Selectone

Operating Instructions

MODEL ST-800
DTMF DECODER

Manual No: M500–2060 *September 6, 1989* *Revision: (89036)*

GENERAL

The ST-800 is a subminiature DTMF decoder designed for installation in hand-held and mobile radios. The ST-800 will respond to an address of 2 to 4 digits in length using any of the 16 DTMF characters. There are no restrictions on the use of repeated digits in the address. This provides 65536 unique addresses. Wrong-digit reset reduces the possibility of response to incorrect addresses. It is also capable of GROUP/ALL CALL and remote reset.

Because of our comprehensive warranty policy, and surface mount construction, field repair is usually not cost effective. Complete technical documentation is available through our applications department for customers with special requirements..

Application notes are available or can be developed for most radio models. If you would like applications details for a specific radio, please call us. Together we may be able to save you some time and money.

OPERATING SPECIFICATIONS

GENERAL

Operating Voltage	5.5 to 25Vdc
Operating Current:	Less than 12 mAdc
Operating Temp:	–30° C to + 60°C
Signalling format:	DTMF (16 usable characters)
Signalling Rate:	0.4 to 12.5 digits per second
Code Capacity:	2 to 4 digits jumper programmable
Interdigit Time:	2.5 Sec. maximum, 40 mSec. minimum
Dimensions:	2.0" L X 1.25" W X 0.38" H
Interface:	18" flying leads

INPUT

Input Level:	Composit signal 15mVrms to 850mVrms
Twist Acceptance:	Twist = column tone/row tone; –8 to +4 dB
Input Impedance:	Greater than 47K
Decode Bandwidth:	±2.3% nominal
Noise Tolerance:	–14dB referenced to lower amplitude tone

OUTPUTS

Lamp Output:	Latched open-collector Darlington, 250mAdc @24Vdc, hookswitch and remote reset
Latched Output:	Strappable for open-collector switching to (–)supply or emitter-follower switching to (+)supply. 40mAdc source or sink, active for mute or active for monitor
Monitor/Hookswitch:	Strappable for ground to mute or ground to monitor

OPERATION

While awaiting a call, the ST-800 will mute the radio to block out unwanted channel traffic. When the correct DTMF address is received, the ST-800 provides a latched transistor output to unmute the receiver, a 2.5-second transistor output to drive a buzzer or other alerting device and a latched transistor output to drive a call indicator. When the radio operator responds to the call, the ST-800 is reset by the transition from off- hook to on-hook

INSTALLATION

MOUNTING

The ST-800 is supplied with two Velcro strips for mounting so that it can be removed for programming and servicing. Apply the LOOP strip to the back of the printed circuit board, and the HOOK strip to a clean, dry surface in the radio. Press firmly after applying the strips to ensure good contact of the adhesive. Do not touch the adhesive or attempt to re-position the strips after application.

WIRE INTERFACE

NEGATIVE (–) SUPPLY (BLACK):

Connect to system (–) Supply (GND).

POSITIVE (+) SUPPLY (RED):

Connect to system (+) Supply (5.5 to 25Vdc).

INPUT (GREEN):

Connect to signaling audio source, e.g., discriminator output, volume high, etc. [NOTE: this point must not mute while awaiting signaling tones.] Connection to the speaker voice coil is not recommended due to the wide dynamic range at this point.

CALL LAMP (BLK/ORG):

Open collector [Darlington] output. Saturated to (–) Supply (GND) upon decode. Latched until off-hook to on-hook transition or receipt of remote reset command.

DECODE MOMENTARY (WHT/VIO):

Open collector (Darlington) output. Saturated to (–) Supply (GND)for approximately 2.5 sec. imediately following each decode sequence.

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MONITOR/HOOKSWITCH (BROWN):

Connect to the microphone hook switch, hang-up button or box. This lead energizes the DECODE LATCH output when off-hook and resets the CALL LAMP and DECODE LATCH outputs on transition from off-hook to on-hook. If your HOOKSWITCH connects to NEGATIVE (-) SUPPLY to MUTE place JU1 Center to B. If your HOOKSWITCH connects to NEGATIVE (-) SUPPLY to UNMUTE place JU1 Center to A.

DECODE LATCH (WHT/ORG):

Connect to the muting point in the radio. This output goes to the unmute state upon decode or off-hook and returns to the mute state on the transition from off-hook to on- hook or upon receipt of the remote reset command. Jumpers JU2 and JU3 set the MUTE/UNMUTE conditioning for this lead. See the following JUMPER SETUP CHART to customize the output for your application.

JUMPER SETUP CHART:

MUTE	UNMUTE	JU-2	JU-3
(+)SUPPLY	OPEN	OUT	A-B, **
OPEN	(+)SUPPLY	IN	A-B, **
(-)SUPPLY	OPEN	OUT	B-C, D-E
OPEN	(-)SUPPLY	IN	B-C, D-E
** Connect a 1K resistor between pin C and D of JU-3			

ADDRESS PROGRAMMING

Note: Use the supplied piece of wire wrap wire for programming jumpers.

SEQUENCE LENGTH:

Solder a jumper between pad SLC and pad SL2 for a two-digit sequence, between SLC and SL3 for a three- digit sequence, or between SL-C and SL4 for a four-digit sequence.

ADDRESS SEQUENCE (Sequence Position):

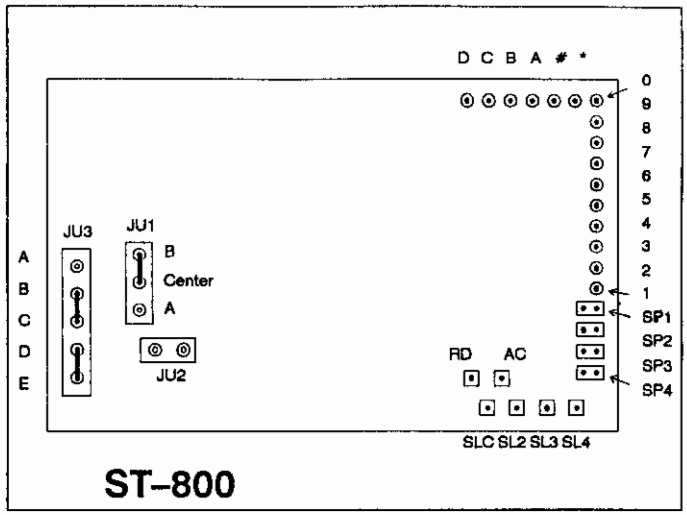
Solder a jumper between the SP1 pad and the pad for the first character of the address; another between the SP2 pad and the pad for the second character of the address; another between the SP3 pad and the pad for the third character, if used; and another between the SP4 pad and the pad for the fourth character, if used. All of the "SP" connections have two pads so that they can be connected together if a digit is used more than once in the address.

GROUP/ALL CALL:

The ST-800 allows for a common DTMF character to be substituted for any one or more of the digits in the address sequence for Group and/or All Call. If this feature is used, solder a jumper between the "AC" pad and the pad for the desired All Call character. A non-numeric character that is not used in individual call sequences should be selected to prevent undesired responses (* Suggested).

REMOTE RESET (Reset Digit):

A reset suffix character may be programmed so that the Lamp and Latched outputs can be reset by sending the unit's address followed by the reset character. To use this feature, solder a jumper from the "RD" pad to the desired reset character. A non-numeric character that is not used in individual call sequences should be selected to prevent undesired responses (# Suggested).



ST-800

WARRANTY POLICY

All standard Selectone products are guaranteed to meet or exceed published performance specifications and are warranted against defects in material and workmanship for a period of five years from date of purchase. Special configurations and nonstandard systems are warranted for a period of one year.

If any standard Selectone product fails to operate within the first 90 days from the date of purchase, Selectone will immediately send a replacement unit postpaid via airmail or UPS Blue Label (air), and will issue full credit, including freight, upon the return of defective unit(s). For special warranty replacement service, call the Selectone Customer Service Department TOLL FREE at 1-800-227-0376. C.O.D. customers must return defective equipment prior to exchange or will receive the replacement C.O.D. with credit issued only on return of the defective equipment.

After 90 days, this warranty is specifically limited to correction of the defects by factory repair or replacement of faulty equipment or parts.

All warranty repairs must be performed at the Selectone factory in Hayward, California. No credit will be given for unauthorized repair work attempted by the customer. Any unauthorized alteration or modification of the equipment, damage by external sources, or removal or alteration of the serial number label or date code, will void the warranty. Specifically excluded from this warranty are batteries, LED's, fuses, lamps, and damage caused by lightning, power surges, or mechanical abuse.

Equipment for repair may be returned to the factory without prior written authorization; however, a note must be sent with the packing list briefly describing the nature of the defect.

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