

# MCT-100 S

## Supervised, Two-Input Wireless Transmitter

# SpiderAlert®

## Installation Instructions

### 1. INTRODUCTION

The MCT-100 S is a fully supervised, 2-input, magnetic contact transmitter, designed for electronic security applications. Both inputs can be set to operate with a normally closed (N.C.) loop, or with an end-of-line (E.O.L.) loop in which both N.C. and N.O. sensors can be used. An on-board programming DIP switch allows the installer to disable input No. 1 (IN1) in applications where only a single input is needed.

**Each input has an individual 24-bit ID which identifies it to the target receiver as if it were a separate transmitter.**

Each ID is randomly selected in the factory from 16 million possible code combinations. Compatible receivers can "learn" specific IDs and respond only to them.

Disturbing an input loop of the MCT-100 S initiates transmission of the specific input's ID followed by various status and mode designators.

Alarm information and other data are thus forwarded to the alarm control panel or to the head-end computer, depending on the type of system in which the MCT-100 S is used. Since messages transmitted by the MCT-100 S might collide with messages transmitted by other SpiderAlert® transmitters, a "smart" anti-collision transmission sequence is used.

The MCT-100 S is protected by a tamper switch, activated when the cover is removed. Once the tamper switch contacts open, a message will be transmitted from input 1 with the "tamper alert" marker ON. If the installer disables input 1, the tamper situation will be automatically reported by input 2 instead.

A periodic supervision message, distinguished by a specific marker, is transmitted automatically from input 1 only (if enabled) or from input 2 only (if input 1 is disabled) once in 60 minutes.

The receiver is thus informed, at regular intervals, of the MCT-100 S active participation in the system. An indicator LED lights during transmission whenever alarm or tamper events are reported.

The LED does not light while a supervision message is being transmitted. Operating power is obtained from an on-board 3.6 V Lithium Thionyl-Chloride battery. A weak battery will cause a "low battery" designator to be added to any message transmitted.

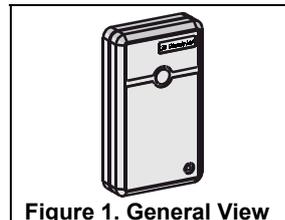


Figure 1. General View

#### The Usage of Visonetix MCT-100 S and the Visonic MCT-100

MCT-100 S is designed for use in SpiderAlert networks. The Visonic PowerCode version of the MCT-100 S is the MCT-100.

In applications that integrate SCP-552 R (wireless control panel) and SR-500 (RF receiver), the usage of MCT-100 S and MCT-100 must be as shown in figure 2.

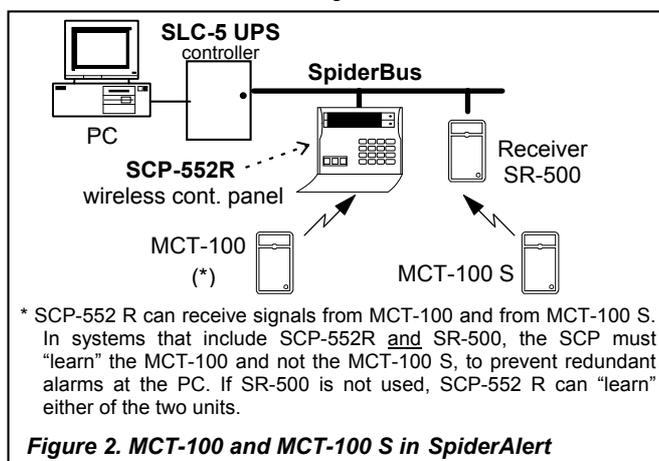


Figure 2. MCT-100 and MCT-100 S in SpiderAlert

### 2. SPECIFICATIONS

**Frequency (MHz):** 315, 404, 418, 433.92 or other frequencies according to local requirements

**Compatibility:** Compatible with SpiderAlert SR-500 receiver and SCP-552R wireless zone control panel.

**Transmitter's ID Code:** 24-bit digital word, over 16 million combinations, pulse width modulation.

**Overall Message Length:** 36 bits

**Alarm Inputs:** 2, each with a separate 24-bit transmitter ID

**Input Circuit Type:** N.C. / E.O.L., selected with on-board DIP switch

**E.O.L. Resistor Required:** 47 kΩ

**Message Repetition:** Repetitive transmission (once every 3 minutes) or one-shot, as selected with on-board DIP switch.

**Supervision:** Signaling at 60-minute intervals from input 1 (if enabled) or from input 2 (if input 1 is disabled).

**Response to Tamper Event:** Tamper report every 3 minutes (until the tamper switch is restored).

**Power Source:** 3.6 V Lithium Thionyl Chloride (LiSOCl<sub>2</sub>) battery, size 1/2 AA, Tadiran TL-5902.

**Nominal Battery Capacity:** 1.2 Ah

**Current Consumption:** 5 μA standby, 8 mA in operation (including LED)

**Battery Life (with LED on):**

@ 10 transmissions per day: Over 10 years

@ 50 transmissions per day: About 6 years

**Battery Supervision:** Automatic transmission of a battery condition data as part of any status report.

**Operating Temperature:** 0°C to 49°C (32°F to 120°F).

**Dimensions:** 110 x 63 x 25 mm (4-5/16 x 2-1/2 x 1 in.).

**Weight:** 66.5 g (2.34 oz)

**Compliance with Standards:** Meets FCC Part 15, ETS 300-220 and MPT1349

The 418 & 433.92 MHz models of this device comply with the European Council Directive EMC 89/336/EEC & 92/31/EEC, and bear the CE mark and certification.

### 3. INSTALLATION

#### 3.1 Mounting

Remove the screw from the front cover (Fig. 4) and separate the front cover from the base.

*The plastic cap shown is supplied separately in a small nylon bag - keep it for later use. Mount the base equipped with the printed circuit board in the selected location, using the mounting and wiring knockouts shown in Fig. 3.*

#### 3.2 Wiring

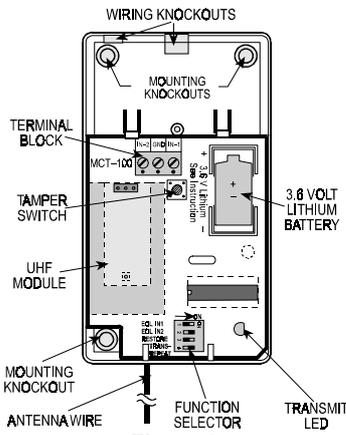
Route the wires through a wiring knockout in the base. If an input is defined as a Normally Closed (N.C.) type (SW-1 or SW-2 are set to OFF), series connected normally closed sensor contacts must be used exclusively.

If an input is defined as an E.O.L. type, Normally Closed (N.C.) as well as Normally Open (N.O.) sensor contacts can be used.

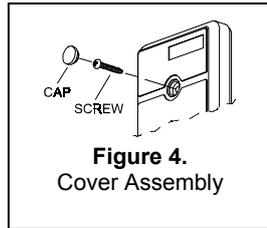
A 47 kΩ resistor must be wired at the far end of the E.O.L. zone loop, as in Figure 5.

**Notes:**

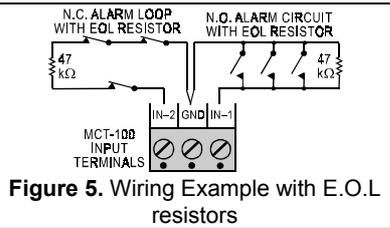
1. An alarm message will be transmitted once the loop is opened or short circuited.
2. If you do not need input No. 2, connect it to the GND terminal with a short length of jumper wire (in case of N.C.) or with 47 kW resistor to (in case of E.O.L.).



**Figure 3.**  
**MCT-100 S Cover Removed**



**Figure 4.**  
**Cover Assembly**



**Figure 5.** Wiring Example with E.O.L. resistors

**3.3 Setting Up the Function Selector**

Before testing, set DIP switches SW1 through SW4 as required for the particular application.

The MCT-100 S is equipped with a 4-position DIP switch function selector. Each switch lever allows you to select one of two options, as explained in the following table:

Switch	Function	Pos.	Selected Option	Default
SW1	IN1 enable/disable	ON	Input No. 1 is enabled	ON
		OFF	Input No. 1 is disabled	
SW2	EOL for IN1 and IN2	ON	Inputs are E.O.L. (47 kΩ)	OFF
		OFF	Inputs are N.C.	
SW3	Restore reports enable/disable	ON	Restore events reported	ON
		OFF	Restore events not reported	
SW4	Transmit mode selector	ON	Alarms reported every 3 min.	OFF
		OFF	Alarms reported only once	

**SWITCH SW1:** Determines whether input 1 (IN1) will be enabled or disabled.

**SWITCH SW2:** Determines whether both inputs will behave as 47 kΩ end-of-line (E.O.L.) circuits or as normally closed (N.C.) inputs.

**SWITCH SW3:** Determines whether the transmitter will report "restore" events.

**Note:** If the MCT-100 S is used in conjunction with motion detectors, there is no point in setting SW3 to ON, because the detector restores automatically after an alarm. However, when the MCT-100 S is used

with a door or window magnetic switch, selecting the ON position will enable you to find out whether the door or window under surveillance are open or closed.

**SWITCH SW4:** In non-supervised systems, it is sometimes required to report an alarm repeatedly at short intervals, until the disturbed input reverts to its normal (undisturbed) state. Switch SW-4 is used to select between repetitive and one-shot transmission.

**Note:** Transmissions initiated by "tamper" events will be repeated once every 3 minutes, regardless of SW4 setting.

**3.4 Battery Insertion and Test**

**A.** Insert the 1/2 AA battery between the battery clips, making sure that the polarity is correct. For proper operation, only Lithium Thionyl Chloride battery (as specified in Section 2) should be used.

**Note:** Before each supervision report, the battery voltage is tested. If a low battery condition is detected, a "low battery" alert signal will be included in the supervision message.

If the battery is not replaced, all following transmissions will include the "low battery" alert signal, which has to be acted upon without delay.

**B.** Since the cover is removed and power is applied, a tamper situation exists. Verify that the MCT-100 S transmits (the LED lights briefly) once every 3 minutes.

**C.** When you are satisfied that tamper transmissions are carried out properly, put the cover back on to return the tamper switch to its normal undisturbed position. Wait slightly over 3 minutes to verify that tamper transmissions cease.

**D.** Momentarily disturb any one of the sensors connected to the first input (IN1) and verify that the transmitter LED lights, indicating that transmission is in progress. IF SW-4 is on, wait 3 minutes to verify that the transmission is repeated at 3-minute intervals.

**E.** Restore the sensor to the undisturbed state and watch the LED. If SW-3 is set to ON, another transmission will take place upon restoral.

**F.** Repeat Steps C and D above with the second input (IN2).

**G.** Refer to the target receiver's installation instructions, and let the receiver "learn" the ID codes associated with both inputs of the MCT-100 S.

**ATTENTION!** Because each input of the MCT-100 S acts as an independent transmitter with an individual ID, make sure that both input IDs are learned by the receiver.

With the target receiver in the LEARN mode, an alarm transmission from each input will enroll the input's ID in the receiver's memory.

A tamper transmission will also work if you remember this:

- If the Input No. 1 is enabled (SW1 is ON), the tamper message will be sent with Input 1's ID.
- If Input No. 1 is disabled (SW1 is OFF), the tamper message will be sent with Input 2's ID.

**H.** Secure the front cover with the screw and screw cap (Fig. 4).

**4. MISCELLANEOUS COMMENTS**

**4.1 Product Limitations**

Visonetix Ltd. wireless systems are very reliable and are tested to high standards. However, due to low transmitting power and limited range (required by FCC and other regulating authorities), there are some limitations to be considered:

- Receivers may be blocked by radio signals occurring on or near their frequencies, regardless of the digital code used.
- A receiver can only respond to one transmitted signal at a time.
- Wireless equipment should be tested regularly to determine whether there are sources of interference and to eliminate faults.

**4.2 Compliance with Standards**

**A.** The user is cautioned that changes or modifications to the unit, not expressly approved by Visonetix Ltd., could void the user's FCC or other authority to operate the equipment.

**B.** This device complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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Product warranty statement is enclosed

