TERMINALS

1 & 2 **16 VAC Class II** plug in transformer (20 VA maximum). Use #18AWG twisted pair and keep wire run as short as possible.

3 & 4 **Earth Ground** these terminals should be connected to a metallic cold water pipe or equivalent. Use minimum #16 AWG wire and approved ground clamps (not furnished). Keep ground wires as short as possible. This terminal is the circuit ground (common) and provides reference for ground fault detection.

5, 6 **Auxiliary Power** 12 V DC, terminal 5 is negative, terminal 6 is positive. Detection devices such as ultrasonic, passive infrared, photoelectric sound discriminator, etc. may be powered from these terminals.

In addition, terminals 5 and 6 are also connected to the MDX-8M P1 connector. The black wire of P1-7 is connected to terminal 5 and the red wire of P1-6 is connected to terminal 6.

Prior to connecting devices to these power terminals you must calculate the total power consumption of all devices used in the system. Be certain that the total current does not exceed 800 mA continuous.

When calculating total current you must consider: keypads, alarm bell (terminals 51, 52) smoke detectors (terminals 49, 50) and the devices to be connected to these terminals.

NOTE: Each MPC-32D = 70 mA, each MPC-8D = 70. Each MPC-32DL = 70 mA, each MPC-8DL = 70 at its lowest brightness level. Each brightness level increases the current draw by 10 mA to a maximum of 150 mA at maximum brightness. Each MDX-8M = 30 mA. MDX-8S = 20 mA.

7, 8 **Tamper Switch** (optional for cabinet). If an internal cabinet tamper is desired connect a Normally Closed (push to close) switch to these terminals. If a tamper switch is not used, these terminals should be strapped together.

Optional Equipment: Tamper Switch - Model TS/B (8403-0220).

NOTE: This tamper switch is not to be used as an external remote tamper switch

9 **Not Used**

10, 11, 12 **Expansion Buss** The blue wire of P1-2 is connected to terminal 10. The orange wire of P1-1 is connected to terminal 11 and the brown wire of P1-4 is connected to terminal 12.



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13, 14, 15, 16 **Keypads *** When an MDC-ETX control is used a total of eight (8) keypads can be connected to the system in various combinations. When using more than four keypads on one system the second four (5-8) must be Expanded Address keypads. For example

a) 4 MPC-32D and 4 MPC-32D-EXP
b) 4 MPC-32DL and 4 MPC-8D-EXP
c) 4 MPC-32D and 2 MPC-8D-EXP and 2 MDC-32D-EXP

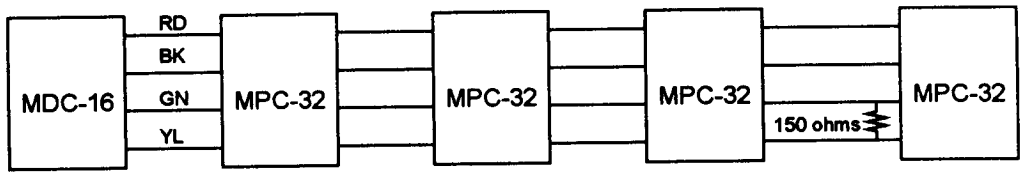
* MPC-32D, MPC-32DL, MPC-32FA, MPC-32D-EXP, MPC-8D, MPC-8DL, MPC-8D-EXP

To eliminate possible interference from extraneous sources, the data pair terminals 13 and 14 **must be minimum #22 AWG twisted pair.**

To enhance RFI and EMI rejection, the data pair must be terminated with an end-of-line resistor.

We suggest that keypads be wired in a daisy chain manner as shown in Fig. 1. In this configuration a 150 ohm terminating resistor is installed across the data pair at the last keypad.

**FIG. 1**

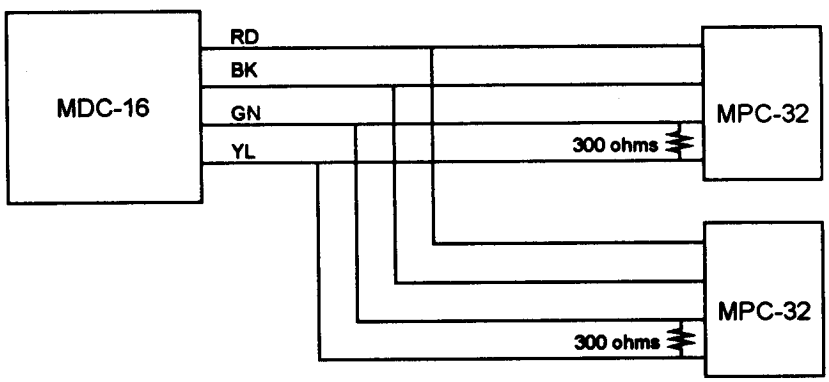



If the installation requires home run wiring (see Fig. 2) from each keypad to the control panel, a terminating resistor will be necessary across the data pair at each keypad. The value of the resistor will be as follows:

| | | | | | |
|---|---|---|---|---|---|
| 1 | Keypad | = 150 ohms | 5 | Keypads | = 750 ohms each |
| 2 | Keypads | = 300 ohms each | 6 | Keypads | = 900 ohms each |
| 3 | Keypads | = 450 ohms each | 7 | Keypads | = 1050 ohms each |
| 4 | Keypads | = 600 ohms each | 8 | Keypads | = 1240 ohms each |

NOTE: Resistors of these values may not be readily available from your supplier. Therefore, select a resistor value as close to, but greater than, the specified value. A 1/4 watt resistor will be adequate.

**HOME RUN EXAMPLE: FIG. 2**



Each keypad must have its address selected by setting the two dip switches located on the back of the keypad. The first four keypads will each be addressed as number 1 thru 4 as follows

| SWITCH | A | B |
|---|---|---|
| 1st unit | Off | Off |
| 2nd unit | On | Off |
| 3rd unit | Off | On |
| 4th unit | On | On |

If additional keypads (up to four) are connected to system the switch settings should be the same as above for keypads number 5 thru 8.

Note: If keypad wires will be homerun to MDC-16 , limit these distances to 100 feet maximum.

Keypad connections are:

| MDC-16 | KEYPADS | |
|---|---|---|
| Data 13 | Yellow ----} | 150 ohms |
| Data 14 | Green ----} | Terminating |
| Ground 15 | Black | Resistor |
| Power 16 | Red | |

Each non-lit keypad = 70 mA (maximum 4)
Each lit keypad = 70 mA (lowest brightness level)
= 150 mA (maximum brightness level)

17 thru 48 **Protection Loops** Zone 1 thru zone 16 are connected to these terminals as indicated in Fig. 3 (Pg. 6).

All loops are two wire and may be wired as the following "Loop Types".

1. Normally Open: This loop requires the use of detection devices or switches that close (short) on alarm.

2. Normally Closed: This loop requires the use of detection devices or switches that open on alarm.

3. Normally Open and Normally Closed: This loop requires an end of line resistor (2.2 K ohms) and will accept both types of switch operation (open or closed).

4. Normally Open with Trouble Report on Break: This loop requires an end of line resistor (2.2 K ohms) and detection devices or switches that "close" (short) on alarm. An open condition (loss of 2.2 K ohms resistor) will produce a trouble condition.

5. Normally Closed with Trouble Report on Short: This loop requires an end of line resistor (2.2 K ohms) and detection devices or switches that "open" on alarm. A short will produce a trouble condition.

49, 50 **Smoke Detector Power** 12 V DC is provided. Terminal 49 is negative, terminal 50 is positive. The positive side is interrupted for 5 seconds to reset the smoke detectors. Refer to Operating Instructions for Reset procedure from the Personal Control. To meet UL 864 fire protective signalling systems, you must use four-wire smoke detectors with appropriate power supervision relay, and Model MDC-FSM Fire Supervisory Model (see Installation Instructions).

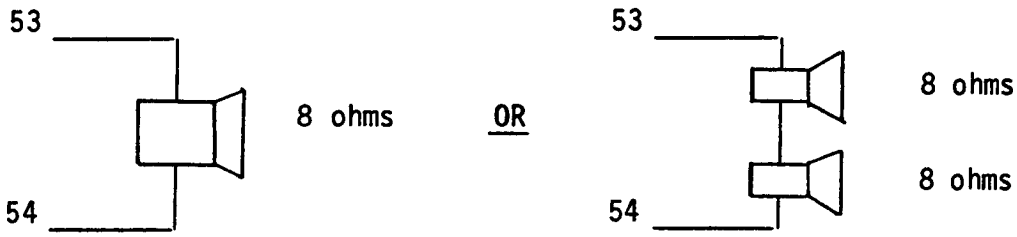
**NOTE**: The current used from these terminals must be included in calculating auxiliary power available from terminals 5 & 6.

51, 52 **Alarm Bell** 12 V DC is provided. Terminal 51 is negative, terminal 52 is positive. The positive terminal is the one being switched ON and OFF. The bell should be connected with 18 AWG wire as a minimum. See MDC-FSM Installation Instruction Manual for Bell Supervision.

**NOTE**: The current used from these terminals must be included in calculating auxiliary power available from terminals 5 & 6.

53, 54 **Speakers** (Siren driver output) Connect speakers, minimum 8 ohms, to these terminals:

EXAMPLES:

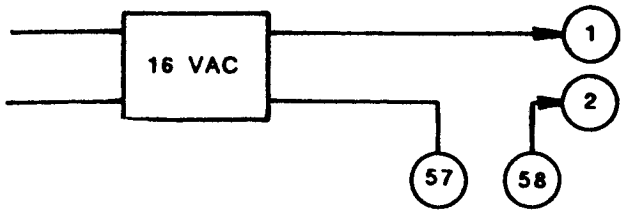



55, 56 (6) **Listen-In** A listen in preamplifier (maximum 100 mA) may be connected. Terminal 55 is the audio connection, terminal 56 is the negative power and terminal 6 is the positive power. **NOTE**: The current used by the preamplifier must be included in calculating auxiliary power available from terminals 5 & 6.

57, 58, 59 **Auxiliary Relay #2** Form "C" dry contacts. Terminal 57 is the relay common. Terminal 58 is the Normally Closed contact which will open during alarm. Terminal 59 is the Normally Open contact which will close during alarm.

**NOTE**: If the MDC-16 has been programmed for Battery Test, the transformer must be wired as shown.

Relay #2 normally closed contact terminals 57 and 58 will open two minutes after disarming the system. This will cause the control/ communicator to operate from the battery for the programmed time.



60, 61, 62 **Auxiliary Relay #1** Form "C" dry contacts. Terminal 60 is the relay common. Terminal 61 is the Normally Closed contact which will open during alarm. Terminal 62 is the Normally Open contact with will close during alarm.

63, 64 **Radio Transmitter Key** These terminals are normally open and will close on alarm. When programmed for R.F. transmission, the data to be transmitted will appear on terminals 67 and 68. Refer to hookup diagram for RF-RM1 for further details.

65 thru 72 **Telephone Line Connections** Provisions are made for two telephone lines. When programmed for their use, the communicator will have the ability to call out on both lines. Full line seizure will assure that house phones are disconnected from the telco network while the communicator is in operation.

| | | |
|---|---|---|
| | 65 Premise Tip | To house phones |
| | 66 Premise Ring | |
| PHONE LINE #2 | 67 Telco Ring | |
| | 68 Telco Tip | From Telco |
| | 69 Premise Tip | To house phones |
| | 70 Premise Ring | |
| PHONE LINE #1 | 71 Telco Ring | |
| | 72 Telco Tip | From Telco |

BATTERY PLUG: Use battery type 12 volt 1.8 amp-hr Morse Model RB-1215 or 12 volt 6.5 amp-hr Morse Model RB-1265 or equivalent.

CONNECTIONS FOR ZONE EXPANDER - MDX-8M Master:

NOTE: **When LED-1 flashes at a rate of "1 sec ON, 1 sec OFF" it indicates normal operation of the MDX-8M.**

1 - 16 **Protection Loops** For Zones 17 thru 24 are connected as shown in in Fig. 4, Page 7.

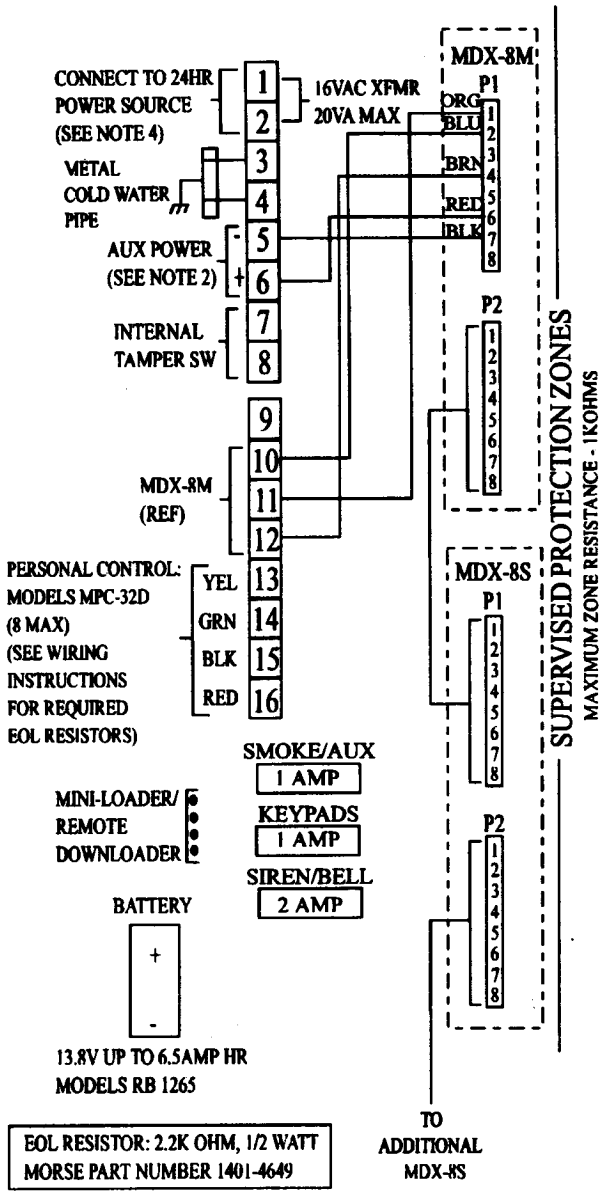
17, 18, 19 **Auxiliary Relay #3** Form "C" dry contacts. Terminal 17 is the relay common. Terminal 18 is the Normally Closed contact which will open during alarm. Terminal 19 is the Normally Open contact which will close during alarm.

20, 21, 22 **Auxiliary Relay #4** Form "C" dry contacts. Terminal 20 is the relay common. Terminal 21 is the Normally Closed contact which will open during alarm. Terminal 22 is the Normally Open contact which will close during alarm.

23 & 24 **Future Use**

CONNECTIONS FOR ZONE EXPANDER - MDX-8S Slave:

1 - 16 **Protection Loops** For Zones 25 thru 32 are connected as shown in Fig. 4 on Page 7.




# OPTEX MORSE

16 CHANNEL CONTROL COMMUNICATOR
MODEL MDC-16ETX

LISTED AS CONTROL UNIT FOR:
HOUSEHOLD BURGLAR & FIRE ALARM
CENTRAL STATION BURGLAR & FIRE ALARM
POLICE STATION ALARM
LOCAL ALARM

UL FILE NO. S-1152

APPLICABLE UL STANDARDS

SIGNAL SYSTEM CONTROL UNIT(UL 864) REF NFPA-72 (1993), ALSO SUITABLE AS A CENTRAL STATION BURGLARY ALARM CONTROL UNIT (UL 1610), POLICE CONNECT (UL 365), AND LOCAL BURGLAR ALARM SYSTEM CONTROL UNIT (UL 609), HOUSEHOLD FIRE (UL 985) AND BURGLAR WARNING SYSTEM CONTROL UNIT (UL 1023), DIGITAL DIALER COMMUNICATOR (UL 1635).

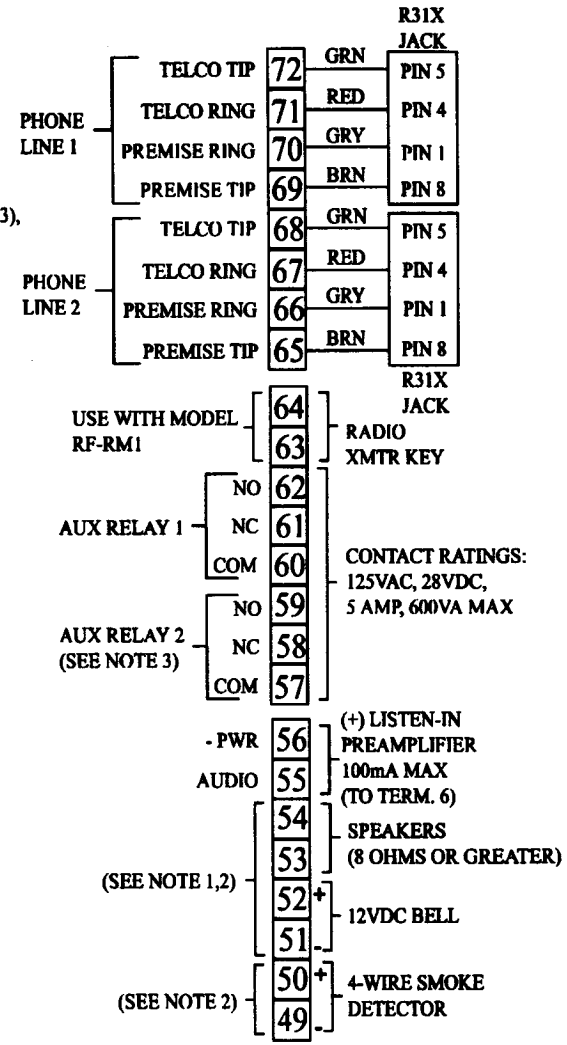
## CAUTION:

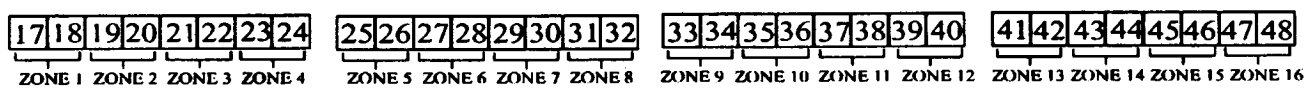
**INCORRECT TERMINAL BLOCK CONNECTIONS MAY DAMAGE EQUIPMENT**

THIS PRODUCT HAS NOT BEEN INVESTIGATED FOR MEDICAL EMERGENCY, PANIC, AND/OR HELP SIGNAL APPLICATIONS.

NOTE 1 : FOR SUPERVISED BELL CIRCUIT, USE MORSE MDC-FSM.
NOTE 2 : 1070mA IS MAX. COMBINED PWR AVAIL (TERM 5, 6, 9-16, 49-54).
NOTE 3 : USE AUX RLY 2 FOR UL BATTERY TEST. SEE WIRING INSTRUCTIONS.
NOTE 4 : UL LISTED METAL CLAD BOXED TRANSFORMER SHOULD BE USED FOR NFPA-72 APPLICATIONS.
NOTE 5 : OUTPUT PROVIDES 14.25VDC UNDER 100% RATED INPUT CONDITIONS.
NOTE 6 : ALL OUTPUTS ARE POWER LIMITED.

COMPLIES WITH:
FCC RULES - PART 68
FCC REGULATION NUMBER: AMZ9SM-67968-AL-R
RINGER EQUIVALENCE: 0.0B




## SUPERVISED PROTECTION ZONES

MAXIMUM ZONE RESISTANCE - 1KOHMS

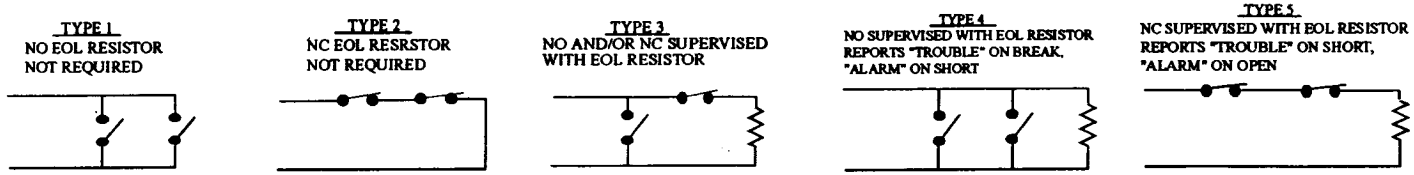





Fig.3

3400-0126 REV G 1/96

# 48 ZONE CONFIGURATION

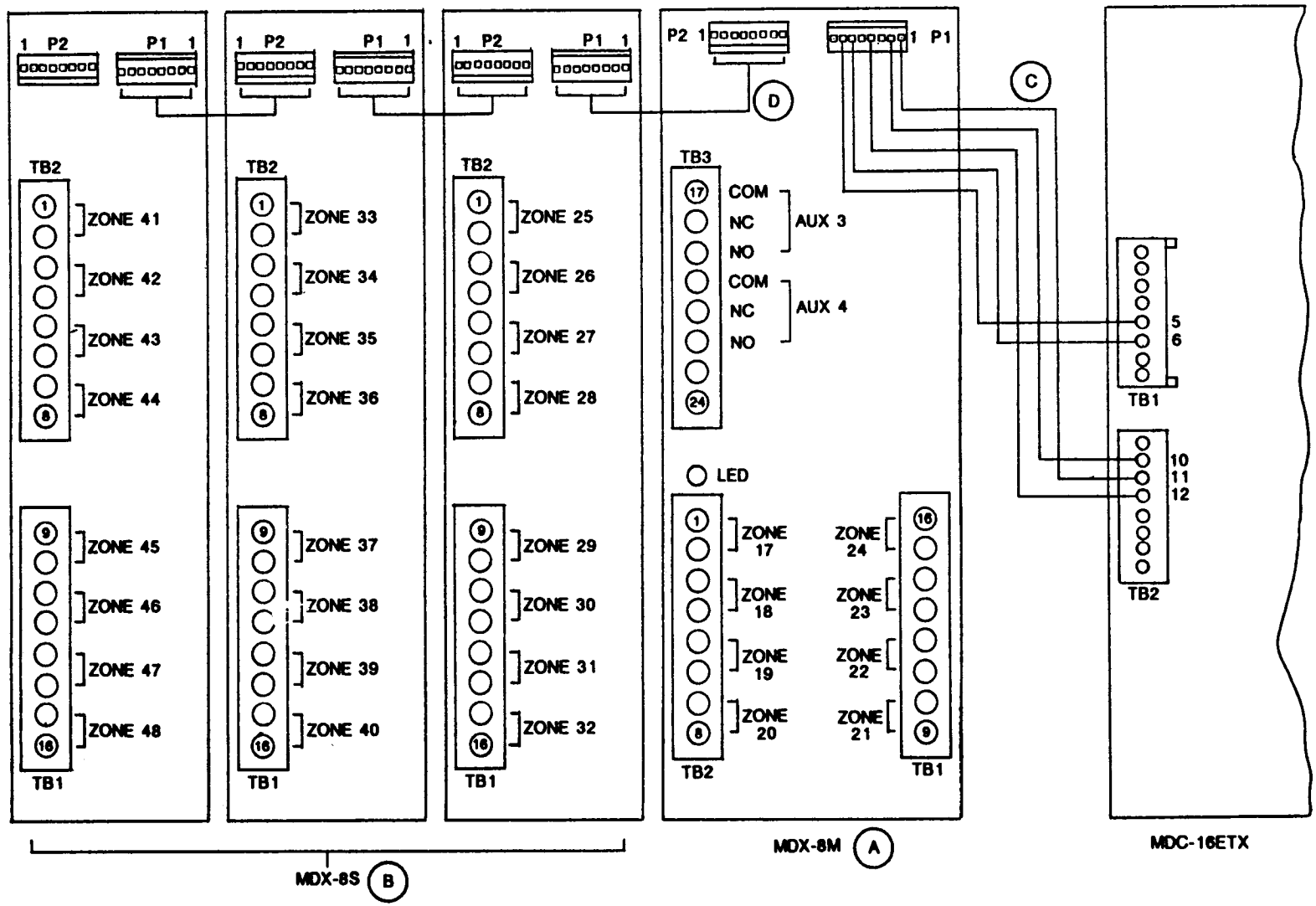



Fig. 4

A 1 MDX-8M P/N 5000-0394

B 3 MDX-8S P/N 5000-0395

C 1 MASTER LOOP CABLE P/N 5090-0232 OR 5090-0240

D 2 4" CHAIN CABLE ASSY