

FLUKE®

Biomedical

1060AM-NM-LRVAR

Local, Remote, and Flasher Alarms

Operators Manual

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Table of Contents

Section 1:	Introduction	1-1
1.1	Procedures, Warnings and Cautions	1-1
Section 2:	Instructions	2-1
2.1	General Description	2-1
2.2	Specifications.....	2-1
2.3	Receiving Inspection.....	2-2
2.4	Storage	2-2
2.5	Installation.....	2-3
2.6	Electrical Interface	2-4
2.7	Operation	2-5
Section 3:	Maintenance and Cleaning	3-1
3.1	Troubleshooting	3-1
Appendix A:	Applicable Drawings and Parts List	A-1
A.1	Applicable Drawings and Parts Lists.....	A-1

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Section 1 **Introduction**

1.1 Procedures, Warnings and Cautions

- The equipment described in this manual is intended to be used for the detection and measurement of ionizing radiation. It should be used only by persons who have been trained in the proper interpretation of its readings and the appropriate safety procedures to be followed in the presence of radiation.
- Although the equipment described in this manual is designed and manufactured in compliance with all applicable safety standards, certain hazards are inherent in the use of electronic and radiometric equipment.
- WARNINGS and CAUTIONS are presented throughout this document to alert the user to potentially hazardous situations.
- A WARNING is a precautionary message preceding an operation that has the potential to cause personal injury or death.
- A CAUTION is a precautionary message preceding an operation that has the potential to cause permanent damage to the equipment and/or loss of data.
- Failure to comply with WARNINGS and CAUTIONS is at the user's own risk and is sufficient cause to terminate the warranty agreement between Fluke Biomedical, Radiation Management Services and the customer.
- Adequate warnings are included in this manual and on the product itself to cover hazards that may be encountered in normal use and servicing of this equipment. No other procedures are warranted by Fluke Biomedical.
- It shall be the owner's or user's responsibility to see to it that the procedures described here are meticulously followed, and especially that WARNINGS and CAUTIONS are heeded. Failure on the part of the owner or user in any way to follow the prescribed procedures shall absolve Fluke Biomedical and its agents from any resulting liability.
- Indicated battery and other operational tests must be performed prior to each use to assure that the instrument is functioning properly.
- If applicable, failure to conduct periodic performance tests in accordance with ANSI N323-1978 (R1983) Radiation Protection Instrumentation Test and Calibration, paragraphs 4.6 and 5.4, and to keep records thereof in accordance with paragraph 4.5 of the same standard, could result in erroneous readings or potential danger.
- ANSI N323-1978 becomes, by this reference, a part of this operating procedure.

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Section 2

Instructions

2.1 General Description

Refer to 1060-005 drawing located in Appendix A .

The Fluke Biomedical local , remote , and flasher alarms are used in conjunction with the Victoreen Model 1060AM-NM-LR. The operating range of this system is 0.01 mR/hr to 1R/hr. The red halogen lamps and the flashing yellow sign provides a remote (75ft) and a local visual alarm indication. The green incandescent lights operate at half power and indicate normal operating conditions while in a radiation field of less than 2mR/hr +/- 10%.

An efficient dual led (red / green) operates in a similar fashion and shall alert personnel of a bulb burn out in either the local or the remote alarms.

The Local alarm also includes two female power connectors (J1 and J2) each with a set of normally closed contacts. J3 is a male connector with a dust cover that interfaces with the 1060am-nm-LR . A ½ inch conduit fitting is provided for the hot (L1), neutral (L2), and earth ground connections.

The Remote and Flasher alarm both have a single male plug connector (P1) to interconnect with the local alarms normally closed contacts. Conduit fittings provide access for the neutral (L2) and earth ground terminations. The Flasher alarm includes an AC solid state timer that switches two 25W halogen lamps at a frequency of about forty flashes per minute.

2.2 Specifications

Dimensions (H x W x D)	Local Alarm pn 1060-024	Remote Alarm Pn 1060-034	Flasher Alarm Pn 1060-026
in (cm)	9 x 6.3 x 6.75 (22.9 x 16.0 x 17.1	9 x 6.3 x 6.75 (22.9 x 16.0 x 17.1)	10 x 14x 2 (25.4 x 35.6 x 5.1)
Weight lbs (Kg)	3 lb (1.4)	2.5 lb (1.1)	3 lb (1.1)
Operating Temperature F (C)	-32 deg to 122 deg (0 deg to 50 deg)	-32 deg to 122 deg (0 deg to 50 deg)	-32 deg to 122 deg (0 deg to 50 deg)
Relative Humidity Non condensing	0 to 90%	0 to 90%	0 to 90%

Electrical Requirements	120 VAC 50/60 Hz	120 VAC 50/60 Hz	120 VAC 50/60hz
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2.3 Receiving Inspection

Upon receipt of the unit:

1. Inspect the carton(s) and contents for damage. If damage is evident, file a claim with the carrier and notify Fluke Biomedical at 440.248.9300.
2. Remove the contents from the packing material.
3. Verify that all items listed on the packing list have been received and are in good condition.

If any of the listed items are missing or damaged, notify Fluke Biomedical.

2.4 Storage

Storage of Fluke Biomedical instruments must comply with Level B storage requirements as outlined in ANSI N45.2.2 (1972) Section 6.1.2(.2). The storage area shall comply with ANSI N45.2.2 (1972) Section 6.2 Storage Area, Paragraphs 6.2.1 through 6.2.5. Housekeeping shall conform to ANSI N45.2.3 (1972). Level B components shall be stored within a fire resistant, tear resistant, weather tight enclosure, in a well-ventilated building or equivalent.

Storage of Fluke Biomedical instruments must comply with the following:

1. Inspection and examination of items in storage must be in accordance with ANSI N45.2.2 (1972) Section 6.4.1.
2. Requirements for proper storage must be documented and written procedures or instructions must be established
3. In the event of fire, post-fire evaluation must be in accordance with ANSI N45.2.2 (1972), Section 6.4.3.
4. Removal of items from storage must be in accordance with ANSI N45.2.2 (1972), Section 6.5 and 6.6.

2.5 Installation

WARNING

To prevent electrical shock, ensure that power is disconnected before installing the alarms

Installation of the 1060am-nm-lrvar consists of mounting the unit , providing an electrical interface , and performing an operational check.

The 1060-024,1060-034, and 1060-026 have four mounting holes inside each chassis with a 0.19 diameter clearance.

- 1 Remove four sheet metal screws from the case assembly . (1060-024 and 1060-034). Slide out the yellow acrylic panel from the chassis from either side of the flasher alarm assembly . (1060-026).
- 2 .Using a chassis as a template mark, the mounting surface for hole positioning.
3. Drill the necessary holes in the mounting surface.
- 4 .Secure the chassis with the appropriate screws.
- 5.Determine a suitable location to mount the 1060am-nm-LR . The alarm threshold is set at 2 mR/hr . A field between 10mr/hr and a 100mr/hr is good starting point. Contact your radiation safety officer for your company requirements.

CAUTION

If readings from a device's position indicates that the radiation rate is relatively high, CAUTION should be observed when replacing or working on this unit. High rates can quickly cause the operator's cumulative exposure to increase with the potential for injury .

6. The 1060am-nm-LR may be queried for this radiation rate remotely with the RS-232 communications using the RRM command Read mR /Hr (averaged over 60 seconds).Wait two minutes, and repeat the command RRM as necessary See manual 1060am-1 for more information.
7. A twenty-five foot cable assembly pn (1060am-nm-11) is available with a DB9F connector and a five pin circular connector .If this length is inadequate , use the connector kit supplied with the 1060am-nm-LR . Select the 5 pin male and assemble your own .Refer to the section labeled ,Connections –1060am-nm (NEMA 4 enclosure) . TXD, RXD, and GND are the signals required for RS-232 communications .

2.6 Electrical interface

The Local alarm (1060-024) requires power connections as follows: (See appendix A for the 1060-13 and 1060-024 drawings)

Terminate the input power to TB2-1(L1) of the Local alarm assembly at the end of this installation .

1. Earth ground to chassis lug items 17 and 18 in view A-A of the local alarm assembly.
2. The L2 neutral connection (white) to TB1-8.
3. Connect the 75 foot power interface (male end) cables (1060-022) to both J1 and J2 . They are interchangeable.
4. Remove the dust cap and connect the 1060ds-24 ten foot cable assembly to J3 and connect the free end to the I/O connector on the 1060am-nm-LR .

The Remote alarm (1060-034) require power connections as follows: .(See appendix A for the 1060-023 and 1060-034 drawings)

1. Earth ground to chassis lug items 21 and 22 in view A-A of the remote alarm assembly.
2. The L2 neutral (L2) connection (white) to TB1-8.
3. Connect either female end of the power interface cable to P1 on the remote alarm chassis .

The Flasher alarm (1060-026) requires power connections as follows:
(see appendix A for 1060-033 and 1060-026 drawings)

1. Earth ground to chassis lug of the flasher alarm assembly.
2. Neutral (L2) connection to ac-flasher terminal 1.
3. Connect the remaining female end of the power interface cable to P1.

2.7 Operation

The red beacons and red leds are **ON**.

The flasher alarm is **blinking**.

Connect the free end of the I/O (1060ds-24) cable to the model 1060AM-NM-LR I/O connector.

Connect the 1060AM-NM-110 (12 volt 500 mA) power cube connector to the 1060AM-NM-LR power input.

The red beacons turn **off** and the green ones are **on**. The green LED's are also **on**.

The flasher alarm is now **off**.

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Section 3 Maintenance and Cleaning

WARNING

To prevent injury, do not remove or insert lamp when unit is energized .

CAUTION

To prevent damage to the lens, do not use abrasive materials or cleaners

Refer the parts lists for the required type of lamp After disconnecting power, replace the lamp as follows:

1. Insert a small flat blade screwdriver between the **INSIDE** locking mechanism and the lens. Gently push down and then pry up while unseating the lens away from the mounting base. Pull the lens up and off .

CAUTION

To prevent property damage and injury, do not touch glass with bare fingers. Grasp glass with a soft clean cloth or with packaging supplied with the replacement lamp.

2. Gently push down on the lamp, twist and pull up to remove the lamp from the socket. Install the new lamp by aligning the connector on the base of the tube with its mating socket, then carefully press down into the socket. Assemble the Lamp .

3. Apply power to the signal and verify that the signal operates properly . Periodically clean the beacons lens with a soft cloth or sponge and water or a mild detergent solution to maintain optimum visibility. Ensure that the lens is completely dry before assembling the unit .

Refer the parts lists for the required type of lamp After disconnecting power, replace the lamp as follows:

1. Slide the acrylic yellow panel out from either side of the chassis .

CAUTION

To prevent property damage and injury, do not touch glass with bare fingers. Grasp glass with a soft clean cloth or with packaging supplied with the replacement lamp.

- 2 . Gently push in on the lamp, twist and pull up to remove the lamp from the socket. Install the new lamp(s) by aligning the connector on the base of the tube with its mating socket, then carefully press down into the socket.

Slide out the yellow acrylic panel from the chassis (flasher alarm) . Clean with a soft cloth or sponge and water or a mild detergent solution to maintain optimum visibility. Ensure that the acrylic sign is completely dry before assembling the unit .

3.1 Troubleshooting

- Extreme care must be used when troubleshooting a system that has power applied.
- All standard troubleshooting precautions apply.
- Once a problem has been located, remove all power before continuing with the repair.
- Personnel performing the following procedure must be familiar with the operation of the monitoring system and the location of each piece of equipment used in the system.
- If a problem develops, verify that the voltages at connection point inputs and outputs are present and that all wiring is secure. Refer to Appendix A for drawings and parts lists.
- If a problem cannot be resolved using the drawings in the Appendix while applying the troubleshooting instructions found in this manual, please contact Fluke Biomedical at 440.248.9300 for assistance.

Appendix A

Applicable Drawings and Parts List

4.1 Applicable Drawings and Parts List

1060-005	Main Assembly
1060-005	Main Assembly Parts List
1060-010	Alarm PCB Assembly
1060-010	Alarm PCB Parts List
1060-013	Local Alarm Schematic
1060-024	Local Alarm Assembly
1060-024	Local Alarm Parts List
1060-023	Remote Alarm Schematic
1060-034	Remote Alarm Assembly
1060-024	Remote Alarm Parts List
1060-026	Flasher Alarm Assembly
1060-026	Flasher Alarm Parts List
1060-033	Flasher Alarm Schematic
1060-022	Power Interface Cable
1060DS-24	I/O Cable Assembly
1060AMNMLRVAR-1	Manual

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