	Bottle active []		5	O Ok O FS	(14:07:00)	

In overview you can have a fast view if everything is working fine on your WaterPointer. As soon a Rule is triggered by a parameter displayed here, the display change to red. You can choose the parameter displayed in Setup->Configuration->Parameters.

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E C Rules & Actions		<u>ID</u>	12021	lId	<u>Nan</u> Barr	<u>le</u> proce	uro [mmHa]			Visible	Overview	Group
🖃 🎦 System Info		12021	12021		Dait	metric Press	are (mining)					3
General		12099	12099		Batt	erie capacity	[%]					3
G Status History		11985	11985		Con	ductivity [µS/	cm]			$\checkmark$		3
co Log Files		11986	11986		Con	ductivity_all [	µS/cm]					3
🗉 🎦 System Maintenance		12015	12015		Den	sity of Water (	a/cm³]					3
🗉 🎦 Extras		12015	12010				, g, c j					
Configuration		12016	12016		Den	sity of water_	all [g/cm³]					3
co Board Parameter		11967	11967		Dep	th [feet]				$\checkmark$		3
co Calibration Parameters		12045	12045		Diss	olved O2 Satu	ration [%]					3
Interface Configuration		12046	12046		Diss	olved O2 Satu	ration all [%]					3
co System Parameters		12010	12039		Dicc	olved Ovvder	conc[mg/L]					3
🕒 Hardware		12039	12039		0133	olved oxyger						5
co Customer/Station		12040	12040		DISS	olved Oxyger	conc_all [mg/L]	1		$\bowtie$		3
Waterpointer Configuration     Options		12093	12093		Exte	ernal Voltage	[V]					3
co Time Settings		11973	11973		Leve	el, Depth to wa	iter [feet]					3
📁 🕶 Additional 😁		11979	11979		Leve	el, Surface Ele	vation [feet]					3
co Parameters		12033	12033		ORP	[mV]						3
Synchronization     Societaria		12055	12034		OPP	all [mV]						3
co Standards		12034	12034		- UKF							5
E TinLog		12081	12081		Оху	gen Partial Pr	ess [Torr]			$\square$		3
🗉 🎦 LinOut		12082	12082		Оху	gen Partial Pr	ess_all [Torr]					3
E Communication		12027	12027		рН [	pH]						3
User Administration		12028	12028		pH_	all [pH]						3
co Users		11961	11961		Pres	sure [PSI]					M	3
co Personal Settings		11997	11997		Resi	stivity [TDS]						3
		11009	11998		Resi	stivity all [TE	IS1					3
		12002	12003		Sali	nity [PSU]	-					3
		12003	12000		Call							2
		12004	12004		Salii	nty_an [PSU]						3



### 2.1.9 Calibration:

Is not used in default setup and only here for compatibility. But you can switch on and off maintenance mode. In maintenance mode the main data is not stored to the averages as they are not valid results from the surface water.

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Calibration Calibration Valve Control			
Reload Status			
Maintenance OFF Maintenance OFF ON Maintenance OFF			
System			
Normai OFF Normal Sample Open Zero Valve Cali-Cycle Q			
192.168.20.153/showPage.php?p=calibration#			

### 2.1.10 Setup:

Only a little part is shown in this Startup Guide, generally change settings only if you are sure what you are doing.

### 2.1.10.1 Rules and Actions:

Rules and actions is a software package that allows to define rule like the room temperature is too high, this rule can be connected to an action like send an Email to Mr. Clark.



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•	WATERPOINTER	Graph Download	Stationbook	Overview	Water C	Calibration	Setup	•			1	=
<ul> <li>Rules &amp; Actions         <ul> <li>Rules &amp; Actions</li> <li>Rules</li> <li>Actions</li> <li>Defaults</li> <li>System Info</li> <li>System Info</li> <li>Service Interface</li> <li>Status History</li> <li>Status History</li></ul></li></ul>	Calibration Data Check Calibration Data Check Combination Rule Door Contact Alarm Intrusion Alert Maintenance Mode Manual In Measuring Signal Status Measuring Signal Status Measuring Signal Value of Once a Month Once a Year Program finished Pump off because of dry Report Action Errors Station Status System Check System Start Time Time Interval UPS Battery Water Level too high Calibration Data Check Add Combination Rule Add	Check Check Check run protection	StationDook		water	caupration	setup					
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	Add											

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waterpointer E Graph	Download Stationbook Overview Water Calibration Setup 🕞	E	
Manage Rules			~
Measuring Signal Value Check		S	de
Back			
Name	Room Temp high		
Description			
Active	● On ○ Off		
<b>≜</b> RootOnly	On O Off		
Alarm Emphasis	0	0 => Off	
Minimum Switch Time	60	Seconds	
Rule Repetition Time	2	Minutes, 0 => Off	
Parameter	WaterCtrlBoard [1] V Room Temp		
Value Type	0 ~	0Actual value 1,2,3Average 4Zero 5Span	
Check Higher	● On ○ Off		
Value 1	25		
Check Lower	O on O off		
Value 2	0		
Check Rising	O on ⊙ Off	Checks if the change (absolute value) during the defined time period exceeds the limit	
Value 3	0		
Check Falling	O on Off	Checks if the change (absolute value) during the defined time period exceeds the limit	
Value 4	0		
Time Period	0	0 (off) 60 (max) Samples	
Valid Maintenance	O on Off		
Valid Failure Status	O on Off		
Valid Data Global	O on Off	1 use global setting	
Valid Data Check	On Off		
192.168.20.153/index.php#			۳.

A few rules are predefined as example "System Check", if one of the two HDD starts to see problems recordum will receive an Email from the machine. There are a few more rules configured to help you during startup of the WaterPointer, make sure you put your Email Address in the "Email to customer" action:



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$\leftrightarrow$ $\rightarrow$ C 🛈 Nicht sicher   192.168.2	20.153/index.php		☆ 🗵 👬 :
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<ul> <li>Rules &amp; Actions         <ul> <li>Rules</li> <li>Rules</li> <li>Actions</li> <li>Defaults</li> </ul> </li> <li>System Info         <ul> <li>General</li> <li>System Info</li> <li>Status History</li> <li>Log Files</li> <li>System Maintenance</li> <li>Service Manager</li> </ul> </li> </ul>	Manage Actions E-Mail Back Name Description Active A RootOnly Wait time for response C	Email to customer This is the default configuration email to the customer On Off On Off Con Off Con Coff Con Co	Seconds
B Configuration     Setting	Server Port Login Name Login Password Use SMTP authentication Connection Security	mail recordum.net         587           slerts@recordum.net	EMail: 25(none) 58 FTP: 21
E C LinLog	Sender		Leave empty for det
Communication	Recipient		e or more recipie
B 🞦 User Administration	Subject Text Start Text Repeating	WaterPointer Please check your WaterPointer	
	Text Stop		
	Download	- T	Select one predefin
	Export	- •	Select one predefin
	Append Status	On • Off	
	Historical Status	On Off	
	Design	- •	Select one predefin
	Period	1 •	Days

### 2.1.10.2 System Info

The main points on startup are Service Interface and Log Files.

### 2.1.10.2.1 Service interface:

The user interface, that is mostly used, is a nicely designed piece of software for user operation based on averages. As the shortest average is 60 seconds, the maintaining technician needs access to live data. For this reason, the technician is using the Service Interface.



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🗉 🎦 Rules & Actions	Service Interface											
co Rules co Actions	LinLog (open in new win	dow)										
GD Defaults ■ ➡ System Info	LinSens (open in new w	ndow)										
<ul> <li>General</li> <li>Service Interface</li> </ul>												
<ul> <li>Status History</li> <li>Log Files</li> </ul>												
System Maintenance Service Manager												
co Command Interface												
Backup     Sidu Massage												
Extras												
<ul> <li>Configuration</li> <li>LinLog</li> </ul>												
LinOut     Communication												
🗉 🎦 User Administration												
192.168.20.153/cgi-bin/linlog.cgi?lang=en&wtb=1												

After clicking on LinLog the Service Interface pops up:

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LinLog Service Interface,				
Home Raw values Actual Calibration Average 1 Average 2 Average 3 Pump control Troll 3 WS WaterSam 4 Software RS232				
Start Page				
Welcome to the start page of the logging part of your device. This page gives the operator the opportunity to check raw and actual values, automatically updated every some seconds. If you are accidentally on this page, be aware that the values displayed here are not final values, they can be easily interpreted in a wrong way I				
Software Version: 2 223 22 Aug 2018				
This document is generated by Inlog, the logging sair of the rOSy system Copyright by <u>WWW.ITILL-IECOTOLUT.COM</u>				



			Average 3 Pum	<u>o control Tro</u>	II 3 WS WaterSa	<u>im 4 Sc</u>	oftwa	re RS2	32			
WaterSa	m Src:4 WaterSam	4										
Bottle	List				WaterS	am	Pro	gra	n			
Number	Start	Stop	Information	active	Number							
1	20180823 15:16:19	20180823 18:26:10	5 Samples		Number	on/o	п					
2	20180823 19:16:17	20180823 22:26:10	5 Samples		1			Start		Stop		
3	20180823 23:16:17	20180824 02:26:09	5 Samples			-		otan		otop		
4	20180824 03:16:17	20180824 06:26:09	5 Samples		2	x		Start	1.1	Stop		
5	20180824 07:16:17	20180824 08:16:12	2 Samples		2	~		otan		Stop		
5	•	-			3			Start	1	Stan		
/	•	•			5	-		Start		Stop		
0	-	-			4							
10					-	-						
11					5							
12	-	-				_						
13					6	_						
14					_							
15	-	-			7	-						
16	-	-			0							
17	-				0	-						
18	-	-			9							
19	-	-			5	-						
20	-	-										
21	-	-			Inform sy	/stem	tha	it new	l bo	ottles are installed		
22	-	-										
23	-	-			Bottles cha	anged	La	st exch	ang	ge of bottles: 20180823 14:30:36		

### 2.1.10.2.2 LogFiles:

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Log Files Viewer	
Please choose one of available waterpointer log files: LinSens-Error 201808.log   Open Size: 109 KB Last modified: 2018-08-24 00:05:00	
Search regular expression: Search (next) Lines: 1-100 / 1370 Up Down	
D20000001       USE: 10 Fig. 10 Fig. 10 Fig. 10 Harthdog board confirms!         D2000001       13:12:47 Info: 11 Inters filiated (piliphic)         D2000001       13:12:47 Info: 11 Inters filiated (piliphic)         D2000001       15:12:10 Info: 11 Inters filiated (piliphic)         D2000001       15:12:10 Info: 11 Inters started -> Version 2.12:15.un 2016 uptime: 00000005; 00h 00h 475         D2000000       10:11 Info: 11 Inters: capp.operatingSystem: 2 confirmOs.fsRedy: 1 app.fsRedy: 1 app.fsR	

Sometime, like during the modem setup it is necessary to check the log files this can be done here.

### 2.1.10.3 Configuration:

You can setup the averaging times in System Parameters (the other parameters are not relevant for the WaterPointer



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0	wATERPOINTER Graph Download Stationbook Overview Water C	alibration Setup 🕻	. ≡
Rules & Actions  Rules	duration of active zero valve ZeroPurgeInSystem [sec] purge in time with zero air, data are not sampled SpanDurationSystem [sec]	600	[1 ≤ value ≤ 3600]
Actions     Defaults	duration time of active span valve SpanPurgeInSystem [sec] purge in time with span gas, data are not sampled	600	[1 ≤ value ≤ 3600]
System Info     General     Service Interface	DurationPurgeOutSystem [sec] purge in time with sample, data are not sampled to averages IndependentSpanTiming_System [on/off] inderendent timing for sam check	180 On • Off	[1 ≤ value ≤ 3600]
so Status History     so Log Files     System Maintenance	CaliIntervalSpanSystem [hours] 0 disables automatic span calibration check CaliNextAutoSpanStartSystem [datetime]	0 2009 ¥ - Jan ¥ - 1 ¥	[0 ≤ value ≤ 744] 00 ▼ : 15 ▼ = 2009-01-01 00:15:00
Service Manager     Command Interface     Software Undate	next span calibration cycle starts at: Save Imning		
G Backup G Disk Manager	AverageTime2 Length of time in seconds to calculate timeaverage values, which are stored in the database (average value 1 < average valu 2 < average value 3) AverageTime3	e 300	[60 ≤ value ≤ 3600]
Configuration Board Parameter College	Length of time in seconds to calculate timeaverage values, which are stored in the database (average value 1 < average value 2) 2 < average value 3) Gave can be average value 3)	e	
Calibration Parameters     Water General     Interface Configuration	TooHotPumpTemp[°C]	60	[0 ≤ value ≤ 150]
<ul> <li>System Parameters</li> <li>Hardware</li> <li>Customer/Station</li> </ul>	Umt of room temperature LinLog_Use_fixed_ID [on/off] Standard ID setup gives best protection against mixing up signals, fixed ID setup gives you same id when a instrument is	On Off	[0 2 value 2 120]
<ul> <li>Waterpointer Configuration</li> <li>Options</li> <li>Time Settings</li> </ul>	Computer in same group again. DisplayNegHandling (on/off) In the Service Interface, the original values are shown in brackets if the behavior at zero routine has changed the value. Language	● On ● Off en	
Additional ···     Parameters     Synchronization	main language for LinSens/LinLog (en,de) Min_RL_Interval [minutes] Min time between two RL commands (Soft reset of board) 0 turns off function Save	60	[0 ≤ value ≤ 1500]
G Features	Alarm		
<ul> <li>Standards</li> <li>C LinCog</li> <li>LinCut</li> </ul>	SMART_Errors_ignored_DRIVE0 LinSched SystemCheck Rule is not triggered when number of SMART errors are below this value. Please use this option only after consulting your distributor.	0	$[0 \le value \le ]$
Communication     User Administration	SMART_trors_ignored_DRIVE1 Linsched SystemCheck Rule is not triggered when number of SMART errors are below this value. Please use this option only after consulting your distributor.	0	[0 ≤ value ≤ ]
	Save		

### WaterPointer Configuration

Here you can setup the setpoint for the flow. 30l/min is the recommended flow, values up to 60l/min are possible.

Changing from Default to Advanced enables one more important setup for you that is the Wiper Interval:



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•	wATERPOINTER Graph Download	Stationbook Overvie	w Water Cali	bration Setup (	• ≡
	WP_Duration_Purge [sec]		1	10	[0 ≤ value ≤ 600]
Rules	WP_Duration_PurgeDrain [sec]		1	15	$[0 \le value \le 600]$
G Actions	Purge cycle strainer: duration purge and drain Save				
co Defaults	Control Loops				
🖃 🎦 System Info	WP_Setpoint Flow [l/min]		3	30	$[0 \le value \le 1]$
G General	Setpoint for flow		6		
G Status History	control factor P		<u>[</u>	).01	[0 ≤ value ≤ ]
co Log Files	:WP_Flow_Contol_I		C	0.05	$[0 \le value \le ]$
🗉 🎦 System Maintenance	WP_Flow_Contol_D		(	0.05	$[0 \le value \le ]$
co Service Manager	WP_Pump_Percent_On_Missing [%]		e	50	
<ul> <li>Command Interrace</li> <li>Software Lindate</li> </ul>	Pump power when flow measurement is missing, 0for off				
co Backup	Pump power when flow measurement is missing, 0for off		1		[0 ≤ value ≤ ]
😁 Disk Manager	EVP_Flow_Par Pump power when flow measurement is missing 0. for fi		1	1	$[0 \le value \le ]$
🗉 🎦 Extras	Save				
Configuration	Aux Configuration				
Board Parameter     Calibration Parameter	WP_Wiper_interval [seconds]		3	36000	[15 ≤ value ≤ 90400]
Water General	: vvrMax_Manual_Purge/Drain [min]		6	50	$115 \le value \le 14401$
<ul> <li>Interface Configuration</li> </ul>	Manual drain oder purge are skipped ofter that time				
G System Parameters	Dry run protection after that time without measuring a flow		3	300	[60 ≤ value ≤ 900]
co Hardware	Save				
Customer/Station	Display				
Ontions	EVP_Parameter_Displayed_1_Grp Parameter displayed on Pump Control page: Grp number (-1., Off)		3	3	$[-1 \leq value \leq ]$
co Time Settings	WP_Parameter_Displayed_1_Par		1	13	[0 ≤ value ≤ ]
🔊 🏎 Additional 🚥	WP Parameter Displayed 2 Grp		-	2	[-1 < value < ]
co Parameters	Paramter displayed on Pump Control page: Grp number (-1 Off)		6		
Synchronization     Sectures	Paramter displayed on Pump Control page: Par number		e	i	[0 ≤ value ≤ ]
G Standards	EVP_Parameter_Displayed_3_Grp Parameter displayed on Pump Control page: Grp number (-1., Off)		3	3	$[-1 \leq value \leq ]$
🗉 🎦 LinLog	WP_Parameter_Displayed_3_Par		1	16	$[0 \le value \le ]$
🗉 🎦 LinOut	WP_Parameter_Displayed_4_Grp		3	3	[-1 < value < ]
Communication	Paramter displayed on Pump Control page: Grp number (-1 Off)				
User Administration	Paramter displayed on Pump Control page: Par number		5	1	[0 S value S ]
	<b>: WP_Parameter_Displayed_5_Grp</b> Paramter displayed on Pump Control page: Grp number (-1 Off)		3	3	$[-1 \leq value \leq ]$

The wiper is a build in brush that cleans the sensors in the time interval you configure.



miu - recordum

# 3 Measurement Probe Insitu Troll600

The Insitu Troll600 measurement probe is for sure one of the best possibility to measure water parameters. This probe consists out of the build in computer system and several sensors that can be plugged in. Each sensor stores internally its calibration that allows to prepare and calibrate the sensors in your lab (with an second probe) and just exchange the sensors on site. Of course, the calibration can be done on site also. Please refer the extra Insitu manual for details on calibration and maintenance.



**Hint:** Make sure the sensor is always in water also during storage and transportation to avoid damage to the sensors. You can simply fill up the cap with water and screw it on.

The measurement compartment it is purged with fresh sample water from the lower side and water is flowing over. If the drain is blocked the water level can rise and flood the system. To avoid these two sensors are built into the wall detecting high water. This immediately stops the pump until the water is removed.





# 4 Setup and working with WaterSam Sampler

The German made WaterSam sampler is equipped with a cooled storage room for 24 bottles with 1Liter capacity. On delivery the unit is configured to take a sample with one shot of 200ml sample. If you need a different setup here please refer to the WaterSam manual.

If wished it can run by its own control system taking samples depending on its configuration. In most cases it makes sense to run it with in the WaterPointer system. To do this two "programs" are configured as default on delivery.

Program 1 is using the Modbus Register for the 'Event sampling'. This means as soon a Rule triggers the Action "WaterSam Sample" of type event proportional the Input is set active until the rule is not triggered anymore. The WaterSam program defines how many samples are taken during that time.



Program 1





Program 2 is using the Modbus Resister for Volume digital that make one peak and triggers one sample. That's the method that is easier to configure for me.

Program 2





What programs should be started automatically is defined as preselected programs.



It is very important to understand that every time a program restarts or is manually restarted the sampler expects that you have taken out the filled sample bottles and empty sample bottles are in the machine. If you overlooked this fact the sampler will overfill bottles and water will drain out.



You also should click on <Bottles changed> in the LinLog Service Interface, this let the software startup a new table with information about the samples in the bottles:

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LinLog Home Ra	LinLog Service Interface, normal Operation Home Raw values Actual Calibration Average 1 Average 2 Average 3 Pump control Troll 3 WS WaterSam 4 Software RS232									
WaterS	am Src:4 Waters	Sam 4								
Bottle	List				WaterS	am Pr	rogram			
Number	Start	Stop	Information	active	Number	on/off				
1	20180821 09:11:13	20180821 09:31:12	5 Samples		Number	011/011				
2	20180821 09:36:17	20180821 09:56:12	5 Samples		1		Start Stop			
3	20180821 10:01:17	20180821 10:21:11	5 Samples			-	Start			
4	20180821 10:26:16	20180821 10:46:12	5 Samples		2	~	Start Star			
5	20180821 10:51:16	20180821 11:11:11	5 Samples		2	~	Start Stop			
6	20180821 11:16:22	20180821 11:36:12	5 Samples		_					
7	20180821 11:41:32	20180821 12:01:12	5 Samples		3	-	Start Stop			
8	20180821 12:06:17	20180821 12:26:12	5 Samples							
9	20180821 12:31:17	20180821 12:51:11	5 Samples		4	-				
10	20180821 12:56:17	20180821 13:16:12	5 Samples		5					
11	20180821 13:21:17	20180821 13:41:12	5 Samples		э	-				
12	20180821 13:46:18	20180821 14:06:11	5 Samples		6					
13	20180821 14:16:33	20180821 14:21:12	2 Samples	*	0	-				
14	-	-			7					
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16	-	-			8					
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18	-	-			9	_				
19	-	-								
20	-	-								
21	-	-			Inform sy	stem th	nat new bottles are installed			
22	-	-								
23					Bottles cha	nged L	ast exchange of bottles: 20180821 09:05:38.			
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co Rules co Actions	Please choose one of available waterpointer log files: WaterSam 4 bottle list 20180821-091113.log  Open Size: 0 KB Las
🖙 Defaults 🖃 🎦 System Info	Search regular expression: Search (next) Lines: 1-20 / 20 Up Down
es General es Service Interface es Status History es Loo Files	End On Hier Feached (~40.3) WaterSam Bottle List Instrument: WaterSam_4 Station: WA4700153 File written: 2018082114:22:12
System Maintenance	Bottle Start time Last time Samples Failed Samples
<ul> <li>Service Manager</li> <li>Command Interface</li> <li>Software Update</li> <li>Backup</li> <li>Extras</li> <li>Configuration</li> <li>LinLog</li> <li>LinOut</li> <li>Communication</li> <li>Nameserver</li> <li>Natchdog</li> <li>DynDns</li> <li>Modem</li> <li>Diagnostics</li> <li>User Administration</li> </ul>	1       2018021 09:11:13       2018021 09:36:17       2018021 10:21:11       5       0         2       2018021 10:21:11       2018021 10:21:11       5       0         4       2018021 10:21:11       2018021 10:21:11       5       0         5       2018021 10:21:11       5       0       0         4       2018021 10:21:11       5       0         5       2018021 10:21:11       5       0         6       2018021 11:61:12       2018021 11:31:11       5       0         7       2018021 11:20:117       2018021 11:20:112       5       0         9       2018021 11:20:117       2018021 11:20:112       5       0         9       2018021 11:20:117       2018021 11:20:112       5       0         10       2018021 11:20:117       2018021 11:20:112       5       0         12       2018021 13:41:12       13:41:12       5       0         13       20180621 14:10:33       20180621 14:10:11       5       0         13       20180621 14:16:33       20180621 14:21:12       2       0
	Buffer size (lines):         100         Lines:         1-20 / 20         Up         Down
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You also can use the download function to download the file to your computer:

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	Log						
	<u> </u>						



It is a very good idea to configure a rule checking what bottle number is in use, that triggers an Email Action when, as example, bottle 20 is in use. In that way the user has some time left to visit the WaterPointer and do the bottle exchange.

admin@WAPT00 × viii root@WAPT00	01: x admin@WAPTO: x WAPT0015	3 Lin: 🗴 🕅 WAPT00153 Lin: 🗴 🖉 WebServer Basic 🗴 🕅 root@20170061 🗙 🗐 201700613 Lini: 🗙						
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•	waterpointer Graph	Download Stationbook Overview Water Calibration Setup	=					
Pulos & Actions	Manage Rules							
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G Defaults	Name	Most Sample Bottles are used						
System Info	Description	Most sample bottles are used they and to be shared and						
Centeral     Service Interface     Satus History     Deg Files     Service Manager     Service Manager     Software Update     Setk Manager	Description	Most sample bottles are used, they need to be changed soon						
	Active	• On • Off						
	<b>€</b> RootOnly	On Off						
	Alarm Emphasis	0	0 => Off					
	Minimum Switch Time	0	Seconds					
	Rule Repetition Time	1440	Minutes, 0 => Off					
	Parameter	WaterSam MS3 [4] V Bottle active						
🗉 🎦 Extras	Value Type	0 •	0Actual value 1,2,3A					
Configuration	Check Higher	● On ○ Off						
	Value 1	20						
Communication	Check Lower	C On C Off						
🗉 🛅 User Administration	Value 2	0						
	Check Rising	C On • Off	Checks if the change (al period exceeds the limit					
	Value 3	0						
	Check Falling	C on Off	Checks if the change (al period exceeds the limit					
	Value 4	0						
	Time Period	0	0 (off) 60 (max) Sam;					
	Valid Maintenance	On Off						
	Valid Failure Status	On Off						
	Valid Data Global	On Off	1 use global setting					
	Valid Data Check	On Off						
	Valid Data Percent	75						
	Triggered When Missing	On • Off						
192.168.20.153/showPage.php?p=ra_rules&editid	=8&classid=1&doedit=1							

# 5 Setup WaterPointer on a new place:

# 5.1 Place and level

Place the WaterPointer on a save place next to the surface water you want to monitor. Level the trailer with the 4 lifts at the corners.



# 5.2 Pump and drain hose

Connect the drain hose on the OUT marked connector and roll it out to the water. Connect the pump hose to the pump and bring the pump into the water. Connect the other end of the pump hose to the IN marked connector.



# 5.3 Probe

Remove the cap from the probe and install it:





## 5.4 Power cable

Connect to a proper installed ~230V line with a 16A fuse. Typically, the WaterPointer has an average consumption of 650W. Peak consumption is about 1.5kW.

Powerup the unit and wait at least 2 minutes before you start up your laptop computer. Login the WaterPointer page and startup the pump:

admin@WAPT0: x	©WAPTO: × VIII WAPT00153 Lin: × VIII WAPT00153 Lin: ×	\[     WebServer Basic × \      root@20170061 × \      201700613 LinL × \	3 -		×
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Waterpointer					
Pump control					
Pump United States of the second states of the seco	Purge Valve Purge Compressed air Valve Purge Air Valve Drain Next auto purge cycle: 20180823 17:00:00 Drain Purge OFF Purge	<complex-block></complex-block>			



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Check if the pump can handle the chosen flow without using full power.

**Hint:** Check the modem is working on that place, before you leave. Make a note in the station book on what place the measurement is started up now.

# 6 Prepare the WaterPointer for transportation

## 6.1 Stop the measurement and drain the water

Make a note in the station book that the measurement on that place has ended now.

Turn off the pump:



Choose Drain to allow all water to drain out:





Open the red manual valve to drain out the last rest of water: (Take care on your shoes)



### 6.2 Hoses and Pump

Remove the hoses from the fittings and close them





Take the pump out of the water and secure it on its place:



Remove all water from the hoses and store the hoses next to the pump



# 6.3 Probe:

Unplug the probe and take it out



Unscrew the protective shield and remove the cap, screw the cap to the other end, fill it with water and screw on the probe again.









### 6.4 Power off

Power off the unit and store the power cable.

# 6.5 Make ready to go

Screw the 4 level lifts in and make sure nothing can fly around inside the trailer

mlu - recordum)

# 7 Preparation for winter time

As long the WaterPointer is powered up everything is fine also for winter time, the air conditioner has a build in heater that will keep the internal temperature on its setpoint (24°C default).

If you plan to switch off the unit it is necessary to remove all water from the unit. Turn off the pump and store it inside the trailer on its place, carefully remove all water from the pump tube. Switch the sand filter to drain and open the red ball valve below the measuring cabinet. Remove the measurement probe, fill the cap with water and store it on a warm place. Empty all bottles of the WaterSam sampler, check if there is not water in the sampling glass.

After this is done it is save to switch off the unit.

Turning on the unit in wintertime will take some time because the internal PC will start up after the temperature has reached 6°C, and the air conditioner will need some time to maintain this temperature.

# 8 Maintenance on the Water Pointer

### 8.1 Air conditioner

Clean the outer air in- and outlet of the air conditioner at least every 3 months, depending on the surroundings it might be necessary to clean it more often.

# 8.2 Compressor

Remove the water from the compressor tank once a month, at that time also check the oil level of the compressor. Refill special compressor oil when needed.



# 8.3 Troll 600

Please refer to the Troll 600 manual

8.4 WaterSam Please refer to the WaterSam manual

## 8.5 Trailer

Please follow the link below https://www.knott.de/downloads/trailertechnik/P133-01-Knott MANUAL EU.pdf

# 9 How to setup the optional modem

You need to purchase a SIM card from the mobile provider of your choice, the common size called Mini is the right one. First you need to put the SIM card in a mobile phone and turn off the need of a PIN. Try out and turn off and on the mobile, if it is not asking for a PIN the first step is finished.

Now the SIM card needs to be installed into the modem:



Cycle power after you installed the SIM card.

Make a local login and configure the access parameter according to the needs of your provider, in Setup->Communication->Modem:



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☆ 🗷 😽 :
Vater Calibration Setup
1.net )9**1# pp@a1plus.at •

In case the provider tells you "No user and Password needed" type in just a few letters because the software controlling the modem cannot work with this parameter empty. After pressing <Save> a link to the Service Manager is displayed, follow this link and restart the WVDial – Modem dialer.

admin@WAP1 ×	root@WAPT0 ×	@WAPT0 × (    WAPT00	153 L ×     ↓     ↓     ▲     <
$\leftrightarrow$ $\rightarrow$ C (i) Nicht si	icher   192.168.20.153/ind	ex.php#	아☆ 🗷 👬 :
WATERPOINTER	Graph Downlo	ad Stationbook	Overview Water Calibration Setup
Services			
Name Of Service	Actions	Status More	Description
The Lins	force-resta  Execute	running	This is the main controlling and logging software of your waterpointer.
Network	restart <b>V</b> Execute	running	To restart the network interface "System" after changing e.g. ip address
NTP	restart T Execute	running	Timeserver using NTP
System Shutdown	restart V Execute	running	WARNING! Executing this service initiates a complete system shutdown/restart. Do not use <i>halt</i> option, unless you want the system completly switched off.
WVDial - Modem dialer	restart T Execute	stopped Uninstall	The Modem Dialer connects your station to the internet via a modem.
Not installed services	i de la companya de l		
Dyndns.org		Install	Periodically synchronizes your dynamic ip-address (e.g. of modem) with your dyndns.org domain name.
OpenVPN - Portal		Install	Establishes connection to the portal.
Query Status			
Application Log			

Now it is time to check if the dialer could establish a communication:

Setup->System Info->Log Files



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Rules & Actions	Log Files Viewer
co Rules co Actions	Please choose one of available waterpointer log files: SERVICE LOGFILES    Open mail.info mail.info.1
<ul> <li>Defaults</li> <li>System Info</li> <li>General</li> <li>Service Interface</li> <li>Status History</li> <li>Log Files</li> <li>System Maintenance</li> <li>Service Manager</li> <li>Software Update</li> <li>Software Update</li> <li>Backup</li> <li>Disk Manager</li> <li>Extras</li> <li>Configuration</li> <li>LinLog</li> <li>LinLog</li> <li>LinLog</li> <li>LinLou</li> <li>Nameserver</li> <li>Network</li> <li>Watchdog</li> </ul>	Search regular expression: mail.log.1 mail.warn messages messages.1 openypn.log.1 postgresql-3.4-main.log.1 pycentral.log syslog syslog.1 user.log user.log user.log wvdial.log vvdial.onf.log
G Modem	Buffer size (lines): 100 Columns: 100 Lines: 0-0 / 0 Up Down
User Administration	Actions:           Reopen         File Begin         File End         Go to         Line:

Scroll down to wvdail.log and open the file:

In this example the SIM is not inserted properly, this is now corrected, another restart of Wvdail was performed and WVdail.log is reopened:



admin@W × All admin@W ×	
$\leftarrow$ $\rightarrow$ C $\bigcirc$ Nicht sicher   192.168.2	20.153/index.php# 🛛 🕶 🕁 🗾 😯 :
•	🚍 WATERPOINTER 🚍 » Graph Download Stationbook Overview Water Calibration 🚍
<ul> <li>Rules &amp; Actions         <ul> <li>Rules &amp; Actions</li> <li>Rules</li> <li>Actions</li> <li>Defaults</li> </ul> </li> <li>System Info         <ul> <li>Service Interface</li> <li>Service Interface</li> <li>Service Interface</li> <li>Service Manager</li> <li>Service Manager</li> <li>Service Manager</li> <li>Software Update</li> <li>Backup</li> <li>Disk Manager</li> </ul> </li> <li>Extras</li> <li>Configuration</li> <li>LinLog</li> <li>LinLog</li> <li>LinLog</li> <li>LinLog</li> <li>Watchdog</li> <li>DynDns</li> </ul> <li>Modem</li>	WATERPOINTER       > Graph Download Stationbook Overview Water Calibration         Log Files Viewer         Please choose one of available waterpointer log files:       wvdial.log         Please choose one of available waterpointer log files:       wvdial.log         Search regular expression:       Search (next)         Lines:       1-31/31       Up         Pown       End offile reached (-403)        > Initializing moden.       ->> Sending: ATQ0 V1 E1 See & & & & & & & & & & & & & & & & & &
Go Diagnostics     T User Administration	Buffer size (lines): 100 Columns: 100 Lines: 1-31/31 Up Down Actions:
	Reopen File Begin File End Go to Line:

Now we have CONNECT in the line and the unit got some IP Addresses, that looking good.

Last point is to check connectivity Setup->Communication->Diagnostics:

← → C 🛈 Nicht sicher   192.168.20.153/index.php#				
waterpointer <b>Graph</b>	Download Stationbook Overview Water Calibration	Setup 🗘 🚍		
Target FQDN - 📑	portal-eu.recordum.net	Full qualified domain name		
Self	Self-Diagnosis to see if network stack is loaded by the kernel	Source: 127.0.0.1		
System Q	Use Target IP	Source: 192.168.20.153		
System	Use Target FQDN to test name resolution, too			
Modem 오	Use Target IP	Source: 10.42.172.66		
Modem	Use Target FQDN to test name resolution, too			
VPN	Is it possible to ping through VPN tunnel?	Source: 10.88.10.141		
Trace Route				
	Trace route tracks the route packets taken from an IP network on their way to (TTL) field and attempts to elicit an ICMP TIME_EXCEEDED response from ea	a given host. It utilizes the IP protocol's time to live ch gateway along the path to the host.		
	By default, traceroute uses UDP but that may be blocked by some routers. If succeed.	so, you might use ICMP/TCP instead, which may		
Target IP/FQDN	portal-eu.recordum.net			
UDP	Use UDP (default) for tracing			
ICMP	Use ICMP ECHO for tracing			
ТСР	Use TCP SYN for tracing			
Test Port				
	Test port performs a simple TCP/UDP connection test to determine if a host is helps to determine if third party firewalls are blocking outgoing connection re	up and accepting connections on a given port. This quests towards our update/portal servers.		
Portal Server	Can we reach web port on portal server?	portal-eu.recordum.net:80		
Update Server	Can we reach web port on update server?	portal.recordum.com:80		
VPN	Can we reach OpenVPN port on portal server?	portal-eu.recordum.net:1194		
Log				
<pre>File portal-eurrecordum.net (136.243.65.104) from 10.42.1/2.66 ppp): 50(3) 0ytes of data. 66 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=1 tt]=54 time=706 ms 66 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=3 tt]=54 time=237 ms 64 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=3 tt]=54 time=237 ms 64 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=5 tt]=54 time=237 ms 64 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=5 tt]=54 time=237 ms 64 bytes from portal-eurrecordum.net (136.243.65.104): icmp_req=5 tt]=54 time=749 ms  portal-eurrecordum.net ping statistics 6 packets transmitted, 6 received, 0% packet loss, time 5000ms rtt min/svg/max/mdev = 277.691/437.892/749.393/205.504 ms Done!</pre>				

After clicking on Modem (Use Target FQDN) I received answers from the server, now I am finished here.

**Hint:** Often the call centers of your provider cannot help as they are trained for mobile phones only. Google is a good help, searching for your providers Name and 'Access Point Name' or APN.

# **10 Machine to machine communication:**

If you need to integrate the WaterPointer data into your database automatically use the recordum HTTP download interface described here:

http://portal.recordum.com/shared/recordum\_HTTP\_Download\_Interface\_V2.03.pdf