

620 Parkway  
Broomall, PA 19008  
610-356-3995

[www.varitronics.com](http://www.varitronics.com)

***Varitronics Inc.***  
***Emergency Call System Manual***

***VAR-08/30/2002 Rev 1***

Thank you for purchasing the Varitronics' Emergency Call System. Please carefully read this manual to get the best performance, and place the manual in a convenient location for future reference.

## **PRECAUTIONS**

### 1. Installation

(1) Never position the power supply, termination box, and system panels where they will be exposed to moisture, direct sunlight, dust, salty air, chemical storage areas, excessive temperature or humidity.

(2) Install the power supply and termination box in a stable place, free of uneven floors, vibration and shock.

(3) Install all room panels onto their designated and approved back boxes. **Not meant for shower use.**

2. Prior to operation, always make sure that all cables and cords are properly connected and the power supply receptacle is properly grounded. This receptacle should be connected to the back up power system used by the facility.

3. Take the proper steps to turn off the power supply (leaving all personnel and patients in safe condition) if anything is found wrong with the system.

4. Be sure to observe the following after use:

(1) Disconnect the main plug before any servicing is performed. Never hold and pull the AC line cord to disconnect it from wall socket. Excessive force can cause damage to internal connections.

(2) Never attempt to modify the power supply, termination box, and or any system panels in any way. Always contact Varitronics for repair and service recommendations. Refer to this manual for replacing fuses and bulbs.

(3) If the system has not been used for a long period of time, check the operation of the system before allowing staff and patient use.

5. The following symbols are used throughout this manual:



Protective earth ground location.



**WARNING:** Electrical shock possible and/or fire hazard.



**ATTENTION:** Important information.

## **SAFETY CONCERNS**

The Varitronics' Emergency Call System is one of the safest call systems on the market today. It has been engineered with many safety features to prevent shock and fire hazard. In addition there are no electromagnetic interference concerns. Be sure to observe all precautions as stated in this manual.

Any new or replacement devices that attach to the system must be equipment manufactured by Varitronics and approved for use with said system meeting the 'Hospital Signaling and Nurse Call Equipment' Standard 1069.

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## 1. NOMENCLATURE

### 1.1 Varitronics' Emergency Call System consists of the following components:

1.1.1 A 24-volt power supply.

1.1.2 A termination box for connecting panel cables to the power supply.

1.1.3 \*Various types of 'call for emergency' panels: pull panels, push panels, corded squeeze panels, monitor panels, etc.

1.1.4 UL approved cable.

\* Refer to **APPENDIX C** for details.

## 2. PERFORMANCE AND SPECIFICATIONS

### 2.1 System Performance

2.1.1 The Varitronics' Emergency Call System is capable of driving up to ninety-four individual devices consisting of lamps and /or tone alerts rated at 24 volts/33mA each.

### 2.2 Specifications

2.2.1 Power Supply: All supplies will be 115V/60 cps input. Full load:72 watts. They employ a CL-2-80-24 transformer that is UL1585 recognized capable of delivering 3.3 amps at 24 VAC. The secondary of the transformer is coupled to a UL recognized solid-state flasher rated for 24 VAC. The supplies are internally protected by UL recognized MOVs for up to 6000 peak volts. See **Appendix B & F**.

2.2.2 Termination Box: constructed of .06-inch gauge strapped aluminum. Termination from panels is made on barrier strips, and standard 24, and/or 50 Amphenol connectors.

2.2.3 Cabling: due to differences in systems, cabling requirements will be referred to on riser diagram. All cable must be run through conduit. See **Appendix A**.

Pairs	Gauge	Type	Category	Manufacturer
2	18 AWG	Stranded copper. Plenum jacket.	Comflex CMP/CL3P c(UL) CMP	COMTRAN
4	18 AWG	Stranded copper. Plenum jacket.	Comflex CMP/CL3P c(UL) CMP	COMTRAN
6	18 AWG	Stranded copper. Plenum jacket.	Comflex CMP/CL3P c(UL) CMP	COMTRAN
24	22 AWG	Solid copper. Plenum jacket.	CAT 3 MPP/CMP C(UL)	COMTRAN
1	18 AWG	Stranded copper Plenum jacket.	M16878/4BHB-X	WEICO

**2.2.4** Monitor lights: monitor panels and master panel lamps shall be 28V/.04 amps, 1500 average end foot candles. Red lens caps are made of polycarbonate and have a diameter of .70 by .48 inches high.

**2.2.5** Switches: all switch panels use switches with silver contacts and internal wiping action. Illumination will be provided by lamps having 28V/.22 mA and have a mean illumination of .30 MSCP or .31 lumens. Rocker switches will have an illumination area of .50 X .622 on two sides. All lamps shall be interchangeable from front.

**2.2.6** Panels: Overlays are 10-mil nitrogen hardened polycarbonate with room identification slot. Overlay color is Pantone gray PMS 431.420. They are laminated on anodized aluminum 2024 .060 thick. Dimensions are 4 9/16 X 4 9/16 inches. See **Appendix C**.

**2.2.7** Mounting Bezels: provided for 5500 panels. They are glass filled injection molded polypropylene. See table below for dimensions.

Panel Type	Panel Dimension	Bezel Dimensions
5500	4 9/16" X 4 9/16"	4 7/8" X 4 7/8"

### **3. INSTALLATION**



See Appendix A for sample riser diagram. **This is a sample only; do not use to install actual system. Refer to your wiring instructions for actual hookup.**



A qualified electrical technician should install system.

### **4. TESTING**

**4.1** Make sure all system cables are properly secured.



Due to the custom nature of each system typographical errors, even though a rarity, do occur. It is imperative to test all the features in the system and report any discrepancies to Varitronics at 1-800-345-1244.

**4.2** Test one panel at a time. Activate each switch.. Make sure the correct monitor lights are activated for each switch in the system. See the riser diagram in **Appendix A** for correct layout.

**4.3** Turn *off* each switch or use reset button to deactivate switch on corded squeeze ball. Make sure the correct monitor lights are turned *off* for each switch in the system. See the riser diagram in **Appendix A** for correct layout.

## 5. SYSTEM OPERATION

5.1 Call For Emergency switch panels cause the lamp on the panel from which the call was placed, the corridor monitor panel, and the numbered monitor light on the master panel to flash. The tone alert on the master panel and the corresponding corridor monitor (if supplied with tone alert) will sound repeatedly at a rate equal to the lamp flash rate to alert personnel. The system will continue in this state until the switch is turned *off* at the point of activation.

## 6. ADJUSTMENTS

6.1 No adjustments are needed to the Varitronics' Emergency Call system once the system has been properly installed. If problems occur, refer to the troubleshooting section of this manual.

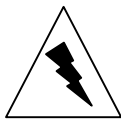
## 7. MAINTENANCE

7.1 Test all switch panels daily. Bulbs and external fuses should be replaced on an 'as needed' basis. Refer to the trouble shooting section for the proper replacement method for bulbs and external fuses.

7.2 It is recommended that the external surface of system panels be cleaned with a damp cloth only. Do not use harsh or abrasive chemicals to clean system panels. Do not use excessive water or liquids to clean panels.

8. **TROUBLESHOOTING:** If the Varitronics' Emergency Call System does not function properly, check the following points before calling for factory assistance.

8.1 If the system is completely nonfunctioning, replace any blown fuses as described below.

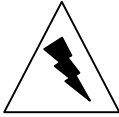


**WARNING:** The user shall only change the two external fuses.  
A qualified technician should change any internal fuses.

8.2.1 First turn the power switch off and disconnect the main AC plug on the power supply from the wall socket. See **Precautions** at the beginning of this manual.

8.2.2 Turn the center part of the fuse holder clockwise until the holder comes out. If fuse is blown, replace fuse with a new of the same type and value. Push in and turn the fuse holder to tighten.

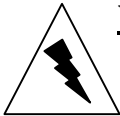
8.2.3 Use the following table for proper fuse ratings.



**WARNING: Do not exceed the value of the fuse you are replacing. Severe damage and to the equipment can occur. Possible fire hazard.**

Location	Fuse	Type (100~120 Volt)
Power Supply Chassis (external)	Primary	3/4 ASB
Power Supply Chassis (external)	Secondary	3 A
Power Supply Chassis (internal)	Secondary	3 ASB

8.3 If a bulb does not light, check to make sure that the associated switch is activated. If the lamp still does not light, replace the bulb with the same kind as instructed below.



**WARNING: Do not use a higher wattage bulb. Only use the supplied bulb extractor to remove and replace bulbs. Do not use forceps or any other metal tipped device to extract bulbs. Severe damage to the equipment can occur.**

8.3.1 First turn the power supply off.

8.3.2 Remove the plastic lens cap from the switch or monitor light by grabbing it between your thumb and fore finger and firmly pull out.

8.3.3 Each system is supplied with a bulb extractor. Place the rubber tipped end of the extractor firmly over the bulb. Squeeze and pull forward to remove.

8.3.4 Place a new bulb of the same size and wattage into the extractor's rubber tip. Align the bulb, and then firmly push the bulb into its socket. Do not force bulb into its socket. Realign if necessary.

8.4.4 Turn the power supply on and test the bulb.

8.4.5 If bulb still fails to light, call factory.

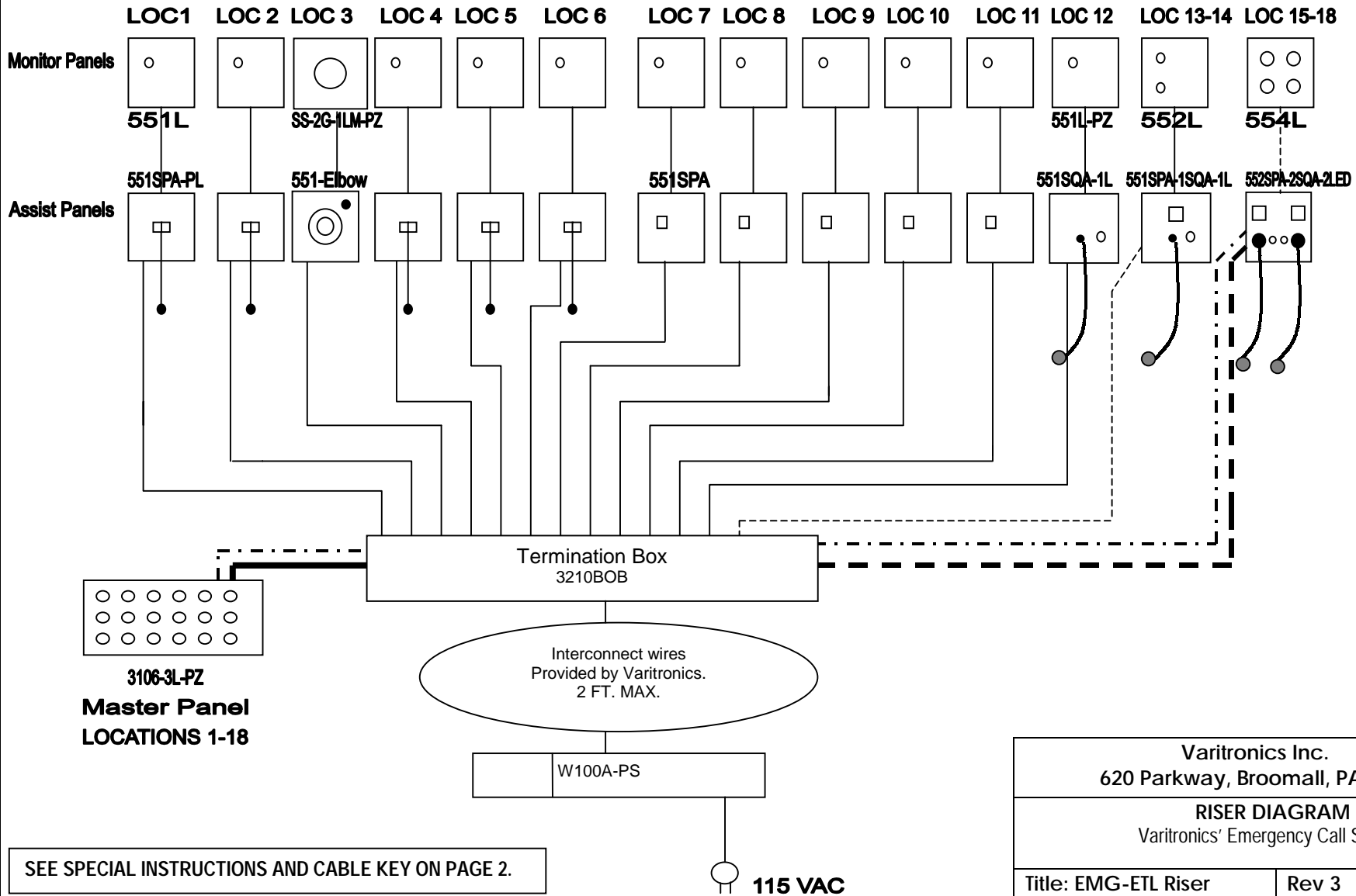
Bulb	Mfg.	Device
28ESB	JKL	Monitor Light
SM2840N	JKL	Rocker Switch
85	JKL	Momentary Switch
657	JKL	Large Dome



## **APPENDIX A**

**SAMPLE ONLY: Do Not Use For Actual Hookup.**

**VARITRONICS' CALL SYSTEM**



SEE SPECIAL INSTRUCTIONS AND CABLE KEY ON PAGE 2.

Varitronics Inc. 620 Parkway, Broomall, PA 19008		
RISER DIAGRAM Varitronics' Emergency Call System		
Title: EMG-ETL Riser	Rev 3	
Date: 06-15-2005	MM	Sheet 1 of 2

## RISER DIAGRAM SPECIAL INSTRUCTIONS

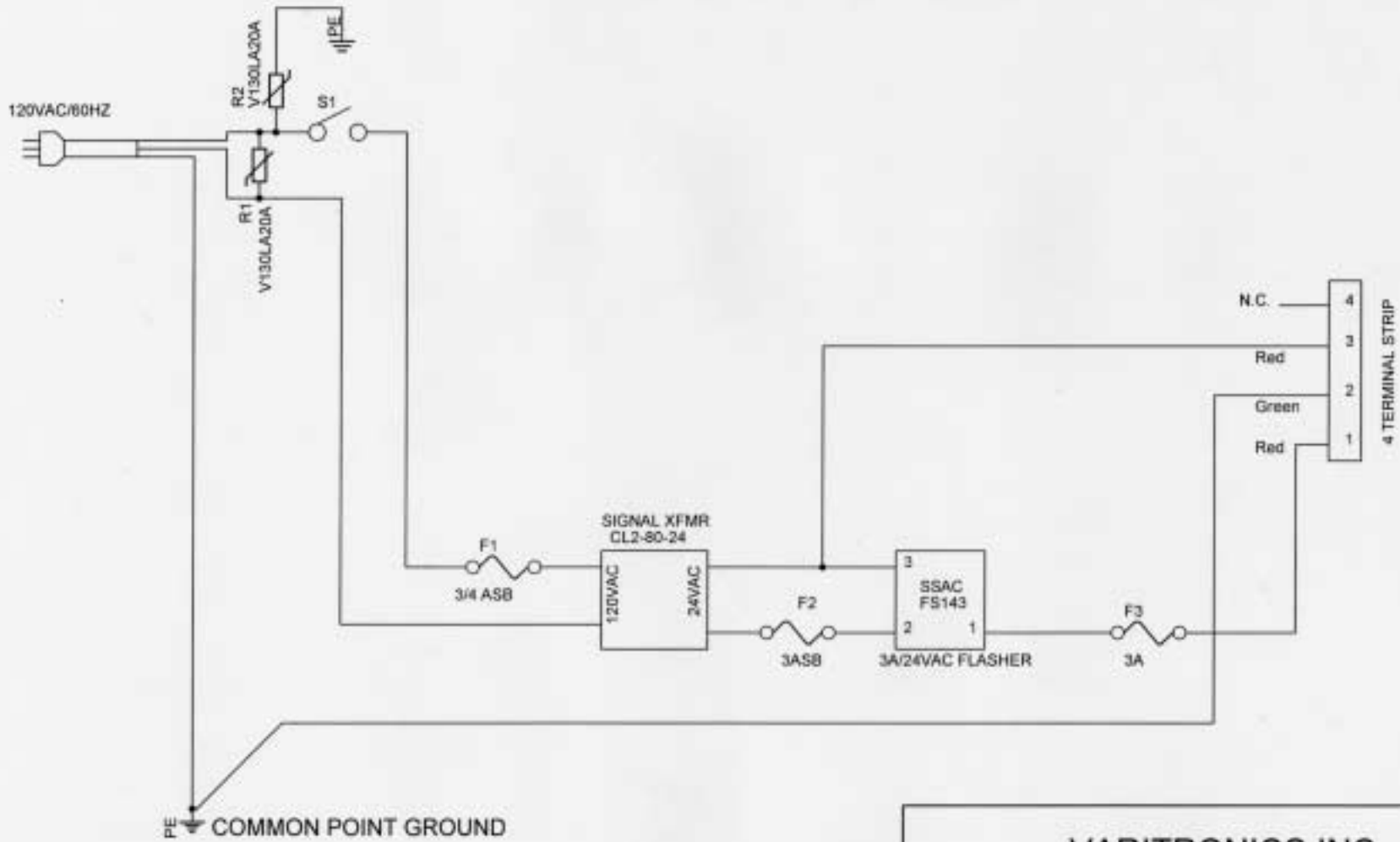
1. ALL **#55-SERIES** PANELS MOUNT ON STANDARD DOUBLE GANG BACKBOXES & ARE SUPPLIED BY OTHERS.
2. ALL **#31, #32, & #33-SERIES** PANELS MOUNT ON PROPRIETARY BACK BOXES SUPPLIED BY VARITRONICS.
3. ALL CABLE MUST BE RUN THROUGH CONDUIT.
4. ALL 12 PAIR & 25 PAIR 24 GAUGE CABLE WILL REQUIRE A MINIMUM OF 1½-INCH CONDUIT.
5. **PLEASE WALL MOUNT** ONE FOUR BY FOUR FOOT 5/8 INCH PLYWOOD FOR MOUNTING OF BREAKOUT BOX AND POWER SUPPLY.
6. LABEL WIRE THAT RUNS FROM OUTSIDE PANEL TO TERMINATION BOX.
7. 12 PAIR & 25 PAIR CABLES REQUIRE RIGHT ANGLE MALE AMP CONNECTORS ON BOTH ENDS. CABLES WITH CONNECTORS PRE-ATTACHED CAN BE PURCHASED FROM TELECABLE (1 800 541 4550). ASK FOR PENNEY.

CABLE KEY	
* 4 COND 18 AWG	—————
* 6 COND 18 AWG	-----
8 COND 22 AWG	— — — —
1 COND 18 AWG GREEN	— · · · · —   — — —
12 PAIR 24 AWG	—————

\*Green 18 gauge conductor in cable used for ground.

## **APPENDIX B**

### POWER SUPPLY FRONT END



<b>VARITRONICS INC.</b>	
TITLE: 1003-PS_083002	
Document Number: 00001	REV: 1
Date: 10/25/2002 11:43:14a	Sheet: 1/1

## **APPENDIX C**

## **PANEL TYPES**

The following panels have different configurations of these same devices:

BZ= Star Micronics Buzzer: CMB-24  
L= Chicago Miniature Lamp: 3040  
LED= Light Emitting Diode  
PZ= RadioShack Piezo: 273-060  
TB= Switchcraft Momentary Switch: 913  
SM= ITW Momentary Switch: 06-165  
SP = NKK Rocker Switch: MLW 3012  
SPA= NKK Rocker Switch: MLW 3013  
QJ= Crest ¼" Phone Jack N-112A

PL= Pull cord

x = number of designated devices

**Note:** Designations in parenthesis are optional devices.

- 1) 33xSP-(TB-BZ) Series Panels: x =1 to 5 SP max.
- 2) 33xSPA-(TB-BZ) Series Panels: x = 1 to 5 SPA max.
- 3) 55xSP-(TB-BZ-PZ-PL) Series Panels: x = 1 to 2 SP max.
- 4) 55xSPA-(TB-BZ-PZ) Series Panels: x = 1 to 2 SPA max.
- 5) 55xSPA-PL Series Panels: x = 1 to 2 SPA max.
- 6) 55xSPA-xQJ-xL(LED) Series Panels: x = 1 to 2 SPA/ QJ/ L/ LED max.
- 7) 33xSM-(TB-BZ) Series Panels: x = 1 to 6 SM max.
- 8) 55xSM-(TB-BZ) Series Panels: x = 1 to 2 SM max.
- 9) 33xL-(BZ-PZ) Series Panels: x = 1 to 6 L max.
- 10) 330xL-(BZ-PZ) Series Panels: x = 7 to 12 L max.
- 11) 55xL-(BZ-PZ) Series Panels: x = 1 to 4 L max.
- 12) 4G-xL-(BZ-PZ) Series Panels: x= 8 to 16 L max.
- 13) 3100-xL-(BZ-PZ) Series Panels: x = 10 to 30 L max.
- 14) 3206-xL-(BZ-PZ) Series Panels: x= 18 to 42 L max.

## **APPENDIX D**



## Product Photos



551SPA-PL



Rearview



551QJ-1L



Rearview



551SPA



Rearview



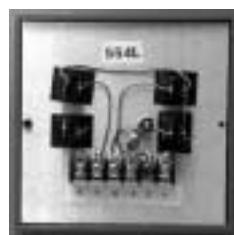
52SPA-2QJ-2LED



Rearview



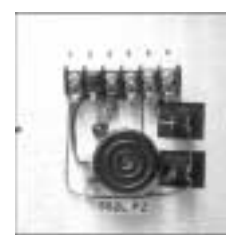
554L



Rearview

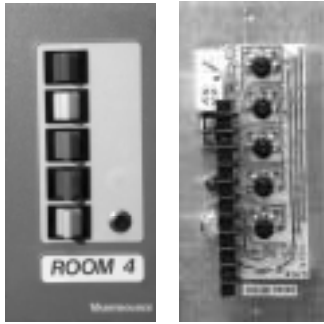


552L-PZ

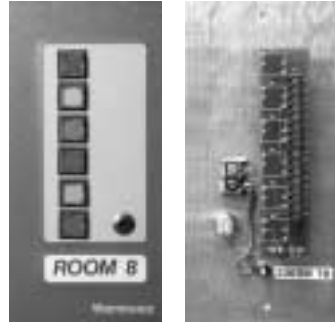


Rearview

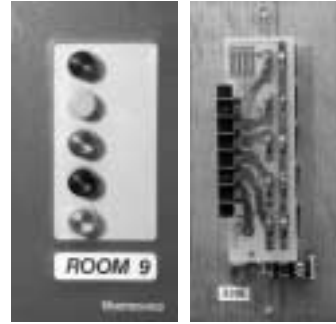
## Product Photos



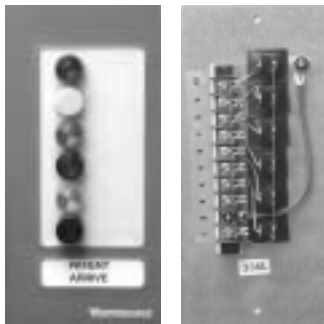
335SP-TB-BZ Rearview



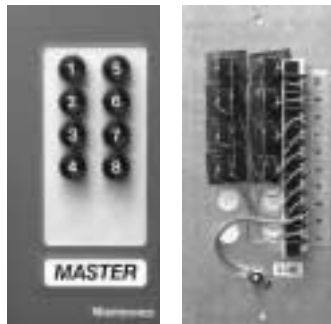
336SM-TB-BZ Rearview



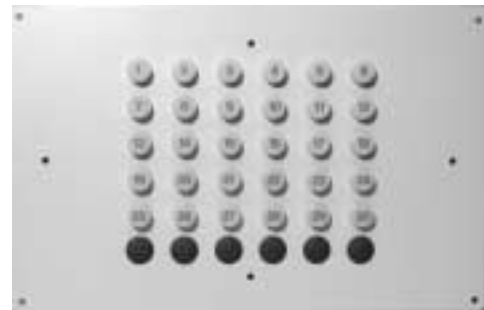
335L Rearview



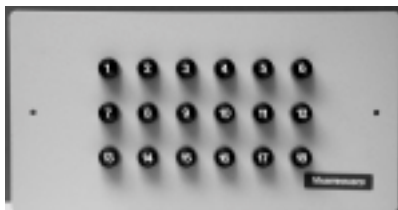
336L Rearview



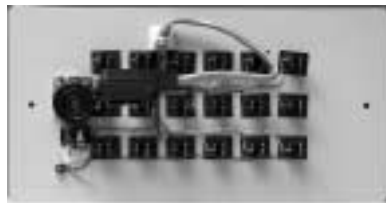
338L Rearview



3206L-5L-PZ



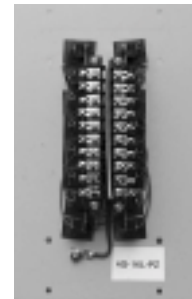
3106-3L-PZ



Rearview



4G-16L-PZ



Rearview

## Product Photos



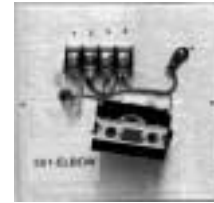
SS-2G-1LM-PZ



Rearview



551-Elbow



Rearview



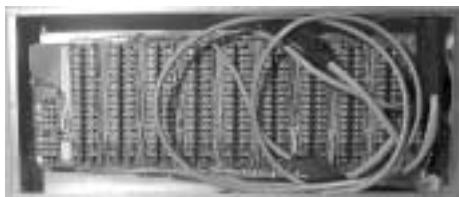
Lock Button Cordset  
Accessory



Unicall Cordset  
Accessory



Presscall Cordset  
Accessory



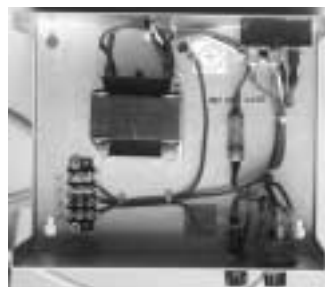
Termination Box



W100A-PS Internal



W100A-PS External



1003-PS  
Internal View



1003-PS  
External View

## **APPENDIX E**

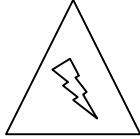
# W100A Product Labels

## Exterior Labels

### Power Supply Label

(printed on yellow background)

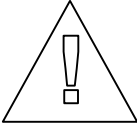
(printed on red background)



**CAUTION:**  
Electrical shock hazard.  
Disconnect all power before servicing by a qualified technician.  
No user serviceable parts inside.



**WARNING:**  
For continued protection against fire hazard, replace with same type and rating of fuse only.



**ALERT:**  
Wiring diagram and individual load information provided in manual.

**MODEL: 1003-PS/083002**  
**For use in a centralized system.**

Full Load: 72 Watts  
115 VAC 60 Hz Only

Varitronics Inc.  
620 Parkway  
Broomall, PA 19008  
Tele: 610-356-3995

Serial No. \_\_\_\_\_  
Date Tested \_\_\_\_\_  
By \_\_\_\_\_  
Lot No. \_\_\_\_\_

### Master Nurse Station Label

For use in a centralized system.

### Product Label

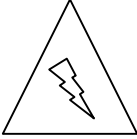
Varitronics Inc.  
Model No. \_\_\_\_\_  
Mfg. Date:    /    /

### Fuse Label

F1	F2	F3
3/4 ASB	3 ASB	3 A

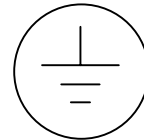
### Interior Labels

(Printed on yellow background)



**CAUTION**  
Check for proper grounding to insure safe operation of equipment.

**Full Load: 72 Watts**  
**115 VAC 60 HZ Only**



**Panel Labels: Applicable to all 55 and 33 series panels. (See appendix C)**

**PULL FOR EMERGENCY**

**PUSH FOR EMERGENCY**

**PULL FOR ASSISTANCE**

**PUSH FOR ASSISTANCE**

**SQUEEZE FOR ASSISTANCE**

**SQUEEZE FOR EMERGENCY**

**ASSIST**

(All panel labels are printed on a white background with red type.)