MV-2700 Installation Manual

Document #2900XXXX R001, 21 February 2002

SECUTRON MV-2700
Installation Instructions

OVERVIEW

The SECUTRON MV-2700 system shall include one Master Panel and one or more Distributed Panels. The system shall be microprocessor based, and shall be compatible for use with contact closures from the Fire Alarm Control Panel, (FACP). The system shall have a high-speed communication bus and have the capacity for 6 channels of audio and data on a single pair of wires. The field wiring for the communication bus may be configured for either Style 4 or Style 7 supervision. The system shall have the capacity for Fire Fighters Phone and Area-of-Refuge communication. The system shall have a minimum capacity of 2048 monitor and control points.

The Master Panel shall contain an integral microphone, dual channel digital message repeater, (DMR) and digital tone generator, 120 VAC power supply, and battery charger. The system shall be modular in design, and shall be expandable such that additional system control points may be configured. The system shall include integral self-diagnostic routines that shall continually monitor system status, and shall indicate the precise type of trouble conditions should they occur in the system. A trouble condition within the system shall cause a trouble indication to be transmitted to the FACP.

Distributed panels shall provide a minimum of 4 Class "B" (Style Y) speaker circuits, expandable to eight total. Alternately, panel may be configured for 4 Class "A" (Style Z) speaker circuits. Panel will provide up to 6 simultaneous audio channels, up to 16 Fire Phone circuits. Amplifiers will contain their own power supplies, battery chargers and provide auxiliary power for other components. Speaker circuits shall be supervised for short and open circuit conditions, and shall be able to withstand transient or continuous short-circuit conditions without damage to the system.

System may be configured for General Alarm All Call operation, Alarm by Zone or Floor Above / Floor Below as required. Contact closures shall allow immediate broadcast of an alarm signal and evacuation message to the appropriate area. Non-Alarm areas may receive alert tones and messages as required or activated by the FACP.

The alarm signal/evacuation message shall be broadcast until the FACP is reset, or until emergency personnel interrupt the broadcast with a manual page.

To prevent unauthorized tampering, the voice evacuation system shall disable the microphone if the microphone is keyed continuously for 3 minutes or more. Systems that do not have this feature shall not be acceptable.

INSTALLATION

Installer must insure that all wiring and devices installed in system meet the following standards:

National Electrical Code (NFPA 70)
NFPA Standard 72
Life Safety Code (NFPA 101)

Install equipment in a clean, dry environment, avoid installation where equipment could be subjected to vibration. Make sure all Non-Power Limited cabling is separated from Power Limited cabling.

WIRING (Refer to wiring and terminal designation diagrams)

MASTER PANEL MV-2700M

1. Connect Netcom Bus between all panels. Maximum distance between panels is 4000' or 120 Ohms max. impedance.

2. Connect AC power to master panel and then connect batteries.

DISTRIBUTED PANELS MV-2700D
(Maximum number of Distributed Panels is 250 on a system)

1. Attach a Set EOLR for the speaker circuits to TB9 - 1 & 2. This value must be placed at the end of the speaker line as well.

2. Connect all speaker loops to TB1 - TB4. Fire Phone circuit connects to TB5.

3. Connect 120 VAC, 60 Hz, power to the black and white pigtail leads from transformer primary. Secure ground lead to grounding stud in cabinet.

4. Once power is on to the unit, connect battery wiring harness, Red (+) / Black (-). Observe polarity. Minimum battery size is 24V 7AHr.(use 2 12V batteries connected in series, see typical installation diagram).
NOTE: Wiring for batteries and 120 VAC is Non Power-Limited. Care must be taken to insure that all Power-Limited wiring maintain a minimum spacing of ¼" from any Non Power-Limited wiring. If batteries must be located in separate enclosure, provide separate conduit run for battery wiring only.

5. Once all power and circuits are connected, initiate a 'Global Reset' this is done by holding the "Fault Silence' switch in the up position while the 'System Reset' switch is clicked twice. This will rerun the 'Power On Diagnostics' program. The Green LED will remain on to indicate that the MV-2700 system is fully operational and all circuits are nominal.

Operation

Alarm When an input on the 'IOI' FACP Interface card is pulled down to circuit common (0VDC), or a signal is received from the FACP over the serial interface the Evacuation Signal and Message will be broadcast into the selected Evacuation Zone. If 'Floor-Above/Floor-Below' has been enabled, the Evacuation Zone for the floor above and the floor below the selected zone(s) will also be activated.

The floor of incidence is displayed by a slow (2 second) flashing of the LED associated with the Evacuation Zone on the Paging Control panel. Non-fire floors are indicated by a faster flash on the LEDs on the Paging Control panel if 'Floor-Above/Floor-Below' has been enabled.

If 'Non-Fire Floor Alert' has been enabled, all floors not broadcasting the Evacuation Signal and Message will begin broadcasting the Alert Signal and Message.

If 'Non-Fire Floor Alert' is not enabled, the terminal strip labeled 'TB2' on the 'IOI' FACP interface card(s) becomes an Alert Signal and Message activation input.

In addition, if the paging microphone is used and no Evacuation/Paging Zones have been selected, paging will automatically be routed to those zones that are in alarm. The Evacuation Signal will resume when paging is ended as will the Evacuation Message if continuous repeats have been selected.

If an Evacuation/Paging Zone is selected manually, paging will take place in the selected zone, or zones, only.

Within a single Distributed Panel, and due to the nature of Dual Channel systems using one amplifier per channel, paging into an Evacuation/Paging Zone broadcasting the Alert Signal and Message will silence the other zones also broadcasting the Alert Signal and Message if there is also a zone broadcasting the Alarm Signal and Message. In other words, within a single Distributed panel only two audible signals can be broadcast at one time, either Alarm and Alert Signals, Alarm Signal and Paging or Alert Signal and Paging.

Paging When an Evacuation/Paging Zone is selected by the operator using the associated switches on the Paging Control panel, the LED(s) will indicate which zone(s) have been selected. The All-Call switch on the MV-2700 Control panel will select all zones for paging when clicked once. A second click of the All-Call switch will deselect all zones.

The Zone Selection switches indicate which zones have been selected for paging. Broadcast of live voice messages does not take place until the Push-to-Talk switch on the microphone is pressed.

Fire Phone When a Fire Phone Handset is plugged into a Fire Phone Jack, the LED on the Zone Control panel associated with that Fire Phone zone will start flashing. A ringing signal will be heard to indicate that a handset has been jacked in. The ringing signal will cease when a Fire Phone Zone is selected.

Normally, only one Fire Phone Zone is selected at a time. Selecting another zone where a handset is jacked in will deselect the other zone(s). Where more than one zone is to be selected at a time, Party Line mode must be selected.

MV-2700 Control Panel Refer to Master Panel Controls and Display diagram.

The Control Panel status indicators are 'Alarm', 'Fault' and 'Power'.

During 'Power On Diagnostics', the system is scanned for active Distributed Panels and peripherals. The Message Display indicates how many Distributed Panels have been found and all event buffers are cleared.

The 'Power' indicator is on as long as there is power available to the MV-2700 Master Panel.

The 'Alarm' indicator will be on whenver an Evacuation Signal or Alert Signal is active.

The 'Fault' indicator will be on (blinking) whenver a fault has occurred in the MV-2700 system. The Message display will indicate a code for the fault that has occurred. In addition, the audible fault signal will be active (beep tone)as long as the fault persists. The 'Fault Silence' switch can be used to silence the audible fault indication, but the visual indicator can only be cleared by an MV-2700 system Reset.

The 'All-Call' switch will select all available Evacuation/Paging zones on the Paging/Zone Control panel when clicked. Individual paging zones may be deselected using the Paging/Zone Control switches, but a second click of the 'All-Call' switch will deselect the remainder.

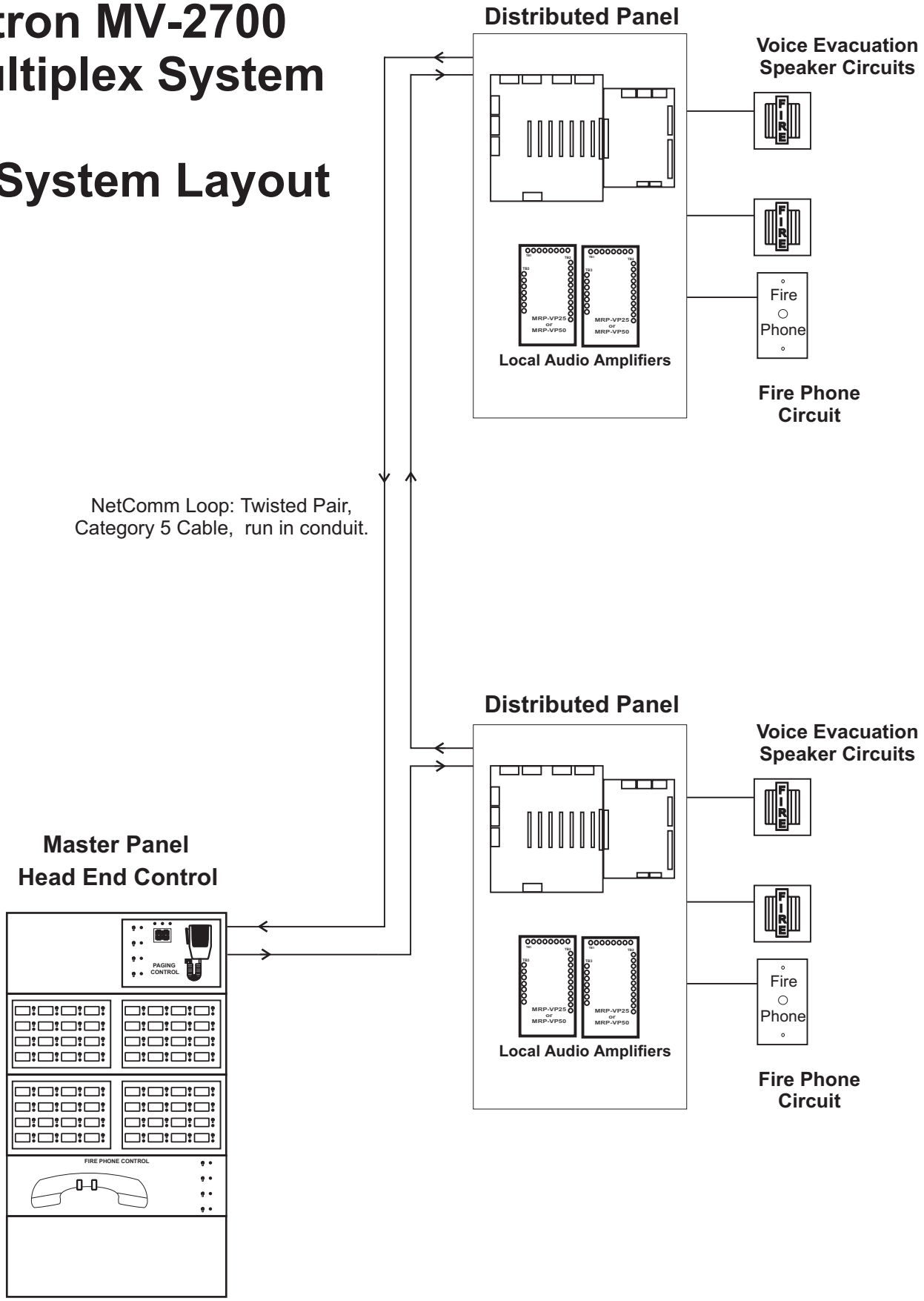
The 'System Reset' switch will clear the Master Panel back to it's power on condition but will not cause the system to rerun the 'Power On Diagnostics' program (see 'Global Reset' below). After the 'System Reset' has run its course any Evacuation or Alert Signal that has been input will be re-processed.

The 'System Reset' switch must be clicked twice within a two second interval to take effect.

A 'Global Reset' can be initiated by holding the "Fault Silence' switch in the up position while the 'System Reset' switch is clicked twice. This will rerun the 'Power On Diagnostics' program.

Secutron MV-2700
True Multiplex System

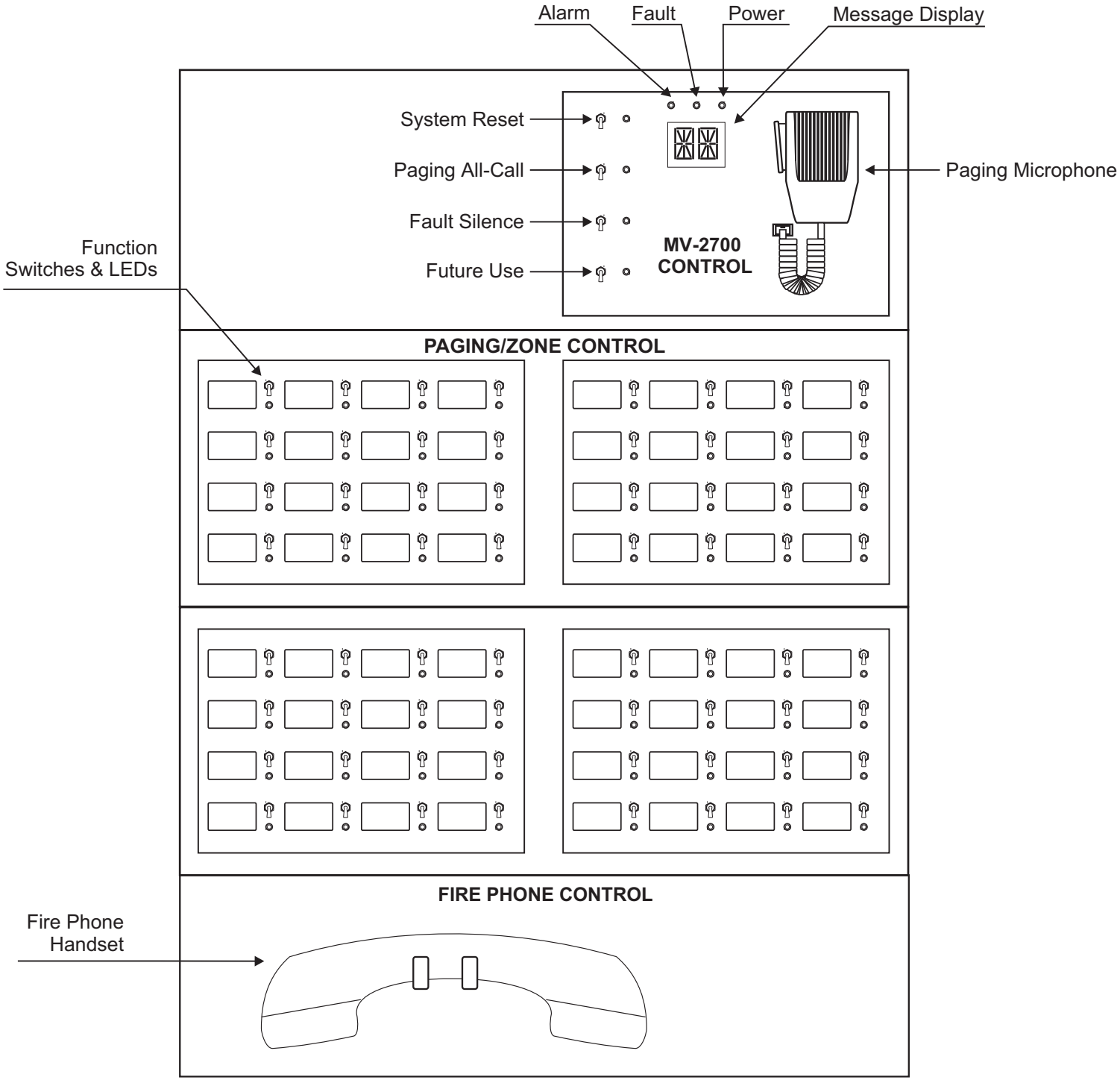
Typical System Layout



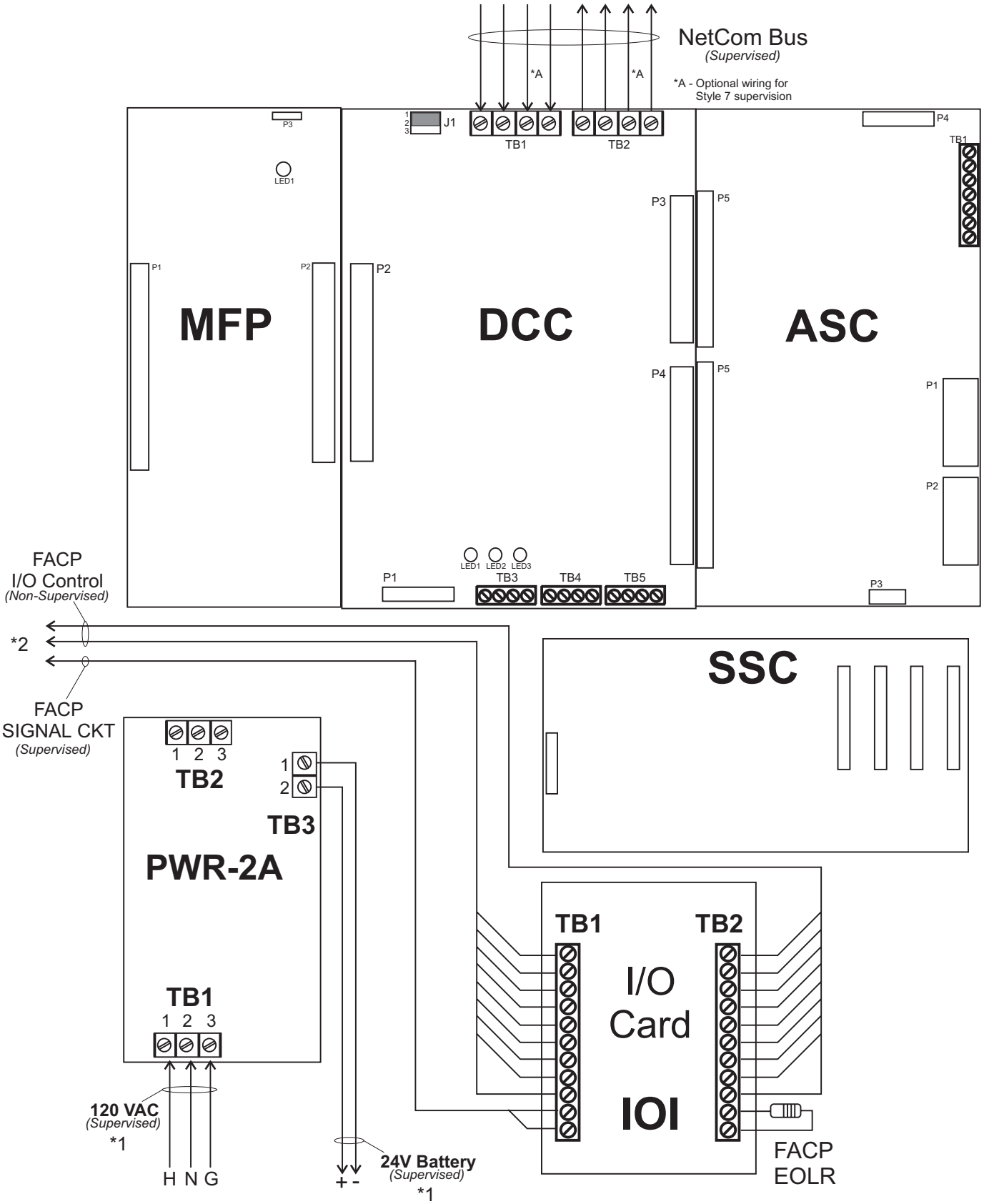
SECUTRON

70 Esna Park Dr.
Unit 14
Markham, Ontariao, Canada
L3R 6E7

Master Panel
Controls and Displays



Master Panel Wiring



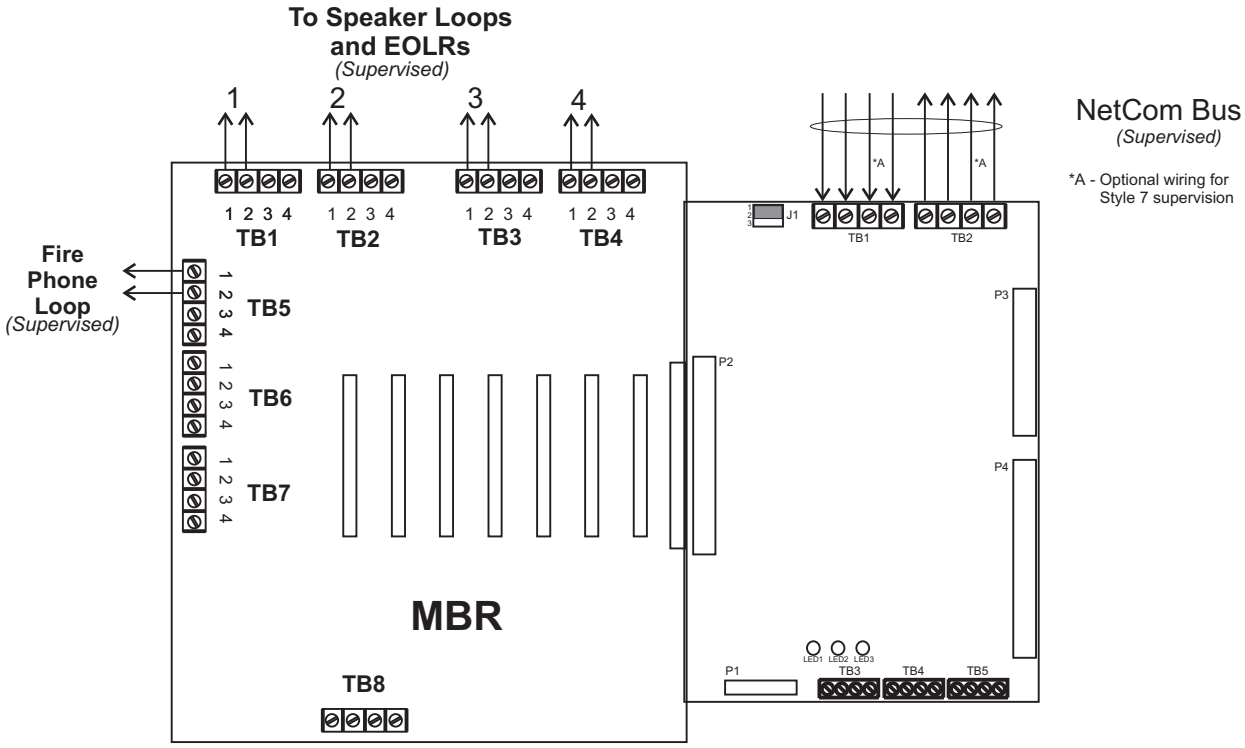
All wiring with exception of 120 VAC and Battery Connection is Power-Limited.

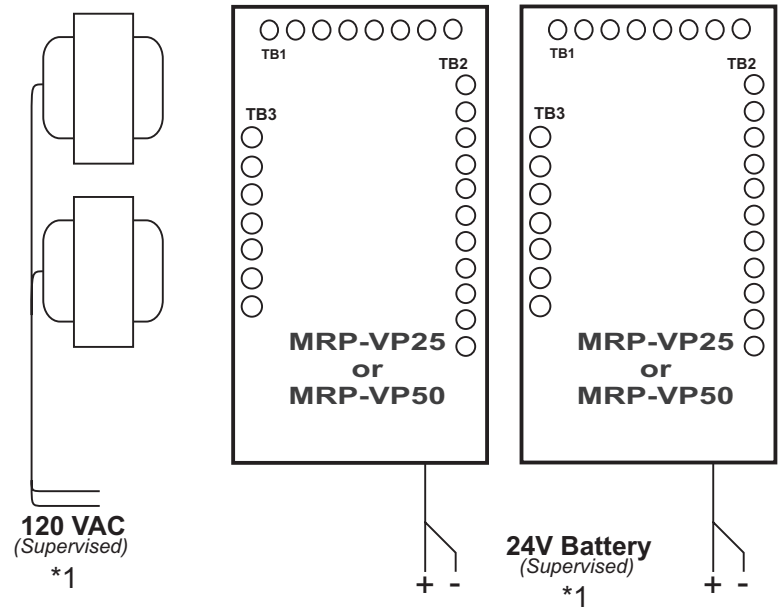
Route AC power and Battery wires to bottom-left or lower-left side K.O.

*1 All Power Limited wiring must maintain a min. 1/4“ separation from Non Power Limited wiring. *(This requirement may be waived if Type FPL, FPLR or FPLP wire is used for Power Limited circuits)*

*2 Wiring from FACP must be run in conduit. Panels must be within 20’ and in the same room.

Distributed Panel Wiring





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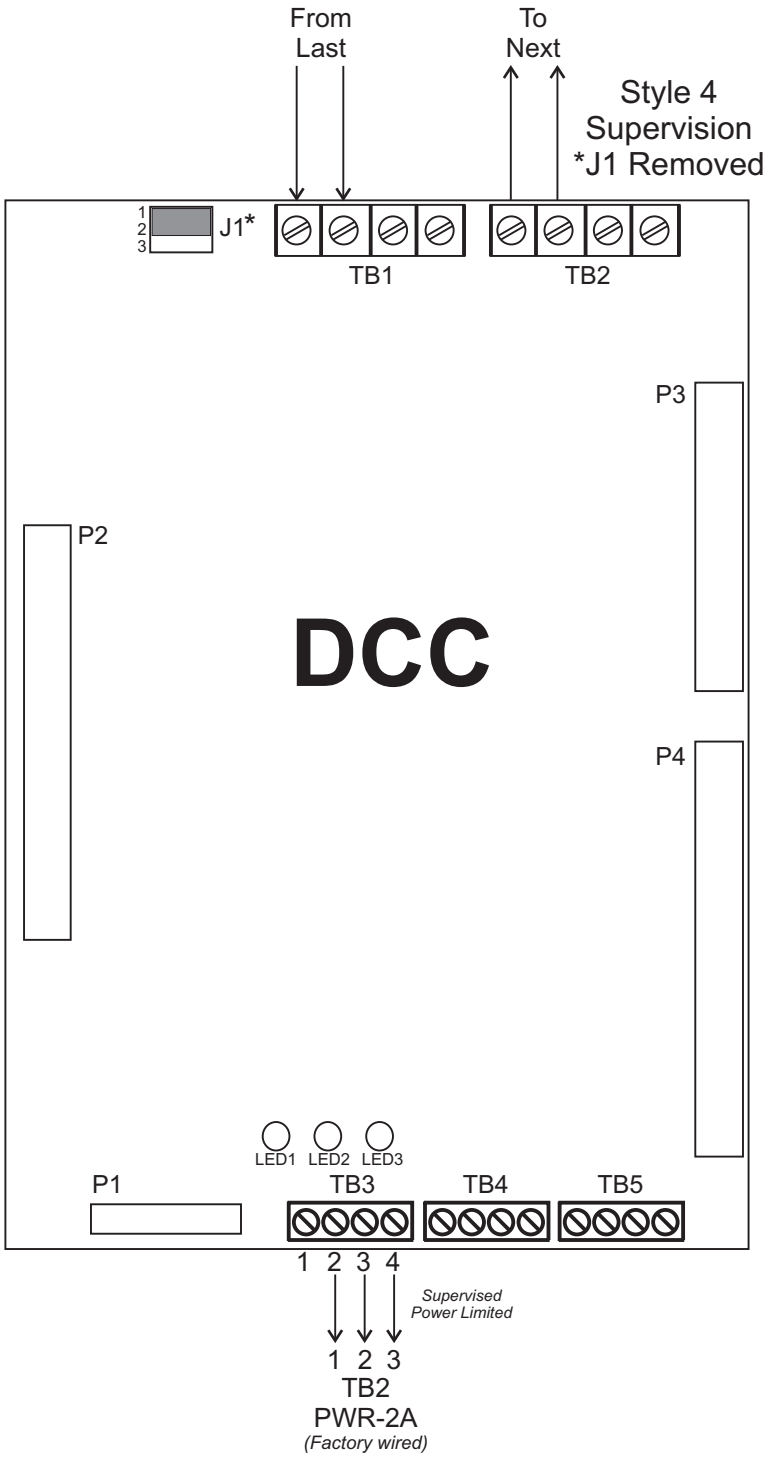
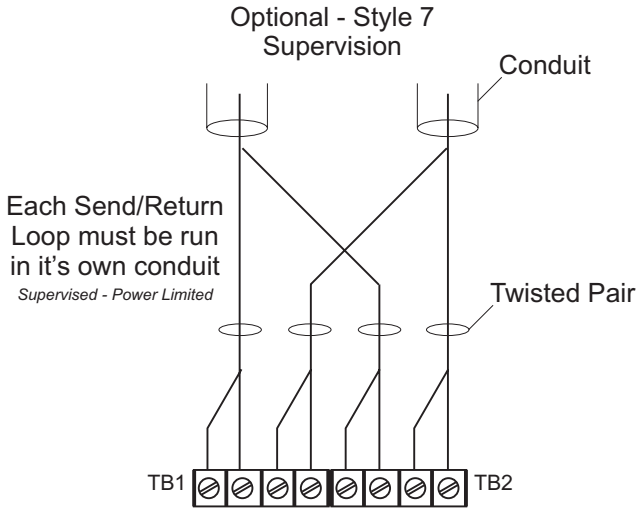
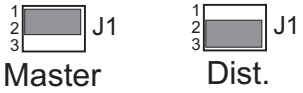
(This requirement may be waived if Type FPL, FPLR or FPLP wire is used for Power Limited circuits)

DCC
Connection Detail
Terminal Designation





*J1 - Pos 1-2 for Master Panel
Pos 2-3 for Dist. Panel



NetCom Bus - #24 AWG twisted pair, Low Capacitance (Category 5 cable).

TB1

Primary data loop
1 - Rx - (From last/previous DCC)
2 - Rx +
Secondary data loop
3 - Rx - (From last/previous DCC)
4 - Rx +

TB2

Primary data loop
1 - Tx - (To first/next DCC)
2 - Tx +
Secondary data loop
3 - Tx - (To first/next DCC)
4 - Tx +

TB3

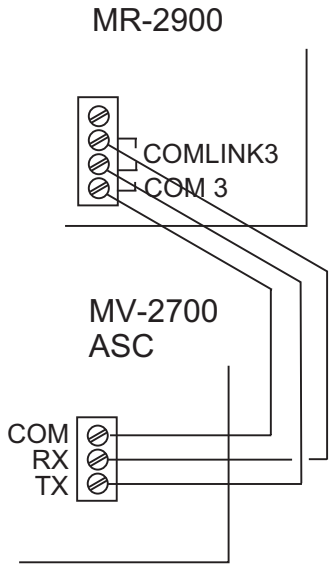
1 - Earth (Chassis)
2 - Circuit NEG
3 - + 24 VDC @
160 mA (Remote)
220 mA (Master)
4 - Fault (Pull Down 0V)

TB4 Not Connected
TB5 Not Connected

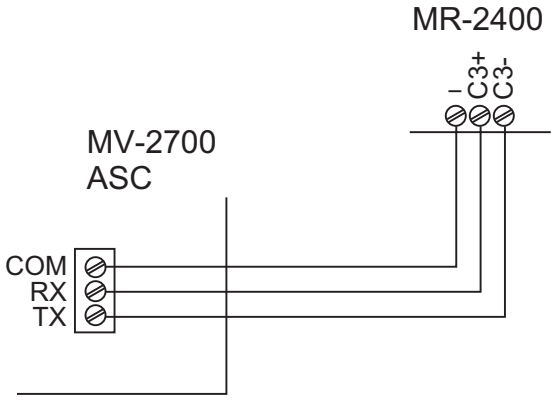
Dist. Panel

DCC _ _ _ _ MRP-VP25/50
TB3 TB2
2----------1
3----------10
(Factory wired)

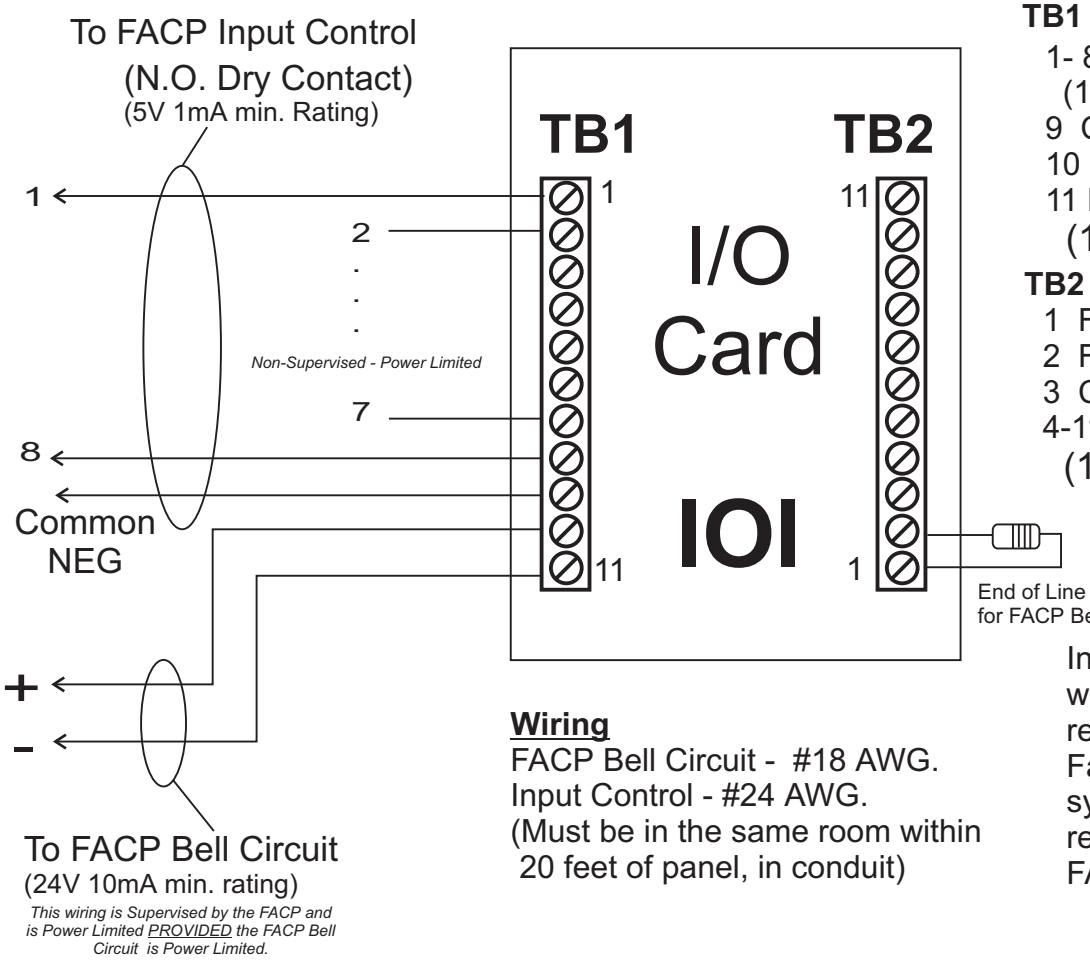
MR-2900 to MV-2700
Serial Port Connection Detail



MR-2400 to MV-2700
Serial Port Connection Detail



IOI / PWR-2A
Connection Detail
Terminal Designation



IOI

TB1

1- 8 Input Control
(1mA 5VDC)
9 Circuit Common (NEG)
10 FACP Bell Circuit + (Alarm
11 FACP Bell Circuit - Polarity)
(10mA 24VDC)

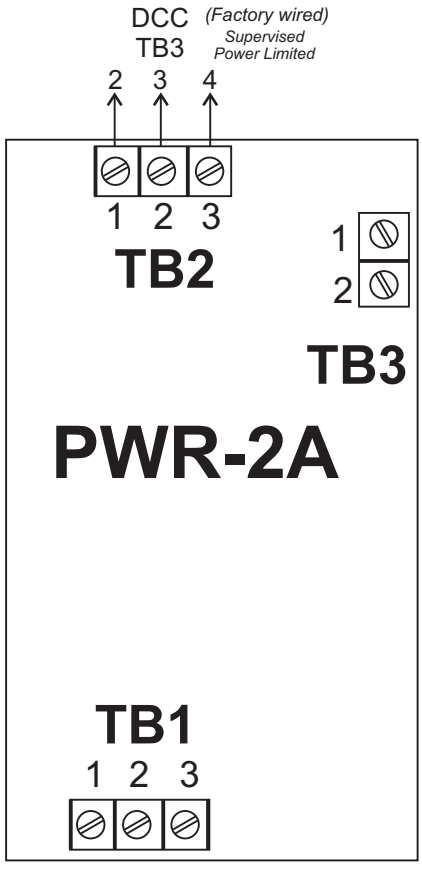
TB2

1 FACP EOLR
2 FACP EOLR
3 Circuit Common (NEG)
4-11 Input Control
(1mA 5VDC)

Wiring

FACP Bell Circuit - #18 AWG.
Input Control - #24 AWG.
(Must be in the same room within 20 feet of panel, in conduit)

In normal operation, FACP will supervise system by reading its EOLR. Under any Fault condition in the MV-2700 system a contact will open resulting in a Fault on the FACP bell circuit.



PWR-2A

TB1

1 Hot
2 Neutral (120 VAC @ 0.55A)
3 Earth (Chassis)

TB2

1 Circuit Neg
2 +24 VDC unregulated @ 1A max Standby
2A max Alarm
3 Fault (OC, 0VDC @ 10mA)

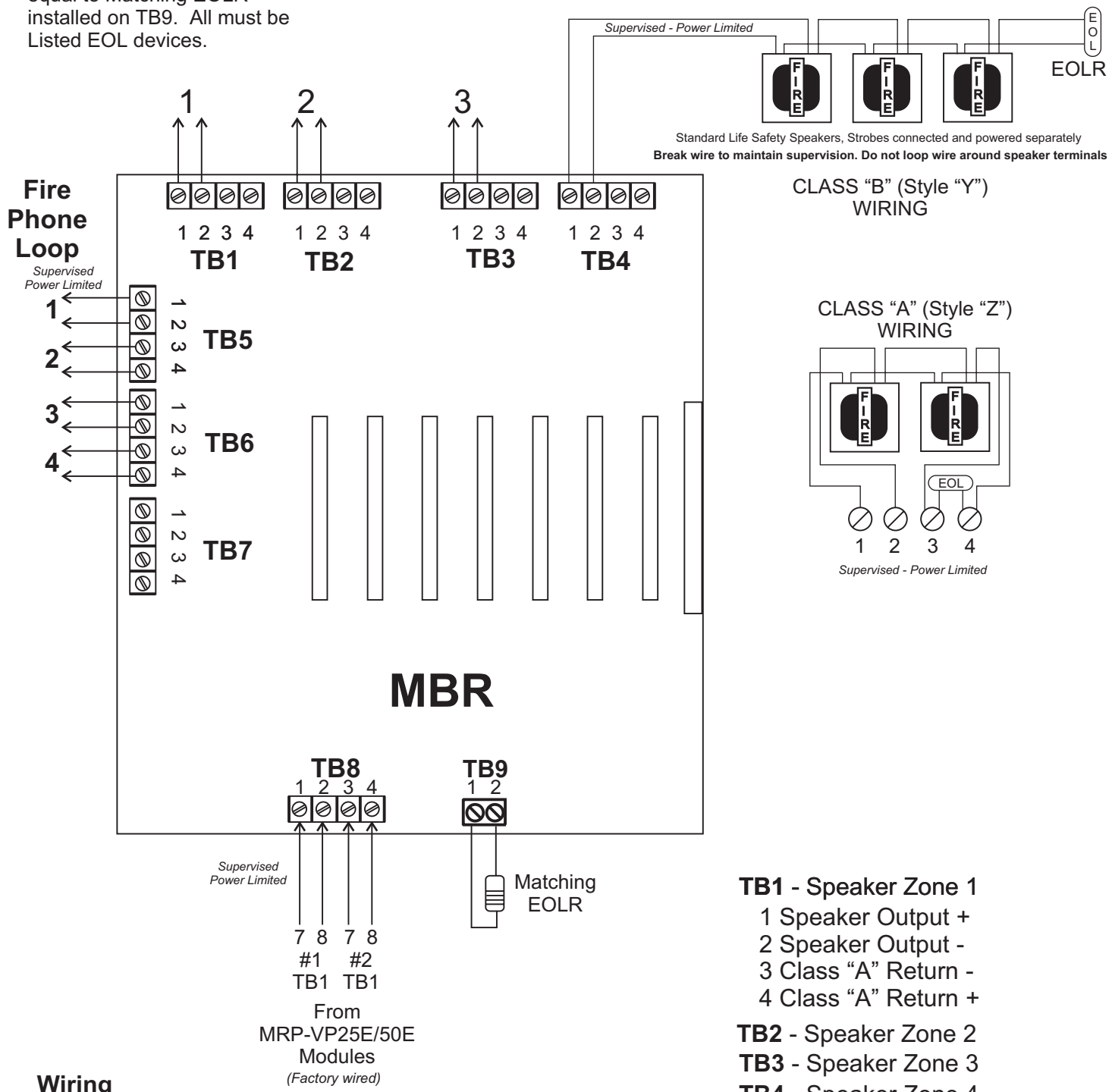
TB3

1 Battery -
2 Battery + (24 VDC)

MBR
Connection Detail
Terminal Designation

SPEAKER OUTPUT

25 or 50W max depending on amplifier used. Speaker line EOLR must be equal to Matching EOLR installed on TB9. All must be Listed EOL devices.



Wiring

Speaker Zones - #18 AWG min.

Fire Phone - #22 AWG min.
(Max. Line Res. = 50 Ohms)

Matching EOLR

Resistor value installed here sets the EOLR value for the speaker zones. Value must be between 1.8K and 100K Ohms, Min ½ Watt. Must be Listed EOL Devices.

TB1 - Speaker Zone 1
1 Speaker Output +
2 Speaker Output -
3 Class "A" Return -
4 Class "A" Return +

TB2 - Speaker Zone 2

TB3 - Speaker Zone 3

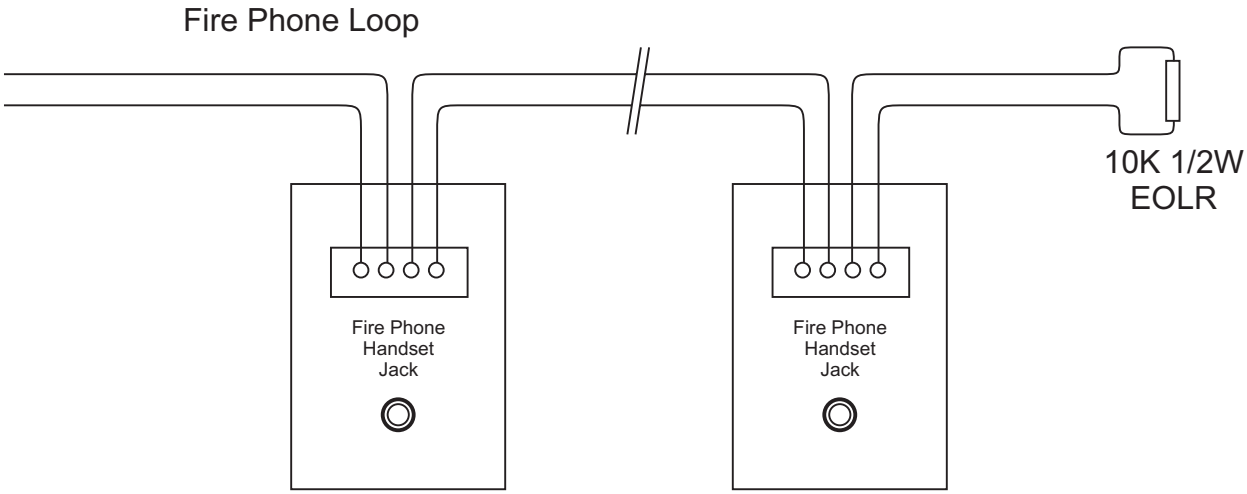
TB4 - Speaker Zone 4

TB5
1 Fire Phone Loop + (24VDC @
2 Fire Phone Loop - 50mA Max)

TB6 through 7 NC

TB8 - Amplifier Input
1
2 25/70 Vrms 50W max.
3
4 25/70 Vrms 50W max.

Fire Phone Loop - Connection Detail



* Maximum line resistance = 50 Ohms

MV-2700 Specifications

Communications Bus: The communications bus conforms to the RS-485 standard and requires the use of Category-5 cable for 1M Baud data rates. Wiring must be run in conduit in a daisy chain from the Master Panel to the first Dist. Panel, from each Dist. Panel to the next Dist. Panel and from the last Dist. Panel back to the Master Panel. When style seven wiring is used, a separate conduit for each bus must be used.

Voltage: 5V peak-to-peak max.
Current: 50mA max.
Impedance: 120 Ohms
(max. imp. between panels)
Frequency: 1.024MHz

Power Requirements: Power supplied to the DCC module is routed to any attached peripherals. These peripherals in turn determine whether the DCC is part of a Master Panel or a Dist. Panel.. Amplifier modules in Dist. Panel are powered separately.

Electrical Ratings

All Circuits @ 24VDC.
All ratings max Alarm condition.

Master Panel

DCC	83 mA
ASC	28 mA
MFP	42 mA
SSC	27 mA
SLC	6 mA
MMC	44 mA
IOI	31 mA

Distributed Panel

DCC	95 mA
MBR	141mA
AMI	151mA
FPI	13 mA

Battery Charging
Maximum charging current from MRP-VP25/50 is 800mA.
Maximum battery size is 17Ah.