015098
Small House Control Panel
Installation & Operation Guidelines

Kingspan Environmental

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Control Panel. Part Code: 010086

HEALTH AND SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can become acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following the guidelines supplied with the equipment.

A qualified electrician should carry out electrical work.

Covers must be kept locked.

Observe all hazard labels and take appropriate action to avoid exposure to the risks indicated.

Ensure that you are familiar with the safe working areas and accesses.

Ensure that the working area is adequately lit.

The power supply to the equipment should be isolated at the main RCD before lifting the blower cover.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

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1 General Electrical

1.1 General Notes on Outside Electrical Installation

1.1.1 Only qualified and competent persons should carry out any electrical installation. Outside electrical installations can present dangers that are not usually encountered in internal electrical wiring. External equipment is subjected to the elements and particular attention must be made to the suitability of the cable, glands, connection units etc. for outside use. The possibility of attack by vermin should also be considered and adequate precautions taken.

1.1.2 These notes are not intended to replace the latest I.E.E. Wiring Regulations.

1.2 Health & Safety at Work, etc. ACT 1974

1.2.1 To ensure that the equipment described is safe both for personnel and property it should be installed, inspected and maintained by or under the supervision of qualified persons. Regard should be taken of IEE Wiring Regulations, Codes of Practice, Statutory Requirements and any specific instructions issued by the supplier of these details.

1.2.2 Earthing - All equipment must be earth bonded in accordance with the latest IEE Wiring Regulations. For clarity this has not been shown.

1.2.3 We reserves the right to alter these details without prior notice.

1.3 Electrical Supply

1.3.1 The electrical feed should be dedicated to the equipment and not used for any other purpose. The supply should be via a suitable RCD unit backed up by either a motor rated fuse, or preferably a motor rated MCB of suitable rating.

1.3.2 Ensure that the blower housing is protected by a suitable RCD to BS 4293 and a MCB to BS 3871. Cable installation below ground should be SWA to BS 6346, unless otherwise stipulated.

1.3.3 The RCD must be of the two-pole type rated at 25A/30mA. (If nuisance tripping is experienced then a sensitivity of 100mA should be used, but this does reduce the personnel protection capability).

1.4 Cable Installation

1.4.1 The type and size of cable depends upon site conditions and distance. If conduit/ducting is possible then providing mechanical and vermin attack protection is provided, single cables of adequate size can be used. However, the preferable method would be to use steel wire armoured (SWA) cable. This should be buried in the ground at a depth of 600mm laid on sand with warning tapes on the cable and an additional tape at a depth of 150mm. External type SWA glands should be used on all make offs.

1.4.2 For loads up to 0.75kW and runs of less than 100 metres, 2.5mm² 3 core SWA is adequate. For loads up to 1.55kW and runs of less than 100 metres, 4.0mm² 3 core SWA should be used. It is a requirement to use the unused core in the cable for the earth conductor and this should be sleeved with earth sleeving at both connection points.

1.5 General Installation

1.5.1 The control panel need not be adjacent to the plant. It can be mounted in the blower housing (supplied with Biotec Unit only), wall mounted or fixed to the mounting frame (available separately). It should be positioned so it cannot be reached by someone standing in or on the unit. It would be advisable to situate the control panel in a frequently viewed position, so if a fault code appear it will be seen.

1.6 Mounting Frame Installation (where applicable)

1.6.1 Set the frame legs in a concrete base, minimum 250mm thick and prop the frame to prevent movement until the concrete has set.

1.6.2 Allow 350mm minimum clearance from finished ground level to the bottom of the panel.

1.7 Retro-fit of Control Panel

1.7.1 Ensure a qualified electrician removes the existing equipment before installing the new control panel.

1.7.2 Remove the four screws on the front of the panel and remove the main cover.

1.7.3 Remove the four screws holding the safety cover and remove the safety cover.

1.7.4 Remove the two screws holding the isolating cover and remove the isolating cover.

1.7.5 Using a suitable M20 gland, feed the mains power supply through Gland Hole 1 (Figure 1). Wire the mains supply to the terminal blocks following the guide on the terminal blocks.

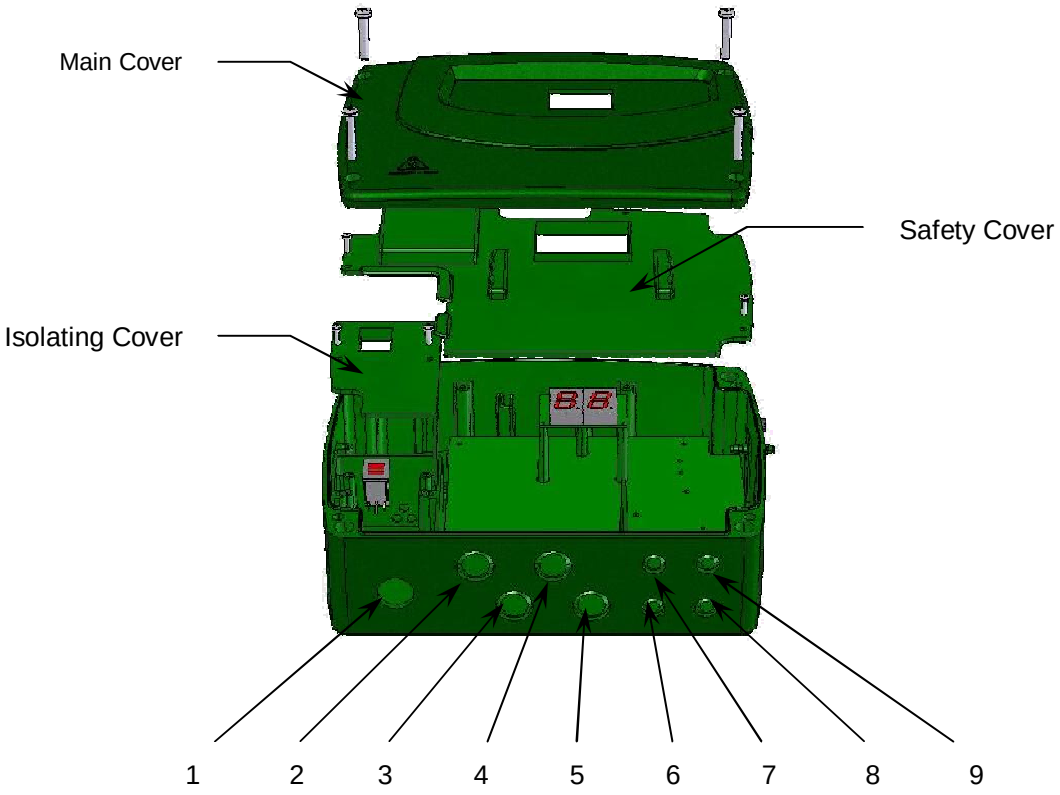
1.7.6 Replace the isolation cover and screws.

1.7.7 Using a suitable M20 gland, feed the blower (Biotec) /motor (BioDisc) power supply cable through Gland Hole 4 (Figure 1) and terminate to connections 5 & 6 (TB3) following the guide on Table 1.

Terminal Block Number	1, 3, 5 & 7	2, 4, 6 & 8	⏚
Connection	Live - Red	Neutral - Black	Earth – Green/Yellow
Terminal Block Number	11	12	
Connection	Black	Blue	
Terminal Block Number	13	14	15
Connection	Common	High	Low
Terminal Block Number	16	17	18
Connection	Red	White	Black

Table 1 : Control Panel Termination Information

Figure 1 : Control Panel Gland Holes



2 For Biotec Application

2.1 Installation of Integral Discharge Pump (where applicable)

2.1.1 Using a suitable M20 gland, feed the pump power cable through Gland Hole 2 (Figure 1) and terminate to connections 1 & 2 (TB1) following the guide on Table 1.

2.2 Power & Pressure Failure Detection System (where applicable)

2.2.1 Using a small screwdriver, push switch 11 to the ON position.

2.2.2 The panel is designed to be used in conjunction with the Beacon unit to provide warning of either loss of power or air pressure failure.

2.2.3 For panels mounted outside the blower housing, additional tubing can be purchased, contact your local sales team for details. The panel can be mounted up to 30m away from the blower with no effect on the performance of the pressure failure detection system.

2.3 Installation of High Level Alarm (where applicable)

2.3.1 Fix the black plastic bracket to the side wall of the baffle (the exact position is on the drawing included with the HLA kit). Secure the float cable in the cable gland as shown on the drawing in the HLA kit.

2.3.2 Pull the float cable through any installed ducting into the housing.

2.3.3 Remove the link in the terminal blocks between connections 11 & 12 (TB6) before inserting cables. Using a suitable M12 gland, feed the high level alarm float cable through Gland Hole 7 (Figure 1) and terminate to connections 11 & 12 (TB6) following the guide on Table 1.

2.4 Beacon units (where applicable)

2.4.1 These Beacons are used with optional high level alarms for pumped outlet installations.

2.4.2 They may also be included in the Power and Pressure Failure Detection System (PPFDS).

2.4.3 This unit provides an external visual indication of failure. It can be positioned up to 30m from the panel.

2.4.4 As supplied the unit is fully weatherproof to IP65 and is supplied ready to mount on a suitable surface. A 3-metre length of cable for connection to the panel terminals is provided.

2.4.5 Using a suitable M12 gland, feed the cable from the beacon through Gland Hole 9 (Figure 1) and terminate to connections 16, 17 & 18 (TB8) following the guide on Table 1.

2.4.6 This unit is designed to be simple to install and safe in operation. Any modification may adversely affect its weather resistance in operation. If in any doubt, please consult us for advice. This is a sealed unit and not serviceable.

2.5 Completing the Installation

2.5.1 Plug the lead from the battery into the small white socket in the top right corner of the PCB marked “BATTERY HEADER”.

2.5.2 The display should now show “F1”. This is normal and is indicating that there is no mains power to the panel. At this point the panel is running from the battery power.

2.5.3 Replace the safety cover and screws.

2.5.4 Turn the mains supply on at the source.

2.5.5 Turn on the panel using the isolation switch. It should now be illuminated red. The display should now read “- -“. Press the orange reset button next to the display to clear the display.

2.5.6 Replace the main cover and screws, ensuring no voids are left.

2.5.7 The unit is now fully operational.

2.5.8 Blowers are to run continuously, 24 hours, 7 days a week, except when desludging and servicing.

2.5.9 Before switching on the blower, ensure the air filter is correctly fitted and that the air intake is completely free of obstructions.

3 For BioDisc Installation

3.1.1 Using a suitable M20 gland, feed the motor power supply cable through Gland Hole 4 (Figure 1) and terminate to connections 5 & 6 (TB3) following the guide on Table 1.

3.1.2 Connect the other end of the motor power supply cable to the Motor in the plant.

Terminal Block Number	1, 3, 5 & 7	2, 4, 6 & 8	⏚
Connection	Live - Red	Neutral - Black	Earth – Green/Yellow
Terminal Block Number	11	12	
Connection	Black	Blue	
Terminal Block Number	13	14	15
Connection	Common	High	Low
Terminal Block Number	16	17	18
Connection	Red	White	Black

Table 2 : Control Panel Termination Information

3.2 Installation of Integral Discharge Pump (where applicable)

3.2.1 Using a suitable M20 gland, feed the pump power cable through Gland Hole 2 (Figure 1) and terminate to connections 1 & 2 (TB1) following the guide on Table 1.

3.3 Installation of Sludge Return Pump (where applicable)

3.3.1 Using a suitable M20 gland, feed the integral discharge pump power cable through Gland Hole 3 (Figure 1) and terminate to connection 3 & 4 (TB2) following the guide on Table 1.

3.3.2 Set the run and pause times for the sludge return pump as described in Table 3.

Sludge Return Pump Pause Time		
Switch 5	Switch 6	
Off	Off	12 hours
Off	On	6 hours
On	**Off**	**2 hours(default)**
On	On	1 hour
Sludge Return Pump On Time		
Switch 7	Switch 8	
Off	Off	30 seconds
Off	**On**	**20 seconds (default)**
On	Off	10 seconds
On	On	5 seconds

Table 3 : Sludge Return Pump Settings

3.4 Installation of Chemical Dosing System (where applicable)

3.4.1 Using a suitable M20 gland, feed the chemical dosing pump power cable through Gland Hole 5 (Figure 1) and terminate to connections 7 & 8 (TB4) following the guide on Table 1.

3.4.2 Using a suitable M12 gland, feed the chemical dosing probe cable through Gland Hole 8 (Figure 1) and terminate to connections 13, 14 & 15 (TB7) following the guide on Table 1.

3.4.3 Connect the other end of the chemical dosing pump power supply cable to the junction box in the plant (marked CHEMICAL DOSING).

3.4.4 Connect the other end of the chemical dosing probe cable to the junction box in the plant..

3.4.5 Set the run and pause times for the chemical dosing pump as described in Table 4.

Chemical Dosing Pump Pause Time		
Switch 1	Switch 2	
Off	**Off**	**48 minutes (default BA)**
Off	**On**	**24 minutes (default BB)**
On	Off	12 minutes
On	On	6 minutes
Chemical Dosing Pump On Time		
Switch 3	Switch 4	
Off	Off	4 seconds
Off	On	3 seconds
On	**Off**	**2 seconds (default)**
On	On	1 second

Table 4 : Chemical Dosing Pump Settings

3.4.6 Using a small screwdriver, push switch 12 to the ON position.

3.5 Installation of Loss of Rotation Alarm (where applicable)

3.5.1 Using a suitable M12 gland, feed the loss of rotation alarm cable through Gland Hole 6 (Figure 1) and terminate to connection 9 & 10 (TB5). The two contacts are not position sensitive.

3.5.2 Connect the other end of the loss of rotation alarm cable to the junction box in the plant..

3.5.3 Using a small screwdriver, push switch 10 to the ON position.

3.6 Installation of High Level Alarm (where applicable)

3.6.1 Remove the link in the terminal blocks between connections 11 & 12 (TB6) before inserting cables. Using a suitable M12 gland, feed the high level alarm float cable through Gland Hole 7 (Figure 1) and terminate to connection 11 & 12 (TB6) following the guide on Table 1.

3.6.2 Fix the bracket attached to the float to the steelwork supporting the motor using the two free holes.

3.6.3 Ensure that the base of the float is approximately 300mm from the bracket when held horizontally.

3.7 Installation of Beacon (where applicable)

3.7.1 The beacon can be mounted up to 30m from the panel. The beacon is intended to be mounted on a wall or other solid surface.

3.7.2 Using a suitable M12 gland, feed the cable from the beacon through Gland Hole 9 (Figure 1) and terminate to connection 16, 17 & 18 (TB8) following the guide on Table 1.

3.8 Completing the Installation

3.8.1 Plug the lead from the battery into the small white socket in the top right corner of the PCB marked “BATTERY HEADER”.

3.8.2 The display should now show “F1”. This is normal and is indicating that there is no mains power to the panel. At this point the panel is running from the battery power.

3.8.3 Replace the safety cover and screws.

3.8.4 Turn the mains supply on at the source.

3.8.5 Turn on the panel using the isolation switch. It should now be illuminated red. The display should now read “- -“. Press the orange reset button next to the display to clear the display.

3.8.6 Replace the main cover and screws, ensuring no voids are left.

3.8.7 The unit is now fully operational.

3.9 Ancillary Equipment

3.9.1 Ancillary items should be installed in accordance with the Installation Guide supplied e.g. Crude Sewage Pump Station /Effluent Pump Station/Effluent Sample Chamber.

3.10 Start Up

3.10.1 We recommend that the unit is commissioned by an approved engineer.

3.10.2 Refer to the Owners Handbook for details of the Start Up Procedure.

3.10.3 Once the unit has been installed it should be left with the water in it. Please switch on the motor, following the procedure in the Owners Handbook and leave the unit running, even if there is no sewage being fed into the plant.

3.10.4 **If the unit has been installed with no operational power supply, then remove the motor/gearbox unit and store it in a dry or heated environment until such time as the unit is ready for permanent operation.**

3.10.5 DO NOT CONNECT UNITS WITH INTEGRAL PUMPS TO A SEWAGE SUPPLY, WITHOUT ENSURING THAT THE ELECTRICITY IS CONNECTED AND THAT THE UNIT IS OPERATIONAL (IF THE MOTOR AND GEARBOX IS FLOODED, REPLACEMENTS WILL BE REQUIRED).

4 Fault Codes and Fuses.

CODE	FAULT CONDITION	FUSE	Amp
F1	No power to the unit	Customer Fuse box	N/A
F2	The blower pressure has failed (PPFDS kit required)	N/A	N/A
F3	The high level alarm has activated (where fitted)	N/A	N/A
F4	The fuse to the blower/motor has failed	F3	3.15
F5	The fuse to the discharge pump (where fitted) has failed	F1	5.0
F6	The fuse to the chemical dosing pump has failed	F4	0.25
F7	The fuse to the recirculation pump has failed	F2	5.0
F8	The loss of rotation alarm has been activated	N/A	N/A
--	The unit has had a fault which has now corrected itself	N/A	N/A

All fuses are Time Lag HBC 20mm type.

Should any problem be experienced, please contact our Service department to request a Pre-service Agreement Inspection.

Kingspan Environmental Service: 0844 846 0500