

Timer Controlled Drain Motorized Ball Valve

User Manual No.11861

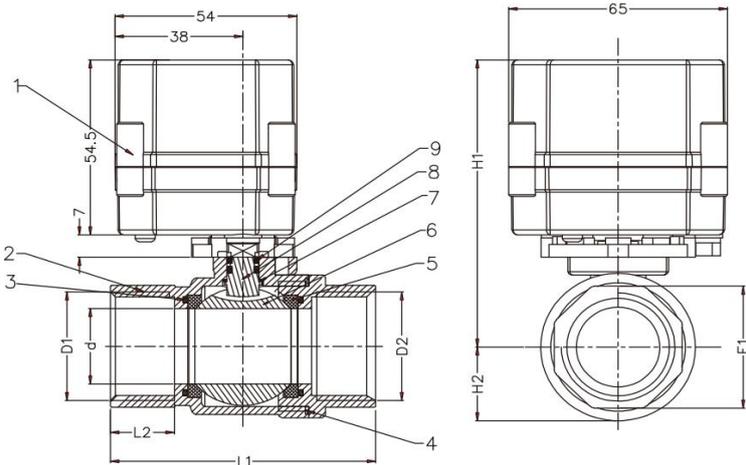
1. Product Overview

The U.S. Solid Timer Drain Valve is an electric 2-way valve designed for automated fluid control. It features a digital timer that allows programmable valve opening and closing cycles.

Once the time settings are completed, the valve automatically operates in a continuous open/close cycle. The programmed ON and OFF times include the valve's opening and closing operation time (approximately 8 seconds). If precise timing is required, please allow for this operation time when setting the durations.

2. Component Structure

1. Actuator – PPO
2. Valve Body – SS304
3. O-Ring – FKM
4. Sealing Gasket – PTFE
5. Valve Seat – PTFE
6. Ball – Stainless Steel
7. Valve Stem – SS304
8. Gasket – PTFE
9. O-Ring – FKM



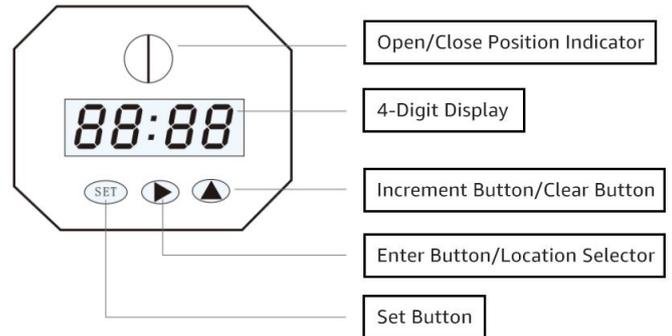
| D1/D2 | d±0.3 | L1±1 | L2±1 | E1±0.5 | H1±1 | H2 |
|-------|-------|------|------|--------|------|------|
| 1/2" | 15 | 62 | 14 | 25 | 84.5 | 17 |
| 3/4" | 20 | 72 | 17 | 31 | 88 | 20 |
| 1" | 25 | 79 | 18 | 38 | 91 | 24.5 |

(unit: mm)

3. Technical Specifications

- **Valve Size:** NPT 1/2", 3/4", 1"
- **Maximum Working Pressure:** 1.0 MPa
- **Working Medium:** Fluid, air
- **Valve Open/Closed Time:** 8s
- **Open Time Range:** 00:00–99:59:59
- **Close Time Range:** 00:00–99:59:59
- **Power Supply:** DC 9–24V
- **Current:** ≤500 mA
- **Sealing Material:** FKM + PTFE
- **Torque:** 3 Nm
- **Operating Temperature:** -15°C to 60°C
- **Fluid Temperature:** 2°C to 90°C
- **Protection:** IP67
- **Lifetime:** 70,000 cycles

4. Operator Panel Description

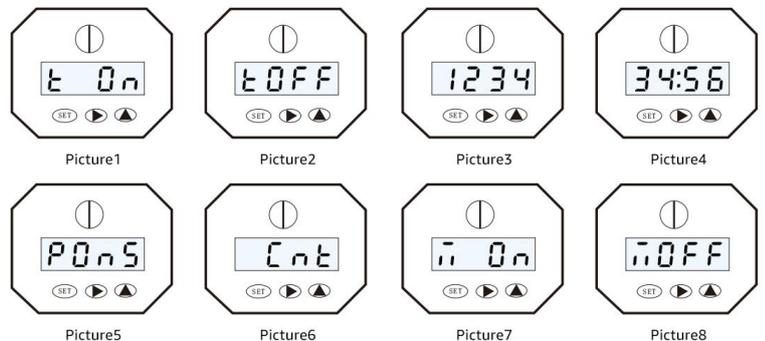


5. Operating Instructions

5.1. Control Modes Overview

The controller includes 4 operating modes:

- **tOn** – Sets the duration the valve remains OPEN
- **tOFF** – Sets the duration the valve remains CLOSED
- **POnS (Power-On Action)** – Defines whether the valve starts in Open or Close mode when the timing cycle begins
- **Cnt (Count Mode)** – Displays the total number of completed valve cycles(One full Open + Close = 1 cycle)



5.2. Mode Switching

Press the **SET** button briefly to switch between modes in the following order:

tOn → tOFF → POnS → Cnt

After one full cycle is completed, the controller will enter automatic timing mode.

5.3. Parameter Setting Instructions

5.3.1 Enter Setting Mode

Press and hold the **SET** button for approximately 4 seconds until **tOn** appears on the display (see Picture 1). Release the button to start setting the valve's open duration.

5.3.2 Setting tOn (Valve Open Time)

Press the **▶** button to select the digit position.

Press the **▲** button to increase the value.

Step 1: Hours & Minutes (H:M)

The adjustable digits will flash, as shown in Picture 3.

Step 2: Minutes & Seconds (M:S)

Press the **▶** button to switch to this mode.

The digits will remain static (not flashing), as shown in Picture 4.

After setting the time, press the **SET** button to confirm and return to **tOn**.

5.3.3 Setting tOFF (Valve Close Time)

Press the **SET** button again to enter **tOFF** (see Picture 2).

Follow the same steps as for **tOn** to set the valve's closed duration.

The duration time includes the valve actuation time (approx. 8 seconds). Please allow for this when setting the time values.

5.3.4 Setting POnS (Power-On Action)

After completing **tOFF**, press the **SET** button twice to enter **POnS** (see Picture 5).

- Press **▶** to enter the setting.
- Press **▲** to select:
 - ON – Valve opens first when the timing cycle starts
 - OFF – Valve closes first when the timing cycle starts
- Press the **SET** button to confirm.

5.3.5 Viewing & Resetting Cnt (Cycle Count)

Press the **SET** button to enter Cnt mode (see Picture 6)

Press **▶** to view the total cycle count.

Maximum display value: 9999.

To reset the counter:

- Press **▶** until the number starts flashing.
- Press **▲** to clear the count.

Press the **SET** button to exit Cnt mode.

Press the **SET** button again to start the timing cycle.

5.4. Manual Valve Operation

The valve can be operated manually at any time:

- **Manual Open:** Press SET + **▶**
- **Manual Close:** Press SET + **▲**

Press the same key combination again to exit manual mode.

Manual operation does not affect the preset POnS status.

Once manual mode is exited, the timing cycle will restart automatically.

5.5. Alarm & Error Indication

If the valve is blocked and cannot operate normally:

- The display will show **ERR1**
- An audible alarm will sound

To clear the alarm:

- Press any button to stop the alarm sound
- Press **▶** to exit alarm mode

6. Troubleshooting

| Issue | Possible Cause | Solution |
|------------------|-----------------------------|---------------------------------------|
| No response | No power | Check wiring and power supply |
| Valve not moving | Foreign matter inside valve | Clean the valve |
| Display flashing | Incorrect parameters | Re-enter the setup |
| Leakage | Seal wear | Replace PTFE / FKM sealing components |

