

G1-1/2 DN40

Plastic Hall Water Flow Sensor G1-1/2 DN40 User Manual

Model: G1-1/2 DN40 | Brand: Generic

PRODUCT OVERVIEW

The Plastic Hall Water Flow Sensor G1-1/2 DN40 is designed for accurate measurement of water flow in various applications. It features a durable POM material construction and a Hall effect sensor for reliable pulse output.



Figure 1: Front view of the G1-1/2 DN40 Water Flow Sensor, showing the main body, threaded ends, and the attached electrical cable with a connector.

Key Features:

- Food grade POM (polyformaldehyde) material, environmental friendly material, small, flexible and functional.
- Intubation design of inlet and outlet pipe, easy connection and operation.
- Imported Hall IC from Japan, stable and reliable.
- Flow Range: 5-150 L/min.
- Working Voltage: DC 5-24V.
- Rated Voltage: DC 5V.
- Output Voltage (rated: DC 5V): High level 4.5V and above; low level 0.5V and below.
- Pulse output duty cycle: 50±10%.
- Insulation resistance: 100M Ohm and above.
- Tightness: Seal up all the holes, and inflate with 0.8MPa water, after 1 minute, no leakage and deformation.
- Operating Temperature Range: -20 to 100 degrees Celsius.

SAFETY INFORMATION

Please read all safety warnings and instructions carefully before installing or operating the device. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Ensure power is disconnected before installation or maintenance.
- Do not exceed the specified working voltage (DC 5-24V).
- Do not exceed the maximum water pressure of 0.8MPa.
- Install the sensor in a location protected from direct sunlight and extreme weather conditions.
- Avoid strong magnetic fields near the sensor, as this may affect its accuracy.

INSTALLATION AND SETUP

Proper installation is crucial for accurate and reliable operation of the flow sensor.

Components:

- Plastic Hall Water Flow Sensor (G1-1/2 DN40)
- Electrical connector cable

Wiring Diagram:

The sensor typically has three wires:

- **Red Wire:** Positive power supply (VCC, DC 5-24V)
- **Black Wire:** Ground (GND)
- **Yellow Wire:** Pulse output signal



Figure 2: Internal view of the flow sensor showing the turbine mechanism. Ensure the flow direction matches the arrow on the sensor body.

Installation Steps:

1. **Choose Location:** Select a suitable location in your water system where the flow sensor can be easily integrated. Ensure there is sufficient space for installation and maintenance.
2. **Prepare Piping:** Ensure the water supply is turned off and the pipes are drained. The sensor has G1-1/2 DN40 threaded connections.
3. **Install Sensor:** Thread the sensor into the water line. Pay attention to the flow direction arrow indicated on the sensor body. Ensure a tight, leak-free connection using appropriate sealing tape or sealant if necessary.



Figure 3: Side view of the G1-1/2 DN40 sensor, highlighting the threaded inlet and outlet for pipe connection.

4. **Connect Wiring:** Connect the sensor's wires to your control system or microcontroller according to the wiring diagram provided above.
 - Connect the **Red** wire to the positive power supply (DC 5-24V).
 - Connect the **Black** wire to Ground (GND).
 - Connect the **Yellow** wire to the input pin of your data acquisition or control device.
5. **Test for Leaks:** Slowly turn on the water supply and check for any leaks around the sensor connections. Tighten if necessary.
6. **Verify Operation:** Once installed, verify that the sensor is providing pulse output as expected when water flows through it.

OPERATING PRINCIPLES

The Hall Water Flow Sensor operates on the principle of the Hall effect. As water flows through the sensor, it rotates an internal turbine. A magnet attached to the turbine passes by a Hall effect sensor, generating a series of electrical pulses. The frequency of these pulses is directly proportional to the rate of water flow.

The pulse output can be used by a microcontroller or other data logging device to calculate the flow rate (L/min) or total volume (L) of water that has passed through the sensor.

Pulse Output Calculation:

The relationship between flow rate (Q in L/min) and pulse frequency (F in Hz) is typically defined by a K-factor. For this sensor, the K-factor is approximately 2.5 pulses per liter (L/min). Therefore, the flow rate can be calculated as:

$$Q \text{ (L/min)} = F \text{ (Hz)} / 2.5$$

Where F is the measured pulse frequency from the yellow output wire.

MAINTENANCE

The Plastic Hall Water Flow Sensor is designed for low maintenance. However, periodic checks can ensure its longevity and accuracy.

- **Regular Inspection:** Periodically inspect the sensor and its connections for any signs of leaks, corrosion, or physical damage.
- **Cleaning:** If the sensor is used in water with high particulate matter, sediment buildup inside the sensor may affect accuracy. In such cases, disconnect the sensor, flush it with clean water, or carefully disassemble (if possible) to clean the turbine. Ensure proper reassembly and sealing.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature range (-20 to 100°C) and avoid exposure to harsh chemicals.

TROUBLESHOOTING

Problem	Possible Cause	Solution
No pulse output	No water flow Incorrect wiring (power/ground/signal) Sensor malfunction Blocked turbine	Ensure water is flowing through the sensor. Check all wire connections against the wiring diagram. Test sensor with a known good power supply and multimeter. Inspect sensor for internal blockages.
Inaccurate readings	Air bubbles in the water line Turbine obstruction/fouling Strong magnetic interference Incorrect K-factor in calculation	Bleed air from the system. Clean the sensor's internal turbine. Relocate sensor away from strong magnetic fields. Verify the K-factor used in your software.
Water leakage	Loose connections Damaged threads or seals	Tighten threaded connections. Apply more sealing tape/sealant. Inspect for cracks; replace sensor if damaged.

SPECIFICATIONS

Parameter	Value
Model	G1-1/2 DN40
Material	Food grade POM (Polyoxymethylene)
Flow Range	5 - 150 L/min
Working Voltage	DC 5 - 24V
Rated Voltage	DC 5V
Output Voltage (DC 5V rated)	High level $\geq 4.5V$; Low level $\leq 0.5V$
Pulse Output Duty Cycle	50% \pm 10%
Insulation Resistance	$\geq 100 M\Omega$
Water Pressure Resistance	$\leq 0.8 MPa$
Operating Temperature	-20°C to 100°C
Connection Thread	G1-1/2 DN40
Item Weight	1.1 pounds (approx. 0.5 kg)

WARRANTY INFORMATION

This product is sold by a third-party seller. Please refer to the seller's return and warranty policy on the purchase platform for specific details. Generally, products purchased on Amazon.com may be eligible for a 30-day refund/replacement policy from the date of receipt, subject to Amazon's and the seller's terms and conditions.

For any issues related to manufacturing defects or performance within the warranty period, please contact the seller directly through your Amazon order history.

CUSTOMER SUPPORT

For technical assistance, troubleshooting, or inquiries regarding the Plastic Hall Water Flow Sensor, please contact the seller directly via the Amazon messaging system. Provide your order number and a detailed description of the issue for prompt assistance.

Manufacturer: Generic

