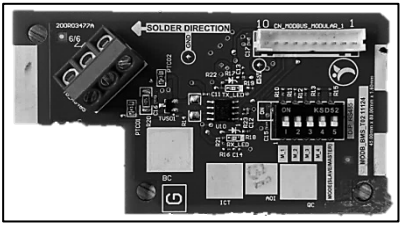
FCBAG MODULE PROTOCOL (MODBUS)

FCBAG MODULE



English

CONTENT

MODBUS CONFIGURATIONS

Dip Switch	Pin	Function	OFF	ON
DIP_Config	1	Modbus	Disable	Enable
	2	Baud Rate	9600bps	19200bps
	3	Stop Bit	1 (Parity)	2 (non-Parity)
	4	Parity*	Even	Odd
	5	Reserved	Disable	Enable

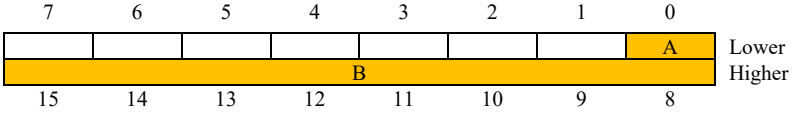
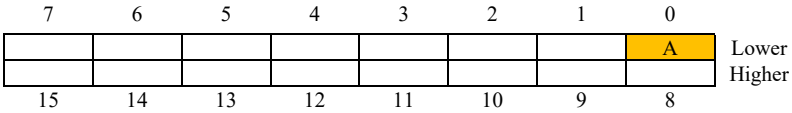
*Parity setting will enable when Stop Bit is set to OFF (Parity).

MODBUS COMMUNICATION PROTOCOL

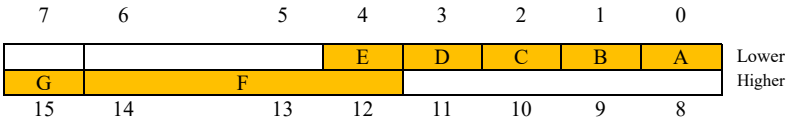
I. Function Code

Function Code	Description	Remarks
0x03	Read Holding register	-
0x04	Read Input Register	-
0x06	Preset Single Register	In case PCB does not function correctly, ensure FCBAG software does not force to send command function code 0x10 in replacement of function code 0x06 on protocol setting.
0x10	Preset Multiple Register	Function code 0x10 **must** control more than 1 address in one single command.

II. Read Input Register (0x04)

Address	Definition
30001	**Modbus Status**  A) Modbus Status 0: Not Ready 1: Ready B) Mainboard Version
30002	**Indoor Unit Connection Status**  A) Indoor Unit Connection Status 0: Not Connected 1: Connected
30003 to 31000	**Reserved**

31001	**Indoor Unit Capability Information***



A) Bar Dry
0: No Bar
1: Bar

B) Bar Cool
0: No Bar
1: Bar

C) Bar Heat
0: No Bar
1: Bar

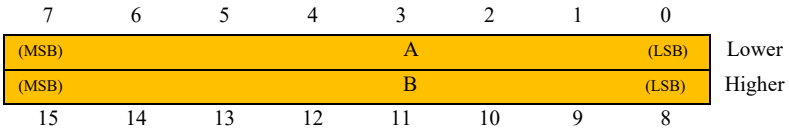
D) Bar Auto
0: No Bar
1: Bar

E) Bar Fan
0: No Bar
1: Bar

F) Fan Volume Level Capability
1: Single Fan speed
3: 3 level Fan Speed
5: 5 level Fan Speed

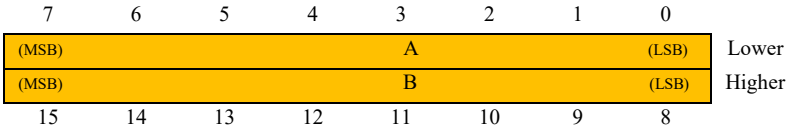
G) Fan Volume Capability
0: Not Exist
1: Exist

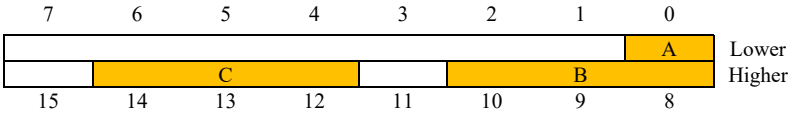
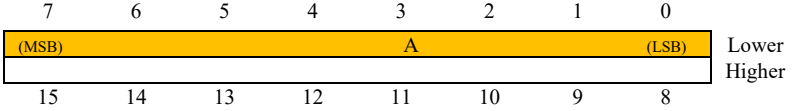
31002	**Minimum and Maximum limit of Indoor Unit Cooling Set Temperature**



A) Indoor Unit Cooling Set Temperature lower limit
B) Indoor Unit Cooling Set Temperature upper limit

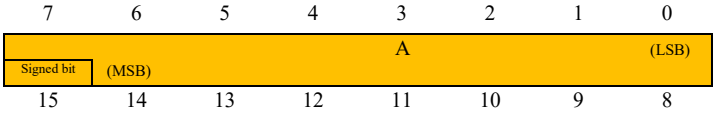
31003	**Minimum and Maximum limit of Indoor Unit Heating Set Temperature**



	A) Indoor Unit Heating Set Temperature lower limit B) Indoor Unit Heating Set Temperature upper limit
31004 to 32000	**Reserved**
32001	**On/Off Status, Fan Direction, Fan Volume**  A) On/Off Status 0: Offs 1: On B) Up-Down Swing Volume / Value Swing stop / 0 Position 0 / 1 Position 1 / 2 Position 2 / 3 Position 3 / 4 Position 4 / 5 Swing / 7 C) Fan Volume Volume / Value Low / 1 Medium Low / 2 Medium / 3 Medium High / 4 High / 5 Auto / 7
32002	**Operation Mode**  A) Operation Mode 7: Mode / 0: Fan / 1: Heating / 2: Cooling / 3: Auto / 4: - / 5: - / 6: - / 7: Dry

32003

Indoor Unit Set Temperature

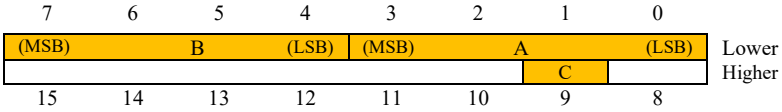


A) Set Temperature

* Temperature value in Decimal multiplies with 10. Eg: 18°C x 10 = 180.

32004

Error Code



A) Error code lower mapping value (0-15)
B) Error code upper mapping value (0-31)
C) Malfunction
0: Normal
1: Malfunction

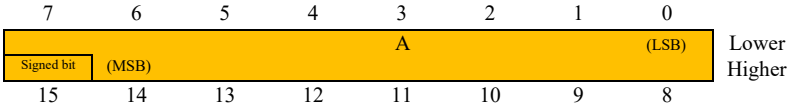
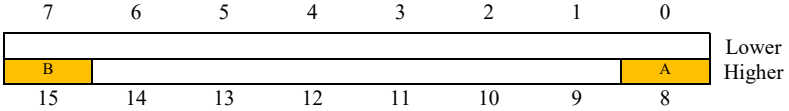
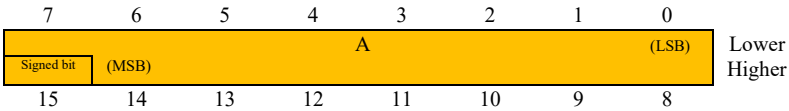
**Representation of Error Code:

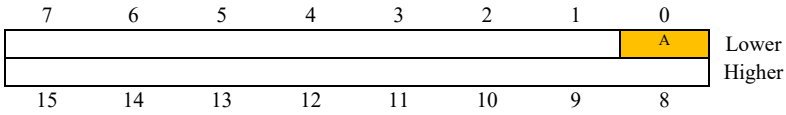
Error Code type	B) Error Code higher mapping value (hex)	A) Error Code lower mapping value (hex)	Error Code
OYLT Type	0x00	0x00 - 0x0F	From E01 – E15
	0x01 - 0x0F	0x00 - 0x0F	Invalid
Daikin Type	0x00	0x00 - 0x0F	Invalid
	0x01	0x00 - 0x0F	From A1 - AF
	0x02	0x00 - 0x0F	From C1 - CF
	0x03	0x00 - 0x0F	From E1 - EF
	0x04	0x00 - 0x0F	From H1 - HF
	0x05	0x00 - 0x0F	From F1 - FF
	0x06	0x00 - 0x0F	From J1 - JF
	0x07	0x00 - 0x0F	From L1 - LF
	0x08	0x00 - 0x0F	From P1 - PF
	0x09	0x00 - 0x0F	From U1 - UF
	0x0A - 0x0F	0x00 - 0x0F	Invalid

** Please refer to the mainboard manual for the meaning of each error code.

For example:
1. For OYLT Error Code type, If the receiving value of Error Code lower mapping value (A) is 0x00 and Error Code upper mapping value (B) is 0x0B.
Error Code upper mapping value (B) need to convert to decimal and hence *0x0B* in hex is similar to *11* in decimal.

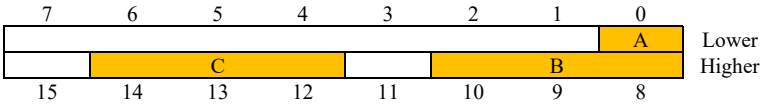
Error Code in OYLT type = A + B = “E” + “11” = **E11**

	2. For Daikin Error Code type, If the receiving value of Error Code lower mapping value (A) is 0x02 and Error Code upper mapping value (B) is 0x03. Error Code upper mapping value (A) need to refer table above and hence 0x02 is similar to character “C”. Error Code in Daikin type = A + B = “C” + “3” = **C3**
32005	**Room Temperature Display**  A) Room Temperature * Temperature value in Decimal multiplies with 10. Eg: 18°C x 10 = 180.
32006	**Indoor Unit Room Temperature Sensor**  A) Indoor unit Room temperature sensor error 0: Normal 1: Error B) Indoor unit Room temperature sensor data is received from 0: Indoor Unit 1: Wired panel
32007 to 32200	**Reserved**
32201	**Indoor Coil Temperature 1**  A) Indoor Coil Temperature 1 * Temperature value in Decimal multiplies with 10. Eg: 18°C x 10 = 180.
32002 to 32499	**Reserved**

32500	**Valve Status**  A) Valve Status 0: Valve OFF 1: Valve ON

*For factory reference only

III. Read Holding Register (0x03), Preset Single and Multiple Register (0x06 and 0x10)

Address	Definition
42001	**On/Off Status, Fan Direction, Fan Volume**  A) On/Off Status 0: Off 1: On B) Up-Down Swing C) Fan Volume

Volume	Value
Swing stop	0
Position 0	1
Position 1	2
Position 2	3
Position 3	4
Position 4	5
Swing	7

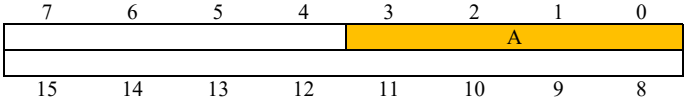
Volume	Value
Low	1
Medium Low	2
Medium	3
Medium High	4
High	5
Auto	7

Example:
If user want to turn ON the unit, set fan direction to 0 and fan volume to 5 (high), then the format of data should transmit as below.

Slave ID	*FC*	*Data Address (+40001 offset)*	*Value Written*	*checksum*
01	*06*	*07D0*	*5001*	*7487*

Transmission of Preset Single Register - 01 06 07 D0 50 01 74 87

42002 **Operation Mode**



A) Operation Mode

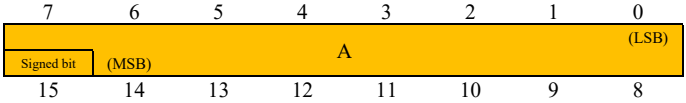
Value	0	1	2	3	4	5	6	7
Mode	Fan	Heating	Cooling	Auto	-	-	-	Dry

Example:
If user want to set operation mode to COOL mode, then the format of data should transmit as below.

Slave ID	*FC*	*Data Address (+40001 offset)*	*Value Written*	*checksum*
01	*06*	*07D1*	*0002*	*5946*

Transmission of Preset Single Register - 01 06 07 D1 00 02 59 46

42003 **Set Temperature**



A) Set Temperature
* Temperature value in Decimal multiplies with 10. Eg: 18°C x 10 = 180

Example:
If user want to set temperature to 26 °C, then the format of data should transmit as below.

Slave ID	*FC*	*Data Address (+40001 offset)*	*Value Written*	*checksum*
01	*06*	*07D2*	*0104*	*28D4*

Transmission of Preset Single Register - 01 06 07 D2 01 04 28 D4

42010	**Disable Handset control** 7 6 5 4 3 2 1 0 [ ][ ][ ][ ][ ][ ][B][A] Lower [ ][ ][ ][ ][ ][ ][ ][ ] Higher 15 14 13 12 11 10 9 8 A) Disable wired handset/panel 0: OFF 1: ON B) Disable wireless handset 0: OFF 1: ON
42011	**Force Valve Off** 7 6 5 4 3 2 1 0 [ ][ ][ ][ ][ ][ ][ ][A] Lower [ ][ ][ ][ ][ ][ ][ ][ ] 15 14 13 12 11 10 9 8 A) Force Valve Off 0: Normal Operation 1: Force off

*Preset Multiple Register

If user want to turn ON the unit, set fan direction to 0, fan volume to 5 (high), operation mode to COOL mode and set temperature to 26 °C, then the format of data should transmit as below.

Slave ID	*FC*	*Starting Address (+40001 offset)*	*No. of registers*	*No. of data bytes*	*Value to write in 42001*	*Value to write in 42002*	*Value to write in 42003*	*checksum*
01	*10*	*07D0*	*0003*	*06*	*5001*	*0002*	*0104*	*685E*

Transmission of Preset Multiple Register - 01 10 07 D0 00 03 06 50 01 00 02 01 04 68 5E

**The manufacturer reserves the right to revise any of the specification and design contain herein at any time without prior notification.