

Fire Alarm System

Salwico CS3004

Installation Manual

for USCG Approved Installations



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Rev. 1, January 2005
Article no.: 910-001000

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About this manual

This manual is intended to be used mainly by personnel installing CS3004 fire alarm system. The installation procedure is divided into two parts, the physical installation of the system and the verification of the functions of the system. The manual is therefore divided into the following chapters: Installation, Verification and a brief System description.

We recommend the installation engineers with no previous knowledge about the CS3004 fire alarm system to first read chapter 3 System description. This chapter will give a brief description of the functions in the fire alarm system.

The first chapter, Installation, describes the complete electrical installation process of the loops excluding the connection to the central unit. The test procedures for the cable are also included in this chapter. The installation engineer does not need to have any previous knowledge of the CS3004 fire system to be able to install the system.

After the installation is completed the system must be verified which must be performed by a person with good knowledge of the various functions in CS3004 fire system. Chapter two includes both the verification and the troubleshooting process.

In chapter three you will find a brief description of loops and sections.

The comission requirements and the installation procedure are described in chapter four.

Chapter 1: Installation

The different parts of the CS3004 fire system, the central unit and the section units, should first be mechanically installed. The different section units are thereafter electrically installed and set up according to the definition of the loops. To eliminate any problem with the cable and the electrical installation of the section units the cable must be tested before the loops can be connected to the central unit. The installation is completed with the electrical installation of the central unit.

Mechanical installation

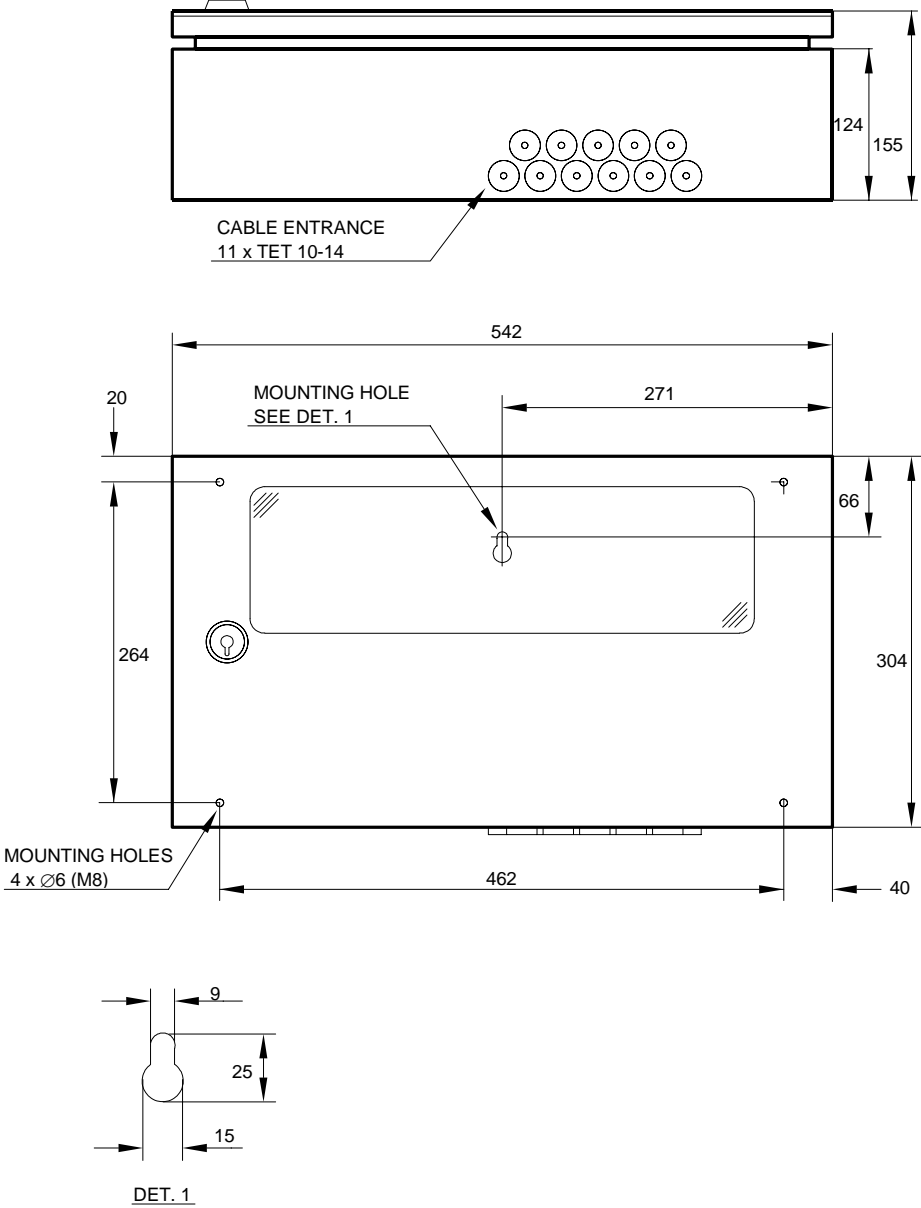
Install the central unit and the section units according to the drawings. Separate drawings are delivered with the system.

Central unit

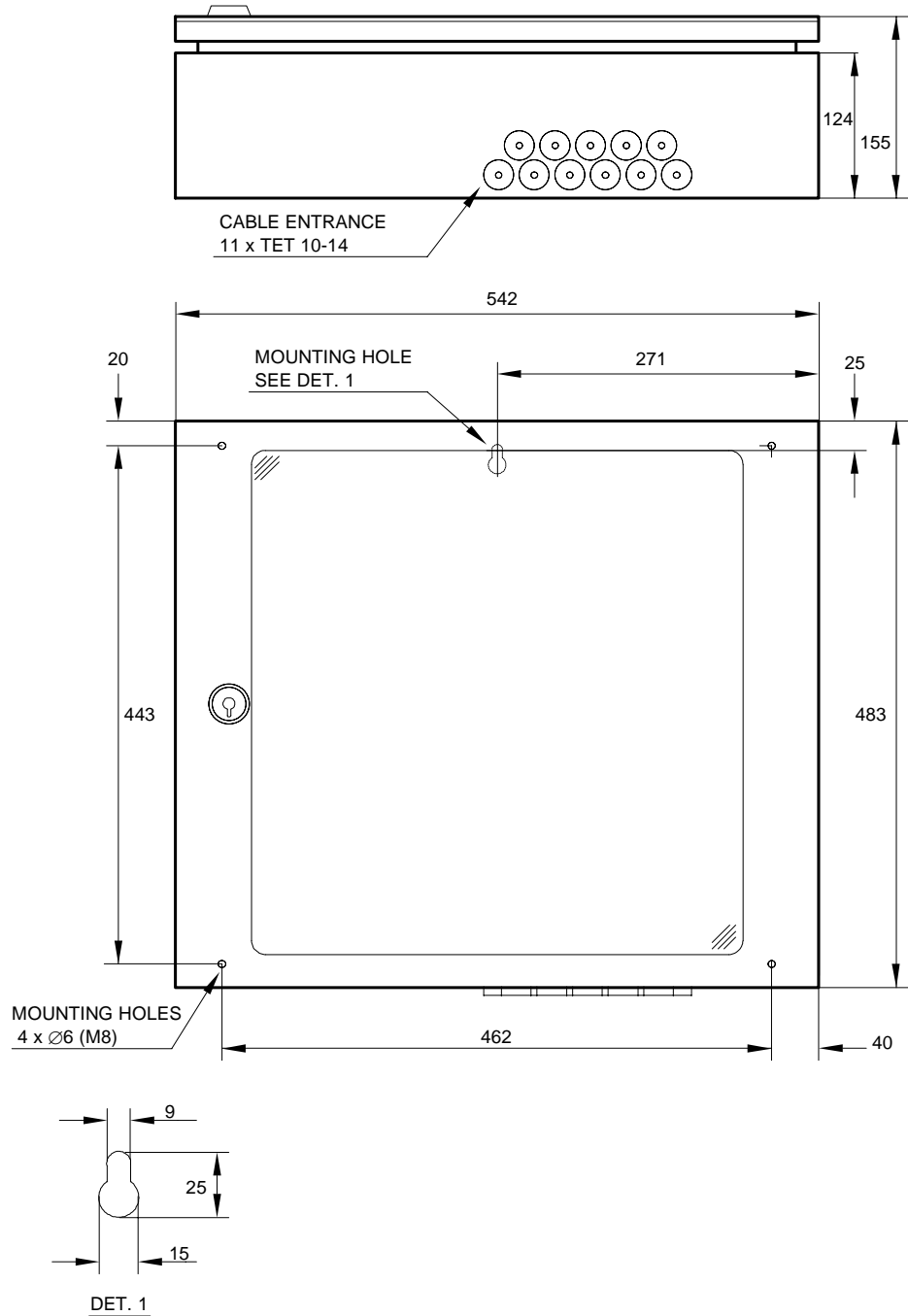
The central unit can be delivered in one of two standard cabinets, 6U or 10U. The drawings below show the two standard wall mounted CS3004 cabinets. The system may be delivered in a non-standard cabinet, for the mechanical installation please see separate drawings.

Cabinet size:	6U: W*H*D	542*304*155 mm
	10U:W*H*D	542*483*155 mm
Colour:	Beige	

6U Cabinet



10U Cabinet



Section units

A section unit is a unit that can be connected to a loop, i.e. detector, manual call point, address unit, timer, sprinkler, etc.

The mechanical installation of the different types of section units are described on the rear side of the data sheets respectively.

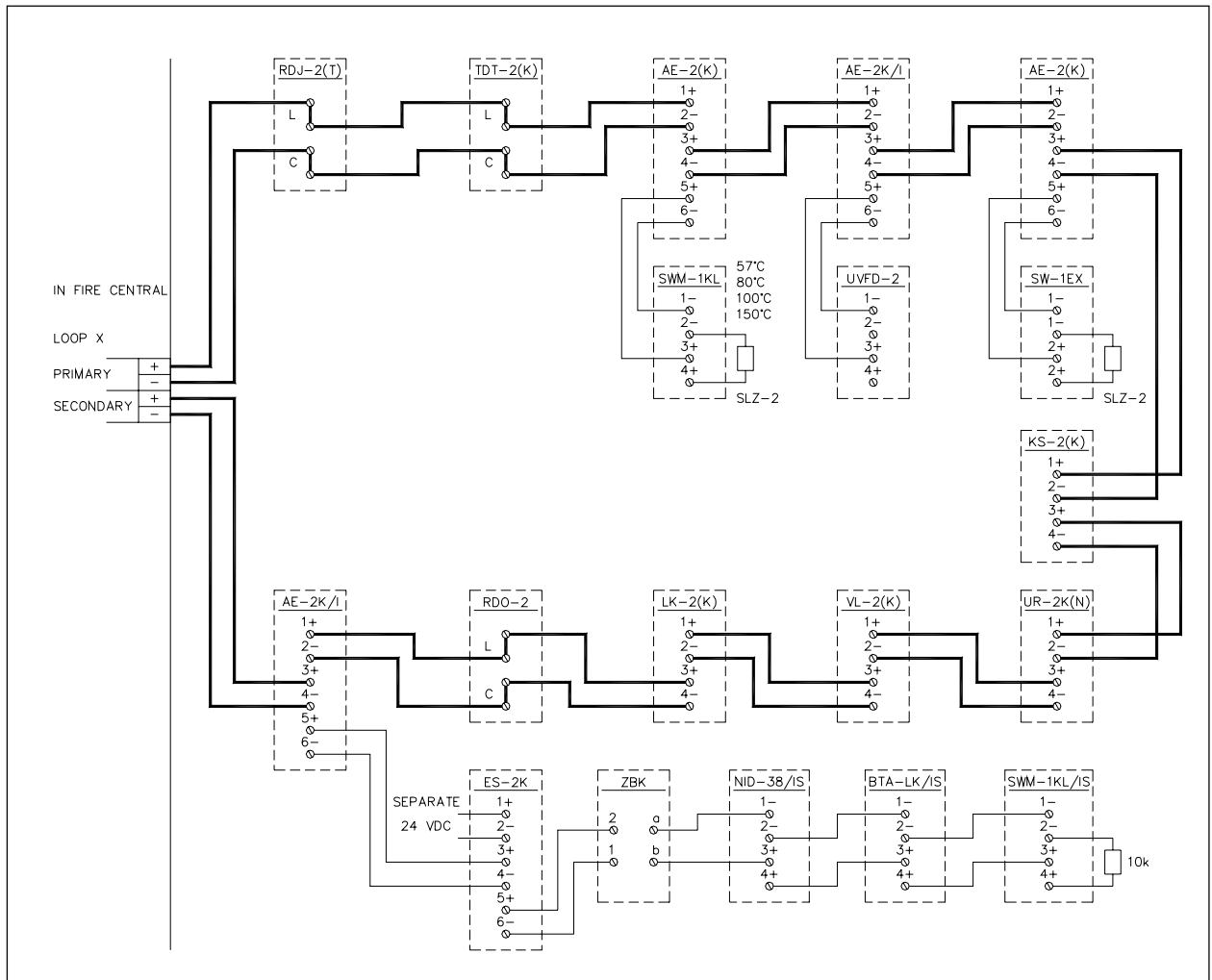
Electrical installation

A loop may consist of different types and different numbers of section units, but how they should be connected to each other depends on how your system is configured. The example on next page will however give you an idea of how a loop may be configured.

The information about the electrical installation of each type of section unit is provided on the back side of the data sheets respectively and in Appendix B.

Important!

- Set the address switch on each section unit when connecting them to the loop. If it is an address unit then also set the ID switch. See **Setting the address of the section units** and **Setting the ID** later in this chapter.
- To be able to test the loop the short circuit isolators must be bypassed. We recommend, connect the cores for terminal 2 and 4 and the cores for terminal 1 and 3 are joined with a connector block, inside the short circuit isolators.



Example 1. One section unit of each type is connected to the loop in this example.

Test the cable

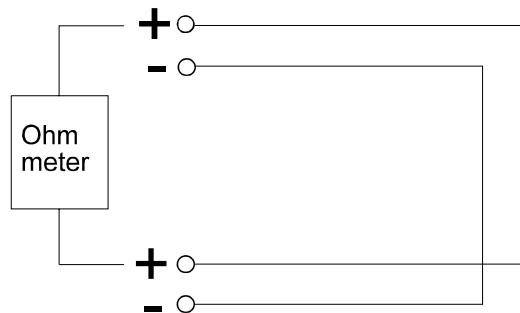
The cable should be tested for proper function after all the section units are connected and before the cable is connected to the central unit. The cable can only be tested if all short circuit isolators are bypassed.

Note! It is not allowed to use an insulation tester with a voltage exceeding 30 V.

Test 1: Test for cable break

Measure the resistance between the + poles and - poles respectively. Connect an ohm meter between the + poles. Measure and repeat the procedure for the - poles.

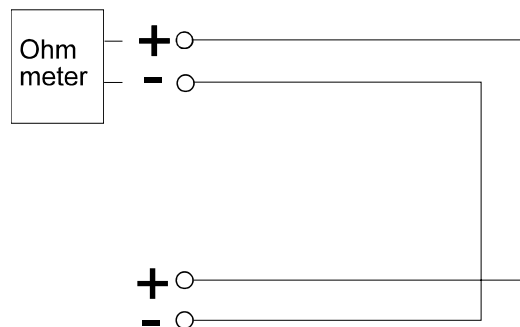
The measured value should be less than 100 ohm for a cable with a maximum length of 2 km.



Test 2: Test for short circuits

Measure the resistance between the + pole and the - pole. Connect an ohm meter between the two poles.

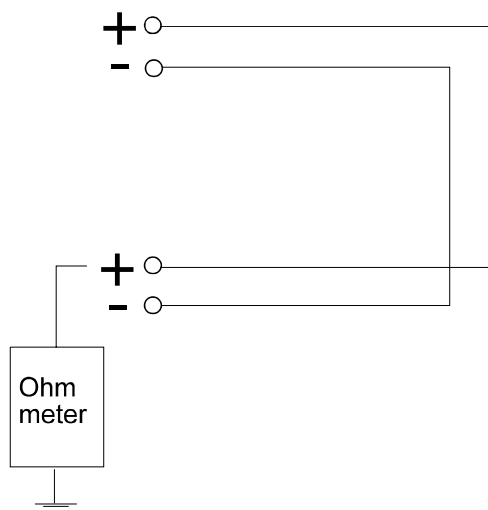
The measured value should be more than 1 kohm for a cable with a maximum length of 2 km.



Test 3: Test for earth failure

Measure between the + pole and the - pole respectively and earth to detect an earth fault. Connect the ohm meter between + pole and earth. Measure and thereafter repeat the procedure for - pole.

The measured value should be more then 50 kohm for a cable with a maximum length of 2 km.



Unexplainable communication errors may occur if there are several earth faults on the positive conductor.

Set the address on the analogue detectors

An address must be specified for each section unit to make it operational. The address interval for each loop is 1-150. The address is set with the 8-pole DIP-switch. The address is binary coded, the least significant bit is indicated with "1" and the most significant bit is indicated with "8". The settings of the switch for all possible addresses are listed on the next page. The digits 1 - 8 are equal to the positions 1 - 8 on the DIP-switch. Set the pin corresponding to the digit in the table below to the ON position.

RDJ-2, RDJ-2T, RDO-2

The address switch on an installed RDJ-2, RDJ-2T or RDO-2 must be sealed with the label attached to the detector.

- Print the section number and the address on the label.
- Pull off the protective paper from the label and stick the label over the address switch.

The base plate on the detector must also be marked with the section number and the address.

- Print the section number at the correct address on the enclosed label sheet.
- Stick the label to the outside of the base plate in full view.

Indication unit, VL-2 and VL-2K

The address of the indication unit, VL-2 or VL-2K, is set identical to the address of the detector which it shall indicate.

Timer

An address interval must be set for each connected timer. The address interval is set on two DIP-switches and the address interval indicates the range of detectors to be disconnected. For more information, see **Set address interval on timer** later on in this chapter.

1	1	2	2	3	1,2	4	3	5	1,3	6	2,3
7	1,2,3	8	4	9	1,4	10	2,4	11	1,2,4	12	3,4
13	1,3,4	14	2,3,4	15	1,2,3,4	16	5	17	1,5	18	2,5
19	1,2,5	20	3,5	21	1,3,5	22	2,3,5	23	1,2,3,5	24	4,5
25	1,4,5	26	2,4,5	27	1,2,4,5	28	3,4,5	29	1,3,4,5	30	2,3,4,5
31	1,2,3,4,5	32	6	33	1,6	34	2,6	35	1,2,6	36	3,6
37	1,3,6	38	2,3,6	39	1,2,3,6	40	4,6	41	1,4,6	42	2,4,6
43	1,2,4,6	44	3,4,6	45	1,3,4,6	46	2,3,4,6	47	1,2,3,4,6	48	5,6
49	1,5,6	50	2,5,6	51	1,2,5,6	52	3,5,6	53	1,3,5,6	54	2,3,5,6
55	1,2,3,5,6	56	4,5,6	57	1,4,5,6	58	2,4,5,6	59	1,2,4,5,6	60	3,4,5,6
61	1,3,4,5,6	62	2,3,4,5,6	63	1,2,3,4,5,6	64	7	65	1,7	66	2,7
67	1,2,7	68	3,7	69	1,3,7	70	2,3,7	71	1,2,3,7	72	4,7
73	1,4,7	74	2,4,7	75	1,2,4,7	76	3,4,7	77	1,3,4,7	78	2,3,4,7
79	1,2,3,4,7	80	5,7	81	1,5,7	82	2,5,7	83	1,2,5,7	84	3,5,7
85	1,3,5,7	86	2,3,5,7	87	1,2,3,5,7	88	4,5,7	89	1,4,5,7	90	2,4,5,7
91	1,2,4,5,7	92	3,4,5,7	93	1,3,4,5,7	94	2,3,4,5,7	95	1,2,3,4,5,7	96	6,7
97	1,6,7	98	2,6,7	99	1,2,6,7	100	3,6,7	101	1,3,6,7	102	2,3,6,7
103	1,2,3,6,7	104	4,6,7	105	1,4,6,7	106	2,4,6,7	107	1,2,4,6,7	108	3,4,6,7
109	1,3,4,6,7	110	2,3,4,6,7	111	1,2,3,4,6,7	112	5,6,7	113	1,5,6,7	114	2,5,6,7
115	1,2,5,6,7	116	3,5,6,7	117	1,3,5,6,7	118	2,3,5,6,7	119	1,2,3,5,6,7	120	4,5,6,7
121	1,4,5,6,7	122	2,4,5,6,7	123	1,2,4,5,6,7	124	3,4,5,6,7	125	1,3,4,5,6,7	126	2,3,4,5,6,7
127	1,2,3,4,5,6,7	128	8	129	1,8	130	2,8	131	1,2,8	132	3,8
133	1,3,8	134	2,3,8	135	1,2,3,8	136	4,8	137	1,4,8	138	2,4,8
139	1,2,4,8	140	3,4,8	141	1,3,4,8	142	2,3,4,8	143	1,2,3,4,8	144	5,8
145	1,5,8	146	2,5,8	147	1,2,5,8	148	3,5,8	149	1,3,5,8	150	2,3,5,8

Address switch settings for address 1-150.

Set the ID

The ID must be set for the address units, AE-2, AE-2K and AE-2K/I, since the function of the unit depends on this setting. Each device connected to the system has an internal ID which is read and handle by the control unit.

Address units

The ID is set with the 5-pole DIP-switch located on the same side as the address DIP-switch. The ID is binary coded, the least significant bit is indicated with "1" and the most significant bit is indicated with "5". Set the pin corresponding to the digit in the table below to the ON position. The settings of the DIP switch for the address units are listed below.

The ID interval is 96 - 127. If all the five bits are set to ON the ID is equal to $127-31=96$, and if all the five bits are set to OFF the ID is equal to $127-0=127$. For example: Bits 3 and 5 are set to ON for the ID=10,

Bit 3 = 16 and Bit 5 = 4 = $16 + 4 = 20$ = The ID is equal to $127 - 20 = 107$

*ID switch settings for the
the address unit*

Type of connected device	Setting	ID
Heat detector, using SWM-1L or SWM-1KL	<input type="text"/>	127
Intrinsically safe detectors, using AE-2K/I and ES2 in combination	<input type="text" value="3, 4, 5"/>	99
Sprinkler, carbon dioxide	<input type="text" value="2"/>	125
Sprinkler, foam	<input type="text" value="2, 3"/>	121
Sprinkler, halon	<input type="text" value="3, 5"/>	107
Sprinkler, water	<input type="text" value="1,2,3"/>	120
UV flame detector	<input type="text" value="4"/>	119

If you want to connect a unit that you can not find in this table, please contact our service department.

Set address interval on timer

Three different addresses should be set on a timer. All addresses are set on DIP-switches. The address of the timer itself is set on the single DIP-switch and the address interval is set on the DIP-switches situated one above the other. The DIP-switches are marked with a text DET.START and DET.END respectively, on one of the short sides. Use the address switch setting on the previous side for the correct setting of the addresses.

- Set the start address on the DIP-switch marked DET. START.
- Set the end address on the DIP-switch marked DET. END.

Note. A connected timer does not affect the function of the manual call points.

Cable requirements

The cable must fulfil the following requirements. We refer to current regulation for the rest of the specification.

Loop: Min. 2 x 0.3 mm²*

Sub-loop: Min. 2 x 0.3 mm²*

* The minimum area is only from a technical point of view.

Loop lengths

The length of a loop or a sub-loop depends on the type of cable, if it is a shielded or an unshielded cable. Never exceed the recommended cable lengths. A cable is considered to be shielded if the shielded part of the cable is more than 10% of the total length.

The loop units are divided into three types, depending on their individual load on the loop.

Type 1 includes all the analogue units.

- SID-38
- RDJ-2
- LK-2 and LK-2K
- KS-2 and KS-2K
- TDT-2 and TDT-2K, 57°C and 80°C
- VE-2
- VL-2 and VL-2K
- RDO-2
- UR-2K and UR-2K/N

Type 2

- SID-38T
- RDJ-2T
- TDT-2 and TDT-2K, rate-of-rise 57°C and rate-of-rise 86°
- CSS3300 Rectifier
- AE-2 and AE-2K, configured as a sprinkler (id 107, 120, 121, 125 and 126), heat detector (127), door indication (117), manual call point (116) and subcentral (114)

Type 3 includes all address units with a constant voltage output on the sub-loop

- AE-2 and AE-2K, configured as smoke detector (ID 111 and 124), flame detector (IR) (ID 123) and heat detector with constant output on the sub-loop (ID 118)
- AE-2K/I, configured as flame detector (UV) (ID 119) and ISIF (ID 99)

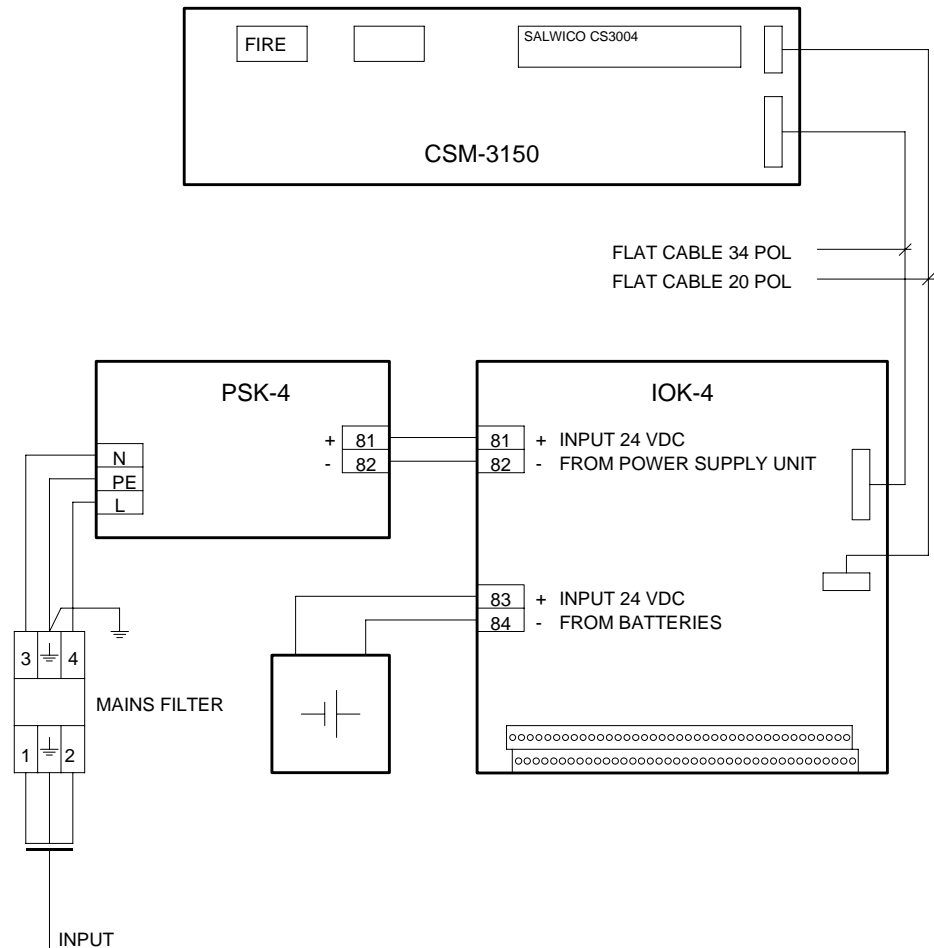
Load	Unshielded cable	Shielded cable
Only type 1 units on the loop	Maximum 150 units Maximum 2000 m	Maximum 150 units Maximum 1000 m
Only type 1 and type 2 units on the loop	Maximum 100 units Maximum 2000 m	Maximum 100 units Maximum 1000 m
Type 1, 2 and 3 units on the loop	Maximum 100 units Maximum 1000 m	Maximum 50 units Maximum 1000 m

Connection to central unit

Internal connection of central unit

Install and connect the internal batteries according to the drawing below if they are delivered separately.









Note! Disconnect battery and mains before disconnecting the flat cable.





Terminal layout IOK-4

The figure below shows the layout of the terminal. The terminal is described in detail in the next pages.

You do not need to keep track of primary and secondary side when connecting section units to the loop, for instance start counting from the primary side.

		40	1			IOK-4
		41	2	G.A INPUT		
		42	3	- 1,2	COMMON	
INPUTS	COMMUN 3,4	- 42	4	+ 1	INPUT	
		3 + 43	5	+ 2		
	4 +	44	6	24 VDC OUTPUT		
OUTPUT EXTERNAL BUZZER		+ 45	7	MAX 1A		
		- 46	8			
COMMON FAULT (NORM. ACTIVATED)		 47	9	COMMON FIRE		
NOT USED		 48	10			
		49	11			
RELAYS		 50	12	RELAYS		
MAX 50 VCA/32 VCC		 51	13	MAX 50 VAC/32 VDC		
2A		52	14	2A		
PROGRAMABLE		 53	15	PROGRAMMABLE		
		54	16			
		55	17			
		 56	18			
		 57	19			
		 58	20			
		59	21			
ALARM BELL 2		+ 60	22	ALARM BELL 1		
24 VDC, MAX 1 A		- 61	23	24 VDC, MAX 1 A		
DETECTORS AND LOOP 1		+ 62	24	LOOP 1		
PUSH BUTTONS		- 63	25	DETECTORS AND		
		64	26	PUSH BUTTONS		
SECONDARY LOOP 2		+ 64	27	LOOP 2		
		- 65	28	PRIMARY		
LOOP 3		+ 66	29	LOOP 3		
		- 67	30	LOOP 4		
LOOP 4		+ 68	31	Tx		
		- 69	32	Rx		
RS232 (OPTION) PORT 2		Tx 70	33	RTS		
		Rx 71	34	CTS		
		RTS 72	35	Gnd		
		CTS 73	36	+ OUT SYSTEM		
		Gnd 74	37	- COMMUNICATION		
SYSTEM COMMUNICATION LOOP 2		OUT + 75	38	+ IN LOOP 1		
		- 76	39			
		IN + 77				
		- 78				

INPUT 230 VAC POWER SUPPLY	
	
1	2

Terminal description IOK-4

The specification may be subject to changes without notice.

Description	Function	Voltage	Current	Terminal
GA input (opto-isolated)	+	U_{in} : 17-35 VDC	I_{in} : 10 mA	1
	-			2
Not used				40
				41
Input 1 (opto- isolated)	-	U_{in} :17-35 VDC	I_{in} : 10 mA	3
	+			4
Input 2 (opto- isolated)	+	U_{in} :17-35 VDC	I_{in} :10 mA	5
Input 3 (opto-isolated)	-	U_{in} :17-35 VDC	I_{in} : 10 mA	42
	+			43
Input 4 (opto-isolated)	+	U_{in} :17-35 VDC	I_{in} :10 mA	44
Fused supervised output for power supply to external devices	+	U_{out} : 24 VDC	I_{out} : 1A	6
	-			7
External buzzer output		$U_{out\ nom}$: 32 VDC	I_{out} : 100 mA	45
Minus for terminal 45				46
Common fire output Output 11	NC	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	8
	C			9
	NO			10
Common fault Output 12 (Fault output, normally activated)	NO	U_{nom} : 50 VAC, 32 VDC	I_{max} : 2A	47
	C			48
Not used				49

Description	Function	Voltage	Current	Terminal
Potential free change-over relay (Programmable) Output 1	NC	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	11
	C			12
	NO			13
Potential free change-over relay (Programmable) Output 3	NC	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	14
	C			15
	NO			16
Potential free single pole relay (Programmable) Output 5	C	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	17
	NO			18
Potential free single pole relay (Programmable) Output 7	C	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	19
	NO			20
Potential free change-over relay (Programmable) Output 2	NC	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	50
	C			51
	NO			52
Potential free change-over relay (Programmable) Output 4	NC	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	53
	C			54
	NO			55
Potential free single pole relay (Programmable) Output 6	C	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	56
	NO			57
Potential free single pole relay (Programmable) Output 8	C	U_{max} : 50 VAC, 32 VDC	I_{max} : 2A	58
	NO			59
Fuse supervised relay output ¹	(+)	U_{max} : 24 VDC	I_{max} : 1A	21
Alarm bell 1 (Programmable) Output 9	-			22

¹**Note!** Activated by the GA-input. If the output is not connected to a load, connect an 4.7 kohm end-of-line unit.

Description	Function	Voltage	Current	Terminal number
Fuse supervised relay output	(+)	U_{out} : 27 VDC	I_{out} : 1A	60
Alarm bell 2 Output 10 (Programmable)	-			61
Primary side loop 1	+	$U_{out\ nom}$: 30 VDC		23
	-			24
Primary side loop 2	+	$U_{out\ nom}$: 30 VDC		25
	-			26
Primary side loop 3	+	$U_{out\ nom}$: 30 VDC		27
	-			28
Primary side loop 4	+	$U_{out\ nom}$: 30 VDC		29
	-			30
Secondary side loop 1, plus	+	$U_{out\ nom}$: 30 VDC		62
	-			63
Secondary side loop 2, plus	+	$U_{out\ nom}$: 30 VDC		64
	-			65
Secondary side loop 3, plus	+	$U_{out\ nom}$: 30 VDC		66
	-			67
Secondary side loop 4, plus	+	$U_{out\ nom}$: 30 VDC		68
	-			69
RS232 port 1 (opto-isolated)	Tx(output)			31
	Rx (input)			32
	RTS (output)			33
	CTS (input)			34
	Gnd			35

Description	Function	Voltage	Current	Terminal number
RS232-port 2 (option) (opto-isolated)	Tx (output)			70
	Rx (input)			71
	RTS (output)			72
	CTS (input)			73
	Gnd			74
System communication loop 1 (opto- isolated)	Out +			36
	Out -			37
	In +			38
	In -			39
System communication loop 2 (opto-isolated)	Out +			75
	Out -			76
	In +			77
	In -			78

Chapter 2: Verification

The definition of the loop must be performed by a person with good knowledge of the CS3004 fire system. The system is sometimes delivered with a complete system definition, but usually only with a test system definition.

Loops

First of all you have to verify the loops in the system, since the cable has already been tested we therefore assume that no communication problems exist in the system. The verification procedure is described below, step by step.

1. Connect the primary side of one of the loops to the central unit.
2. Power on the system. If the display is blank, i.e. there are no text in the display and the LEDs Power, System fault and Fault are lit, the system has entered the safe state. For more information, see **Safe state** on page 33 in this chapter.
3. Deactivate the built-in short circuits isolators from the operating panel. The operator must have the authority to work on access level 4.
 - Press F4 (MENU) on the operating panel until SERVICE is displayed above key F4.
 - Press F1 (SERVICE). The built-in short-circuit isolators are now deactivated and they can only be activated again from the *Disconnection* list.
4. Measure the voltage on the primary side in the central unit. All the section units are connected correctly (no polarity fault) if the voltage is equal to about 30 VDC. If this is not the case, see **Polarity fault** on page 22 in this chapter.
5. Connect the secondary side to the central unit.
6. Verify that the correct number of section units and the correct type of section units are installed in the correct place by using the *Section unit status* list. If a section unit is missing, see **Wrong number of section units** on page 22 in this chapter.

Note! All short circuits isolators are by-passed and should therefore be present in the *Section unit status* list.

Select Section unit status list

- Press LIST.

You can always correct a mistake, use the ← key to erase one step at a time backwards. If you want to interrupt the disconnection function and return to normal status, press ↵. The system returns to normal status 60 seconds after the last key is depressed, *Salwico CS3004* is displayed.

LIST
SELECT LIST


```
FIRE ALARM FAULT DISCONN. MORE
```

- Press F4. (MORE until SEC. UNIT is displayed.)

```
LIST
SELECT LIST
SEC.UNIT INPUTS OUTPUTS MORE
```

- Press F1 (SEC. UNIT).

```
LIST SEC.UNIT DATA SEC.
ENTER SECTION NUMBER
```

- Enter a section number.

```
LIST SEC.UNIT DATA SEC. 8
ENTER SECTION NUMBER
LIST
```

- Press F1 (LIST).

On line one the system displays information about the first section unit in the specified section and on line three it displays the analogue values, the type of section unit, and for smoke detectors sensitivity, time delay and degree of pollution. The address, ID and analogue values are displayed as decimal values. The sensitivity is displayed either as *NORMAL* or *HIGH* and the pollution as a percentage, where 0 % is a new detector and 100 % is the level at which a fault is generated. A minus sign preceding the percentage indicates decreasing pollution. You may make a printout of this information on your local printer.

```
SEC 1 SD 1
PANTRY AND MESS
CHANNEL 039 099 000 000 (ID44, 11%)
PRINTOUT
```

- Use the arrow keys (↑↓) to scroll the list up and down.
- If you want to make a printout, press F1 (PRINTOUT).

The following information is printed out on the list:

Section number followed by, for each address:

- Address
- Type of section unit (both as text and ID)
- Analogue values
- Additional text.

The following information is also printed out if the detector is a smoke detector:

- Selected sensitivity

- Time delay
- Contamination level.

Address, ID and analogue values are presented as decimal values. The sensitivity is presented as HIGH SENSITIVITY for high sensitivity and no text at all for normal sensitivity. When the time delay is on it is presented as TIME DELAY otherwise no text at all. The contamination is presented as a percentage, 0% for a completely new detector and 100 % is equal to the level when a fault is generated. Please note, the percentage may exceed 100, and a minus sign indicates that the contamination is decreasing.

The list is printed out and the system returns to normal status, *Salwico CS3004* is displayed again.

```

***** START OF LISTING 1995-10-15 00:09:22 *****
1995-10-15 00:09:21 UNIT DATA SEC 1 SD 1 CH 042 000 000 000 (ID:4, 85%)
                    SENSITIVITY: NORMAL DELAY: OFF
1995-10-15 00:09:22 UNIT DATA SEC 1 SD 2 CH 035 093 000 000 (ID:6, 85%)
                    SENSITIVITY: NORMAL DELAY: OFF
1995-10-15 00:09:22 UNIT DATA SEC 1 SHORT. ISOL. 3 CH 000 000 000 000 (ID:240, 0%)
1995-10-15 00:09:22 UNIT DATA SEC 1 HDM 4 CH 000 092 000 000 (ID:18, 0%)
1995-10-15 00:09:23 UNIT DATA SEC 1 SD 5 CH 043 000 000 000 (ID:14, 102%)
                    SENSITIVITY: NORMAL DELAY: OFF
1995-10-15 00:09:23 UNIT DATA SEC 1 SD 6 CH 042 094 000 000 (ID:10, 96%)
                    SENSITIVITY: NORMAL DELAY: OFF
1995-10-15 00:09:24 UNIT DATA SEC 1 SD 7 CH 044 000 000 000 (ID:8, 96%)
                    SENSITIVITY: NORMAL DELAY: OFF
1995-10-15 00:09:24 UNIT DATA SEC 1 HDM 8 CH 000 000 021 000 (ID:127, 0%)
1995-10-15 00:09:24 UNIT DATA SEC 1 MAN.CALL PT. 9 CH 128 000 000 000 (ID:64, 0%)
***** END OF LISTING 1995-10-15 00:09:25 *****

```

Example 2. An example of a section unit data list.

7. Connect all short-circuit isolators.
8. Restart the system and wait for about five minutes before data is relevant in the system.
9. Print out a new *Section unit status* list and verify that the correct number of section units and the correct type of section units, including the short-circuit isolators, are installed in the correct place. If a section unit is missing, see **Wrong number of section units** on page 23 in this chapter.
10. One loop is now verified and tested. Continue with the next loop. Repeat this procedure for all loops.
11. When all the loops are tested, perform a final test of the fire alarm system. Check that the section units are installed in the correct place and with the correct address. The *Fire alarm history* list is cleared every time the system is restarted and it can therefore be used to document the final test.

You can always correct a mistake, use the ← key to erase one step at a time backwards. If you want to interrupt the disconnection function and return to normal status, press ↵. The system returns to normal status, *Salwico CS3004* is displayed 60 seconds after the last key is depressed.

Select Fire alarm history list

- Press LIST.

```
LIST
SELECT LIST
FIRE ALARM FAULT DISCONN. MORE
```

- Press F4 (MORE).

```
LIST
SELECT LIST
FIRE ALARM FAULT DISCONN. MORE
```

- Press F1 (FIRE HIST.).

The latest reset fire alarm is displayed first. All the information about the fire is displayed on line one and additional text is displayed on line two. The total number of alarms and the fire alarm in order is displayed on line three. You may make a printout of this information on your local printer.

```
RESET FIRE ALARM
ADD.TEXT TO RESET FIRE ALARM
ALARM X OF Y
PRINTOUT
```

- Use the arrow keys (↑↓) to scroll the list up and down.
- If you want to make a printout press F1 (PRINTOUT).

To return to normal status

- Press ↵, *Salwico CS3004* is displayed.

12. We recommend you to use a top to bottom procedure if you have any problem with the verification of the loop function. Start to solve the problems that affect the whole loop and thereafter continue with the problems with each address.

Polarity fault

One or more section units are not correctly installed if the measured voltage is much less than 30 VDC.

Proceed as follows to locate the section units with polarity fault : Divide the cable in two halves, locate the polarity fault on one of the halves. Divide this half of the cable again into two halves. Continue to divide the cable into halves until you have found the polarity fault.

All the section units are correctly installed when the measured voltage is around 30 VDC.

- Restart the system.
- Continue with the verification, return to **Loops**, point 5.

Wrong number of section units

If a limited number of section units do not answer, the problem may depend on one of the causes listed below. When the correct number of section units are installed, return to **Loops**, point 6.

Cause	Remedy
Too few section units installed.	Install the missing section units.
Wrong address for the section unit	Set the correct address.
Two or more section units with the same address.	See <i>Address error</i> paragraph below
Section unit is broken.	Replace the section unit.

Note! Restart the system after each time you have changed an address. You have to wait for about five minutes after restart before data is relevant in the system.

Address error

Use the *Section unit status* printout to find the missing units. However, there is a possibility that one or more section units with the same address will answer, which is reported as bad communication, an abnormal condition.

Information about analogue values

All information about the analogue values for each type of section unit is listed in the following tables.

Detectors and manual call points

The listed analogue values for detectors and manual call points include alarm levels, fault condition levels and normal values for all analogue channels.

Analogue values for detectors and manual call points

Loop Unit		Channel		Analogue values		
Name	ID	No	Type	Normal*	Alarm	Fault
LK-2/-2K	64	0	-	127 ± 5% at 25°	150	6
RDJ-2	8	0	Smoke	35 ± 10	96	4
RDJ-2T	10	0	Smoke	35 ± 10	96	4
			Heat	90 ± 5% at 25°	178	6
RDO-2	14	0	Smoke	40 ± 10	102	6
SID-38	4	0	Smoke	35 ± 10	85	6
SID-38T	6	0	Smoke	35 ± 10	85	6
		1	Heat	90	178	6
TDT-2	18	1	Heat	90	178	6
TDT-2/RoR	19	1	Heat	90	(223)	6
TDT-2K	20	1	Heat	90	178	6
TDT-2K/RoR	21	1	Heat	90	(223)	6
TDT-2/80°	26	1	Heat	90	213	6
TDT-2/RoR,57°	27	1	Heat	90	(178)	6
TDT-2K/80°	28	1	Heat	90	213	6
TDT-2K/RoR,57°	29	1	Heat	90	(178)	6

NB! The value within brackets indicates the maximum alarm level for rate of rise detectors. The detector may generate a fire alarm before it reaches the maximum alarm level if the temperature rise is too fast. The fire alarm condition is generated by signal processed data.

Address units

* The normal value depends on the environment. The system indicates on the display when there is a fault on a detector.

Address units make conventional digital detectors and other digital signals addressable and compatible with the CS3004 system. The type of connected device is set with the ID switch, see table below.

Analogue values for address units

Address unit		Analogue values/ (Channel 2)			Type of unit
Type of device	ID	Normal	Active/ Alarm	Fault	Setting
Heat detector	127	25	-/84	6	
Intrinsically safe detectors, using AE-2K/I and ISIF-3K in combination	99	25	-/84	6	3, 4, 5
Sprinkler, carbon dioxide	125	25	-/84	6	2
Sprinkler, foam	121	25	-/84	6	2, 3
Sprinkler, halon	107	25	-/84	6	3, 5
Sprinkler, water	126	25	-/84	6	1,2,3
UV flame detector	119	25	-/84	6	4

Other section units

All information about analogue values for other types of units, i.e. units not detecting fire conditions are listed below.

Analogue values for other loop units

Loop Unit		Channel		Analogue values	
Name	ID	No	Function	Normal	Activated
KS-2/-2K	240	0	Short circuit	0	26
UR-2K	233	0	Timer	0	85
UR-2KN	232	0	Timer	0	85
		1	Key	0	85

Central unit

At power-up the text *Salwico CS3004*, the date and the time are displayed on the display if all the units have been installed correctly. A fault code is otherwise displayed on the operating panel, the fault indication is flashing and the internal buzzer is sounding. A fault must be muted and reset.

All the fault codes, their cause and how an operator with some knowledge of the system can solve the problem, are listed below. When a fault occurs, localise the problem and deal with it.

Fault codes

The word FAULT is displayed on the first line of the display together with a fault code followed by the section number and the address for the section unit causing the problem, if the system has this information. Additional text is displayed on line two, if provided. A few fault codes can not be displayed with all this information. These fault codes are marked with an asterisk (*) in the summary below.

When you want to locate a fault proceed as following.

- Print out the list *Section unit status*. For more information, see **Loops**, point 6.
- Use the list to find the appropriate section unit(s).

If only a fault code is displayed without any message please contact your local service department.

Fault codes	Cause	Remedy
7 Missing section unit(s) *	Wrong definition of number of section units.	Contact our service department.
	Section unit connections faulty.	Connect the unit correctly.
	Missing answer from a section unit.	Exchange the unit.
8 Additional section unit(s) *	Wrong definition of number of section units.	Compare the installation to the drawings. Contact our service department.
	Section unit connections faulty.	Connect the unit correctly.
21 Bad answer (Abnormal condition)	Bad communication with one or several section units, could be temporary.	Exchange the section unit if the condition remains or returns. If this fault is not temporary contact our service department.

Fault codes	Cause	Remedy
22 No answer	Two section unit have the same address.	Check the units.
	Hardware fault.	Exchange the unit.
	Cable break in loop or system loop. A secondary fault code (121) appears.	Mend the cable. See <i>Cable</i> at the end of this chapter.
24 Wrong status	Section unit faulty.	Exchange the section unit.
25 Unknown ID	Section unit faulty. The ID of the section unit is missing in the <i>Section unit status</i> list	Exchange the section unit.
	Wrong software in CS3004. The ID for all section units of this type for this loop is missing in the <i>Section units status</i> list..	Exchange the software.
	Wrong type of detector installed.	Install correct type of detector. Restart the system.
26 Bad communication in a loop * (Abnormal condition)	The loop communication is bad.	Test the loop. Measure the cable resistance. See <i>Cable</i> at the end of this chapter.
27 Loop comm. stopped *	A section unit has stopped the loop communication on the loop.	Contact the service department.
28 Looptrans. stopped*	Central communication unit faulty.	Contact the service department.
29 Checksum fault IDA	Two section units has the same address.	Check the section units.
41 Section booting	The system is booting.	Contact our service department
42 Boot disabled	Section unit is faulty	Exchange the section unit.
	Address unit on a sub-loop is faulty.	Test the sub-loop.
43 Wrong address interval	Overlapping address intervals.	Set a valid address interval.
	End-address of the interval is lower then the start-address.	Set a valid address interval.
44 Illegal address	Faulty section unit.	Exchange the section unit.
71 Error in external control	Wrong definition of the external control.	Contact our service department.
72 Error in definitions	Wrong definition,	Contact our service department.

Fault codes	Cause	Remedy
81 Mains fault	Mains power missing.	Attend to the problem.
	A fuse is blown in the central unit.	Exchange the fuse. There are two fuses on the Power supply board (PSK-4).
	Cable break.	Mend the cable. See <i>Cable</i> at the end of this chapter.
83 Fuse fault	A fuse is blown in the central unit.	Exchange the fuse. See <i>Fuses</i> at the end of this chapter
	Internal power supply fault.	Contact or service department.
84 Voltage fault	Internal power supply fault.	Contact or service department.
90 Polluted detector (Abnormal condition)	Detector head is polluted.	Optical smoke detector: Clean the detector head. Ionisation smoke detector: Exchange the detector.
93 Fuse/Cable fault	A fuse is blown in the central unit.	Exchange the fuse. See <i>Fuses</i> at the end of this chapter.
	Cable break.	Mend the cable. See <i>Cable</i> at the end of this chapter.
96 Battery fuse/Cable fault	A fuse is blown in the central unit.	Exchange the fuse. See <i>Fuses</i> at the end of this chapter.
	Cable break.	Mend the cable. See <i>Cable</i> at the end of this chapter.
101 Alarm function failure	The alarm function in the detector does not work.	Exchange the detector.
102 Thermistor fault	A thermistor in a detector faulty.	Exchange the detector.
103 Ion smoke chamber fault	Ion chamber in an ionisation detector faulty.	Exchange the detector. If the fault remains contact our service department.
121 Cable break *	One of the system loops, a detector loop or a conventional loop is faulty.	Mend the cable. See <i>Cable</i> at the end of this chapter.
124 Subloop cable break *	Cable break.	Mend the cable. See <i>Cable</i> at the end of this chapter.
	Missing end-of-line unit.	Connect an end-of-line unit.
125 Short circuit on loop *	Short circuit on the detector loop.	See <i>Short-circuit</i> at the end of this chapter.
126 Short circuit on prim. side	Short circuit between the positive and the negative connector on the primary side.	Attend to the problem.

Fault codes	Cause	Remedy
-------------	-------	--------

127 Short circuit on sec. side	Short circuit between the positive and the negative connector on the secondary side.	Attend to the problem.
141 Earth fault +	Earth fault between the positive connector and earth.	See <i>Earth fault</i> at the end of this chapter.
142 Earth fault -	Earth fault between the negative connector and earth.	See <i>Earth fault</i> at the end of this chapter.
145 Low voltage	Too low system voltage from the power unit	Test the rectifier and measure the voltage. Too low voltage: → Exchange the rectifier. Normal voltage: → Exchange the IOK-4 board.
146 High voltage (Abnormal condition)	Too high system voltage from the power unit	Test the rectifier and measure the voltage. Too high voltage: → Exchange the rectifier. Normal voltage: → Exchange the IOK-4 board.

Cable break

See **Fault Finding Guide**, separate document.

Earth fault

Check the loops one by one.

1. Disconnect a loop by using the electric isolation function. The operator must have the authority to work on access level 3.

You can always correct a mistake, use the ← key to erase one step at a time backwards. If you want to interrupt the disconnection function and return to normal status, press ↵. The system returns to normal status, *Salwico CS3004* is displayed 60 seconds after the last key is depressed.

- Press F4 (MENU) four times.

```
SALWICO CS3004          1993-08-22
16:17:19
PROG.VER. SHOW DEF. EL.ISOL. (MORE)
```

- Press F3 (EL.ISOL.).

```
ELECTRIC ISOLATION LOOP NO.:
ENTER LOOP NUMBER 1 - 4
```

- Enter a loop number between 1 and 4.

Disconnect a loop

- Press OFF.

```
LOOP NO. : 2 EL. ISOL.
EXECUTING ORDER
```

When the loop is disconnected the text on line three is changed to ORDER DONE. The DISCONNECTION LED is lit, if this is the first active disconnection in the system. After about five seconds the display returns to the previous menu.

After about five seconds the system returns to normal status, *Salwico CS3004* is displayed.

2. Reset the fault.
3. The loop is faulty if the fault reappears. If this is the case reconnect the loop again.
4. Repeat this procedure for all the loops.
5. All the loops are tested. Examine each faulty loop in a conventional way to locate the earth faults.
6. The electrically isolated loops must be reconnected when all the earth faults have been found. The operator must have the authority to work on access level 2.

Select Disconnections list

- Press LIST.

You can always correct a mistake, use the ← key to erase one step at a time backwards. If you want to interrupt the disconnection function and return to normal status, press ↵. The system returns to normal status, *Salwico CS3004* is displayed 60 seconds after the last key is depressed.

```
LIST
SELECT A LIST
FIRE ALARM  FAULT      DISCONN. MORE
```

- Press F3 (DISCONN.).

The latest disconnection is listed first. All the information about the disconnection is displayed on line one and the additional text is displayed on line two. The total number of disconnections and the number in order is displayed on line three.

```
SEC 2 SMOKE DETECTOR 2 - 4 OFF
PUMP ROOM 1, SB
DISCONNECTION 1 OF 10
PRINTOUT
```

- Use the arrow keys (↑↓) to scroll the list up and down.

To make a printout

- Press F1 (PRINTOUT).

The list is printed out on the local printer.

Reconnection

- Select the disconnection by using the arrow keys.
- Press ON.

```
SEC 2 SMOKE DETECTOR 2 - 4
RECONNECTING UNIT . . .
```

The unit is reconnected

When the unit is reconnected the text on line three is changed to UNIT IS RECONNECTED. After about five seconds the next disconnected unit is displayed.

The last disconnected unit is reconnected

When the last disconnection is reconnected the text LIST EMPTY is displayed on line three. After about five seconds the text disappears and the system returns to the normal status, *Salwico CS3004* is displayed.

7. If the earth fault still remains after these steps, examine the cables to all other devices connected to the fire alarm system.

Short circuit

No section units answers

Search for the short-circuit between the central unit and the first short circuit isolator.

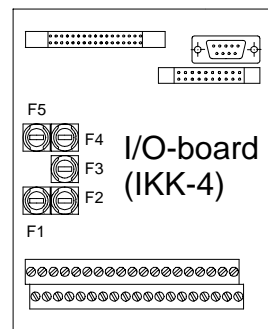
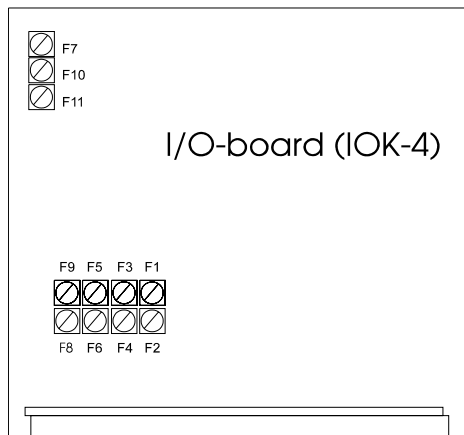
If one or more section units do not answer

Search for the short circuit between the fault reported short circuit isolators to find the exact location of the fault.

The easiest way to find a short circuit is to divide the cable in two halves, locate the short-circuit on one of the halves. Divide this half of the cable again into two halves. Continue to divide the cable into halves until you have found the short-circuit.

Fuses

Check the fuses on the IKK-4 board if it is a **Maxi repeater unit** or else check the fuses on the IOK-4 board.



Board	Fuse No.	Function	Fuse rating	Fault code
IOK-4	F1	Alarm device 1	1 AT	93
IOK-4	F2	Alarm device 1	1 AT	93
IOK-4	F3	Alarm device 2	1 AT	93
IOK-4	F4	Alarm device 2	1 AT	93
IOK-4	F5	Voltage output	1 AT	93
IOK-4	F6	Voltage output	1 AT	93
IOK-4	F7	I/O-board	2 AT	84
IOK-4	F8	Battery fuse	6,3 AT	83
IOK-4	F9	Battery fuse	6,3 AT	83
IOK-4	F10	Alarm device	3,15 AT	93
IOK-4	F11	GPK	1 AT	The operating unit panel is out of order
IKK-4	F1	GPK-4	500 mAT	
IKK-4	F2	IKK-4 board	100 mAT	
IKK-4	F3	Output devices	500 mAT	
IKK-4	F4	Voltage output	315 mAT	
IKK-4	F5	Voltage output	315 m AT	

Mute faults

The internal buzzer is temporarily silenced when the door is opened.

- Press M in the FAULT field to mute the fault.

The fault indication stops flashing and turns over to steady yellow. The fault is put on a fault list and the next fault is displayed, if there are more faults in the system, otherwise the system returns to its previous state. The latest fault is always displayed first. How many faults there are in the system and which fault in order that is displayed is presented on line three. You can scroll the faults up and down by using the ↑ and ↓ keys.

Reset faults

The cause of the problem must have disappeared before a fault can be reset. The faults are reset from the *Fault* list.

- Press LIST to open the list function.
- Press F2 to select the *Fault* list.

FAULT (22) SEC 2 DETECTOR 5 NO ANSWER ENGINE WORKSHOP MENU
--

The first fault displayed is the latest fault. You can scroll the fault list up and down by using the ↑ and ↓ keys. If you want to interrupt the list function, press the ↵ key.

- Press the arrow keys until the appropriate fault is displayed.
- Press R in the FAULT field to reset the fault.

The system is trying to reset the fault.

FAULT (22) SEC 2 DETECTOR 5 NO ANSWER ENGINE WORKSHOP RESET FAULT... MENU
--

The fault is reset

The fault is reset and it disappears from the fault list. The next fault is displayed after about 5 seconds. If the fault list is empty, the text LIST EMPTY is displayed, and the system returns to normal status, *Salwico CS3004* is displayed.

FAULT (22) SEC 2 DETECTOR 5 NO ANSWER ENGINE WORKSHOP FAULT IS RESET MENU
--

The fault is not reset

The fault is not reset and the reason to this is displayed on line three.

```
FAULT (22) SEC 2 DETECTOR 5 NO ANSWER  
ENGINE WORKSHOP  
NOT RESET, DETECTOR STILL FAULTY  
MENU
```

The text on line three disappears after about 5 seconds. Check the problem and deal with it. Thereafter try to reset the fault again.

Safe state

Program execution fail results in a central unit entering into a safe state. The LEDs Power, System fault and Fault are lighted and there is no text on the display. Please contact our service department.

Chapter 3: System description

Loop description

A loop is defined as the cable connecting the central unit and the section units, including the section units.

The two-core cable is used both for power supply to the section units and as a communication link between the loop processor and the section units.

The loop is mastered by a processor in the central unit and every detector is polled in address sequence, reporting alarm conditions and fault conditions. All fire detecting units can interrupt this polling sequence if they have detected a fire condition. The potential fire condition is immediately processed by the central unit.

The loop processor activities are divided into two phases. After power up all the section units on the loop are identified and every address is polled, this is the booting sequence. The polling sequence starts when the boot sequence is finished.

Boot sequence

The section units are identified during the booting sequence. Every address is polled and if the processor receives an answer to the poll, the type of the detector or the section unit is registered and it is then set-up according to the type. Each section unit must consequently have a unique address.

All section units are set-up to work properly. All fire detecting units are programmed with their alarm levels, to make them able to interrupt the sequential polling in case of a potential fire condition.

If the number of detected section units differs from the preset number of units, this is reported as a fault condition.

Polling sequence

When the system has completed the booting sequence the polling sequence is automatically started. The processor keeps on polling the section units in address sequence. Each time a section unit is polled the processor asks the unit about its analogue value.

If the value belongs to a fire detecting unit it will be processed and in case of a potential fire or fault condition it will be verified according to a verification algorithm before it is reported to the user/operator. If the polled section unit is **not** a fire detection unit the value read is reported as a status. The status can either be normal or indicate an event. The status will be verified if it is not normal, and the resulting action depends on the type of section unit. The reported action may be a fault condition, turning off detectors, etc.

Cable breaks and short circuits are detected during the polling sequence. Communication errors are also reported.

When a fire detecting section unit discovers that its analogue value has passed the pre-programmed alarm level a message is sent after which the polling

sequence is immediately interrupted. The value is verified according to the verification algorithm and the result is reported to the user/operator.

Functions

The functions of the system are grouped into different levels and each level is opened with an access code. You can use some of these functions to get information about the status of the system, to change some values or to test some functions, if you have the authority to enter access level three. All functions are described in *CS3004 User's Guide*. The most useful functions during the installation procedure are listed below.

Chapter	Command	Access level
Listings and Printouts	Section unit status	3
	Input status	3
	Output status	3
Adjustment of the system	Change number of section units	3
Adjustment of detectors	Activate/deactivate poll blink	3
System information	Display analogue values for a section unit in a section	3
Test	Test the indicators	3

Section description

Each loop can be divided into a maximum of 10 sections. There may be a total of 40 sections in the system. A section is a part of a loop that is defined by a continuous address interval. A section can only be part of one loop. The address interval, the section number and the number of units are specified for each section. The section number may be in the range 1 - 190. The definition of the sections is made in the system definition.

Different types of section units may be connected to the section. The system allows the connection of maximum 150 addresses per section. A section must be physically delimited by short-circuit isolators.

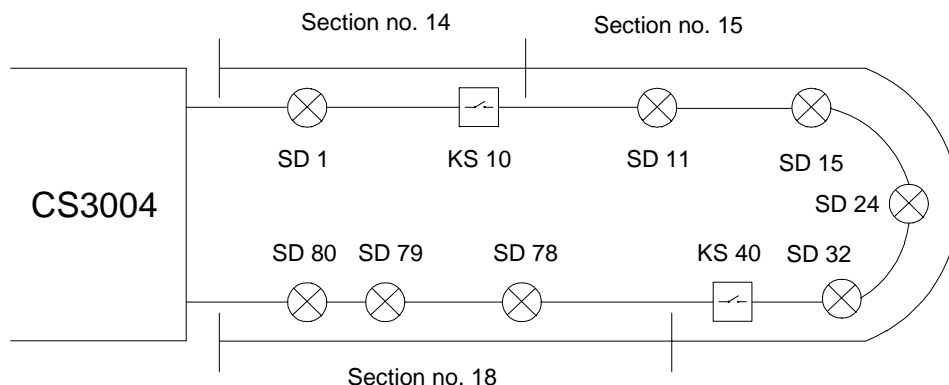
Example

Loop 1 is divided into three sections. The first section on loop 1 is defined as section 14 with the address interval of 1 - 10, one detector (SD1) and one short-circuit isolator (KS10) are connected to this section.

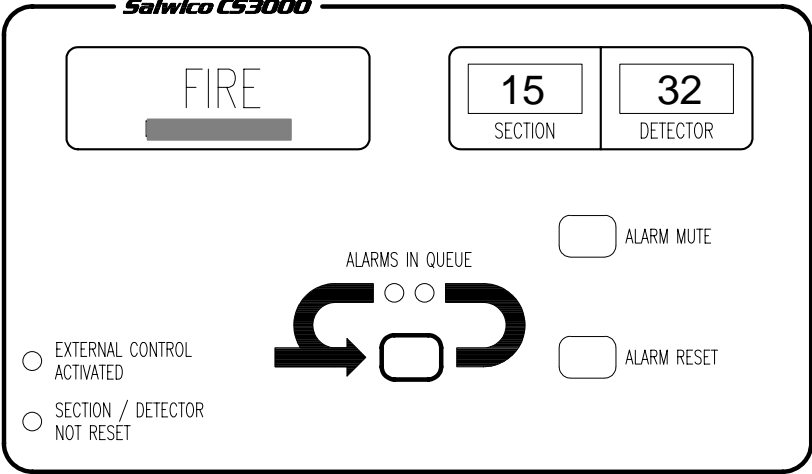
The second section on loop 1 is defined as 15 with the address interval of 11 - 40. There are four detectors (SD11, SD15, SD24, SD32) and one short-circuit isolator (KS40) connected to this section.

The third and last section on loop 1 is defined as section 16 with the address interval of 41 - 150. There are three detectors (SD78 - SD80) connected to this section.

Three sections are defined for loop 1	
Addresses	Section number
1 - 10	14
11 - 40	15
41 - 150	18



If there is a fire alarm from smoke detector SD 32, the section number and the alarming unit address are displayed on the fire alarm panel.



Chapter 4: Commissioning requirements

The procedure described below in section Loop requirements is to be followed by the installation organisation. If nothing else is agreed, no commissioning engineer will be sent from Consilium Marine before the steps below are taken and the appropriate papers are signed and faxed to Consilium Marine. Before the start up of the CS3004 it must be defined, fill in the special document System definition and send it to Consilium Marine.

Loop Requirements

The following specification is a check list of requirements on the loops for CS3000 and CS3004 fire alarm system, and CMS 3000 control and monitoring system. The specification shall be used by the installation organisation of loop units and cabling. Start with part A, continue with part B and then part C. Since there can be up to four loops connected to CS3004, part B must be used once for every loop.

The list in part A (Loop configuration) includes all data you need when configuring the loops. Part B (Loop status) is more like a check list, use it and follow it point by point. When you have completed this part you should have filled in, signed and faxed the special document "Address list/test report for Salwico loop units" for each loop in the system. Part C (Central status) is also a check list but it deals with the status of the central unit.

Part A: Loop configuration

1. Minimum 2 x 0,3 mm² unscreened cable. Normally class requires 0.5-1.5 mm².
2. Maximum cable length 2000 m.
3. Maximum 150 addresses /loop.
4. If address units are used on loops, maximum 99 addresses and maximum 1000m cable length.
5. If flame detectors are used, maximum 10 UVFD-2/loop, maximum 3 pcs/enclosed area and maximum 1000 m cable length.

Part B: Loop status

1. All detector heads, push buttons, address units and control modules shall be fitted into their bases.
2. All base plates shall be fitted into its proper place according to drawings.
3. Dip switches on all loop units must be set with a unique address, see Appendix A "Address list/test report for Salwico loop units".
4. Remove all plastic covers, protective tape or other devices preventing detectors/loop units to be function tested.
5. All cables shall be connected to the loop unit terminals according to the special document "Connections for Salwico loop units", see Appendix B.
6. If the loop units shall be tested with Salwico SE3000 test device, follow the procedure described in the Salwico SE3000 User's Guide.
7. Check the addresses of all loop units **one by one**, according to "Address list/test report for Salwico loop units" and the installation according to "Connections for Salwico loop units".
8. An "Address list/test report for Salwico loop units" must be filled in for each loop. Check **each single** detector and make a mark in the appropriate "OK" -field
9. After each loop is completely tested the person in charge for the loop installation **must sign** the "Address list/test report for Salwico loop units".
10. Fax each signed protocol in one copy to Consilium authorised representative and one copy to Consilium Marine, Gothenburg, Sweden.
11. When all loops are tested and **all** protocols are signed, a Consilium service engineer can be asked to come for the final control and adjustment of the system.

Part C: Central status

1. All control and indication functions must be connected to relay outputs. Outputs and inputs according to Salwico terminal drawings and "Installations Manual CS3004"
2. All loops shall be connected to the central according to terminal drawings.
3. The document "CS3004 System definition" shall be filled in and faxed in one copy to Consilium authorised organisation and one copy to Consilium Marine, Gothenburg.
4. All deviations from above criteria's causes delay-time and will be invoiced.
5. **No power to be connected to the central unit without presence of a Consilium engineer!**
6. The requirements are made in order to minimise the start-up costs for shipyard/owner during the commissioning.

Summary

The following documents must be filled in and faxed to Consilium +46 - 31 58 57 40 and your local Consilium representative in your country before commissioning of the system starts.

1. "Address list/test report for Salwico loop units"
2. "CS3004 System definition"

System definition

The CS3004 fire alarm system includes a number of inputs and outputs that are used for definition of the external controls. Before the start up of the system all inputs and outputs must be defined. Please fill in this form and send it back together with a diskette including the additional texts for all loop units.

The figure below only shows the positions of the programmable inputs and outputs.

		40	1		IOK-4
		41	2		
Programmable inputs 3 and 4	3,4 -	42	3 - 1,2	Programmable inputs 1 and 2	
	3 +	43	4 + 1		
	4 +	44	5 + 2		
		45	6 +		
		46	7 -		
Programmable output 12 COMMON FAULT		47	8	Programmable Output 11 COMMON FIRE	
		48	9		
		49	10		
Programmable output 2		50	11	Programmable output 1	
		51	12		
		52	13		
Programmable output 4		53	14	Programmable output 3	
		54	15		
		55	16		
Programmable output 6		56	17	Programmable output 5	
		57	18		
		58	19	Programmable output 7	
Programmable output 8		59	20		
			60	21 + 24V	
Programmable output 10 ALARM BELL 2	24V +	61	22 - 24V		
			62	23 +	
		63	24 -		
		64	25 +		
		65	26 -		
		66	27 +		
		67	28 -		
			29		

Programmable outputs

Describe the function of all the programmable outputs that you want to use in your Fire Alarm System CS3004. There is a total of 12 programmable outputs, whereof 4 of them are special outputs: Common Fire, Common Fault, Alarm Bell 1 and 2.

Output no.	A description of the function of each output. State the section number and/or address of each loop unit. (Ex. SEC 3 DET 4 - 25 or SEC 1)	Deactivate (Mute or Reset)	Steady or Pulsed	Direct (O) or Delayed (Minutes)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11	COMMON FIRE	RESET	STEADY	O
12	COMMON FAULT	RESET	STEADY	O

Programmable inputs

For example: Timer functions for disconnection of smoke detectors in car decks or cargo holds.

Input	State the section number and/or address of the detectors. (Ex. SEC 3 DET 4 - 10 or SEC 2)
1	
2	
3	
4	

Number of addresses per loop (KS-2 included)

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Supplementary text

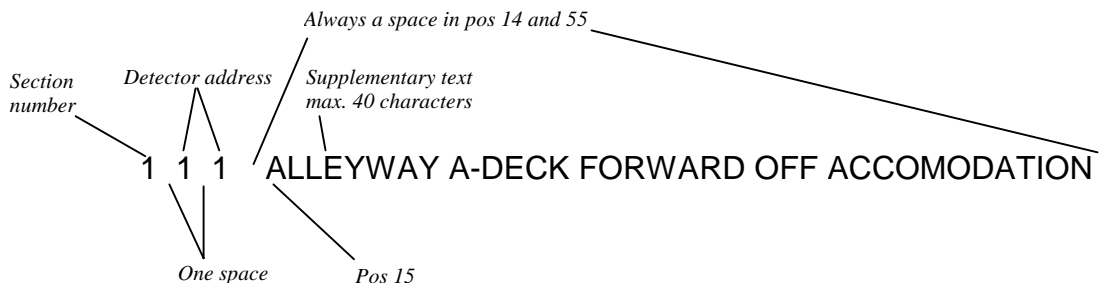
You can create the supplementary text with any simple ASCII editor which does not generate any tabs or other special control signs. You have to specify the additional text for each detector, one by one. To make it easier for you to spell out all these text strings a form is available in Appendix C.

1. Enter the section number and end with a space.
2. Enter the first detector address in the intervall and end with a space.
3. Enter the last detector address in the intervall and end with a space.
4. Go to position 15.
5. Enter the text string, maximum 40 characters.

The syntax of the supplementary text is:

Section No. Space Detector address Space Detector address Space (pos. 14) Supplementary text Space (pos.55)

Example:



Note. If a mini repeater unit is used in the system each string of supplementary text will be split into to rows. The first 20 characters are displayed on one row and the last 20 characters are displayed on the next row.

Appendix A

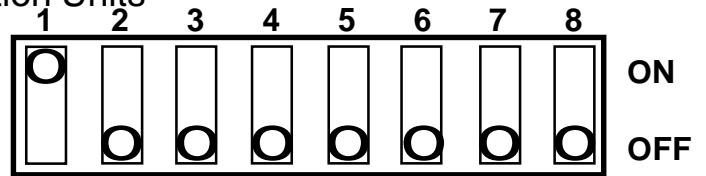
Four copies of the Address List/Test Reports are included, one for each loop

Address List / Test Report

Loop no.....

for Consilium Marine CS3004 Fire Alarm Section Units

Example	8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OK
	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not OK



1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	121	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		92	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		122	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		93	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		123	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		94	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		124	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		125	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		66	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		126	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		97	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		127	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		68	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		98	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		128	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		129	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		130	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		131	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		102	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		132	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		103	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		133	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		104	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		134	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		105	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		135	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		111	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		141	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		52	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		112	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		142	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		83	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		113	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		143	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		86	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		116	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		146	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		88	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		118	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		148	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		89	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		119	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		149	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		90	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		120	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

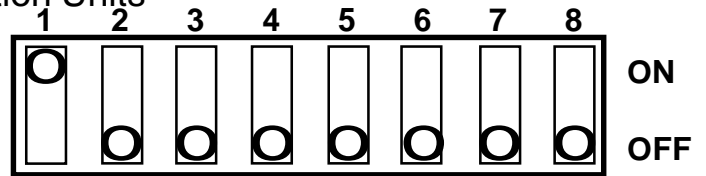
Shipyards _____	NB no _____	SG no _____	_____	In charge of loop testing _____
-----------------	-------------	-------------	-------	---------------------------------

Address List / Test Report

Loop no.....

for Consilium Marine CS3004 Fire Alarm Section Units

Example	8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OK
	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not OK



1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	121	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
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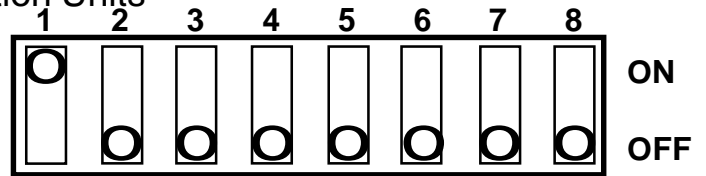
Shipyards _____ NB no _____ SG no _____ In charge of loop testing _____

Address List / Test Report

Loop no.....

for Consilium Marine CS3004 Fire Alarm Section Units

Example	8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OK
	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not OK



1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK	121	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OK
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Shipyards _____	NB no _____	SG no _____	_____	In charge of loop testing _____
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Address List / Test Report

Loop no.....

for Consilium Marine CS3004 Fire Alarm Section Units

Example	8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OK
	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not OK

1	2	3	4	5	6	7	8	ON
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OFF

1	OK	31	OK	61	OK	91	OK	121	OK
2		32		62		92		122	
3		33		63		93		123	
4		34		64		94		124	
5		35		65		95		125	
6		36		66		96		126	
7		37		67		97		127	
8		38		68		98		128	
9		39		69		99		129	
10		40		70		100		130	
11		41		71		101		131	
12		42		72		102		132	
13		43		73		103		133	
14		44		74		104		134	
15		45		75		105		135	
16		46		76		106		136	
17		47		77		107		137	
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19		49		79		109		139	
20		50		80		110		140	
21		51		81		111		141	
22		52		82		112		142	
23		53		83		113		143	
24		54		84		114		144	
25		55		85		115		145	
26		56		86		116		146	
27		57		87		117		147	
28		58		88		118		148	
29		59		89		119		149	
30		60		90		120		150	

Shipyards _____	NB no _____	SG no _____	In charge of loop testing _____
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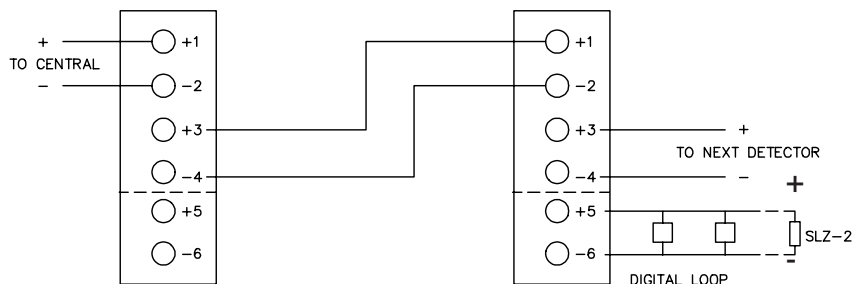
Appendix B

Connections for Consilium Marine loop units

Connections for Consilium loop units

Loop units

AE-2
AE-2K
AE-2K/I

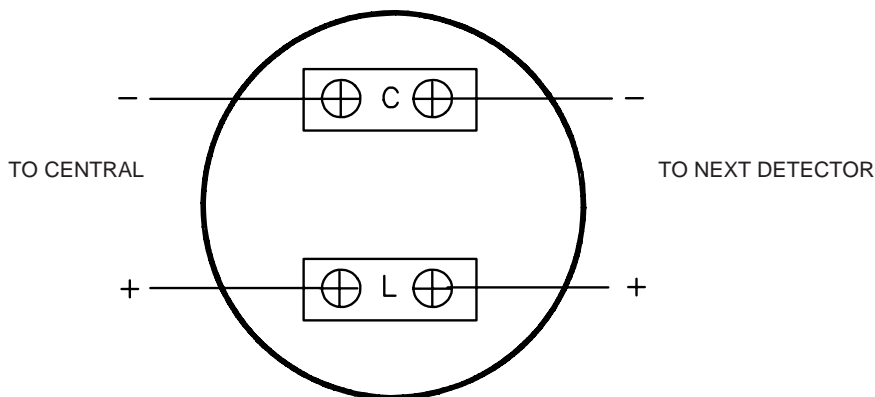


ID Switch

Heat detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> On <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Off	Heat detector, constant subloop voltage	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> On <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Off
Sprinkler, water	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Door indication unit	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Sprinkler, carbon dioxide	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Manual call point	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Ionisation smoke detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire alarm from central	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
IR flame detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Optical smoke detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Sprinkler, foam	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sprinkler, halon	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
UV flame detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Intrinsically safe detector	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Loop units

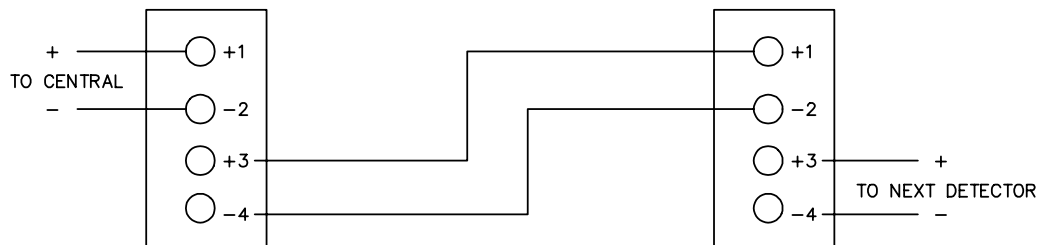
RDJ-2
RDJ-2T
RDO-2
TDT-2
IA 100-130
OA 100-130
HA 100-110
LKA-01-03
NS-CPWP



WITH DETECTOR
BASES UB-1,UB-2,SPB-1

Loop units

KS-2
KS-2K
LK-2
LK-2K
ST-I-IS
NS-DUV
TDT-2K
UR-2K
UR-2KN
VE-2
VL-2
VL-2K



Appendix C

Supplementary text for Fire Alarm System Salwico CS3004

Appendix D

Approved Component List for Salwico CS3000 or CS3004 systems as an U.S. Coast Guard approved system.

1. Components	Also for Locations Requiring Exceptional Degree of Protection
Central panels, repeaters, bells and power supply	
CS3000, Fire Alarm Panel incl. Power supply and battery	
CS3004, Fire Alarm Panel incl. Power supply and battery	
MX3000, Maxi Repeater Unit	
MN3000, Mini Repeater Unit	
Wheelock 7002T-24 Horn with Strobe	
Wheelock MG-G10-24-R Bell 10-inch Gong, 24-volt, red	Yes
Wheelock MG-G6-24-R Bell 6-inch Gong, 24-volt, red	
Manual call points	
LKA 01, Manual Call Point	Yes
LKA 02, Manual Call Point for harsh environment	Yes
LKA 03, Manual Call Point for very harsh environment	Yes
NS-CPWP, Manual Call point conventional	Yes
Other address units	
AE-2, Addressing Unit	Yes
AE-2K, Addressing Unit for harsh environment	Yes
AE-2K/I, Addressing Unit for harsh environment	Yes
KS-2, Short Circuit Isolator	Yes
KS-2K, Short Circuit Isolator for harsh environment	Yes
VL-2, Indication Unit	Yes
VL-2K, Indication Unit for harsh environment	Yes
UR-2K, Timer Unit	Yes
UR-2KN, Timer Unit	Yes
Smoke and combined Smoke / Heat detectors	
RDJ-2T, Combined Ionisation Smoke and Heat Detector	Yes
RDJ-2, Ionisation Smoke Detector	Yes
IA 130, Combined Ionisation Smoke / Heat Detector	Yes
IA 120, Ionisation smoke detector w. subloop	Yes
IA 100, Ionisation Smoke Detector	Yes
OA 130, Combined Optical Smoke / Heat Detector	Yes
OA 120, Optical Smoke Detector w. subloop	Yes
OA 100, Optical Smoke Detector	Yes
ST-I-IS, Intrinsically Safe Smoke Detector	Yes
Heat detectors	
TDT-2 / 57Degr.C, Heat Detector	Yes
TDT-2K / 57 Heat Detector	Yes
TDT-2K / 57 ROR Heat detector	Yes
TDT-2K / 80Degr.C, Heat Detector	Yes
TDT-2K / 80Degr.C, ROR Heat Detector	Yes
HA 100, Heat Detector 57 Degree. C	Yes
HA 102, Heat Detector 57 Degree. C R/R	Yes
HA 110, Heat Detector 80 Degree. C	Yes
SWM-1KL, Heat Detector 57 Degree. C	Yes
SWM-1KL/IS, Intrinsically Safe Heat Detector 57 Degree. C	Yes
UV-Flame Detector	
NS-DUV, UV-Flame Detector	Yes
Intrinsically Safe Arrangement	
ES-2K, Intrinsically safe interface	Yes
ZBK-1, Zener barrier	Yes
Separate power supply	
P-502, Auxiliary Power Supply. Battery included	Yes

Appendix E

Installation and Operation Addendum for Salwico CS3000 and CS3004 as U.S. Coast Guard Approved System

The fire detection system must be installed and configured in accordance with Subpart 161.002 and Subchapter J of Title 46 of the U.S. Code of Federal Regulations, and with the 1993 or later version of NFPA 72. This is in addition to any other requirements specific to the vessel and its route. Only those components listed on the approved component list may be used.

The approved component list identifies those components that may be used in locations requiring an exceptional degree of protection. Location requiring an exceptional degree of protection means a location exposed to weather, seas, splashing, pressure-directed liquids, or similar moisture conditions.

These locations include--

- (1) On deck;
- (2) A machinery space;
- (3) A cargo space;
- (4) A location within a galley or pantry area, laundry, or water closet which contains a shower or bath;
and
- (5) Other spaces with similar environmental conditions.

The fire detection system shall be installed as a fully addressable system. Any non-addressable initiating device must be used with an addressing unit to provide an address for that device. Each addressing unit shall be used to support only one device. Examples of non-addressable initiating devices are the manual call point NS-CPWP and the UV-flame detector NS-DUV.

A trouble signal must be annunciated by the activation of the Models UR-2K and UR-2KN timers. Timer UR-2K must be installed in a locker.

The fire control panels (CS3000 and CS3004) must be installed with two sources of external power. The internal battery cannot be used to satisfy the requirement for a secondary source of power.