



User's Guide



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Flow Alarms

***FLMG, FLMH and FLMW Series
with -R1 or -R2 Option***



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

NOTE: Refer to Omega's "Operation & Maintenance Guide" for installation, operation and cleaning instructions for the basic flow monitor cartridge. The following instructions are specifically for monitors with electrical switches for flow alarms. This is an addendum to the basic flow monitor instructions.

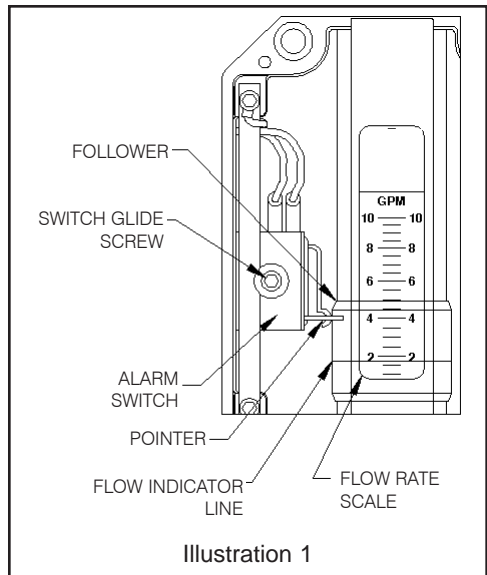
General Information

Omega's Flow Alarms are typically used to make or break a set of electrical contacts to signal a limit setting. They may be used to turn on a warning light, sound a bell or horn, or even to shut down a process. The switches on the alarm can be configured to open or close a contact for an increasing or decreasing set point. Decreasing flow set points may be located anywhere in the lower 2/3 of the scale while increasing set points may be located anywhere in the upper 2/3 of the scale.

Overview

Illustration 1 shows the primary mechanism for a single-switch flow alarm. Dual-switch flow alarms contain two sets of these same components, but have a slightly different electrical wiring diagram (Wiring to the DIN connector is described on page 3.) The factory default configuration for the alarm switch is for decreasing flow, as shown in **Illustration 1**. If an increasing flow alarm is desired, it should be specified when the unit is ordered.

The **follower** moves in unison with an orifice plate inside of the unit's pressure vessel via a magnetic coupling in order to indicate flow rate. As the follower moves with changes in flow rate, the flow rate is determined by relating the position of the **flow indicator line** to the increments on the **flow rate scale**.



The **pointer** indicates the set point for the **alarm switch**. In **Illustration 1**, the switch will be actuated at all flow rates below 4 GPM. To change the set point, simply loosen the **switch glide screw** one (1) turn and slide the switch to the desired position along the flow rate scale. When the **pointer** is pointing to the desired flow rate, re-tighten the **switch glide screw**.

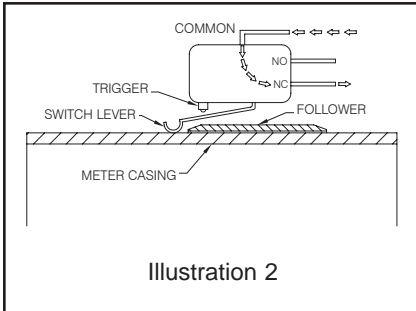


Illustration 2

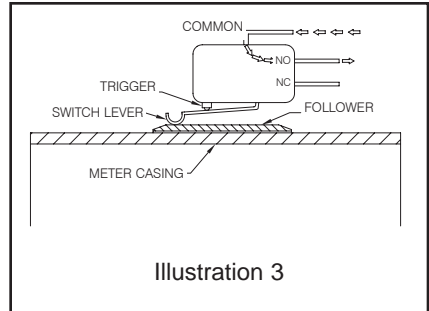


Illustration 3

Switches

The switch is a simulated roller, lever operated low force microswitch. The specifications for this switch are listed on page 4. The switch is actuated when movement of the follower causes the switch lever to be lifted. In **Illustration 2**, the switch has not yet been actuated, and the electrical circuit is through the normally closed (NC) contact.

Illustration 3 shows the switch after it has been actuated. In this scenario, the electrical circuit is through the normally open (NO) contact.

Precautions

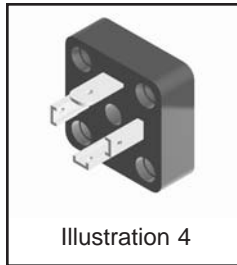
- Be certain to properly ground the unit via the ground (G) pin located on the unit's din connector.
- In order to avoid accidentally removing the switch glide screw, never loosen it by more than one or two turns. This screw can be difficult to replace if accidentally removed.
- Avoid over tightening the switch glide screw.
- When the switch adjustments are complete, make certain that the wires that are attached to the switch have not been moved into a location that will interfere with the follower or the switch lever.
- Do not make any modifications to the unit's internal wiring.

Switches Specifications

Type	Form C, dry contact
UL/CSA Rating	10 & 1/4 hp, 125 or 250 VAC 1/2 A, 125 VDC & 1/4A, 250 VDC 3A, 125 VAC "L" lamp load
Mechanical Life	>10,000,000 cycles
Actuating Mechanical	Simulated roller, lever operated, low force
Connectors	3/16" tab
Double Break Switch (Special)	Form Z - 10A & 1/2hp, 125/250 VAC

Electrical Connections

Standard Flow Alarms are pre-wired with 4-pin Hirschmann-type DIN connectors which consist of a male section as shown in **Illustration 4** and the female section shown



in **Illustration 5**. To open the female section, first remove the screw, then lift the connector portion out of the casing by inserting the head of a screwdriver into the slot marked for that purpose. **Illustration 6** shows the disassembled female section.

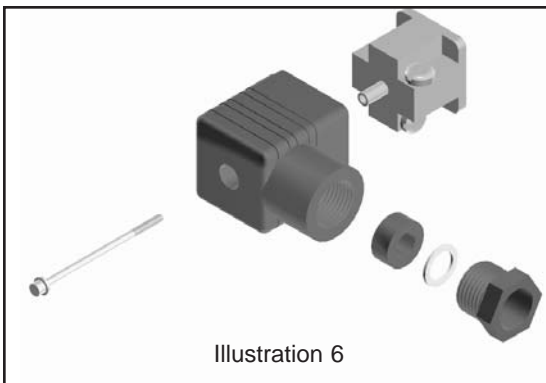


Illustration 7 shows the connections for a standard, single switch Flow Alarm as they are shipped from the factory. The wiring for other types of connections are outlined in the tables below. For additional details, please consult the factory or your authorized distributor.

Alternates to the standard Hirschmann-type DIN connector are available on a custom basis. The Flow Alarm may be outfitted with a variety of different electrical connections including conduit fittings, cable-type connectors and cord grip/pigtail interfaces. Almost any commercially available electrical connector may be used. If an alternate connector is desired, please consult Omega.

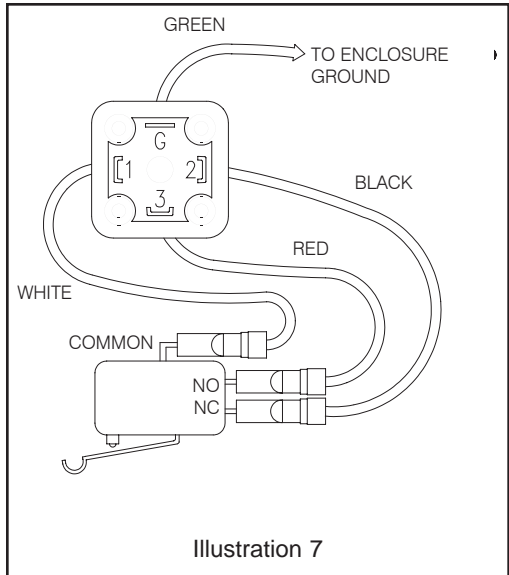


Illustration 7

Wiring Code: Standard Single Switch

White - Common	Terminal #1 of DIN
Black - N.O. Contact	Terminal #2 of DIN
Red - N.O Contact	Terminal #3 of DIN
Green - Enclosure Ground	Terminal "G" of DIN

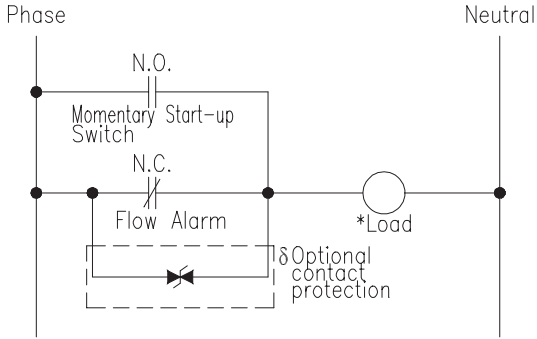
Wiring Code: Dual Switch Alarm

White - Both Common	Terminal #1 of DIN
Black - Decreasing N.O. Contact	Terminal #2 of DIN
Red - Increasing N.O. Contact	Terminal #3 of DIN
Green - Enclosure Ground	Terminal "G" of DIN

Standard Control Circuits

ACTION:

Flow Alarm will turn OFF the circuit.

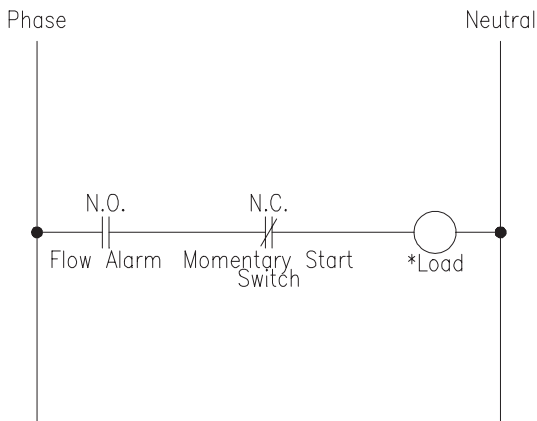


* The load must be within the Flow Alarm's contact rating. Please see specifications.

δ If highly inductive loads (large relay coils, solenoids, etc.) are going to be switched repeatedly, an MOV (300 Vrms, 0.4 Watt) will increase switch life.

ACTION:

Flow Alarm will turn ON the circuit.



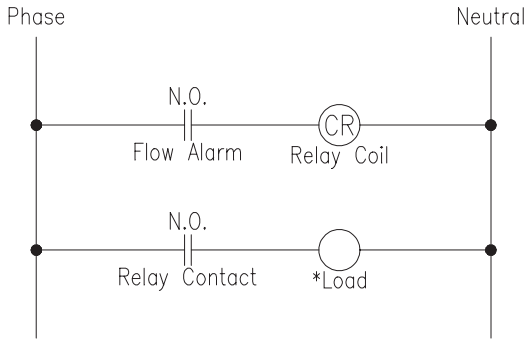
* The load must be within the Flow Alarm's contact rating. Please see specifications.

Connection of Slave Relays

If the load to be controlled with the Flow Alarm is greater than the carrying capacity of the Flow Alarm's contacts, a slave relay is required.

ACTION:

Flow Alarm will turn ON the circuit.



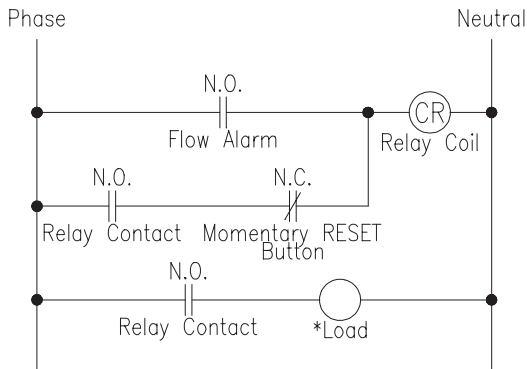
* The load must be within the Flow Alarm's contact rating. Please see specifications.

Latching Slave Relay Circuit

The alarm circuit will remain energized until either the RESET button is pressed or until power is removed from the circuit.

ACTION:

Flow Alarm will turn ON the circuit.



* The load must be within the Flow Alarm's contact rating. Please see specifications.



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. **BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).** The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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