DIGITEN DFC15FV408

DIGITEN Water Flow Control System User Manual

Model: DFC15FV408

1. Introduction

This user manual provides comprehensive instructions for the DIGITEN Water Flow Control LCD Display System, including the 1/2" Flow Sensor Meter, 1/2" Solenoid Valve, and 12V Power Adapter. This system is designed for precise quantitative control and monitoring of liquid flow, making it suitable for various industrial and home improvement applications. Please read this manual thoroughly before installation and operation to ensure proper use and longevity of the product.

2. Features

- **Quantitative Control:** The controller automatically shuts off the solenoid valve when the desired flow volume is reached.
- **Real-Time Flow Monitoring:** Displays the current volume of liquid passing per minute.
- **Universal Flow Sensor Compatibility:** Works with various Hall effect flow sensors by adjusting the K value.
- **Volume Unit Selection:** Display measurements in Liters or Gallons.
- **Water Meter Functionality:** Can be used to accurately measure water volume.
- **Adjustable Accuracy:** Calibrate precision by fine-tuning the K parameter.
- **Temperature Monitoring:** Includes a temperature sensor to measure liquid temperature.
- **Easy-to-Read LCD Display:** Clear display of total volume, flow rate, and temperature, with custom icons indicating controller status.

3. Technical Specifications

Parameter	Specification
Controller Power Requirement	12VDC
Power Adapter Input	100-240VAC
Power Adapter Output	12VDC, max 2A
Measuring Accuracy	±1%
Output for Solenoid Valve	12VDC, max 2A
Temperature Sensor Range	0-120°C / 32-212°F

Parameter	Specification
Temperature Sensor Accuracy	±1°C / ±1°F (NTC3950, M8 thread)
Max Total Volume	999999 G/L
Quantitative Range	1-9999 G/L
Flow Range	1-30 L/min
Cable Length	1m
Operation Temperature	0-50°C / 32-122°F
Relative Humidity	<85%
Material	Plastic
Inlet/Outlet Connection Size	0.5 Inches
Valve Type	Solenoid Valve
Item Weight	7.1 ounces

4. Components Included in Packaging

Figure 4.1: All components included in the DIGITEN Water Flow Control System package.

- 1 x DFC15 Controller

- 1 x G1/2" Flow Sensor
- 1 x G1/2" Solenoid Valve
- 1 x AC100-240V Power Adapter
- 1 x Temperature Sensor
- 1 x Instruction Manual (this document)

Figure 4.2: The DFC15 controller unit with its attached cables for various connections.

Figure 4.3: Close-up view of the G1/2 inch flow sensor, responsible for measuring liquid flow.

Figure 4.4: Close-up view of the G1/2 inch solenoid valve, which controls the liquid flow based on controller signals.

Figure 4.5: The AC100-240V power adapter, providing 12VDC power to the system.

5. Setup and Installation

Proper installation is crucial for the accurate and reliable operation of your DIGITEN Water Flow Control System. Follow these steps carefully:

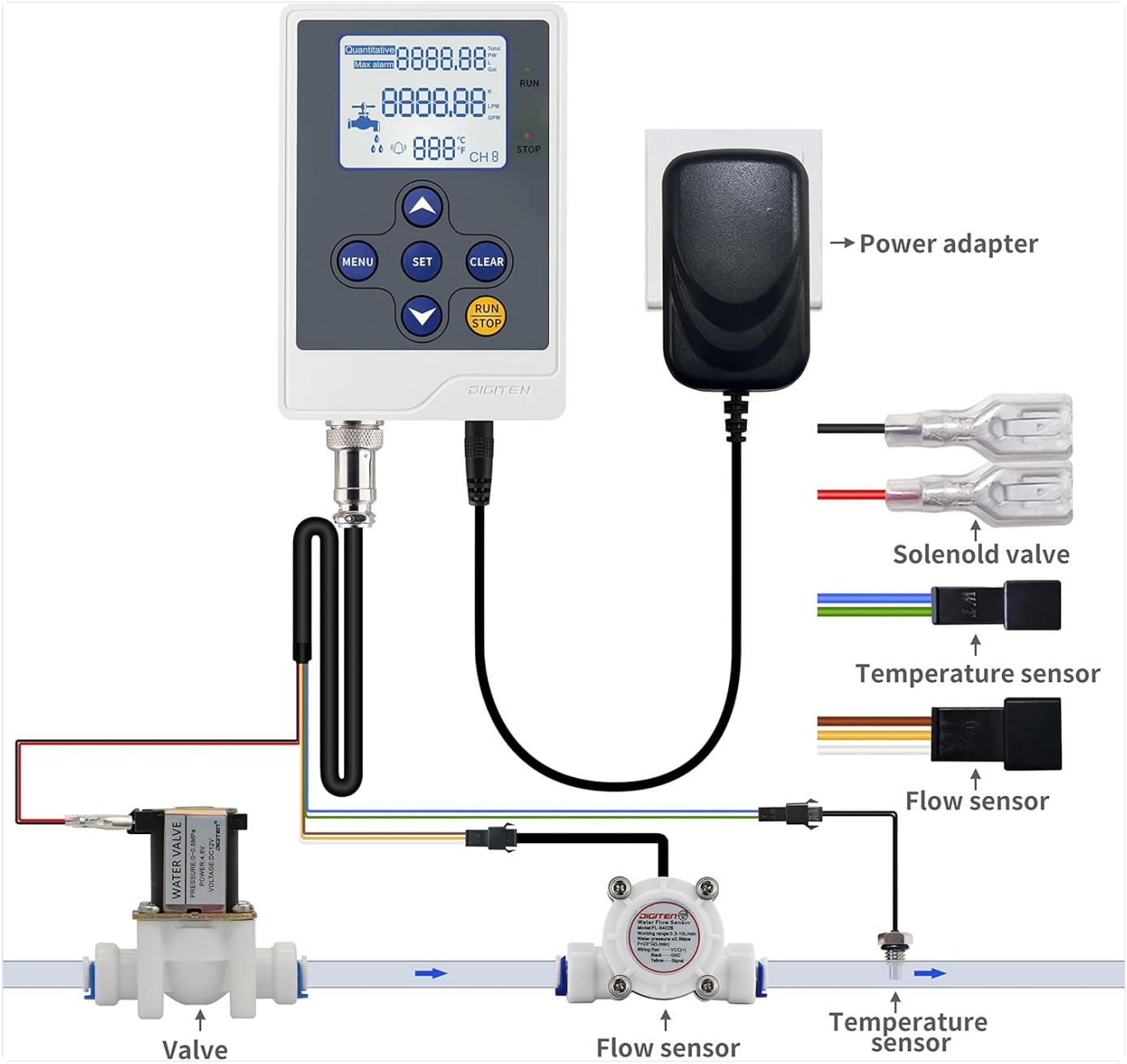

Figure 5.1: Wiring diagram illustrating the connections between the controller, flow sensor, solenoid valve, temperature sensor, and power adapter.

1. **Mount the Controller:** Choose a suitable location for the DFC15 controller that is easily accessible and protected from direct water exposure.
2. **Install the Flow Sensor:** Integrate the G1/2" flow sensor into your water line. Ensure the flow direction matches the arrow indicated on the sensor body. Use appropriate sealing tape (e.g., Teflon tape) on all threaded connections to prevent leaks.
3. **Install the Solenoid Valve:** Install the G1/2" solenoid valve in the water line, typically downstream of the flow sensor. Pay attention to the flow direction arrow on the valve. Ensure secure and leak-free connections.
4. **Connect the Flow Sensor to Controller:** Connect the flow sensor's signal cable to the designated input on the DFC15 controller. Refer to the wiring diagram (Figure 5.1) for correct pin assignments (VCC, GND, Signal).
5. **Connect the Solenoid Valve to Controller:** Connect the solenoid valve's power wires to the controller's solenoid output terminals. Ensure correct polarity if specified.
6. **Connect the Temperature Sensor:** If using, connect the temperature sensor to its dedicated input on the controller.
7. **Connect Power:** Plug the 12VDC power adapter into a standard AC outlet (100-240VAC) and connect its output plug to the DFC15 controller's power input.

8. **Check Connections:** Before applying water pressure, double-check all connections for tightness and correct wiring.

Note on Sealing: *Some users have reported that the 1/2" connections may require a generous amount of Teflon tape to ensure a watertight seal, especially under pressure. Apply tape thoroughly to all male threads.*

6. Operating Instructions

The DFC15 controller features an intuitive LCD display and control buttons for easy operation.

Figure 6.1: Front panel of the DFC15 controller showing the LCD display and control buttons (MENU, SET, CLEAR, UP, DOWN,

RUN/STOP).

6.1 Basic Operation

- **Power On:** Once connected to power, the LCD display will illuminate.
- **Display Information:** The main screen displays the total volume, real-time flow rate (LPM/GPM), and sensed temperature (°C/°F).
- **RUN/STOP Button:** Press the **RUN/STOP** button to initiate or halt the flow. When running, the solenoid valve will open, allowing liquid to pass.
- **Setting Quantitative Flow:**
    a. Press the **SET** button to enter the quantitative setting mode.
    b. Use the **UP** and **DOWN** arrows to adjust the desired volume.
    c. Press **SET** again to confirm the value.
    d. Press **RUN/STOP** to start the flow. The system will automatically stop when the set volume is reached.
- **Clearing Total Volume:** Press the **CLEAR** button to reset the accumulated total volume.

6.2 Advanced Settings (K Value Calibration)

The K value is a calibration factor that allows the controller to accurately measure flow with different sensors. It may need adjustment for optimal accuracy.

1. **Access K Value Setting:** Press the **MENU** button to navigate through settings until you find the K value adjustment.
2. **Adjust K Value:** Use the **UP** and **DOWN** arrows to change the K value. A higher K value means the sensor is reporting more pulses per unit of volume, and vice-versa.
3. **Calibration Procedure:**
    - Measure a known volume of liquid (e.g., 1 liter or 1 gallon) using a precise measuring container.
    - Run the system to dispense this known volume.
    - Compare the dispensed volume with the volume displayed on the controller.
    - Adjust the K value incrementally until the displayed volume matches the actual dispensed volume. For example, if the controller reads lower than actual, decrease the K value. If it reads higher, increase the K value.
4. **Save Settings:** Press **SET** or **MENU** (depending on the specific firmware) to save the new K value.

Note on Button Responsiveness: *Some users have noted that the controller may require two presses of the RUN/STOP button to initiate operation if it has entered a sleep mode. The first press wakes the unit, and the second initiates the flow.*

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your water flow control system.

- **Keep Connections Secure:** Periodically check all threaded connections for leaks and tighten if necessary. Reapply Teflon tape if leaks persist.
- **Clean Sensors:** If flow readings become erratic, the flow sensor may need cleaning to remove any debris or mineral buildup. Disconnect power and water supply before cleaning.
- **Protect the Controller:** Ensure the DFC15 controller is kept dry and away from direct sunlight or extreme temperatures.
- **Power Supply Check:** Verify that the power adapter is not damaged and is providing stable 12VDC power.

8. Troubleshooting

This section addresses common issues you might encounter with the DIGITEN Water Flow Control System.

Problem	Possible Cause	Solution
Inaccurate Flow/Volume Readings	Incorrect K value calibration; debris in flow sensor; air bubbles in line.	Recalibrate the K value (refer to Section 6.2). Clean the flow sensor. Ensure no air is trapped in the system.
Water Leaks at Connections	Insufficient sealing tape; loose connections; damaged threads.	Apply more Teflon tape to male threads. Ensure connections are tightened securely. Inspect threads for damage.
Solenoid Valve Not Opening/Closing	No power to valve; faulty wiring; valve stuck; controller issue.	Check power supply to controller and valve connections. Verify wiring according to diagram. Ensure valve is not obstructed. Test controller output.
Display Not Lighting Up	No power; faulty power adapter; damaged controller.	Check power outlet. Test power adapter output. Contact support if controller is unresponsive.
Controller Requires Two Button Presses to Start	Controller in sleep mode.	This is normal behavior for some units; the first press wakes the device, the second initiates the action.

9. Warranty and Support

DIGITEN stands behind the quality of its products.

9.1 Warranty Information

The DIGITEN Water Flow Control System comes with a **one-year warranty** covering any manufacturing defects or quality problems from the date of purchase. Please retain your proof of purchase for warranty claims.

9.2 Customer Support

For technical assistance, troubleshooting, or warranty inquiries, please contact DIGITEN customer support. You can find contact information on the official DIGITEN website or through your purchase platform. When contacting support, please provide your product model number (DFC15FV408) and a detailed description of the issue.
For more information about DIGITEN products, visit the official DIGITEN Store on Amazon.