# INSTALLATION MANUAL

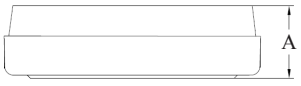
## BMS Gateway (BAG)




Installation Manual
BMS Gateway (BAG)

English

## OUTLINE AND DIMENSIONS



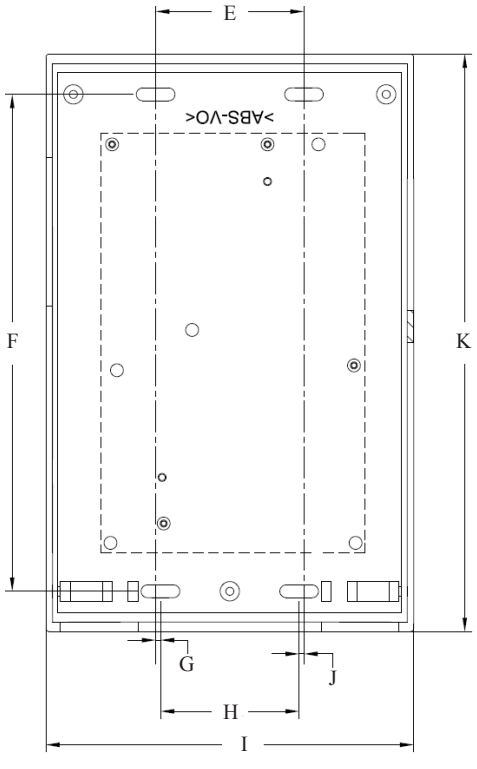

TOP VIEW




FRONT VIEW




SIDE VIEW




| Dimension / Model | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BAG | 33.5 | 118.4 | 183.4 | 33.5 | 46.0 | 154.0 | 1.5 | 43.0 | 114.0 | 1.5 | 179.0 |

**All dimensions are in mm**

# INSTALLATION MANUAL

English

**This manual provides the procedures of installation to ensure a safe and good standard of operation for the BMS Access Gateway. Special adjustment may be necessary to suit local requirement.**
**Before using your gateway, please read this instruction manual carefully and keep it for future reference.**
**This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.**
**This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
**Children should be supervised to ensure that they do not play with the appliance.**

## SAFETY PRECAUTIONS

### ⚠ WARNING

- Installation and maintenance should be performed by qualified persons who are familiar with local code and regulation, and experienced with this type of appliance.
- Confirm that the unit has been switched OFF before installing or servicing the unit.
- Risk of electric shock, can cause injury or death. Disconnect all remain electric power supplies before servicing.
  DO NOT pull out the power cord when the power is ON.
- This may cause serious electrical shocks which may result in fire hazards.

### ⚠ CAUTION

**Please take note of the following important points when installing.**

- **Do not install the unit where leakage of flammable gas may**
- **Use only the recommended cables for wiring. The connections must be firm but without tensioning the terminals.**

  Improper connection or fastening can cause fire or electrical shock.

- **Do not handle with wet hands/ wash the unit with water.**

  Electrical shock may occur.

- **Do not operate any heating apparatus too close to the gateway or use in room where mineral oil, oil vapor or oil steam exist, this may cause plastic part to melt or deform as a result of excessive heat or chemical reaction.**
- **Don't use joined and twisted wires for incoming power supply.**
- **The equipment is not intended for use in a potentially explosive atmosphere.**

## COMPATIBILITY

**Main Board Controller**
BAG can only be used in conjunction with O.Y.L. Manufacturing produced Split type and SQMB type air conditioner units with communication protocol N2.2 and N2.4 only.

**Display Wired Panel**
BAG can be used in conjunction with SLM8 (BRC51A), SQSLM8 (BRC51A64), SLM9, SQSLM9 or SQLCD wired panel.

Supported Configuration:

| Interface | Compatibility |
|---|---|
| SLM8 (BRC51A)/ SQSLM8 (BRC51A64)/ SLM9/ SQSLM9 | Yes |
| SQLCD (with RS-485) | Yes |
| None of the interface above | No |

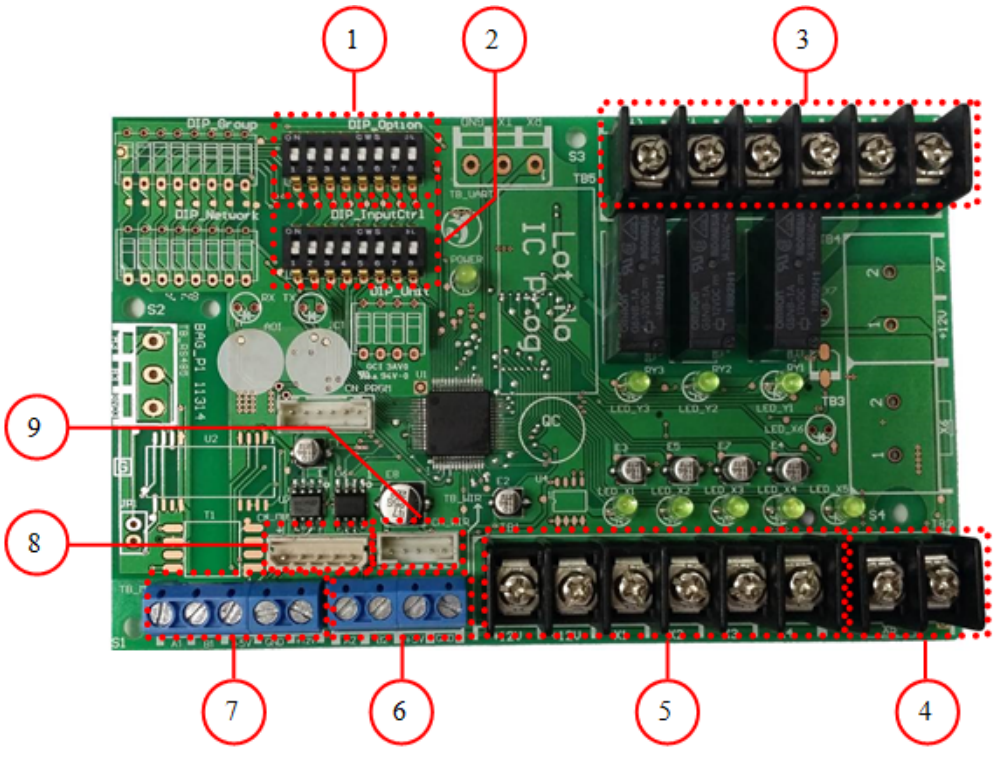
## CONFIRMATION OF PARTS

The following parts are contained in the carton box together with this manual.
Please check to make sure that everything is included.

1. BMS Gateway (BAG)
2. Casing (top & bottom)
3. 5-way shield wire (1 meter) to/from mainboard controller.
4. Mounting screws

Procure the following parts locally:
1. Communication wires to/from SQMB mainboard controller and SQLCD wired panel.

## 1 BOARD DESCRIPTIONS




**Descriptions**

1. Option setting dip switch, DIP_Option
2. Input control dip switch, DIP_InputCtrl
3. Dry contact outputs
   - Y1: On/ Off status output
   - Y2: Heat/ Cool or Dry or Fan operating mode output
   - Y3: Unit faulty status output
4. Resistance input
5. X5: Set temperature control
   - Input Contacts
   - X1: Force Off
   - X2: On/ Off control
   - X3: Cool/ Heat Operating mode
   - X4: Hi/ Low Fan speed control
6. Terminal block for connection to SQLCD (with RS-485)
7. Terminal block for connection to SQMB (with RS-485)
8. Connector for connection to mainboard controller
9. Connector for connection to SLM8 (BRC51A)/ SQSLM8 (BRC51A64)/ SLM9/ SQSLM9

**2** Configure the Input Control Setting Dip Switch (DIP_InputCTRL) according to the configurations required and refer to the table below:

| Dip_InputCtrl | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Dip Position | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Terminal Block Designator | | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 |
| Description | | Force Off | On/Off | Heat/Cool Mode | Fan Speed | Resistance Input | (Reserved) | | |
| Setting | On | Off | On | Heat | Hi | | - | | |
| | Off | Unchanged | Off | Cool | Low | | | | |

**3** Adjust the dip switch to “ON” position enables the assigned input contacts.

Configure the Option Setting Dip Switch (DIP_Option) according to operating option preferences and refer to the table below:

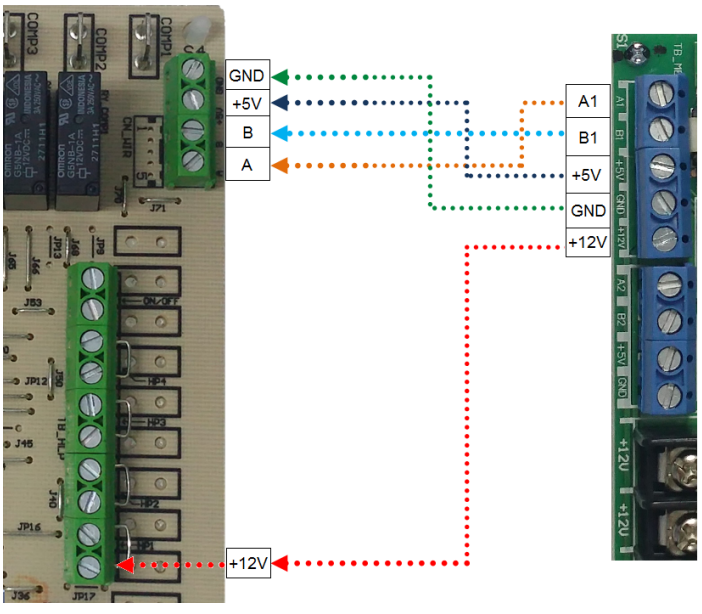
| Dip_Option | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dip Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Setting | Handset On/Off Override | SQ Mode | Reserved | | | | | |

Adjust the dip switch to “ON” position enables the function assigned to it.

## UNIT INSTALLATION

1 Make connections from BAG to mainboard controller.

SQMB (with RS-485):
Make connections from TB_MB (BMS Gateway) to TB_WIR (SQMB) accordingly (A to A, B to B, +5V to +5V, GND to GND).
* Note that +12V on BAG to be connected to HP1 at position shown in the figure below:



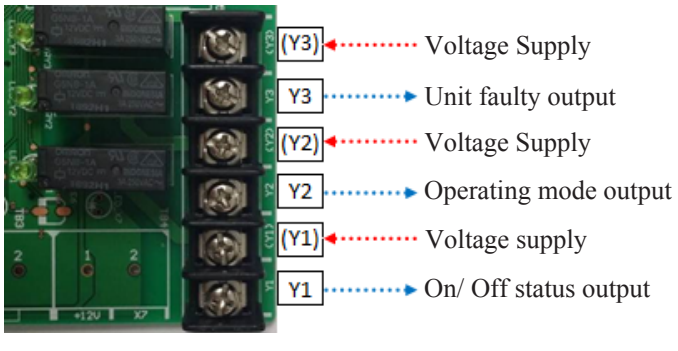

Other mainboard controllers (without RS-485):
Plug in the provided 5-way harness wires to the connector, CN_MB on BAG and plug the other end of the wire to CN_WIR on mainboard controller.

2 Make connections from BAG to wired panel.

SQLCD (with RS-485):
Make connections from TB_WIR (BAG) to TB (SQLCD) accordingly (A to A, B to B, +5V to +5V, GND to GND).

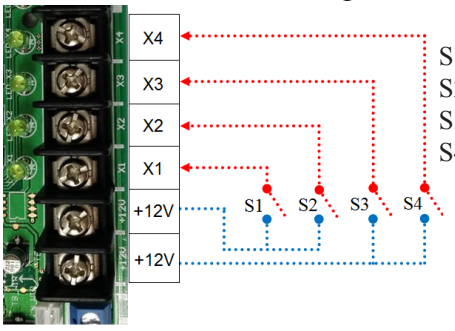
SLM8 (BRC51A)/ SQSLM8 (BRC51A64)/ SLM9/ SQSLM9:
Plug in the wire harness provided in SLM8 (BRC51A)/ SQSLM8 (BRC51A64)/ SLM9/ SQSLM9 package to CN_MB on wired panel and connects the other end of the wire to the connector (CN_WIR) on BAG.

3 Make connections from dry contact output terminal blocks to BMS system as shown below:



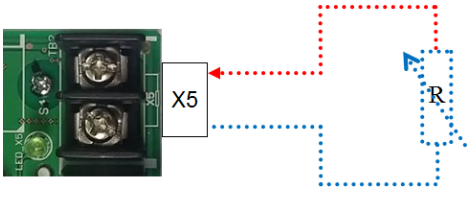
## UNIT INSTALLATION

**4** Make connections from input contacts terminal blocks to BMS system as shown below:




S1: Force off control switch
S2: On/ Off control switch
S3: Operating mode control switch
S4: Fan speed control switch

5 Make connections from resistance input terminal block to BMS system as shown below:




6 Adjust and align all wires to wire clips as shown in the image shown below:



7 Decide the location to install the BAG.

Please consider the following precautions in your decision:
Do not install the unit in location that is:

- Exposed to direct sunlight.
- Susceptible to humidity and moisture.
- Near to heat source.
- Near to machines that emits high frequency wave.
- Near to high current switching devices.

Caution:

- Over-tightening the screws can cause deformation or/and crack at the casing.
- Mount the bottom casing on a wall with flat surface. Unit mounted on an uneven surface can cause cracks at the casing.

8 Mount the complete unit onto the wall.

9 Close the top casing to the bottom casing and tighten the screws.



## RECOMMENDED WIRE SPECIFICATION

Recommended wire specification and maximum wire length

| Connection | Communication Type | Wire Specification | Max Wire Length |
|---|---|---|---|
| BAG to Wired Panel | IO | 4W wire harness | 20 meters |
| | RS-485 | 24AWG shielded twisted pair<br>Characteristic Impedance: 100 Ohms<br>Shunt Capacitance: 16pF/ ft. | 500 meters |
| BAG to mainboard controller | IO | 5W wire harness | 20 meters |
| | RS-485 | 24AWG shielded twisted pair<br>Characteristic Impedance: 100 Ohms<br>Shunt Capacitance: 16pF/ ft. | 500 meters |
| BAG to BMS | Input Contacts | 18AWG stranded copper wire | 300 meters |
| | Dry Contact Outputs | 18AWG stranded copper wire | 550 meters at 24VDC<br>1100 meters at 240VAC |

*Input contacts operating at +12VDC and max current of 100mA

*The maximum wire length for IO communication type between BAG-Wired Panel and BAG-mainboard controller shall not exceed 30 meters

## ELECTRICAL CHARACTERISTIC

Maximum electrical ratings for IO and contacts

| Input/ Output Type | Input/ Output Name | Maximum Electrical Ratings |
|---|---|---|
| Dry Contact Outputs | On/ Off<br>Heat/ (Cool or Dry or Fan)<br>Unit Faulty | 24VDC, 100mA<br>240VAC, 3A |
| Input Contact | Force Off<br>On/ Off<br>Heat/ Cool Mode<br>Hi/ Low Fan Speed | +12VDC, 100mA |
| Resistance Input | Set Temperature | +12VDC, 100mA |



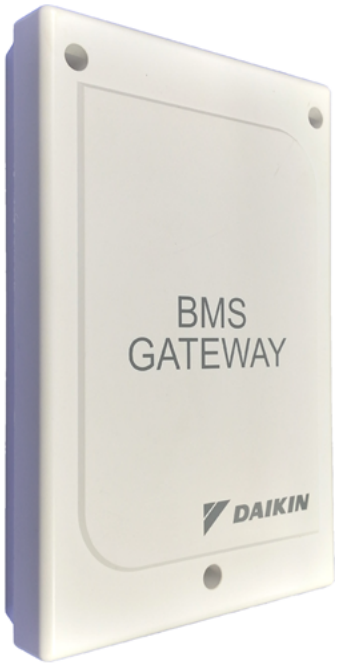
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# OPERATING & INSTALLATION MANUAL

## BMS Gateway (BAG)

Operating & Installation Manual
BMS Gateway (BAG)

English



# OPERATING MANUAL

## BMS Gateway (BAG)




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## BMS Access Gateway (BAG)

BAG interfaces the air conditioner unit to BMS system via input contacts, dry contacts outputs and resistance input allowing monitoring and controlling of operating parameters.

## Resistance Input

Resistance Input allows BMS system to control the set temperature of the air conditioner unit according to resistance table below:

| Resistance | Set Temperature ($^0$C) |
|---|---|
| 140 | 16 |
| 200 | 17 |
| 260 | 18 |
| 320 | 19 |
| 380 | 20 |
| 440 | 21 |
| 500 | 22 |
| 560 | 23 |
| 620 | 24 |
| 680 | 25 |
| 740 | 26 |
| 800 | 27 |
| 860 | 28 |
| 920 | 29 |
| 1000 | 30 |

*The accuracy of Resistance to Set Temperature conversion is subject to the stability of the input voltage (+12V) from the main controller and may differ at site application.

## Input Contacts

Input Contacts allow BMS system to control the operation of the air conditioner unit.

| Dry Contact | Function | | Contact OPEN | Contact CLOSED |
|---|---|---|---|---|
| X1 | Force Off | | Force unit Off | - |
| X2 | On/ Off | Handset On/ Off Override Disabled | Turn unit Off | Turn unit On |
| | | Handset On/ Off Override Enabled | User Controllable | Turn unit On |
| X3 | Operating Mode | | Cool | Heat |
| X4 | Fan Speed | | Low | High |

## Dry Contact Outputs

Dry Contact Outputs allow BMS system to monitor the operation of the air conditioner unit.

| Dry Contact | Function | Contact OPEN | Contact CLOSED |
|---|---|---|---|
| Y1 | On/ Off | Unit Off | Unit On |
| Y2 | Operating Mode | Cool/Dry/Fan | Heat |
| Y3 | Unit Error Indicator | Normal | Unit Faulty |

## MEMO