

KNX - Modbus Gateway VRV



Overview

Seamless Control and Monitoring of VRV Systems is vital to reduce Energy wastage and for convenient and easy control by user.

Owners of Smart Home and building expect integrated control of all systems like Lighting, HVAC, curtains and AV devices from a common application installed on their mobile devices. To address this customer expectations, Major VRV /VRF brands provide Modbus communication adapters to allow Home Automation controllers to control VRV system.

AIRON is a gateway between Modbus adapters and Home Automation controllers and simplifies communication with HA controllers via KNX protocols.

AIRON communicates with VRV systems via officially provided Modbus communication adapters provided by major brands and do not intrude into the VRV Systems proprietary communication bus like D3Net, Mnet, TCC-Link etc.

AIRON is pre-loaded with license to control and monitor 16 indoor units.

Main Features of the product:

- Compatible with major HVAC brands
- Seamless integration of HVAC systems with major Home Automation brands.
- Full control & monitoring of HVAC indoor units operation.
- Supports up to 16 indoor units.
- Wired Interfaces: RS485, KNX*
- Direct KNX connection
- Macros & Scenes for easy control.
- Window position linked operation.
- Presence / Absence detector linked operation.

FUNCTIONS

ORDERING INFORMATION

Control of Indoor Units

- ON and OFF control of individual indoor unit.
- Operation Mode of individual unit can be set to Cool, Heat, Auto, Dry and FAN.
- Temperature control, FAN speed control, Swing control and Filter sign reset of individual set to indoor unit.
- KNX Scene based operation.

Indoor units Monitoring and Diagnostic

- Unit ON/OFF status.
- Operation Mode status (Cool, Heat, Auto, Dry and FAN).
- Temperature status
- FAN Speed, Filter Sign and Swing Control Status.
- Connection and Communication status.
- Failure code update

Group Operation

- All ON and All OFF command to power ON an OFF all connected Indoor Units.
- Status reads of all Indoor Units.

AIRON VRV communication Gateway
Part Number: AIRON-XX

Where,
XX -- 'DK' for Daikin VRV
XX -- "TS" for Toshiba
XX -- BI - for Bluestar

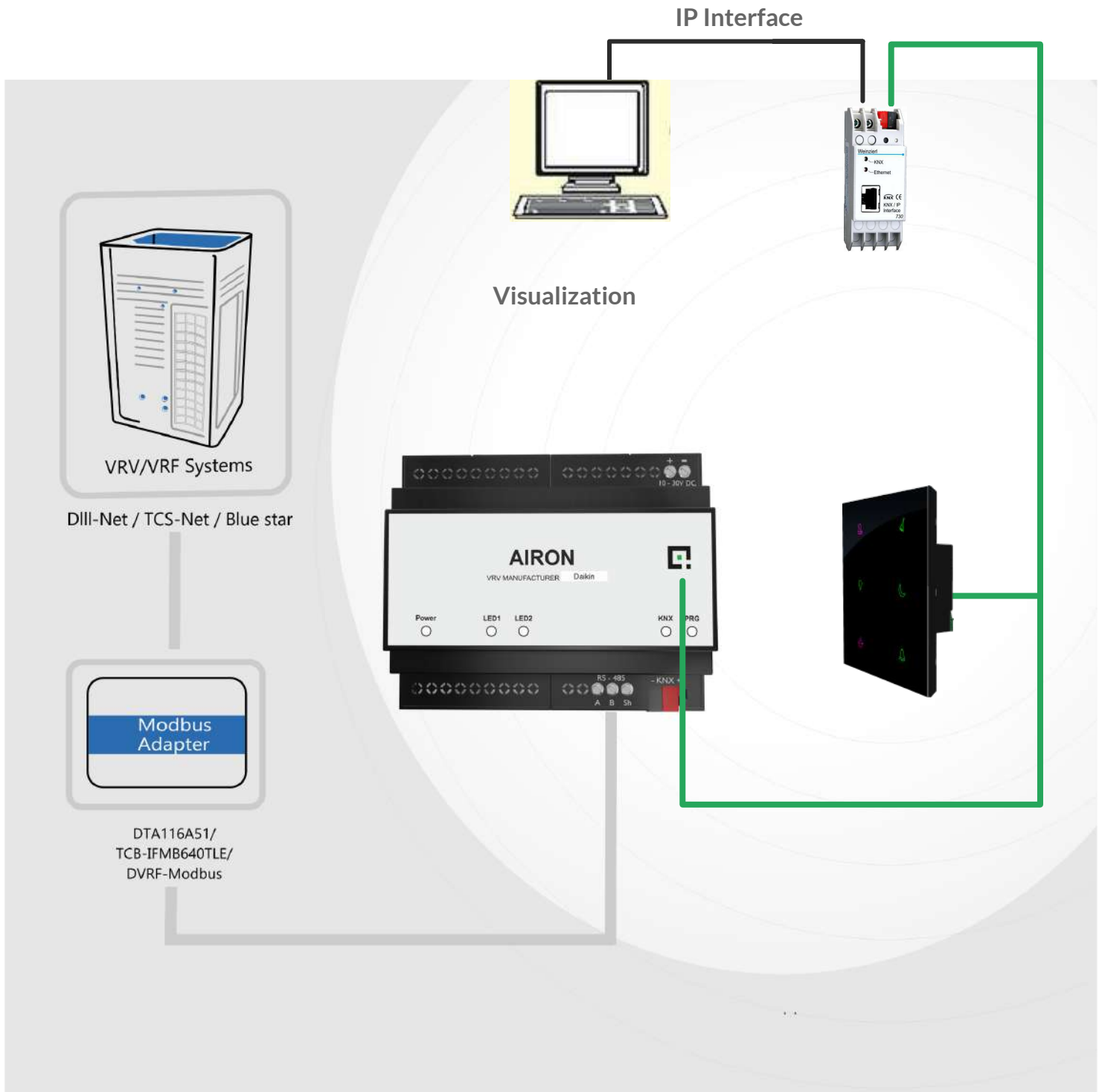
NOTE

- Modbus adapters manufactured by respective OEMs is required for integration.
- Control and Monitoring capabilities are limited to functions provided by VRV manufacturers Modbus adapter.
- Number of indoor units that can be controlled is limited by capabilities of Modbus adapter and by AIRON.

Technical Specifications

Parameter	Description
Voltage	30V DC
External power supply	10-30V DC
Operation temperature	-5°C ... +55°C
Installation	DIN-rail
Enclosure dimension (l x w x h mm)	106 x 90 x 58 mm
Max Average Operating Current	50 mA (maximum).
KNX Port	1, KNX TP1, Isolated
RS485 Port	One
Max RS485 communication Distance	500 meters

KNX - Modbus Gateway VRV



General Settings

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > General Setting

Modbus Gateway for Daikin VRV	Slave Address	5
General Setting	VRV Manufacturer	Daikin
Indoor Unit 1	VRV Model No	
ON/OFF	No. of Connected Indoor Units	16
Operation Mode	Baudrate	9600 bits/s
Fan	Parity	Even (1 Stop bit)
Temperature		
Advanced		
+ Macro		
Scene		
Lock /Unlock		
Window Sensor		
Presence Detector		
+ Indoor Unit 2		
Indoor Unit 3		

Default Value: Not assigned

Group Objects Channels Parameters

Indoor Unit

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1

Modbus Gateway for Daikin VRV	Indoor Unit 1	<input type="radio"/> Not Active <input checked="" type="radio"/> Active
General Setting	Room Name	
Indoor Unit 1	ID Unit Type	
ON/OFF	ID Unit Model	
Operation Mode	Equipment ID	
Fan	Indoor Unit ID	1
Temperature		
Advanced		
+ Macro		
Scene		
Lock /Unlock		
Window Sensor		
Presence Detector		
+ Indoor Unit 2		
Indoor Unit 3		

Group Objects Channels Parameters

Macro

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1 > Macro > Macro 1

Modbus Gateway for Daikin VRV

- General Setting
- Indoor Unit 1
 - ON/OFF
 - Operation Mode
 - Fan
 - Temperature
 - Advanced
 - Macro
 - Macro 1**
 - Macro 2
 - Macro 3
 - Macro 4
 - Scene
 - Lock /Unlock

Parameters

On/Off	ON
Time Delay (Sec.)	1
Temperature	16
Time Delay (Sec.)	1
Mode	Cool
Time Delay (Sec.)	1
Fan Speed	Auto
Time Delay (Sec.)	1
Swing	H. Swing ON

Scene

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1 > Scene

Modbus Gateway for Daikin VRV

- General Setting
- Indoor Unit 1
 - ON/OFF
 - Operation Mode
 - Fan
 - Temperature
 - Advanced
 - Macro
 - Macro 1
 - Macro 2
 - Macro 3
 - Macro 4
 - Scene**
 - Lock /Unlock

Parameters

Scene Allocation Not Active Active

Scene 1	
KNX Scene No	2
Action	Macro-1
Scene 2	
KNX Scene No	
Action	Macro-1 ✓
Scene 3	
KNX Scene No	Not assigned
Action	Not Assigned
Scene 4	
KNX Scene No	Not assigned
Action	Not Assigned

Default Value: Not Assigned

Lock/Unlock

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1 > Lock /Unlock

temperature

Advanced

Macro

- Macro 1
- Macro 2
- Macro 3
- Macro 4

Scene

Lock /Unlock

Window Sensor

Presence Detector

+ Indoor Unit 2

Indoor Unit 3

Indoor Unit 4

Indoor Unit 5

Indoor Unit 6

Lock / Unlock Not Active Active

Via 1-bit object Via Scene object

Group Objects Channels Parameters

Windows Sensor

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1 > Window Sensor

temperature

Advanced

Macro

- Macro 1
- Macro 2
- Macro 3
- Macro 4

Scene

Lock /Unlock

Window Sensor

Presence Detector

+ Indoor Unit 2

Indoor Unit 3

Indoor Unit 4

Indoor Unit 5

Indoor Unit 6

Window Sensor(Turn OFF the AC when Window is Open) Not Active Active

0 = Window Open 1 = Window Open

Waiting Period to turn the AC OFF when Window is Open (sec) 1

Group Objects Channels Parameters

Presence Detector

10.5.1 Modbus Gateway for Daikin VRV > Modbus Gateway for Daikin VRV > Indoor Unit 1 > Presence Detector

temperature

Advanced

Macro

- Macro 1
- Macro 2
- Macro 3
- Macro 4

Scene

Lock /Unlock

Window Sensor

Presence Detector

- Indoor Unit 2
- Indoor Unit 3
- Indoor Unit 4
- Indoor Unit 5
- Indoor Unit 6

Group Objects Channels Parameters

Presence Sensor(Turn OFF the AC when Window is Open) Not Active Active

0 - No Presence 1 - No Presence

Waiting Period to turn the AC OFF after no presence is detected Open (sec)

Group Objects

	Number	Name	Object Function	Group Address	Length	C	R	W	T	U	Data Type	Priority
➤	1	System	Scan for Indoor Unit	0/0/1	1 bit	C	-	W	-	-	switch	Low
➤	27	Indoor Unit 1	Lock/Unlock		1 bit	C	-	W	-	-	switch	Low
➤	29	Indoor Unit 1	Lock/Unlock Indication	0/0/28	1 bit	C	-	-	T	-	switch	Low
➤	30	Indoor Unit 1	Window Sensor	0/0/29	1 bit	C	-	W	-	-	switch	Low
➤	31	Indoor Unit 1	Presence Detector	0/0/30	1 bit	C	-	W	-	-	switch	Low
➤	32	Indoor Unit 1	Presence Detector block	0/0/31	1 bit	C	-	W	-	-	switch	Low
➤	483	Indoor Unit 1	Mode-1 Status	0/1/0	1 bit	C	-	-	T	-	switch	Low
➤	484	Indoor Unit 1	Mode-2 Status	0/1/1	1 bit	C	-	-	T	-	switch	Low
➤	485	Indoor Unit 1	Mode-3 Status	0/1/2	1 bit	C	-	-	T	-	switch	Low
➤	486	Indoor Unit 1	Mode-4 Status	0/1/3	1 bit	C	-	-	T	-	switch	Low
➤	26	Indoor Unit 1	Scene Extension	0/0/26	1 byte	C	-	W	-	-	scene cont...	Low
➤	487	Indoor Unit 1	Mode-5 Status	0/1/4	1 bit	C	-	-	T	-	switch	Low
➤	489	Indoor Unit 1	Fan Swing-1 Status	0/1/6	1 bit	C	-	-	T	-	switch	Low
➤	490	Indoor Unit 1	Fan Swing-2 Status	0/1/7	1 bit	C	-	-	T	-	switch	Low
➤	491	Indoor Unit 1	Fan Swing-3 Status	0/1/8	1 bit	C	-	-	T	-	switch	Low
➤	492	Indoor Unit 1	Fan Swing-4 Status	0/1/9	1 bit	C	-	-	T	-	switch	Low
➤	493	Indoor Unit 1	Fan Swing-5 Status	0/1/10	1 bit	C	-	-	T	-	switch	Low
➤	494	Indoor Unit 1	Fan Swing-6 Status	0/1/11	1 bit	C	-	-	T	-	switch	Low
➤	495	Indoor Unit 1	Fan Speed-1 Status	0/1/12	1 bit	C	-	-	T	-	switch	Low
➤	496	Indoor Unit 1	Fan Speed-2 Status	0/1/13	1 bit	C	-	-	T	-	switch	Low
➤	497	Indoor Unit 1	Fan Speed-3 Status	0/1/14	1 bit	C	-	-	T	-	switch	Low
➤	488	Indoor Unit 1	Fan Swing-0 Status	0/1/5	1 bit	C	-	-	T	-	switch	Low
➤	25	Indoor Unit 1	Macro 4	0/0/25	1 bit	C	-	W	-	-	switch	Low
➤	24	Indoor Unit 1	Macro 3	0/0/24	1 bit	C	-	W	-	-	switch	Low
➤	23	Indoor Unit 1	Macro 2	0/0/23	1 bit	C	-	W	-	-	switch	Low
Group Objects	Channels	Parameters										

Group Objects

	Number	Name	Object Function	Group Address	Length	C	R	W	T	U	Data Type	Priority
➤	24	Indoor Unit 1	Macro 3	0/0/24	1 bit	C	-	W	-	-	switch	Low
➤	23	Indoor Unit 1	Macro 2	0/0/23	1 bit	C	-	W	-	-	switch	Low
➤	2	System	Connected Indoor Unit	0/0/2	1 byte	C	-	-	T	-	percentag...	Low
➤	3	Indoor Unit 1	ON/OFF	0/0/3	1 bit	C	-	W	-	-	switch	Low
➤	4	Indoor Unit 1	ON/OFF Status	0/0/4	1 bit	C	-	-	T	-	switch	Low
➤	5	Indoor Unit 1	Mode	0/0/5	1 byte	C	-	W	-	-	percentag...	Low
➤	6	Indoor Unit 1	Mode Status	0/0/6	1 byte	C	-	-	T	-	percentag...	Low
➤	7	Indoor Unit 1	Fan Swing	0/0/7	1 byte	C	-	W	-	-	percentag...	Low
➤	8	Indoor Unit 1	Fan Swing Status	0/0/8	1 byte	C	-	-	T	-	percentag...	Low
➤	9	Indoor Unit 1	Fan Speed	0/0/9	1 byte	C	-	W	-	-	percentag...	Low
➤	10	Indoor Unit 1	Fan Speed Status	0/0/10	1 byte	C	-	-	T	-	percentag...	Low
➤	11	Indoor Unit 1	Fan Speed Up	0/0/11	1 bit	C	-	W	-	-	switch	Low
➤	12	Indoor Unit 1	Fan Speed Down	0/0/12	1 bit	C	-	W	-	-	switch	Low
➤	13	Indoor Unit 1	Room Temperature	0/0/13	2 bytes	C	-	-	T	-	temperatu...	Low
➤	14	Indoor Unit 1	Set Temperature	0/0/14	2 bytes	C	-	W	-	-	temperatu...	Low
➤	15	Indoor Unit 1	Set Temperature Status	0/0/15	2 bytes	C	-	-	T	-	temperatu...	Low
➤	16	Indoor Unit 1	Set Temperature Up	0/0/16	1 bit	C	-	W	-	-	switch	Low
➤	17	Indoor Unit 1	Set Temperature Down	0/0/17	1 bit	C	-	W	-	-	switch	Low
➤	18	Indoor Unit 1	Filter Sign	0/0/18	1 bit	C	-	-	T	-	switch	Low
➤	19	Indoor Unit 1	Filter sign reset	0/0/19	1 bit	C	-	W	-	-	switch	Low
➤	20	Indoor Unit 1	Communication Status	0/0/20	1 bit	C	-	-	T	-	switch	Low
➤	21	Indoor Unit 1	Error	0/0/21	2 bytes	C	-	-	T	-	pulses	Low
➤	22	Indoor Unit 1	Macro 1	0/0/22	1 bit	C	-	W	-	-	switch	Low
➤	498	Indoor Unit 1	Fan Speed-4 Status	0/1/15	1 bit	C	-	-	T	-	switch	Low
➤	499	Indoor Unit 1	Fan Speed-5 Status	0/1/16	1 bit	C	-	-	T	-	switch	Low
Group Objects	Channels	Parameters										