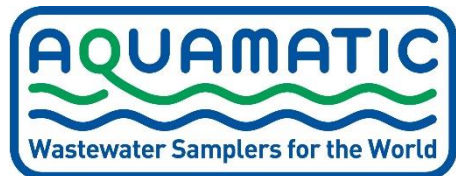




Issue 24.02

***PRESSURISED PIPELINE INTERFACE
STANDARD & 300 SERIES***

USER GUIDE SUPPLEMENT



SECTIONS

Warranty

Contents of Package **1**

Introduction **2**

Installation **3**

Operation **4**

Maintenance **5**

Technical Specification **6**

AQUAMATIC PRODUCT WARRANTY & BASIC TERMS OF SUPPLY

Congratulations on choosing an Aquamatic product. When used and maintained properly, this equipment should provide many years of reliable service

As a mark of confidence each new Aquamatic product is supplied with the following 12 month Warranty:

Electrical and / or mechanical defects occurring during the 12 months from date of invoice will be rectified free of charge provided the defective item is returned carriage paid to the supplier during this 12 month period (see MAINTENANCE section for details of returns procedure)

Please read this User Guide carefully, as neither Aquamatic Ltd. nor its agents accept responsibility for any damage or defect caused by misuse, abuse, neglect or incorrect operation

Aquamatic products and equipment are NOT suitable for use in areas classified as hazardous zones. Aquamatic products are subject to continuous development and improvement. Components and specifications may change or be withdrawn without notice

One copy of this 'User Guide' is provided with your Aquamatic product. This is intended to assist the reader in the effective application of the product and although the information contained is given in good faith, Aquamatic Ltd. accepts no responsibility or liability for any loss or damage arising from the use of information provided or from information being omitted

In any event Aquamatic Ltd accepts no liability for any consequential loss or damage arising from the use or failure of the product or any information provided, including, but not limited to, economic or financial loss, damage to peripheral equipment or products, loss of use, productivity or time

All equipment is supplied subject to Aquamatic Standard Terms & Conditions of Sale, this will be supplied with each order acknowledgment, and is also downloadable from the Aquamatic website or can be emailed, on request, from the Aquamatic head office

1

CONTENTS OF PACKAGE

Congratulations on buying your new Pressurised Pipeline Interface for use with your Aquacell Wastewater Sampler!

Before installing your Pressurised Pipeline Interface please check carefully that the contents of the package match your delivery note and in turn the items specified on your purchase order

Transit damage, or discrepancies, should be reported to Aquamatic immediately. If transit damage is not reported within 48 hours, transit insurance will be invalidated and the cost of repair will be chargeable

NOTE: Whilst awaiting installation your Pressurised Pipeline Interface should remain in its original packaging and kept in a dry, heated (min 5°C) area

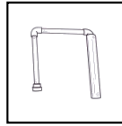
Pressurised Pipeline Interfaces	1.3
Optional Equipment - Electrical	1.4

Pressurised Pipeline Interfaces

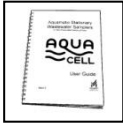
Pressurised Pipeline Interface - Standard.....CL-4147 + CL-2142-volts / hz



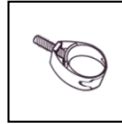
PPI Interface Enclosure



Pipe Extension Assembly



User Guide



Intake Hose Clip
(Not supplied with High Temperature or High Pressure Versions)



2 x PPI Enclosure Service access keys



4 x Anchor Bolts

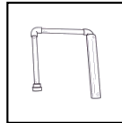


Intake Hose with Hose Tail – 10 metre
(Not supplied with High Temperature or High Pressure Versions)

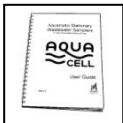
Pressurised Pipeline Interface – S300 SeriesCL-4120 + CL-2143-volts / hz



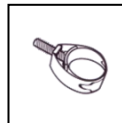
PPI Interface Enclosure



Pipe Extension Assembly



User Guide



Intake Hose Clip
(Not supplied with High Temperature or High Pressure Versions)



2 x PPI Enclosure
Service access keys



Intake Hose with Hose Tail
– 10 metre
(Not supplied with High
Temperature or High Pressure
Versions)

Optional Equipment - Electrical



Anti-Frost Heater - PPI

CL-4144-volts / hz

2

INTRODUCTION

Safety First	2.3
Infection	
Electrical	
Mechanical	
The User Guide Supplement	2.4
The Sampling Process	2.4
The Pressurised Pipeline Interface	2.5
PPI - Standard	
PPI – S300 Series	
Optional Equipment	2.6
Anti-Frost Heater - PPI	
Security	2.6

Safety First

Infection

All Aquacell Pressurised Pipeline Interfaces have been designed to minimise the risk of operator contact with the potentially hazardous wastewater medium, however great care should always be exercised when working in close proximity to wastewater. Particular attention should be paid to the following points:

1. Always wear appropriate PPE for the types of effluent being sampled
2. Wash hands thoroughly after handling contaminated sampler parts
3. Do not allow wastewater to come into contact with any open wounds or skin abrasions
4. If any parts have become cracked or chipped replace immediately to avoid the risk of cuts

Electrical

PPI - Standard

The PPI is mains powered only and receives its power directly from the AC mains supply. Provision for and connection of an appropriate power supply must be carried out by a suitably qualified electrician, see 'Installation Section' for further details

PPI - S300 Series

The PPI is mains powered only and receives its power from the S300 Series Sampler, the PPI has been pre-wired to the S300 Series Sampler so no direct electrical connection is required. Provision for and connection of an appropriate power supply to the S300 Series Sampler must be carried out by a suitably qualified electrician, see S300 User Guide for further details

Once correctly installed all mains connections on the equipment are safely housed behind fixed covers and contact with dangerous voltages is avoided. Always check the integrity of the mains cables/connectors before and during use.



The power must be switched off and the PPI / Sampler isolated prior to the enclosure being opened for cleaning / inspection. If it is necessary to open the PPI enclosure for PLC programming / interrogation purposes then this must be carried out by an Aquamatic Certified Engineer as mains voltages will be present at various points throughout the panel

Mechanical



Once connected, the Intake Hose to the PPI contains pressurised fluid which is elastic and stores a high amount of energy. Uncontrolled release of pressurised fluid is dangerous and can cause harm

If removing the Intake Hose always de-pressurise before removing any connections (see 'Draining the PPI System' in the Maintenance Section

of this manual). Remove connections slowly in the case of residual pressure in the line

Always wear appropriate PPE – Safety glasses as a minimum

Appropriate lifting equipment should be used and correct lifting procedures followed when manoeuvring the PPI enclosure into position

The User Guide Supplement

When operating an Aquacell Sampler with either of the Pressurised Pipeline Interfaces the general functionality is predominantly unchanged. Therefore the Aquacell Sampler User Guide provided with the Sampler should remain the main point of reference when operating this equipment

The Pressurised Pipeline Interface is designed for ease of operation and maintenance. If followed carefully the instructions given in this User Guide Supplement, combined with the Sampler User Guide, should quickly enable you to assemble, program and operate your new Pressurised Pipeline Interface and Aquacell Sampler

This User Guide Supplement relates to both Pressurised Pipeline Interface models. Much of the information supplied applies equally to both formats, however, where information relates to a specific format then this will be stated

The Sampling Process

The Aquacell Wastewater Sampler extracts individual Sample Shots from a wastewater channel or vessel according to a predetermined program and deposits them into one or more Sample Collection Vessels. In this way the user is provided with a representative sample of the wastewater being discharged

The benefits of using a Sampler to automatically collect volumes of the wastewater effluent are varied but include:

- a) Reduce the pollution load of the discharge (to fall within consent limitations)
- b) Reducing water company effluent charges
- c) Reducing product wastage

Following collection the way in which the samples are processed will vary from application to application. For example samples can be:

- Analysed using in-house laboratory facilities – when the objective of taking samples is to gain a greater knowledge of the discharge profile
- Sent to a specialist analytical laboratory for analysis - when an independent assessment of the discharge is required
- Made available to the local Water Company as a source of data on which to base charges. Self-monitoring is being increasingly encouraged by water companies both

in the interests of accurate charging and to encourage dischargers to improve plant efficiency, and so reduce the pollution load of their discharge

The Pressurised Pipeline Interface

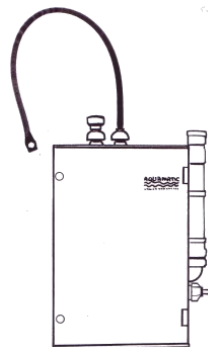
The Pressurised Pipeline Interface (PPI) works in conjunction with any of the Aquacell Sampler range. Providing an interface between the Sampler and a pressurised Sampling Point, the PPI gives the Sampler the ability to extract representative samples from pipelines at pressures up to 6 BAR @ 25°C / 0.8 BAR @ 60°C (or see PPI Rating Label where High Temperature or High Pressure Supplement has been supplied)

In certain applications, where the effluent being sampled is at a high temperature or of an aggressive nature, the standard construction materials maybe not be appropriate. Where this is the case alternative 'wetted parts' can be supplied within the PPI. See Section titled 'Technical Specification' later in this User Guide for further details

The PPI is available in two basic models:

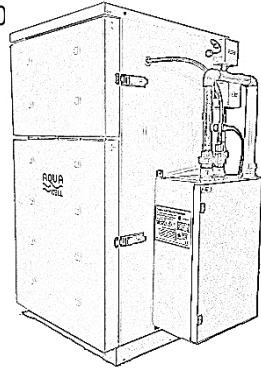
PPI - Standard

The PPI-Standard model is intended for use with all Portable Samplers plus the S50, S100 and S200 Stationary models. It is wall mounted and should be positioned directly adjacent to the Sampler in accordance with the Section titled 'Installation' later in this User Guide. This version is powered directly from the mains, provides power to the Sampler Module, and receives control signals from the Sampler Module



PPI - S300 Series

This PPI-S300 Series model is intended for use with any of the S300 Sampler Series. It is pre-mounted on the side of the S300 cabinet and receives power and signals direct from the Sampler itself



Optional Equipment

Anti-Frost Heater - PPI

Where the PPI is to be mounted in an outdoor location it is usually necessary to specify the Anti-Frost Heater - PPI, this will ensure that all items within the PPI enclosure are maintained at a suitable ambient operating temperature. With this heater specified, the PPI is suitable for operation at ambient temperatures between -10°C and $+50^{\circ}\text{C}$.

NOTE: Additional frost protection will be needed for external pipework where ambient temperatures are below zero

Security

Both PPI models incorporate a lockable front door, 2 keys are supplied

3

INSTALLATION

Choosing a Site	3.3
Environmental Considerations	
Preparing the Site / Equipment	3.4
Pressurised Pipeline Interface - Standard	
Pressurised Pipeline Interface – S300 Series	
Installing the Intake Hose	
Switching On	

Choosing a Site

Aquatic Pressurised Pipeline Interfaces are NOT suitable for use in areas classified as hazardous zones

Unless specified with an optional Pressurised Pipeline Interface all Aquacell Wastewater Samplers are only suitable for use on non-pressurised sampling points

Whilst awaiting installation your Pressurised Pipeline Interface should remain in its original packaging and kept in a dry, heated (min 5°C) area

Environmental Considerations

See the section titled 'Technical Specification' for details of IP Ratings and Ambient Operating Temperature ranges

- PPI units supplied without the optional Anti-Frost Heater – PPI (CL-4144) are suitable for indoor weather protected sites
- PPI units supplied with the optional Anti-Frost Heater – PPI (CL-4144) are suitable for both indoor and outdoor sites

For outdoor installations, consideration should be given to the possibility that solar radiation could cause the Sampler / PPI to rise above their specified maximum temperature. If this might occur, then additional solar screening should be provided

NOTE: Residual liquid will always remain in the pressurised Intake Hose between samples. As such, for applications where freezing ambient temperatures are likely, trace heating of this Hose will be necessary

Preparing the Site / Equipment

Considerations when preparing a Sampler / PPI for sampling from a pressurised sampling point are as follows:

- Mounting / Positioning (see Standard or S300 Series Installation Drawings on the following pages for general arrangement information)
 - PPI-Standard – A flat, secure wall or base is required on which to position the PPI
 - PPI-S300 Series - A flat, secure base is required on which to secure the Sampler and PPI combination
- Select a Sampling Point where it is certain the wastewater is well mixed and where a representative sample will always be available
 - If there is likely to be any sediment at the bottom of the pipe then it may be preferable to tap into the side of the pipe
 - If the pipeline is not always full then a tapping point below minimum liquid level should be chosen
- The Sampler / PPI can be positioned above or below the Sampling Point as required
- Maximum allowable pressure at the PPI is 6 BAR @ 25°C / 0.8 BAR @ 60°C (or see PPI Rating Label where High Temperature or High Pressure Supplement has been supplied). Pressure in the source pipeline must always be sufficient to create a flow of 0.5m/s through the Ø12mm bore Intake Hose
- Consideration should be given to the hydro-static head created by the relative height of the Pressurised Tapping Point with the PPI Flush Discharge level. A Tapping Point above the PPI Flush Discharge level on the PPI will add to the pipeline pressure and a Tapping Point below the PPI Flush Discharge level of the PPI will subtract from the pipeline pressure. See the PPI Installation Drawings later in this section for details
- When sampling from a tank the static head of the effluent within it must always be above the PPI Flush Discharge level and be sufficient to create a flow of 0.5m/s through the Ø12mm bore Intake Hose
- The Intake Hose routing is non-critical – See subsection 'Environmental Considerations' on the previous page for further information on the Intake Hose
- A Gravity Drain will be necessary to dispose of unwanted wastewater from the PPI to a suitable disposal point. See 'Gravity Drain Installation' sub-section later in the Section
- If the Sampler is to be operated with a 2 x 4.5 litre Self-Emptying Bottler or a Wastewater Drain has been specified (S300 Series Samplers only), an additional Gravity Drain will be necessary to dispose of unwanted wastewater to a suitable disposal point

Gravity Drain Installation

The gravity drain should be coupled to the PPI Drain Outlet and should lead to a suitable disposal point. It may be possible to couple the PPI Drain Outlet onto the Wastewater Drain (if fitted), however care must be taken in configuring the drain to avoid the potential of back flushing. 56mm O/D plastic pipe should be used to construct the Gravity Drain

Installing the Pressurised Tapping Point

A suitable tapping point should be selected and fitted with an appropriately specified isolation valve.

NOTE: The inclusion of an inline pressure gauge in the intake line (or even before the isolation valve) can be very useful in ensuring that the pipe pressure does not exceed the limits of the PPI

Depending on the chosen PPI temperature rating, the Pressurised Tapping Point should be installed as follows:

Normal Temperature Specification (6 BAR up to 25°C / 0.8 BAR up to 25°C)

The pressure tapping should be terminated in a ½" BSP female fitting, to which the supplied PPI Intake Hose can be connected

High Temperature / High Pressure Specification

An Intake Hose is not supplied with this format. Pipe suitable for pressure and temperature should be run from the pressure tapping point and terminated in a ½" BSP male connection to connect to the PPI

Electrical Mains Power Supply Installation



A suitable electrical supply should be provided to the equipment, see 'Technical Section' for further details. Provision for and connection of an appropriate power supply must be carried out by a suitably qualified electrician

Permanently connected equipment must have either an 'all pole' switch or circuit breaker (live and neutral conductors). The switch or circuit breaker must be included as part of the installation, it must be suitably located or easily reached and must be marked as the disconnecting device for the equipment

As the equipment is intended to go in potentially wet areas it is advisable to fit an RCD or RCBO (GFI/GFCI) in the circuit to protect operators from hazards

PPI - Standard

The mains power supply should be made to the end of the mains cable provided from the junction box on the outside of the PPI cabinet, see sub-section 'Pressurised Pipeline Interface – Standard with S50 Installation Drawing' and 'Pressurised Pipeline Interface – Standard with S200 Installation Drawing' later in this section for further details

NOTE 1: As standard mains cabling is wired as:

Brown = Live Blue = Neutral Green/Yellow = Earth

NOTE 2: Where selected for USA & Canada mains cabling is wired as:

Black = Live White = Neutral Green = Earth

PPI – S300 Series

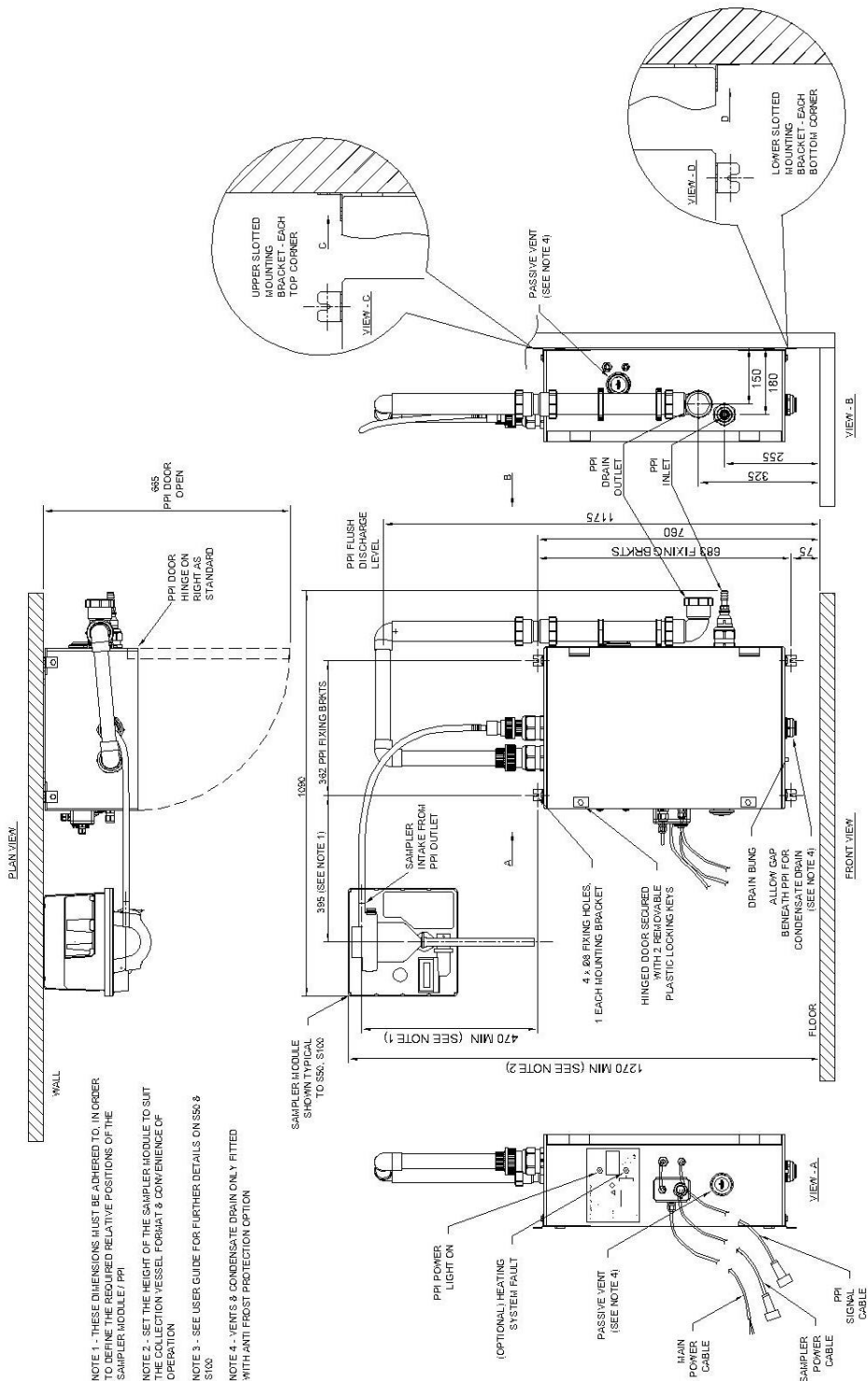
The mains power is provided from the S300 Series Sampler, the PPI has been pre-wired to the S300 Series Sampler so no direct electrical connection is required, see 'Pressurised Pipeline Interface – S300 Installation Drawing' later in this section, and see S300 User Guide for further details

Pressurised Pipeline Interface - Standard

1. Ensure that the proposed position of the PPI is such that the Sampler Sample Intake level is above the PPI Flush Discharge Level
2. Drill the 4 mounting holes (using an 8mm masonry drill, if using the fixing bolts supplied) in the wall (or other appropriate vertical surface), and install the masonry bolts (or other appropriate fixings) at the designated points
3. Attach the PPI Housing to the mounting surface
4. The power to the PPI should have been made by a suitably qualified electrician and a switched, fused isolator provided

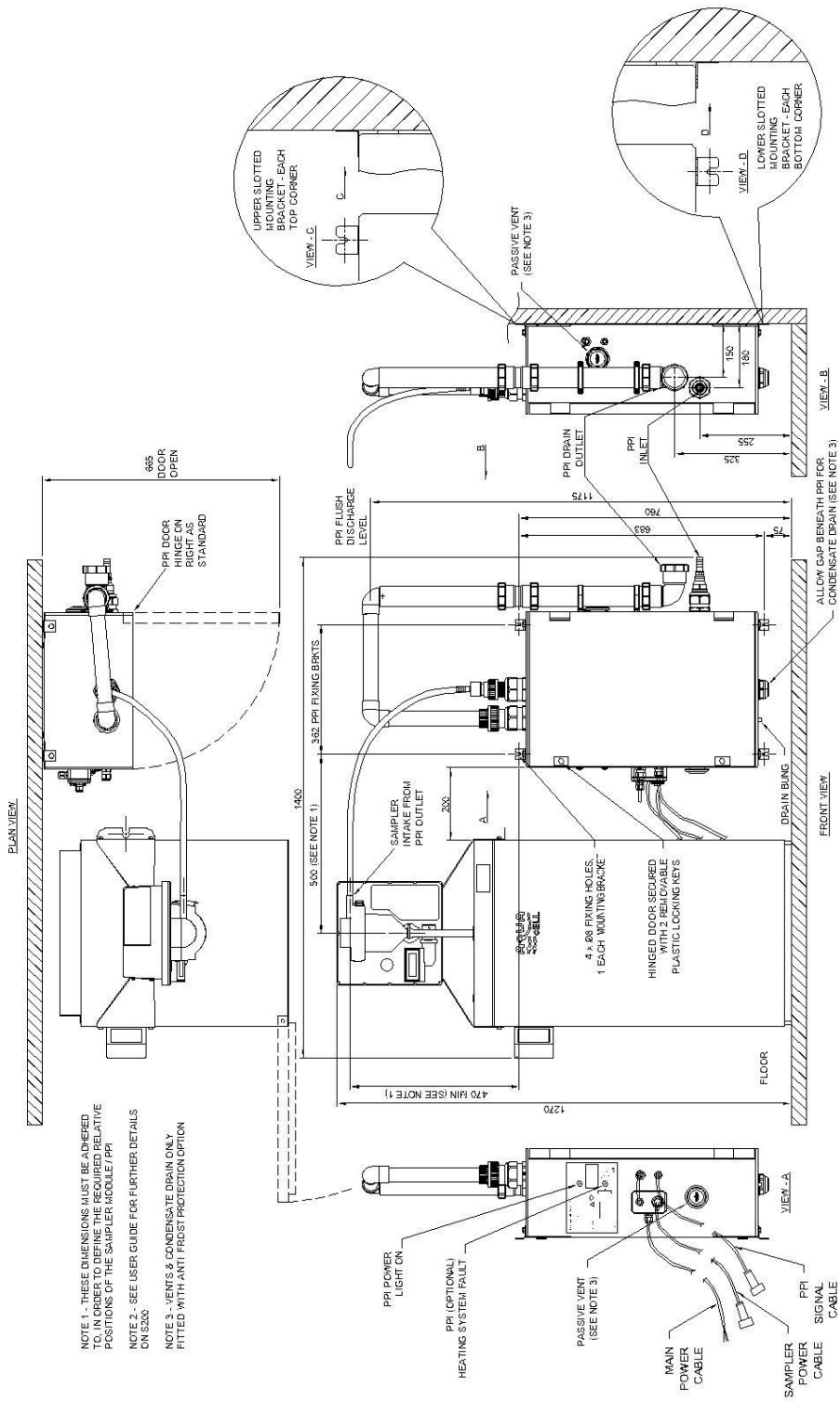
NOTE: DO NOT SWITCH THE POWER ON AT THIS POINT

5. Connect the PPI Sampler Power Cable to the Power Cable connector from the refrigeration cabinet junction box (S200), or to the 'Mains' connector on the bottom rear of the Sampler Module (S50, S100), as appropriate
6. Connect the PPI Signal Cable to the PPI connector on the Sampler Module
7. Connect the PPI to the pressurised pipeline as detailed in sub-section titled 'Installing the Intake Hose' later in this section



- NOTE 1 - THESE DIMENSIONS MUST BE ADHERED TO, IN ORDER TO DEFINE THE REQUIRED RELATIVE POSITIONS OF THE SAMPLER MODULE / PPI
- NOTE 2 - SET THE HEIGHT OF THE SAMPLER HOULE TO SUIT THE COLLECTION VESSEL FORMAT & CONVENIENCE OF OPERATION
- NOTE 3 - SEE USER GUIDE FOR FURTHER DETAILS ON S50 & S100
- NOTE 4 - VENTS & CONDENSATE DRAIN ONLY FITTED WITH ANTI FROST PROTECTION OPTION

Pressurised Pipeline Interface – Standard with S50 Installation



NOTE 1 - THESE DIMENSIONS MUST BE ADHERED TO, IN ORDER TO DEFINE THE REQUIRED RELATIVE POSITIONS OF THE SAMPLER MODULE / PFI

NOTE 2 - SEE USER GUIDE FOR FURTHER DETAILS ON S200

NOTE 3 - VENTS & CONDENSATE DRAIN ONLY FITTED WITH ANTI FROST PROTECTION OPTION

Pressurised Pipeline Interface - Standard with S200 Installation Drawing

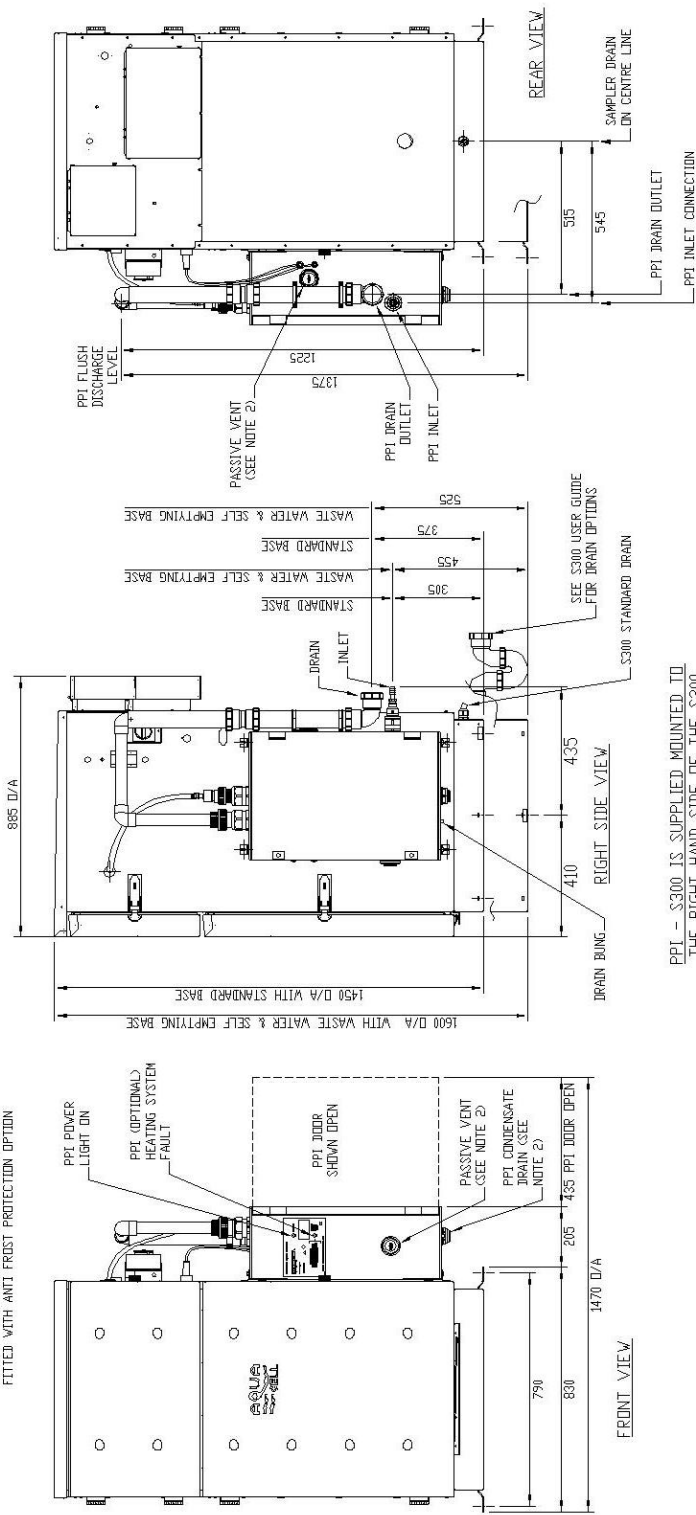
Pressurised Pipeline Interface – S300 Series

The PPI - S300 Series is pre-fitted to the side of the S300 Series Sampler; as such no special mounting provisions or connections to the Sampler are required

Connect the PPI to the pressurised pipeline as detailed in sub-section titled 'Installing the Intake Hose' later in this section. See next page for schematic

NOTE 1 - FOR FURTHER S300 DETAILS SEE S300 USER GUIDE

NOTE 2 - VENTS & CONDENSATE DRAIN ONLY FITTED WITH ANTI FROST PROTECTION OPTION



PPT - S300 IS SUPPLIED MOUNTED TO THE RIGHT HAND SIDE OF THE S300 SERIES SAMPLER - ALSO SEE S300 INSTALLATION DRAWING FOR DETAILS

Pressurised Pipeline Interface – S300 Series

Installing the Intake Hose

Each PPI is supplied with the following Intake Hoses:

- 1 x 10m Intake Hose with a 1/2" BSP tapered male fitting to one end (not supplied with High Temperature / High Pressure models)
- 1 x 0.85m Intake Hose to connect from PPI to the Sampler Module (pre-installed on S300 Series model)

Depending on the chosen PPI temperature / pressure specification, the Intake Hose should be installed as follows:

Normal Temperature / Pressure Specification (6 BAR up to 25°C / 0.8 BAR up to 60°C)

1. Couple the 1/2" BSP tapered male fitting on the 10m Intake Hose to the pre-installed Pressurised Tapping Point. Ensure the connection is fully water tight with appropriate sealing materials
2. Run the 10m Intake Hose along its designated path to the PPI Sample Intake Point (the 16mm Hose Tail Fitting, protruding from the right hand side of the Pressurised Pipeline Interface)
3. Cut the Intake Hose to length so that it is able to engage with the PPI Sample Intake Point, allowing for approx. 30mm of hose to fit onto the 16mm Hose Tail Fitting
4. Slide the supplied Intake Hose Clip over the Intake Hose and soften the end of the Hose by the application of heat
5. Push the softened end of the Intake Hose onto the PPI Sample Intake 16mm Hose Tail Fitting so that approx. 30mm is engaged. Secure by tightening the Intake Hose Clip using a screwdriver

THIS COMPLETES THE INSTALLATION FOR THE PPI-S300 SERIES, IF PPI-STANDARD IS SUPPLIED THEN CONTINUE ONTO POINT 6

6. Place the other Intake Hose Clip supplied over the cut end of the 0.85m Intake Hose. Soften the end of the hose by the application of heat
7. Push the softened end of the Intake Hose onto the PPI Outlet Hose Connector so that approximately 30mm is engaged. Secure by tightening the Inlet Hose Clip using a screwdriver
8. Connect the other end of the 0.85m Intake Hose to the Sample Chamber Top Intake Pipe on the Sampler Module. Secure by hand tightening the fitted Hose Clip

NOTE: The length of the 0.85m Intake Hose is critical to ensure correct operation of the PPI. As such it must not be modified

High Temperature / Pressure Specification

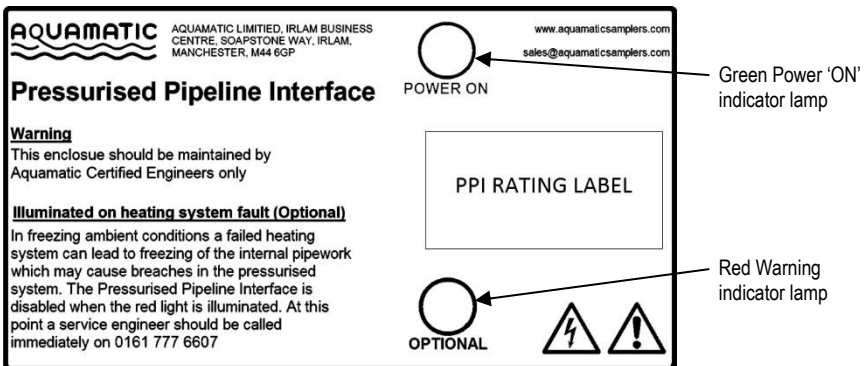
1. Fabricate a Sample Intake Tract to connect the PPI to the pressurised Tapping Point on the pressurised pipeline. This should be constructed out of ½” I/D pipe / hose suitable for operating at the pressures and temperatures specified
2. Couple Sample Tract to the pre-installed Pressurised Tapping Point. Ensure the connection is fully water tight with appropriate sealing materials
3. Fit a ½” BSP male connection to the end of the sample intake tract suitable for connection to the ½ BSP female connection provided at the PPI intake point.
4. Couple the Sample Intake Tract to the PPI Sample Intake

THIS COMPLETES THE INSTALLATION FOR THE PPI-S300 SERIES, IF PPI-STANDARD IS SUPPLIED THEN CONTINUE ONTO POINT 5

5. Place the Intake Hose Clip supplied over the cut end of the 0.85m Intake Hose. Soften the end of the hose by the application of heat
6. Push the softened end of the Intake Hose onto the PPI Outlet Hose Connector so that approximately 30mm is engaged. Secure by tightening the Inlet Hose Clip using a screwdriver
7. Connect the other end of the 0.85m Intake Hose to the Sample Chamber Top Intake Pipe on the Sampler Module. Secure by hand tightening the fitted Hose Clip

Switching On

Once positioned, installed and connected the PPI can be switched on. On switching on the Green Power indication lamp will illuminate



If at any stage the Red Warning indicator lamp is illuminated then refer to the Maintenance Section later in this User Guide for advice

4

OPERATION

Basic Operation	4.3
Taking a Spot Sample	
Programming	4.4

Basic Operation

When operating an Aquacell sampler with either of the Pressurised Pipeline Interfaces the general functionality is predominantly unchanged. Therefore the Aquacell Sampler User Guide provided with the sampler should remain the main point of reference when operating this equipment. This section simply outlines those areas where being connected to a Pressurised Pipeline Interface makes a difference to operation

If in any doubt, contact Aquamatic Service and Technical Support before commencing operation of this equipment.

The PPI is partially controlled by a PLC (Programmable Logic Controller) unit contained within the PPI housing. To alter or interrogate any settings in the PLC it is necessary to open the door of the PPI housing. As this operation must be carried out whilst the Power is ON, it should only be carried out by an Aquamatic Certified Engineer

Taking a Spot Sample

'SPOT SAMPLE' is an operating button on the Aquacell Keypad. This button can be pressed both in Standby mode and during a running program and will activate a single sample

When connected to a PPI the Aquacell Module will display the following screens during each sample:

IDENT	DISPLAY	ACTION / COMMENTS
SPOTSAM1	==SAMPLING NOW== CLOSE VALVE	Pinch Valve closes on the Pinch Valve Tube connected to the outlet of the Sample Chamber → See SPOTSAM2
SPOTSAM2	==SAMPLING NOW== PRE PURGE	Air is blown into the Sample Chamber and down the Intake Hose. This will purge any standing effluent from the Intake Hose → See SPOTSAM2P
SPOTSAM2P	==SAMPLING NOW== WAITING FOR PPI	Effluent is drawn up Intake Hose and into the Sample Chamber at a nominal 0.5 metres / second. Effluent fills the Sample Chamber up to the electrodes protruding down from the Sample Chamber Top → See SPOTSAM3

<i>SPOTSAM3</i>	==SAMPLING NOW== INTAKE	Effluent is drawn up Intake Hose and into the Sample Chamber at a nominal 0.5 metres / second. Effluent fills the Sample Chamber up to the electrodes protruding down from the Sample Chamber Top → See SPOTSAM4
<i>SPOTSAM4</i>	==SAMPLING NOW== POST PURGE	Excess effluent is purged from Sample Chamber back up the Volume Control Tube and down the Intake Hose until the level reaches the bottom of the Volume Control Tube. This leaves a measured volume in the Sample Chamber, this is the Sample Shot → See SPOTSAM5
<i>SPOTSAM5</i>	==SAMPLING NOW== SAMPLE RELEASE	Pinch Valve opens and the collected Sample Shot is released into the specified Sample Collection Vessel → See DEFAULT in sub-section 'Programming' of Section 'Operation' in Aquacell User Guide

Programming

The Sampler will have been setup ready to work with the PPI by the manufacturer. When powered up the Standby Screen will appear as follows:

IDENT	DISPLAY	ACTION / COMMENTS
<i>DEFAULT</i>	AQUACELL READY ++PPI MODE++	Press 'SET PROG' button to program the Sampler → See SETPROG in sub-section 'Programming' of Section 'Operation' in Aquacell User Guide

5

MAINTENANCE

General	5.3
Draining / Cleaning the PPI System	5.3
Draining the PPI System	
Cleaning the PPI Sample Tract	
PPI - Cleaning / Drainage Layout	
Troubleshooting	5.6
General Operational Troubleshooting	
PPI Warning Indication Troubleshooting	
Service Support	5.7

General

Routine user maintenance on the Pressurised Pipeline Interfaces is made as minimal as possible. It is however strongly recommended that regular preventative maintenance is carried out by an Aquamatic trained engineer. Please contact Aquamatic offices for details of annual Maintenance Contracts under which this work can be carried out

If in any doubt, contact Aquamatic Service and Technical Support before commencing operation of this equipment.

Depending on the nature of the effluent being sampled, Pressurised Pipeline Interfaces require the user to keep the sample tract (Intake Hose and internal pipework) clean and ensure that electronic / electrical hardware inside the sealed PPI module remains completely dry

It is also a good policy to maintain the PPI in a generally clean condition bearing in mind the potential infection hazards associated with wastewater

Additionally, in the case of the PPI, the wearing rubber parts within the diaphragm valves must be replaced. This will be highlighted by the Sampler / PPI itself (see Section titled Maintenance later in this User Guide). When this activity is required it must be carried out by an Aquamatic Certified Engineer and will require one of the following Service Packs:

- Service Pack - PPI - 100,000 cycles (CL-6222)
- Service Pack - PPI - 50,000 cycles (CL-6223)
- For High Temperature / High Pressure PPIs contact Aquamatic Ltd or your local approved supplier

Draining / Cleaning

Draining the PPI System

When a PPI is to be left without power for any period of time, in order to protect against frost damage and / or stagnation of collected samples, it is necessary to drain the PPI system, this should be carried out as follows:

1. Suitable PPE must be worn when carrying out this procedure, safety glasses as a minimum
2. Isolate the PPI from the pressurised pipeline
3. Press 'SPOT SAMPLE' on the Sampler Module and allow a sample to be taken, this will depressurise the Sample Intake Hose between the isolation and the PPI
4. Remove connections slowly in case of residual pressure in the Sample Intake Hose. Now fully disconnect the Intake Hose from the PPI Sample Intake Point. See subsection titled 'PPI – Cleaning / Drainage Layout' later in this Section for details
5. Place a bucket below the PPI Sample Intake Point spigot on the PPI



6. Press 'SPOT SAMPLE' on the Sampler Module, this will open the various PPI valves and allow trapped effluent to drain into the bucket
7. Repeat until no further effluent is draining into the bucket

Cleaning PPI Sample Tract

The method adopted to clean the PPI sample tract will depend on how sensitive the application is to cross contamination

1. Suitable PPE must be worn when carrying out this procedure
2. Drain the PPI as detailed in the previous sub-section titled 'Draining the PPI System'



WARNING: Before carrying out the following instructions switch off and isolate the mains power to the PPI / S300 Sampler

3. Unlock the PPI enclosure door and carefully remove various pipework sections by unscrewing the respective securing collars. See sub-section titled 'PPI – Cleaning /

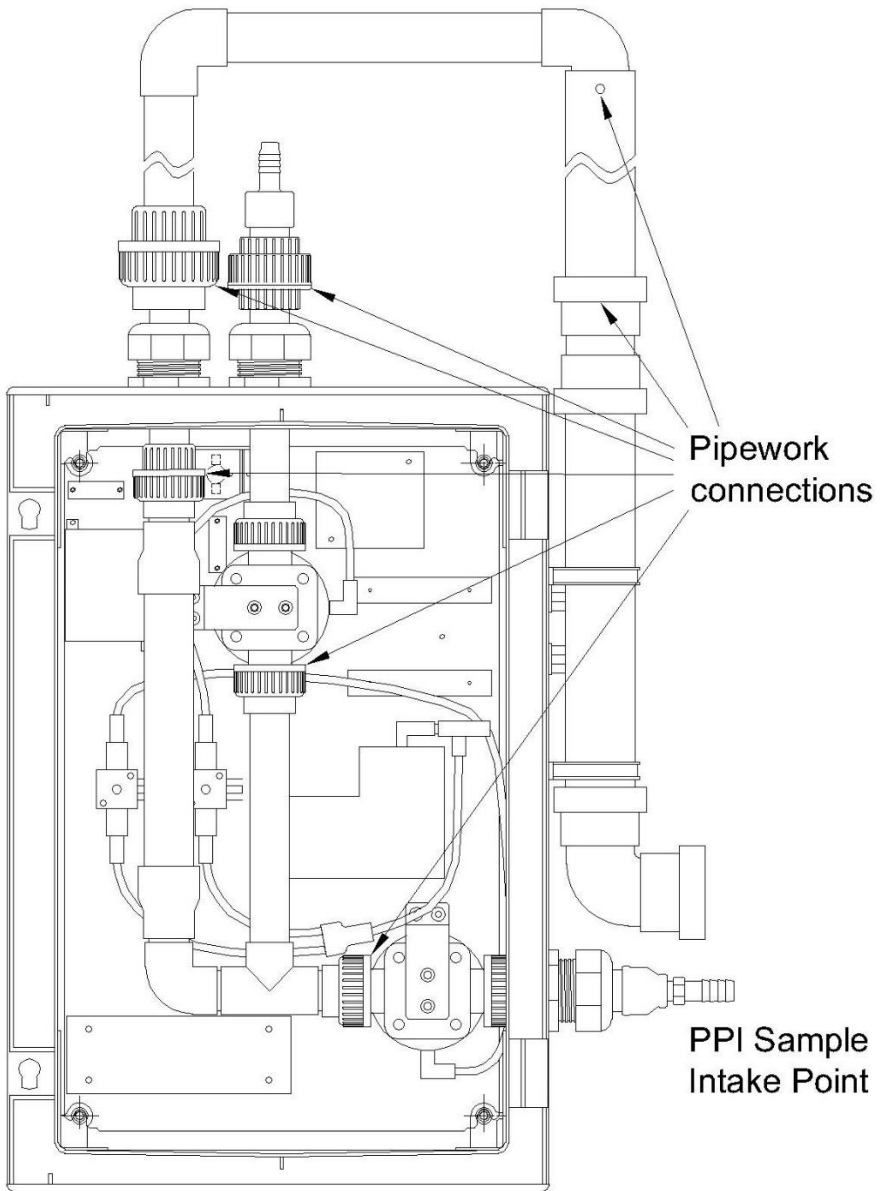


Drainage Layout' later in this Section for details of the PPI pipework layout

NOTE: Care should be taken to avoid any residual effluent coming into contact with the PPI's internal electrical parts / connections. Any spillages must be checked by suitably qualified electrical engineers / technician prior to power being reapplied to the PPI

4. Remove the various pipework sections from the PPI enclosure and rod / flush each section as appropriate with a suitable cleaning liquid
5. Refit cleaned pipework sections within the PPI and secure with the retaining collars. Ensure collars are fully tightened
6. Close and lock the PPI Enclosure
7. Reapply power and continue to operate equipment as normal

PPI – Cleaning / Drainage Layout



Trouble Shooting

If your PPI is not operating correctly check the symptoms against the following list. If you are unable to remedy the problem then refer back to Aquamatic Ltd or your local dealer (see sub-section titled 'Service Support' later in this Section for details)

General Operational Troubleshooting

SYMPTOM	FAULT	ACTION / COMMENTS
1. No PPI operation	a. Power is off b. Electronic fault	a. Ensure PPI is connected to a suitable power supply b. Request onsite service or return for Service
2. PPI is not flushing prior to Sample extraction	a. Partial / full blockage of Intake Hose or PPI tubing network b. Insufficient pressure in pressurised pipeline c. Pressurised tapping point is above effluent level in pressurised pipeline d. Leaking Intake Hose or pipe connection within the PPI tubing network e. Component(s) failure with PPI / Sampler	a. Check Intake Hose / PPI tubing network and remove blockage. See 'Draining / Cleaning the PPI System' earlier in this Section b. Connect PPI to point on pressurised pipeline where pressure is sufficient to ensure 0.5m/s effluent flow through PPI c. Ensure pressurised tapping point is always below level of effluent in pressurised pipeline d. Check all connections and tighten or reseal if loose e. Contact supplier for service advice
3. Sample shot sequence error	a. Component(s) failure with PPI / Sampler	a. Contact supplier for service advice

PPI Warning Indication Troubleshooting

SYMPTOM	FAULT	ACTION / COMMENTS
1. Green Power Indication Lamp on side of PPI is not illuminated but main power is on	a. Power supply cable is not correctly connected b. Internal electrical fault in PPI or Sampler	a. Push PPI power cable firmly onto side of PPI and secure with screw down collar b. Request onsite service or return for Service
2. Red Heating System Warning Indication Lamp on side of PPI is illuminated	Internal PPI heating thermal switch has tripped	Request onsite service or return for Service
3. Sampler LCD shows FAULT TIMED OUT and sample shot cycle aborts Notes: <ul style="list-style-type: none"> • This message will only appear briefly if a program is not in progress when the fault occurs • This fault will not cause the program to abort 	a. 50,000 diaphragm valve actuations have been completed Rubber diaphragms / seals and valve actuators need to be replaced b. Insufficient pressure in the pressurised pipeline	a. Request onsite service or return for Service b. Ensure effluent pressure is sufficient to achieve 0.5m/s flow through PPI

Service Support

There are no user serviceable parts on the Pressurised Pipeline Interfaces. In the event of failure of a PPI the following procedure should be followed:

1. Report the failure to Aquamatic Ltd or its approved distributor. Often a telephone call is enough to resolve a perceived problem
2. When a problem cannot be resolved over the telephone then there are 2 options:

a. On-Site Support

Following discussion with Aquamatic or its approved distributor an engineer can arrange to come to site to assess your equipment. This is often the easiest and most practical option, particularly when the fault lies somewhere other than within the PPI itself

b. Returning a Pressurised Pipeline Interface

PPI - Standard

If the above solution is not possible then the Pressurised Pipeline Interface can be returned to Aquamatic or its approved distributor. To do this, proceed as follows:

1. Drain the PPI system as detailed in the 'Draining the PPI System' earlier in this Section
2. Switch mains power off, isolate and disconnect Sampler from supply
3. Isolate PPI from pressurised effluent source

4. Remove Intake Hose / intake pipework
5. Disconnect the PPI from the mains power supply
6. Disconnect the PPI from the Sampler
7. Carefully remove the PPI from the wall mounting. Care should be taken to ensure the PPI is handled in accordance with standard Health and Safety regulations for lifting
8. Return for assessment, service or repair

PPI - S300 Series

If the above solution is not possible then the S300 Series Sampler and Pressurised Pipeline Interface can be returned to Aquamatic or its approved distributor. To do this, proceed as follows:

1. Drain the PPI system as detailed in the 'Draining the PPI System' earlier in this Section
2. Switch mains power off, isolate and disconnect Sampler from supply
3. Isolate PPI from pressurised effluent source
4. Remove Intake Hose
5. Remove S300 cabinet floor mounting bolts
6. Position S300 cabinet on its transit pallet, screw down using securing bolts and cover with transportation box and strap to secure
7. Return for assessment, service or repair

Please ensure that all items are packed securely such that movement within the box is prevented during transit. Repair of transit damage is chargeable

6

TECHNICAL SPECIFICATION

Performance	6.3
Mechanical.....	6.4
Power Supply	6.4
Internal Interface	6.5
Standards Compliance	6.5

This section simply outlines the technical specification relating to the selected Pressurised Pipeline Interface. The User Guide provided with the Sampler should remain the main point of reference when assessing the Samplers general technical specification

Performance

General usage	Aquacell Products are NOT suitable for use in zones classified as hazardous
Sample media suitability	
Standard version	Pressurised wastewater up to 6 Bar @ 25°C and up to 0.8 Bar @ 60°C
High Temperature / High Pressure version	Pressurised wastewater up to - See PPI Rating Label
Minimum pipeline pressure	Sufficient to generate 0.5m/sec effluent flow through PPI
Maximum wastewater particulate size	10mm
Sample extraction method	Pressurised effluent depressurised inside PPI. Aquacell Sampling System then extracts Samples from PPI and into selected Sample Collection Vessel
Sample shot cycle time	Approx. 60 seconds
PPI purging	Pressurised effluent is flushed through the PPI prior to each sample being taken
Sample tract diameter	12mm increasing to 16mm (22mm with Bottler) between sample intake and discharge
Maximum sample media temperature	See Sample media suitability above
Ambient operating temperature range	
PPI – Standard / S300 Series	5°C to 50°C
(with optional Anti-Frost Heater (CL-4144-volts / hz))	-10°C to 50°C

Mechanical

Dimensions

PPI – Standard / S300 Series H1100mm x W585mm x D250mm

Weight

PPI – Standard / S300 Series 18kg
(with optional Anti-Frost Heater
(CL-4144-volts/hz))

Environmental protection

PPI – Standard / S300 Series IP55 enclosure

6.4

Construction materials

Main enclosure	Polyester reinforced with fibreglass
Pipework - Internal / External:	
Standard version	PVC-U (clear pipe / dark grey fittings)
High Temperature version	PVC-C (light grey pipe & fittings)
Pipework - External Drainage (white)	ABS (pipe and brackets) / PP (fittings)
Internal Backing Plate	Galvanised mild steel
Internal Diaphragm Valves :	
Valve body	PVC-U / PP-H / PVDF (standard / high pressure / high pressure & temperature EPDM / EPDM & PTFE diaphragm and seals (see valve labels or contact Aquamatic)
Valve actuator & nut	Polypropylene glass fibre reinforced
Intake Hoses (when supplied)	PVC with polyester braid
Controls / Hardware	EEE / Stainless Steel

Door opening angle

180°

Security

Lockable enclosure door protecting against unauthorised tampering with PLC and internal electrical / electronic wiring

Power Supply

Power option

Mains AC (standard with all units) 110/230VAC @ 50/60hz (to order)

Power consumption

PPI – Standard	360VA @ 110VAC / 50Hz (includes 60VA for the Sampler module)
	360VA @ 230VAC / 50Hz (includes 60VA for the Sampler module)
PPI – S300 Series	N/A – See S300 Series User Guide for total power consumption

Internal Interface (Aquamatic Certified Engineer access only)

PLC Control Panel	6 button keypad 4 x 18 alpha numeric LCD
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Disposal

In the event that this equipment is being disposed of particular reference should be made to the 'Key Materials of Construction' earlier in this section. All parts must be disposed of in line with current UK regulations

Electrical and electronic equipment (EEE) contains materials, components and substances that can be dangerous and harmful to human health and the environment if the waste (WEEE) is not disposed of properly

Products that are labelled with a 'crossed-out wheelie bin' are electric and electronic equipment. The crossed-out wheelie bin symbolizes that waste of this type cannot be disposed of with unsorted waste, but must be disposed of separately

Standards Compliance

UK Environment Agency Standard

MCERTS Performance Standard for Continuous Water Monitoring Systems – Automatic Water Sampling Equipment Part 1

European Standard

EN16479:2014 Water Quality – Performance requirements and conformity test procedures for water monitoring equipment – Automated sampling devices (Samplers) for water and wastewater

UK Regulations

The fulfilment of the requirements set out in Schedule I of the **Electromagnetic Compatibility Regulations 2016** has been demonstrated, having applied the following standards:

BS EN 61000-6-3:2007

Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments

BS EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements

The fulfilment of the safety objectives for equipment referred to in Part 1.3 and set out in Schedule I of the **Electrical Equipment (Safety) Regulations 2016** has been demonstrated, having applied the following standards:

BS EN 61010-1:2010

Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements

It has been demonstrated that the requirements specified in **The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012** has been met

EU Directives

The fulfilment of the requirements set out in Annex I of the **Electromagnetic Compatibility Directive (EMC) 2014/30/EU** has been demonstrated, having applied the following standards:

BS EN 61000-6-3:2007

Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments

BS EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements

The fulfilment of the safety objectives referred to in Article 3 and set out in Annex I of the Low Voltage Directive (LVD) 2014/35/EU has been demonstrated, having applied the following standard:

BS EN 61010-1:2010

Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements

It has been demonstrated that the requirements specified in Article 4 of the **Restriction of Hazardous Substances Directive (RoHS) 2011/65/EU** has been met

ISO International Standard

Generally in accordance with:

ISO 5667-10 : 1992

Water quality - Sampling: Guidance on sampling of waste waters



Established in 1991, Aquamatic Limited is a leading manufacturer of automatic Wastewater Sampling Equipment, based in Manchester, United Kingdom. The company and its product range benefit from over 50 years experience in the wastewater sampling industry

From the outset the Aquamatic philosophy has been to focus strictly on the design and manufacture of uncomplicated, robust and reliable wastewater sampling equipment. By remaining committed to this goal, Aquamatic now offer a true leading edge range of products suitable for the worldwide market

Available both direct from Aquamatic in England and around the world via a network of local distributors, Aquamatic equipment is accessible globally to any company with a requirement for high quality, dependable Wastewater Sampling Equipment

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