Smarterm

Supervised Alarm Board

User's Guide

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PRELIMINARY

1.1. Smarterm Supervised Alarm Board, Revision C

1.1.1. PREFACE

Congratulations on your purchase of the Continental Instruments Supervised Alarm board. This device enhances the monitoring capabilities of your existing Smarterm system. The Supervised Alarm board is an American-made product and is covered by a 1-year warranty. Each unit is subjected to a "burn-in" period and completely tested prior to shipment. Once properly integrated into your system, it will provide years of trouble-free service.

1.1.2. Introduction

This section describes various components of the Supervised Alarm board. It acquaints you with the parts of the board and their names and locations so that references made to these parts later on in this document can be easily understood.

1.1.3. Features

- Sixteen supervised alarm inputs

- Transient protection on all inputs

- Software indication of normal, abnormal, short, open, or ground fault status

- Revision C board supports battery backed operation

1.1.4. Item Checklist

Carefully unpack the Supervised Alarm installation kit and verify that all items listed below are present and in good condition. If any item is determined to be damaged or missing, please contact Continental Instruments immediately.

Qty.	CIC p/n	Description
1	170-1093	Supervised Alarm board for Smarterm
1	210-1134	34-position ribbon cable
6	280-1061	16 nylon standoffs - 3/811 long
6	280-1003-10	J6 fiber washers
6	280-1002-7	6-32 hex nuts
1		Supervised Alarm Board Power Cable
1		Supervised Alarm User's Manual

1.2. System Requirements

The Supervised Alarm board requires a Smarterm running a firmware revision of 3.0 or later. As a result, the Smarterm itself must be a hardware revision E.3, F.3, H, or later.
In order to determine the firmware revision level of your Smarterm, locate the chip with the paper label on it. If the version is lower than 3. 0, contact Continental Instruments for instructions on how to upgrade your firmware.
The hardware revision level information is located in the upper left hand corner of your Smarterm. If it does not conform to the specifications described above, contact Continental Instruments for instructions on how to upgrade your hardware.

1.3. Board Description

1.3.1. Power Requirements

12Vdc: Provided at J17 by the supplied power cable.

A completely wired power cable has been supplied for your convenience. One end is fitted with a Buchanan connector for attachment to the Supervised Alarm board at J19. The other end consists of a pair of tinned leads, which will be connected to the existing Smarterm battery backup system.

1.3.2. Data/Control

A 34-position ribbon cable has been supplied. When connected, it allows the Smarterm to monitor the status of the Supervised Alarm board. It is fitted with two 34-position dual row connectors, one attached to either end of the ribbon cable. Pin 1 can be identified either by a triangle on the 34-position dual - row connector or by the edge of the ribbon cable with the red trace.
Interconnection is accomplished by aligning the pin 1 indication on the cable with the silkscreen designation for pin 1 on the printed circuit board. On the Smarterm, this cable is to be attached to J20. On the Supervised Alarm board, the cable may be attached to either PI or P2. You will note that it is necessary to place a twist in the ribbon cable in order to properly connect the Smarterm to the first expansion board.
P1 and P2 on the Supervised Alarm board are identical and allow connection to Smarterm and/or other expansion boards from either connector. In this way, up to four expansion boards may be controlled by a single Smarterm by daisy-chaining the connections.

1.3.3. Board Addressing

Each Supervised Alarm board provides 16 supervised alarm inputs. It can be configured to occupy any one of the four logical address select spaces not already occupied by another Expanded 1/0 board, Supervised Alarm board, or RUSCO reader interface board. The actual alarm numbers can be derived from the table below.

ADDRESS	LABEL	ALARM NUMBER
CSX1	X1	Alarms 17-32
CSX2	X2	Alarms 33-48
CSX3	X3	Alarms 49-64
CSX4	X4	Alarms 65-80

TABLE 1-1

It should be noted at this time that there will be gaps in relay numbers when using the Supervised Alarm boards. For example, if all four attached boards are Supervised Alarm boards, relays 9-24, 25-40, 41-56, and 57-72 will be physically non-existent within the system.

Care must be taken to ensure that no two boards occupy the same address space or unpredictable consequences will result.

1.3.4. Alarm Inputs

Each Supervised Alarm board provides sixteen supervised alarm inputs for Smarterm. Each of these alarm input contact sets (ALxxH=high and ALxxL=low) expects a connection to a set of dry contacts through a resistive termination. These contacts can be any magnetic reed switch or a set of relay contacts that do not introduce any voltage into the alarm circuit.

Each supervised alarm input requires special termination in order to provide true supervisory monitoring of an input. The inputs expect a nominal resistance of 1000 ohms in a normal (closed) circuit, and 2000 ohms in an abnormal (open) circuit. A 1000 ohm +/- 10% resistor should be placed across the magnetic reed switch contacts that are shorted with the door closed. A second 1000 ohm +/- 10% resistor is also placed in series with the switch. This circuit will then fulfill the requirements specified above. It is recommended that these resistors be located in a secured area as close as possible to the switch contacts to ensure optimal system security.

The physical connections for these inputs are located at J1 through J16. The actual alarm inputs as recognized by Smarterm are identified in the table below.

Board Address	CSX1	CSX2	CSX3	CSX4
J1-1	AL17H	AL33H	AL49H	AL65H
J1-2	AL17L	AL33L	AL49L	AL65L
J2-1	AL18H	AL34H	AL50H	KL66H
J2-2	AL18L	AL34L	AL50L	XL66L
J3-1	AL19H	AL35H	AL51H	AL67H
J3-2	AL19L	AL35L	AL51L	KL67L
J4-1	AL20H	AL36H	AL52H	KL68H
J4-2	AL20L	AL36L	AL52L	KL68L
J5-1	AL21H	AL37H	AL53H	AL69H
J5-2	AL21L	AL37L	AL53L	KL69L
J6-1	AL22H	AL38H	AL54H	AL70H
J6-2	AL22L	AL38L	KL54L	AL70L
J7-1	AL23H	AL39H	AL55H	AL71H
J7-2	AL23L	AL39L	AL55L	AL71L
J8-1	AL24H	AL40H	AL56H	AL72H
J8-2	AL24L	AL40L	AL56L	AL72L
J9-1	AL25H	AL41H	AL57H	AL73H
J9-2	AL25L	AL41L	AL57L	AL73L
J10-1	AL26H	AL42H	AL58H	AL74H
J10-2	AL26L	AL42L	AL58L	AL74L
J11-1	AL27H	AL43H	AL59H	AL75H
J11-2	AL27L	AL43L	AL59L	AL75L
J12-1	AL26H	AL44H	AL60H	AL76H
J12-2	AL28L	AL44L	AL60L	AL76L
J13-1	AL29H	AL45H	AL61H	AL77H
J13-2	AL29L	AL45L	AL61L	AL77L
J14-1	AL30H	AL46H	A562H	AL78H
J14-2	AL30L	AL46L	AL62L	AL78L
J15-1	AL31H	AL47H	AL63H	AL79H
J15-2	AL31L	AL47L	AL63L	AL79L
J16-1	AL32H	AL48H	AL64H	AL80H
J16-2	AL32L	AL48L	AL64L	ALBOL

Table 1-2

1.4. Installation

The actual hardware installation is fairly simple and straightforward. Briefly, the board and power cord assembly will be mounted in the cabinet, and all cables are then interconnected. The following steps provide a detailed description of this procedure. All references to the case assume it is mounted vertically on a wall. Please read all instructions thoroughly before beginning.

Inside the Smarterm cabinet base:

1. Remove the power from the Smarterm by lifting the five position Buchanan connector off of J9.

2. Disconnect the negative (black) terminal from the battery.

3. Connect the two wire power cable to the J9 Smarterm power connector (removed in step 2.1) using the end of the power cable with the tinned leads. Secure the black lead to J9-1 (marked B-) and the red lead to J9-2 (marked B+). Then, using the supplied spot ties and adhesive-backed anchors, route the two wire power cable inside the cabinet so that it will be near the Supervised Alarm board J9 connector when it is installed. Ensure that enough slack is left in the power cable to allow the hinged door to open and close without interference.

On the Smarterm cabinet cover:

4. Place six 3/811 nylon standoffs on the six threaded studs closest to the hinge assembly. If a board (or boards) already exist on the cover, use the next six available studs closest to the hinge assembly.

5. Place the Supervised Alarm board on these studs, making sure that the dual row header labeled P2 is closest to the Smarterm dual row header labeled J20.

6. Place six fiber washers on the threaded studs that the board has been mounted on.

7. Now secure the Supervised Alarm board assembly to the door using six 6-32 hex nuts.

8. Place the shorting block across an appropriate CSX jumper header to select the proper board address. Please refer to section 1.4.3 for a complete discussion on how to use this jumper.

9. Attach one end of the data/control ribbon cable to P2 on the Supervised Alarm board. (This is the 34 conductor ribbon cable with a dual row connector at either end.) Be sure to align the pin 1 indicator on the cable with the silk screened pin I designator on P2 of the Supervised Alarm board.

10. Attach the other end of the data/control ribbon cable to J20 of the Smarterm, while once again maintaining proper pin 1 alignment. (Please refer to section 1.4.2.) If a board (or boards) other than this new Supervised Alarm board already exist on the Smarterm cabinet cover, place the other end of the data/control ribbon cable on the left-hand 34 position dual row header of the adjacent board. Be sure to maintain proper pin 1 alignment.

11. Install all of the alarm input wiring necessary for your application. Please refer to section 1.4.4 for a complete description of alarm signal names and interconnection requirements.

12. Install the end of the two wire power cable with the Buchanan connector onto the Buchanan connector at J19 of the Supervised Alarm board. Ensure that the power cable's red wire is connected to J19-1 (indicated by +) on the Supervised Alarm board. The black wire should be connected to J19-2, the pin next to the fuse (indicated by -).

13. Replace the five position Buchanan connector at J9 of the Smarterm. This is the same connector you removed in section 2.1 of this procedure.

14. Replace the negative (black) lead to the battery removed in step 2.2.

This completes the hardware installation phase.

1.4.1. How to use the Supervised Alarms:

Configuration of these alarms and relays is similar to that of the Smarterm on-board alarms and relays. A discussion of alarm and relay configuration can be found in the Smarterm Operator's Manual.
The Supervised Alarm board will provide three new messages in addition to the 'normal' and 'abnormal' status messages ordinarily provided. These new alert messages supply additional information about the type of abnormality sensed at the alarm input.

1.4.2. Supervised Alarm Message Interpretation:

Normal
A 'normal' message indicates that the circuit being monitored has sensed that the conditions are met for a normal state.

Abnormal
An 'abnormal' message indicates that the point being monitored has gone into an abnormal condition, but the interconnection between that point and the Supervised Alarm board is still in good condition.

Open
An 'open' message indicates that there is an interruption in continuity between the Supervised Alarm board and the point

being monitored. This condition is typically the result of a cut in the wiring.

Short
A 'short' message indicates that the interconnecting wiring is shorted somewhere between the Supervised Alarm board and the point being monitored. This can be the result of a pinched cable or an unauthorized attempt at defeating the alarm system.

Ground Fault
A 'ground fault' message indicates that one of the sensing wires has come in contact with a ground potential. This can be caused by an un-insulated section of wire touching the inside of the conduit it is running through.

1.5. For firmware versions later than 4.11

Host software (Manage or CA450) must be used to ascertain the status of the inputs

- Enable one or more inputs on the Supervised Alarm board

- Display the input status screen on the host software

- Check display information against anticipated status

- Change the status of the enabled input(s) and verify that the change is properly reflected on the host .status screen

If you are unable to resolve your problem, please call Continental Instruments LLC at (516) 254-0044. Ask to speak with someone in Technical Support regarding the Supervised Alarm board for Smarterm.
Before you call, gather your notes about what the specific problem is and what you have done in your attempt to resolve it. Have your system up and running with a telephone nearby. The technician will discuss your problem with you and guide you through some troubleshooting procedures to determine the cause of your difficulty.