

# HYDROX

Hydrox™ HCU Basic  
installation, operation and maintenance manual



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**NOTE:**

This manual must be read and its instructions must be followed when installing, operating and/or performing maintenance on the control unit or its equipment.

These instructions are of general nature and do not cover all possible operating scenarios. For more specific guidance on the installation, operation and maintenance of the control unit or its suitability for an intended use, please contact the manufacturer.

Vexve Oy reserves the right to make alterations to these instructions.

Vexve Oy is not responsible for damages caused by incorrect transportation, handling, installation, operation or maintenance. Furthermore, Vexve Oy is not responsible for damage caused by foreign objects or impurities.

## Warranty

Warranty according to Vexve Oy's "General terms and conditions of sale".

The warranty covers manufacturing and material faults. The warranty does not apply to damages caused by inappropriate installation, operation, maintenance, or storage ie. these instructions must be followed for the warranty to apply. Vexve Oy requires that any faulty products under warranty are to be returned to the factory for inspection. Only after the product has been found faulty, Vexve Oy can grant compensation.

Please refer to Vexve Oy's "General terms and conditions of sale" for detailed warranty clauses. The document is available from the manufacturer.

## Warnings and symbols

Ignoring the warnings and symbols may lead to serious injury or equipment damage. Persons authorized to use the equipment must be familiar with the warnings and instructions.

Appropriate transportation, storage and installation as well as careful commissioning are essential to ensure faultless and stable operation.

The following symbols are used in this manual to draw attention to actions essential to ensure the proper use and safety of the device.



Meaning of the symbol: NOTE

The NOTE symbol is used for actions and functions that are essential for the proper use of the device. Ignoring this symbol may have harmful consequences.



Meaning of the symbol: WARNING

The WARNING symbol is used for actions and functions that, if carried out incorrectly, may lead to injury or equipment damage.

# 1. General

Vexve Oy's Hydrox control units are the best solutions for controlling the Hydrox actuators. Control units are specifically designed to operate seamlessly with Hydrox actuators and therefore with Vexve and Naval ball and butterfly valves. The Hydrox control unit is the perfect solution for easy and reliable operation with minimum need of maintenance and with maximum safety at all times.



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## NOTE:

When intending to use the control unit with actuators from other manufacturers than Vexve Oy please contact Vexve Oy to ensure its suitability.

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For detailed technical information including dimensions and weights, pressures etc. please refer to Hydrox Product catalogue or data sheets ([www.vexve.com](http://www.vexve.com)).

## 2. Control unit identification

The identification plate locates at the control unit's side. It has the following information:

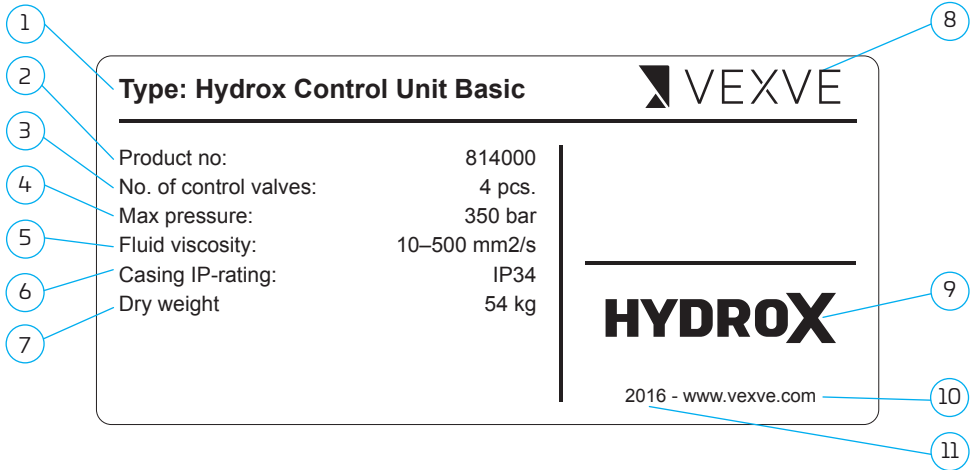


Figure 1. Identification plate.

- |                          |                        |
|--------------------------|------------------------|
| 1. Control unit type     | 7. Dry weight          |
| 2. Product no            | 8. Producer            |
| 3. No. of control valves | 9. Trademark           |
| 4. Max. pressure         | 10. Producer's website |
| 5. Fluid viscosity       | 11. Manufacturing year |
| 6. Casing IP-rating      |                        |

# 3. Unloading and storage

Check that the content of the delivery is as ordered. Check that the control unit and related equipment have not been damaged during transportation.

Store the control unit carefully before installation, preferably in a well-ventilated, dry place, on a shelf or a wooden grid to protect it from rising damp.

Protect the cabinet's ingoing components from sand, dust, water, moist and other contamination.

Protect bare metal surfaces with anti-corrosive agent before storage.

The control unit must be transported to the installation site in a sturdy package. Do not remove any protectors before installation. Protect the control unit from dust and other impurities.

Take the weight of the control unit and its equipment into account when handling them.

The maximum storage time is two years.

## Packaging:

Vexve's products are protected during transportation with special packaging. The packaging consists of environmentally friendly materials that are easy to sort and recycle.

Recycling the packaging materials at designated waste collection points is recommended.

The following packaging materials are used: wood, cardboard, paper, and polyethylene sheets.

## Recycling and disposal

Nearly all parts of the control unit are made of recyclable materials. The material type is marked on most parts. Separate recycling and disposal instructions are available from the manufacturer. The control unit can also be returned to the manufacturer for recycling and disposal against a fee.

## 4. Control unit installation

See figure 2.

Control units must always be installed securely to the plinth with four screws from the corners (1). The plinth must be installed to the ground according to the instructions on the plinth. Cabinets must be mounted and used in the position according to the drawing below.

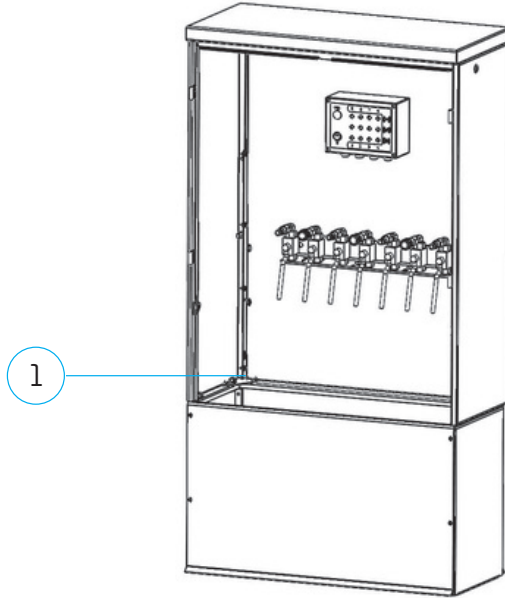


Figure 2. Mounting holes.

### Preparations before commissioning:

- Make sure the hydraulic connections are clean.
- Keep all protective caps on the hydraulic connections until hoses are connected. This is for preventing the system and its components against contamination.
- Check that all bolts and hydraulic couplings are fastened. The control cabinets are always pressure tested and verified before delivery. However, during delivery, the threaded connections can loosen and therefore this should be controlled before pressurizing the system.

# 5. Maintenance

Hydrox control units need only little maintenance.

The correct choice of control unit, valve and actuator combination as well as careful installation, commissioning and use significantly reduce any need for maintenance.

We recommend checking the following periodically to ensure long-term operational reliability, even when seldom used (around ten times a year or less):

Approximately six months after commissioning and then once a year, check the functionality of the control unit, inspect the control unit for oil leaks (carefully tighten if any leakages occurred) and ensure the tightness of the hydraulic hoses between the control unit and actuator. Test also the functionality of the position indication box.

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## 5.1 Oil change

Oil changes are necessary and depend on the size of the system. Under clean conditions, it is recommended that the condition of the oil is inspected approximately every two years and that the oil is replaced at every second inspection. If dirty/low-quality oil is used, oil changes are necessary at shorter intervals. Because the small oil volume in part-turn actuators compared to the volume in the pipework, there is no oil change during the operating cycles. Because of this, it is recommended to change the hydraulic oil so that the oil changes also inside the part-turn actuator and hoses not only in the hydraulic pump.



## 5.2 Battery replacement

See figure 3.

Battery must be tested by pressing the test button on the indication box during the maintenance periods.

Following steps are needed to replace the battery:

1. Loosen the corner screws (1) of the position indication box and pull the front plate gently. Note that the wires inside the box should not be loosened.
2. Replace the battery (2) with a similar one.
3. Close the indication box by mounting the front plate and tightening the corner screws.

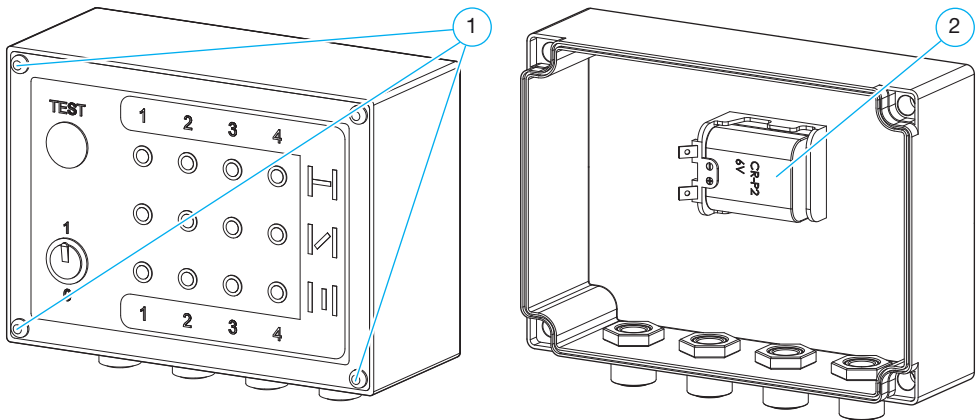


Figure 3. Battery replacement.

### 5.3. Spare components list

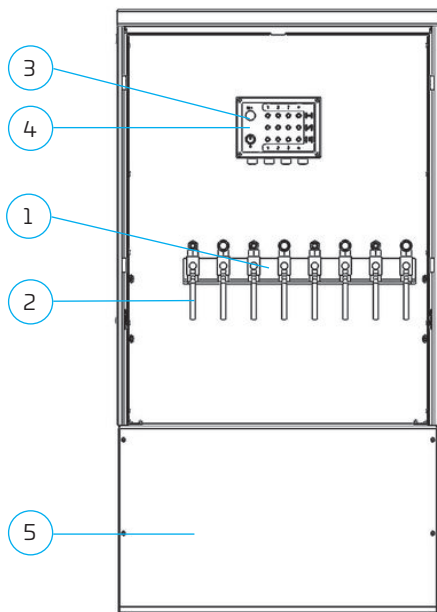


Figure 4. Parts.

	Part
1	Control block with directional control valves
2	Lever
3	Position indication box
4	Battery for the position indication box
5	Plinth

# 6. Operation



## NOTE:

Please contact Vexve Oy if you intend to use the control unit with other actuators than Hydrox.

When bleeding the system the hydraulic connectors must be loosened in the hydraulic actuator. Otherwise the valve could change its position.

## 6.1 Manual operation with Hydrox Control Unit (HCU) Basic

Part numbers mentioned in this chapter refer to the figure 5.

Up to four valves can be connected and operated with the Hydrox Control Unit (HCU).

Following initial steps are needed for taking the system into use:

### Systems without position transmitter:

1. Connect the hydraulic hoses to the actuator's connections "A" and "B". Do not tighten them fully.
2. Connect the hydraulic hose from actuator port "A" to the first cabinet control block port "A" and for port "B" vice versa. Check figure 5.
3. Fill in the portable pump tank with hydraulic oil.
4. Connect the hoses of portable pump to the first couplings of the control block with quick couplings.
5. Connect the power cable of portable pump unit to electric grid and start the pump with the green button.
6. To bleed the system, switch the hand levers of the first valves (2) A and B in the control valve block into the open position. The port that is connected to the pressure side hose of the portable pump unit is pressurized. Let the air bleed out of the loosened hydraulic connector on the actuator. Repeat the foregoing procedure for the hose connected in the port B by switching the hoses to different ports or by turning the lever in the portable pump unit to change the pumping direction depending on the portable pump type.

7. During bleeding process check the oil level of the portable pump's tank and refill the tank if necessary.
8. Tighten the hose connections on the actuator.
9. Repeat the foregoing steps (4-8) with the other valves.

When commissioning of the system has successfully finished you can continue with the operational steps to open or close the valves:

10. Choose the valve to be operated and switch valves for both A and B ports to the open position.
11. By operating the portable pump unit the valve turns in the chosen position. Pressure to port A closes the valve and pressure to port B opens the valve.
12. Actuator's indicator slot (4) will show the valve's position.
13. When shutting the valve observe that the actuator's indicator slot turns into close position and the pressure level starts to increase. To ensure that the valve is closed, continue pumping for a while after the pressure rises. Pressure can be seen from the pressure gauge at the pump unit.
14. When opening the valve observe that the actuator's indicator slot turns into open position and the pressure level starts to increase.
15. After the wanted operations are done, stop the portable pump unit with the red button.



**NOTE:**

Please contact Vexve Oy if you intend to use the control unit with other position transmitter than provided by Vexve Oy.

When bleeding the system the hydraulic connectors must be loosened in the hydraulic actuator. Otherwise the valve could change its position.

**Systems with position transmitter:**

1. Connect the hydraulic hoses to the actuator's connections "A" and "B". Do not tighten them fully.
2. Connect the hydraulic hose from actuator port "A" to the first cabinet control block port "A" and for port "B" vice versa. Check figure 5.
3. Fill in the portable pump tank with hydraulic oil.
4. Connect the hoses of portable pump to the first couplings of the control block with quick couplings.
5. Connect the power cable of portable pump unit to electric grid and start the pump with the green button.
6. To bleed the system, switch the hand levers of the first valves (2) A and B in the control valve block into the open position. The port that is connected to the pressure side hose of the portable pump unit is pressurized. Let the air bleed out of the loosened hydraulic connector on the actuator. Repeat the foregoing procedure for the hose connected in the port B by switching the hoses to different ports or by turning the lever in the portable pump unit to change the pumping direction depending on the portable pump type.
7. During bleeding process check the oil level of the portable pump's tank and refill the tank if necessary.
8. Tighten the hose connections on the actuator.
9. Repeat the foregoing steps (4-8) with the other valves.

10. Connect the position transmitter (5) cables to the indication box (3).
11. Turn on the valve limit position indication box.
12. Test the functionality of the LEDs by switching the "TEST" knob (3).

When commissioning of the system has successfully finished you can continue with the operational steps to open or close the valves:

13. If there has been a lot of time of the commissioning, test the functionality of the LEDs by switching the "TEST" knob (3).
14. Choose the valve to be operated and switch valves for both A and B ports to the open position. By operating the portable pump unit the valve turns in the chosen position. Pressure to port A closes the valve and pressure to port B opens the valve.
15. The limit position indication box will show the valve's position. RED shut; YELLOW travelling; GREEN open.
16. When shutting the valve observe that the RED lights up and the pressure level starts to increase. To ensure that the valve is closed, continue pumping for a while after the pressure rises. Pressure can be seen from the pressure gauge at the pump unit.
17. When opening the valve observe that the GREEN lights up and the pressure level starts to increase.
18. After the wanted operations are done, stop the portable pump unit with the red button.

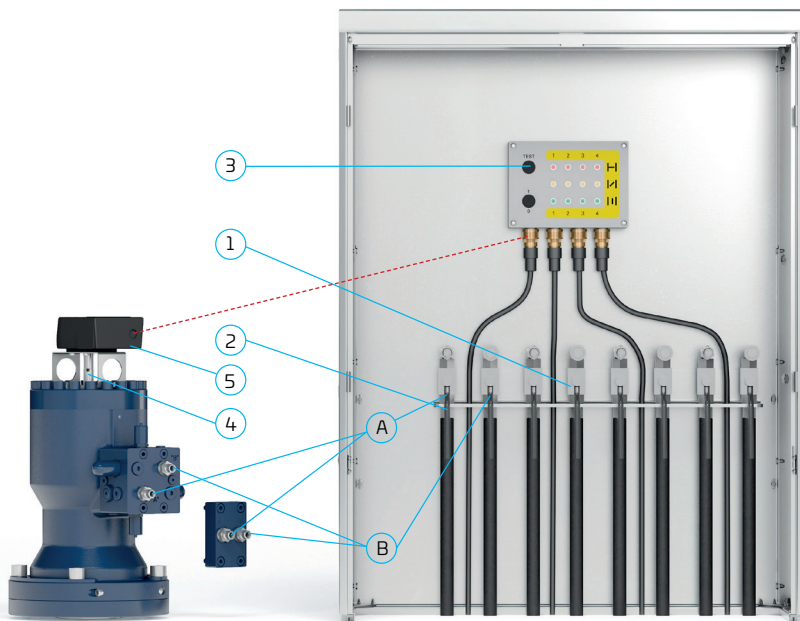
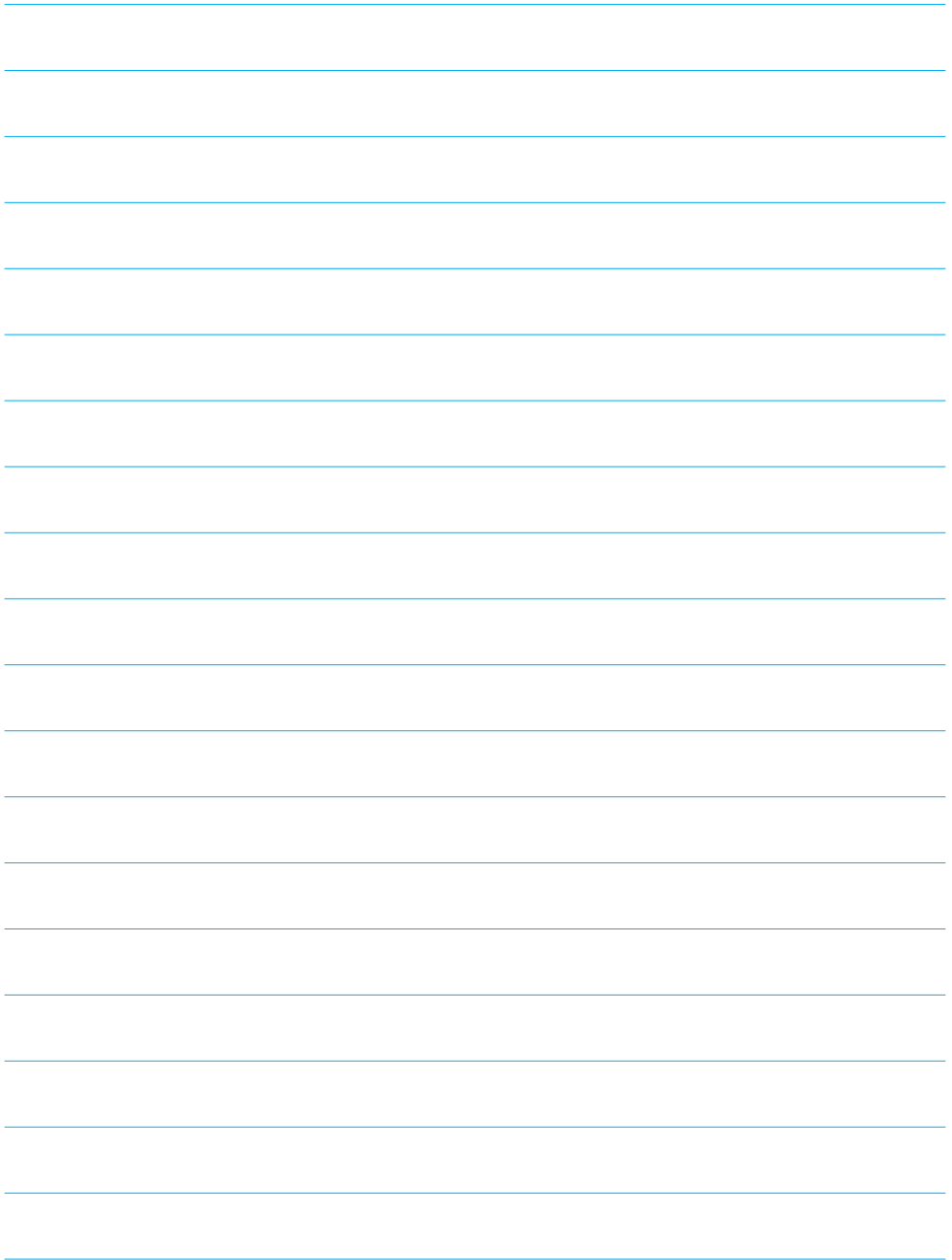
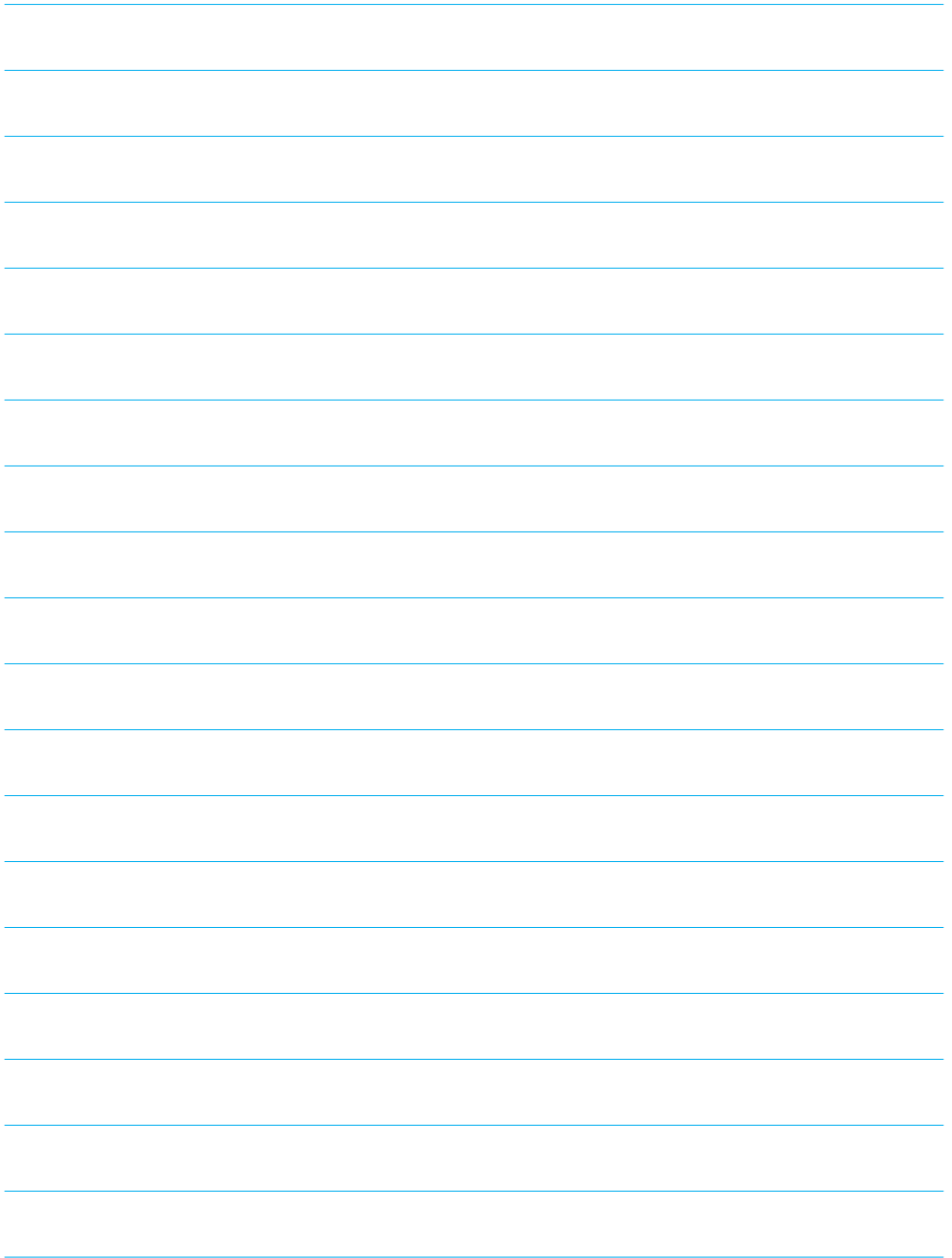


Figure 5. Hydrox Control Unit (HCU) Basic







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