Owner's Handbook

Warranty

Each unit is carefully tested and adjusted at the factory before shipping and is warranted for one full year against original defects in materials or workmanship. This warranty does not include damage to the product resulting from accident or misuse.

If the product should become defective within the warranty period, we will repair or replace it free of charge, including free return transportation, provided it is delivered prepaid to the dealer from whom it is originally purchased.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, or country to country.

Other CruzPro Products

- Depthsounders & Speed/Temperature/Log
- DC Volts/Amps/Amp-Hour Monitor
- AC Volts/Amps//Freq/kW Monitor
- LPG/Petrol Gas Detectors/Alarms
- Bilge Water Alarms & Bilge Pump Controllers
- Windlass Controller/Chain Counter
- Digital Fuel Gauge & Fuel Consumption Calculator
- Digital Gauge for Three Tanks /w Separate Alarms
- Smart and Manual Alternator Regulators
- Marine Security System
- RPM/Engine Hours/Elapsed Time Gauge
- Digital Oil Pressure Gauge/Alarm
- Digital Water Temperature Gauge/Alarm
- One and Three Bank Digital Volts Gauges
- Digital Amps Gauge
- Digital Clock/Watch/Race Timers/Alarms
- 8 and 16 Amp Light Dimmers / Motor Speed Controller
- Solar Panel Charge Controllers 6/8/9 & 20 Amps
- 4 & 8 Channel NMEA Combiners/RS-232 Convertors
- Engine/Exhaust Temp. Monitor & Digital Pyrometer
- NMEA 0183 Remote Data Repeater/w 4 Input Channels

See full details at **http://www.cruzpro.com**
Email to: **info@cruzpro.com**

Table of Contents

---

open, or the "1" key to make that loop normally closed. You will hear a long beep indicating acceptance of the new Loop parameter.

Reprogramming the Entry/Exit Delays:

1) Press and hold the "R" key for three seconds. You will hear a long beep.
2) Press "3" to change the Entry delay or "4" to change the Exit delay.
3) Enter a two digit number from 00 to 99 seconds. You will hear a long beep indicating acceptance of the new delay time.

Checking Last Security Code, and how many times each security code was used:

1) Press the "R" key momentarily.
2) Press the "0", "1", "2" or "3" key.

There will be a short delay, then the SA20 will beep a number of times equal to:

to detect intruders before entry.

Each of the three security codes can be reprogrammed by the owner of security code #1. The SA-20 keeps track of how many times each security code was used to disable the system and which code was last used. You can also independently program exit and entry delays from 0 to 99 seconds each. Each of the two independent detection loops can be programmed to be normally open or closed. All this information is automatically saved to non-volatile memory.

A press of the panic button sounds the alarm which will run for 5 minutes (or until a valid security code is entered). If an intruder sets off the alarm it will sound for 5 minutes, silence itself and then the SA-20 memorizes the new loop configuration (if any hatches or doors were left open) and continues its vigil for you with the new configuration. This prevents the alarm from sounding continuously.

The SA-20 is constructed of ABS plastic, stainless

Introduction

The SA-20 Security System and Alarm provides cost effective security for boats. Activated by an easy-to-operated digital access keypad, the SA-20 connects to a wide variety of sensors from simple magnetic reed switches to sophisticated passive infra-red (PIR) detectors.

A flashing LED warns away most intruders before they attempt entry. Program multiple security codes into the non-volatile memory so you can tell who last entered the boat and how many times. It also remembers how you want your system configured, desired entry and exit delays, etc.

The SA20 draws only 0.015 amps and operates from a 9.5 to 33.0 VDC power source, making it ideal for boats. Two sets of magnetic reed switches and one pressure sensing switch are included with the SA-20 as standard. Use the reed switches to detect if hatches or companion-way doors are opened. The water-proof pressure sensing switch can be cockpit mounted

"**0**" - The previous last Security Code number used to disarm the SA-20, not including the last one used (yours). This will be 1, 2 or 3 beeps indicating that the previous last security code used to disarm the system was Security Code #1, #2 or #3. "**1**" - The total number of times Security Code #1 was used to disarm the system. "**2**" - The total number of times Security Code #2 was used to disarm the system. "**3**" - The total number of times Security Code #3 was used to disarm the system.

Resetting the count for above: To clear the counters, go through the steps as to reprogram the Master Security Code #1 up to step 4. You do not actually have to change the security code (step 4).

Master Reset: If you forget your re-programmed security codes, or want to start fresh, go through the steps as to reprogram the Master Security Code #1 but substitute the Backup Master Security Code. All the factory defaults (see pg 12) will be reset. This erases everything, so be careful!

---

steel screws, solvent resistant gaskets, Lexan brand polycarbonate and 3M adhesives for a long life in the marine environment.

The SA-20 draws only 0.015 amps and can be connected to the LA-20 external Loud Alarm to provide "car alarm like" volume that can be heard for 1/4 mile or more.

You have 20 seconds to complete the four operations. If you do not complete the operations in 20 seconds, or make an error, the SA20 will respond with five quick beeps. You must then start over at step 1.

If you forget your Master Security Code #1, substitute the Backup Master Security Code but this will reset all the factory defaults (See pg 17).

Reprogramming Loop1/Loop2 parameters: The factory default for a normal Loop1 and Loop2 is OPEN. That is, the alarm will sound if either Loop1 or Loop2 makes contact with ground. You can reprogram the Loop1 and Loop2 parameters as follows:

1) Press and hold the "R" key for 3 seconds. You will hear a long beep.
2) Press 1 or 2 indicating Loop1 or Loop2 is to be changed.
3) Press the "0" key to make that loop normally

and so on, until the SA20 is disarmed. This prevents the alarm from continuously sounding because a fleeing intruder has left one of the hatches open.

Reprogramming the Security Codes: All of the security codes can be reprogrammed except the Backup Master Security Code, which is fixed and is unique to your SA20 (no other person has the same Backup Master Security Code). Only the person having knowledge of the Master Security Code #1 or the Backup Master Security Code can change any of the security codes. To change a security code:

1) Press and hold the "S" key for 3 seconds. You will hear a long beep.
2) Enter the number of the security code you want to change (1,2 or 3).
3) Enter the four digit Master Security Code #1. You will hear another long beep.
4) Enter the new four digit security code. You will hear another long beep indicating acceptance and storage of the new security code.

Power supply: 9.5 to 33.0 VDC, 0.015 ampere.

Operating temperature: 0 to 50 deg Celsius (32 to 122 deg Fahrenheit).

Size: 100 x 60 x 30 mm (4 x 2.4 x 1.2 inch).

Alarms: Internal 85 dB at 30 cm (12 inches), flashing red LED indicator. Output for external 105 dB alarm (LA-20).

Loops: Two independent loops. Either can be programmed for normally OPEN or NORMALLY closed operation.

Security Codes: Three independent reprogram-mable codes, (only by owner of code 1).

Entry/Exit Delays: Independently programmable from 0 to 99 seconds.

Non-Volatile Memory: Save loop configuration, security codes, number of entries by each security code, last entry, saves entry and exit delays.

Operation

The SA-20 comes pre-programmed for you from the factory with the following default settings:

```
Master Security Code #1 = 0001
Security Code #2 = 0002
Security Code #3 = 0003
Backup Master Security Code = _____

LOOP1 normally open
LOOP2 normally open

EXIT DELAY = 30 seconds
ENTRY DELAY = 30 seconds
```

Arming/Disarming the SA20: To arm the SA-20 enter any of the security codes into the keypad. You will hear a long beep and the LED indicator will start blinking. To disarm the SA-20 enter any of the security codes into the keypad again.

terminal T1 (See Figure 1). Mark this wire "GND" but do not connect the loose end yet. Similarly, thread a 22 gauge (or larger) wire for the positive battery connection through the grommet and connect to terminal T4. Mark this wire "+BATT". Thread two (22 gauge or larger) wires through the grommet and connect to terminals T2 and T3. Mark the loose ends of these wires with the letters "LOOP1" and "LOOP2".

Before connecting the loose ends of the wires, check the connections, labels and be sure that there are no loose strands of wires to short together.

Connect the loose end of the wire marked "GND" to a common ground point on your boat. Connect the wire marked "+BATT" directly to your battery through a 1 amp fuse. When you make this connection you should hear a short beep and the LED should light and stay lit (does not flash).

The wires marked Loop1 and Loop2 should be wired to your security sensors. The security sensors can be wired as normally open or normally closed since each

Installation

Before starting the installation, please read this entire section for any warnings. Get professional help if you do not fully understand the installation instructions.

The SA-20 is not water-proof and must be located in an area that will not get wet.

Remove the case front and align the case back onto any suitable surface. Using the case back as a drill guide, mark the location of the two holes with a soft pencil lead. Remove the case back and drill two 2mm (3/32 inch) holes where indicated. Mount the case back using the two countersunk screws.

When connecting wires to the screw terminals be sure that there are no exposed loose strands of wire that might later cause a short and do not overtighten the screw terminals.

Thread a 22 gauge or larger ground wire through the rubber grommet on the front case and connect it to

Operation: After you arm the system, a countdown timer starts counting until it reaches the value of the EXIT DELAY. Until the exit delay time is reached, the SA20 ignores both LOOP1 and LOOP2. This EXIT DELAY gives you time to leave the boat. After the EXIT DELAY time has expired, any tampering with either LOOP1 or LOOP2 will result in an alarm condition occurring.

When LOOP1 or LOOP2 is tampered with a second timer starts counting up to the ENTRY DELAY time. If you disarm the SA20 by entering one of the valid security codes, it will turn off and no alarm will sound. This gives you time to disarm the system without sounding an alarm. If the SA20 is not disarmed within the ENTRY DELAY time, the alarm will sound.

If activated, the alarm will sound for five minutes then turn off automatically. The SA20 then memorizes the condition of both LOOP1 and LOOP2 and starts monitoring for any additional changes to either of these two loops. If either loop changes again, the SA20 will sound the alarm again for an additional five minutes

---

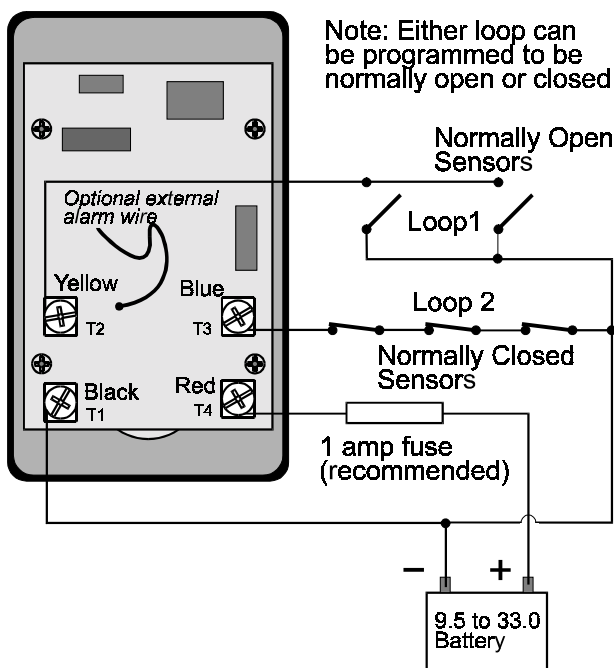**Figure 1**
Connection Diagram for SA20 Alarm System

loop can be programmed for either mode of operation. The factory default is that both loops are normally "open". i.e. the alarm will sound of either Loop1 or Loop2 is shorted to ground (if even for a moment).

Replace the case front using the original four screws. *Do not overtighten the case front screws or you may damage the case front decal.*

After wiring your security sensors you should check the operation of the SA-20 as described in the "Operation" section.