

SIEMENS

Installation and Operating Instruction

Model BC8001A

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CHAPTER 1 DESCRIPTION

1. Introduction of BC8001A System

- Comply with UL864
- Compatible with BDS A series of field devices
- 2-wire detection-bus (polarity-free), allowing transmission distances up to 1'000m (@ twisted pair 18 AWG)
- Special patented processing arithmetic enhances immunity to environment influences
- A large LCD screen(240 × 128) with backlight
- Configuration is done through Windows based application tools, connected via USB port of the control unit
- Easy changes of the configuration either via PC or directly through the control unit's keypad
- Common grounding trouble supervision(0.1 ohm impedance)
- Advanced power saving technology
- Using SMT technology, easy for mass production
- Reliable and steady 24VDC power supply built-in
- Main power/Battery/Battery charger monitoring
- A 1.5A Notification Appliance Circuit built-in
- Reliable field wires protection against short, EMI, ESD,EMC

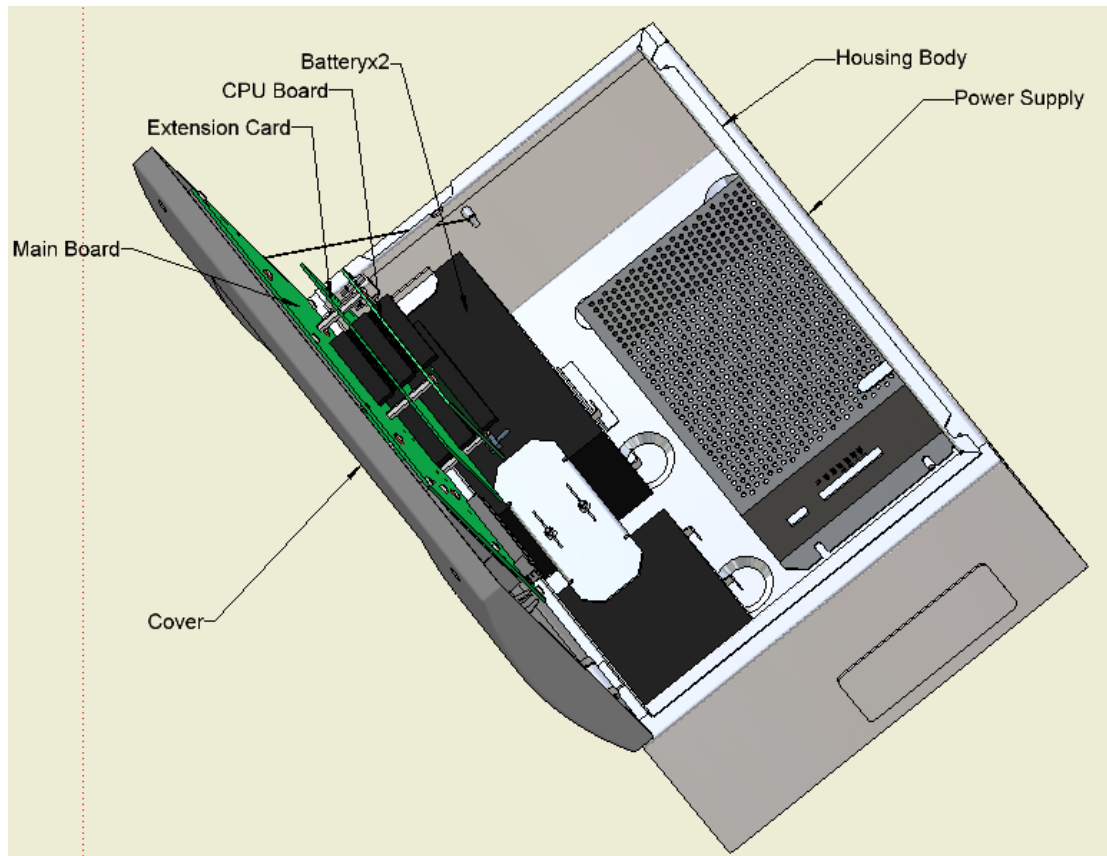
2. Performance Parameters

Items		Standard Configurations	Extension Configurations
Number of detector lines (polarity free)		1	2
Number of field devices		127	254
LCD display		240×128 pixel, back light	
Digital I/O's	Nr. of monitored OC output (400 to 2K ohms @24VDC)	1	
	Nr. of monitored inputs	2	
Nr. of monitored NAC (1.5A @24VDC)		1	
Number of history records		1000	
Automapping		Yes	
AC power input		120/240VAC, 60/50Hz	
Regulated DC output		24VDC	
Battery-backup		Sealed Lead Acid, 12VDC, 12Ah×2	
Upload/download port		USB 1.1	
Dimensions, in mm		369×266×200 (W×H×D)	
Weight (excluding battery), in: kg		6.5	
Alarm response time		<10s	
AC fuse capacity		5.0A	
Battery fuse capacity		10.0A	
Operating temperature		0°C ~ +49°C	
Storage temperature		-10°C ~ +50°C	
Relative humidity		≤93%(32±2°C)	
Usage place		Indoor and dry	

3. BC8001A External Structure



4. BC8001A Internal Structure



5. Compatible Devices Table

No.	Type	Description	Remark	Standard
1.	BDS031A	Addressable heat detector	UL listed	UL521
2.	BDS051A	Addressable smoke detector	UL listed	UL268
3.	BDS121A	Manual signaling box	UL listed	UL38
4.	BDS132A	Input module	UL listed	UL864
5.	BDS221A	Output module	UL listed	UL864
6.	U-MCS	Multicandela selectable strobe(red)	UL listed	UL1971
7.	U-MMT-MCS	Multitone horn strobe(red)	UL listed	UL1971&464
8.	P2475	SpectrAlert horn/strobe	UL listed	UL1971&464
9.	DSC	Dual sync control module	UL listed	UL864
10.	MDL	Synchronous module	UL listed	UL864

CHAPTER 2 INSTALLATION

1. Introduction

This section provides general instructions for mounting and wiring of the BC8001A control Unit.

Read this section before installing the equipment to ensure proper installation. If you are not familiar with the BC8001A system, be sure to ask Siemens Building Technologies, Inc. technical support or an authorized representative if you have any question.

Install and use the BC8001A fire alarm system in accordance with corresponding local regulation in your country or this installation manual for your reference.

2. Installation

Always remove power (battery or AC) and wait at least 10 seconds to allow the supply voltages to decay before installing or removing any module or cable or wiring.

Prior to installation consider the following:

- Mounting height for visual and manual access to the LCD displayed
- Weight and size of the enclosure
- Local code and regulation

The procedure of Installation of the BC8001A:

1. Select a clean, dry, shock and vibration free surface.
2. Position the BC8001A so that front panel can be opened freely.
3. Mark the location of the four mounting bolts on the wall. (Refer to figure 1)
4. Drill the four holes located in the previous step and push screws in the bolts. Leaving a small gap between the wall and each screw.
5. Remove the knockouts on the back for the entry of field wiring.
6. Place the BC8001A over the four screws on the wall and slide it down on the screws.
7. Pull cable into the BC8001A control unit. Do not fix the wiring until the location of all the equipment is known.
8. Tighten the four screws securely against the back wall of BC8001A.
9. Place battery into proper location and connect with power supply properly. (Refer to figure 5)
10. Close the front cover. Screw the two screws on the top of the cover tightly.

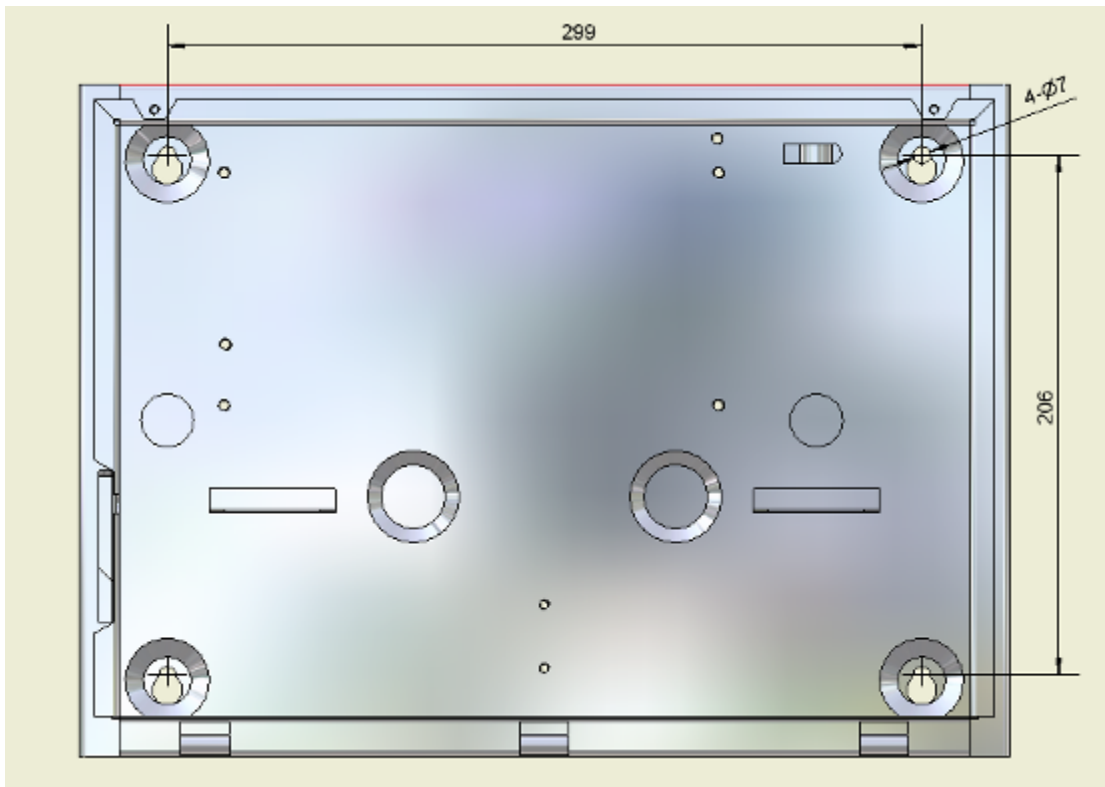


Figure 1 Mounting holes for BC8001A

3. Wiring

Install the wirings to the proper location. Refer to figure 2,3,4.

Note:

1. All wirings must be in accordance with corresponding local code or regulation.
2. All wires are UL recognized.
3. All circuits are power limited to NFPA 70.

Caution!

Observe positive and negative poles!

Make sure NO SHORT TO GND and NO SHORT CIRCUIT when connection!

Power limited and Non-Power limited wiring should be separated.

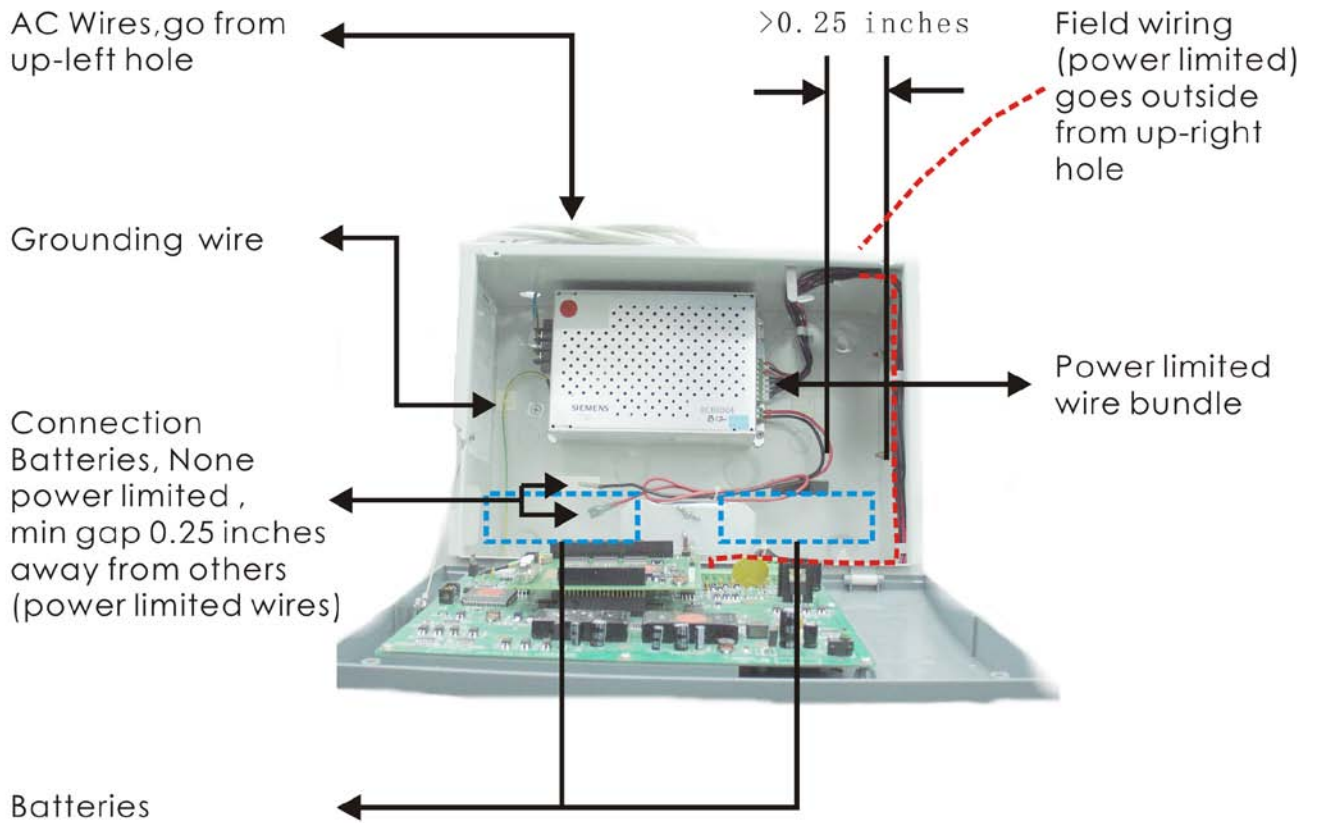


Figure 2
Internal wirings

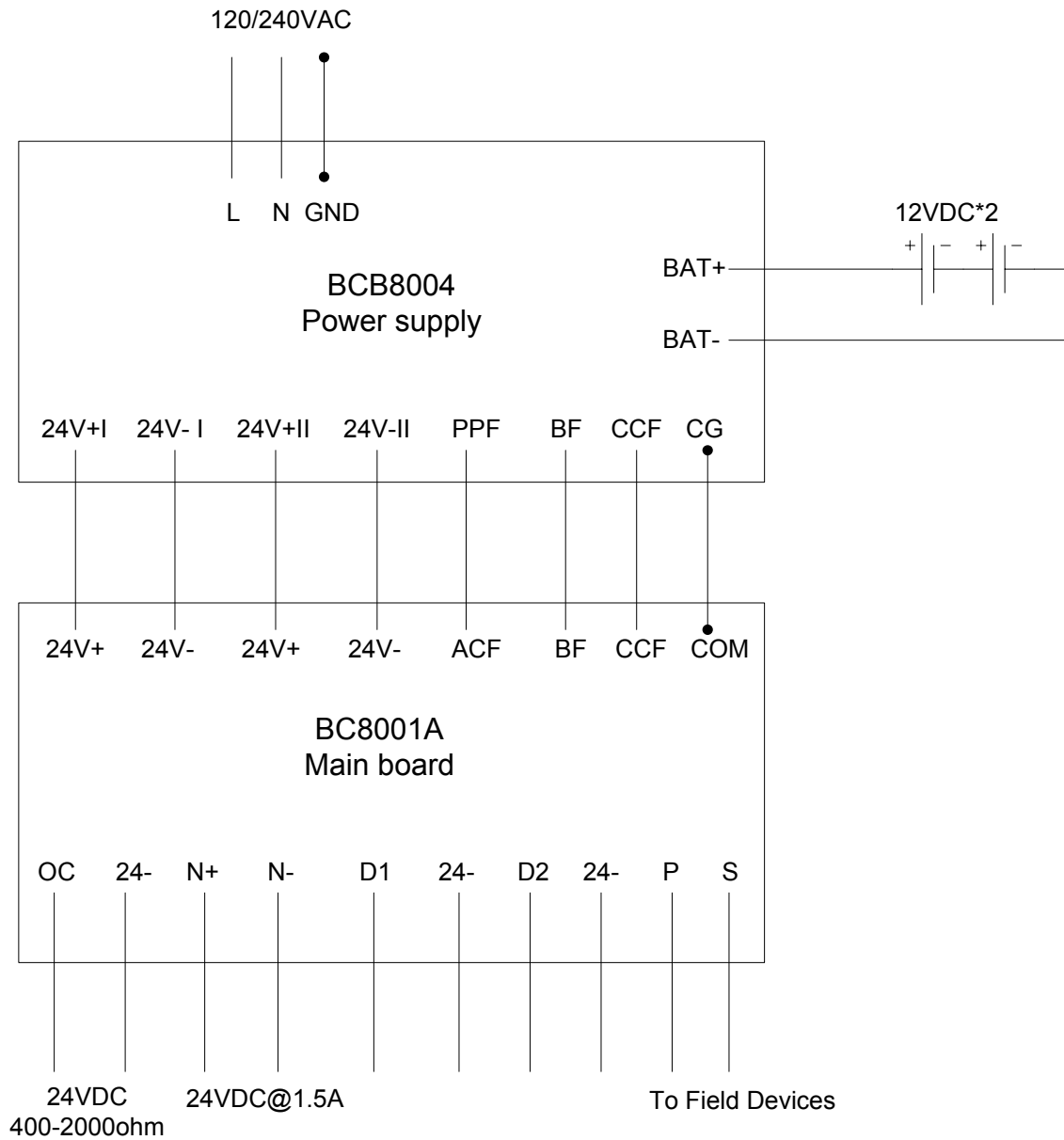


Figure 3 System Wiring Diagram

Terminal description

Name(label)	Description
24V+	24V output1
24V-	
24V+	24V output2
24V-	* internally connected with 24V output1
PPF	Primary power fault
BF	Battery fault
CCF	Charging circuit fault
COM	Common ground for BF,CCF,PPF

Name(label)	Description
OC	OC output
24-	OC output ground
N+	NAC +
N-	NAC -
D1	Dry contact1
24-	Dry contact1 ground
D2	Dry contact2
24-	Dry contact2 ground
P	Detection Bus P line
S	Detection Bus S line

J1101 Terminal

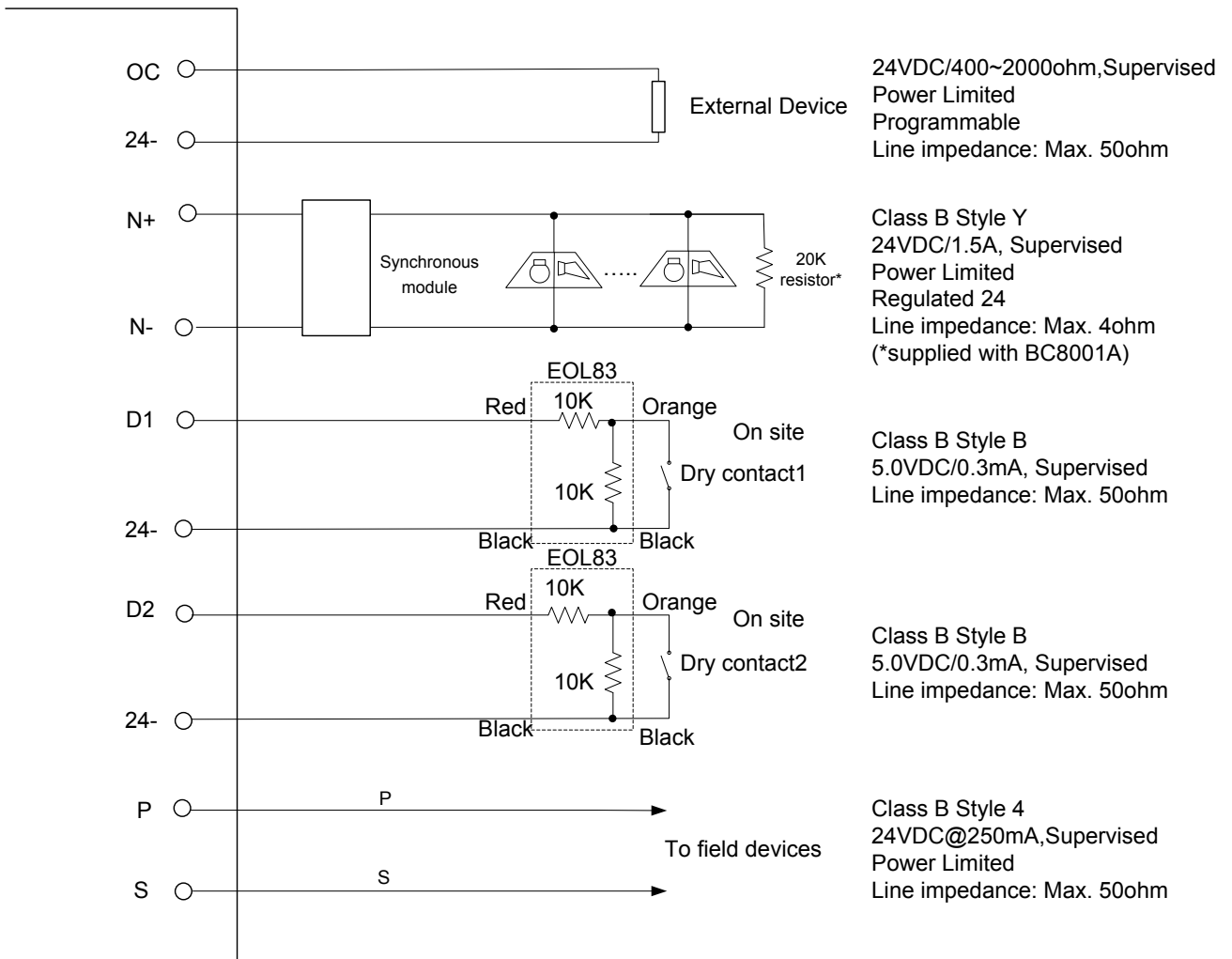


Figure 4 External wiring diagram

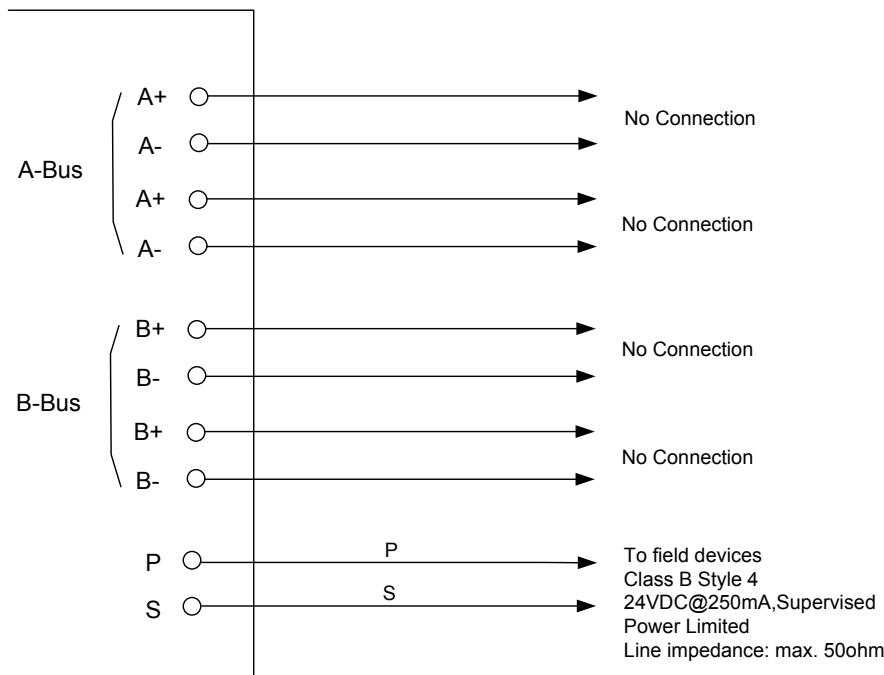


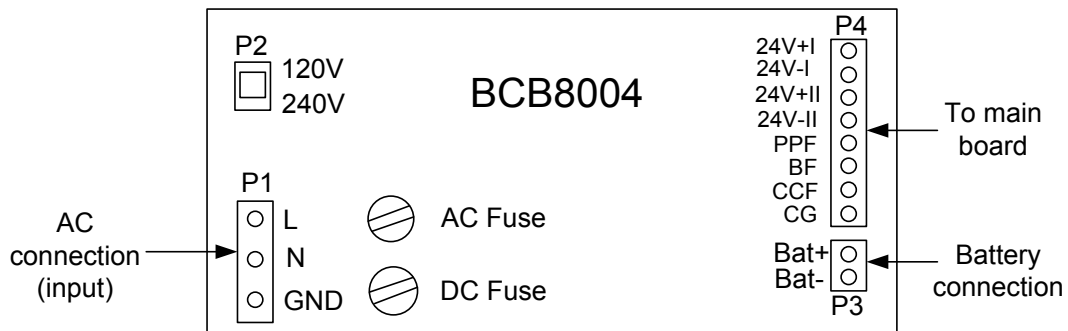
Figure 5 BC8001A Extension card wiring diagram

4. Power Supply

Model: BCB8004

Features:

- Universal AC power input 120/240VAC,60/50Hz
- Alternative AC power switch
- Two power outputs of 24VDC
- AC fuse capacity: 5.0A; Battery fuse capacity: 10.0A



Terminals blocks:

P1: AC input connector from external power supply. These connectors are non-power limited.

Input voltages: 120/240VAC,60/50Hz

Rated input current: 700mA@120VAC, 400mA@240VAC

P2: AC input switch for 120V or 240V.

P3: Connects the back-up battery to the power supply. These connectors are non-power limited.

P4: Connects the power supply to the main board. These connectors are power limited.

24V+ I /24V- I : 24VDC power limited output terminals,

24V+ II /24V- II : 24VDC power limited output terminals,

PPF: Main power fault. When main power fault happens, a fault event will be reported on fault window.

BF: Battery fault. When battery fault happens, a fault event will be reported on fault window.

CCF: Charge circuit fault. When charge circuit fault happens, a fault event will be reported on fault window.

CG: Ground of PPF, BF and CCF.

AC fuse: To change AC fuse.

DC fuse: To change DC fuse.

Technical Specification:

Items	Standard value
Input voltage	120/240 VAC
Input frequency	60/50 Hz
Rated input current	700mA@120VAC, 400mA@240VAC
Output	24VDC

5. Battery

Wiring as refer to figure 6.

Maximum battery circuit current	Charging: 3.1A Discharging:6A
Capacity	Sealed Leaded Acid,12VDC,12Ah×2
Expected battery standby operational times	24 Hours and 5 Minutes alarm
Dimension(mm)	181×76×167(L×W×H)

Battery Maintenance

- Check battery regularly, if the following things happen, eg. function is not normal, housing is distorted, liquid releases, the battery must be changed. If the battery is dirty, please use towel with warm water to clean it. Do not use petrol, or chemical liquid.
- To be stored at -10℃ ~ +50℃ temperature and dry place.
- To be stored at full chargeable status. To be charged before being used because of self discharge.

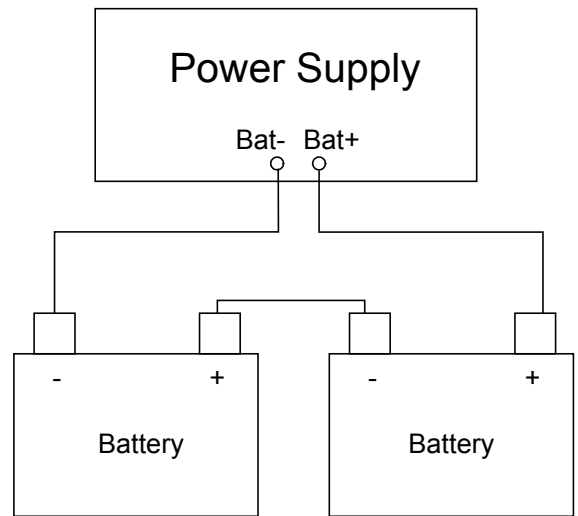


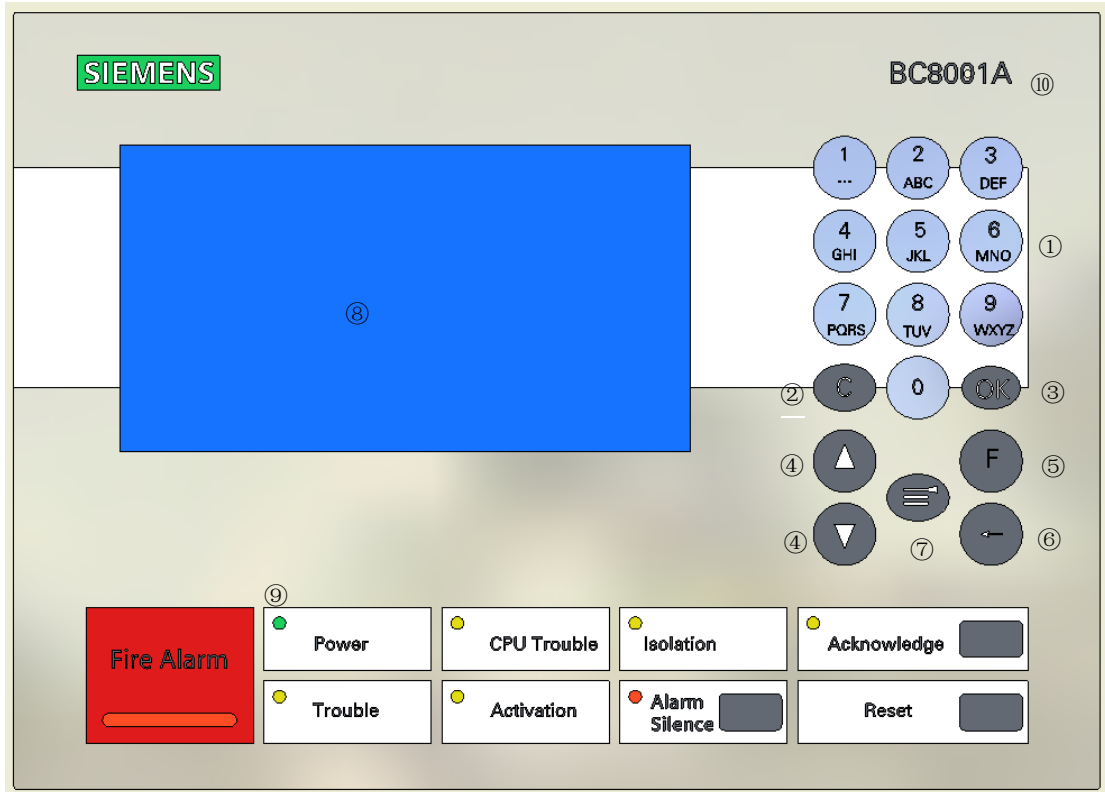
Figure 6
Battery and AC power connection diagram

6. Power supply load calculation table

No	Type	Description	Quantity	Quiescent current(mA)	Max. current(mA)	Total Quiescent current(mA)
1.	BDS031A	Addressable heat detector		0.8	1.0	
2.	BDS051A	Addressable smoke detector		0.8	1.0	
3.	BDS121A	Manual signaling box		0.8	1.0	
4.	BCC8001A	Main Board+CPU		90.0	130.0	
5.	BDS132A	Input Module		1.0	3.0	
6.	BDS221A	Output Module		1.0	3.0	
7.		NAC		0	1500.0	
8.	U-MCS	Multicandela selectable strobe(red)		0	145.0	
9.	U-MMT-MCS	Multitone horn Strobe(red)		0	200.0	
10.	DSC	Dual sync control module		0	55.0	
11.	P2475	SpectrAlert horn/strobe		0	245.0	
12.	MDL	Sync-Circuit module		0	12.0	
Total System Current						

CHAPTER 3 OPERATION

1. Interface Overview



- ① Number keys are used to input numbers, Chinese and English characters
- ② Cancel and return
- ③ Confirm and enter
- ④ Scroll up/down- use to navigate up or down to choose a specific entry from a list of information displayed on the screen
- ⑤ Function button
- ⑥ Move cursor
- ⑦ Main menu function
- ⑧ LCD screen display
- ⑨ LEDs: Fire Alarm, Trouble, CPU Trouble, Power, Activation, Acknowledge, Alarm Silence, Reset
- ⑩ Buzzer: BC8001A has 4 kinds of sounds, which are used to indicate fire, trouble, isolation and active.

2. User level

BC8001A includes three kinds of user levels: Level 1, Level 2 and Level 3 (as shown with red round).

- Level 1 is default for everyone.
- Level 2 is for safeguard.
- Level 3 is for commissioning person.


<Main Menu>	L 1 A
1.RT Information	
2.Set LCD Contrast	
3. Log in	
4. About	

Different level users need respective password to login and can do respective operations. See Table 1.

Table 1 User level

Use case	Level I	Level II	Level III
Login and Logout	Log in	Logout	Logout
Query Real-time Event	√	√	√
Query Project Information		√	√
Query History Record		√	√
Active Device		√	√
De-active Device		√	√
Isolate Device		√	√
Open Device		√	√
Test Device		√	√
Walk-test Device		√	√
Restore Device		√	√
Adjust Buzzer Volume		√	√
Adjust LCD Contrast	√	√	√
Set LCD switch off time			√
Set System Time		√	√
Set Auto/Manual Mode		√	√
Edit Parameter			√
Edit Logic Statement			√
Print Event	√	√	√
Save Configuration			√
Automap Device			√
Silence Speakers		√	√
Self-test			√
Acknowledge Events		√	√
Reset Event		√	√

2.1 How to login

1. Press “” to enter main menu.
The main menu is displayed.
2. Press “↓” to choose “Log in” and press “OK” key.
Password input window is displayed.
3. Input corresponding password using number key and Press “OK”.
If the proper password is input, you can login level 2/3.
(Press “←” to delete the wrong input.)

<Main Menu> L 1 A
1. RT Information 2. Set LCD Contrast 3. Log in 4. About

<Log in> L1 A
Password <input style="width: 100px;" type="text"/>

The default password for level 2 is 1234 and 4321 for level 3. The password can be changed by configuration tool BF8001.


2.2 How to logout

There are 2 kinds of logout:

- Logout by timeout
- Logout by menu

Logout by timeout: user level is logout automatically if no key is pressed within a certain time. (Timeout is set by BF8001 tool)

Logout by menu:

1. Press “” to enter main menu.
The main menu is displayed.
2. Press “↓” to choose “Logout” and press “OK” key.
Logout window is displayed.
3. Press “OK” to logout.

<Main Menu> L 2 A
1. RT Information 2. History 3. Operate 4. Configure

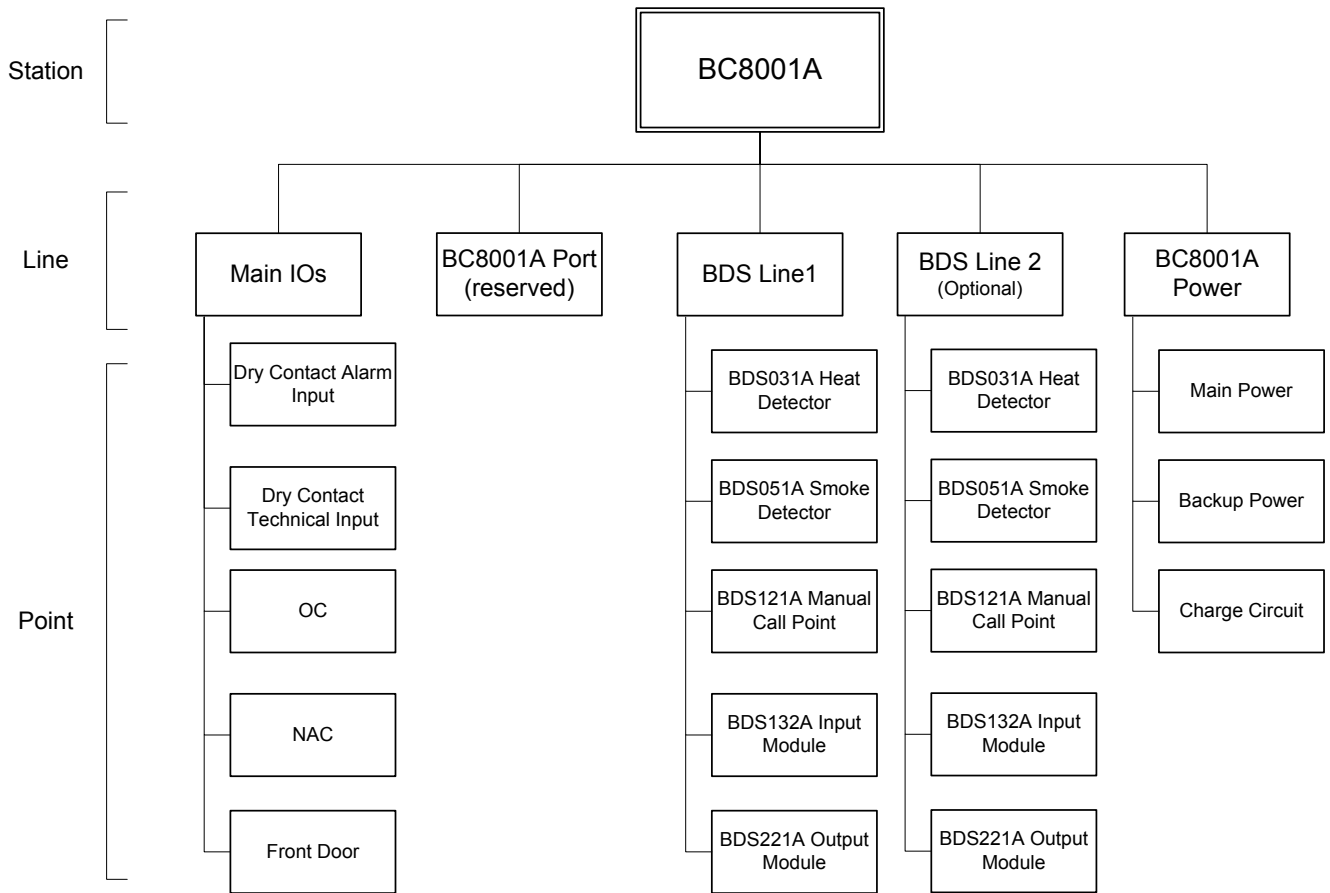
<Logout> L 2 A
Are you sure to logout?

Notes:

- (1) If current user interface is the first level, operators can directly log in second or third user level. If current user interface is the second level (or third level), operators must return to the first user level, and then log in the third level (or second level) again.
- (2) If there is no operation or events within a certain time (timeout is set by BF8001), monitor back lighting will be turned off automatically. Press any key to turn on backlight.
- (3) In the interface of the second or third user level, if user makes no operation or no events happen within a certain time (timeout is set by BF8001 or by station property of control unit), interface will switch to first user level automatically.

3. System Hierarchy

Devices are organized in a hierarchy way: station - line - point.




4. Type of Information

BC8001A includes 6 types of information:

Type of information	Priority
Fire Alarm	1
Trouble	2
Isolation	3
Activation	4
Test	5
Walk-test	5

How to query real time information:

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu> L 1 A
1.RT Information 2.Set LCD Contrast 3. Log in 4. About

2. Press “↓” to choose “1.RT Information” and press “OK” key.
6 kinds of information are displayed. (“m” means acknowledged events number. “n” means total events number.)

<RT Information> L3 A
1.Alarm m/n 2.Trouble m/n 3.Isolation m/n 4.Active m/n

3. Press “↓” to choose one kind of information and press “OK” key.
All the queried information is displayed. Press “↓” / “↑” to scroll down/up.

<RT – Alarm:1> L3 A
- 1 Room 102 Smoke detector

4. Press “↓” to choose one device that you want to query its property and press “OK” key.
The property of the queried device is displayed. Press “↓” / “↑” to scroll down/up.

L3 A
Addr 1.03.1 Text Room 102 Heat Detector Type BDS031 Heat Point Dete Status Fire

Press “C” to return to previous window.

5. Normal Status

Normal status is:

- Power LED is on.
- No alarms, troubles, isolations, active, test, walk-test condition.
- Window is displayed as "Normal screen".

Note:

1. "L1" displayed in the upper right corner of screen represents user level. BC8001A control unit has totally three user levels, which are L1, L2 and L3.
2. "A" represents control unit working in auto mode, and "M" represents control unit working in manual mode (The mode can be chosen via operating menu on panel).
3. "User Text" can be edited by customers.

BC8001A Compact L 1 A
User Text
2005-8-30 14:34:58

Normal screen

6. Fire Alarm Event Handling

Status:

- LCD will display fire event automatically as "Fire alarm screen".
- The red fire alarm LED is on.
- Acknowledge LED is flashing.
- Alarm Silence LED is flashing.
- The buzzer and NAC devices are sounding.

<RT – Alarm:1>	L1 A
* 1 Room 102 heat detector	

Fire alarm screen

How to do:

1. Press "Acknowledge" button to acknowledge the alarm :
 - If current user level is 1, login window will be popup automatically. After inputting level 2/3 password, press "OK" to enter alarm window. All alarm events are acknowledged at the same time:
 - Symbol "*" will be changed to "#" automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
 - If current user level is 2/3, all alarm events are acknowledged at the same time.:
 - Symbol "*" will be changed to "#" automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
2. Press "alarm silence" button to stop NAC devices. These allow operator to deactivate or reactivate the NAC devices. When NAC devices are silenced, the silence LED is on.
3. Read fire location on the display window.
4. Go to the indicated fire location to check and handle.
5. If the fire is emergency, call "119" at once. If the fire is minor incident, press "reset" to return to normal status.(password is required.)

Property display: select one fire information and press "OK" and screen will display as figure 4. After finishing checking, press "C" to return to the previous window.

L3 A
Addr 01.003.001 Text Room 102 Heat Detector Type BDS031 Heat Point Dete Status Fire

One or more alarms happen:

- One or more alarm locations
- First alarm message is selected
- Alarm message can be scrolled with " ↓ " / " ↑ " key

Notes:

"<RT-Alarm: 01>" means there are 1 alarm event in total.

"01" represents the number of alarms.

"#" represents the event is acknowledged and "*" represents the event is not acknowledged.

7. Trouble Event Handling

Status:

- LCD will display trouble event automatically as “Trouble Screen”.
- The trouble LED is on.
- Acknowledge LED is flashing.
- The buzzer is sounding.

<RT – Trouble:1> L1 A
* 1 Room 102 heat detector

Trouble Screen

How to do:

1. Press “Acknowledge” button to acknowledge the trouble:
 - If current user level is 1, login window will be popup automatically. After inputting level 2/3 password, press “OK” to enter trouble window. All trouble events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
 - If current user level is 2/3, all trouble events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
2. Read trouble location on the display window.
3. Go to the indicated trouble location to check and handle.

If you can solve the problem by yourself, the trouble LED and acknowledge LED is off and trouble window is disappeared automatically. If you can not remove the trouble by yourself, please call your local service office of Siemens Building Technologies. But if a trouble event is acknowledged and it is not removed within 24 hours, the buzzer will release trouble sound again but the current window on controller will remain unchanged and no new event is displayed. Now if you want to acknowledge it, you have to query trouble information (refer to “How to query real time information”) and press “Acknowledge” button, the trouble event can be acknowledged again. If the system consists of more than one controller, the other controllers have to be done as above steps one by one.

Property display: select one trouble information and press “OK” and screen will display as figure 4. After finishing checking, press “C” to return to the previous window.

Note:

If current window is fire, a trouble occurs. The trouble event will not be displayed automatically because trouble priority is lower than fire priority. You have to query trouble information (refer to “How to query real time information”) and press “Acknowledge” button.

L3 A
Addr 01.003.001 Text Room 102 Heat Detector Type BDS031 Heat Point Dete Status Trouble

CPU Trouble:

When application software crash or CPU hardware is damaged, system can not work normally and CPU trouble LED is on. Any key is not available. Now you have to switch off power and call for service from Siemens Building Technologies.

8. Isolation Event Handling

Status:

- LCD will display isolation event automatically as “Isolation Screen”.
- The isolation LED is on.
- Acknowledge LED is flashing.
- The buzzer is sounding.

<RT – Isolation:1> L1 A
- 1 Room 102 heat detector

Isolation Screen

How to do:

1. Press “Acknowledge” button to acknowledge the isolation:
 - If current user level is 1, login window will be popup automatically. After inputting level 2/3 password, press “OK” to enter trouble window. All isolation events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
 - If current user level is 2/3, all isolation events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady

When the isolated point is open, the panel will revert to normal status.

9. Activation Event Handling

Status:

- LCD will display activation event automatically as “Activation Screen”.
- The activation LED is on.
- Acknowledge LED is flashing.
- The buzzer is sounding.

<RT – Active:1> L1 A
- 1 Floor 02 BDS221(A) Output

Activation Screen

How to do:


1. Press “Acknowledge” button to acknowledge the activation:
 - If current user level is 1, login window will be popup automatically. After inputting level 2/3 password, press “OK” to enter trouble window. All activation events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady
 - If current user level is 2/3, all activation events are acknowledged at the same time.
 - Symbol “*” will be changed to “#” automatically
 - Buzzer is silent
 - Acknowledge LED will change from flashing to steady

When the activated point is de-activated, the panel will revert to normal status.

10. History Record

This function can be done by level 2/3 user. If current level is 1, login should be done first (Refer to “login” on page 14) and then follow these steps:

How to query history record:

1. Press “

<Main Menu> L3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “2.History Record” and press “OK” key.
All kinds of records are displayed.

<History> L3 A
1. All Records 2. Alarm Records 3. Trouble Records 4. Isolation Records

3. Press “↓” to choose one kind of record and press “OK” key.
All the queried information is displayed. Press “↓” / “↑” to scroll down/up.
→ Press “C” to return to previous window.

< Alarm Record: 01> L3 A
- 01Room 102 Smoke detec

Notes:

“<Alarm Record: 01>” means there are 1 alarm event in total.

“01” represents the number of alarm record.

“+” represents the event is not recovered and “-” represents the event is recovered.

11. Operation

This function can be done by level 2/3 user. If current level is 1, login should be done first (Refer to “login” on page 14).

Device Type		Operation Item			
		Isolate/ Open	Activate/ Deactivate	Test/ Restore	WalkTest/ Restore
Station		---	---	---	---
Line	F-Bus	√	---	√	√
Point	BDS031A Heat Detector	√	---	√	√
	BDS051A Smoke Detector				
	BDS121A Manual Call Point				
	BDS122A Hydrant Manual				
	BDS132A Alarm Input				
	BDS161 Collective Input Module				
	BDS132 Technical Input Alarm Input Technical Input Dry Contact Alarm Input Dry Contact Technical Input	√	---	√	---
	BDS221A Output Module Output OC	√	√	√	---
	NAC	√	---	---	---
	Automap Point	√	---	---	---

“√” means can be done; “---” means can not be done.

11.1 How to do system test

Function: check work status of LCD, buzzer, LEDs.

How to do:

1. Press “☰” to enter main menu.

The main menu is displayed.

<Main Menu> L3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “3.Operation” and press “OK” key.

All stations are displayed.

<Operate Stations > L3 A
001 BC8001A Compact Stati

3. Press “↓” to choose one desired station and press “OK” key.

<Operate Stations > L3 A
1.Line 2.System Test

4. Press “↓” to choose “2.System Test” and press “OK” key.

Control unit starts to check:

- LCD screen changes from black to white,
- All audible sounds
- All LED indicators are on

After finishing checking, no message is displayed and return to previous window.

Note:

Checking standard:

Screen--Normal state is normal display of all screen area.

Sound -- Normal state is that buzzer sends out 4 kinds of sounds (fire alarm, fault, active and isolate).

LED -- Normal state is all LEDs brightening.

11.2 How to isolate/open

Isolate/Open Line

Function: This is only necessary in exceptional situations, for example, while some part of the construction is in process. As soon as conditions have returned to normal, the isolated line must be immediately restored to normal status again.

Status:

- LCD will display isolation event automatically as “Isolation Screen”.
- The isolation LED is on.
- The buzzer sounds.

<RT – Isolation:1> L1 A
- 1 Room 102 heat detector

Isolation Screen

How to isolate/open line:

1. Press “⊖” to enter main menu.
The main menu is displayed.

<Main Menu> L3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “3.Operation” and press “OK” key.
All stations are displayed.

<Operate Stations > L3 A
001 BC8001A Compact Stati

3. Press “↓” to choose one station which include the desired line and press “OK” key.

<Operate Stations > L3 A
1.Line 2.System Property

4. Press “↓” to choose “Line” and press “OK” key.
All lines are displayed.

<Operate Lines > L3 A
001 BC8001A IOs 002 BC8001A Ports 003 BDS Line 004 BC8001A Powers

5. Press “↓” to choose one desired line and press “OK” key.

6. Press “↓” to choose “2.Isolate” / ”3.Open” and press “OK” key.
Isolation status is shown/disappeared.

<Operate Lines > L3 A
1. Points 2. Isolate 3. Open 4. Test

Isolate/Open Point

Function: only when it is damaged or defective until it is replaced. An isolated point can not generate any messages. As soon as replacement is finished, the isolated point must be immediately restored to normal status again.

Status:

- LCD will display isolation event automatically as “Isolation Screen”.
- The isolate LED is on.
- The buzzer sounds.

How to isolate/open point:

1~5 steps are the same as loop isolation/open.

6. Press “↓” to choose “1.Point” and press “OK” key.
All points connected with the chosen line are displayed.

7. Press “↓” to choose one desired point and press “OK” key.

8. Press “↓” to choose “1.Isolate” / ”2.Open” and press “OK” key.
Isolation status is shown/disappeared.

<RT – Isoaltion:1> L1 A
- 1 Room 102 heat detector

Isolation Screen

<Operate Lines > L3 A
1. Points 2. Isolate 3. Open 4. Test

<Operate Points> L3 A
001 BDS051(A) 001 002 BDS031(A) 002 003 BDS121(A) 003 004 BDS132(A) 004

<Operate Points > L3 A
1. Isolate 2. Open 3. Test 4. Walk-Test

11.3 How to activate/de-activate

Function: To activate/de-activate OC, Output module manually from control unit.

Status:

- LCD will display active event automatically as “Activation Screen”.
- The activation LED is on.
- The buzzer sounds.

How to Activate/De-activate:

1. Press “⊖” to enter main menu.
The main menu is displayed.

2. Press “↓” to choose “3.Operation” and press “OK” key.
All stations are displayed.

3. Press “↓” to choose one station which includes the desired line and press “OK” key.

4. Press “↓” to choose “1.Line” and press “OK” key.
All lines are displayed.

5. Press “↓” to choose one line which includes the desired point and press “OK” key.

6. Press “↓” to choose “1.Points” and press “OK” key.
All points connected with the chosen line are displayed.

7. Press “↓” to choose one desired point and press “OK” key.

8. Press “↓” to choose “3.Active” / “4.De-active” and press “OK” key.
Active status is shown/disappeared.

<RT – Active:1> L1 A
- 1 Floor 02 BDS221(A) Output

Activation Screen

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

<Operate Stations > L3 A
001 BC8001A Compact Stati

<Operate Stations > L3 A
1.Line 2.System Property

<Operate Lines > L3 A
001 BC8001A IOs 002 BC8001A Ports 003 BDS Line 004 BC8001A Powers

<Operate Lines > L3 A
1. Points 2. Isolate 3. Open 4. Test

<Operate Points> L3 A
001 BDS051(A) 001 002 BDS031(A) 002 003 BDS121(A) 003 004 BDS221(A) 004

<Operate Points > L3 A
1. Isolate 2. Open 3. Active 4. De-active

11.4 How to test/walk-test

Function: Allow to test the correct function of alarm devices. At test/walk-test mode alarm can be normally generated if alarm condition is fulfilled. But alarm devices are not really activated. After the test work is completed immediately restore the test mode. The test /walk-test events are not saved in history record. The difference of test and walk-test:

Test: restore to normal mode manually.

Walk-test: restore to normal mode automatically after a certain time (timeout is set by BF8001 tools or by station property of control unit).

<RT – Test:1> L1 A
- 1 Room 102 BDS031 Heat

Test Screen

Status:

- No message is displayed.

How to test:

1. Press “⊕” to enter main menu.
The main menu is displayed.

<Main Menu> L3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “3.Operatopm” and press “OK” key.
All stations are displayed.

<Operate Stations > L3 A
001 BC8001A Compact Stati

3. Press “↓” to choose one station which includes the desired line and press “OK” key.

4. Press “↓” to choose “1.Line” and press “OK” key.
All lines are displayed.

<Operate Stations > L3 A
1.Line

5. Press “↓” to choose one line which includes the desired point and press “OK” key.

<Operate Lines > L3 A
001 BC8001A IOs 002 BC8001A Ports 003 BDS Line 004 BC8001A Powers

6. Press “↓” to choose “Points” and press “OK” key.
All points connected with the chosen line are displayed.

<Operate Lines > L3 A
Points Isolate Open Test

<Operate Points> L3 A
001 BDS051(A) 001 002 BDS031(A) 002 003 BDS121(A) 003 004 BDS221(A) 004

7. Press “↓” to choose one desired point and press “OK” key.

<Operate Points > L3 A
Isolate
Open
Test
Walk-test

8. Press “↓” to choose “Test” / ”Walk-test” and press “OK” key.
Test status is shown.

9. Test work can be done now.

How to restore the test mode:

1~7 are the same as test.

8. Press “↓” to choose “Restore” and press “OK” key.
Test status is disappeared.

12. Configure

Functions: Configure system, including property and parameters of station, loops and field devices, showing interlock relationship, set system date & time, set LCD contrast, set volume of buzzer, set LCD switch off time, set language, automap, save configuration etc.


This function can be done by level 2/3 user. If current level is 1, login should be done first (Refer to “login” on page 14).

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.

Program feature or option	Permitted in UL 864? (Y/N)	Possible settings	Settings permitted in UL 864
Buzzer Volume	Y	0 – 1	1

12.1 How to configure system

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure> L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

3. Press “↓” to choose “1.Configure” and press “OK” key.
Configure system window is displayed.

<Configure System> L 3 A
1. System Property 2. Station


4. Press “↓” to choose “1.System Property” and press “OK” key.
System text is displayed. The text can be modified now.

<Configure System> L 3 A
Text <input type="text" value="BC8001A System"/>

Note:

Now the modified text is saved temporarily. If the control unit is reset, the modified text will be lost. If you want to save the modification for long time, please do the “Save Configuration” operation(refer to Page 44).

12.2 How to configure station

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu>	L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure	

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure>	L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume	

3. Press “↓” to choose “1.Configure” and press “OK” key.
Configure system window is displayed.

<Configure System>	L 3 A
1. System Property 2. Station	

4. Press “↓” to choose “2.Station” and press “OK” key.
All stations are displayed. The text can be modified now.

<Configure Station>	L 3 A
001 BC8001A Compact 01 002 BC8001A Compact 02 003 BC8001A Compact 03	

6. Press “↓” to choose “2.Station Property” and press “OK” key.
The property of the selected station is displayed. The text, A-Bus buad rate, login time and walk-test time can be modified. Press “↓” / “↑” to switch active window.

<Configure Station>	L 3 A
1. Lines 2. Station Property	

7. Press “OK” to save the modification and return to the previous window.

Note:

1. Now the modified text is saved temporarily. If the control unit is reset, the modified text will be lost. If you want to save the modification for long time, please do the “Save Configuration” operation(refer to Page 44).
2. A-Bus is a drop-down list. When it is active, press “F” and the drop-down list is displayed. Press “↓” / “↑” to select high(40K bps), middle(25K bps) or low(16K bps) according to on-site situation. Press “OK”.
3. Login time means if no operation or no events happen within login time under user level 2/3 control unit will return to user level 1 automatically. Valid range is 1-60 Minutes.
4. Walk-test time means when control unit do walk-test it can restore to normal mode automatically after walk-test time. Valid range is 1-60 Minutes.

<Station 02>	L 3 A
Address	02.000.000
Type	BC8001A Compact
Text	<input type="text" value="BC8001A 02"/>
Status	Normal

<Station 02>	L 3 A
A-Bus	<input type="text" value="High"/> <input checked="" type="checkbox"/>
Login	<input type="text" value="1"/> (min)
Walktest	<input type="text" value="3"/> (min)

12.3 How to configure line

1~5 steps is the same as “how to configure station”.

- Press “↓” to choose “1.Lines” and press “OK” key.
All lines are displayed. Press “↓” / “↑” to scrow down/up.

<Configure Station>	L 3 A
1. Lines	
2. Station Property	

- Press “↓” to choose one desired line and press “OK” key.

<Config Line>	L 3 A
001 IOs	
002 Ports	
003 BDS Line 004	
004 Powers	

- Press “↓” to choose “1.Line Property” and press “OK” key.
The property of the selected line is displayed. The text, operability can be modified.
Press “↓” / “↑” to switch active window.

<Config Line>	L 3 A
1. Points	
2. Line Property	

- Press “OK” to save the modification and return to the previous window.

Note:

- Now the modified text is saved temporarily. If the control unit is reset, the modified text will be lost. If you want to save the modification for long time, please do the “Save Configuration” operation(refer to Page 44).
- The function of operability is reserved.

<Config Line004>	L 3 A
Address	02.004.000
Type	BDS Line
Text	BDS Line 004
Status	Normal

<Config Line004>	L 3 A
Mode	Normal
Operability	Yes <input checked="" type="checkbox"/>

12.4 How to configure point

1~7 steps is the same as “how to configure line”.

8. Press “↓” to choose “1.Points” and press “OK” key.
All points are displayed. Press “↓” / “↑” to scrow down/up.

<Config Line> L 3 A	
1. Points	
2. Line Property	

9. Press “↓” to choose one desired point and press “OK” key.

10. Press “↓” to choose “1.Point” and press “OK” key.
The property of the selected point is displayed. The type, text can be modified. Also different point has different editable item (refer to “Editable Parameter of Different Points”). Press “↓” / “↑” to switch active window.

<Config Point> L 3 A	
001 BDS031(A) 001	
002 BDS051(A) 002	
003 BDS121(A) 003	
004 Output Module	

11. Press “OK” to save the modification and return to the previous window.

<Config Point> L 3 A	
1. Points	
2. Logic Statement	

Note:

- Now the modified text is saved temporarily. If the control unit is reset, the modified text will be lost. If you want to save the modification for long time, please do the “Save Configuration” operation(refer to Page 44).
- Type is a drop-down list. When it is active, press “F” and the drop-down list is displayed. Press “↓” / “↑” to select corresponding type. Press “OK”.
- Sensitivity is a drop-down list. When it is active, press “F” and the drop-down list is displayed. Press “↓” / “↑” to select “High”, “Std” and “Low” according to site situation. Press “OK”.
- AnalogVal: relative value of smoke density.

<Config Point: 02> L 3 A	
Address 02.004.002	
Type	BDS051(A) Smoke <input checked="" type="checkbox"/>
Text	BDS051(A) 002
Status	Trouble

<Config Point: 02> L 3 A	
Mode	Normal
Sensitivity	Std <input checked="" type="checkbox"/>
AnalogVal	0

Editable Parameters of Different Point

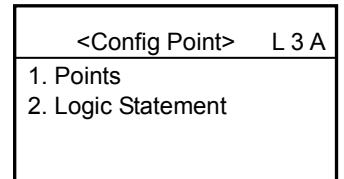
Point Type	Parameter	Default Value	Optional Value
BDS051(A) Smoke Detector	Sensitivity	Standard	1: Low 2: Standard 3: High
BDS221(A) Output Module	Supervision Time:	30s	30...600 Seconds Supervision time: Define the waiting-for-confirmation time of activated output equipment (if the controller still cannot receive a confirmation signal by timeout, it will display "active with no confirmation". Otherwise it will display" active with confirmation".)
	Work Mode	Steady	
BDS132(A) Alarm Input BDS132(A) Tech Input Alarm Input Technical Input Dry Contact Alarm Input Dry Contact Technical Input	Filter	3	1...7
NAC	Work Mode	Steady	Steady Pulse(60 per min) Pulse(120 per min) Bongs

12.5 How to edit logic expression

1~9 steps is the same as “how to configure point”.

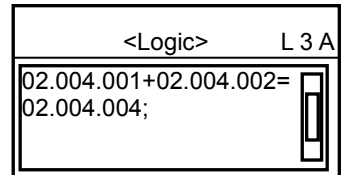
10. Press “↓” to choose “2.Logic Statement” and press “OK” key.

Logic expression window is displayed.



11. Input the defined logic expression.

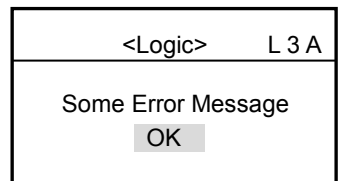
→ To input the characters “. + * = ; ~ () [] { } ! : -”, Press the button “1” for a while, once the letter appears on the screen, loose the button quickly then the letter will be shown on the edit area.



12. Press “OK” to compile the logic expression.

→ If any logic expression is illegal, The error message box will be shown. Go 13 step.

→ If logic expression is legal, the system will save the logic expression in memory and return to the previous window.



13. Press “OK” key.

→ The error message box is closed and return the previous window. Now you can continue to modify the logic expression.

Note:


- Now the modified text is saved temporarily. If the control unit is reset, the modified text will be lost. If you want to save the modification for long time, please do the “Save Configuration” operation(refer to Page 44).
- Explanation of logic expressions:
 - “+”: “OR” relationship; For example: 01.011.001+01.011.002+01.011.003=1.011.004, which means any of 01.011.001, 01.011.002 and 01.011.003 issues alarm and links to the 01.011.004 equipment;
 - “*”: “AND” relationship; For example: 01.011.001*01.011.002*01.011.003=01.011.004, which means 01.011.001, 01.011.002 and 01.011.003 concurrently issue alarms and link to the 01.011.004 equipment;
 - “!”: “NOT” relationship; For example: !(01.011.001*01.011.002)=01.011.004, which means 01.011.001 and 01.011.002 concurrently issues alarm but do not link to the 01.011.004 equipment;
 - “()”: Priority class. For example: (01.011.001+01.011.002)*01.011.003=01.011.004, which means either 01.011.001 or 01.011.002 concurrently issues alarm along with 01.011.003 and links to 01.011.004;

- “+~+”, *~* : Both are valid abbreviations. It is not applicable to “[]N”; For example:

01.011.001+~+01.011.015=01.011.016, which means that in the 1st line of No.1 Line Card in No.1 Controller, alarm (action) by any of No.1 to No.15 Equipment will link to No.16 Equipment;

01.011.001*~*01.011.006=01.011.007, which means that in the 1st line of No.1 Line Card in No.1 Controller, concurrent alarm (action) by all field devices from No.1 to No.6 will link to the action of No.7 field device;
- “[]N”: Any N pieces of equipment issue alarms concurrently, $N \leq 8$; For example:
[01.011.001, 01.011.002, 01.011.003]2=01.011.004, which means that alarm by any 2 of the 3 pieces of equipment will link to 01.011.004 Equipment.
[01.011.001~01.011.003, 01.011.005]2=01.011.004, which means that alarm by any 2 of No.1 to No.3 Equipment and No.5 Equipment will link to 01.011.004 Equipment.
- “; ”: indicating the end of each complete interlocking logic expression;
- When a certain interlocking relation needs concurrent interlock to several pieces of equipment (output), “;” should be used to separate them; For example:
(01.011.001+01.011.002) *01.011.003=01.011.004, 01.011.005, which means that there is concurrent interlock to both 01.011.004 and 01.011.005, after the (01.011.001+01.011.002)*01.011.003 relation is met;
- “{T1,T2}”: T1, delay time; T2 duration of the interlocking command. For T1 and T2: 0-255 seconds are valid; For example: 01.011.001+01.011.002+01.011.003 =01.011.004{30, 20}, which means after a delay of T1, the controller starts to issue a interlocking command, and after the interlocking command has lasted for T2, it stops issuing command.

12.6 How to set time & date

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.


< Configure> L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

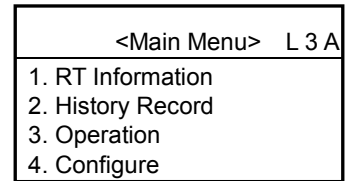
3. Press “↓” to choose “2.Set Time and Date” and press “OK” key.
Current date and time is displayed.

<Set System Time> L 3 A
Date: <input style="width: 150px;" type="text" value="2006-01-01 12:30:30"/>

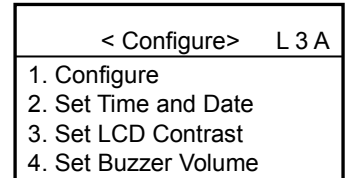
4. Press “←” to delete current date and time, and enter new date and time.
5. Press “OK” key to save the modification and return to previous window.

12.7 How to set LCD contrast

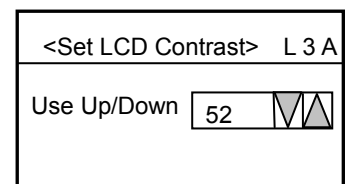
1. Press “” to enter main menu.
The main menu is displayed.



2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.




3. Press “↓” to choose “3.Set LCD Contrast” and press “OK” key.
Current LCD contrast is displayed.

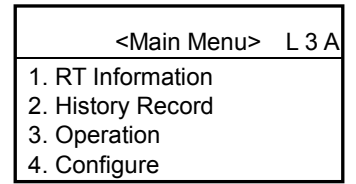


4. Press “↓” or “↑” to increase or decrease the value.
No message is displayed. But with each keystroke the contrast is slightly increased and decreased. Repeat this step until the desired contrast is reached.

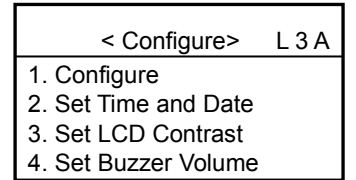
5. Press “OK” key to save modification and return to previous window.

12.8 How to set buzzer volume

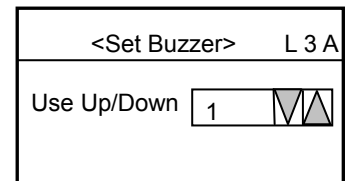
1. Press “” to enter main menu.
The main menu is displayed.



2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.




3. Press “↓” to choose “4.Set Buzzer Volume” and press “OK” key.
Current buzzer volume t is displayed.



4. Press “↓” or “↑” to change the value.
“0” means buzzer is off; “1” means buzzer is on.
5. Press “OK” key to save modification and return to previous window.

12.9 How to set LCD switch off time

Function: If no key is pressed within a certain time, LCD turns off automatically. LCD can be lighted up by pressing any key. But if fire or faults happen, the LCD turns on immediately.

1. Press “

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure> L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

3. Press “↓” to choose “5.Set LCD Switch Off Time” and press “OK” key.
Current LCD switch off time is displayed.


< Configure> L 3 A
5. Set LCD Switch Off Time 6. Set Language 7. AutoMap 8. Save Configuration

6. Press “←” to delete time, and enter new time.
The valid range is from 0 to 60 minutes. “0” represents LCD is on forever.

4. Press “OK” key to save modification and return to previous window.

<Set LCD Time> L 3 A
Valid(0~60) <input style="width: 40px;" type="text" value="5"/> (min)

12.10 How to set Language

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu> L 3 A
<ol style="list-style-type: none"> 1. RT Information 2. History Record 3. Operation 4. Configure


2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure> L 3 A
<ol style="list-style-type: none"> 1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

3. Press “↓” to choose “6.Set Language” and press “OK” key.
A drop-down list window is displayed. Press “F” and all optional language is listed. Press “↓” / “↑” to select one kind of language. Press “OK”.


< Configure> L 3 A
<ol style="list-style-type: none"> 5. Set LCD Switch Off Time 6. Set Language 7. AutoMap 8. Save Configuration

4. Press “OK” key to save modification and return to previous window.
Now the displayed language is still remain unchanged. You have to restart the control unit to display the selected language on window.

<Set Language> L 3 A
Language <input type="text" value="English"/> 

12.11 How to automap

Function: Automap can find address of all field devices which are connected with control unit and list them as points. When you navigate points, for those points which are configured will remain unchanged and display its text content and for those points which are not configured will display with “?New?Automap”. Then it can be configured on site. It is convenient for configuration of new added point on site.

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure> L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

3. Press “↓” to choose “7.Automap” and press “OK” key.
The system ask whether to continue this operation. If you cancel this operation, press “C”.

< Configure> L 3 A
5. Set LCD Switch Off Time 6. Set Language 7. AutoMap 8. Save Configuration

4. Press “OK” key to confirm to automap.
The system will show the “Configure System” window.

<Automap> L 3 A
Are you sure to automap?


5. Navigate points (refer to “How to configure point”), the points marked with “?New?Automap” are new and you can configure it now. And if you want to save it permanently, please refer to “ how to save configuration”.

<Configure System> L 3 A
1. System Property 2. Station

<Config Point> L 3 A
001 BDS031(A) 001 ?New?Automap Point002 ?New?Automap Point003 ?New?Automap Point004

12.12 How to save configuration

Function: To permanently save the modification of property and logic expression of system, station, line and point. Otherwise the modification will be lost when the system reset.

1. Press “

<Main Menu> L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure

2. Press “↓” to choose “4.Configure” and press “OK” key.
Configure window is displayed.

< Configure> L 3 A
1. Configure 2. Set Time and Date 3. Set LCD Contrast 4. Set Buzzer Volume

3. Press “↓” to choose “8.Save Configuration” and press “OK” key.
The system ask whether to continue this operation. If you want to cancel this operation, press “C” to return to previous window.

< Configure> L 3 A
5. Set LCD Switch Off Time 6. Set Language 7. AutoMap 8. Save Configuration

4. Press “OK” key to confirm to save configuration.
Message “In processing, waiting...” is displayed. Finishing saving, the system return to previuos window automatically,

<Save Config> L 3 A
Are you sure to save?


< Save Config> L 3 A
In processing, waiting...

13. Auto/Manual Mode

Auto: The output modules will be activated automatically when their logic statements are fulfilled.

Manual: The output modules will not be activated automatically when their logic statements are fulfilled. They need to be activated manually by user.

How to switch Auto/Manual:

1. Press “” to enter main menu.
The main menu is displayed.

<Main Menu>	L 3 A
1. RT Information 2. History Record 3. Operation 4. Configure	

2. Press “↓” to choose “5.Mode” and press “OK” key.
The set mode window is displayed.

<Set Mode >	L3 A
Choose mode <input type="radio"/> Auto Mode <input checked="" type="radio"/> Manu Mode	

3. Press “↓” to choose “AutoMode” / ”Manu Mode” and press “OK” key.
The “A” in red circle will be changed to “M”.

<Main Menu>	L 3 A
1.RT Information 2.Set LCD Contrast 3. Log in 4. About	

14. About

Function: To display system software version, license number and last download time.

How to do:

1. Press “☰” to enter main menu.

The main menu is displayed.

<Main Menu> L 3 A
1. RT Information
2. History Record
3. Operation
4. Configure

2. Press “↓” to choose “6.About” and press “OK” key.

System software version, license number and last download time are displayed.

<About> L3 A
Version:BC8001A V1.00
Download Date:2005-08-30
ID:28S-005

3. Press “C” to return to previons window.

CHAPTER 4 MAINTENANCE

1. Daily Checking

Persons on duty should do daily check of control unit and make records. If fire alarm, troubles and other abnormal events happen, "Trouble-shooting Guideline" shall be followed. After the control unit restores to normal, the events shall be well recorded.

2. Trouble-shooting Guideline

No.	Failure content	Possible reasons	Solutions
1	Function keys, LED and LCD screen are ineffective or damaged	Failure of signal wire or power line; Damage of corresponding hardware;	Correct connection; Replace corresponding hardware;
2	No indication of power supply	Main power or battery is off; Power connection is not firmly secured; Power supply is damaged;	Check the wiring of power supply and battery; Replace main board;
3	Power supply is on but the LCD on control unit is "black screen"	LCD brightness is not enough; LCD without power or the adapter on main board is damaged; LCD is damaged,	Adjust LCD brightness; Examine power supply line or replace main board; Replace LCD;
4	Control unit can not display any content.	System software or configuration files are lost; CPU board is damaged;	download corresponding software or configuration files; Replace CPU board;
5	No sound	No voltage; Volume of buzzer is not enough; Buzzer is damaged;	Replace power supply line or main board; Adjust buzzer's volume; Replace buzzer;
6	Control station trouble	Configuration file is unconformable with the devices on site; Main board address is not set or unconformable with configuration file; Main board is damaged;	Modify configuration file; Modify address setting; Replace main board;
7	Main board input & output trouble	Configuration file configuration is wrong; The input/output port of main board is damaged;	Modify the configuration; Replace main board;
8	Power supply trouble	Power supply is wrongly configured; Exterior voltage overrun power requirements; Battery is damaged; Power supply is damaged;	Check /modify configuration file; Adjust exterior voltage; Replace power supply or battery;

No.	Failure content	Possible reasons	Solutions
9	Auto-interlocking trouble	Interlocking relationship is not set correctly or interlocking relationship is not right; Control device is damaged; Power supply or control line trouble;	Change configuration file; Replace damaged equipment; Examine wiring;
10	Manual control trouble	Operating level is low; Control unit is not in manual mode; Control device is damaged; Power supply and control line failure;	Log on higher level; Alter the working mode of control unit; Replace damaged equipment; Examine wiring;
11	Failure of "isolate" and "open"	Operating level is low; Operating method is not right; Operating panel is damaged; Main board is damaged;	Log on higher operating level; Replace operating panel; Replace main board;
12	Failure of "Test" and "Restore[Test mode]"	Operating level is low; Operating method is not right; CPU board is damaged;	Log on higher operating level; Replace CPU board;
13	Display errors of "Fire-alarm", "Activate" and "Trouble" etc.	Errors of configuration file; CPU board is damaged;	Update the configuration file; Replace CPU board;
14	Failure of Inquiring history events	Operating level is low; Operating method is not right; Main board is damaged;	Log on higher operating level; Replace main board;
15	Failure of site programming (modifying)	Operating level is low; Operating method is not right; CPU board is damaged;	Log on higher operating level; Replace CPU board;
16	Other operating failure on control unit	Operating level is low or operating method is not right, Configuration file is lost or fault; Some hardware is damaged;	Log on higher operating level; Update configuration file; Replace damaged hardware;
17	Date is displayed as "2000-00-00"	Battery on main board is damaged	Replace battery on main board

3. Fuse Replacement

Name	Model	Replacement
Battery fuse capacity	10A	Replace the same model product
AC fuse capacity	5A	Replace the same model product

For problems with other components, please contact manufacturer for replacement.

4. Battery Maintenance

Perform the following tests at the recommended interval. Replace the battery set every four years or if any of the test criteria are not met.

Initiation/Reacceptance:

1. Charge Test - With the batteries fully charged and connected to the charger, measure the voltage across the battery set. It must read $26.0\text{VDC} \pm 0.3\text{V}$.
2. Discharge Test – With full system alarm load, the voltage on a fully charged battery must not fall below 20.4VDC after 30 minutes.
3. Load Voltage Test – With full system alarm load, the voltage on a fully charged battery must not fall below 24.0VDC after 1 minute.

Testing Interval:

1. Semiannually – Perform the Load Voltage Test
2. Annually – Perform the Charger Test and Discharge Test

5. Reclamation

For abandoned control units, please contact local office of manufacturer to make proper treatment. Any random discarding of control units is strictly forbidden.

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