

NEW SUPERLINK SYSTEM

BACnet Gateway

CONFIGURATION MANUAL

MODEL :
SC-BGWNA-A

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SYSTEMS HEADQUARTERS

1. INTRODUCTION

1.1 Scope

This manual is applied to the configuration setting of the "BACnet Gateway", Model SC-BGWNA-A. Any contents of this document may be changed without prior notification.

1.2 IP Network Configuration

This manual includes the following configuration procedures for IP Network;

- IP address and WEB Server URL change
- Subnet mask change
- Default Gateway change

1.3 BACnet Configuration

This manual includes the following configuration procedures for BACnet;

- BACnet Device instance No. change
- BACnet Port No. change
- BACnet Periodically I-Am, Who-Is-Router-To-Network On/Off change
- BACnet Broadcast Scope, DNET change
- BACnet UnconfirmedCOVNotification broadcast On/Off change
- BACnet UnconfirmedEventNotification broadcast On/Off change

1.4 Air-conditioner BACnet Object Instance No. Allocation

This manual includes the definition of BACnet Object Instance No. Allocation.

1.5 Air-con CELL Configuration

This manual includes the following configuration procedures for Air-con CELLS using the WEB Server embedded in the SC-BGWNA-A;

- Air-con CELL configuration input/change
- Air-con CELL configuration file upload
- Air-con CELL configuration file download

1.6 Date Time Set

This manual includes the procedure to set the system date and time of the SC-BGWNA-A using the WEB Server embedded in the SC-BGWNA-A.

2. Setting Tool

2.1 Connection Diagram

Fig. 1 shows connection diagram of the Configuration Tool PC. The following diagram is an example. The Configuration Tool PC can be connected directly by Ethernet cross cable to the SC-BGWNA-A Ethernet port. The required condition is feasibility of accessing from the Configuration Tool PC by WE Browser.

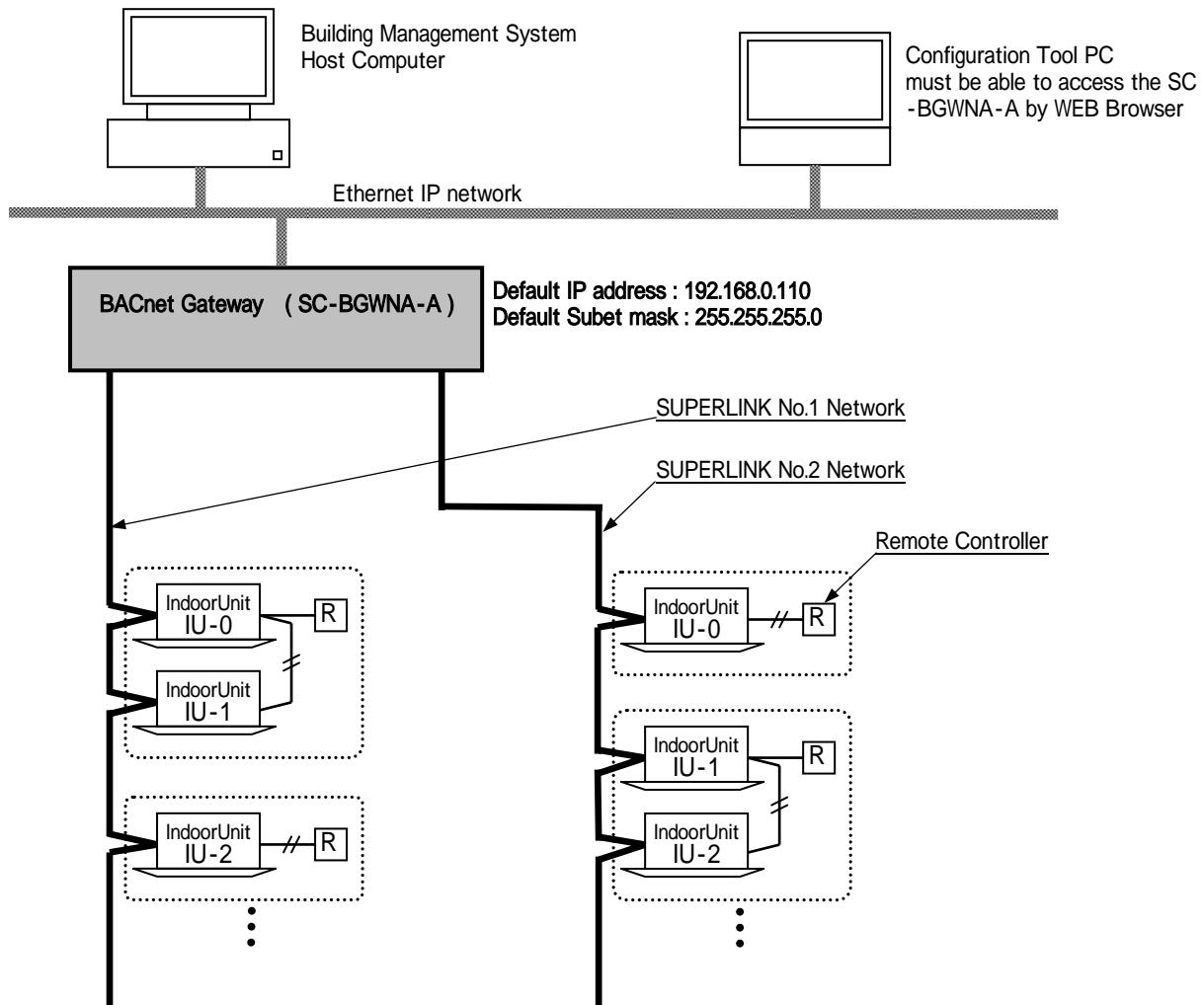


Fig. 1 Configuration Tool PC Connection Diagram

2.2 Personal Computer (PC)

Please check that the PC meets the following specifications.

CPU	500MHz or higher
Memory	512MB or higher
OS	Windows2000 or Windows XP (Home/Professional) Windows Vista SP1 or above on some conditions.
Screen size	1024×768 or higher
Browser	Internet Explorer 6 or 7.

3 . IP Network Configuration

Network configuration of the SC-BGWNA-A can be changed, such as IP address, Subnet mask.
When IP address is changed, **WEB Server URL of the SC-BGWNA-A is also changed automatically.**

- (0) At the factory shipment, the SC-BGWNA-A has been set the default network configuration as follows;

IP address : 192.168.0.110
Subnet mask : 255.255.255.0
Default Gateway : 192.168.0.1
WEB Server URL : http://192.168.0.110/en/

- (1) Access WEB Server of SC-BGWNA-A with a WEB Browser of a PC.

WEB Server URL: http://192.168.0.110/en/

In the case the IP address has been changed to be XXX.XXX.XXX.XXX, the URL will be the following;

WEB Server URL : http://XXX.XXX.XXX.XXX/en/

The login screen of the WEB Server will appear as shown in Fig. 2.

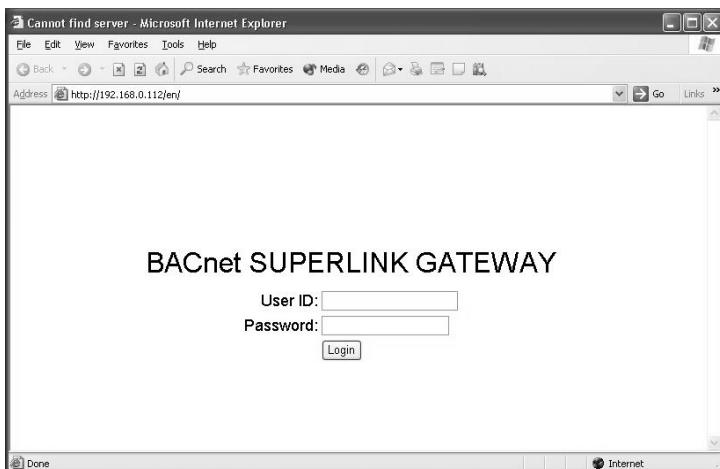


Fig. 2 Top page of the embedded WEB Server

- (2) Login to the WEB Server using following UserID and Password to get the main menu screen.

User ID: Admin
Password: 123456

The main menu will appear as shown in Fig. 3.

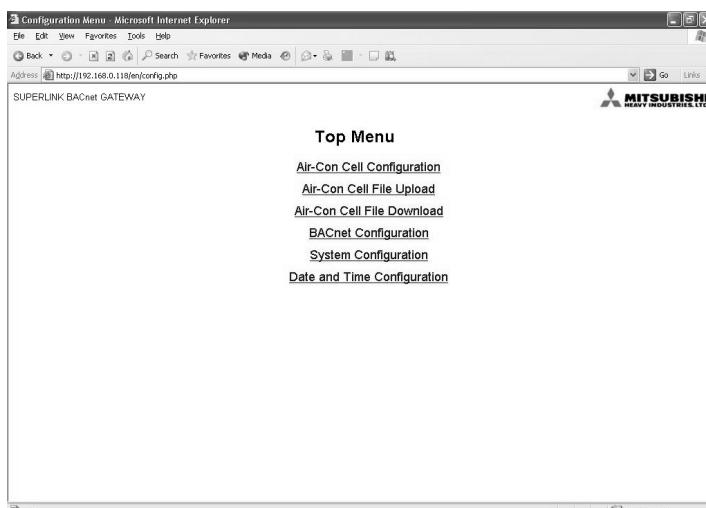


Fig. 3 Main menu of the Configuration WEB Server

- (3) To get the IP Network Configuration screen, select the link "System Configuration" on the main menu.
Fig. 4 shows IP Network Configuration (System Configuration) screen.

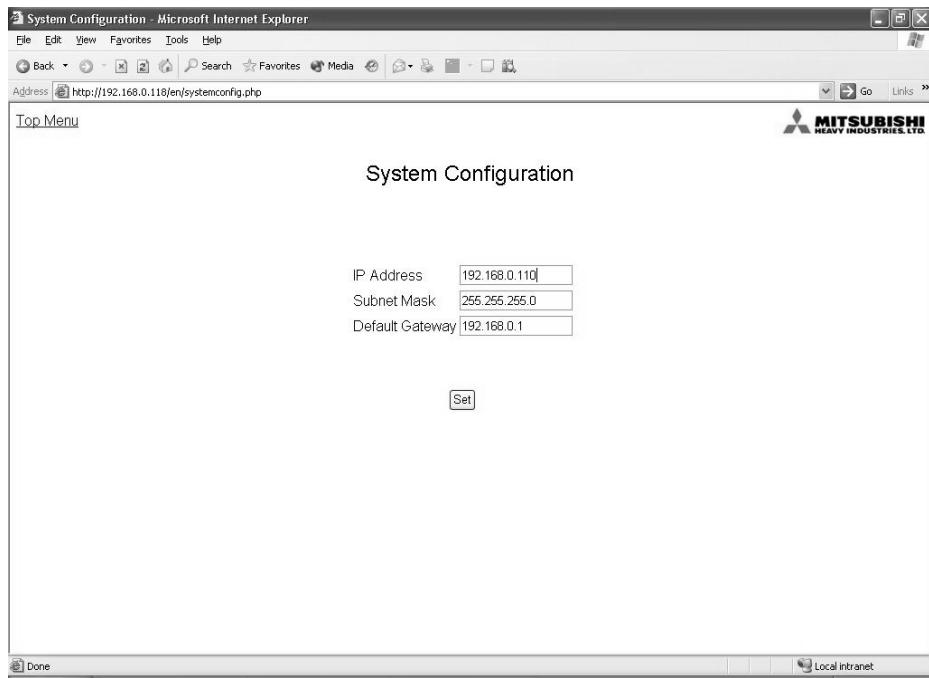


Fig. 4 IP Network Configuration (System Configuration)

- (4) Fill in each field to be changed and click set button. After confirmation, SC-BGWNA-A will be rebooted automatically.

Attention:

- IP address 0.*.*.* , 127.*.*.* , 224.*.*.* to 255.*.*.*
can't be used due to reservations.
- Don't input "0" at the front of each octet.
Ex: Correct:192.168.1.110 Incorrect:192.168.001.110
- Don't input more than a four-digit number for each octet.
Ex: Correct:192.8.100.110 Incorrect:192.8.0100.110
- Subnet mask must contain only binary bit"1" from left side.
Ex: Correct:255.255.255.0 Incorrect:192.255.255.0

- (5) After the SC-BGWNA-A restarts, the SC-BGWNA-A will work as the new configuration as follows;

IP address : XXX.XXX.XXX.XXX
Subnet mask : YYY.YYY.YYY.YYY
Default Gateway : ZZZ.ZZZ.ZZZ.ZZZ
WEB Server URL : http://XXX.XXX.XXX.XXX/en/

- (6) The network configuration can be reset to the initial values of the factory shipment.

Press reset button 10 seconds and release it to reset the configuration. The button is in a small hole of the right side of the SC-BGWNA-A. Use a small thing like a needle to push the button.

After the SC-BGWNA-A restarts, the SC-BGWNA-A will work in the initial network configuration.

Only the IP network configuration is reset, other settings are not to be reset by this operation.

4 . BACnet Configuration Change

BACnet configuration such as the Device Instance No., BACnet Port No., or etc can be changed.

- (1) To get the BACnet Configuration screen, select the link “BACnet Configuration” on the main menu.
Fig. 5 and 6 shows BACnet Configuration screen.
- (2) To change configuration, select, check, or fill in the field, and press Set button. After confirmation, SC-BGWNA-A will be rebooted automatically.
Press Reload button to reload current configuration.
- (3) After the SC-BGWNA-A restarts, the SC-BGWNA-A will work as the new configuration

Fig. 5 BACnet Configuration (1/2)

Fig. 6 BACnet Configuration (2/2)

5. OBJECT INSTANCE NO. ALLOCATION

The BACnet standard defines the format of the BACnet Object Identifier as shown in the following diagram. That is, the 32 bits of the BACnet Object Identifier consists of the higher 10 bits of the BACnet Object Type and the lower 22 bits of the Instance No.

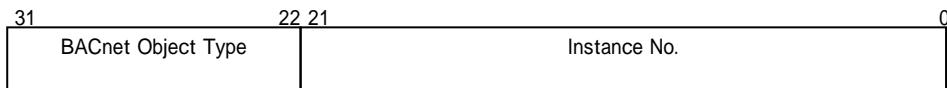


Fig. 7 Format of the BACnet Object Identifier

In this BACnet gateway, the 22 bits of the Instance No. shown above are divided into the higher 14 bits and the lower 8bits as corresponding with the Air-con CELL No. and its Object Member No. as shown in the following diagram. This structure comes from the concept that each Air-con CELL has a number of Object Members.

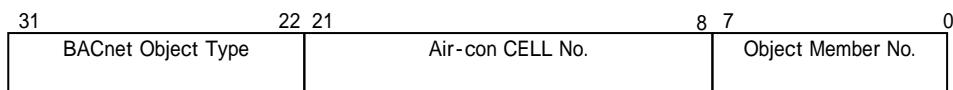


Fig. 8 Format of the Instance No. in this gateway

For example, the Instance No. of the Mode command Object(Member No. is 5) of the Air-con CELL No.10 is to be defined as follows.

	Air-con CELL No.	Object Member No.
Meaning	CELL No. = 10	Object Member No. = 5
Bits of CELL & Member	0000000001010	00000101
Instance No. bit string	0000000001010 00000101 = X'0A05' = 2565	
Calculation method	10 x 256 + 5 = 2565	

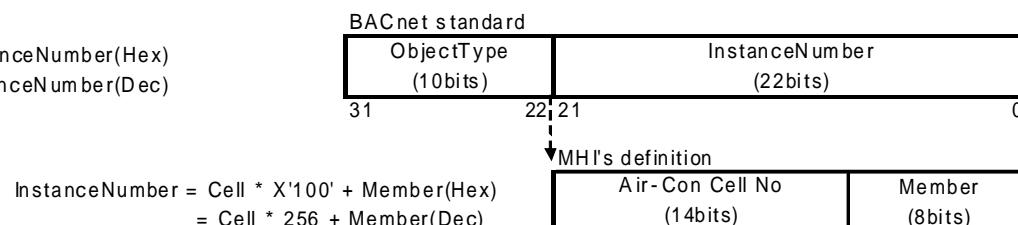
In the case of the System Stop command Object which is only one for this gateway, the Instance No. of the System Stop command object is defined so as to be the Object Member No.21 of the Air-con CELL No.0.

Object ID Allocation for SC -BGWN -A

Air-Con Cell No.	FunctionMember	Member Code	ObjectName	ObjectType Name	ObjectType Code	InstanceNumber Decimal	InstanceNumber Hexadecimal	ObjectIdentifier Decimal	ObjectIdentifier Hexadecimal
Air-Con. Cell 0	On/Off command	1	StartStopCommand_000	BO	4	1	X '000001'	16777217	X '01000001'
	On/Off status	2	StartStopStatus_000	BI	3	2	X '000002'	12582914	X '00C00002'
	Alarm status	3	Alarm_000	BI	3	3	X '000003'	12582915	X '00C00003'
	Error Code	4	MulfunctionCode_000	MI	13	4	X '000004'	54525956	X '03400004'
	Mode command	5	AirConModeCommand_000	MO	14	5	X '000005'	58720261	X '03800005'
	Mode status	6	AirConModeStatus_000	MI	13	6	X '000006'	54525958	X '03400006'
	Fan Speed command	7	AirFlowRateCommand_000	MO	14	7	X '000007'	58720263	X '03800007'
	Fan Speed status	8	AirFlowRateStatus_000	MI	13	8	X '000008'	54525960	X '03400008'
	Room Temperature	9	RoomTemp_000	AI	0	9	X '000009'	9	X '00000009'
	Set Temperatuer command	10	TempAdjust_000	AV	2	10	X '00000A'	8388618	X '0080000A'
	Filter Sign status	11	FilterSign_000	BI	3	11	X '00000B'	12582923	X '00C0000B'
	Filter Sign Reset command	12	FilterSignReset_000	BV	5	12	X '00000C'	20971532	X '0140000C'
	Remocon Lock/Unlock command	13	RemoteControl_000	BV	5	13	X '00000D'	20971533	X '0140000D'
	Communication status	20	CommunicationStatus_000	BI	3	20	X '000014'	12582932	X '00C00014'
Air-Con. Cell 1	On/Off command	1	StartStopCommand_001	BO	4	257	X '000101'	16777473	X '01000101'
	On/Off status	2	StartStopStatus_001	BI	3	258	X '000102'	12583170	X '00C00102'
	Alarm status	3	Alarm_001	BI	3	259	X '000103'	12583171	X '00C00103'
	Error Code	4	MulfunctionCode_001	MI	13	260	X '000104'	54526212	X '03400104'
	Mode command	5	AirConModeCommand_001	MO	14	261	X '000105'	58720517	X '03800105'
	Mode status	6	AirConModeStatus_001	MI	13	262	X '000106'	54526214	X '03400106'
	Fan Speed command	7	AirFlowRateCommand_001	MO	14	263	X '000107'	58720519	X '03800107'
	Fan Speed status	8	AirFlowRateStatus_001	MI	13	264	X '000108'	54526216	X '03400108'
	Room Temperature	9	RoomTemp_001	AI	0	265	X '000109'	265	X '00000109'
	Set Temperatuer command	10	TempAdjust_001	AV	2	266	X '00010A'	8388874	X '0080010A'
	Filter Sign status	11	FilterSign_001	BI	3	267	X '00010B'	12583179	X '00C0010B'
	Filter Sign Reset command	12	FilterSignReset_001	BV	5	268	X '00010C'	20971788	X '0140010C'
	Remocon Lock/Unlock command	13	RemoteControl_001	BV	5	269	X '00010D'	20971789	X '0140010D'
	Communication status	20	CommunicationStatus_001	BI	3	276	X '000114'	12583188	X '00C00114'

Instance Number Allocation Rule

$$\begin{aligned} \text{Object_Identifier} &= \text{ObjectType} * \text{X}'400000' + \text{InstanceNumber(Hex)} \\ &= \text{ObjectType} * 4194304 + \text{InstanceNumber(Dec)} \end{aligned}$$



$$\begin{aligned} \text{InstanceNumber} &= \text{Cell} * \text{X}'100' + \text{Member(Hex)} \\ &= \text{Cell} * 256 + \text{Member(Dec)} \end{aligned}$$

6 . Air-con CELL Configuration

Each BACnet objects are linked to a logical unit named "Air-con Cell". The Air-con Cell configuration, that is the relationship between the Superlink address and the Cell No., can be set by accessing the WEB Server embedded in the SC-BGWNA-A.

6.1 Cell Configuration

At the factory shipment, all the 96 Cells from Cell000 to Cell095 have been set as the default setting. The default setting should be changed so as to match the actual Superlink address allocation at the site.

- (1) To get the Cell Configuration screen, select "Air-con Cell Configuration" on the main menu.
- (2) Using the pull-down menu, set a Cell No. for which each Air-conditioner belongs. To see all the rows, use the scroll bar at the right side.
- (3) Click the "Set" button to activate the new setting.

Superlink Addr	SL1	SL2
U00	C000	C048
U01	C001	C049
U02	C002	C050
U03	C003	C051
U04	C004	C052
U05	C005	C053
U06	C006	C054
U07	C007	C055
U08	C008	C056
U09	C009	C057
U10	C010	C058
U11	C011	C059
U12	C012	C060
U13	C013	C061
U14	C014	C062
U15	C015	C063
U16	C016	C064
U17	C017	C065

Fig.9 Air-con Cell Configuration

Note: The Cell configuration at the factory shipment is shown in Table.1.

Table.1 The Cell configuration at the factory shipment

SUPERLINK Addr	SL1	SL2
U00	C000	C048
U01	C001	C049
U02	C002	C050
U03	C003	C051
U04	C004	C052
U05	C005	C053
U06	C006	C054
U07	C007	C055
U08	C008	C056
U09	C009	C057
U10	C010	C058
U11	C011	C059
U12	C012	C060
U13	C013	C061
U14	C014	C062
U15	C015	C063
U16	C016	C064
U17	C017	C065
U18	C018	C066
U19	C019	C067
U20	C020	C068
U21	C021	C069
U22	C022	C070
U23	C023	C071
U24	C024	C072
U25	C025	C073
U26	C026	C074
U27	C027	C075
U28	C028	C076
U29	C029	C077
U30	C030	C078
U31	C031	C079
U32	C032	C080
U33	C033	C081
U34	C034	C082
U35	C035	C083
U36	C036	C084
U37	C037	C085
U38	C038	C086
U39	C039	C087
U40	C040	C088
U41	C041	C089
U42	C042	C090
U43	C043	C091
U44	C044	C092
U45	C045	C093
U46	C046	C094
U47	C047	C095
U48 - U63	-	-

6.2 Download of Cell Configuration file

The Air-con CELL configuration file can be downloaded as a form of a CSV file.

- (1) To get the download screen, select the link "[Air-con Cell Configuration File Download](#)" on the main menu. Fig. 10 shows Air-con Cell Configuration File Download screen.

- (2) Click the "Download" button to download and follow the Windows guidance.

The format of the CSV file is shown below.

1st line : Comment line.

2nd line and more : [Air-con CELL No.], [SL System No.], [SL Address], [CR+LF]

```
Air-con Cell No.,SL System No.,SL Address
C000,S1,U16
C001,S1,U17
C002,S2,U16
C003,S2,U17
```

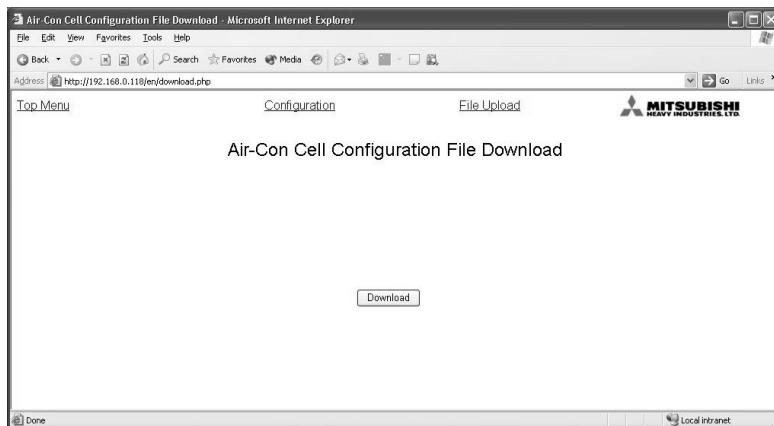


Fig.10 Air-con Cell Configuration File Download

6.3 Upload of Cell Configuration file

The Air-con CELL configuration file can be uploaded as a form of a CSV file.

- (1) To get the upload screen, select the link "[Air-con Cell Configuration File Upload](#)" on main menu.

Fig. 11 shows the Air-con Cell Configuration File Upload screen.

- (2) Fill in the file name to be uploaded. To select file, use Browse button and follow the Windows guidance.

Note: The acceptable format of CSV file is the one shown in section 6.3.

- (3) Click the "Upload" button to upload.

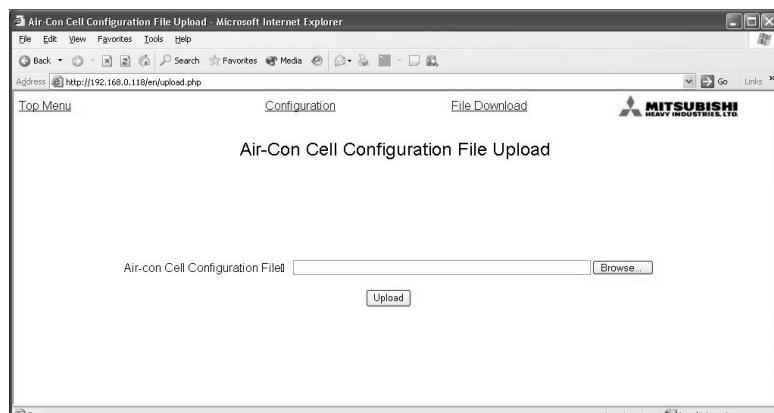


Fig. 11 Air-con Cell Configuration File Upload

7. Date Time Set

- (1) To get the Date Time Set screen, select the link "[Date and Time Configuration](#)" on the main menu.
Fig.12 shows the Date Time Set screen.
- (2) Select, or fill in the fields to set date and time, and click the "Set" button.
The System time of the SC-BGWNA-A will be set to the date and time.

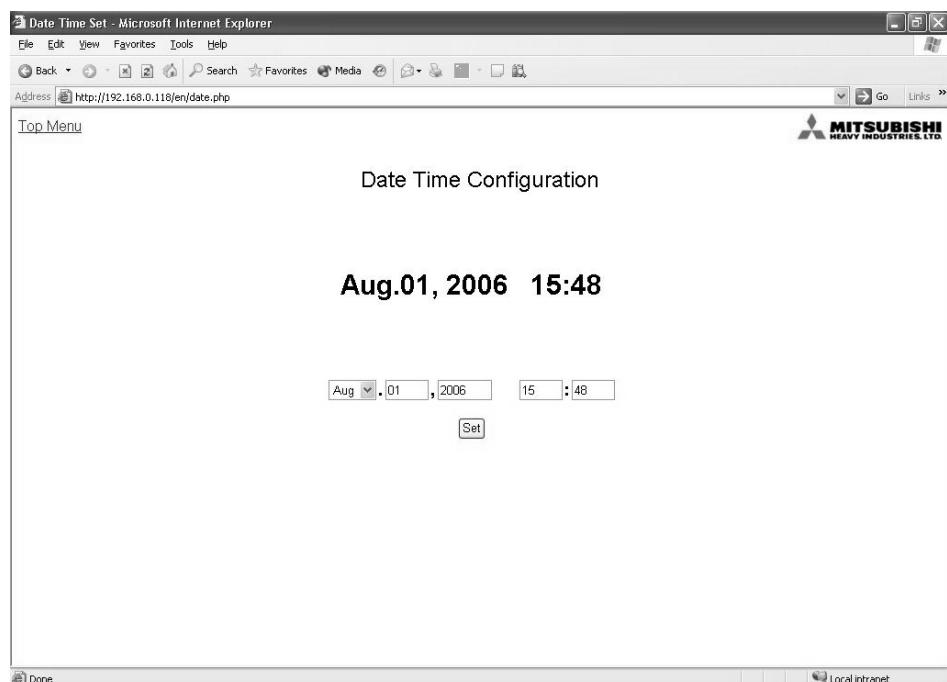


Fig. 12 Date Time Set

Note: When a BACnet device, which sends TimeSynchronization Service periodically, is connected to the network, SC-BGWNA-A adjusts date and time itself automatically.

APPENDIX. Wiring and LED Status

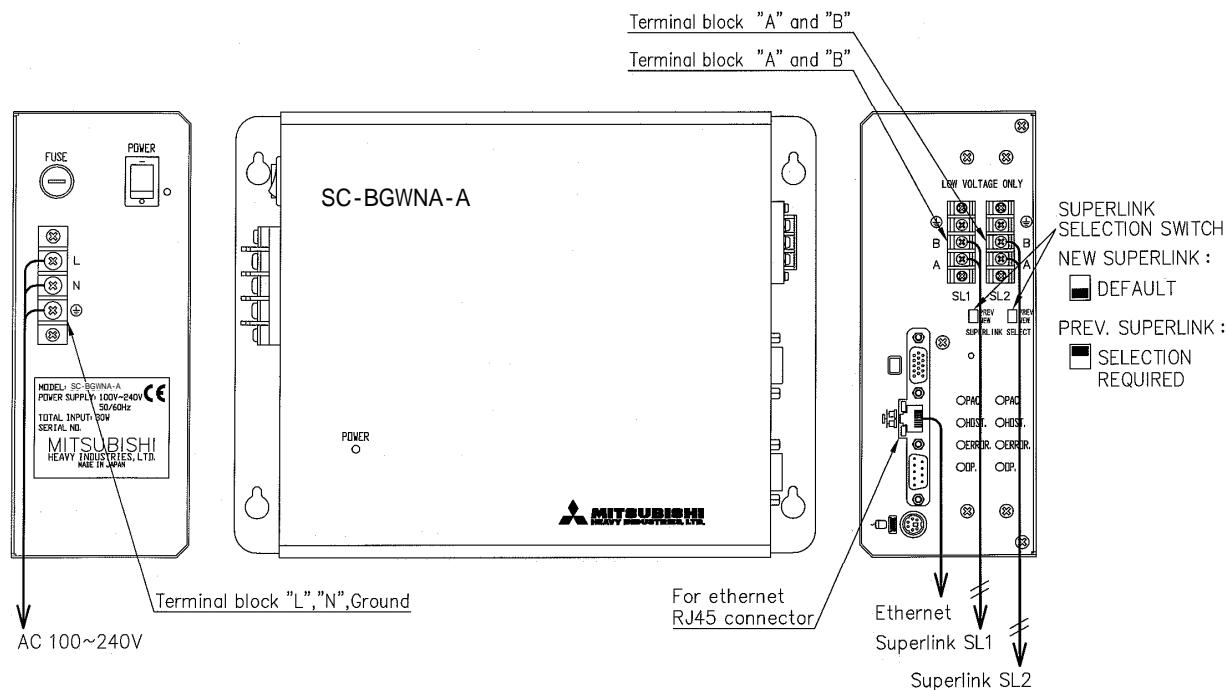
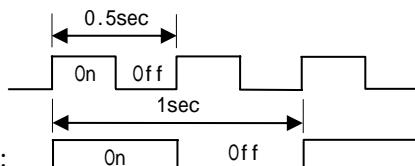


図 A.1 SC-BGWNA-A Wiring

LED Status

PAC (Yellow)	:Blink
HOST (Yellow)	:Blink 2min after started
ERROR (Red)	:Off
OP (Green)	:Blink

New SUPERLINK :
Previous SUPERLINK :



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