

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Model 12-64 Basic Flow Switch and Model 8-66 Basic Level/ Interface Switch

Doc. No. 06EN003264

Rev. A

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Fluid Components Intl
1755 La Costa Meadows Dr.
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Attn: Customer Service Department

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Contact the FCI regional representative in your area. If you are unable to contact the field representative or are unable to satisfactorily resolve the situation, contact the FCI Customer Service Department at (619) 736-6116 or call toll free (800) 854-1993.

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Appendix C contains a detailed explanation of the FCI customer service policy on returns, adjustments, in-field or factory repair, in- or out-of-warranty.

Reserved for Domestic Rep Map

Reserved for International Rep Map

REVISIONS

REV.	DESCRIPTION	DATE	AUTHOR
A	Added information on the Model 8-66 level/interface switch, and Appendix D, CE Conformance.	12/12/95	R. Sanders

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Symbols

The following symbols are used throughout the manual to draw attention to items or procedures that require special notice or care.



Warning: Warns of possible **personal danger** to those handling the equipment.



Caution: Cautions against possible **equipment damage**.



Note: Contains important information.

1. General Information

Description

This document explains the operating principle of the Model 12-64 Basic Flow Switch and the 8-66 Basic Level/Interface Switch. The following pages also present the recommended procedures for the installation, operation, maintenance, and troubleshooting of the Model 12-64 Basic and the Model 8-66 Basic switches.

The Model 12-64 Basic is an instrument that is capable of detecting liquid, gaseous or slurry environments. The Model 8-66 Basic is an instrument that is capable of detecting liquid level at a single point or can also detect media interfaces. The instruments have field adjustable alarm set points for control of the media.

Sensing Element

The operational part of the sensing element is the sensing point. The sensing point consists of 3 thermowells (hollow tubes). Two of the thermowells are welded together. One of the welded thermowells contains a heater and the other contains a Resistance Temperature Detector (RTD). The third thermowell contains a reference RTD for measuring the media temperature. There is a delta R (ΔR) difference between the active and reference RTD resistances. See Figure 1-1 for the sensing point arrangement.

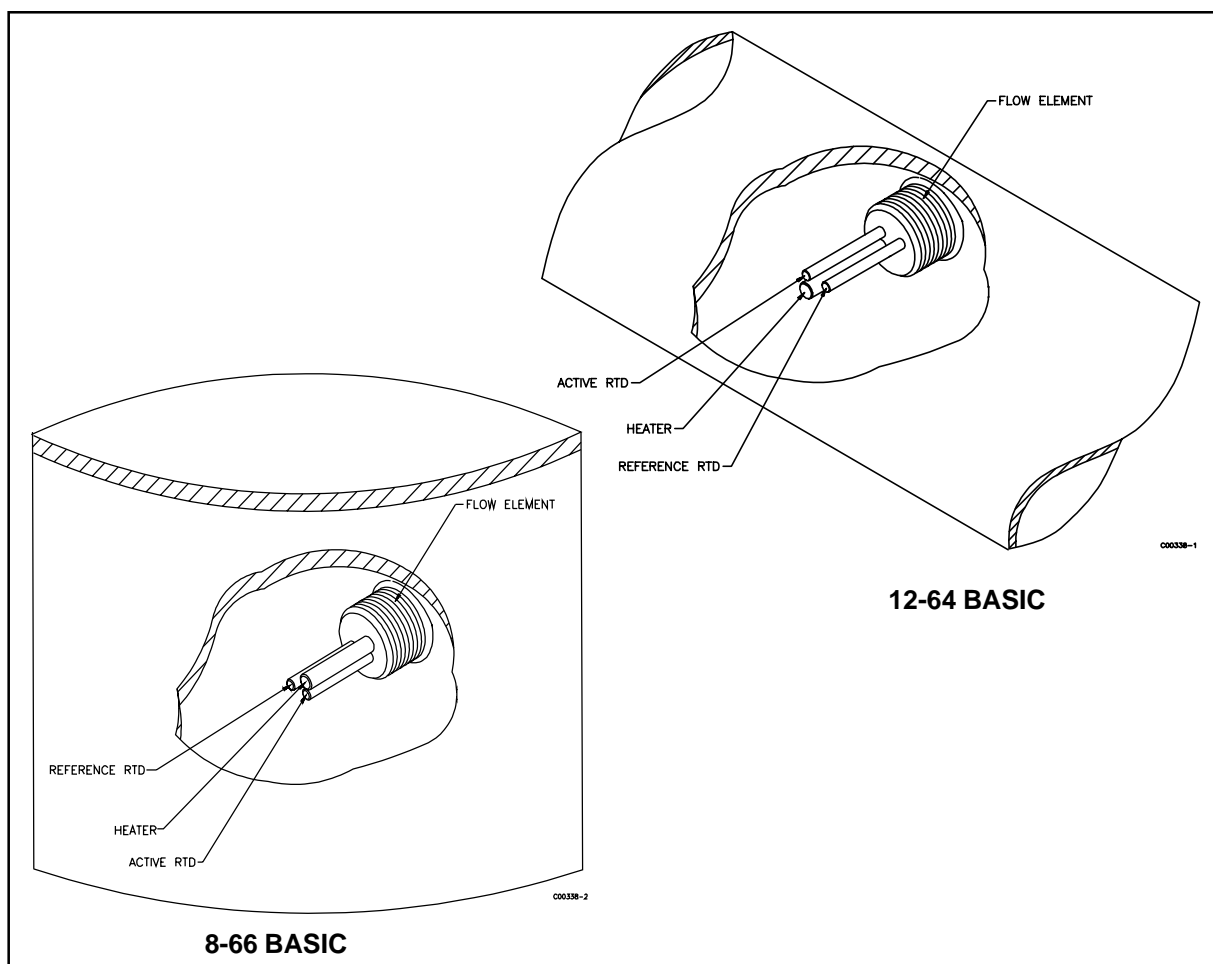


Figure 1-1. Process Installation Showing the Sensing Point

When the sensing point is in a media that is not flowing (or dry), the media density across the thermowells is low, causing the active RTD to be at a higher temperature than the reference RTD. In this case, the ΔR is at its largest value. When the media starts to flow (or is wet) across the sensing point, the media density across the thermowells increases, conduction and convection cools the active RTD in proportion to the density of the fluid, and the ΔR decreases.

Control Circuit

The basic functions of the control circuit are to provide power to the sensing element, measure the DR between the two RTDs, condition the sensing point signals, and provide relay alarm contacts for customer uses.

A double pole double throw (DPDT) relay is available in the instrument for connections to the customer alarm systems. The relay coil can be set for either energized or de-energized when there is either flow (wet) or no flow (dry) of the process media. [The factory set condition is the coil being de-energized at no-flow (dry).]

The place where the relay changes state will vary depending on the type of media as well as air or liquid turbulence. Therefore the instrument has a field adjustable alarm set point.

Specifications

- **Service:**
 - 12-64 - Liquid, gas or slurry flow detection.
 - 8-66 - Point liquid level or interface detection.
- **Process Connections:**
 - 1 inch male NPT.
- **Insertion Length:**
 - 1.2 inch (30mm) or 2.0 inch (51mm) U-length.
- **Material of Construction:**
 - All wetted surfaces are 316 series stainless steel with nickel braze per process specifications AMS 4777.
- **Alarm Set Points:**
 - Setable to any value within the indicated flow range, (for 12-64). Setable to any interface value, (for 8-66). 5mV hysteresis.
- **Time Response:**
 - 10 to 300 seconds.
- **Flow Rate (12-64 only):**
 - Minimum: .010 ft/sec (.003 m/sec) in oil,
 - Maximum: 125 ft/sec (38 m/sec) in air.
- **Electrical Connection:**
 - 1 inch female NPT
- **Relay Rating:**
 - DPDT contacts rated at 2A at 115 Vac.
- **Power Input:**
 - 100-132 Vac, 50/60 Hz, 6 watts maximum. 230 Vac or 24 Vdc are optional power inputs.
- **Local Enclosure:**
 - NEMA 4X (approximately equal to IP66) and suitable for hazardous locations.
- **Operating Temperatures:**
 - Sensing element: -100^o to +350^oF (-73^o to +177^oC).
 - Control circuit: -40^o to +140^oF (-40^o to +60^oC).
- **Operating Pressure:**
 - To 3000 psig (207 bar).
- **Approvals:**
 - FM, CSA and CE / CENELEC.

2. Installation

Receiving/Inspection

- Unpack carefully.
- Verify that all items in the packing list are received and are correct.
- Inspect all instruments for damage or contaminants prior to installation.

If the above three items are satisfactory, proceed with the installation. If not, then stop and contact a customer service representative.

Packing/Shipping/Returns

These issues are addressed in Appendix C - Customer Service

Required Materials

Appropriate wire, cable, conduit, and a mating interface on the vessel.



Note: Potting Y's for all the interconnecting wires are recommended when installing the instrument. Other requirements may vary based on local wiring codes. An appropriate mating surface on the vessel is also required.

Pre-Installation Procedure



Warning: Only qualified personnel should install this instrument. Install and follow safety procedures in accordance with the current National Electrical Code. Ensure that power is off during installation. Any instances where power is applied to the instrument will be noted in this manual. Where the instructions call for the use of electrical current, the operator assumes all responsibility for conformance to safety standards and practices.



Caution: The control circuit contains electrostatic discharge (ESD) sensitive devices. Use standard ESD precautions when handling the control circuit. See below for ESD details.

The instrument is not designed for weld-in-place applications. Never weld to process connection or a structural support.

Damage resulting from moisture penetration of the local enclosure is not covered by product warranty.

Use Standard ESD Precautions

Use standard ESD precautions when opening an instrument enclosure or handling the level transmitter. FCI recommends the use of the following precautions: Use a wrist band or heel strap with a 1 megohm resistor connected to ground. If the instrument is in a shop setting there should be static conductive mats on the work table and floor with a 1 megohm resistor connected to ground. Connect the instrument to ground. Apply antistatic agents to hand tools to be used on the instrument. Keep high static producing items away from the instrument such as non-ESD approved plastic, tape and packing foam.

The above precautions are minimum requirements to be used. The complete use of ESD precautions can be found in the U.S. Department of Defense Handbook 263.

Verify Installation Location

Prepare the vessel for installation, or inspect the already prepared location to ensure that the instrument will fit into the system. Prepare the necessary sealants or gaskets to provide a leakproof installation for the application if required. The location of the 12-64 that should have been prepared at the time of order should be at least 20 pipe diameters downstream and 10 pipe diameters upstream from any bends or interference in the process pipe or duct to achieve the greatest accuracy.

Sensing Element Installation

Install the sensing element in the process piping at the desired location. Verify that the flat area machined into the sensing element is flat and level. If the flat is present it is machined on the sensing element near where it is screwed into the enclosure. "FLAT UP & LEVEL" is also etched on the flat surface.

Apply a lubricant/sealant compatible with the process to all threads. Use a pipe wrench for 1-1/4 inch (32 mm) NPT and larger connections, or an open-end wrench for 1-1/4 inch (32mm) NPT and smaller connections. All connections should be tightened firmly. To avoid leaks, do not overtighten or cross-thread connections. The figures in Appendix A and Figure 2-1, show this configuration.

If the sensing element is mounted in a downward direction, moisture build up in the enclosure needs to be avoided. FCI recommends that an O-ring be used on the enclosure cover. In addition, attached conduits must be isolated by using a conduit potting Y.

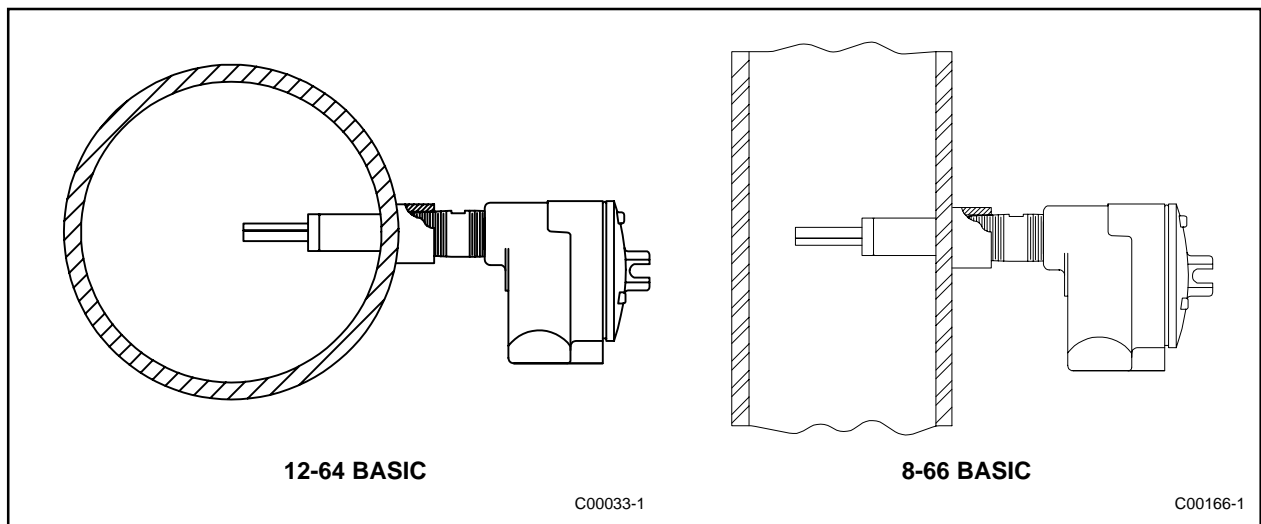


Figure 2-1. Sensing Element Threaded Mounting

Control Circuit Installation

The configuration of the instrument is with the control circuit already installed in the local enclosure (the control circuit is physically mounted with the sensing element).

Wiring Installation

Conduit Routing

All socket and/or terminal block connections are to be made through the 1 inch female NPT openings in the enclosure. FCI strongly recommends that all electrical cables be run through an appropriate conduit for the protection of the instrument and personnel.

Protection of the control circuit from moisture is an important consideration. Keep the entry of the conduit into the

enclosures in the downward direction so condensed moisture that collects in the conduit will not drain into the enclosure. The local enclosure may be turned not more than 180° using the threads on the sensing element stand pipe to gain an acceptable orientation. In addition, FCI recommends sealing off the conduit with a potting Y or other sealing method to prevent moisture from entering the enclosure.

Minimum Wire Size

Table 2-1 shows the smallest gauge (maximum AWG number) copper wire used in the electrical cables that connect the instrument to the customer alarms and to power. Use a lower gauge of wire for less of a voltage drop. Contact FCI concerning greater distances than those listed in the table.

Table 2-1. Interconnecting Cable Size (AWG)

Connection	Maximum Distance for AWG					
	10 ft. (3m)	50 ft. (15m)	100 ft. (31m)	250 ft. (76m)	500 ft. (152m)	1000 ft. (305m)
AC Power	22	22	22	20	18	16
Relay (2A)	24	22	20	16	12	10

Cable Connections



Note: The installation of an AC line switch between the AC power source and the instrument is recommended. This facilitates easy power disconnection for maintenance, troubleshooting and is an added safety feature.

Connect the relay output to the customer alarm per the following procedure:

1. Remove the control circuit from it's socket.
2. Install conduit between the local enclosure, the power source and monitoring circuit. Provide watertight hardware and apply thread sealant to all connections to prevent water damage.



Warning: Ensure that all power is off before wiring any circuit.

3. When connecting the relay wiring, do so with complete understanding of what the process requires of the instrument. The instrument has double pole, double throw relay output contacts. See Appendix A, Figure A-2. For the relay logic, refer to Table 2-2 and in Chapter 3 refer to Figure 3-2. Relay contacts are shown in the relay de-energized. Wire in accordance with the system requirements.
4. Connect the specified operating power and earth ground to the socket and ground lug. Refer to Figure A-2 for connection information.
5. Plug the control circuit back into it's socket.
6. Verify proper installation. Ensure that the assemblies are secure and the wiring is correct.

Table 2-2. Relay Energization

JUMPER POSITION	RELAY STATE
J 12	RELAY DE-ENERGIZED AT NO FLOW / DRY
J13	RELAY DE-ENERGIZED AT FLOW / WET

3. Operation



Caution: The control circuit contains electrostatic discharge (ESD) sensitive devices. Use standard ESD precautions when handling the control circuit. See Chapter 2, Installation for ESD details.

Factory Calibrations

The 12-64 Basic Flow Switch and 8-66 Basic Level/Interface Switches are delivered in their standard factory set point form. The standard factory setting is mid-range between no flow (dry) and full flow (wet). See Figures 3-1.

12-64 Alarm Set Point Procedure

1. Flow the pipeline at the desired rate of flow.
2. Apply power to the instrument and allow 10 minutes for the sensing element to become active and stabilize.
3. Locate the potentiometer (R5) and the red LED on the control circuit. (See Figure 3-2.)
4. Choose procedure A or B below.

A. Detecting No Flow or Decreasing Flow Rate

If the LED is off, turn the potentiometer clockwise until the LED turns on. If the LED is on, turn the potentiometer counterclockwise until the LED turns off, then turn the potentiometer clockwise until the LED just turns on. With the LED on, turn the potentiometer slowly counterclockwise until the LED just turns off. Turn the potentiometer one-half turn past the point at which the LED just turns off. Be aware that the potentiometer may have up to one quarter turn of hysteresis. If the mark is overshoot, the procedure should be repeated. (See Figure 3-1.)

B. Detecting Maximum Flow or Increasing Flow Rate

If the LED is on, turn the potentiometer counterclockwise until the LED turns off. If the LED is off, turn the potentiometer clockwise until the LED turns on, then turn the potentiometer counter clockwise until the LED just turns off. With the LED off, turn the potentiometer slowly, clockwise until the LED just turns on. Turn the potentiometer one-half turn past the point at which the LED just turns on. Be aware that the potentiometer may have up to one quarter turn of hysteresis. If the mark is overshoot, the procedure should be repeated. (See Figure 3-1.)

8-66 Alarm Set Point Procedure

Adjustment With The Sensing Element Wet

1. Determine that the sensing element is wet
2. Apply power to the instrument and allow 10 minutes for the sensing element to become active and stabilize.
3. Locate the potentiometer (R5) and the red LED on the control circuit. (See Figure 3-2.)
4. If the LED is off, turn the potentiometer clockwise until the LED turns on. With the LED on, turn the potentiometer slowly, counterclockwise one quarter turn past the point at which the LED just turns off. The potentiometer may have up to a quarter turn of hysteresis in either direction. If the mark is overshoot, repeat the procedure.



Note: Consideration should be given to the fact that air or gas flowing over the sensing element may lower the sensor dry signal, resulting in a false indication of wet at the sensing element. In cases where the sensing element is exposed to air flow in the dry condition, or where the service product is highly viscous, switch adjustments should be made in the wet condition only.

Adjustment With The Sensing Element Dry

1. Determine that the sensing element is dry.
2. Apply power to the instrument and allow 10 minutes for the sensing element to become active and stabilize.
3. Locate the potentiometer (R5) and the red LED on the control circuit. (See Figure 3-2.)
4. If the LED is on, turn the potentiometer slowly, clockwise until the LED goes off.



Note: If the LED does not turn off set the switch in the wet condition.

With the LED off, turn the potentiometer slowly, clockwise one quarter turn past the point at which the LED just goes on. The potentiometer may have up to a quarter turn of hysteresis in either direction. If the mark is overshoot, repeat the procedure.

8-66 Interface Applications Adjustment

Alarm switch point adjustments are conducted in the same manner as liquid level/interface applications with the exception that better thermal conducting media should be considered as in a dry condition.

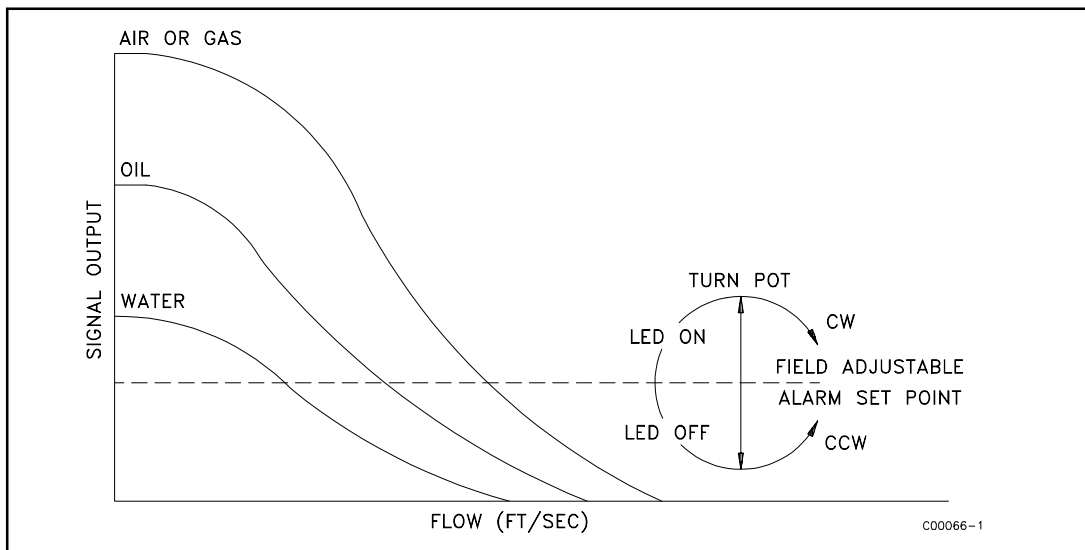


Figure 3-1. Setting Alarm Switch Point

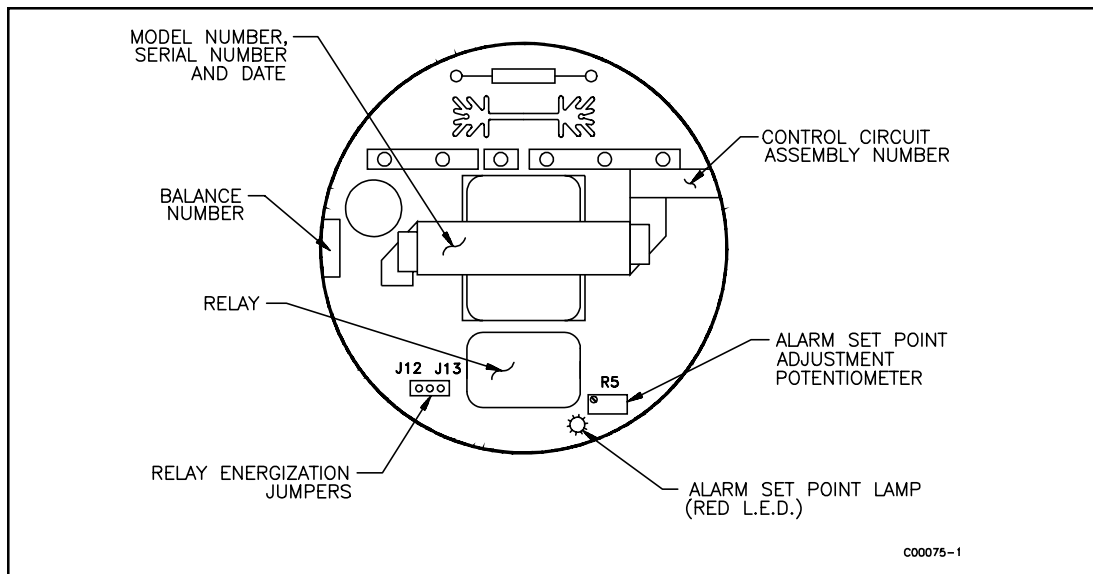


Figure 3-2. Control Circuit Outline Drawing

4. Maintenance



Warning: To avoid hazards to personnel, ensure that all environmental isolation seals are properly maintained.



Caution: The control circuit contains electrostatic discharge (ESD) sensitive devices. Use standard ESD precautions when handling the control circuit. See Chapter 2, Installation for ESD details.

The instrument requires very little maintenance. There are no moving parts or mechanical parts subject to wear.

Maintenance

Without detailed knowledge of the environmental parameters of the application, surroundings, and process media, FCI cannot make specific recommendations for periodic inspection, cleaning, or testing procedures. However, some suggested general guidelines for maintenance steps are offered below. Use operating experience to establish the frequency of each type of maintenance.

Alarm Set Point Verification

Periodically verify the alarm set point.

Local Enclosure

Periodically verify that the moisture barriers and seals of the local enclosure is adequate and that no moisture is entering the enclosure.

Electrical Wiring

Periodically inspect the power, sensing element, and output wiring for signs of corrosion or deterioration.

Electrical Connections

Periodically inspect wire connections on the socket. Verify that terminal connections are tight and physically sound with no sign of corrosion.

Process Connection

Periodically verify that all seals are performing properly and that there is no leakage of the process media. Check for deterioration of the gaskets and environmental seals used.

Sensing Element

Periodically remove the sensing element for inspection based on historical evidence of debris, foreign matter, or scale buildup and appropriate plant shutdown schedules and procedures. Check for corrosion, stress cracking, and/or buildup of oxides, salts, or foreign substances. The heater and RTD thermowells must be free of excessive contaminants and be physically intact. Any debris or residue buildup could cause inaccurate switching. Clean the sensing element, as necessary, with a soft brush and available solvents (compatible with stainless steel).

5. Troubleshooting



Warning: Only qualified personnel should attempt to test this instrument. The operator assumes all responsibilities for safe practices while troubleshooting.



Caution: The control circuit contains electrostatic discharge (ESD) sensitive devices. Use standard ESD precautions when handling the control circuit. See Chapter 2, Installation for ESD details.

Tools Needed

Digital Multimeter (DMM)

Quick Check

Check the jumper positions of J12 and J13. Jumper J12 energizes the relay at flow. Jumpers J13 energizes the relay at no flow.

Check that the control circuit is firmly seated into its socket.

Check if power is present and customer fuses are good, if they are used.

Follow the trouble shooting flow chart in Figure 5-1 near the end of this chapter.

Non-maintenance Observations

At this point, observe the system setup to verify operation. No disassembly or testing is required at this time.

Check Input Power

Verify that the correct power source is turned on and connected.

Check the Instrument Installation

Review the information on instrument installation in Chapter 2 to verify correct mechanical and electrical installation.

At the time of order the sensing element placement should have been determined. However, if not, the 12-64 sensing element should be mounted at least 20 diameters downstream and 10 diameters upstream from any bends or interference in the process pipe or duct.

Check for Moisture

Check for moisture on the control circuit. Moisture on the control circuit may cause intermittent operation.

Check for moisture on the sensing element. If a component of the process media is near its saturation temperature it may condense on the sensing element. Place the sensing element where the process media is well above the saturation temperature of any of the process gases.

Check Application Design Requirements

Application design problems may occur with first time application instruments, although the design should also be checked on instruments that have been in operation for some time. If the application design does not match field conditions, errors occur.

1. Review the application design with plant operation personnel and plant engineers.
2. Ensure that plant equipment such as pressure and temperature instruments conform to the actual conditions.
3. Verify operating temperature, operating pressure, line size, and gas medium.

Verification of Sensing Element Resistance

The measurements are based on a standard (5K ohm RTD at 70°F, or 21°C) sensing element. Variation of ± 100 ohms from nominal is to be expected, depending on temperature. The maximum allowable difference in resistance between matched RTD's is 1% at ambient temperature (immersed in water). The heater resistance should be 225 ± 5 ohms. Be sure to subtract the cable resistance to get the true resistance.

1. Turn off the operating power to the instrument.
2. Gently remove (pull straight out) the control circuit from the socket. Using a DMM, measure the resistance of the active and reference RTD sensing elements and the heater as found in Table 5-1 to determine if the sensing element is functional.



Note: The resistance of the active RTD will be greater than the resistance of the reference RTD whenever the heater is on.

If there is an indication of an open or short in the RTD, the sensing element will need to be replaced.

After replacing the sensing element, it will be necessary to follow the alarm set point adjustment procedures found in the Operation Chapter before returning the instrument to service.

If the sensing element resistance is correct, proceed to the voltage verification test.

Table 5-1. Sensing Element Resistances In Ohms

From Terminal (Pin)	To Terminal (Pin)	Expected Ohms*
Heater (7)	Heater (10)	225
Ref Sen (9)	Com Sen (8)	5000
Ref Sen (9)	Act Sen (7)	10000
Act Sen (7)	Com Sen (8)	5000

*Resistance varies with temperature. These values should be ± 5 ohms at 70 °F (21 °C).

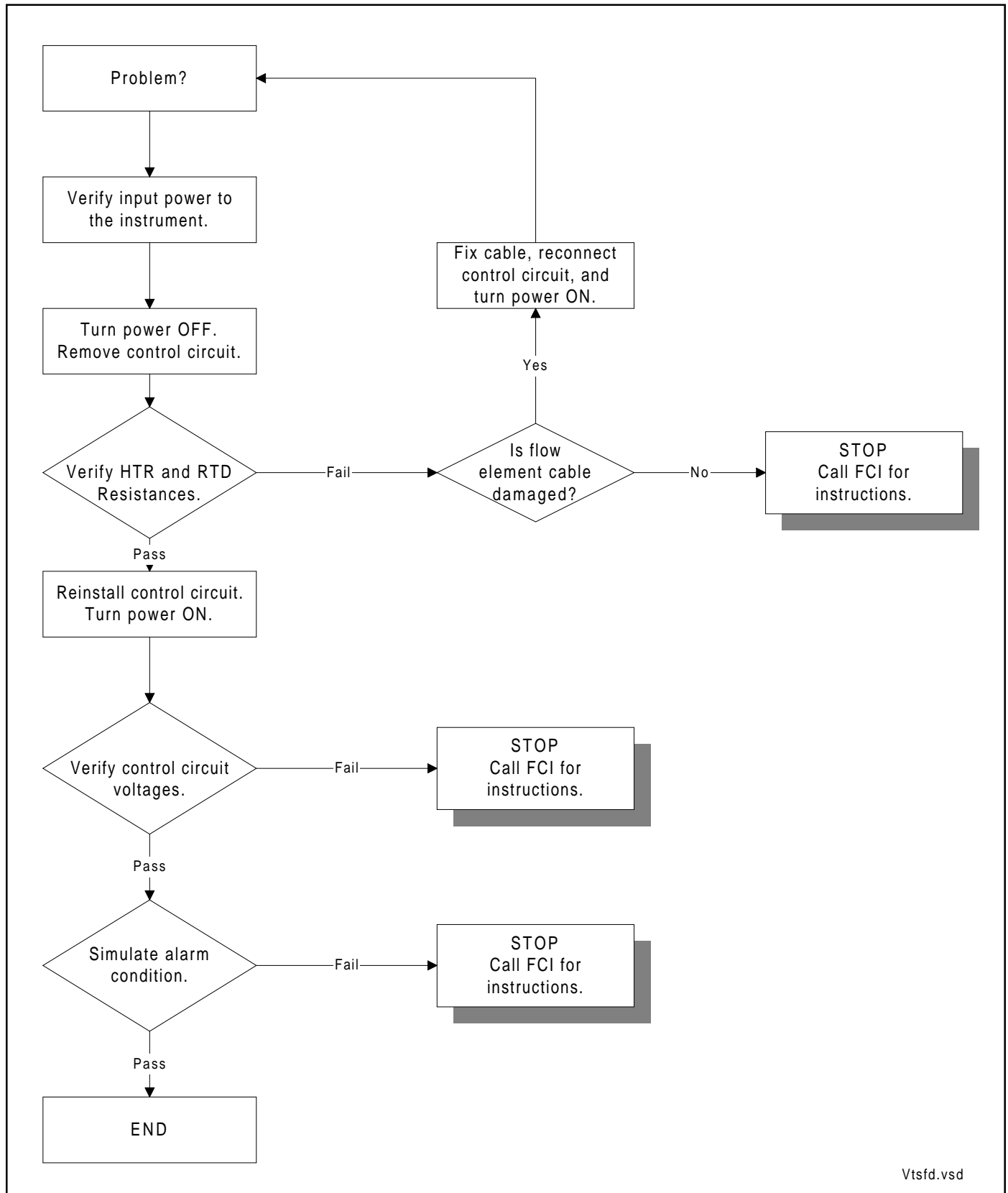
Verification of Sensing Element Voltage

If the above resistance checks are good, plug in the control circuit and apply power. Measure the voltages in Table 5-2. If the voltages are not correct, then remove and replace the control circuit.

Table 5-2. Sensing Element Voltages

From Terminal Pin	To Terminal Pin	Voltage Expected**
9 (+)	7 (-)	22VDC
7 (+)	8 (-)	12VDC
9 (+)	8 (-)	10VDC
10 (+)	7 (-)	19VDC

**Voltages are dependent on temperature.



Vtsfd.vsd

Figure 5-1. Troubleshooting Flow Chart

Spares

FCI recommends that one control circuit, part number 5181-XA3A2A2, be kept as a spare. The X in the part number depends on the input voltage. The X will be a 1 for 115 Vac, 2 for 230Vac or 6 for 24Vdc. Contact FCI for specific recommendations.

Defective Parts

Before returning any equipment to FCI, obtain an return authorization (RA) number for authorization, tracking, and repair/replacement instructions. If a return is required, remove the defective part or instrument, replace it with a spare, calibrate, and then return the defective part or instrument to FCI freight prepaid for disposition.

Customer Service

1. In the event of problems or inquiries regarding the instrument, please contact the Regional or Country Authorized FCI Field Agent. There is an extensive list of these representatives at the front of this manual.
2. Before contacting the FCI representative, be sure that all the applicable information is near so that a more effective, efficient and timely response may be provided.
3. Refer to Appendix C for specific Customer Service policy provisions.

Appendix A. Drawings

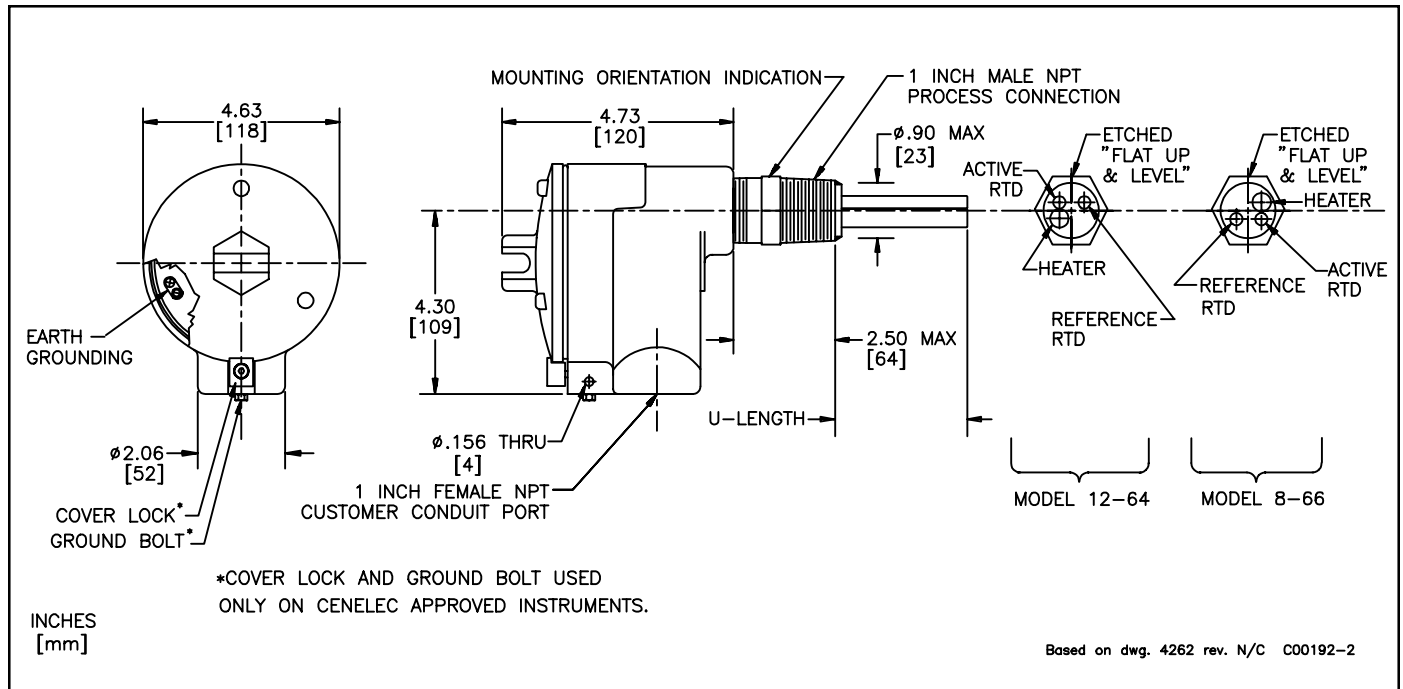


Figure A-1. Threaded Process Connection

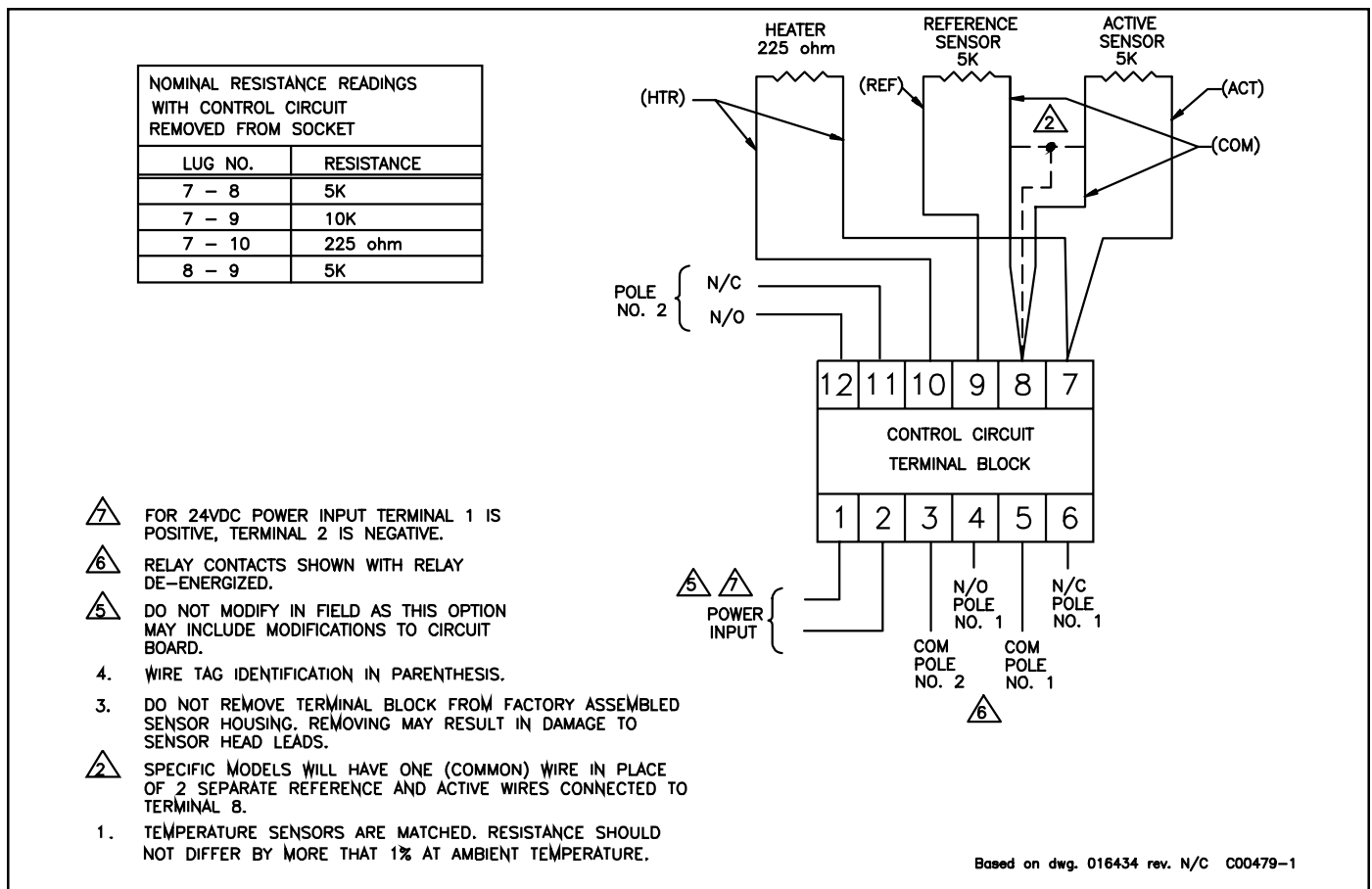


Figure A-2. Wiring Diagram

Appendix B. Glossary

ABBREVIATIONS

Delta R (ΔR)	Resistance differential
Delta T (ΔT)	Temperature differential
DMM	Digital Multimeter
FCI	Fluid Components Intl
HTR	Heater
LED	Light Emitting Diode
RA	Repair Authorization
RTD	Resistance Temperature Detector

DEFINITIONS

Active RTD	The sensing element part that senses the fluid flow rate or wet/dry condition.
Balance	A number that is used to balance or match the active and reference RTDs when the heater is off.
Control circuit	The portion of the flow switch that conditions, converts, and scales the sensing element signal.
Heater (HTR)	The sensing element part that heats the active RTD.
Local enclosure	The enclosure attached to the sensing element.
Reference RTD	The sensing element part that senses the fluid temperature.
Resistance differential Delta -R (ΔR)	The sensing element signal.
Resistance Temperature Detector (RTD)	A sensor whose resistance changes proportionally to detector temperature changes.
Sensing element	The portion of the flow switch that contains the thermowells, RTDs, and produces a signal with a defined relationship to the flow rate or wet/dry condition.
Temperature differential Delta -T (ΔT)	The difference in temperature between the active and reference RTDs.
Thermowell	The sensing element part that protects the heater and RTD's from the process fluid.

Appendix C. Customer Service

Point of Contact

Your point of contact for service, or return of equipment to FCI is your authorized FCI service representative (see list in the front matter of this manual).

Reference Documents

Return Authorization Request/Certificate of Non-Contamination (Document 1)

FCI Hazardous Materials Control Procedure for Repair Items (Document 2)

Warranties (Document 3)

Documents 1, 2 and 3 are included in this appendix.

Hardware Return Procedure

1. Complete a Return Authorization (RA) Request/Certificate of Non-Contamination form (Document 1) and mail or fax it to an FCI field representative. After FCI issues you an RA number, complete the following steps.
2. Thoroughly clean the hardware.
3. Package each instrument with protective packing material similar to the original FCI shipment carton. **All damage occurring in transit is the customer's responsibility.**
 - a. Cover instruments weighing less than 80 pounds with protective wrap, such as bubble wrap or surround it with "popcorn." Secure instruments weighing greater than 80 pounds in wooden crates by bolting them in place.
 - b. Protect the sensing element with a cardboard tube or other sturdy wrapping.
 - c. Do not pack more than four small instruments in each carton.
 - d. Ship packages weighing more than 50 pounds via carriers who specialize in the transport of industrial instruments.
 - e. Note the RA number on the packing list and mark it clearly on the outside of the box.
4. Prepay freight to the FCI receiving door.

Shipping/Handling Charges

All Shipping (Warranty and Nonwarranty Repairs or Returns)

The customer prepays all shipping, freight, duty/entry and handling charges from the customer site to the FCI door. If the customer does not prepay, FCI will invoice the customer for the charges that appear on the freight bill.

Warranty Repairs or Returns

FCI prepays ground transportation charges for return of freight to the customer's door. FCI reserves the right to return equipment by the carrier of our choice.

International freight, handling charges, duty/entry fees for return of equipment are paid by the customer.

Nonwarranty Repairs or Returns

FCI returns repaired equipment to the customer either collect or prepaid and adds freight charges to the customer invoice.

Return to Stock Equipment

The customer is responsible for all shipping and freight charges for equipment that is returned to FCI stock from the customer site. These items will not be credited to customer's account until either all freight charges are cleared or until the customer agrees to have any freight costs incurred by FCI deducted, along with applicable return to stock charges, from the credit invoice. (Exceptions are made for duplicate shipments made by FCI.)

If any repair or return equipment is received at FCI, freight collect, without prior factory consent, FCI bills the sender for these charges.

Field Service Procedures

Field Service Requests

Contact your FCI field representative to request field service.

A field service technician is dispatched to the site from either the FCI factory or one of the FCI representative offices. After the work is complete, the technician completes a preliminary field service report at the customer site and leaves a copy with the customer.

Following the service call, the technician completes a formal, detailed service report. The formal report is mailed to the customer within five days of the technician's return to the factory or office.

Rates

All field service calls are billed at the prevailing rates as listed in the FCI Price Book unless specifically excepted by the FCI Customer Service Manager. FCI reserves the right to bill for travel times at our discretion.

Customers are charged for shipping costs related to the transfer of equipment to and from the job site. They are also invoiced for field service work and travel expenses by FCI's Accounting Department.

Document 1. Return Authorization Request/Certificate of Non-Contamination

- 1. Company Name: _____
- 2. Contact Name: _____
- 3. Contact Phone No. _____ Fax No.: _____
- 4. Bill to Address: _____

- 5. Ship to Address: _____

- 6. Model Number: _____ Serial Number: _____
- 7. Equipment Symptom: _____
Please detail the Troubleshooting Checks that were made: _____

- Action To Be Taken By FCI: _____



Note: If calibration is required, please complete an Application Data Sheet.



- 8. Warranty: YES NO Purchase Order No. _____

Note: FCI Will Assess A Minimum Charge Of \$110.00 On All Nonwarranty Repairs Or Evaluations.

- 9. Have you contacted your local representative regarding this return?
 YES NO

Certificate Of Non-Contamination

____I certify that the item(s) listed below has (have) not been contaminated by a hazardous material, hazardous substance or a toxic material or substance as defined by Federal and State law.

____I certify that the item(s) has (have) been thoroughly and completely cleaned and if the item(s) has (have) been exposed to hazardous material, hazardous substance or toxic materials or substances that the undersigned have thoroughly and completely neutralized such substances and any contamination which may have occurred to the returned items. Furthermore, I understand that this Certificate shall not waive our responsibility to provide a decontaminated product for repair to FCI.

Process Medium: _____

Company Name: _____

Authorized Signature: _____

Document 2.

FCI Hazardous Materials Control Procedure for Repair Items

In order for FCI to process your repair expeditiously, the returned item must be accompanied by documentation regarding hazardous materials to which the item was exposed.

Hazardous materials are regulated by Federal, State (California), County, and City laws. These laws provide our employees the right to know the materials with which they come in contact while handling our products. Consequently, our Repair Department employees must have access to data regarding the materials with which they may come in contact while processing your repair.

In accordance with FCI's Hazardous Materials Control procedures, we request that you thoroughly clean and neutralize any process material on your equipment before returning it to FCI. Further, you are required to choose one of the following options for declaring the hazardous condition of the hardware:

1. Complete and sign the Certificate of Non-Contamination (at the bottom of Document 1) evidencing your compliance.

or

2. Complete a Material Safety Data Sheet (MSDS) which covers all process materials exposed on the instrument. Send the completed MSDS to your field service representative with a completed RA form.



Note: Submission of an MSDS or Certificate of Non-Contamination will not waive your responsibility for proper decontamination of the instrument. The cleanliness of a returned item or the acceptability of the MSDS will be at the sole discretion of FCI.

Returned items that do not comply with these procedures will be returned to you at your expense. FCI does not wish to inconvenience you; however, we are required by law to adhere to hazardous material handling procedures to protect our employees.

Document 3. Warranties

Goods furnished by the Seller are to be within the limits and of the sizes published by the Seller and subject to the Seller's standard tolerances for variations. All items made by the Seller are inspected before shipment, and should any of said items prove defective due to faults in manufacture or performance under Seller approved applications, or fail to meet the written specifications accepted by the Seller, they will be replaced or repaired by Seller at no charge to Buyer provided return or rejection of said material is made within a reasonable period but in no event longer than three (3) years for non-calibration defects and one (1) year for calibration defects from date of delivery to Buyer, and provided further, that an examination by Seller discloses to Seller's reasonable satisfaction that the defect is covered by this warranty and that the Buyer has not returned the equipment in a damaged condition due to exposure to corrosive or abrasive environments for due to Buyer's or Buyer's employees, agents, or representative negligence and Buyer has not tampered, modified, redesigned, misapplied, abused, or misused the goods as to cause the goods to fail. Seller shall in no event be responsible for (1) the cost of any work done by Buyer on material furnished hereunder (unless specifically authorized in writing in each instance by Seller), (2) the costs of any work done by a Distributor, (3) for any consequential or incidental damages, losses, or expenses in connection with or by reason of the use of or inability to use goods purchased for any purpose, and Seller's liability shall be specifically limited to free replacement, or refund of the purchase price, at Seller's option, provided returned or rejection of the goods is made consistent with this paragraph, and the Seller shall in no event be liable for transportation, installation, adjustment, loss of good will or profits, or other expenses which may arise in connection with such returned goods, or (4) for the design of products or their suitability for the purpose for which they are intended or used. Should the Buyer receive defective goods as defined by this paragraph, the Buyer shall notify the Seller and Distributor immediately, stating full particulars in support of his claim, and should the Seller agree to a return of the goods, the Buyer shall follow Seller's packaging and transportation directions explicitly. In no case are the goods to be returned without first obtaining permission of the Seller. Any repair or replacement shall be at Seller's factory, unless otherwise directed, and shall be returned to Seller transportation prepaid by Buyer and subject to the provisions herein. If the returned goods shall prove defective under this clause they will be replaced or repaired by Seller at no charge to Buyer provided the return or rejection of such material is made within a reasonable period, but in no event longer than one (1) year from the date of delivery of the returned goods or the unexpired term of the original warranty period whichever is later.

If the goods prove to be defective under this paragraph, the Buyer shall remove the goods immediately from the process and prepare the goods for shipment to Seller for repair. Continued use or operation of defective goods is not warranted by Seller and damage occurring due to continued use or operation shall be for Buyer's account.

Any description of the goods contained in the offer is for the sole purpose of identifying them, and any such description is not part of the basis of the bargain, and does not constitute a warranty that the goods will conform to that description. The use of any sample or model in connection with this offer is for illustrative purposes only, is not part of the basis of the bargain, and is not to be construed as a warranty that the goods will conform to the sample or model. No affirmation of that fact or promise made by Seller, whether or not in this offer, will constitute a warranty that the goods will conform to the affirmation or promise.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE GOODS OR THEIR INSTALLATION, USE, OPERATION, REPLACEMENT OR REPAIR, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF PURPOSE; AND THE GOODS ARE BEING PURCHASED BY BUYER "AS IS". FCI WILL NOT BE LIABLE BY VIRTUE OF THIS WARRANTY OF OTHERWISE FOR ANY SPECIAL OR CONSEQUENTIAL LOSS OR DAMAGE RESULTING FROM THE USE OR LOSS OF USE OF THE GOODS.

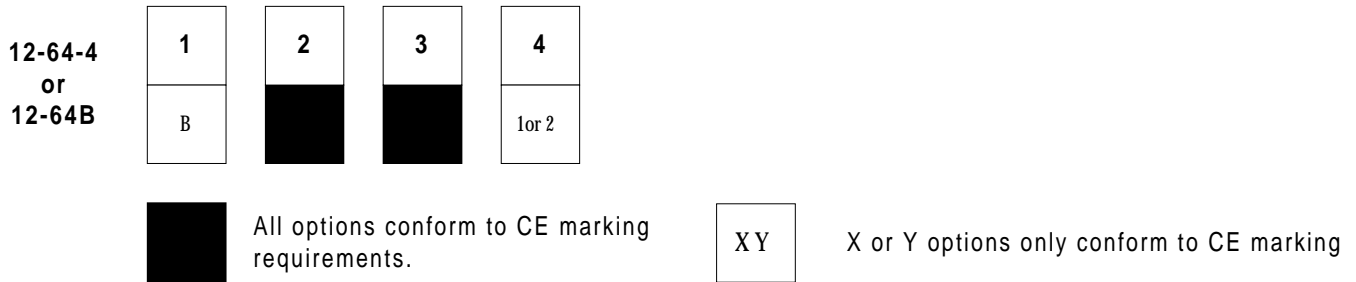
Appendix D. CE Conformance

Approved CE marking 12-64 and 8-66 Configurations

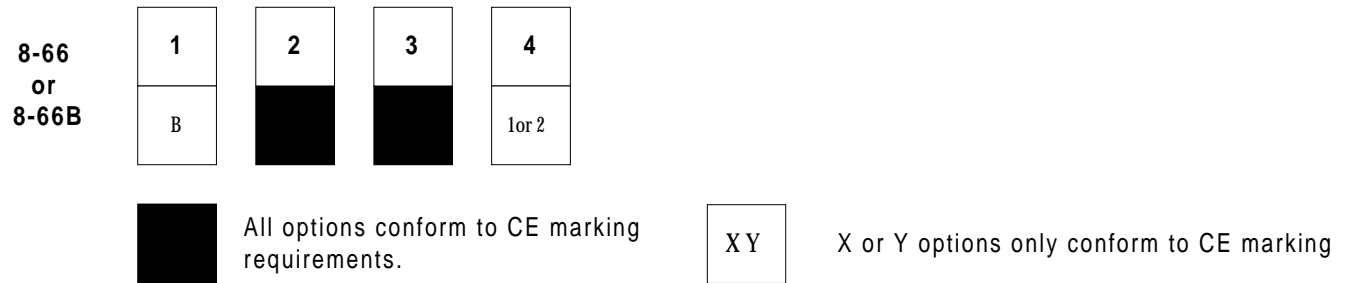
Approved Options

- 1) all insertion U-lengths
- 2) all specified application combinations
- 3) 115/230 VAC power input.

Approved Part Numbers



All other configurations must be approved for CE marking conformity by FCI's Engineering Department.



All other configurations must be approved for CE marking conformity by FCI's Engineering Department.

Conditionally Approved CE marking - 24 VDC Factory Selectable Options

Input power of 24 VDC may be optionally selected. Since the manufacturer does not supply the power source or transformer for these connections, the responsibility for the conditioning of these sources and associated compliance to the EMC Directive shall be the responsibility of the user.

INSTALLATION CONFORMITY CRITERIA

Grounding

The enclosure must be grounded to earth ground through a path of less than 1 ohm.

Interconnecting Cables

All interconnecting cables between the local enclosure, power source and monitoring device shall be enclosed in metal conduit. AC power input cabling shall be enclosed separately in conduit before entrance into the instrument and is not to be combined with switch or monitor output cabling.

Location of CE mark documentation (European Location)

The technical documentation file part A resides at Fluid Components Intl, European Service Center, Beatrix De Rijkweg 8, 5657 Eg Eindhoven, Netherlands, Phone: 31-40-2-571-972 FAX: 31-40-2-517-809.

Location of CE mark documentation (Manufacturer Location)

The technical documentation file part B resides at the Configuration Management department of Fluid Components Intl, 1755 La Costa Meadows Dr. San Marcos, CA. 92069 USA, Phone: 1 (800) 854-1993 FAX: 1 (619) 736-6250.

Approval Information

CE Information



CE DECLARATION OF CONFORMITY Basic Switch Product Family ~ 12-64B and 8-66B

We, *Fluid Components Intl*, located at 1755 La Costa Meadows Drive, San Marcos, California 92069-5187 USA, declare under our sole responsibility that the **Basic Switch Product Family**, models **8-66B** and **12-64B** to which this declaration relates, are in conformity with the following Standards and Directives:

EMC Directive 89/336/EEC of May 3, 1989 of the European Union.


Immunity specifications: EN 50082-2:1995; EN 61000-4-2; EN 61000-4-4; ENV 50140 and ENV 50204

Emissions specifications: EN55022, Class B and CISPR 22, Class B

Pressure Equipment Directive (PED) 97/23/EC.

The 12-64B and 8-66B Models do not have a pressure bearing housing and are therefore not considered as pressure equipment by themselves according to article 1, section 2.1.

*Issued at San Marcos, California USA
17, November 1998*


Eric Wible, Engineering Manager

Eric Wible
2004.05.19
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Flow/Liquid Level/Temperature Instrumentation

Visit FCI on the Worldwide Web: www.fluidcomponents.com

1755 La Costa Meadows Drive, San Marcos, California 92069 USA 760-744-8950 • 800-854-1993 • 780-736-8250
European Office: Persephonestraat 3-01 5047 TTTilburg – The Netherlands – Phone 31-13-5159989 • Fax 31-13-5799036

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