INSTRUCTION MANUAL

ATLFSG

Flame Safeguard Relay Test Kit

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Introduction

The ATLFSG test lead adapter kit lets you use your standard multimeter (with micro-amps measurement function) to test common flame-safeguard circuits that use standard 3.5 mm stereo jack.

Safety Notes

Observe all safety precautions when measuring higher voltages. Turn off the power to the circuit under test. Connect the test leads to the meter and then to the circuit under test. Reapply power.

WARNING!

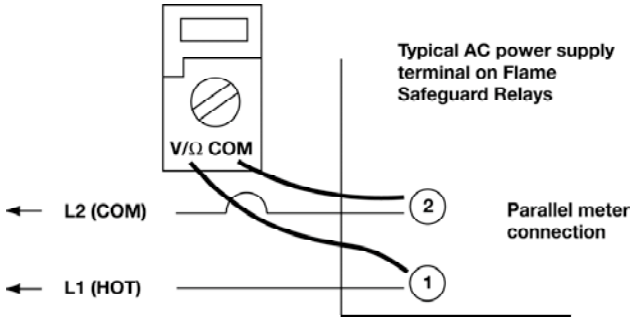
When taking current measurements, the multimeter must be connected in SERIES with the circuit element under test. Never connect the test leads across a voltage source. To do so may blow the fuse and damage the circuit under test.

Operating Instructions

AC Voltage

To determine the voltage of any energized AC circuit up to 300 volts. proceed as follows:

1. Set range selector switch to AC volts (700 or higher).
2. Connect the red test lead to the V/Ω input and the black test lead to the common input.
3. Attach the meter leads in parallel with the voltage to be measured (Fig 1).
4. Read meter display.



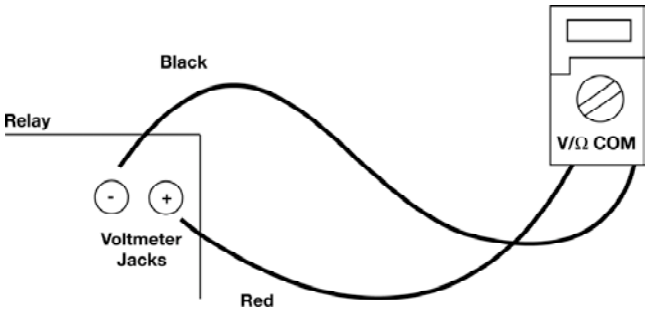
(Fig 1)

DC Voltage

To determine the voltage of any energized DC circuit up to 150 V, proceed as follows:

1. Set range selector switch to DC volts (400 or higher).
2. Attach the meter leads in parallel with the voltage to be measured (Fig 2).
3. Read meter display.

NOTE: *Fig 2 illustrates how flame circuit voltages (instead of current) are measured on flame safeguard controls using lead sulfide photocell detectors. (Suitable lead sulfide detector voltage readings are 100 - 140 V DC).*



(Fig 2)

Meter connections for checking performance of lead sulfide photocell with R478B or R4074B relay.

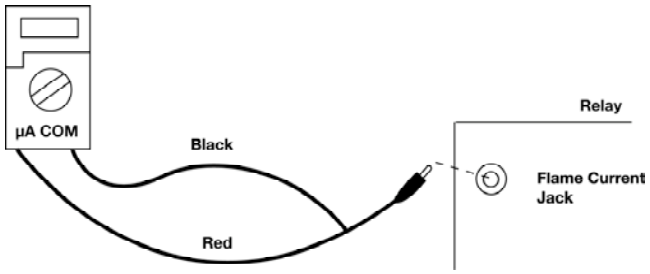
Flame Current Check

The flame current is the best indicator of proper flame detector application. The check should be done at the time of installation, at any time service is done on the system, and at least once a month or sooner while the system is in operation. This will prevent shutdowns due to poor flame signal.

The test is done by connecting your multimeter in series with the flame detector using µA (microamp) range and reading the flame signal when the burner is operating.

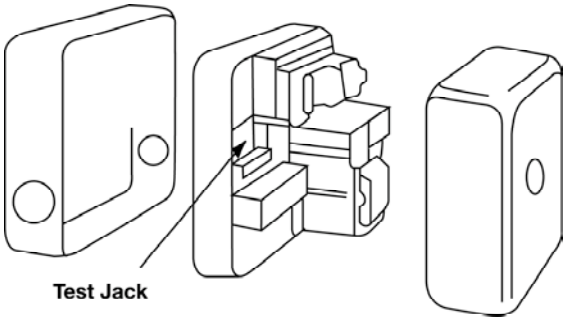
Insert the ATLFSG red test lead to the "**mAµA**" jack and the black test lead to the "**COM**" jack on the meter and the mini-plug into the test jack on the RA890F. This automatically puts the meter in series with the flame detector.

1. For a flame safeguard relay having a flame current jack, such as RA89E, F, & G, R890E, F, & G, R4138, R4150, R4181, R4795A, C, D (Fig 3).

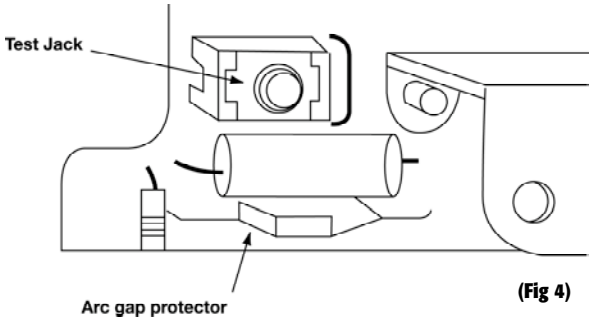


(Fig 3)

2. Insert cable connector plug into flame current jack. This puts the meter in series with the flame lead. The system must be operating and detector sighting flame for current to flow through the meter. Minimum safe current is 2µA (Fig 4).



RA890F and 0270A sub-base



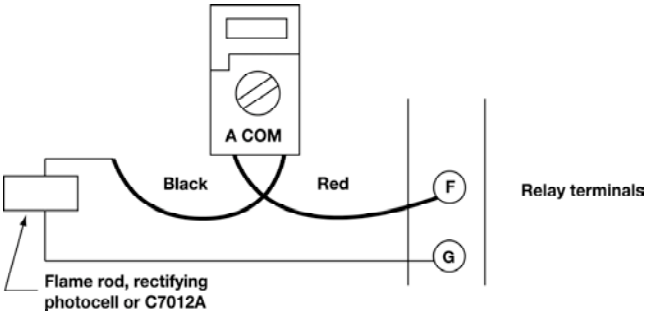
(Fig 4)

Location of test jack on the RA890F

3. For a flame safeguard relay without flame current test jack, such as R890, R485, RA1 90B, RA890B & C, R 178, R407A, R7023, W1 24, hook-up (Fig 5).

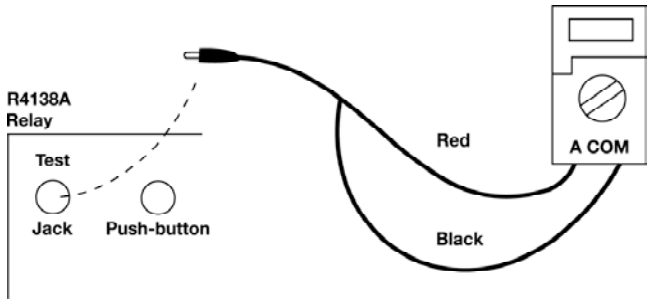
4. For pulsing-type relay without a flame current test jack, such as R4075B and some models of R4138A, hook-up (Fig 5). Use the 20µA selector setting and read direct. To stop cycling, manually hold in relay 2K (2R in older models) and pull out the vacuum tube.

NOTE: *System must be operating and detector sighting flame for current to flow through the meter.*



(Fig 5)

5. For pulsing-type flame safeguard relays with the flame current jack and push-button for eliminating pulses, used with a self-checking C7012E flame detector, such as R4138A and R4181A (Fig 6).



(Fig 6)

6. Insert cable connector plug into flame current test jack to put meter in series with flame lead (Fig 6). To stabilize meter reading, hold relay 2K in with one hand, press test push-button with other hand, read µA scale and release button. When normal pulsing is reestablished, release relay 2K. A stable reading, with the push-button depressed and 2K held in, of 4 to 4-1/2 minroamps is the minimum acceptable flame current.

CAUTION!

To eliminate the possibility of injury to operator and damage to the instrument and equipment, the following procedure is recommended. Exercise care and caution on all ranges, particularly the voltage ranges, and follow all standard published safety rules and wear appropriate personal protective equipment (ppe). Misuse, abuse and carelessness cannot be prevented by any written word and is fully the operator's responsibility.

ATLFSG

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Limited Warranty

The ATLFSG is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. If within the limited lifetime warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge. Return the unit postage paid and insured to:

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This warranty gives you specific legal rights. You may also have other rights which vary from state to state.