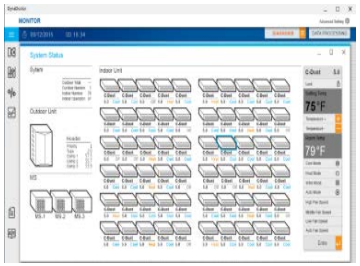
VRF Quick Start Up Guide



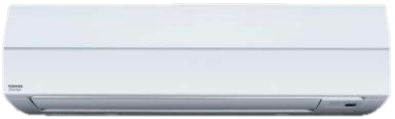
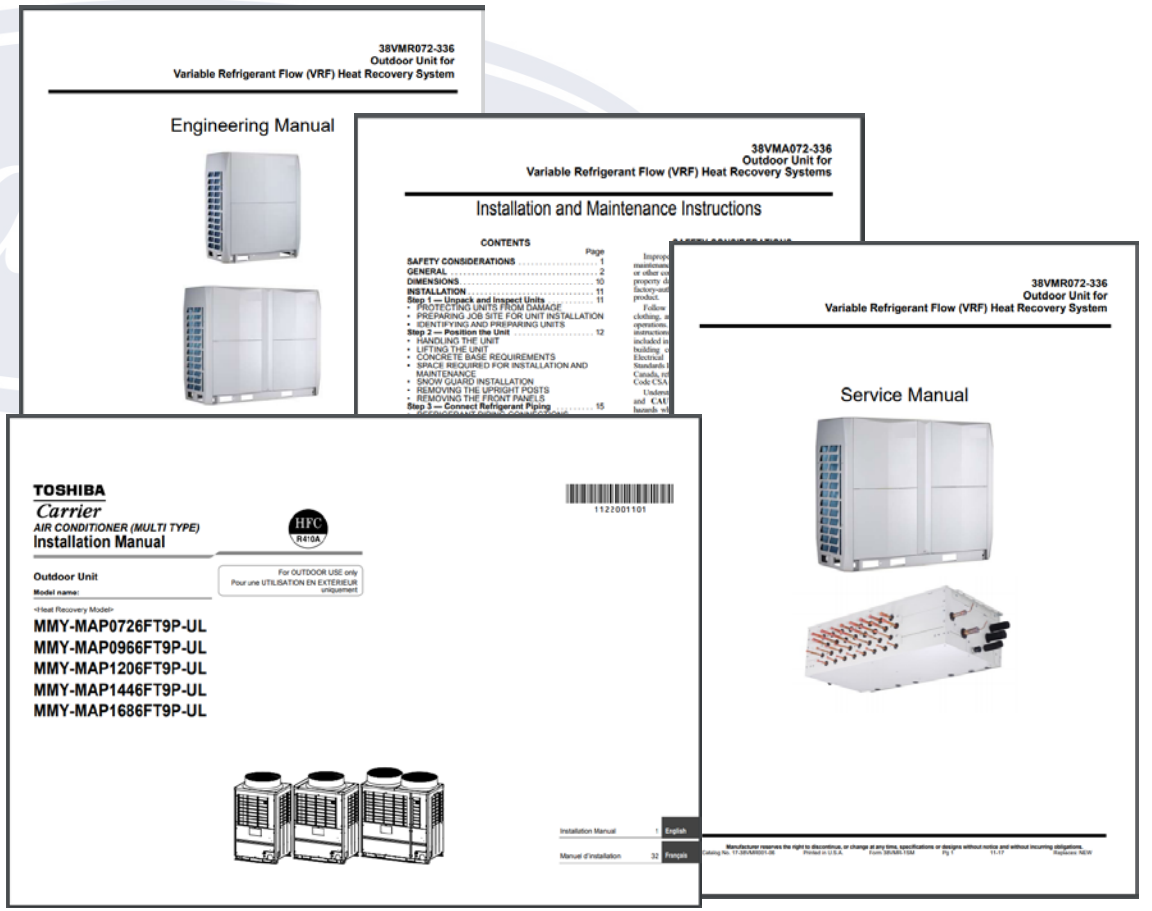


Table of Contents

Section – 1 Preplan for Verification

Apps, Websites, VRF Documents & Forms

Use HVACpartners.com for equipment manuals and so much more.



Preplan for **Verification**

How to Plan for **Verification Day**

- Book your Equipment Verification date with Support 2 weeks from planned start up date. We cannot always accommodate next day requests. Save time and plan ahead!
- Send back updated piping info (with the checklists). Support can send the additional charge amounts so you can break the vacuum with the additional charge.
- **Complete the install 100%**
- Power up outdoor units 12hrs. before start up time. This is a **MUST**. Systems will not run otherwise and the safety's cannot be tricked.
- You are ready for Verification!

Preplan for START UP

Last words before the fun begins

- This guide lays out a concise step by step process to start up a properly installed Carrier or Bryant VRF system. It is intended to use in conjunction with the Installation/Operation Manuals that are shipped with the equipment. Copies of all should be on hand for start up.
- We have found on average that 90+% of all start up's have at least one comm error due to one or more connections of the control wire.
- Units field wired incorrectly, wrong wire installed, shields not grounded, poor stripping of the wire or poor connection on the terminals are all very common install errors. Please don't be quick to blame a PCB.
- We have seen Molex connectors that became partially unplugged because they got bumped unknowingly during installation.
- If all your DIP switch settings are all set, power is recycled and errors are present after 20 minutes or more, work the error before continuing.
- Keep in mind when you Ohm out a wire and the meter beeps showing continuity, it just means there is at least one strand left connected. Its all about surface area, check to make sure the wire was not over stripped and all it's strands are still present and connected to the terminal.
- Some cases may require a temp wire run point to point to help diagnose.
- Work the error, use your meter & manuals and don't over think it. Good luck!

Section – 2
Carrier Bryant VRF

Heat Pump – 3PH

38VMA072HDS5-1	38VMA072HDS6-1
38VMA096HDS5-1	38VMA096HDS6-1
38VMA120HDS5-1	38VMA120HDS6-1
38VMA144HDS5-1	38VMA144HDS6-1
38VMA168HDS5-1	38VMA168HDS6-1
38VMA192HDS5-1	38VMA192HDS6-1
38VMA216HDS5-1	38VMA216HDS6-1
38VMA240HDS5-1	38VMA240HDS6-1
38VMA264HDS5-1	38VMA264HDS6-1
38VMA288HDS5-1	38VMA288HDS6-1
38VMA312HDS5-1	38VMA312HDS6-1
38VMA336HDS5-1	38VMA336HDS6-1
38VMA360HDS5-1	38VMA360HDS6-1
38VMA384HDS5-1	38VMA384HDS6-1
38VMA408HDS5-1	38VMA408HDS6-1
38VMA432HDS5-1	38VMA432HDS6-1

Heat Pump – 1PH

38VMA036HDS3-1 38VMA060HDS3-1
38VMA048HDS3-1

Heat Recovery – 3PH

38VMA072RDS5-1	38VMA072RDS6-1
38VMA096RDS5-1	38VMA096RDS6-1
38VMA120RDS5-1	38VMA120RDS6-1
38VMA144RDL5-1	38VMA144RDL6-1
38VMA168RDS5-1	38VMA168RDS6-1
38VMA192RDS5-1	38VMA192RDS6-1
38VMA216RDS5-1	38VMA216RDS6-1
38VMA240RDS5-1	38VMA240RDS6-1
38VMA240RDL5-1	38VMA240RDL6-1
38VMA264RDS5-1	38VMA264RDS6-1
38VMA288RDS5-1	38VMA288RDS6-1
38VMA312RDS5-1	38VMA312RDS6-1
38VMA336RDS5-1	38VMA336RDS6-1

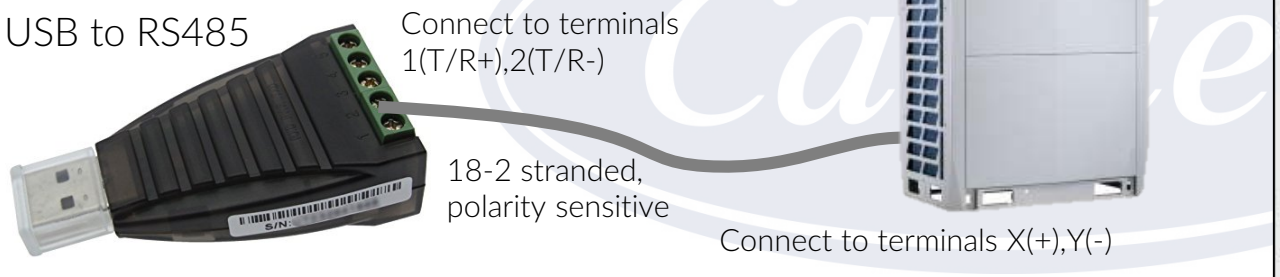
VRF Service Technical Tool

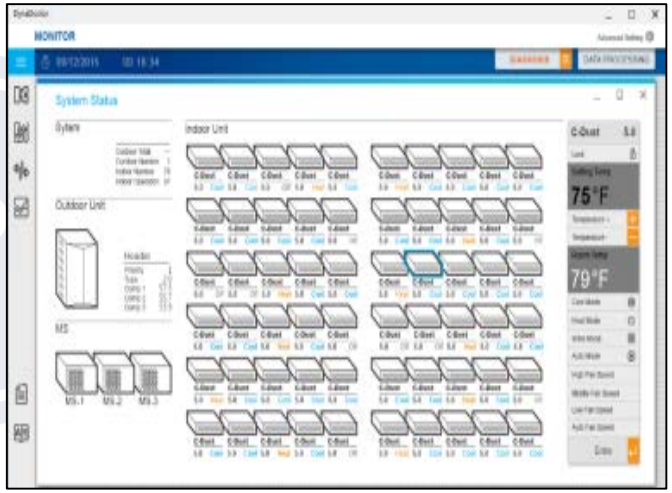
Attention:
Window based PC only

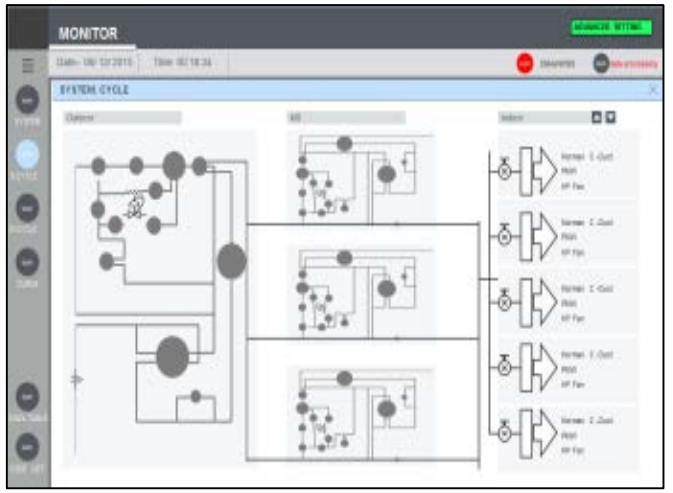
Carrier Bryant 38VM 1PH (2nd gen) & 3PH VRF (STT) Software

Connect a laptop and view/record all data points in the system.

Records data automatically while connected. Very easy to see how the entire system is operating from your laptop during start up. Record a base line of data at start up. The most important tool when preforming yearly VRF maintenance. Make your life easier by ordering the RS485 and downloading/install the software before you get to the jobsite.





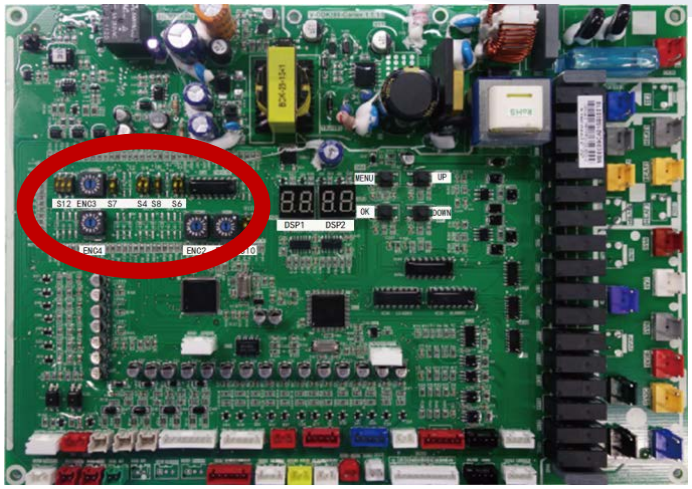


1. USB to RS485 Converter with driver disk
   Get online from Amazon, Fry's, Tiger Direct and more.
2. Scrap 2-wire from install
3. STT Software from hvacpartners.com –
   https://catalog.hvacpartners.com/products/38VMH

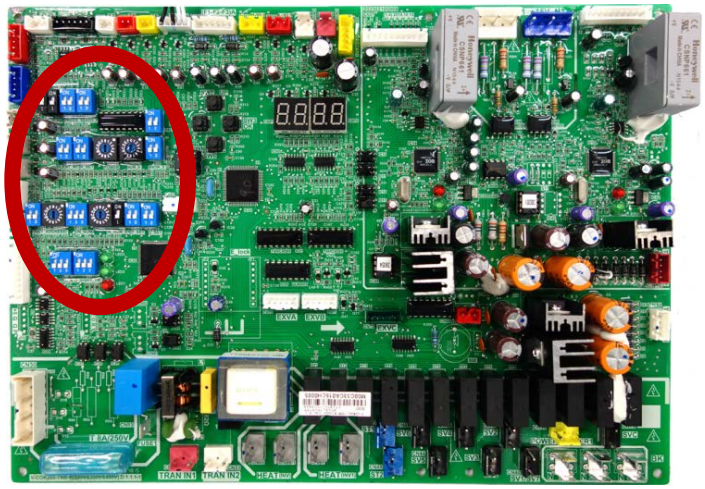
Getting **Started**

Carrier Bryant (CB) 2-pipe VRF Quick Start Up Guide

1. CB VRF install is 100% complete. Additional charge added, stop valves opened. All wiring complete. Outdoor units, MDC Boxes, Indoor Units and Remote Controls all installed and ready to operate.
2. Power OFF & disconnect any Centralized Controller from Header ODU's; Touch Screen, BACnet or other device connected to X & Y. Remove all connections from these terminals. These devices will be started up after all equipment is up and operating. If system has no controllers, one will be needed for start up. Recommended controller for this purpose – 40VM900003.
3. Outdoor units have had main power applied for a minimum of 12hrs prior to start up. Internal safety in outdoor unit will keep system from operating if less than 12hrs. Cannot be tricked.
4. Open up the control boxes on the outdoor header units and MDC boxes (If HR) and prepare to set Rotary and DIP switches on the VRF system. The next few steps are the minimum amount needed for start up. If power is already ON, recycle all power after last switch position is changed.



HR Main PCB



HP Header Unit Main PCB

Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

5. Rotary and DIP switch settings
   HEAT PUMP 3PH ONLY & ALL HEAT RECOVERY

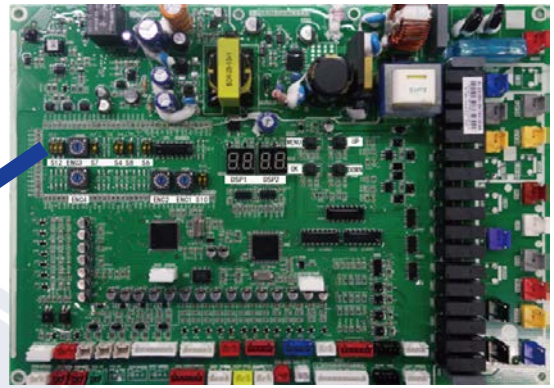
Set IDU quantity connected to Header ODU. Using the DIP and rotary switches shown below select the quantity of IDU's

S12	ENC3	Indoor unit quantity setting
		Position 0 to F on ENC3 means Indoor unit quantity is between 0 and 15
		Position 1 to F on ENC3 means Indoor unit quantity is between 16 and 31
		Position 1 to F on ENC3 means Indoor unit quantity is between 32 and 47
		Position 1 to F on ENC3 means Indoor unit quantity is between 48 and 63
The IDU QTY. setting S12 and ENC3 have to equal the actual QTY, the max. is 64 units in a system, otherwise system will error H7		

S12 ENC3

Default = OFF, OFF, OFF and 0

HR Main PCB



HP Main PCB

If S12 = OFF,OFF,OFF
A=10 B=11
C=12 D=13
E=14 F=15
If S12 = OFF,OFF,ON then A=25, B=26 and so on

Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

5. Rotary and DIP switch settings (cont.)
   HEAT PUMP 3PH ONLY, HEAT RECOVERY go to to next page

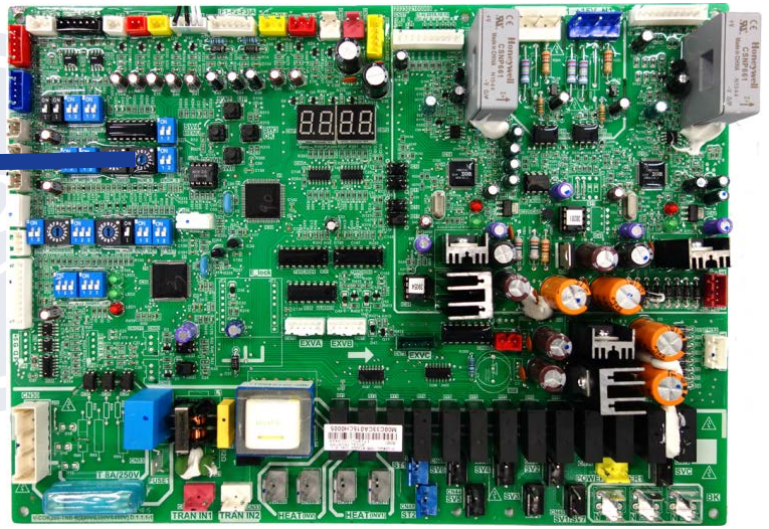
Set Address for HEAT PUMP Header and Follower outdoor units.

ENC1	Outdoor unit addressing
0	Header unit
1	Follower unit 1
2	Follower unit 2
≥3	Invalid address, lead to system error

ENC1

Default = 0

HP Main PCB



Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

5. Rotary and DIP switch settings (cont.)
   HEAT PUMP 1PH & 3PH & ALL HEAT RECOVERY

Set Network address on Header outdoor units.

If no centralized controller connected to X, Y terminals, this step can be skipped.

If BACnet, Touchscreen or other will be connected to X, Y terminals each system must have a different network address. Up to 8 systems can be connected to one network. Large jobsites will have multiple networks, consult with CE Tech Support if you have questions.

0 = 1 system 1 = 2 systems

2 = 3 systems 3 = 4 systems

4 = 5 systems 5 = 6 systems

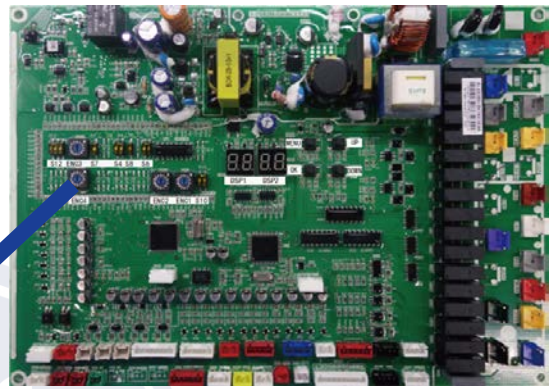
6 = 7 systems 7 = 8 systems

≥8 = Invalid address, lead to system error

ENC4*

Default = 0

HR Main PCB



HP Main PCB

*NOTE: For 1PH Heat Pumps same procedure as above using ENC2

Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

Attention:
Port No.1 must connect to an indoor unit.

5. Rotary and DIP switch settings (cont.)
   HEAT RECOVERY ONLY, HEAT PUMP go to step 6

Set Address for Main MDC and sub MDC (S8) MDC control board with 8 chips. Models – 40VMD006, 008, 010, 016M(S)—3

Default

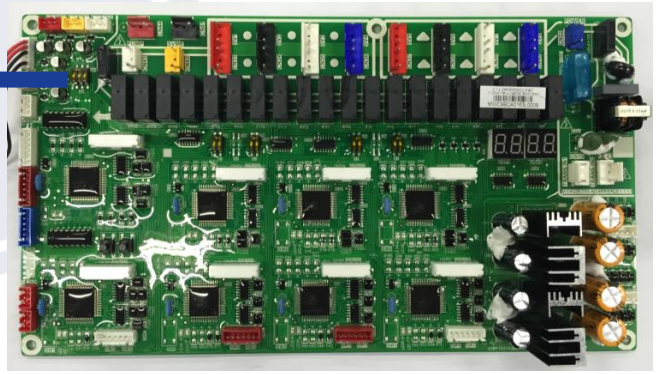
POSITION 1, 2 — MDC IDENTIFICATION

OFF, OFF — Main MDC (default)
ON, OFF — Sub MDC Box 2
OFF, ON — Sub MDC Box 1
ON, ON — Reserved

S8

Default = OFF,OFF,OFF

MDC Main PCB



Default

POSITION 3 — MDC BOARD IDENTIFICATION

ON — Second MDC Board
(This is set by the factory and cannot be changed)
OFF — Primary MDC Board

Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

5. Rotary and DIP switch settings (cont.)
   HEAT RECOVERY ONLY, HEAT PUMP go to step 6

<u>VERIFY ONLY</u> address for Main MDC and sub MDC is correct
MDC with auxiliary control board. Models – 40VMD010M(S)—3 Only

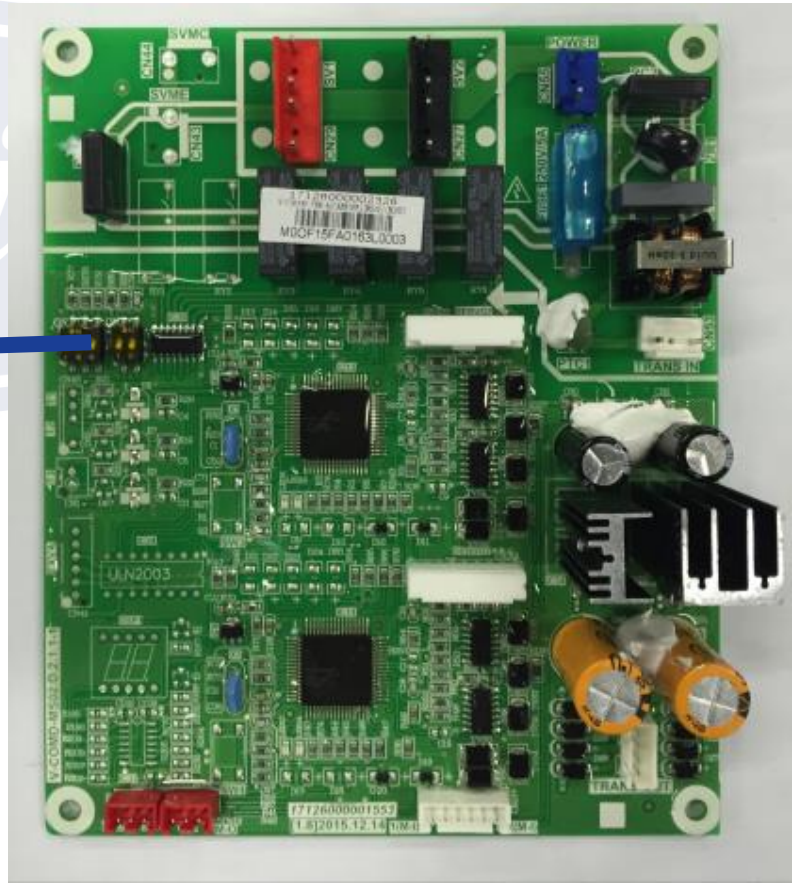
Default

Attention:
These DIP switches have been factory set. Don't change anything, just verify.

S8

Default = OFF,OFF,ON

MDC Auxiliary PCB



Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

Attention:
Port No.1 must connect to an indoor unit.

5. Rotary and DIP switch settings (cont.)
   HEAT RECOVERY ONLY, HEAT PUMP go to step 6
   If no MDC ports are twinned go to step 6

If any MDC ports are piped together, set appropriate DIP switch S1/S3/S5/S7
For IDU's 72K/96K only. Models – 40VMD006, 008, 010, 016M(S)—3

Default = OFF,OFF

Default

POSITION 1, 2 — S1 IDU PIPES SETTING
OFF, OFF — Normal Mode (default)
ON, ON — 2 Ports Twinned Together

Ports 1,2 Twinned

POSITION 1, 2 — S3 IDU PIPES SETTING
OFF, OFF — Normal Mode (default)
ON, ON — 2 Ports Twinned Together

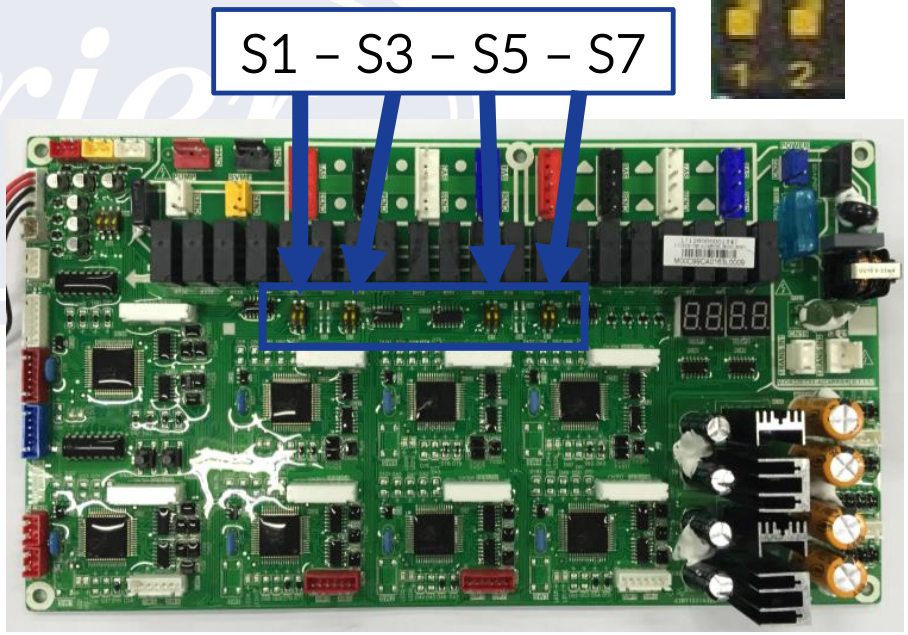
Ports 3,4 Twinned

POSITION 1, 2 — S5 IDU PIPES SETTING
OFF, OFF — Normal Mode (default)
ON, ON — 2 Ports Twinned Together

Ports 5,6 Twinned

POSITION 1, 2 — S7 IDU PIPES SETTING
OFF, OFF — Normal Mode (default)
ON, ON — 2 Ports Twinned Together

Ports 7,8 Twinned



MDC Main PCB

Port merging continues, always odd with next even one.
9,10 – 11,12 – 13,14 ~ 15,16.
Example – To merge ports 15,16 DIP switch S7 on corresponding PCB will be used.

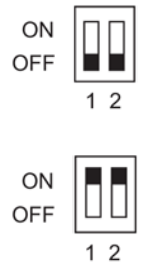
Set Up **Outdoor Unit**

Carrier Bryant 2-pipe VRF Quick Start Up Guide

5. Rotary and DIP switch settings (cont.)
   HEAT RECOVERY ONLY, HEAT PUMP go to step 6
   If no MDC ports are twinned go to step 6

If MDC ports 9 & 10 are piped together, set DIP switch S3
For IDU's 72K/96K only. MDC with auxiliary control board. Models – 40VMD010M(S)—3 Only

Default



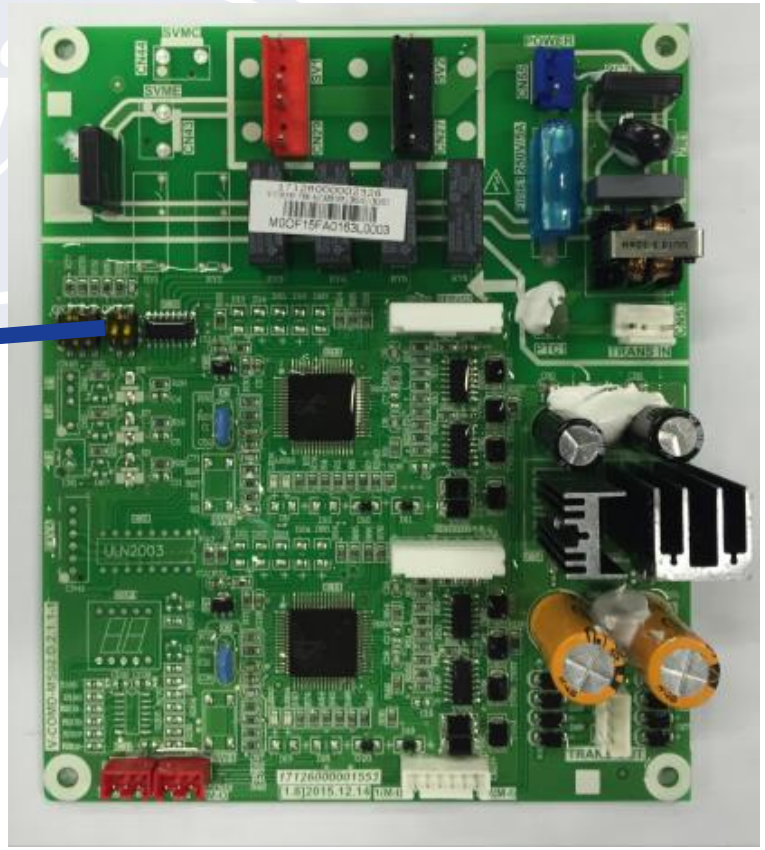
POSITION 1, 2 — S3 IDU PIPES SETTING
OFF, OFF — Normal Mode (default)
ON, ON — 2 Ports Twinned Together

Ports 9,10 Twinned

S3

Default = OFF,OFF

MDC Auxiliary PCB



Setting IDU Address

Carrier Bryant 2-pipe VRF Quick Start Up Guide

6. Automatically set IDU addresses for HEAT PUMP 3PH, 1Ph HEAT PUMP go to step 7
   HEAT RECOVERY cannot be set automatically, for manual procedure go to step 8

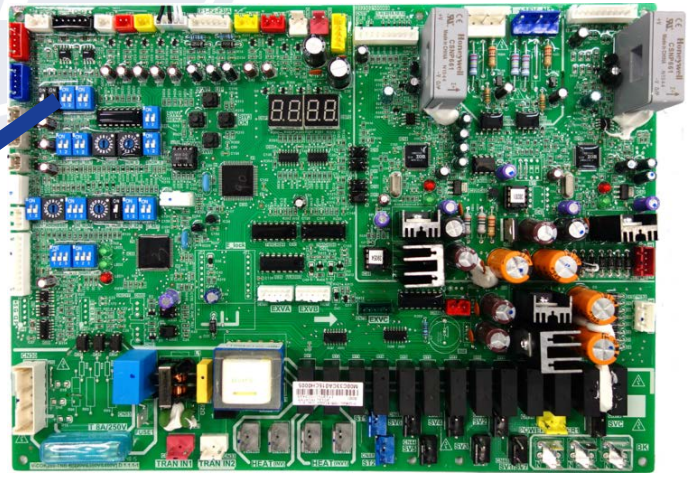
To use Auto Addressing leave DIP switch S6 in default position. If S6 is left in default position once all equipment is powered up the system all the IDU's will be automatically addressed, this process takes about 6 minutes.

If a "FE" code is displayed on remote controller screen or display board of IDU no address has been set.

To address manually set as shown below and follow the steps on 8 of how to program locally using the remote control.

S6	Auto addressing for IDU
ON OFF 1 2	Auto addressing for each IDU (Default – OFF,OFF)
ON OFF 1 2	Non-automatic addressing. OFF,ON (have to set by manual)
ON OFF 1 2	Clear all indoor unit address. ON,OFF

Default = OFF,OFF



HP Main PCB

Setting IDU Address

Carrier Bryant 2-pipe VRF Quick Start Up Guide

7. Automatically set IDU addresses for HEAT PUMP 1PH
   For manual procedure do not change SW4 and go to step 8

To use Auto Addressing change DIP switch SW4 from default position. If SW4 is left in default position once all equipment is powered up the system all the IDU's will need to be manually addressed. When changed for Automatic address, once powered up addressing will take approximately 6 minutes. If power was ON when DIP switch was changed, recycle power now.

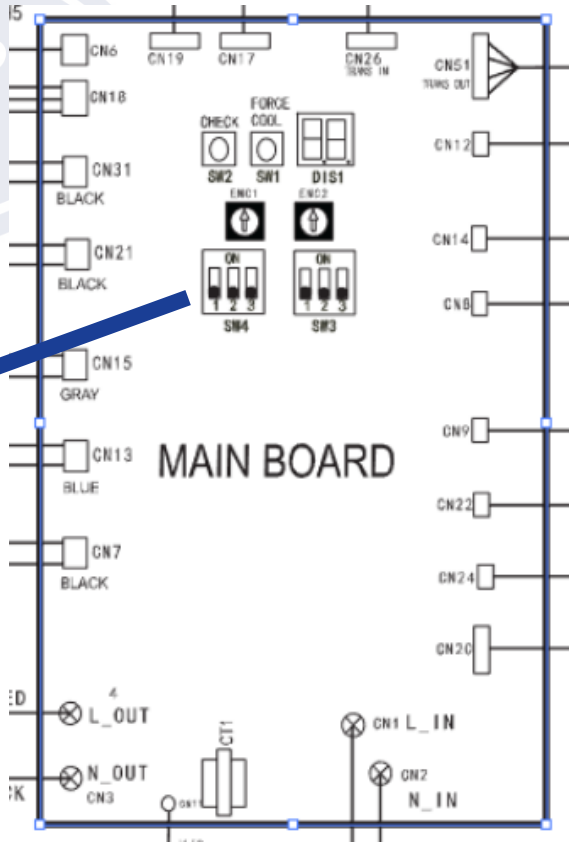
If a "FE" code is displayed on remote controller screen or display board of IDU no address has been set.

To address manually leave DIP switch in default position and go to step 8 for how to program locally using the remote control.

SW4	Auto addressing for IDU
ON OFF 1 2 3	Non-automatic addressing Default – OFF,OFF,OFF
ON OFF 1 2 3	Automatic addressing ON,OFF,OFF

SW4

Default = OFFOFF,OFF



1PH HP Main PCB

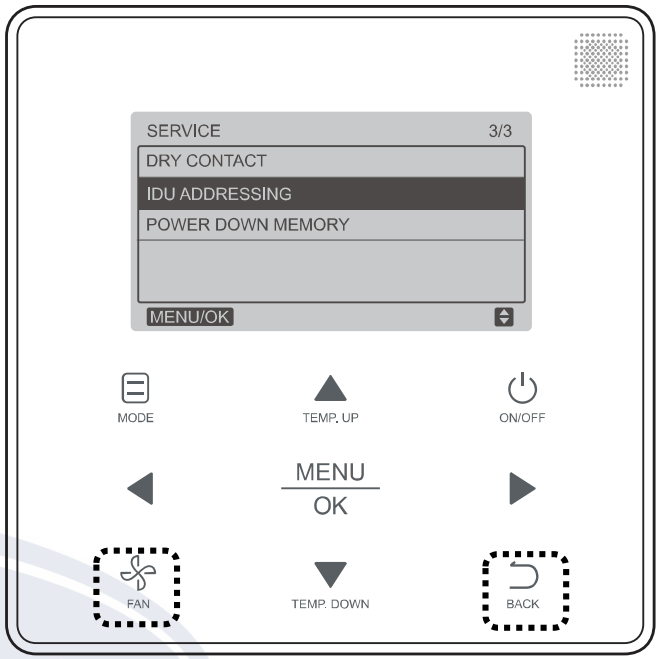
Setting IDU Address

Carrier Bryant 2-pipe VRF Quick Start Up Guide

8. Manually set address for all IDU's for HEAT RECOVERY & HEAT PUMP. If you have a HEAT PUMP and have used the automatic process go to step 9

How to address manually using the Wired Controller Md. 40VM900003

Addresses 0~63 can be used, 64 available.

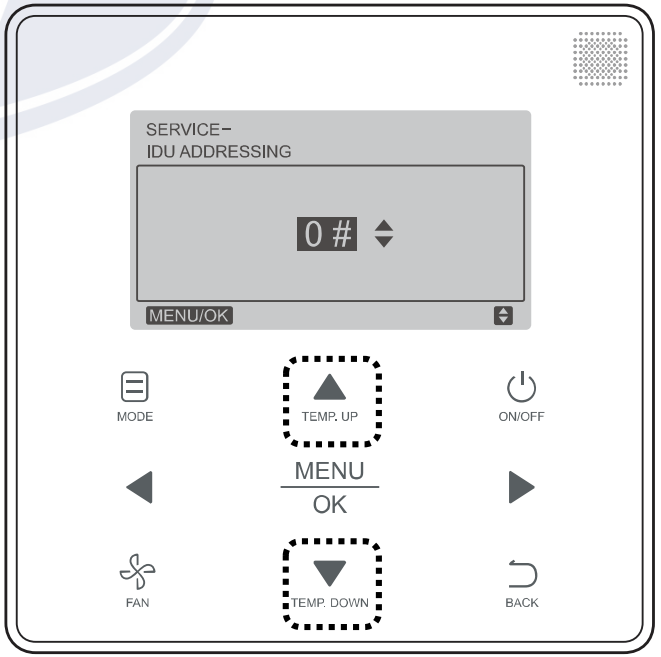


STEP 1 ☑

Press FAN and BACK simultaneously for 5 seconds to enter the interface for parameter settings.

STEP 2 ☑

Press TEMP. UP or TEMP. DOWN to move the cursor down and choose IDU ADDRESSING, then MENU OK to enter this setting. 0~63 can be used.



STEP 3 ☑

Press TEMP. UP or TEMP. DOWN to choose the address No. you want to set, then MENU OK to send this address to the IDU.

STEP 4 ☑

Press BACK twice or wait 30 seconds to automatically exit the parameter settings menu.

Setting IDU Address

Carrier Bryant 2-pipe VRF Quick Start Up Guide

8. Manually set address for all IDU's for HEAT RECOVERY & HEAT PUMP (cont.)
   If you have a HEAT PUMP and have used the automatic process go to step 9

How to address manually using the Wireless Controller 40VM900001

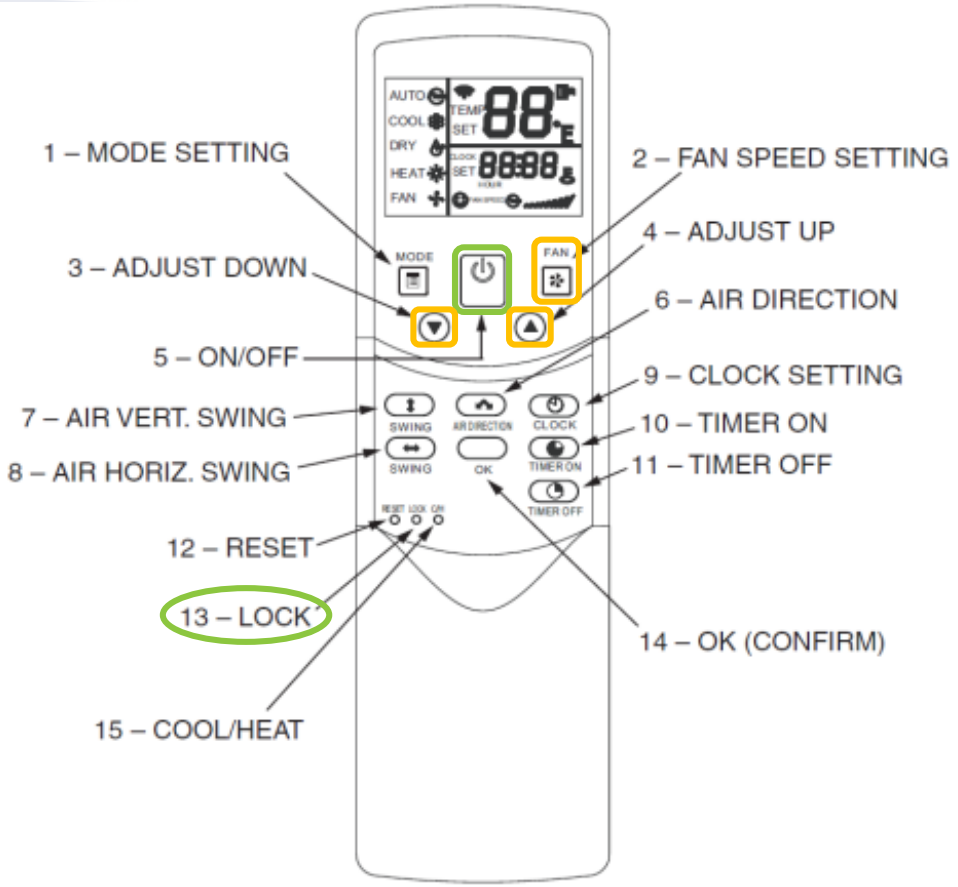
Addresses 0~63 can be used, 64 total available.

STEP 1 ☑

Use tool to press and hold the "LOCK" button for more than 10 seconds and then press ⏻ button to activate.

STEP 2 ☑

Press ▲ or ▼ to select an address you want and then press FAN ❄ to send the setting.
Make sure wireless controller is pointed at receiver of IDU.



24V Interface Set Up

Carrier Bryant 2-pipe VRF Quick Start Up Guide

9. IDU's using 24V Interface Accessory – If no 24V Interfaces were installed go to step 10.

Select fan speed by setting DIP switch SW1 as shown below.

SW1	Fan Speed Selection
ON OFF 1 2	OFF,OFF selects low fan speed
ON OFF 1 2	OFF,ON selects medium fan speed
ON OFF 1 2	ON,OFF selects high fan speed
ON OFF 1 2	ON,ON selects auto fan speed

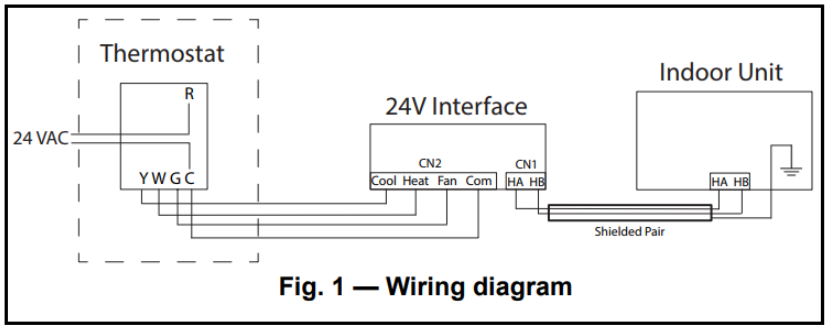


Fig. 1 — Wiring diagram

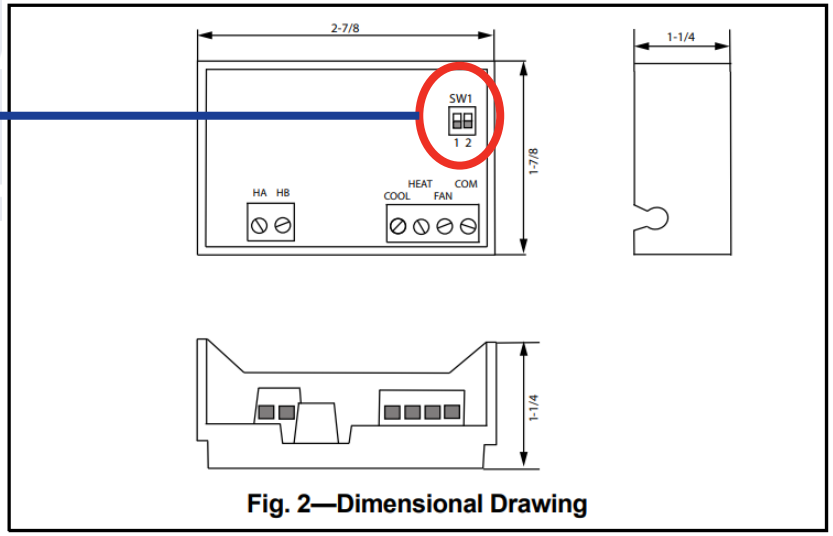


Fig. 2—Dimensional Drawing

SW1

Default = OFF,OFF

Power Recycle & START UP

Carrier Bryant 2-pipe VRF Quick Start Up Guide

10. Power OFF all outdoor units, MDC boxes and indoor units. Wait 3 to 5 minutes and power ON indoor units and MDC's first, then outdoor units.
11. Wait 20 minutes and make sure no errors are present on the system.
12. Connect laptop to outdoor unit as described on page 8 of this guide and start STT software. (optional)
13. Start system and initiate test run from Spot Check Board or Main PCB in header outdoor unit. System will operate in heat or a/c depending on outdoor temp. During this self check HR systems will preform a port check on the MDC box's to ensure each port is connected to the correct indoor unit. (optional, but strongly recommended)
14. Cycle the system in both heating and cooling as outdoor temperature permits. If Heat Recovery, observe/record different mixes of indoor units in "heat" and "cool". STT users should record a minimum of 2 hrs. for each system, 4 hrs. recommend.

    If system has a centralized controller Touchscreen,
    BACnet or other proceed to next page.

Centralized Control Start Up

Carrier Bryant VRF Centralized Control Quick Start Up Guide

1. Once the VRF system has been fully commissioned and there are no active errors displayed. Power down all outdoor units.
2. Set Network address on Header outdoor unit(s), 0-7 can be used, 0 is default, do not duplicate. See the page 12 of this guide for more information.
3. Connect control wire from BACnet, Touchscreen or other device to X & Y to Header outdoor unit centralized control daisy chain.
4. Power Up all centralized control devices.
5. Power Up all outdoor units. Not necessary to power cycle indoor units or MDC box's.
6. Program the BACnet, Touchscreen or other device as required for the application. See Installation/Operation Manuals or contact CE Tech Support for assistance.
7. If Touchscreen is installed, we recommend you backup final version of programming.

Remote Controller Set Up

Carrier Bryant VRF Remote Controller Set Up Guide

40VM900003 – Remote Controller

1 – MODE Selects the running mode.
2 – TEMP UP Increases set temperature.
3 – ON/OFF Button Powers the IDU on/off
4 – LED (green) Indicates when the IDU is ON and blinks when there is a fault.
5 – Left Selects options to the left.
6 – MENU/OK Enters the menu/sub menu & Confirms selection.
7 – Right Selects options to the right.
8 – Fan Selects fan running speed.
9 – BACK Returns to the previous level.
10 – TEMP DOWN Reduces the set temperature.

All display icons are explained on page 27 of this document.

Basic Operation:

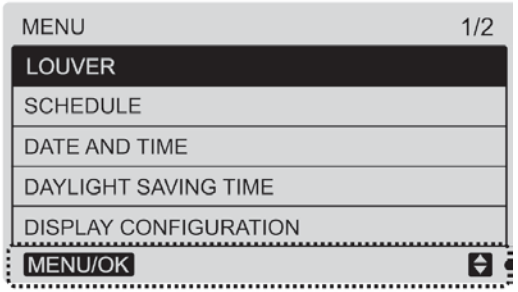
1. Turn ON the remote control by pressing the ON/OFF button.
2. Select the MODE be pressing the MODE button.
   - AUTO, COOL, DRY, HEAT, FAN are selectable modes of operation.
   - AUTO is not available on Heat Pump Systems.
   - FAN speed cannot be adjusted in DRY mode.
3. Select FAN speed.
   - AUTO, LOW, MED, HIGH are selectable fan speeds.
4. If AUTO, COOL, DRY, HEAT mode is selected, set desired temperature.
5. In AUTO mode, press LEFT or RIGHT buttons within 10 seconds to switch between cooling & heating set points.

More detailed information on these items and more can be found in the Installation and Operation Manual that came with the remote controller.

Remote Controller Set Up

Carrier Bryant VRF Remote Controller Set Up Guide

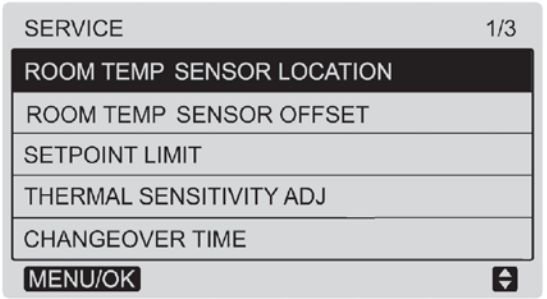
Menu Operations:



1. Press the MENU/OK button to enter the menu.
2. Press TEMP UP and DOWN to select desired menu item.
   - If IDU does not have an integral louver, the louver function will not be available.
3. Set DATE & TIME.
4. Set DAYLIGHT SAVINGS TIME.
5. Set DISPLAY CONFIGURATION. Select Standard or Simple.
   - When the indoor temperature display is set, the current room temp will be displayed below the set point temp(s) on the main display.

Service & Start up Settings:

1. Press and hold the BACK button and the FAN button for 5 seconds at the same time to enter SERVICE Settings.
2. From this menu many settings can be preformed. Most commonly used are; ROOM TEMPERATURE SENSOR LOCATION, SETPOINT LIMIT, DRY CONTACT & IDU ADDRESSING
3. IDU Addressing – Press TEMP DOWN button until IDU Addressing is highlighted and press MENU/OK button to enter.
4. Press TEMP UP or TEMP DOWN to select desired IDU address and press MENU/OK button to lock in.
5. See last page of this document for all SERVICE items.

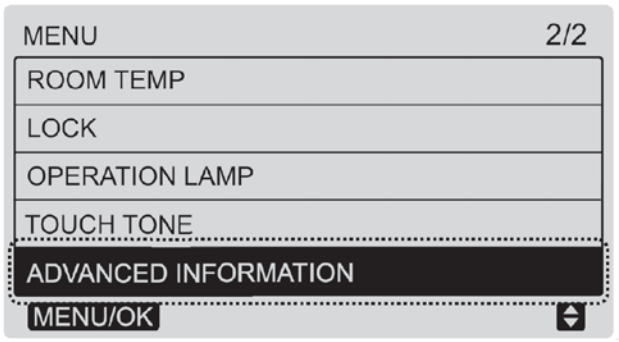


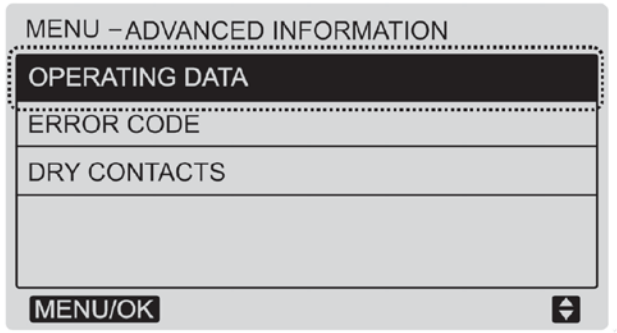
Remote Controller Set Up

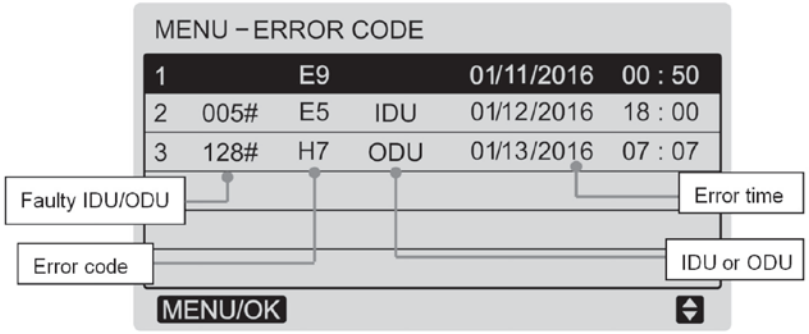
Carrier Bryant VRF Remote Controller Set Up Guide

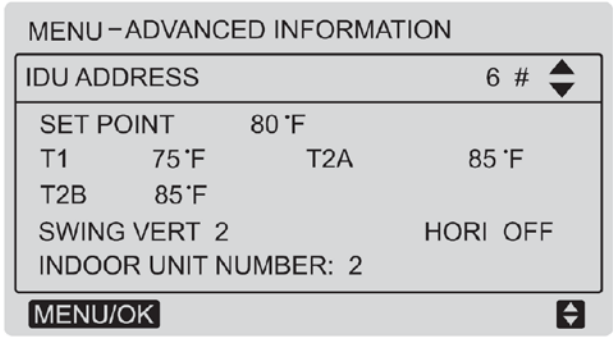
Advanced Information:

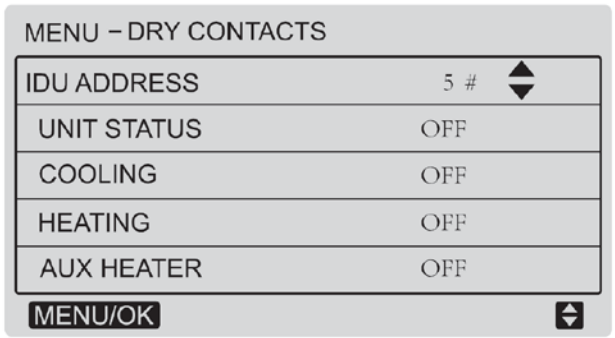
1. On the second page of the MENU options, select ADVANCED INFORMATION.
2. If OPERATIONAL DATA is selected, sensor and other operational detail can been seen.
   - If more than one IDU is connected to the same Remote Controller Pressing TEMP UP or TEMP DOWN will cycle through the other IDU's.
3. If ERROR CODE is selected, the last 10 groups of fault codes will be displayed.
4. If DRY CONTACTS is selected, the status of each can be seen.







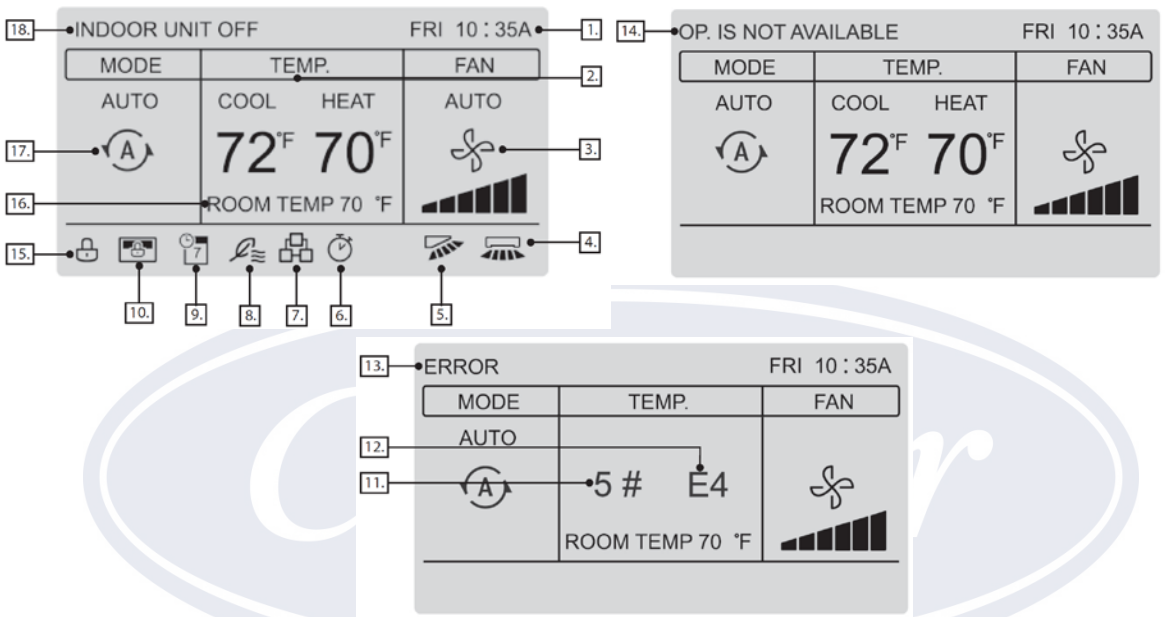




Remote Controller Set Up

Carrier Bryant VRF Remote Controller Set Up Guide

Display Items:



NUMBER	DESCRIPTION
1. Time display	Displays the time.
2. Set temperature	Displays the set temperature for the unit.
3. Fan speed display	Displays the fan speed set by the wired controller.
4. Horizontal swing	Displays swing status when the IDU supports horizontal swing.
5. Vertical swing	Displays swing status when the IDU supports vertical swing.
6. OVERRIDE	Turns on when OVERRIDE is enabled on the wired controller.
7. Group control indicator	Turns on when the wired controller controls multiple IDUs (max 16 IDUs).
8. Outside air unit symbol	Turns on when the wired controller is being used on a VRF outside air unit.
9. Schedule	Turns on when the weekly schedule is available on the wired controller.
10. Central controller/Upper computer locking indicator	Turns on when the central controller/upper computer locks the IDU function and the wired controller cannot use the corresponding functions of the IDU.
11. Faulty IDU/ODU address	Displays the address of the faulty unit if an error occurs on the IDU or ODU.
12. Error code	Displays the error code if the system is faulty.
13. Error indicator	Displays the “ERROR” message if the system is faulty.
14. Invalid operation prompt	Flashes for two seconds if an operation is invalid.
15. Function locking indicator	Turns on when the wired controller locks the on/off function, mode, schedule or temperature setting.
16. Room temperature display	Displays the current indoor temperature.
17. Mode display	Displays the running mode set by the wired controller.
18. IDU off	Displayed when the IDU is turned off.

Remote Controller Set Up

Carrier Bryant VRF Remote Controller Set Up Guide

Service Items:

NO.	SERVICE MENU		DESCRIPTION	SET PARAMETER
1	ROOM TEMPERATURE SENSOR LOCATION		Select whether to use the IDU room temperature sensor of the wired controller.	Wired remote control (default) Indoor unit
2	ROOM TEMPERATURE SENSOR OFFSET		The temperature compensation value for wired controller T1.	-5 °F, -4 °F, -3 °F, -2 °F, -1 °F, 0 °F (default), 1 °F, 2 °F, 3 °F, 4 °F, 5 °F or -5 °C, -4 °C, -3 °C, -2 °C, -1 °C, 0 °C (default), 1 °C, 2 °C, 3 °C, 4 °C, 5 °C
3	SETPOINT LIMIT	MAX HEATING SETPOINT SETTING	Set the upper limit of the temperature range for heating.	86 F (default) to 62 F 30 C (default) to 17 C
		MIN. COOLING SETPOINT SETTING	Set the lower limit of the temperature range for cooling.	50 F (default) to 86 F 10 C (default) to 30 C
4	THERMAL SENSITIVITY ADJUSTMENT		Select a capacity interval.	THERMAL ON (1 F) (default), THERMAL ON (2 F) or THERMAL ON (1 C) (default), THERMAL ON (1 C)
5	CHANGE OVER TIME		Automatic mode change over time.	15 min. (default), 30 min., 60 min., 90 min.
6	ANTI-COLD BLOW		Set the temperature when the fan is turned off to prevent cold winds	68 F (default), 50 F, 59 F, 75 F, 82 F or 20 C (default), 10 C, 15 C, 24 C, 28 C
7	TERMINAL FAN CONFIGURATION		Fan off after a delay of	4 min. (default), 8 min., 12 min., 16 min.
8	THERMO-OFF FAN SPEED SETTING	COOLING	Set the fan step for cooling thermo off.	OFF, LOW, MIDDLE, HIGH, MAINTAIN (default)
		HEATING	Set the fan step for heating thermo off.	OFF (default), LOW, MIDDLE, HIGH, MAINTAIN
9	STATIC PRESSURE (NOT USED FOR ALL INDOOR UNITS)		Set the IDU static pressure of the DC fan.	0: 0 In. wg (default) 1: 0.04 In. wg 2: 0.08 In. wg 3: 0.12 In. wg 4: 0.16 In. wg 5: 0.20 In. wg 6: 0.24 In. wg 7. 0.28 In. wg 8: 0.32 In. wg 9: 0.36 In. wg 10: 0.40 In. wg 11: 0.44 In. wg 12: 0.48 In. wg 13: 0.52 In. wg 14: 0.56 In. wg 15: 0.60 In. wg 16: 0.64 In. wg 17: 0.68 In. wg 18: 0.72 In. wg 19: 0.76 In. wg 20: 0.80 In. wg 21: 0.84 In. wg 22: 0.88 In. wg 23: 0.92 In. wg 24: 0.96 In. wg 25: 1.0 In. wg
10	OCCUPANCY SENSOR	OCCUPANCY ON/OFF	Set occupancy delay function to valid or invalid	OFF (default), ON
		OCCUPANCY DELAY	Set the time for delayed power-off of the unattended IDU (valid only when the IDU is connected to an infrared sensing controller).	0 min (default-THERMAL OFF), 15 min., 30 min., 60 min. (SETBACK DELAY)
		OCCUPANCY SET TEMP OFFSET	Setback temperature setpoint amount after occupancy delay elapses.	0 °F, 2 °F, 4 °F (default), 6 °F, 8 °F or 0 °C, 1 °C, 2 °C (default), 3 °C, 4 °C
11	DRY CONTACT	DRY CONTACT STATUS	Whether the IDU is connected to a third-party heat source.	DISABLE (default), ENABLE
		DRY CONTACT CONFIGURATION	Set the start and end condition for the third-party heat source and the delayed end time of dry contact.	Starting condition, when the room temperature is lower than the set temperature: 1 °F (default), 2 °F, 3 °F, 4 °F, 5 °F or 1 °C (default), 1 °C, 2 °C, 2 °C, 3 °C
				Delayed closing time of dry contact: 15 min. (default), 30 min., 60 min.
		INDOOR FAN STATUS	Forcibly turn on the fan or not when the third-party heat source starts.	ON (default), OFF
12	IDU ADDRESSING		Set the IDU address	0#-63#

Section – 3
Carrier Toshiba VRF

Heat Pump – 1PH
MCY-MAP0367HS-UL
MCY-MAP0487HS-UL
MCY-MAP0607HS-UL

Heat Pump – 3PH
MMY-MAP0726HT9P-UL
MMY-MAP0966HT9P-UL
MMY-MAP1206HT9P-UL
MMY-MAP1446HT9P-UL
MMY-MAP1686HT9P-UL
MMY-MAP0726HT6P-UL
MMY-MAP0966HT6P-UL
MMY-MAP1206HT6P-UL
MMY-MAP1446HT6P-UL
MMY-MAP1686HT6P-UL

Heat Recovery – 1PH
MMY-MAP0726FT2P-UL

Heat Recovery – 3PH
MMY-MAP0726FT2P-UL
MMY-MAP0726FT9P-UL
MMY-MAP0966FT9P-UL
MMY-MAP1206FT9P-UL
MMY-MAP1446FT9P-UL
MMY-MAP1686FT9P-UL
MMY-MAP0726FT6P-UL
MMY-MAP0966FT6P-UL
MMY-MAP1206FT6P-UL
MMY-MAP1446FT6P-UL
MMY-MAP1686FT6P-UL

Carrier **Dyna-Doctor** Software

Carrier MCY/MMY VRF Dyna-doctor Software

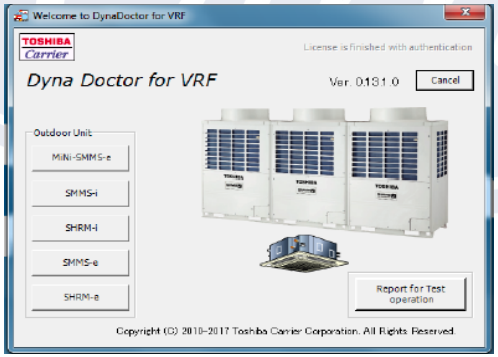
Attention:
Window based PC only

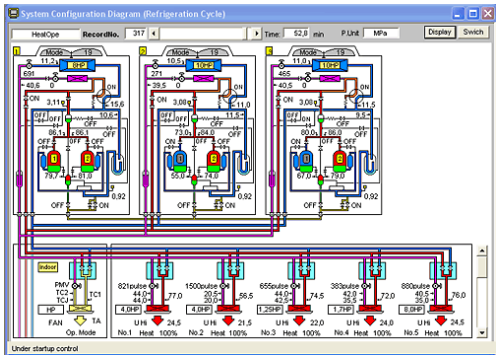
Record data, verify what's connected and more. Very easy to see how the entire system is operating from your laptop during start up. Record a base line of data at start up. The most important tool when preforming yearly VRF maintenance. Make your life easier by ordering Dyna-doctor. Dyna-doctor must be downloaded, installed and registered before you get to the jobsite. Software must be registered before using, registration verification can take up to **1 week**.

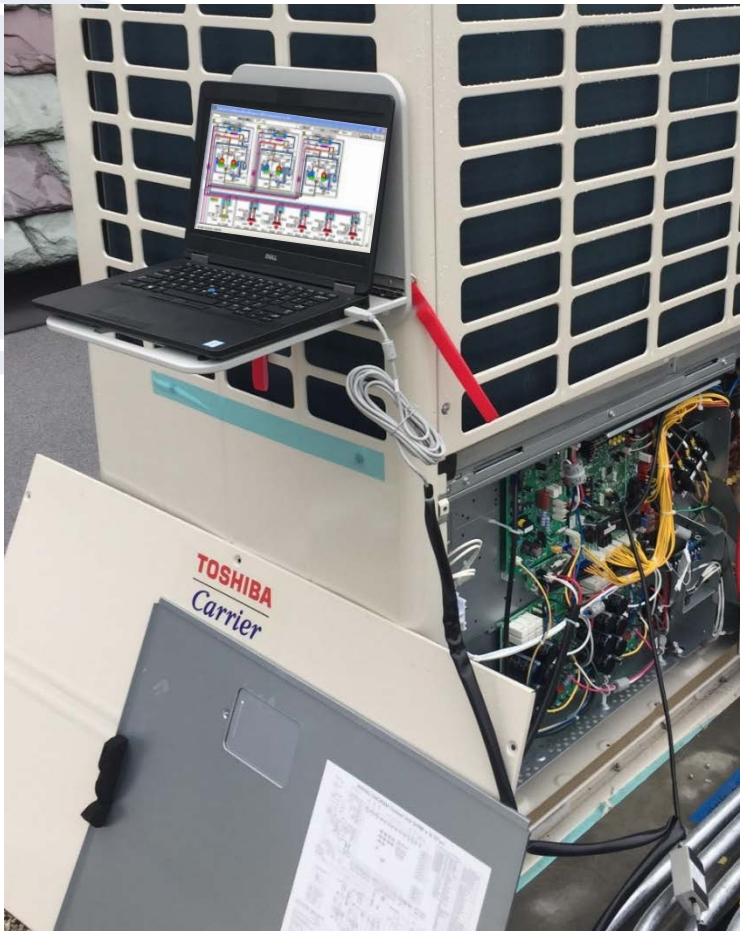
Software can be downloaded from HVACpartners.com
https://catalog.hvacpartners.com/products/MMYF

Part # TCB-DK01SS-E List $922.00
11.2018

Connect from USB to Main PCB CN800



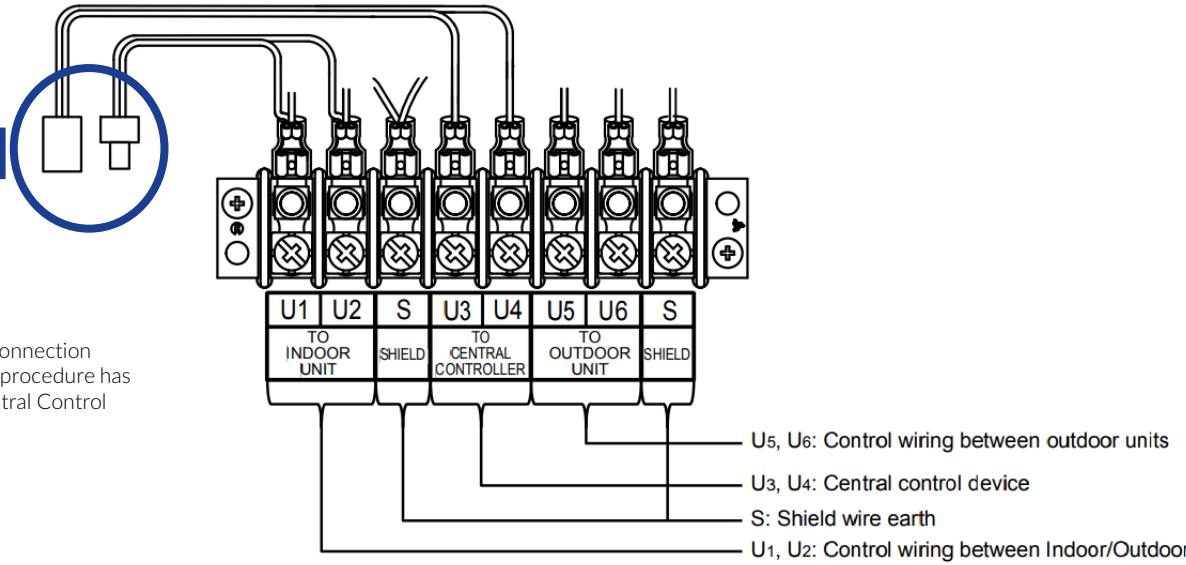




Getting **Started**

Carrier Toshiba (CT) VRF Quick Start Up

1. CT VRF install is 100% complete. Additional charge added, stop valves opened. All wiring complete. Outdoor units, Flow Selector Boxes, Indoor Units and Remote Controls are all installed and ready to operate.
2. Outdoor units have had main power applied for a minimum of 12hrs prior to start up. Internal safety in outdoor unit will keep system from operating if less than 12hrs. Cannot be tricked.
3. Make sure the central control white Molex connector in ODU's near low voltage connections is still disconnected, if not unplug now.
4. Power OFF & disconnect any Centralized Controller from Header ODU's connected to U3 & U4. TCS-net Relay, Touch Screen, BACnet or other device, remove any connections from these terminals. These devices will be started up after all equipment is up and operating. <u>If system has no controllers, one will be needed for start up</u>. Recommended controller for this purpose – RBC-AMS54E-UL.



Note: Outdoor unit(s) - leave white plug connection disconnected as shipped, until addressing procedure has been completed. This is only used for Central Control applications.

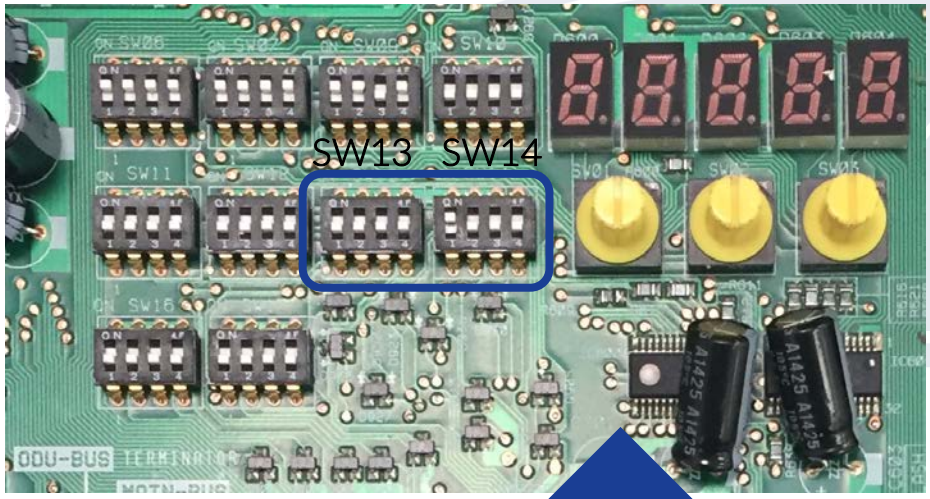
Setting Up **Header Units**

Carrier Toshiba VRF Quick Start Up Guide

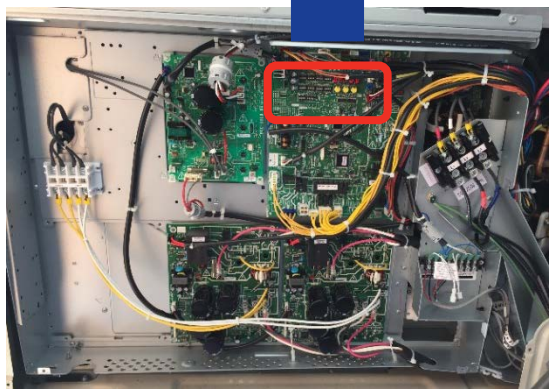
5. Power OFF all outdoor units, flow selector boxes and indoor units. Open all Header ODU control box's.

6. Set line (system) address in each Header ODU – Systems without centralized controller can skip this step. Line address 1~28 can be used, locate SW13 & SW14 on main PCB. Do not duplicate line address.

Switch settings for a line (system) address on the interface P.C. board for the outdoor unit



Main PCB Example



Line (system) address	SW13	SW14			
	4	1	2	3	4
1	×	×	×	×	×
2	×	ON	×	×	×
3	×	×	ON	×	×
4	×	ON	ON	×	×
5	×	×	×	ON	×
6	×	ON	×	ON	×
7	×	×	ON	ON	×
8	×	ON	ON	ON	×
9	×	×	×	×	ON
10	×	ON	×	×	ON
11	×	×	ON	×	ON
12	×	ON	ON	×	ON
13	×	×	×	ON	ON
14	×	ON	×	ON	ON
15	×	×	ON	ON	ON
16	×	ON	ON	ON	ON
17	ON	×	×	×	×
18	ON	ON	×	×	×
19	ON	×	ON	×	×
20	ON	ON	ON	×	×
21	ON	×	×	ON	×
22	ON	ON	×	ON	×
23	ON	×	ON	ON	×
24	ON	ON	ON	ON	×
25	ON	×	×	×	ON
26	ON	ON	×	×	ON
27	ON	×	ON	×	ON
28	ON	ON	ON	×	ON

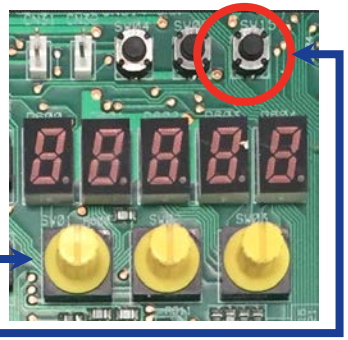
X = OFF

Address IDU's

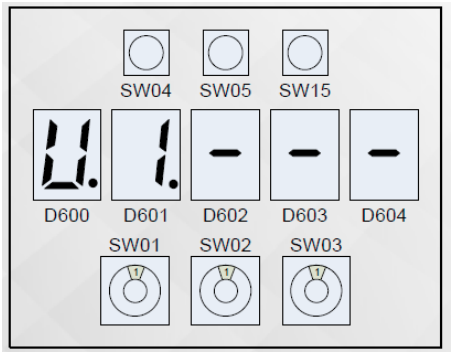
Carrier Toshiba VRF Quick Start Up Guide

7. If available, connect Dyna-doctor to Header ODU and prepare software on computer for system verification and data recording. Only one system can be viewed/recorded at a time.
8. Confirm Rotary switches SW01,02,03 are all set to [1][1][1]
9. Power Up - 1. Indoor units, 2. Flow Selector boxes, 3. Outdoor units.
   After one minute the header outdoor unit displays:
   - [L08] on each Header unit. This means indoor units need to be addressed.
   - [U1] on each Header unit. This means indoor units already addressed.
   - If any other code is displayed, troubleshoot now.
10. Press SW15 to start automatic indoor unit addressing.
    - For Manual addressing got to step 11.
    - Automatic addressing takes about 5 to 10 minutes to complete.
    - Once [U1] is displayed without flashing addressing is complete.

Main PCB on header ODU
SW04 SW05 SW15



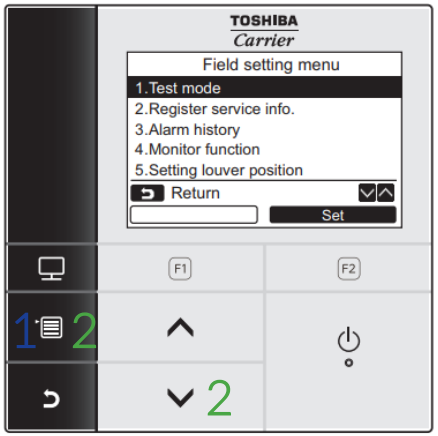
SW01 SW02 SW03



Address IDU's

Carrier Toshiba VRF Quick Start Up Guide

11. Manual IDU address instructions – If Automatic addressing was used, go to step 12. To Manually set from remote control select DN-13 from the Field Setting Menu. All indoor Units require an Address need to be set.
    - Enter "Field settings menu" using steps below.
    - Press the Down arrow to highlight #7 "DN settings".
    - Press "F2" to enter "DN settings".



How to enter "Field setting menu"

1 **Push the [MENU] button to display the menu screen.**

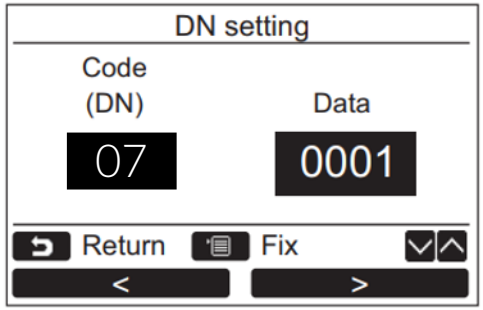
2 **Push and hold the [MENU] button and the [∨] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds.

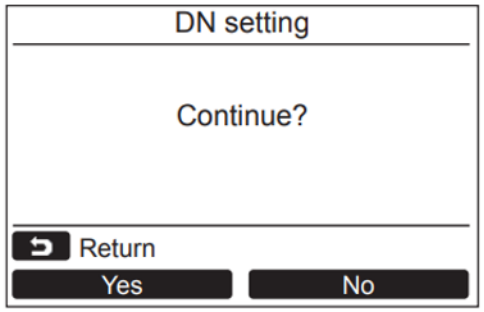
Item	Function
1. Test mode	Settings for when performing the test operation after installation
2. Register service info	Registration of information about the contact number for service, model name and serial number of the indoor unit and outdoor unit
3. Alarm history	List of latest 10 alarm data: information of check code, date, time, and unit
4. Monitor function	Monitoring data of sensor temperature, rotating speed of the compressor or other factor.
5. Setting louver position	Change the louver indication setting to match the indoor unit type.
6. Setting timer operation mode	Set whether or not the operation mode can be selected when setting the schedule timer.
7. DN setting	Advanced settings using DN code

Address IDU's

Carrier Toshiba VRF Quick Start Up Guide

11. Manual IDU address instructions (cont.)
    - Utilize the "F1" & "F2" to move the curser left or right.
    - The "UP" & "DOWN" arrows will check the valve.
    - Once you have the desired IDU address shown on the right side, press the "MENU" button to lock in.
    - Addresses 1~64 can be used.
    - Select "Yes" to continue.
    - Manual Address setting complete.

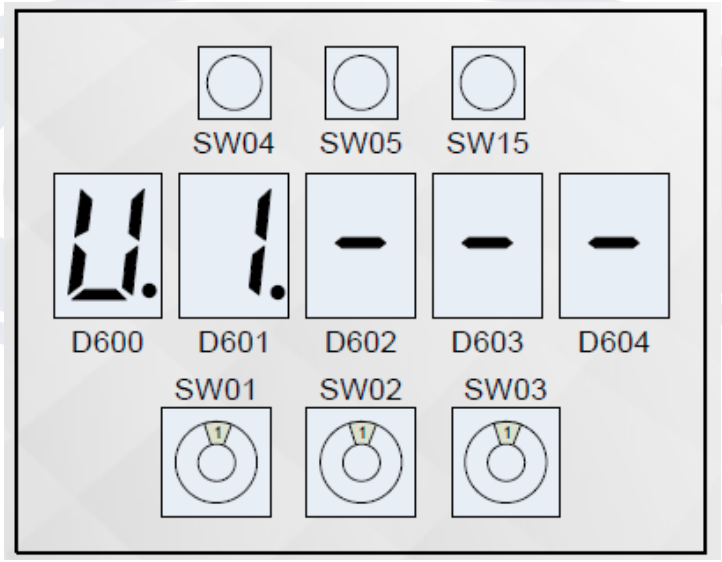




START UP

Carrier Toshiba VRF Quick Start Up Guide

12. While setting the IDU Address you can also set up time, date and all desired settings and options required for the controller/indoor unit(s).
13. Once Addressing/Programming is complete the Header ODU displays changes to a non-flashing [U1].



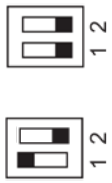
Setting Up 40QQ Electric Heat Control

Carrier Toshiba VRF Quick Start Up Guide

14. 40QQ Rooftop Electric Heater Set Up – If no 40QQ are installed with electric heat, go to step 15
    - Step 1 – If Electric Heater is installed, set DIP switches as show below and recycle power to unit.

40QQ Control box view

Default



SW501

Default = OFF,OFF

SW501_1	SW501_2	Comments
OFF	OFF	Factory Setting
ON	OFF	Activate EHeater

- Step 2 – Set DN code "DC" – Select a value for heater control.

Set data of DN (DC)	Comments
0000	Factory Setting
0001 or more	Activate EHeater

*DN(DC) determines the value of ΔAS-H.

Set Data	0000	0001	0002	0003	0004	0005
ΔAS-H (°F)	0.0	0.9	1.8	2.7	3.6	4.5

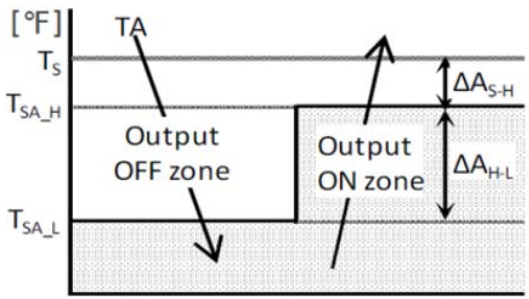
Set Data	0006	0007	0008	0009	0010
ΔAS-H (°F)	5.4	6.3	7.2	8.1	9.0

TA : Temperature of room sensor

Ts : Temperature set point on Remote controller

TSA_H : Temperature set air high (= TS-ΔAS-H)

TSA_L : Temperature set air low (= TSA_H-ΔAH-L)



Control Outline (TA)

START UP

Carrier Toshiba VRF Quick Start Up Guide

15. Dyna-doctor users verify all equipment can be seen and start recording data.
16. Cycle the system in both heating and cooling as outdoor temperature permits. If Heat Recovery, observe/record different mixes of indoor units in “heat” and “cool”. Dyna-doctor users should record a minimum of 2 hrs. for each system, 4 hrs. recommend.

    If system has a centralized controller Touchscreen, BACnet or other proceed to next page.

Centralized Control Start Up

Carrier Toshiba VRF Centralized Control Quick Start Up Guide

1. Once the VRF system has been fully commissioned and there are no active errors displayed. Power down all outdoor units.
2. Set Refrigerant Line Address on each Header outdoor unit(s), 1-28 can be used, 1 is default, do not duplicate. See page 32 of this guide for SW13 & SW14 DIP switch settings.
3. Connect central control Molex connector on Header outdoor unit(s), if not connect now.
4. Connect control wire from TCS-net Relay, BACnet, Touchscreen or other device to U3 & U4 to Header outdoor unit centralized control daisy chain.
5. If there are no local controllers connected to the IDU's, see next page for Carrier Toshiba Commissioning Note. 1 and the additional steps needed for commissioning.
6. Power Up all centralized control devices.
7. Power Up all outdoor units. Not necessary to power cycle indoor units or flow selector boxes.
8. Program the TCS-net Relay, BACnet, Touchscreen or other device as required for the application. See Installation Manuals or contact CE Tech Support for assistance.
9. If Touchscreen is installed, we recommend you backup final version of programming.

Carrier Toshiba Commissioning Note. 1

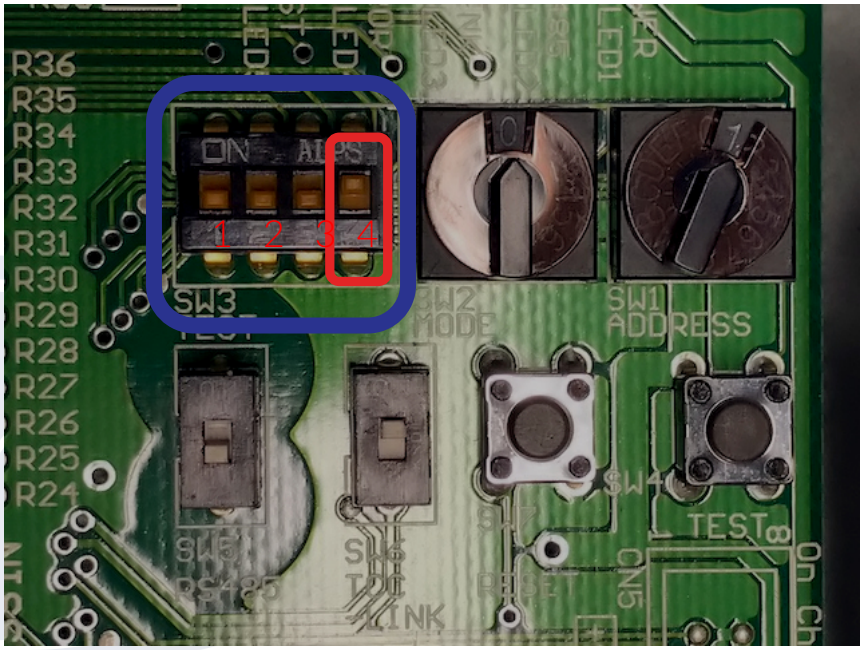
Carrier Toshiba VRF with no local control application/commissioning

This commissioning step applies to Carrier Toshiba VRF installed with no local remote controllers. System is only controlled by a TCS-net relay with either a Touchscreen or BACnet device.

During commissioning of the TCS-net relay you must set the SW3-4 DIP switch to ON and then recycle power to TCS-net relay. Start all other equipment and controls as per it's manual.

NOTE: This additional step is not in any published manual as yet.

TCS-net Relay

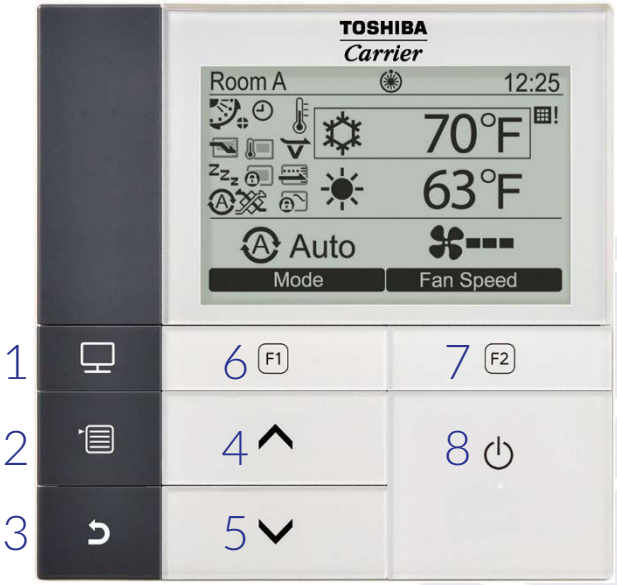


Zoomed in section of the TCS-net relay's PCB

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

RBC-AMS54E-UL – Remote Controller



1 – MONITOR: Displays the monitoring screen.
2 – MENU: Displays the menu screen.
3 – CANCEL: Functions as indicated on the display, such as returning to the previous menu screen.
4 – UP: During normal operation, adjusts the temperature. On the menu screen, selects menu item.
5 – DOWN: During normal operation, adjusts the temperature. On the menu screen, selects menu item.
6 – F1: Varies its function according to the setting screen.
7 – F2: Varies its function according to the setting screen.
8 – ON/OFF: Turns system ON or OFF.

More display icons are explained on page 43 of this document.

Basic Operation:

1. Turn ON the remote control by pressing the ON/OFF button.
2. Select the MODE be pressing the MODE (F1) button.
   - AUTO, HEAT, DRY, COOL, FAN are selectable modes of operation.
3. Select FAN speed by pressing Fan Speed (F2).
   - AUTO, HIGH, MED+, MED, LOW+, LOW are selectable fan speeds.
4. Once AUTO, COOL, DRY or HEAT mode is selected, set desired temperature using the UP/DOWN arrow button. In AUTO mode set both the HEAT & COOL set points, see next page for additional information.

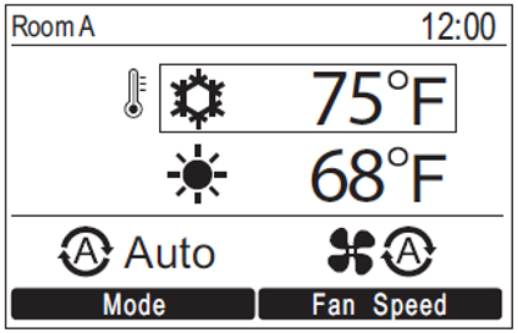
More detailed information on these items and more can be found in the Installation and Operation Manual that came with the remote controller.

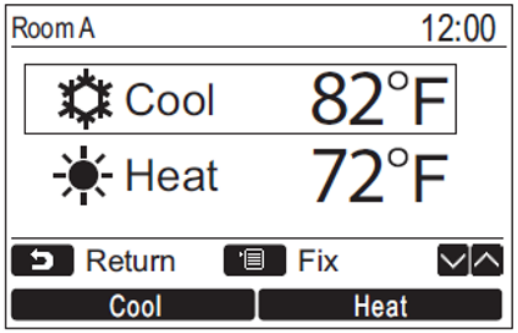
Remote Controller Set Up

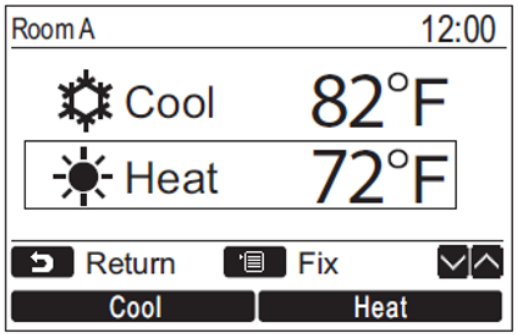
Carrier Toshiba VRF Remote Controller Set Up Guide

Auto Mode & Dual Set Points:

In dual set point setting, the temperature set point of individual cooling and heating can be set to adjust the indoor temperature.







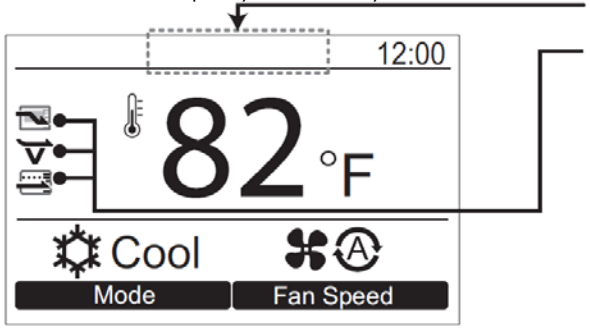
1. Push the UP or DOWN button to switch to the display shown on the left.
2. To set the cooling temperature set point, push [Cool] and adjust the setting with UP/DOWN buttons. A box will surround [Cool] and Temperature set point]. To set the heating temperature set point, push [Heat] and adjust the setting with UP/DOWN buttons. A box will surround [Heat] and [Temperature set point].
   Push [MENU] to confirm the settings and return to the normal display. Push [CANCEL] to cancel the settings and return to the normal display.

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

Display Modes:
To switch between displays: Push and hold the [CANCEL] button and the [Monitor] button at the same time for more than 4 seconds.

1. Normal Display (factory default)

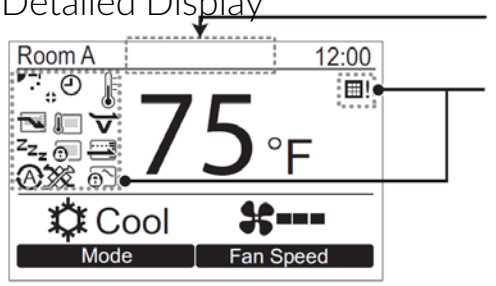


Energy saving icon
- Displayed when performing the power saving operation of the air conditioner.

Soft cooling icon
- Shows the air conditioner is performing the soft cooling operation.

Saving icon
- Displayed when performing operation by suppressing excessive heating or excessive cooling through automatic correction of the temperature set point.

1. Detailed Display



Icons appear on the screen when the detailed display mode is selected.

*1 • The "Preparing to heat" icon appears when the heating operation starts or when defrosting operation.
The indoor fan stops or the operation becomes the blowing operation when it is displayed.
• It may be displayed depending on the model when "Preparing to operate" is displayed.

▼ Icon list

	Shows the Energy saving operation is activated.		Shows a timer function is activated.		Shows the Night operation is activated.
	Shows the remote control sensor is activated.		Shows the Louver lock is activated.		Shows the central control device prohibits the use of the remote control
	Shows the saving operation is activated.		Shows soft cooling is activated.		Shows the setting of the louver.
			Shows operation switching control is in progress.		Shows the filter needs to be cleaned.

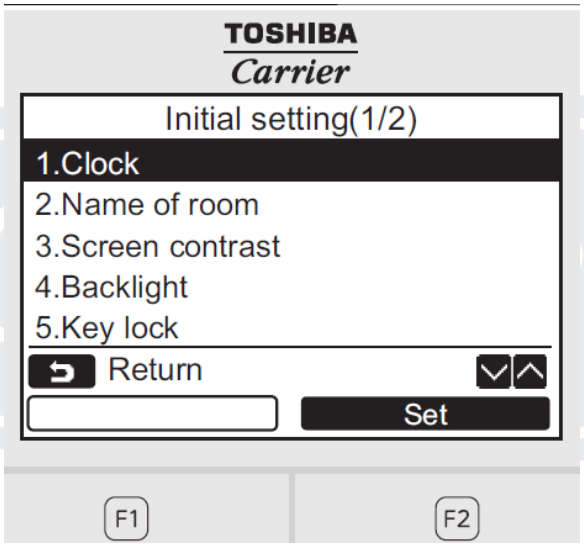
*2 Normally the temperature sensor of the indoor unit senses the temperature. The temperature around the remote control can also be sensed. For details, contact the dealer where you purchased the air conditioner. * Do not use the function when the air conditioner is controlled in a group.

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

Initial Settings:

1. Press the [MENU] button. Once the Menu is displayed press the UP/DOWN buttons to highlight Initial Setting and then press [Set F2] button to select.



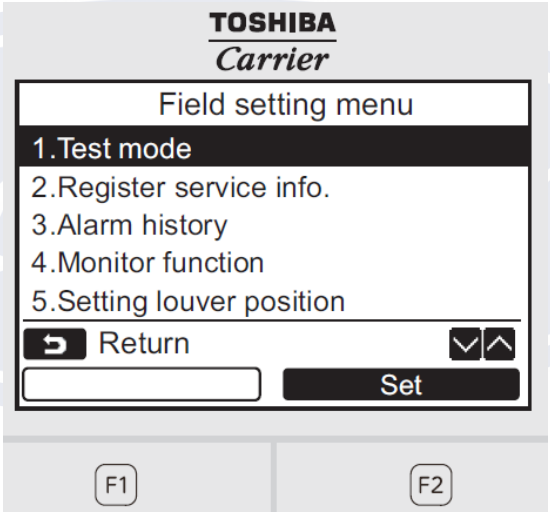
Item	Function
1. Clock	Settings for the clock (Year, Month, Day, time)
2. Name of room	Refer to the Owner's Manual supplied with the remote control.
3. Screen contrast	Contrast adjustment of the LCD
4. Back light	Turning on / off the back light of the LCD
5. Key lock	Prohibiting the button operations
6. Header / Follower	Refer to the Owner's Manual supplied with the remote control.
7. Language	Setting for the language displayed on the remote control.
8. Press & hold 4sec.	Setting for the "press and hold" operation for the [ON / OFF] key.

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

Field Settings:

1. Press the [MENU] button to display the menu screen.
2. Push and hold the [MENU] button and the [DOWN] button at the same time to display the "Field setting menu". Push and hold the buttons for more than 4 seconds.
3. Push the [CANCEL] button to return.
4. Press the UP/DOWN buttons to highlight and then press [Set F2] button to select field setting to adjust.
   - Commonly used:
     - 5. Setting louver position
     - 7. DN setting



Item	Function
1. Test mode	Settings for when performing the test operation after installation
2. Register service info	Registration of information about the contact number for service, model name and serial number of the indoor unit and outdoor unit
3. Alarm history	List of latest 10 alarm data: information of check code, date, time, and unit
4. Monitor function	Monitoring data of sensor temperature, rotating speed of the compressor or other factor.
5. Setting louver position	Change the louver indication setting to match the indoor unit type.
6. Setting timer operation mode	Set whether or not the operation mode can be selected when setting the schedule timer.
7. DN setting	Advanced settings using DN code

For full list of DN codes, see page 46 ~ 48.

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

DN Codes:

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	According to type
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: Unfixed
06	Heating temp shift	0000: No shift 0001: +1˚C(+1.8˚F) 0002: +2˚C(+3.6˚F) to 0010: +10˚C(+18˚F) (Up to +6 recommended)	0002: +2˚C(+3.6˚F) (Floor type 0000: 0˚C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Air Discharge Cassette	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity type
12	Line address	0001: No.1 unit to 0030: No.30 unit	0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0064: No.64 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group	0099: Unfixed
19	Louver type (Air direction adjustment)	0000: No louver 0001: Swing only 0002: (1-way Air Discharge Cassette type, Under Ceiling type) 0003: (2-way Air Discharge Cassette type) 0004: (4-way Air Discharge Cassette type)	According to type
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (CN70)	0000: Filter input 0001: Alarm input (Air washer, etc.) 0002: None	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Leaving-ON prevention control 0002: Fire alarm input	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: ˚C 0001: ˚F : (at factory shipment)	0001: ˚F
F0	Swing mode	0001: Standard 0002: Dual swing 0003: Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

DN Codes (cont.):

Slim, High Static Duct type

DN	Item	Description	Atshipment
5d	Static pressure selection	Slim Ducted 0001: Standard 1 (factory defoult) 0003: High static pressure 2 0006: High static pressure 3	0001: Standard
60	Timer setting (wired remote controller)	0000: Available (can be performed) 0001: Unavailable (cannot be performed)	0000: Available
92	Outside interlock release condition	0000: Operation stop 0001: Release com munica tion signal receive	0000: Operation stop

Type
DN code "10"

Value	Type	Model
0005	Slim Ducted	MMD-AP★★★SPH2UL
0006	High static Ducted	MMD-AP★★★H2UL

*1 Default value stored in EEPROM mounted on service P.C. board

Medium Static Ducted type

DN	Item	Description	Atshipment
5d	SET DATA: 0000 / External static pressure: 0.008psi (55Pa) / Standard (Factory default) / DIP Switch position: SW01 OFF OFF, SW02 OFF OFF		
	SET DATA: 0001 / External static pressure: 0.013psi (90Pa) / High static pressure 1 / DIP Switch position: SW01 OFF ON, SW02 OFF OFF		
	SET DATA: 0003 / External static pressure: 0.017psi (120Pa) / High static pressure 3 / DIP Switch position: SW01 OFF OFF, SW02 OFF ON		
	SET DATA: 0006 / External static pressure: 0.006psi (40Pa) / Low static pressure / DIP Switch position: SW01 OFF ON, SW02 OFF ON		
60	Timer setting (wired remote controller)	0000: Available (can be performed) 0001: Unavailable (cannot be performed)	0000: Available
92	Outside interlock release condition	0000: Operation stop 0001: Release com munica tion signal receive	0000: Operation stop

Type
DN code "10"

Value	Type	Model
0004	Medium static ducted type	MMD-AP★★★BH2UL

*1 Default value stored in EEPROM mounted on service P.C. board

DN	Item	Description	Factory default
77	Dual set point setting	0000: Normal automatic 0002: Dual automatic	0000

2E	External On / Off control	Making or breaking terminals 1 and 2 of CN61 (indoor PCB) External switching option, remove jumper 01 master indoor PCB allows continuous contact switch- link 01 in place; pulse switch required	0000 = group starts when made stops when open 0001 = enable when made, disable when open	0000

Remote Controller Set Up

Carrier Toshiba VRF Remote Controller Set Up Guide

DN Codes (cont.):

4-way, Compact 4-way, Ceiling, High wall type

DN	Item	Description	Atshipment
5d	High-ceiling adjustment (Air flow selection)	4-way Cassette	0000: Standard
60	Timer setting (wired remote controller)	0000: Available (can be performed) 0001: Unavailable (cannot be performed)	0000: Available

4-way Cassette

Value	Type	AP018			AP021, AP024, AP030			AP036, AP042		
	Air flow at outlet	4-Way	3-Way	2-Way	4-Way	3-Way	2-Way	4-Way	3-Way	2-Way
0000	Standard (factory default)	9'2" (2.8)	10'6" (3.2)	11'6" (3.5)	9'10" (3.0)	10'10" (3.3)	11'10" (3.6)	12'10" (3.9)	13'9" (4.2)	14'9" (4.5)
0001	High-ceiling (1)	10'6" (3.2)	11'6" (3.5)	12'6" (3.8)	10'10" (3.3)	11'6" (3.5)	12'6" (3.8)	13'9" (4.2)	14'5" (4.4)	15'1" (4.6)
0003	High-ceiling (3)	11'6" (3.5)	12'6" (3.8)	—	11'10" (3.6)	12'6" (3.8)	—	14'9" (4.5)	15'1" (4.6)	—

Ceiling

Value	Type	AP015~AP056
0000	Standard (factory default)	11.5 ft (3.5 m) or less
0001	High-ceiling (1)	13 ft (4.0 m) or less

Type
DN code "10"

Value	Type	Model
0001*1	4-way Cassette	MMU-AP***H2UL
0007	Ceiling	MMC-AP***H2UL
0008	High Wall	MMK-AP***H2UL
0014	Compact 4-way Cassette	MMU-AP***MH2UL

*1 Default value stored in EEPROM mounted on service P.C. board

Indoor Unit Capacity
DN code "11"

Value	Capacity
0000*	Invalid
0001	007 type
0003	009 type
0005	012 type
0007	015 type
0009	018 type
0010	021 type
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0016	042 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type
~	—

*1 Default value stored in EEPROM mounted on service P.C. board

Carrier