IntesisBox®

DK-RC-MBS-1 v.0.8

MODBUS RTU (RS-485) Interface for Daikin air conditioners.

Compatible with VRV and SKY line air conditioners commercialized by Daikin.

User Manual
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Order Code: **DK-RC-MBS-1**

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1. Presentation

The DK-RC-MBS-1 interface allows a complete and natural integration of **Daikin** air conditioners into Modbus RTU (RS-485) networks.

Compatible with all SKY Air and VRV models commercialized by DAIKIN

- Reduced dimensions. 93 x 53 x 58 mm.

- Quick and easy installation.
  Mountable on DIN rail, wall, or even inside the indoor unit in some models of AC.

- External power not required.

- Direct connection to MODBUS RTU (RS-485) networks. Up to 63 DK-RC-MBS-1 devices can be connected in the same network.
  DK-RC-MBS-1 is a Modbus slave device.

- Direct connection to the AC indoor unit.

- Configuration from both on-board DIP-switches and MODBUS RTU.

- Total Control and Supervision.

- Real states of the AC unit's internal variables.

- Allows using simultaneously the IR and wired remote controls and MODBUS RTU.
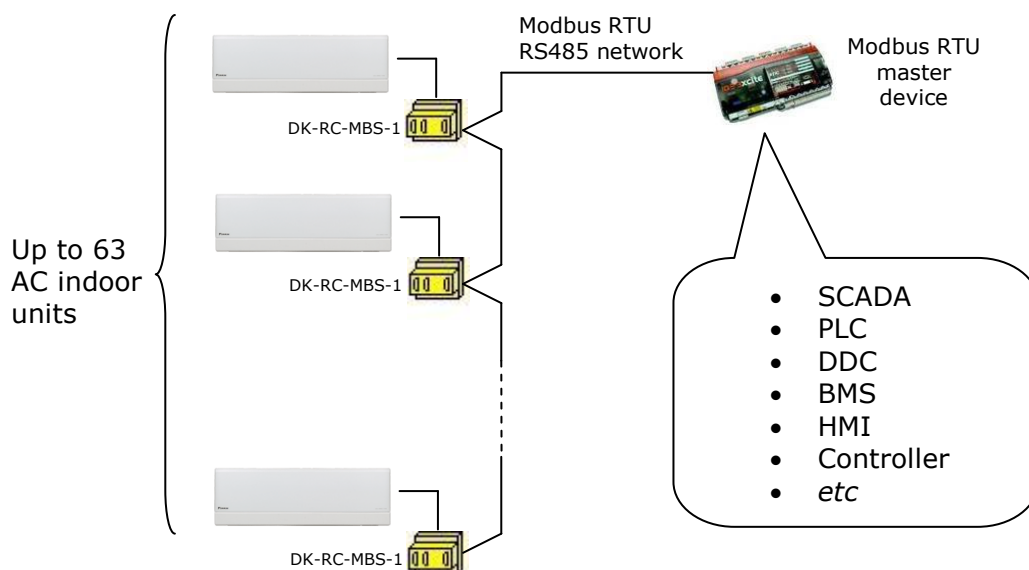
2. Connection

2.1   Connection of the interface to the AC indoor unit

The DK-RC-MBS-1 connects directly to the Daikin P1/P2 Bus. Depending on which controllers are available the recommended connection methods are the following (details in Figure 2.1):

- **Wired remote control available**. Connect the gateway as Slave in parallel with the wired remote controllers (Wall controller acts as master).

- **Infrared remote control available**. Connect the gateway as Master in parallel with the infrared remote controller (Infrared receiver) as Slave.

- **No remote control available** Connect the gateway directly to the P1/P2 bus of the indoor unit as Master when there is no Daikin remote controller

Disconnect mains power from the AC unit and use a 2 wire cable with a diameter of $0.75mm^2$ to $1.25mm^2$ for the connection of DK-RC-MBS-1, Daikin's remote controller and its corresponding indoor unit. Screw the suitably peeled cable ends in the corresponding P1/P2 terminals of each device, as summarized in Figure 2.1.

Maximum P1/P2 bus length is 500 meter, cable has no polarity.

2.2   Connection of the interface to Modbus

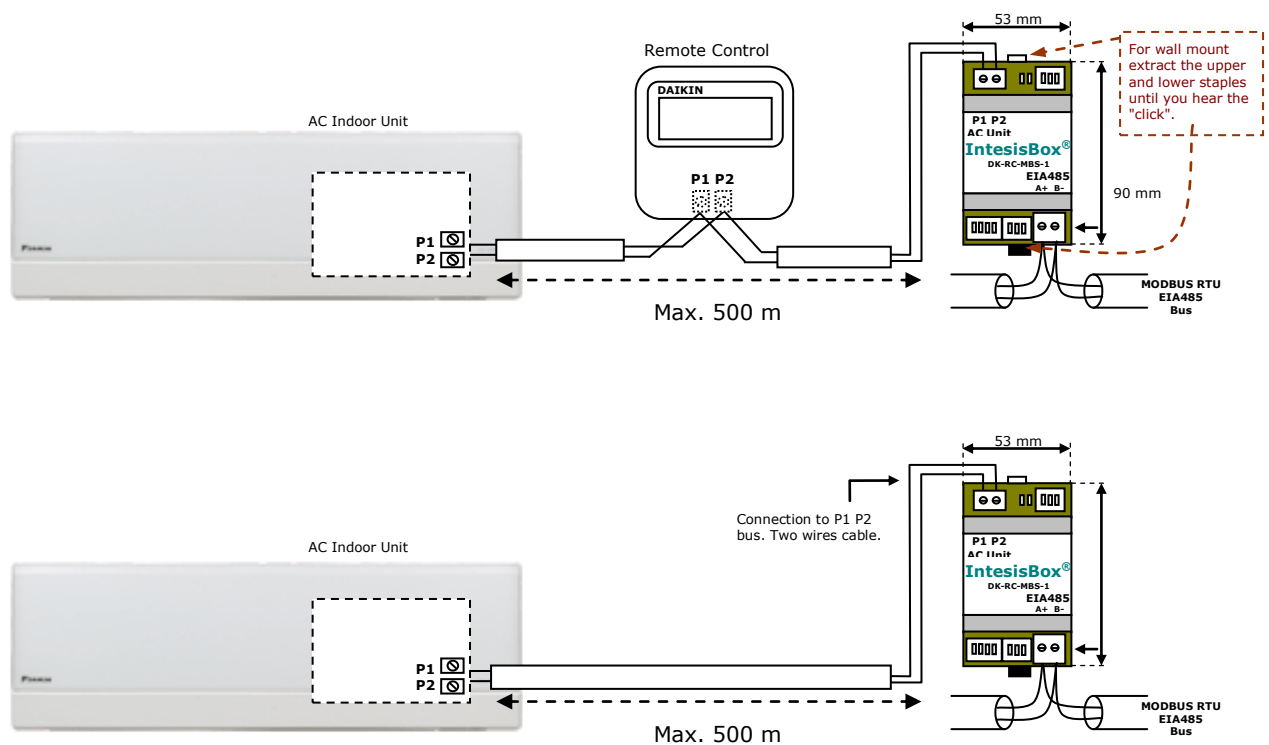Use the EIA485 connector in the DK-RC-MBS-1 to connect to the Modbus network.

Figure 2.1 DK-RC-MBS-1 Connection diagrams

3. Modbus Interface Specification

3.1 Modbus physical layer

DK-RC-MBS-1 implements a MODBUS RTU (slave) interface, to be connected to an RS-485 line. It performs 8N2 (8N1-compatible) communication (8 data bits, no parity and 2 stop bit) with several available baudrates (2400 bps, 9600 bps -default-, 19200 bps and 57600 bps).

3.2 Modbus Registers

All registers are of type "16-bit signed Holding Register", in standard ModBus' big endian notation.
The registers are accessible as "Holding registers" or "Input Registers"

3.2.1 Control and status registers

Register Addr (protocol address)	Register Addr (PLC address)	R/W	Description
0	1	R/W	AC unit On/Off ▪ 0: Off ▪ 1: On
1	2	R/W	AC unit Mode[1] ▪ 0: Auto ▪ 1: Heat ▪ 2: Dry ▪ 3: Fan ▪ 4: Cool
2	3	R/W	AC unit Fan Speed[1] ▪ 1: Low ▪ 2: Mid ▪ 3: High
3	4	R/W	AC unit Vane Position[1] ▪ 1: POS1 (Horizontal) ▪ 2: POS2 (Horizontal) ▪ 3: POS3 (Med) ▪ 4: POS4 (Vert) ▪ 5: POS5 (Vert) ▪ 10: SWING
4	5	R/W	AC unit Temperature Setpoint[2,3] ▪ 16..32ºC (ºC/x10ºC) ▪ 60..90ºF ▪ *See section 3.2.3 below.*
5	6	R	AC unit Return Path Temperature[2,3] ▪ (ºC/x10ºC/F)[2] ▪ *See section 3.2.3 below.*
6	7	R/W	Window Contact ▪ 0: Closed ▪ 1: Open

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[1] See Section 5 for detail on indoor unit model differences and function availability
[2] Magnitude for this register can be adjusted to Celsius x 1ºC, Celsius x 10ºC (default) or Fahrenheit through DIP switches S4
[3] Check Table 3.4 for details

Register Addr (protocol address)	Register Addr (PLC address)	R/W	Description
7	8	--	Reserved
8	9	R/W	Remote Command Disablement[3] ▪ 0: Remote Command enabled ▪ 1: Remote Command disabled
9	10	R/W	AC unit Operation Time[4] ▪ 0..65535 (hours). Counts the time the AC unit is in "On" state.
10	11	R	AC unit Alarm Status ▪ 0: No alarm condition ▪ 1: Alarm condition
11	12	R	Error Code Information in section 6
22	23	R/W	Indoor unit ambient temperature from external sensor (at Modbus side) ▪ -32768: Default value. No temperature is being provided from an external sensor. ▪ Any other: (ºC/x10ºC/ºF)[5] ▪ ***See section 3.2.3 below.***

3.2.2   Configuration Registers

Register Addr (protocol address)	Register Addr (PLC address)	R/W	Description
12	13	R/W	Reserved
13	14	R/W	"Open Window" switch-off timeout[6,4] ▪ 0..30 (minutes) ▪ Factory setting: 30 (minutes)
14	15	R	Modbus RTU baud-rate (bps) ▪ 2400 ▪ 4800 ▪ 9600 ▪ 19200
15	16	R	Device's Modbus slave address ▪ 1..63
21	22	R	Max number of fan speeds[7] ▪ 2 ▪ 3
49	50	R	Device Identification DK-RC-MBS-1: 0x800
50	51	R	Software version

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[4] This value is stored in non-volatile memory

[5] Magnitude for this register can be adjusted to Celsius x 1ºC, Celsius x 10ºC (default) or Fahrenheit through DIP switches S4

[6] Once window contact is open, a count-down to switch off the AC Unit will start from this configured value

[7] Configured with S1 (Table 3.1)

3.2.3   Considerations on DK-RC-MBS-1 temperature registers

DK-RC-MBS-1 implements three registers containing temperature values:

- **AC unit Temperature Setpoint (R/W)** (register 5 – in PLC addressing): This is the adjustable temperature setpoint meant to be required by the user. This register can be read (Modbus function 3 or 4) or written (Modbus functions 5 or 16). A remote controller connected to the P1P2 bus of the Daikin indoor unit will report the same temperature setpoint value as this register.

- **AC unit return path temperature (R)** (register 6 – in PLC addressing): This register always shows the temperature reported by the sensor placed in the return path temperature of the Daikin indoor unit. It is a read-only register (Modbus functions 3 or 4).

- **AC unit external reference temperature (R/W)** (register 23 – in PLC addressing): This register allows providing an external temperature reference from Modbus side. If an external temperature is provided through this register, indoor unit will use it as reference for its temperature control loop.

    - For this temperature to take effect it is required that the Daikin AC indoor unit is configured in such a way that it uses the "thermostat sensor in the remote controller" (this is, DK-RC-MBS-1 will act as thermostat sensor providing a temperature sensor reading).
    - This configuration is done via a Daikin remote controller connected to the indoor unit (Config mode "10" – first code value "2" – second code value "1") and must be done by Daikin authorized installers at the time of the installation of the AC.
    - The value of this register only takes effect when DK-RC-MBS-1 is set as "master" of P1P2 bus, with respect to an additional remote controller in the bus (see section "2.1 - Connection of the interface to the AC indoor unit" and "3.3 - DIP-switch Configuration Interface")
    - Register value after DK-RC-MBS-1 startup is -32768, which means that no temperature reference is provided to the AC indoor unit. In that case, AC indoor unit will use its own return path temperature sensor as reference for its control loop.

Additionally, note that temperature values all these three registers are expressed according to the temperature format configured through its onboard DIP-Switches (See "3.3 - DIP-switch Configuration Interface"). Following formats are possible:

- Celsius value: Value in Modbus register is the temperature value in Celsius (i.e. a value "22" in the Modbus register must be interpreted as 22ºC)
- Decicelsius value: Value in Modbus register is the temperature value in decicelsius (i.e. a value "220" in the Modbus register must be interpreted as 22.0ºC)
- Fahrenheit value: Value in Modbus register is the temperature value in Fahrenheit (i.e. a value "72" in the Modbus register must be interpreted as 72ºF (~22ºC).

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3.3 DIP-switch Configuration Interface

In this section the values of the configuration switches and their meaning are specified:
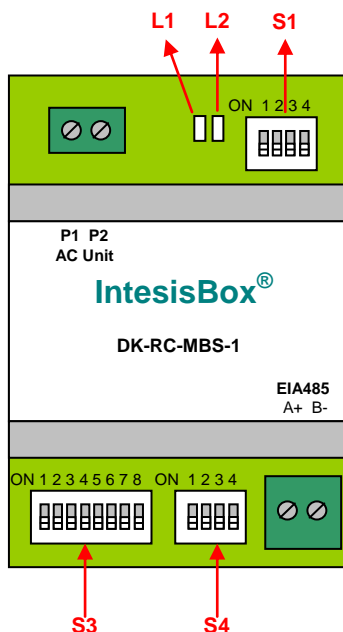
Figure 3.1 DK-RC-MBS

S1 – AC unit configuration: Master/Slave, Master/Slave of Operating Mode, Fan speeds and Vanes

Binary value $b_0...b_4$	Decimal value	Switches 1 2 3 4	Description
0xxx	0	↓ x x x	Slave– A Daikin BRC Controller must be present in P1 P2, configured as Master (default value).
1xxx	1	↑ x x x	Master in P1 P2 bus – Daikin BRC Controller not needed in P1 P2. If existing, BRC must be configured as slave
x0xx	0	x ↓ x x	Master of VRV Operation Mode (For VRV only)[8]
x1xx	1	x ↑ x x	VRV slave of Operating Mode (For VRV only) (default value)
xx0x	0	x x ↓ x	Indoor unit has 2 Fan Speeds (default value)
xx1x	1	x x ↑ x	Indoor unit has 3 fan speeds
xxx0	0	x x x ↓	Indoor unit has no Vanes
xxx1	1	x x x ↑	Indoor unit has Vanes (default value)

Table 3.1 S1 switch configuration

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[8] Explained in section 7

S3 – Modbus protocol: Slave address and baudrate

Add	Switches 1 2 3 4 5 6 7 8	Add	Switches 1 2 3 4 5 6 7 8	Add	Switches 1 2 3 4 5 6 7 8	Add	Switches 1 2 3 4 5 6 7 8
0	↓ ↓ ↓ ↓ ↓ ↓ x x	16	↓ ↓ ↓ ↓ ↑ ↓ x x	32	↓ ↓ ↓ ↓ ↓ ↑ x x	48	↓ ↓ ↓ ↓ ↑ ↑ x x
1*	↑ ↓ ↓ ↓ ↓ ↓ x x	17	↑ ↓ ↓ ↓ ↑ ↓ x x	33	↑ ↓ ↓ ↓ ↓ ↑ x x	49	↑ ↓ ↓ ↓ ↑ ↑ x x
2	↓ ↑ ↓ ↓ ↓ ↓ x x	18	↓ ↑ ↓ ↓ ↑ ↓ x x	34	↓ ↑ ↓ ↓ ↓ ↑ x x	50	↓ ↑ ↓ ↓ ↑ ↑ x x
3	↑ ↑ ↓ ↓ ↓ ↓ x x	19	↑ ↑ ↓ ↓ ↑ ↓ x x	35	↑ ↑ ↓ ↓ ↓ ↑ x x	51	↑ ↑ ↓ ↓ ↑ ↑ x x
4	↓ ↓ ↑ ↓ ↓ ↓ x x	20	↓ ↓ ↑ ↓ ↑ ↓ x x	36	↓ ↓ ↑ ↓ ↓ ↑ x x	52	↓ ↓ ↑ ↓ ↑ ↑ x x
5	↑ ↓ ↑ ↓ ↓ ↓ x x	21	↑ ↓ ↑ ↓ ↑ ↓ x x	37	↑ ↓ ↑ ↓ ↓ ↑ x x	53	↑ ↓ ↑ ↓ ↑ ↑ x x
6	↓ ↑ ↑ ↓ ↓ ↓ x x	22	↓ ↑ ↑ ↓ ↑ ↓ x x	38	↓ ↑ ↑ ↓ ↓ ↑ x x	54	↓ ↑ ↑ ↓ ↑ ↑ x x
7	↑ ↑ ↑ ↓ ↓ ↓ x x	23	↑ ↑ ↑ ↓ ↑ ↓ x x	39	↑ ↑ ↑ ↓ ↓ ↑ x x	55	↑ ↑ ↑ ↓ ↑ ↑ x x
8	↓ ↓ ↓ ↑ ↓ ↓ x x	24	↓ ↓ ↓ ↑ ↑ ↓ x x	40	↓ ↓ ↓ ↑ ↓ ↑ x x	56	↓ ↓ ↓ ↑ ↑ ↑ x x
9	↑ ↓ ↓ ↑ ↓ ↓ x x	25	↑ ↓ ↓ ↑ ↑ ↓ x x	41	↑ ↓ ↓ ↑ ↓ ↑ x x	57	↑ ↓ ↓ ↑ ↑ ↑ x x
10	↓ ↑ ↓ ↑ ↓ ↓ x x	26	↓ ↑ ↓ ↑ ↑ ↓ x x	42	↓ ↑ ↓ ↑ ↓ ↑ x x	58	↓ ↑ ↓ ↑ ↑ ↑ x x
11	↑ ↑ ↓ ↑ ↓ ↓ x x	27	↑ ↑ ↓ ↑ ↑ ↓ x x	43	↑ ↑ ↓ ↑ ↓ ↑ x x	59	↑ ↑ ↓ ↑ ↑ ↑ x x
12	↓ ↓ ↑ ↑ ↓ ↓ x x	28	↓ ↓ ↑ ↑ ↑ ↓ x x	44	↓ ↓ ↑ ↑ ↓ ↑ x x	60	↓ ↓ ↑ ↑ ↑ ↑ x x
13	↑ ↓ ↑ ↑ ↓ ↓ x x	29	↑ ↓ ↑ ↑ ↑ ↓ x x	45	↑ ↓ ↑ ↑ ↓ ↑ x x	61	↑ ↓ ↑ ↑ ↑ ↑ x x
14	↓ ↑ ↑ ↑ ↓ ↓ x x	30	↓ ↑ ↑ ↑ ↑ ↓ x x	46	↓ ↑ ↑ ↑ ↓ ↑ x x	62	↓ ↑ ↑ ↑ ↑ ↑ x x
15	↑ ↑ ↑ ↑ ↓ ↓ x x	31	↑ ↑ ↑ ↑ ↑ ↓ x x	47	↑ ↑ ↑ ↑ ↓ ↑ x x	63	↑ ↑ ↑ ↑ ↑ ↑ x x

Table 3.2 S3 Modbus Slave address

Binary value $b_0...b_8$	Decimal value	Switches 1 2 3 4 5 6 7 8	Description
xxxxxx00	0	x x x x x x ↓ ↓	2400bps
xxxxxx10	1	x x x x x x ↑ ↓	4800bps
xxxxxx01	2	x x x x x x ↓ ↑	9600bps (default value)
xxxxxx11	3	x x x x x x ↑ ↑	19200bps

Table 3.3 S3 Modbus baud rate

S4 – Other: Degrees/Decidegress (x10), temperature magnitude (ºC/ºF) and EIA485 termination resistor

Binary value $b_0...b_4$	Decimal value	Switches 1 2 3 4	Description
0xxx	0	↓ x x x	Temperature values in Modbus register are represented in degrees (x1) (default value)
1xxx	1	↑ x x x	Temperature values in Modbus register are represented in decidegrees (x10)
x0xx	0	x ↓ x x	Temperature values in Modbus register are represented in Celsius degrees (default value)
x1xx	1	x ↑ x x	Temperature values in Modbus register are represented in Fahrenheit degrees (value for S4-1 (x1/x10) is ignored)
xxx0	0	x x x ↓	EIA485 bus without termination resistor (default value)
xxx1	1	x x x ↑	Internal termination resistor of 120Ω connected to EIA485 bus**

Table 3.4 S4: Temperature and termination configuration

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* Default value
** Only in the interfaces connected at both ends of the bus must be activated the termination resistor, not in the rest.

3.4 Implemented Functions

DK-RC-MBS-1 implements the following standard MODBUS functions:

- 3: Read Holding Registers
- 4: Read Input Registers
- 6: Write Single Register
- 16: Write Multiple Registers (Although this function is allowed, the interface does not allow write operations on more than 1 register with the same request, this means that length field should always be 1 when using this function for writes)

3.5 Device LED indicator

The device includes two LED indicators (check Figure 3.1) to signal its different possible operational states. In this section their meaning is explained

L1 (yellow)			
Operation	**ON**	**OFF**	**Meaning**
Blinking	500 ms	500 ms	Communication error
Flashing	100 ms	1900 ms	Normal operation (configured and working)

L2 (red)			
Operation	**ON**	**OFF**	**Meaning**
Pulse	3 sec	--	Undervoltage

L1 (yellow) & L2 (red)			
Operation	**ON**	**OFF**	**Meaning**
Pulse	5 sec	--	Device start-up
Alternate blinking	500 ms	500 ms	Flash checksum not OK

3.6 RS485 bus. Termination resistors and Fail Safe Biasing mechanism

RS485 bus requires a 120Ω terminator resistor at each end of the bus to avoid signal reflections.

The DK-RC-MBS-1 device includes an on-board terminator resistor of 120Ω that can be connected to the RS485 bus by using DIP-switch (Table 3.4)

A fail safe biasing circuit has also been included in the board of DK-RC-MBS-1, it can be connected to the RS485 bus by placing the internal jumper JP1(see details in Figure 3.2).
This fail safe biasing of the RS485 bus must only be supplied by one of the devices connected to the bus

Some Modbus RTU RS485 master devices can provide also internal 120Ω terminator resistor and/or fail safe biasing (consult the technical documentation of the master device connected to the RS485 network in every case).

Location of jumpers and DIP-switches for RS485 bus Termination resistor or Fail Safe Biasing selection:

Jumpers placed → Fail safe biasing circuit connected to the RS485 bus
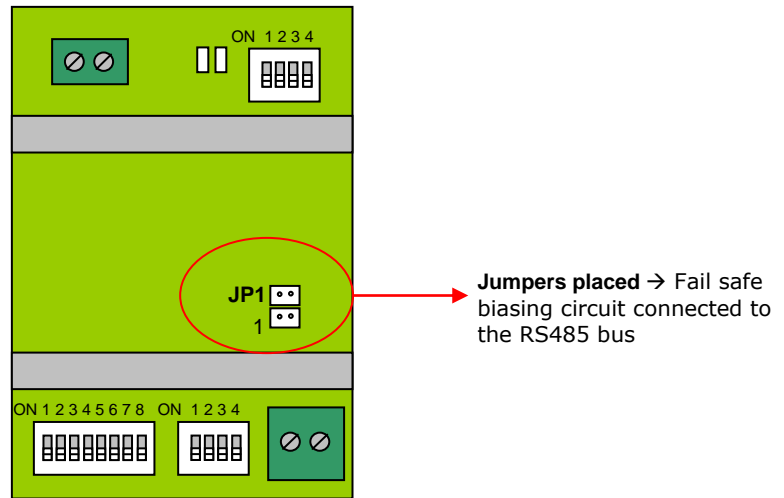
Figure 3.2 Fail Safe jumper

To access to internal jumpers JP2 and JP3, extract the top cover of the interface inserting a small screw-driver or clip in the holes located at both sides of the cover.
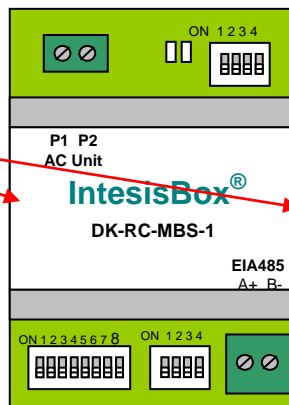
Figure 3.3 Accessing the jumpers

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4. Specifications

Dimensions:	*93 x 53 x 58 mm*
Weight:	*85 g*
Operating Temperature:	*-40 . . . 85ºC*
Stock Temperature:	*-40 . . . 85ºC*
Operating Humidity:	*<95% RH, non-condensing*
Stock Humidity:	*<95% RH, non-condensing*
Isolation voltage:	*1000 VDC*
Isolation resistance:	*1000 MΩ*
Modbus Media:	*Compatible with Modbus RTU - RS485 networks*
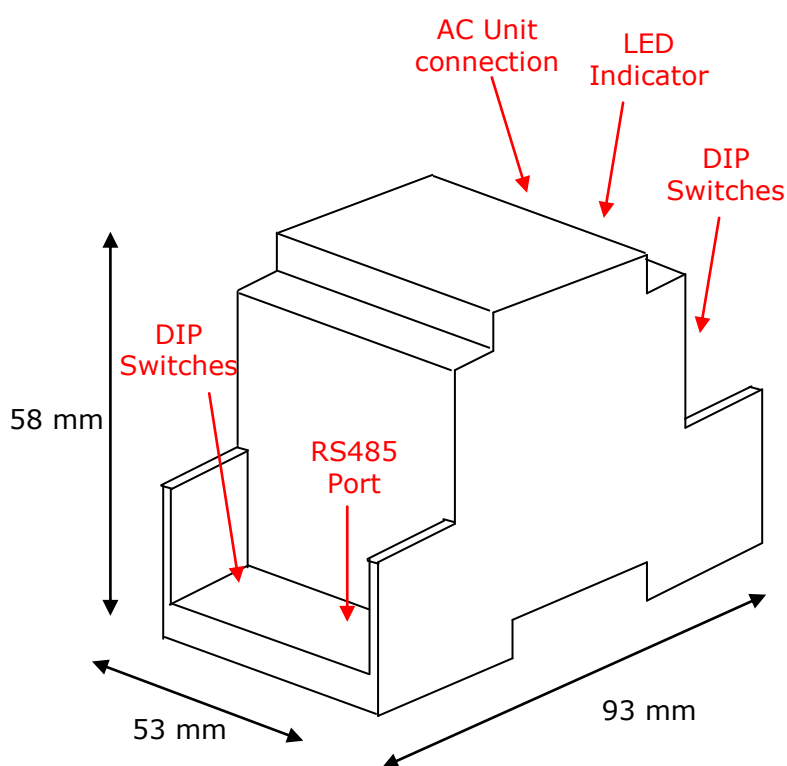
5. List of supported AC Unit Types.

A list of Daikin indoor unit model references compatible with DK-RC-MBS-1 and their available features can be found in:

http://www.intesis.com/pdf/IntesisBox_DK-RC-xxx-1_AC_Compatibility.pdf

6. Error Codes

Error Code Modbus	Error in Remote Controller	Error category	Error Description
0	N/A		No active error
17	A0	Indoor Unit	External protection devices activated
18	A1		Indoor unit PCB assembly failure
19	A2		Interlock error for fan
20	A3		Drain level system error
21	A4		Temperature of heat exchanger (1) error
22	A5		Temperature of heat exchanger (2) error
23	A6		Fan motor locked, overload, over current
24	A7		Swing flap motor error
25	A8		Overcurrent of AC input
26	A9		Electronic expansion valve drive error
27	AA		Heater overheat
28	AH		Dust collector error / No-maintenance filter error
30	AJ		Capacity setting error (indoor)
31	AE		Shortage of water supply
32	AF		Malfunctions of a humidifier system (water leaking)
33	C0		Malfunctions in a sensor system
36	C3		Sensor system of drain water error
37	C4		Heat exchanger (1) (Liquid pipe) thermistor system error
38	C5		Heat exchanger (1) (Gas pipe) thermistor system error
39	C6		Sensor system error of fan motor locked, overload
40	C7		Sensor system of swing flag motor error
41	C8		Sensor system of over-current of AC input
42	C9		Suction air thermistor error
43	CA		Discharge air thermistor system error
44	CH		Contamination sensor error
45	CC		Humidity sensor error
46	CJ		Remote control thermistor error
47	CE		Radiation sensor error
48	CF		High pressure switch sensor
49	E0	Outdoor Unit	Protection devices activated
50	E1		Outdoor uni9t PCB assembly failure
52	E3		High pressure switch (HPS) activated
53	E4		Low pressure switch (LPS) activated
54	E5		Overload of inverter compressor motor
55	E6		Over current of STD compressor motor
56	E7		Overload of fan motor / Over current of fan motor
57	E8		Over current of AC input
58	E9		Electronic expansion valve drive error
59	EA		Four-way valve error
60	EH		Pump motor over current
61	EC		Water temperature abnormal
62	EJ		(Site installed) Protection device activated
63	EE		Malfunctions in a drain water
64	EF		Ice thermal storage unit error
65	H0		Malfunctions in a sensor system
66	H1		Air temperature thermistor error
67	H2		Sensor system of power supply error
68	H3		High Pressure switch is faulty
69	H4		Low pressure switch is faulty
70	H5		Compressor motor overload sensor is abnormal
71	H6		Compressor motor over current sensor is abnormal
72	H7		Overload or over current sensor of fan motor is abnormal
73	H8		Sensor system of over-current of AC input
74	H9		Outdoor air thermistor system error
75	HA		Discharge air thermistor system error
76	HH		Pump motor sensor system of over current is abnormal
77	HC		Water temperature sensor system error
79	HE		Sensor system of drain water is abnormal
80	HF		Ice thermal storage unit error (alarm)
81	F0		No.1 and No.2 common protection device operates.
82	F1		No.1 protection device operates.
83	F2		No.2 protection device operates
84	F3		Discharge pipe temperature is abnormal
87	F6		Temperature of heat exchanger(1) abnormal
91	FA		Discharge pressure abnormal
92	FH		Oil temperature is abnormally high
93	FC		Suction pressure abnormal
95	FE		Oil pressure abnormal
96	FF		Oil level abnormal
97	J0		Sensor system error of refrigerant temperature

98	J1		Pressure sensor error
99	J2		Current sensor error
100	J3		Discharge pipe thermistor system error
101	J4		Low pressure equivalent saturated temperature sensor system error
102	J5		Suction pipe thermistor system error
103	J6		Heat exchanger(1) thermistor system error
104	J7		Heat exchanger(2) thermistor system error
105	J8		Oil equalizer pipe or liquid pipe thermistor system error
106	J9		Double tube heat exchanger outlet or gas pipe thermistor system error
107	JA		Discharge pipe pressure sensor error
108	JH		Oil temperature sensor error
109	JC		Suction pipe pressure sensor error
111	JE		Oil pressure sensor error
112	JF		Oil level sensor error
113	L0		Inverter system error
116	L3		Temperature rise in a switch box
117	L4		Radiation fin (power transistor) temperature is too high
118	L5		Compressor motor grounded or short circuit, inverter PCB fault
119	L6		Compressor motor grounded or short circuit, inverter PCB fault
120	L7		Over current of all inputs
121	L8		Compressor over current, compressor motor wire cut
122	L9		Stall prevention error (start-up error) Compressor locked, etc.
123	LA		Power transistor error
125	LC		Communication error between inverter and outdoor control unit
129	P0		Shortage of refrigerant (thermal storage unit)
130	P1		Power voltage imbalance, open phase
132	P3		Sensor error of temperature rise in a switch box
133	P4		Radiation fin temperature sensor error
134	P5		DC current sensor system error
135	P6		AC or DC output current sensor system error
136	P7		Total input current sensor error
142	PJ		Capacity setting error (outdoor)
145	U0		Low pressure drop due to insufficient refrigerant or electronic expansion valve error, etc.
146	U1		Reverse phase, Open phase
147	U2		Power voltage failure / Instantaneous power failure
148	U3		Failure to carry out check operation, transmission error
149	U4		Communication error between indoor unit and outdoor unit, communication error between outdoor unit and BS unit
150	U5		Communication error between remote control and indoor unit / Remote control board failure or setting error for remote control
151	U6		Communication error between indoor units
152	U7		Communication error between outdoor units / Communication error between outdoor unit and ice thermal storage unit
153	U8	System	Communication error between main and sub remote controllers (sub remote control error) / Combination error of other indoor unit / remote control in the same system (model)
154	U9		Communication error between other indoor unit and outdoor unit in the same system / Communication error between other BS unit and indoor/outdoor unit
155	UA		Combination error of indoor/BS/outdoor unit (model, quantity, etc.), setting error of spare parts PCB when replaced
156	UH		Improper connection of transmission wiring between outdoor and outdoor unit outside control adaptor
157	UC		Centralized address duplicated
158	UJ		Attached equipment transmission error
159	UE		Communication error between indoor unit and centralized control device
160	UF		Failure to carrey out check operation Indoor-outdoor, outdoor-outdoor communication error, etc.
209	60		All system error
210	61		PC board error
211	62		Ozone density abnormal
212	63		Contamination sensor error
213	64		Indoor air thermistor system error
214	65		Outdoor air thermistor system error
217	68		HVU error (Ventiair dust-collecting unit)
219	6A		Dumper system error
220	6H		Door switch error
221	6C		Replace the humidity element
222	6J		Replace the high efficiency filter
223	6E		Replace the deodorization catalyst
224	6F	Others	Simplified remote controller error
226	51		Fan motor of supply air over current or overload
227	52		Fan motor of return air over current / Fan motor of return air overload
228	53		Inverter system error (supply air side)
229	54		Inverter system error (return air side)
241	40		Humidifying valve error
242	41		Chilled water valve error
243	42		Hot water valve error
244	43		Heat exchanger of chilled water error
245	44		Heat exchanger of hot water error
258	31		The humidity sensor of return air sensor
259	32		Outdoor air humidity sensor error

260	33		Supply air temperature sensor error
261	34		Return air temperature sensor error
262	35		Outdoor air temperature sensor error
263	36		Remote controller temperature sensor error
267	3A		Water leakage sensor 1 error
268	3H		Water leakage sensor 2 error
269	3C		Dew condensation error
339	M2		Centralized remote controller PCB error
345	M8		Communication error between centralized remote control devices
347	MA		Centralized remote control devices inappropriate combination
349	MC		Centralized remote controller address setting error
65535	N/A	DK-RC-MBS-1	Error in the communication of DK-RC-MBS-1 device with the AC unit

In case you detect an error code not listed, contact your nearest Daikin technical support service.

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7. Annex 1: Master of Mode

The master of mode only applies under the following conditions:

1. The AC system is VRV

2. The VRV system uses a Heat pump outdoor unit

3. The DK-RC-MBS-1 is configured as Master of the P1/P2 bus (Table 3.1)

If they are not matched the parameter is going to be ignored.

The Heat pump outdoor unit of a VRV system can only work in one mode (either Heat, Cool or fan). The Master of mode is the indoor unit that defines which is the working mode of the outdoor unit. If there is no Master of mode in the system the first AC unit to be turned On is the one controlling the mode.

In a VRV system there can only be one device acting as Master of Mode. If more than one is configured this way the system is not going to work properly.

When a DK-RC-MBS-1 is configured as Master of Mode it can control all the modes of the system (section 3.2.1). The Mode selection of all the other gateways and remote controllers is going to be affected by the one chosen by the Master of Mode (detailed in Table 7.1)

Master of Mode	Slave of Mode
Heat	Heat, Fan
Dry	Cool, Fan, Dry
Fan	Fan
Cool	Cool, Fan, Dry

Table 7.1 Mode correspondence