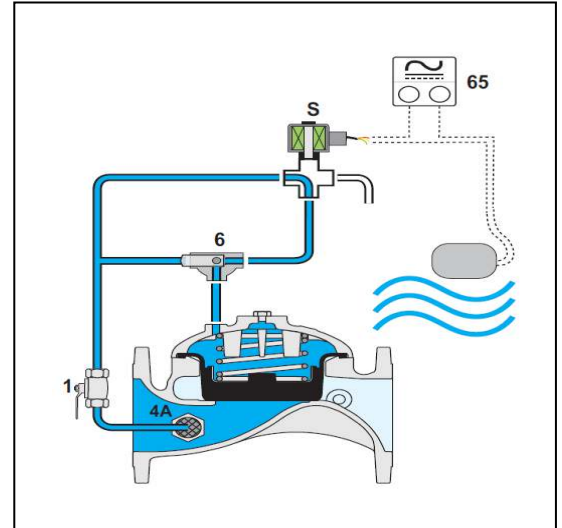


## Level Control Valve with Bi- Level Electric Float

(Sizes 1.5"- 4"; DN40-100)

### Description:

The BERMAD Model IR-450-65-Z Level Control Valve With Bi-Level Electric Float is a hydraulically operated, Diaphragm actuated control valve that controls reservoir Filling in response to an electric float switch signal, opening At pre-set low level and shutting at pre-set high level.



### Installation:

1. Ensure enough space around the valve assembly for future maintenance and adjustments.
2. Prior to valve installation, flush the pipeline to insure flow of clean fluid through the valve.
3. For future maintenance, install Isolation gate valves upstream and downstream from Bermad control valve.
4. Install the valve in the pipeline with the flow direction arrow, in the actual flow direction. Use the lifting ring provided on the main valve cover for installing the valve.
5. For best performance, it recommended to install the valve horizontally & upright. For different valve positions – consult Bermad.
6. Install the float switch at a still place inside the reservoir. **Note:** Float switch cable must be connected to a fixed point inside the reservoir and free of any obstructions along its full length. Apply a hook or another fixing-point above the desired shutting-level.
7. Crosscheck solenoid specifications with design requirements and solenoid/coil label.
8. Electric design/wiring must be carried out by authorized electrical engineer/electrician & comply with Electrical Codes.
9. Determine loose cable length, to approximately 2 times longer than the reservoir maximum estimated level differential.
10. Thread the floating-weight on the cable and slide it along the cable until it's located away from the float-switch slightly more than half of the reservoir level differential.
11. Tie the cable to the fixing-point at the reservoir wall, using plastic zippers.
12. Pull and connect a 3-wired cable, from the control panel to the valve, for the solenoid actuation. Pull and connect a 3-wired cable, from the control panel to the float switch. Ensure approved cable protection. Confirm that the wires data meet solenoid specifications.

**Note:** Energizing the solenoid coil when it's not fixed in its place, is dangerous and might burn the coil.

### Commissioning & Calibration:

1. Confirm that cock valves [1] and [6] are open.
2. Confirm that the supply pressure is typical.
3. Open upstream and downstream isolating valves. Allow the 450-65 to open (ensuring the float switch is at its lower position – cable up) and fill-up the reservoir.
4. Vent air from the valve control loop:  
During filling the reservoir change **manually** the float switch position to its upper position (cable down), forcing the valve to close, then to its lower position (cable up), and forcing the valve to open. At each position, vent air from the valve control loop by loosening tube fitting at the highest point, allowing the air to bleed. For 10" valves & larger, air venting is required from port [2] of the 3W hydraulic Relay valves [54]. Retighten the fittings eyebolts.
5. Calibrating shutting upper-level:  
Ensure that the 450-65 closes as the water level reaches the upper set-level. If the 450-65 has not closed, slide the floating-weight along the cable towards the float-switch, to lower level setting or away from the float-switch to raise it, until the valve closes automatically at the desired upper-level. Lock the weight at that point.

## Trouble-Shooting:

Symptoms	Cause	Remedy
Valve fails to open	1. Cock valve (2) position. 2. Float Setting. 3. Not sufficient inlet pressure.	1. Confirm that Cock valves (1+6) are open. 2. Confirm float setting. 3. Check for sufficient inlet pressure-.
Valve fails to close	1. Cock valve (1) is close. 2. Control circuit clogged. 3. Float setting. 4. Debris- 5. Diaphragm-.	1. Confirm that Cock valve (1) is open. 2. Check for any debris trapped in the valve control circuit 3. Confirm float setting. 4. Check for any debris trapped in the valve body. 5. Check diaphragm is not leaking-.

## Preventives Maintenance:

1. System operating conditions that effect on the valve should checked periodically to determent the required preventative maintenance schedule.
2. Maintenance instructions:
  - 2.1. Tools required:
    - 2.1.1. Metric and imperial wrenches
    - 2.1.2. Anti-seize grease
    - 2.1.3. Visual inspection to locate leaks and external damages
  - 2.2. Functional inspection including closing, opening and regulation.
  - 2.3. Close upstream and downstream isolating valves (and external operating pressure when used)
  - 2.4. Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
  - 2.5. Open the screw nuts and remove the cover unit from the valve body. Disassemble necessary control tubs.
  - 2.6. It is highly recommended to stock a reserve parts assembly for each size. This allows minimum system field work.  
Disassemble the cover and examine the inside parts carefully for signs of wear, corrosion, or any other abnormal conditions.
  - 2.7. Replace worn parts and all the Elastomers. Lubricate the bolts and screws threads with Anti seize grease.
  - 2.8. Winterizing /freezing prevention: drain the valve & the valve accessories (pilot, solenoid) on time.

## Spare Parts

Bermad has a convenient and easy to use ordering guide for valve spare-parts and control system components.  
For solenoid, valves refer to model and S/N on solenoid tags.

Pub # : IOMIR-450-65-R1.5" 4"	By : YG 11/13	Rev: YG 11/13	File name : IOMIR450-65-R-1.5"-4"- 11/13	PT1AE08-01
-------------------------------	---------------	---------------	--	------------