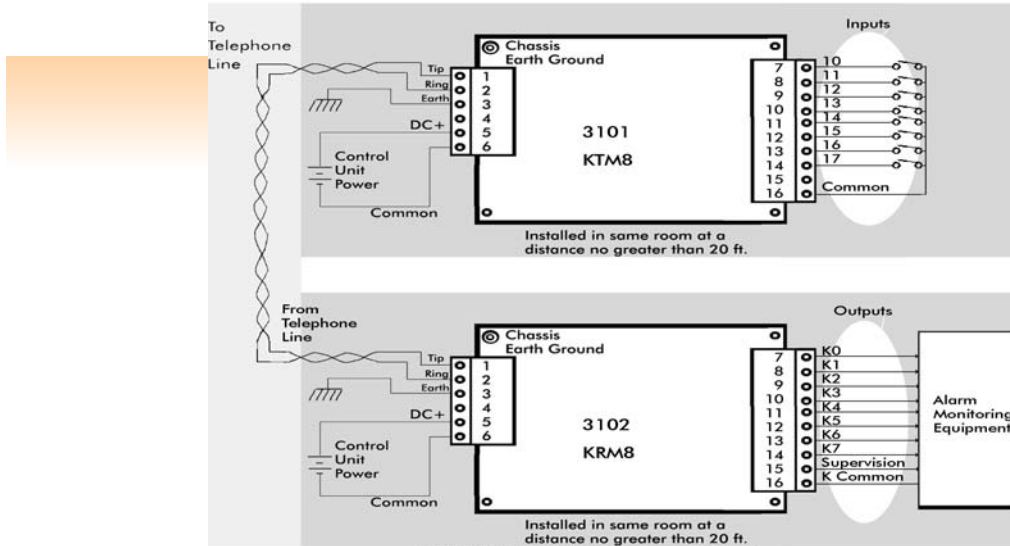


## Keltron's 3101/3102 KTM8/KRM8 Relay Transmitter/Receiver Module

Wiring Diagram  
All circuits are power limited



Notes: 1) Use 18 AWG UL-listed wire.

### General

The KTM8/KRM8 is a system that communicates the condition of eight discrete inputs over a single voice grade line. This system expands the capability of its predecessor Tones Pair by providing four times as many inputs and outputs..

The KTM8 Transmitter module is installed at the protected premise and the KRM8 Receiver module at the monitoring premise. The KTM8 transmits tones carrying the information on the eight dry contacts it monitors. Each input is independent of the other inputs. At the receiving end, the KRM8 reconstructs the state with eight relays.

When connecting a KTM8/KRM8 to any equipment it must have compatible ratings and be installed in accordance with the manufacturer's installation instructions.

### Installation<sup>1</sup>

For this section, refer to the wiring diagram above. Connection is made through pluggable terminal blocks. All wiring must be done with wires that are at least 18 AWG in diameter per UL specifications.

KTM8/KRM8 have identical connector pin assignments for pins 1 through 6. These are pins for communication, Earth ground and power. Connect Pins 1 and 2 to a 600 ohm telephone line or a twisted pair. These lines are electrically isolated from the main circuit and are interchangeable. Pin 3 is the earth ground. Connect either this or the mounting hole to an earth ground. This is necessary for the lightning protection circuit to work properly. Connect Pins 5 and 6 to the positive and negative DC inputs respectively.

Pins 7 through 14 are inputs to the KTM8. Do the wiring as the diagram shows, connecting one side of the switch to an input and the other side to common (pin 16)\*. Unused inputs may either be left open or tied to common.

Pins 7 to 14 are the dry contact outputs from the KRM8. Here, each output pin on the KRM8 corresponds to the input pin of the same number on the KTM8. For example, output pin 7 corresponds to input pin 7. Pin 15 is a supervisory contact output (see the supervision section for detail). Pin 16 (K COMMON) is the relay contact common, which is conveniently isolated from KRM8's power common. The output and the supervision relay contacts are connected to this pin. Do the wiring as the figure, connecting pins 7 through 14 to the alarm monitoring equipment inputs, Pin 15 to the supervisory input and Pin 16 to the monitoring equipment's common.

### Supervision

The KRM8 monitors the phone line for a continual transmission by the KTM8. While there is signal to the receiver, the supervision relay on the KRM8 remains closed. If the signal disappears because the KTM8 lost power, the communication line got cut, or there was some other abnormality, the supervisory relay opens. This happens within one second. During this event, the state of the zone outputs is indeterminate. If the KRM8 itself loses power, all relays including the supervision relay open.

### Output Inversion Option<sup>2,3</sup>

The relays are factory configured as non-inverting. This means when a switch at the KTM8 closes, the corresponding relay on the KRM8 closes, and when the switch opens, the relay opens. If the application requires this to be backwards, one may change the configuration to inverting by removing jumper number 1 on the KRM8 board.

Keltron develops and manufactures universally-compatible, UL listed life safety event management systems for the municipal and proprietary markets. Solutions include Ethernet signaling systems, active network radio systems, distributed multiplex systems, digital communicator/receiver systems, and direct wire systems. This document is not intended for installation or maintenance purposes. All specifications are subject to changes without notice. For more information visit [www.keltroncorp.com](http://www.keltroncorp.com) or contact us at 781-894-8710.

3101 KTM8 Connector Definition				3108 KRM8 Connector Definition			
Pin#	Name	Type	Description	Pin#	Name	Type	Description
1	Tip	Output	Connects to one side of the telephone line	1	Tip	Input	Connects to one side of the telephone line
2	Ring	Output	Connects to the other side of the telephone line	2	Ring	Input	Connects to the other side of the telephone line
3	Earth		Earth ground	3	Earth		Earth ground
4			No connection	4			No connection
5	DC+	Input	Positive 10 - 24 volts DC power input	5	DC+	Input	Positive 10 - 24 volts DC power input
6	Common	Input	Negative DC power input	6	Common	Input	Negative Dc power input
7	10	Input	Dry contact input	7	K0	Output	Relay output
8	11	Input	Dry contact input	8	K1	Output	Relay output
9	12	Input	Dry contact input	9	K2	Output	Relay output
10	13	Input	Dry contact input	10	K3	Output	Relay output
11	14	Input	Dry contact input	11	K4	Output	Relay output
12	15	Input	Dry contact input	12	K5	Output	Relay output
13	16	Input	Dry contact input	13	K6	Output	Relay output
14	17	Input	Dry contact input	14	K7	Output	Relay output
15			No connection	15	Supervision	Output	Supervision relay output
16	Common		Contact common (internally connected to pin 6)	16	K Common		Relay Common (not connected to pin 6)

**3101 KTM8 SPECIFICATION**

Connection	Terminal lugs
Min Supply Voltage	10
Max Supply Voltage	24
Supply Current	6 mA (typical)
Dry Contact Input	
Input type	Dry Contact
Number of Inputs	8
Contact Current	0.15mA
Tone Output	
Number of wires	2
Impedance	600Ω
Output Power	-13 dBm (0 dBm = 1mW @ 600Ω)
Isolation	Uses transformer
Protection	Lightning
States	Open / Close

Communication medium	Telco dedicated line (2000 series) 3000 series phone line compatible units also available
Communication method	FM + TDM
Frequency range	600Hz .. 1700Hz
Environmental	
Operating temperature	0 to 49°C
Storage temperature	-25 to 70°C
Relative Humidity	Non-condensing 20-85 %
Dimensions (L x W x H)	
3101 (PC board)	5.0" x 3.5" x 1.0"
KBX8 (enclosure)	6.0" x 5.0" x 1.75"
Weight	
3101 (PC board)	.20 lb
KBX8 (enclosure)	.60 lb

**3102 KRM8 SPECIFICATION**

Connection	Terminal lugs
Min Supply Voltage	10
Max Supply Voltage	24
Supply Current	100 mA (typ)
Dry Contact Output	
Number of outputs	8 zones plus 1 supervision
Voltage	50 V MAX
Current	50 mA MAX
Tone Input	
Number of wires	2
Impedance	600Ω
Input Sensitivity	-30 dBm (0 dBm = 1mW @ 600Ω)
Isolation	Uses transformer
Protection	Lightning
States	Open / Close

Supervision	Absence of tones results in trouble
Communication medium	Telco direct line (2000/3000 series)
Communication method	FM + TDM
Frequency range	600Hz .. 1700Hz
Environmental	
Operating temperature	0 to 49°C
Storage temperature	-25 to 70°C
Relative Humidity	Non-condensing 20-85 %
Dimensions (L x W x H)	
3102 (PC board)	5" x 3.5" x 1.0"
KBX8 (enclosure)	6.0" x 5" x 1.75"
Weight	
3102 (PC board)	.20 lb
KBX8 (enclosure)	.60 lb

**NOTES**

- 1). In situations where one intends to drive the inputs with an active device such as an open collector transistor, it is important to remember that pin 16 of 3101 is also the common for the rest of the circuit, and that the inputs are not isolated.
- 2). Inverting/non-inverting is selectable only by group.
- 3). Supervision output is not affected by selecting the invert option.
- 4). KTM8 unit is comprised of a KBX8 Enclosure and a 95M3101 Printed Circuit Board.
- 5). KRM8 unit is comprised of a KBX8 Enclosure and a 95M3102 Printed Circuit Board.
- 6). Conduit connection is required. The following U.L. listed conduit boxes are acceptable.  
Hoffman A-SE6x6x4 (screw cover) and A-SE6x6x3 (hinged cover)  
Wiegmann SC 664 (screw cover) and A 663 (hinged cover)

