**DAIKIN VRV**

*Product & Technology Introduction Review*

**RESIDENTIAL | LIGHT COMMERCIAL | COMMERCIAL**

Training Department  
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**Daikin VRV Concept**

**What is VRV®?**

Variable - *System capacity varies with load*

Refrigerant - *R-410A Direct Expansion System*

Volume - *Refrigerant flow regulated by EEV’s and a variable speed compressor*

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**VRV - Daikin** Registered trademark  
Introduced in 1982 – Worlds first VRF system  
Over 1 million installations worldwide  
Over 25,000 systems in the US and Canada  
Multiple Indoor units connected to one condenser system  
Air Cooled and Water Cooled systems  
Ultra high comfort control and efficiency
Daikin VRV incorporates multiple technologies to provide ultra high energy savings, comfort control and reliability.

- Multiple indoor fan coils connected to a single refrigerant network
- Inverter control system to modulate system capacity as loads change
- Heat Pump & Heat Recovery systems

**Daikin VRV concept**

Multiple Fan Coil Control + Inverter = *Daikin VRV*

**DAIKIN VRV Product & Technology Introduction**

**VRV System Models**
*VRVIII-S®  VRVIII®  VRV-WIII®*

Condensers & Indoor Units
**VRV Systems**

208/230 vac Single Phase Heat Pump
3 Ton & 4 Ton Models
Up to 14.9 SEER / HSPF 9.1

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**VRV Nomenclature**

**VRVIII-S**
Heat Pump

- RXY: Heat Pump
- M: Status
- Q: Refrigerant type
- 36/48: Voltage
- P: Trunk shape
- TJ: Cooling capacity
- U: Refrigerant type

- UL listed for US market
- Voltage: 208 - 230V 1ph 60Hz
- Revision
- Cooling Capacity
- Refrigerant R410A
- Trunk-shaped VRV system
- RXY: Heat Pump
**VRV Systems**

**VRVIII-S Heat Pump**

RXYMQ36&48P

- 208/230v 1Ph - 30 amp power to Outdoor Unit
- Outdoor unit Models: 36,000 & 48,000 Btu/h
- Single Inverter scroll compressor
- Indoor unit capacities 7,000 to 48,000 Btu/h
- Single 2-Pipe refrigerant circuit
- Connection of up to 6 or 8 indoor units
- Connection ratio of 50% to 130% possible
- 1000’ - Maximum refrigerant piping length
- Operating Range – Cool: 23° to 115°F  Heat: 0 ° to 77 °F

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**VRV Systems**

208/230 & 460v 3 Phase

Heat Pump & Heat Recovery Models

6 to 30 Ton Systems
**VRV Nomenclature**

**VRVIII Heat Pump**

- **RXY**
- **Q #**
- **PB**
- **TJ or YD**

460vac 3ph 60Hz
208/230vac 3ph 60Hz
Revision
Cooling Capacity
Refrigerant R410A
Air Cooled Heat Pump

Heat Pump condensers are manufactured to be single piped or manifolded (Excl. RXYQ144PBTJ)

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**VRV Nomenclature**

**VRVIII Heat Recovery Single Piped**

- **REY**
- **Q #**
- **PB**
- **TJ or YD**

460vac 3ph 60Hz
208/230vac 3ph 60Hz
Revision
Cooling Capacity
Refrigerant R410A
Air Cooled Heat Recovery

REYQ Heat Recovery condensers are manufactured to be single piped only: 6, 8, 10 & 12 ton (Excl. REYQ144PBYD)
**VRV Nomenclature**

**VRVIII** Heat Recovery Manifolded Module

REM Q ## PB TJ or YD

- 460 vac 3ph 60Hz
- 208/230 vac 3ph 60Hz
- Revision
- Cooling Capacity
- Refrigerant R410A
- Air Cooled Heat Recovery Manifolded Module

REMQ Heat Recovery condensers are manufactured to be manifolded only: 6, 8, 10 & 12 ton (Excl. REYQ144PBTJ)

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**VRV Systems**

**VRV III** RXYQ & REY(M)Q

- 208/230 vac 3ph and 460 vac 3ph models
- Heat Pump and Heat Recovery models
- Dual scroll compressors – 1 Inverter and 1 Standard
- Excl. 6 ton HP & HR units & 12 ton 208/230 vac. units
- System capacities: HP 6 – 30 Ton / HR 6 – 28 Ton
- Connection of up to 62 indoor units
- Connection ratio of 50% to 200% possible
- 3,280’ - Maximum refrigerant piping length
- Operating Range: Cool: 23° to 115°F  Heat: 0° to 77°F
**VRV Systems**

208/230 vac. 3 Phase
460 vac. 3 Phase
Heat Pump / Heat Recovery
6 to 21 Ton Systems

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**VRV Nomenclature**

**VRV-WIII**

- RWEY
- Q 72/84
- P TJ YD U or N

- 460vac 3ph 60Hz
- 208/230vac 3ph 60Hz
- Revision
- Cooling Capacity
- Refrigerant - R410A
- Water-cooled type

Same unit model is used for Heat Pump - Heat Recovery & Geothermal operation.
VRV Systems

**VRV-WIII**
Water Cooled RWEYQ_P

- 208/230vac & 460vac 3 phase models
- 6 & 7 ton single condenser models
- Heat Pump / Heat Recovery operation
- Geothermal
- Single inverter scroll compressor
- System capacities: 6 to 21 ton
- Standard EWT: 60°F to 113°F
- Geothermal EWT: 14°F (heat)
- Max. refrigerant piping length: 980 ft.
- Connection of up to 12 – 32 fan coils
- Standard connection ratio: 50% to 130%

Field Configured Geothermal Operation

VRV Systems

**Indoor Units**

- 12 Types
- 55 Models

- 3'X3' Ceiling Cassette
- 2'X2' Ceiling Cassette
- Wallmount
- 6 & 8 Ton Med Static Ducted
- Med Static DC Ducted
- Low Static Slim Duct Concealed
- 100% Outside Air Processing Unit
- Energy Recovery Ventilator
- Unitary Ducted
- Exposed & Concealed Floor Standing
- Ceiling Suspended

All 208/230vac 1 Phase powered
Remote Sensor  KRCS01-1B (4B)

**VRV** Fan Coil Units incorporate a built-in return air thermistor temperature sensor as standard (excl. FXTQ)

- KRCS01-1B (4B) Remote Sensor is offered to replace the return air thermistor when:
  - Outside fresh air is brought in to the fan coil return air
  - Ceiling height of fan coil return is 13ft or more
  - Above ceiling plenum return is used
- Standard 39ft cable - Plenum Rated 40ft and 80ft cable optional

**NOTE:** KRCS01-4B Remote Sensor Kit for FXMQ_P, FXFQ_P and FXTQ Fan Coil Units

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**DAIKIN VRV  Product & Technology Introduction**

**VRV System Types**

*Heat Pump / Heat Recovery*
VRV Heat Pump Systems

All indoor fan coil units operate in the same mode, Heat or Cool.

2 - Pipe Refrigerant Circuit
HP/LP Gas
Liquid

2 - Pipe Refrigerant Circuit
HP/LP Gas
Liquid

One Remote Controller is configured as the system Master

VRV Heat Pump Systems

RefNet Components

Daikin has designed RefNet Y Branch and Headers to be used for branching off from the main refrigerant lines.

Split the refrigerant circuit.
Branch off to the indoor fan coils.
RefNets are engineered to control turbulence and maintain flow through the refrigerant system.
RefNets are provided in 4 capacity kits:
Heat Pump Kit
Liq. & HP/LP Gas

RefNets MUST be installed in specific positions:
Y Branch:
Level / UP / DOWN
Header – Level Only

RefNet “Y” Branch – Gas
RefNet “Y” Branch Liquid

RefNet Header 4-port
RefNet Header 8-port

Gas
Liquid
**VRV Heat Pump Systems**

**Daikin DIII-Net Architecture**

The DIII-Net communications is proprietary to Daikin VRV systems
Simple 2 conductor wire, non polarity sensitive, 16vdc communications circuit
16/18 awg. 2-conductor stranded, non-shielded
Daisy chain wiring to all system components
Maximum system control wire length: 6,600 ft.

**Control Circuit Terminal Designations**

**Fan Coil Control Terminal Circuits**
- **P1 P2** – Fan Coil to Remote Controller
  Remote Controller power supply and data transfer
- **F1 F2** – Communications from condenser to all Fan Coils
- **T1 T2** – Forced Off (Default N.O.) External Contacts

**Condenser Control Terminal Circuits**
- **F1 F2 In** – Condenser to Fan Coils
- **F1 F2 Out** – Multi-Zone Control
  - iTouch
  - iTouch Manager
  - Gateway – LON Works or BACnet
- **Q1 Q2** (VRVIII & VRV-II) – Manifolded Modules
**VRV Heat Pump Systems**

**Operation Mode Changeover**

Heat Pump controlled fan coils all operate in the same mode and require one Remote Controller to be configured as the Master. The Master remote controller determines the system mode of operation (Cool, Dry, Heat, Fan) based on the Heat and Cool setpoints or user selected mode. The Master RC determines the mode that the slaves can operate under:

- **Master in Cool or Dry**: Slaves: Cool, Dry and Fan are available
- **Master in Heat mode**: Slaves: Heat and Fan are available
- **Master in Fan mode**: Slaves: Fan is Available

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**VRV Heat Recovery Systems**

Indoor fan coil units operate in simultaneous Heat and Cool modes

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VRV Heat Recovery Systems

Branch Selector Box

- Provides Heating/Cooling changeover to the connected fan coil or fan coils
- EEV refrigerant control
- Brazed refrigerant connections
- 208/230vac 1 ph. powered

Single Port Model Numbers:
- BSVQ36PVJU 36,000 Btu - Up to 5 FC’s
- BSVQ60PVKU 60,000 Btu - Up to 8 FC’s
- BSVQ96PVJU 96,000 Btu - Up to 8 FC’s

Operation Mode Changeover

When two or more Fan Coils with dedicated Remote Controllers are connected to one BS-Box, one of the Remote Controllers must be configured as the Master.

- Master determines the BS-Box operation mode
- The Slave indoor units follow the Master’s operation mode
VRV Heat Recovery Systems

Branch Selector Control Circuits

Transmission wiring

BS-Box

BS-Box

BS-Box

BS-Box

BSVQ_P

Same 2 conductor control wire used to connect all Branch Selectors to Condenser

F1 F2 In daisy chain wired from Condenser terminal block to F1 F2 Out on Branch Selectors

F1 F2 In from Branch Selector to F1 F2 on connected fan coil(s)

DAIKIN VRV Product & Technology Introduction

VRV Refrigerant Piping Lengths
**RefNet Piping Length Requirements**

The Standard maximum distance from the first *RefNet* to the farthest fan coil is 130ft.

Exception: *VRV III* can be extended to 295ft from the first *RefNet* to the farthest fan coil: rules apply.

All Branch runs must be 130ft or less from a *RefNet* "Y" or *RefNet* Header, to the fan coil.

No requirement for Branch Selector Box.
Compressor Capacity Control

Control System
- Sets Target low & high pressure values at the Condenser
- Sets the Target evap. & cond. Temps in the indoor Fan Coils
- Local Remote Controllers initiate a system Thermo-ON with a 1° deviation from set point
- Local Remote Controllers initiate a system Thermo-OFF when all set points are reached

Condenser Control
- COOL Operation: Detects the system operating suction pressure at the condenser once every 20 seconds & Target Evap temp
- HEAT Operation: Detects the system operating high pressure at the condenser once every 20 seconds & Target Cond temp

Inverter Control
- Adjusts compressor speed (capacity) up or down to correct deviation from the target pressure values (system load)

37 Applied Capacity Steps
- 52~210Hz
- Applied frequency

Electronic Expansion Valve Control

VRV fan coils have 3 thermistor sensors (excl. FXTQ & FXMQ_MF)
- The sensor signals are used to regulate refrigerant volume through the fan coil using Proportional, Integral & Derivative (PID) control
- to correct deviation from target temperature values by adjusting the Electronic Expansion Valve in pulses to modulate open and close

SENSOR LEGEND
- R1T: Return Air
- R2T: Saturated Liquid Pipe
- R3T: Gas Pipe
- TH1: Remote Controller Sensor
- TSET: Remote Controller Set Point
**Basic Fan Coil Control**

**Blower cycling**
- Constant Fan – User selectable speeds: L – H – (HH)
- COOL mode – User selectable (Thermo-ON & Thermo-OFF)
- HEAT mode – Thermo-ON - User selectable / Thermo OFF – LL
- Fan Auto Setting (*P* series fan coils only)
  - Blower cycling may be reprogrammed in the field

**Electronic Expansion Valve**
- Modulates from 0 to 2000 pulses (PID control)
  - COOL mode
    - Thermo-ON - Modulates to maintain target superheat temperatures
    - Thermo-OFF – Closes (0 pulse)
  - HEAT mode
    - Thermo-ON - Modulates to maintain target subcooled temperatures
    - Thermo-OFF – Minimum Open (200 pulses approx)

**Condensate Lift Pump** *(FXMQ, FXZQ, FXDQ, FXMQ_P)*
- COOL Thermo-ON – Constant operation
- COOL Thermo-OFF: 5 minute residual operation then OFF

**Control PCB (A1P)**
- Field Settings programmed from RC reside in permanent memory
- Contains unit control address and Group Address

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**VRV Basic System Control**

**VRVIII-S Heat Pump**

RXYM36/48PVJU Single Phase

- 70 watt tandem modulating DC Fan Motors
- Low Pressure Loss Bellmouth with Aero Spiral Fans

**Smooth Sine Wave Inverter**

**Digital Microprocessor**
- Simple system commissioning at control PCB

**Standard VRV Control Operations**
- Auto Addressing
- Check Operation Mode
- Pump Down Residual
- Time/Temp Defrost
- Restart Standby
- Crankcase Heater Control

**Single Reluctance Digitally Commutated Daikin S2 Scroll Compressor**
**VRV Basic System Control**

### VRVIII Heat Pump & Heat Recovery Models

**RXYQ REYQ/REMQ**

- Outdoor DC Fan(s)
  - Single or Dual modulating DC fan motors
  - Low Pressure Loss Bellmouth with Aero Spiral Fans
  - Field Adjustable Fan ESP

- Advanced VRV Control system
  - Condenser Control PCB

**Standard VRV Control Operations PLUS:**
- Auto Charge – Uninterrupted Heat in Defrost (HR)
- Manifolded Condenser Rotation Start
- Emergency Operation

- Daikin G2 high efficiency scroll compressors
  - 1-INV & 1 STD compressor

**NOTE:** 6 Ton Heat Pump Condenser has one Inverter scroll compressor only

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**VRV Basic System Control**

### VRV-WIII Water Cooled

- Single *Daikin* G2 Scroll Compressor

- Smooth Sine Wave Inverter

- Condenser Control PCB
  - All standard VRV Control operations
    - Water Heat Exchanger - Oil Return
    - No Defrost operation needed

**NOTE:** Automatic Charge is not available for this product
DAIKIN VRV Product & Technology Introduction

VRV Multi-Zone Control Systems

VRV Multi-Zone Controls

Multi-Zone Control Systems

- Centralized Controller
- Unified On/Off
- Schedule Timer
Digital Input and Input/Output units

Equipment is controlled like an indoor unit
- On / Off based monitoring / controlling
- One DIII-Net address is assigned to each set for third party equipment
- Power Supply: 24Vac 40va (field supplied)

**DIII-Net bus**

- **Di Unit**
  - 8 sets of
    - 8-Status input
    - 8-Alarm input
  - • On/Off Status from any equipment
  - DEC101A51-US2

- **Dio Unit**
  - 4 sets of
    - 4-Output
    - 4-Status input
    - 4-Alarm input
  - • Fan
  - • Damper
  - • Light
  - • AHU etc
  - DEC102A51-US2

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Mini-Split Interface Adapter KRP928B

Simple installation to interface Mini-split 4-wire communications to the VRV D-III Net 2-wire F1 F2 communications

**Mini-Split Interface Adapter KRP928B**

- F1 F2 Circuit
  - L1 L2 Line & 12-45 vdc
  - KRP928B
VRV Basic System Installation Agenda

VRV – Basic Refrigerant Piping
  Piping Layout
  Refrigerant Components
  Basic piping length requirements
  Xpress Piping Report

VRV – Basic Piping Installation
  Piping Installation Recommendations
  VRVIII Manifolded systems
  Pressure Equalization piping

VRV – Indoor Units
  Fan Coil Installation
  Branch Selector Box Installation

VRV – Controls and Control Wiring
  Local Remote Controls
  Control Circuits
  Xpress Wiring Report

VRV – Condenser Basic Installation
VRV Basic Refrigerant Piping
Specifications & Installation

VRV Heat Pump Refrigerant Piping

The Daikin RefNets are required to branch off refrigerant for the Liquid and Gas line, to each Fan Coil unit, and when splitting off the refrigerant circuit.

Heat Pump operation:
All indoor fan coils operate in the same mode
One system provides simultaneous cooling and heating

**RefNet Components**

- **RefNet “Y” Branch – Gas & Liquid Kit**
- **RefNet Header – Gas & Liquid Kit**
  - 4-Port & 8-Port
VRV RefNet “Y” Joint Installation

- RefNet Y Joints to be installed: straight up - straight down – level (+/- 15°)
- Each RefNet included in the branch kit is labeled to identify circuit:
  Liquid – Gas – Suction (HR)

VRV RefNet Header Installation

- RefNet Headers must be installed in a level position only
- Properly support headers to insure solid installation
- Refrigerant circuit is terminated at header (Deadhead)
- Unused branch ports are to be brazed closed
- Each RefNet included in the branch kit is labeled to identify circuit: Liquid – Gas – Suction
RefNet “Y” - Position vs. Flow Demonstration

Refrigerant flow demonstration
**RefNet Branch Kits**

- The Daikin RefNets are provided as “Branch Kits” for Heat Pump and Heat Recovery systems.
- Heat Pump – KHRP26 Kit includes 2 RefNets (Liquid & Dual Pressure Gas).
- Heat Recovery – KHRP25 Kit includes 3 RefNets (Liquid, Suction & Dual Pressure Gas).
- Each RefNet included in the Branch Kits is individually labeled for proper identification.

<table>
<thead>
<tr>
<th>RefNet “Y” Joint</th>
<th>Heat Recovery (3-Pipe)</th>
<th>RefNet Header</th>
<th>Heat Recovery (3-Pipe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KHRP26A22T</td>
<td>KHRP25A22T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KHRP26A33T</td>
<td>KHRP25A33T(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KHRP26M72TU(9)</td>
<td>KHRP25M72TU(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KHRP26M73TU(9)</td>
<td>KHRP25M73TU(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KHRP26M73HU(9)</td>
<td>KHRP25M73HU(9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RefNet Branch Kits are determined by the Outdoor Unit capacity and connected fan coil capacities in the refrigerant circuit.

**Basic RefNet Application**

- RefNets required for each refrigerant line – Liquid & Gas.
- No RefNet Y after a header unless HR with multiple FC’s on one BS Box.

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[Diagram showing VRV OD Unit, RefNet “Y” Joint, and RefNet Header with TOP VIEW.]
Excessive equivalent length
Unnecessary Trap
The maximum length from the 1st RefNet to the farthest Fan Coil D, is 130ft.

The length from an Indoor unit to the nearest RefNet can be no more than 130ft

A, B, & C, must also be ≤130ft

Maximum piping length from first REFNET to the furthest Indoor Coil

295 ft

a & b

**Application rules apply**
Piping Length

The Longest (a+b) can be a maximum of 295ft

Only if Shortest (c+f) = 165ft or more

LRV III only

(Longest – Shortest) is ≤130ft
Otherwise 130ft max

Main Piping Size

If the outdoor unit to the furthest indoor unit has an equivalent length of ≥295 ft the main line (M) must be upsized

Heat Pump – Liquid & Gas Pipes

Heat Recovery – Liquid Pipe only

<table>
<thead>
<tr>
<th>Model</th>
<th>Std</th>
<th>One Size Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>RXYQ72</td>
<td>φ3/4</td>
<td>φ7/8</td>
</tr>
<tr>
<td>RXYQ96</td>
<td>φ3/4</td>
<td>Φ5/8</td>
</tr>
<tr>
<td>RXYQ120</td>
<td>φ1 1/8</td>
<td>φ5/8</td>
</tr>
<tr>
<td>RXYQ144</td>
<td>φ1 1/8</td>
<td>Φ5/8</td>
</tr>
<tr>
<td>RXYQ168</td>
<td>φ1 3/8</td>
<td>φ5/8</td>
</tr>
<tr>
<td>RXYQ192</td>
<td>φ1 3/8</td>
<td>Φ5/8</td>
</tr>
<tr>
<td>RXYQ216</td>
<td>φ1 3/8</td>
<td>φ7/8</td>
</tr>
<tr>
<td>RXYQ240</td>
<td>φ1 3/8</td>
<td>Φ7/8</td>
</tr>
</tbody>
</table>
Long Piping Lengths

If from the first REFNET to an indoor unit exceeds 130ft, all pipes between the first REFNET and the REFNET serving the indoor unit over 130ft must be upsized (a).

If the upsized pipe size is larger than the main pipes (M), the main must also be upsized.

To calculate total piping the actual length of the upsized piping must be doubled excluding main line (M).

<table>
<thead>
<tr>
<th>Piping Size (O.D)</th>
<th>One Size Up ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø 3/8</td>
<td>1/2</td>
</tr>
<tr>
<td>ø 1/2</td>
<td>5/8</td>
</tr>
<tr>
<td>ø 5/8</td>
<td>3/4</td>
</tr>
<tr>
<td>ø 3/4</td>
<td>7/8</td>
</tr>
<tr>
<td>ø 7/8</td>
<td>N/A</td>
</tr>
<tr>
<td>ø 1-1/8</td>
<td>N/A</td>
</tr>
<tr>
<td>ø 1-3/8</td>
<td>N/A</td>
</tr>
<tr>
<td>ø 1-5/8</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Piping Length

e = 120ft, this is within the ≤130ft limit from an indoor unit to the nearest REFNET (f, g, h, i & j must also follow this rule).

A + B + C + D + i (longest length) = 200ft, the difference between the longest and shortest (e) is 80ft, this is within the limitations (longest – shortest ≤ 130ft).

A + B + C + D + i = 160ft, from the first REFNET to indoor (i) is over 130ft so the liquid and gas pipes must be upsized between REFNETS (A+B+C+D only) (HP/LP pipe is also upsized on a Heat Recovery System).

When calculating total actual pipe length in the example below M + 2A + 2B + 2C + 2D + e + f + g + h + i + j ≤ 3,280 ft.
VRV Xpress Piping Report

Xpress refrigerant piping report
- Lays out all of the refrigerant piping including all system component model numbers and ID designations
  - Outdoor Unit (condenser)
  - Indoor Units
  - RefNets ("Y" and Header)
  - Branch selector boxes
- Indicates refrigerant piping line lengths
- Automatically sizes piping based on components and lengths

Xpress piping report must be updated to insure system accuracy
VRV Xpress  Piping Report

VRV  Piping Installation
**VRV III Piping Accessories**

**Supplied Copper Fitting accessories for the Outdoor Unit**

1. Liquid side accessory pipe (1)
2. Low side equalizer accessory pipe (1)
3. Gas side accessory pipe (1)
4. High side equalizer accessory pipe (1)
5. L-type accessory joint (1)
6. L-type accessory joint (2)
7. Liquid side accessory pipe (2)
8. Low side equalizer accessory pipe (2)
9. Gas side accessory pipe (1)
10. High side equalizer accessory nine (2)

**VRV Refrigerant Piping**

The Liquid and Gas piping must be completely insulated

Recommended wall thickness – 3/4”

All flare connections must be insulated

**Fan Coil Installation Kit**
VRV Refrigerant Piping

VRV Refrigerant piping installation procedures

- Keep refrigerant piping clean and sealed during installation
- Use Nitrogen purge during brazing process
- Eliminate debris contamination in refrigerant piping
- Installation period less than 30 days – pinch/braze or tape ends
- Installation period more than 30 days – pinch/braze ends
- Refrigerant piping must be properly insulated
  - Recommended ¾” wall insulation
  - Liquid and Gas pipes must be individually insulated
  - All Flare nut connections must be insulated
- Refrigerant piping must be properly supported
  - Follow local code requirements for piping support locations
  - Support piping within 12” of BS Box and Fan Coil unit
- Keep track of each refrigerant circuit during installation
  - Measure liquid lines as they are installed
  - Avoid crossing refrigerant lines during installation

VRV RefNet

Installation recommendations

- 90° Elbows should be kept 20” from Fan Coils & BS Boxes
- 90° Elbows should be kept 20” from RefNets & Headers
- RefNet “Y” and or Headers should be kept 40” from each other
- There is no minimum distance between BS Boxes & Fan Coils, but above rules and good piping practices should be followed

NOTE: This procedure is recommended to avert potential noise issues in the piping
VRV III Manifolded System
Refrigerant Piping

High and Low pressure equalizing pipes are no longer required for heat pump manifolded systems.
No oil balance lines required.
BHFP22P100U “Y” Branch Kit for Double module HP systems.
BHFP22P151U “Y” Branch Kit for Triple module HP systems.
Faster installation with less labor and material cost.
**VRVIII Heat Recovery**  
**Double & Triple Module Piping**

Double & Triple manifolded Heat Recovery modules require a ¾” HP/LP Pressure Equalization pipe  
Uninterrupted Heat operation in the defrost mode  
**BHFP26P90U “Y” Branch Kit for double module HR systems**  
**BHFP26P136U “Y” Branch Kit for triple module HR systems**

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**VRVIII Xpress**  
**Manifolded system Piping Report**
When a single condenser module is operating due to low load, refrigerant is bypassed to the other condenser through the pressure equalizing pipe. By utilizing both heat exchangers part load energy efficiency is improved.

**VRVIII Equalizing Pressure Pipe – Heat Recovery**

![Diagram showing equalizing pressure pipe and heat recovery](image)

**NOTE:** No Equalizer circuits on Heat Pump Models ("PB" series)

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**VRVIII Manifolded Systems**

**Module Interconnecting Piping Lengths**

Inverted oil traps are only required when manifolded VRVIII condensers have a horizontal separation of 6.5 ft to 33 ft measured from the First “Y” Branch to Module.

Traps are installed on Gas line(s) only

Traps must have a minimum of an 8 in. rise

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**NOTE:** Refer to condenser installation manual for all refrigerant piping requirements
VRVIII Manifolded Systems
Module Interconnecting Piping Lengths

To indoor units

Multi Connection "Y" Branch

Inverted Trap height: 8” or more

Maximum height difference 16ft
VRV Indoor Units
Fan Coil & BS Box
Basic Installation

VRV Ducted Units
FXDQ_MVJU
Slim Duct Concealed

Available from 7 MBtu to 24 MBtu
Models: FXDQ07,09,12,18 & 24MVJU
  Low Static (ESP .04 - .17 wg.)
  Static Pressure can be selected with field setting at RC
Fur-Down drop ceiling or minimal duct
Low Profile – low sound level 36dB
Standard Long Life Filter
Condensate Lift Pump - 24” rise
Field configured rear or bottom return
Weight: 07,09,12 = 51 lb.  18 = 63 lb.  24 = 71 lb.
### FXDQ Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Height</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>FXDQ07-09-12MVJU</td>
<td>7 7/16&quot;</td>
<td>24 7/16&quot;</td>
</tr>
<tr>
<td>FXDQ18MVJU</td>
<td>7 7/16&quot;</td>
<td>24 7/16&quot;</td>
</tr>
<tr>
<td>FXDQ24MVJU</td>
<td>7 7/16&quot;</td>
<td>24 7/16&quot;</td>
</tr>
</tbody>
</table>

- Cabinet height and depth dimensions stay the same between capacity models. Only the width dimension changes.
- External static pressure selectable by remote controller providing optimal flexibility and range of comfort.

### FXDQ Clearances

**Return Configuration**

- Coil can be field configured for rear or bottom return.

---

**Front (discharge) View**

**Side View**
**FXDQ** Slim Duct Built-in Concealed Installation Examples

Custom ducted applications for rectangular or round duct

Field adjustable External Static Pressure adjustment (Standard / High) at the Remote Controller

For minimal ducted applications
10ft to 15ft maximum lengths

NOTE: For attic installations, entire fan coil cabinet must be wrapped with min. 1" insulation

**FXDQ** Condensate Removal - Lift Pump (Standard)

Max. drain riser height: 24"
Flexible, insulated drain coupling is included
Max. riser pipe diameter from coil outlet: ¾" ID
Larger diameter pipe may generate an "AF" code
Never connect drain piping to sewer vent

Fan Coil Installation Kit

Lift Pump Piping
Gravity Condensate Conversion

- Unplug Lift Pump connector at PCB X25A
- Remove coil drain plug and connect to drain piping

Field supplied condensate drain pipe

- Use flexible drain connector (Accessory)
- Must not contain any traps or kinks in the line
- Must maintain an even slope of 1/100 or greater

---

**FXDQ**

Condensate Removal - Gravity

**FXDQ**

Line voltage and Control Voltage

10-1 HOW TO CONNECT WIREDINGS

- Wire only after removing the control box lid as shown in Fig. 14.

[Connecting electrical wiring, remote controller wiring, and transmission wiring] (Refer to Fig. 15)

1. Connect the power supply wire to the terminal block (SP) of the indoor PCB.
2. Connect the control wiring to the corresponding terminals on the PCB.
3. Secure all connections with screws.
4. Ensure all wires are properly insulated.

[Diagrams showing wiring connections]
FXMQ_PVJU
DC Ducted Concealed

Models from 7 MBtu to 48 MBtu (FXMQ07-48P)
Improved efficiency with our new DC (ECM) fan motor
Medium ESP capabilities of up to 1" W.G
"Auto" adjust or select SP range from Remote Controller
3 user select fan speeds available + Fan "Auto" Logic
Low profile design – less than 12" high
Built in Condensate Lift pump for 28" rise
Field supplied filter box and filters
Optional Filters (MERV 8 & 13)
Mechanical service from below
Weight: 55 lb. 07,09,12   80 lb. 18,24,30  102 lb. 36&48

FXMQ_PVJU
Installation

Install Fan Coil with all-thread bolts
Install nut and washer above and below each angle bracket
Min. 1" open clearance from top of Fan Coil to bottom of structure
Min. 28" X 18" service access on side
FXMQ_PVJU
Installation

Install Fan Coil with all-thread bolts
Install nut and washer above and below each angle bracket
Min. 1" open clearance from top of Fan Coil to bottom of structure
Field supplied Supply Plenum

FXMQ_P
Condensate Removal - Lift Pump (Standard)

Max. drain riser height: 28"
Flexible, insulated drain coupling is included
Max. riser pipe diameter from coil outlet: ¾" ID
Larger diameter pipe may generate an "AF" code
Never connect drain piping to sewer vent
Properly support the horizontal piping to eliminate piping deflection

Fan Coil Installation Kit

Lift Pump Piping
FXMQ_P
Condensate Removal - Gravity

Gravity Condensate Conversion
- Unplug Lift Pump connector at PCB (A1P) X25A
- Remove coil drain plug and connect to drain piping
- Field supplied condensate drain pipe
  - Use flexible drain connector (Accessory)
  - Must not contain any traps or kinks in the line
  - Must maintain an even slope of 1/100 or greater

FXMQ_PVJU
Line Voltage and Control Voltage
FXMQ_PVJU
MERV 13 Filter Kits

Filter boxes are installed with “Keyhole” style attachment holes
Filter access from RH or LH
Static pressure ports are installed for manometer readings across filter media

FXMQ_M  Medium Static Ducted Unit

FXMQ72 & 96MVJU
Greater design flexibility with a capacity range extended to 96MBH
Improved ductwork and filtration flexibility with high CFM and ESP capabilities of up to 1.1” W.G.
Field selectable static pressure
Low profile design of less than 19” high to reduce required installation space
Gravity condensate drain
Can be connected to all current North American 3 phase VRV Systems
Liquid Line Flare Connection – Gas Line is a brazed flange assembly
Weight: 302 lb.
FXMQ_MVJU
Installation

Install Fan Coil with all-thread bolts
Install nut and washer above and below each angle bracket
Min. 1” open clearance from top of Fan Coil to bottom of structure
Field supplied Supply Plenum

FXMQ_MVJU
Condensate Pump

A field supplied condensate pump must be used when gravity condensate removal is not possible
Pump must be properly sized for the specific application
Locate the X8A jumper on the FXMQ PCB and splice in the pump float switch wires
### FXMQ_MVJU

**Dimensions and Clearances**

<table>
<thead>
<tr>
<th>Capacity Model</th>
<th>MBtu</th>
<th>72</th>
<th>96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>18 1/8&quot;</td>
<td>18 1/8&quot;</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>43 5/16&quot;</td>
<td>43 5/16&quot;</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>54 3/8&quot;</td>
<td>54 3/8&quot;</td>
<td></td>
</tr>
</tbody>
</table>

### FXTQ_PAVJU

**Vertical Air Handler**

- Offered in 8 model sizes from 12 MBTU's to 54 MBTU's
- Integrated EEV, PCB & Other Components
- Upflow and Horizontal Right configuration
- 208-230V/1/60Hz Power Supply
- Brazed Pipe Connections (1/4"x1/2" and 3/8"x5/8")
- Hi & Low Fan Speeds + Fan "AUTO" Logic
- ECM Blower Motor
- ESP automatically set based on installed ductwork (Max. 0.5" WG)
- Slide-in Electric Heater Options - 3kW to 20 kW
- **NOTE:** System Pressure Test to 450 psi only
FXTQ_PAVJU Multi-position Air Handler Specifications

NOTE: High Efficiency Air Filters are not available for this product, and should not be used.

FXTQ_PAVJU Installation

The Fan Coil cabinet must be firmly supported on the bottom for upflow and the full underside when in the horizontal right position. Insure that the cabinet is perfectly level.

Upflow

Horizontal Right
Fan Coil requires a “P Trap” for the condensate drain
Copper type W, or sched’l 40 PVC tubing may be used for the condensate drain
Provision should be made to clean the trap

PCB's, Line voltage and Control voltage connections
Control transformer set for 240 vac
For 208 vac power supply change transformer primary tap
The FXTQ-PAVJU is not equipped with a return air sensor.

Temperature Control Options:
- BRC1E71 Remote Controller
- BRC2A71 Simplified with
- KRC501-4B Remote Sensor
- KRC501-4B Sensor Only

**NOTE:** BRC1E71 is factory default – Field setting change is required for Remote Sensor Applications

---

**FXTQ_PAVJU Remote Sensor Application**

KRC501-4B Remote Sensor Connection
Control application using Simplified RC or no RC
Any application using the Remote Sensor requires a field setting change at the Remote Controller [10(20) 2-02]
“C9” or “CJ” fault code if field setting is not changed

**NOTE:** Remote Sensor Cable uses a 4 pin (2-wire) connector at X16A
Optional Electric Heat Kit

Strip Heat Modules
- SkyAir – 3kW to 10kW
- VRVIII-S – 3kW to 20kW

1. Install the Heater Element Module and Circuit Breakers
2. Remove Top Access Panel and Heater Element Cover
3. Install the heater circuit breaker Mounting Bracket and Circuit Breakers
4. Connect heater relay harness to the harness on fan coil
Optional Electric Heat Kit

- Install the line voltage wiring into top of cabinet
- Remove the breaker knockout cover on front panel
- Install Front Panel
- Field setting at remote controller is required

Optional Humidifier and Air Purifier

- Field supplied accessories can be controlled
- Run the wires through the low voltage hole
- Connect the device control wires on Terminal Block 10P
- Field setting at remote controller is required for fan control
**FXTQ_PAVJU**  
**Humidifier Interlock**

New control logic has been added to improve humidifier integration

- No additional control board is required
- Switches the indoor unit fan to high fan speed when the humidifier on signal is received
- terminals 7-8, dry contact
- The fan residual run on timer can be programmed on site from 30-120 seconds
- Helps remove excess moisture from ductwork

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Input/output signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>7, 8</td>
<td>Receives input: Humidifier operation ON signal, (dry contact)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode No</th>
<th>FIRST CODE NO.</th>
<th>01</th>
<th>02</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>14,24</td>
<td>FAN SPEED UNDER OPERATING pressure and humidifier</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14,24</td>
<td>FAN RESIDUE TIME FOR HUMIDIFIER</td>
<td>20 [sec]</td>
<td>60 [sec]</td>
<td>120 [sec]</td>
</tr>
</tbody>
</table>

* Factory set

---

**VRV**  
**Duct-free Units**

**FXAQ (7/9/12/18/24)MVJU**  
**Wall Mounted**

- Very low sound levels
- Auto-swing feature ensures efficient air distribution
- Louvers automatically close when unit is turned off
- Wide air discharge outlet distributes a comfortable airflow through the entire space
- Flexible routing of refrigerant and condensate lines

**Options Include:**
- Condensate Pump
- Controls
Select a location for the unit where the airflow will not be blocked
Avoid locations exposed to direct sunlight
Install the mounting panel securely to the wall with a minimum of 6 screws
Refrigerant and Condensate piping may exit unit in one of 5 directions
For surface exposed lines, use cutout for refrigerant and condensate lines
FXAQ

Wall Mounting Plate
Installing refrigerant and drain pipe through exterior wall

For walls containing metal frame or siding, use field supplied conduit or grommet to prevent heat transfer, electrical shock or fire.

Fill all gaps around the piping with caulk or putty to prevent water leaks.

Drill or cut a 3 1/8” diameter hole.

Insure that the hole has a slight down angle from the inside to the outside.
When making the penetration on the left side of the unit tuck the line set in the back of unit and wrap with felt tape.

Secure the indoor unit to the installation panel with the securing screws.
When making the penetration on the left side of the unit it is possible to relocate the drain from right to left.

1. Remove the drain plug from left hand side. (see above) Plug can be twisted out carefully without tools. Use Allen wrench method if plug seems tight.
2. Grasp drain hose on unit very close to where it connects and gently twist out.
4. Install drain plug in right hand side where drain hose was connected.
FXAQ Condensate Pump Right Hand Exit

Complete Drain & Pump Assembly

Drain hose and fitting should be installed on Indoor Unit first.

FXAQ Condensate Pump

Setting Up Hose Connections For Right Hand Exit

Right Hand Exit View from Back
**FXAQ**
Condensate Pump Right Hand Exit

**Setting Up Hose Connections For Right Hand Exit**

Hold back insulation and push corrugated tubing into fitting. After it bottoms out slide insulation back towards fitting.

**FXAQ**
Condensate Pump Left Hand Exit

Using the left hand exit gives you very little room for the pump and float assembly.

*Very, very tight when installed with line set*
**FXAQ**
Optional Condensate Pump Kit

Setting Up Hose Connections For Left Hand Exit

- Cut tubing as you assemble pump, line set and drain assembly
- Pump outlet connection. Run to main drain of building or equivalent.

Verify tubing lengths before cutting. Lengths may vary depending on installation.

---

**VRV**

**DIII-Net**
Alternate Condensate Safety

Alternate float switch connection from T1 T2 Forced Off to PCB jumper X15A or X8A. Interruption of safety through jumper disables operation of connected fan coil only, remaining fan coils continue full cool operation. Outdoor unit operation is not affected.

Splice in optional condensate pump float switch leads to jumper using crimp butt connectors or solder

- X15A Circuit interruption disables fan coil and generates an "A3" code
- X8A Circuit interruption disables fan coil and generates an "A3" code
Don’t forget to prime pump! The pump will buzz for a minute or two while it is pulling the water through itself.

Wiring Connections

- Wiring clamp method
  - Clamp small (accessory) (5)
  - Insulating tube
  - Ground wiring
  - Power supply wiring
  - Transmission wiring
  - Remote controller wiring
  - Clamp small (accessory) (5)
  - (3 places)
  - Cut off any excess material after tightening
  - Transmission wiring
FXFQ (7/9/12/18/24/30/36)MVJU
3x3 4-Way Ceiling Cassette,
- Sound pressure levels as low as 28dB(A)
- Space-saving above ceiling height of unit less than 12"
- Selectable auto-swing louver positions
- Simple installation with easy-fit decorative panel
- Service access through RA grille – washable filter
- Condensate lift pump up to 22"
- Field configured for 2 or 3 way air discharge
- Branch duct provision
- Fresh-Air inlet provision
- Options include:
  - High efficiency air filter
  - Fresh air intake kit
- Controls

FXFQ Round Flow
FXFQ (9/12/18/24/30/36/48)PVJU
(9,000 to 48,000 Btu/h)
Round Ceiling Cassette, 3’x3’ (33”x33”)
- 360° airflow for enhanced air distribution
- Space-saving above ceiling height of unit less than 12"
- Unit weight: 43lb. to 55lb.
- Service access through RA grille – washable filter
- Condensate lift pump max. 33"
- 3 selectable fan speeds
- 23 field configured air discharge patterns
- Fresh-Air inlet provision
FXZQ (7/9/12/18)MVJU—(7,000 to 18,000 Btu/h)

2 x 2 4-Way Ceiling Cassette
- Sound pressure levels as low as 25dB(A)
- Space-saving above ceiling height of unit less than 12"
- Selectable auto-swing louver positions
- Simple installation with easy-fit decorative panel
- Service access through RA grille – washable filter
- Condensate lift pump up to 22"
- Field configured for 2 or 3 way air discharge
- Fresh Air Inlet provision

Options include:
- Fresh air intake kit
- Controls

FXFQ_M 3’ x 3’ Installation

Model | H
--- | ---
FXFQ12, 18, 24MVJU | 9 7/16” or more
FXFQ20, 36MVJU | 11 3/4” or more

<table>
<thead>
<tr>
<th>07/09/12/18/24</th>
<th>3005</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9 1/8”</td>
</tr>
</tbody>
</table>
Max. drain riser height: 33 1/2"
Flexible, insulated drain coupling is included
Max. riser pipe diameter from coil outlet: ¾” ID
Larger diameter pipe may generate an “AF” code
Never connect drain piping to sewer vent
**FXFQ Installation**

**Cautions**

- Never select the direction of air discharge other than the following pattern. (You may have a condensation problem.)

<table>
<thead>
<tr>
<th>Setting position</th>
<th>00</th>
<th>02</th>
<th>02</th>
<th>02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting position</td>
<td>05</td>
<td>05</td>
<td>05</td>
<td>05</td>
</tr>
</tbody>
</table>

- It is required to make a local setting on the remote controller according to the installation of indoor unit.
- The direction of air discharge should also be set for the remote controller.
- The initial setting of the direction of air discharge is -42° or 42°, which can be set by the remote controller.
- Refer to the item of "Local setting" on the operation manual of the remote controller for the setting procedure.

<table>
<thead>
<tr>
<th>Mode number</th>
<th>Setting position number</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (Q3)</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting position of air discharge</th>
<th>Setting position number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-way air outlet (4-way air outlet)</td>
<td>Setting position number</td>
</tr>
<tr>
<td>3-way air outlet (3-way air outlet)</td>
<td>Setting position number</td>
</tr>
<tr>
<td>2-way air outlet (2-way air outlet)</td>
<td>Setting position number</td>
</tr>
<tr>
<td>1-way air outlet (1-way air outlet)</td>
<td>Setting position number</td>
</tr>
</tbody>
</table>

**FXFQ/FXZQ Electrical Installation**

**Cautions**

- Refer to the note for the height of the setting to each direction of air outlet. (The setting of the ceiling height is also required.)
FXFQ
Installation

Electrical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Power supply wiring</th>
<th>Transmission wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Field bases</td>
<td>Size</td>
</tr>
<tr>
<td>FXF012MVU</td>
<td>15A</td>
<td>Wire size must comply with local codes.</td>
</tr>
<tr>
<td>FXF018MVU</td>
<td>15A</td>
<td>Wire size must comply with local codes.</td>
</tr>
<tr>
<td>FXF024MVU</td>
<td>15A</td>
<td>Wire size must comply with local codes.</td>
</tr>
<tr>
<td>FXF030MVU</td>
<td>15A</td>
<td>Wire size must comply with local codes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Power supply</th>
<th>Fan motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Hz</td>
<td>Volts</td>
</tr>
<tr>
<td>FXF012MVU</td>
<td>60</td>
<td>208-230V</td>
</tr>
<tr>
<td>FXF018MVU</td>
<td>60</td>
<td>208-230V</td>
</tr>
<tr>
<td>FXF024MVU</td>
<td>60</td>
<td>208-230V</td>
</tr>
<tr>
<td>FXF030MVU</td>
<td>60</td>
<td>208-230V</td>
</tr>
<tr>
<td>FXF036MVU</td>
<td>60</td>
<td>208-230V</td>
</tr>
</tbody>
</table>

MCA: Min. Circuit Amps (A)  MFA: Max. Fuse Amps (A)  kW: Fan Motor Rated Output (W)  FLA: Full Load Amps (A)

NOTE: If power swing flap connectors from the decoration panel to the fan coil are not connected, an "A7" fault code is generated.

FXFQ
Decoration Panel
Electrical Installation

Make sure that the swing flap motor lead wire is not caught between the indoor unit and the decoration panel.
FXFQ
Decoration Panel Installation

Mounting loop  Mounting tab  Adjustment Screw

FXFQ
Face Plate Installation

- If gap is still left between the ceiling and the decoration panel after screwing the screws, adjust the indoor unit body height. (Refer to Fig.1)

- No gap is allowed

- Install the service cover by sliding 4 latches to fit into the holes on the decoration panel.
FXZQ 2’x2’ Ceiling Cassette
Decoration Panel Installation

- Install 2 of the 4 supplied mounting screws into the designated fan coil mounting straps.
- Install the elongated mounting holes of the decoration panel onto these 2 screws to hold panel in place.
- Rotate the swivel support finger on the panel to engage the tab on the electrical enclosure to support panel.
- Install the remaining 2 screws and secure all 4.

FXHQ

FXHQ (12/24/36)MVJU – (12,000 to 36,000 Btu/h)

**Ceiling Suspended**

- Slim design – less than 8” high
- Wide air discharge outlet distributes a comfortable airflow throughout the entire space
- Gravity condensate drain
- Standard equipped with a washable, long-life, mildew-proof filter
- Long Air Throw 15-20 ft
- Direct Fresh Air Possible

Options Include:

- Condensate Pump
- Controls
FXHQ Installation

Max. ceiling height: 10.6 ft
Fasten unit with 4 suspension bolts
Insure building structure will support unit
Hanger bolts and hardware field supplied
Insure unit is installed level for proper condensate draining.

- Easy side panel removal with a single screw
- Optional Condensate Pump
- PCB with Line and Control Voltage Terminals

Control and Line voltage connections

Unit Bottom View

Unit Side View
**FXHQ** Refrigerant & Condensate Lines

- Refrigerant lines may be run through the top access
- Refrigerant and condensate lines may be run through right rear or side of unit.
- Refrigerant Lines & Drain through RH rear or side

**FXLQ**

FXLQ (12/18/24)MVJU – (12,000 to 24,000 Btu/h)

*Floor Mounted, Exposed*

- Unit requires minimal installation space
- Standard equipped with a washable, long-life, mildew-proof filter
- Space-saving unit can be mounted freestanding or secured directly to the wall
- Gravity condensate drain
- Optional Condensate Pump
FXNQ

FXNQ (12/18/24)MVJU — (12,000 to 24,000 Btu/h)

*Floor Mounted, Concealed*

- No panels for custom enclosure installation
- Unit requires minimal installation space
- Standard equipped with a washable, long-life, mildew-proof filter

Options Include:
- Condensate Pump
- Controls

FXLQ

Remove and Replace Front Panel

- Open upper right and left access lids
- Remove the locking screw for each slide clip
- Loosen front slide clip screw – RH LH
- Move both right and left slide clips toward rear
- Lift the top grille panel
- Remove front panel – top forward
- Reverse procedure

Remove this screw
Front panel release slide clip
Loosen this screw 1/8 turn
FXLQ/FXNQ

(1) Select an installation site where the following conditions are satisfied and that meets with your customer’s approval.

- Where the floor is strong enough to bear the indoor unit weight.
- Where the floor is not significantly inclined.
- Where nothing blocks the air passage.
- Where condensate can be properly drained.
- Where sufficient clearance for installation and maintenance can be ensured.
- Where optimum air distribution can be ensured.
- Where there is no risk of flammable gas leakage.
- Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual of the outdoor unit.)

<table>
<thead>
<tr>
<th>Model</th>
<th>A (in.)</th>
<th>B (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FXNQ12MVJU</td>
<td>28</td>
<td>46</td>
</tr>
<tr>
<td>FXRQ18 - 24MVJU</td>
<td>59</td>
<td>57</td>
</tr>
</tbody>
</table>

Floor Mounted Clearances

- 3/4” or more
- 4” or More
- 70” or more

- 23 5/8”
- A 3/4”
- 44 7/8” 55 7/8” 55 7/8”
FXLQ/FXNQ - Condensate Drain

Standard Gravity Condensate Drain
Connect the drain hose (10) using the attached hose and parts, as shown in the right drawing.

OR

Optional Self priming Condensate Pump Kit

- If converging multiple drain pipes, install according to the procedure shown below.

Slope downwards at a gradient of at least 1/100

FXLQ/FXNQ - Wiring Connections & Electrical Specifications

Wiring Connections & Electrical Specifications

Slide out filter for cleaning

<table>
<thead>
<tr>
<th>Model</th>
<th>Power supply wiring</th>
<th>Remote controller wiring</th>
<th>Transmission wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>FXLQ12 18 24MVJU</td>
<td>15A</td>
<td>Size must comply with local codes</td>
<td>Sharfed wire (2 wire)</td>
</tr>
<tr>
<td>FXNQ12 18 24MVJU</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Slide out filter for cleaning
VRV 100% OA Processing Unit

FXMQ (48/72/96)MFVJU
4, 6 & 8 Ton capacity models
ESP Max. 1.03” w.g.

Compatible with all VRV systems

FXMQ_MFVJU
Dimensions and Clearances

<table>
<thead>
<tr>
<th>Capacity Model MBtu</th>
<th>48</th>
<th>72/96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>18 ½”</td>
<td>18 ½”</td>
</tr>
<tr>
<td>Depth</td>
<td>43 ½”</td>
<td>43 ½”</td>
</tr>
<tr>
<td>Width</td>
<td>29 ½”</td>
<td>54 3/8”</td>
</tr>
</tbody>
</table>

Top View
**FXMQ_MFVJU**

**Electrical**

Line and Control circuits

- Line voltage to X1M
- Control voltage to X2M

**Control**

Unit is controlled by a programmed Field Setting for Heat and Cool discharge air temperature

11-4 Setting air discharge temperature

<table>
<thead>
<tr>
<th>Model No.</th>
<th>TCR P</th>
<th>TRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>93°F</td>
<td>99°F</td>
</tr>
<tr>
<td>01</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>02</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>03</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>04</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>05</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>06</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>07</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>08</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>09</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>10</td>
<td>97°F</td>
<td>99°F</td>
</tr>
<tr>
<td>11</td>
<td>97°F</td>
<td>99°F</td>
</tr>
</tbody>
</table>

**NOTE:**

Air discharge temperature is not displayed on remote controller.
DACA CP1-1 & CP2-1 Condensate Pump

**Installation Tips**

DACA condensate pumps must be installed properly to insure maximum performance and reliable service life.

DACA Condensate pumps do not include discharge tubing.

Condensate pump and float reservoir must be accessible for routine maintenance.

Connect float safety to T1 and T2 on fan coil terminal block.

---

**Incorrect Condensate Pump Installation**

Incorrect discharge pipe routing can create siphoning through pump motor causing dry start cycles.
Correct Condensate Pump Installation

Discharge tubing must be terminated above the level of the condensate drain pan including an air gap when draining into a main drain line.

1. AIR GAP
   - DISCHARGE TUBE
   - FLOAT RESERVOIR

2. AIR GAP
   - DISCHARGE TUBE
   - FLOAT RESERVOIR

3. AIR GAP
   - DISCHARGE TUBE
   - FLOAT RESERVOIR

4. AIR GAP
   - DISCHARGE TUBE
   - FLOAT RESERVOIR

DACA CP1-1 & CP2-1 Condensate Pump

Installation Tips

- Insure that the float reservoir vent tube opens above the condensate drain pan
- The Float switch reservoir is a maintenance item and must be cleaned on a regular basis
**VRVIII & VRV-WIII**

BSVQ_PVJU Single Port Branch Selector Box

36, 60 & 96 capacity models
Line voltage powered 208/230vac 1 Ph.
Weight: 36/60: 26 lb.  96: 33 lb.
Refrigerant Braze Connections
BS Box must be installed level

**Table 1**

<table>
<thead>
<tr>
<th>BSVQ Models</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSVQ36WAP</td>
<td>36 or more</td>
<td>18 or more</td>
</tr>
<tr>
<td>BSVQ60WAP</td>
<td>36 or more</td>
<td>18 or more</td>
</tr>
<tr>
<td>BSVQ96WAP</td>
<td>36 or more</td>
<td>18 or more</td>
</tr>
</tbody>
</table>

Refrigerant Braze Connections

**NOTE:** All Expansion Valves close when power is applied to the BS Box

Do Not change DIP switch settings
BSV4/6Q36PVJU

Centralized 4-Port & 6-Port Branch Selector Box

BS box must be installed level
Install unit with suspension bolts
Line voltage powered 208/230vac 1 Ph.
MCA: .4/.6 amp
BS Box shipped with all EEV’s in open position
  All EEV’s close when line voltage power is applied
All braze refrigerant connections
"Closed Pipe Kit" is available for 1 unused port
No condensate drain is required

BSV4/6Q36PVJU

Installation

Install the Centralized BS box right side up only and level
Allow for proper service clearances
Suspend with 3/8” or 5/16” Suspension bolts
Secure bolts with nut and washer above and below each angle bracket
Allow a minimum of 10” clearance above BS box
Refer to Installation Manual for all clearances
Support refrigerant lines within 40” or less of BS box
Optional KHFP26A100C “Closed Pipe Kit”

- A maximum of one closing kit per Branch Selector is allowed.
- A maximum of two closing kits per outdoor unit system are allowed.
- Do not use this closed pipe kit for the branch that is the furthest from the three-pipe side of the centralized Branch Selector unit.

BSV4/6Q36PVJU
Installation – Control Wiring

Standard Daikin control wire specification
VRV Local Remote Controllers

- **BRC1E71**: Navigation Remote Controller
- **BRC2A71**: Simplified
- **BRC7C/7E/4C**: Wireless
KRCS01-1B (4B) Remote Sensor

VRV Fan Coil Units incorporate a built-in return air thermistor temperature sensor as standard (excl. FXTQ)

KRCS01-1B Remote Sensor is offered to replace the return air thermistor when:
- Outside fresh air is brought in to the fan coil return air
- Ceiling height of fan coil return is 13ft or more
- Above ceiling plenum return is used

Standard 39ft cable - Plenum Rated 40ft and 80ft cable optional (KRCS01-1B)

NOTE: KRCS01-4B Remote Sensor Kit for FXMQ_P and FTQ/FXTQ Fan Coil Units

VRV Control Circuit Terminal Designations

Fan Coil Control Terminal Circuits
- P1 P2 – Fan Coil to Remote Controller
  Remote Controller power supply and data transfer
- F1 F2 – Condenser to Fan Coil Communications
- T1 T2 – Forced Off (Default N.O.) External Contacts

Branch Selector Box
- F1 F2 Out – BS Boxes to Condenser F1 F2 In
- F1 F2 In – BS Box to Fan Coil F1 F2

Condenser Control Terminal Circuits
- F1 F2 In - Condenser to Fan Coil(s) or BS Boxes
- F1 F2 Out – Centralized Controller
  I-Touch Gateway – Lon Works or BACnet
- Q1 Q2 – Manifolded Modules
**VRV Basic Control Wiring**

Control Wire
- 18 AWG – 2-Conductor – Stranded - Non-Shielded
- Daisy-chain wiring
- Two conductor terminal connections from Outdoor unit to each fan coil and remote controller (F1 F2In - F1 F2 – P1 P2)

**Daikin DIII-Net Communications**

Proprietary to *Daikin VRV* systems (single and three phase)
- Reliable 2-wire, 16vdc circuit
- Maximum control system wire length: 6,600 ft.
- Maximum single cable length: 3,300 ft
- Maximum cable length from Remote Controller to Fan Coil: 1,640 ft.
**Daikin DIII-Net**  Basic Installation

Robust communications with no termination resistors or signal repeaters
Avoid splices – no wire nut connections
Do not strap control wiring to conduit with ac voltage or ac wiring (24 vac)
Avoid “Star” or “Homerun” wiring
Shield not required but if used, ground one end at every component

---

**VRV Xpress**  HP Wiring Report

---

Out 1  OUT 2  ...  OUT n

---

F1  F2  ...  F12
VRV Xpress
Heat Recovery Control Wiring Report

VRV Basic Control Wiring
Heat Recovery Systems

When circuits are crossed - communications drop out
VRV Basic Control Wiring
Heat Recovery Systems

BS Boxes will control multiple fan coils
Daisy chain wiring to connect all fan coils

Branch Selector Box

Outdoor Unit

F1 F2 In
F1 F2 Out

Single Remote Controller on multiple fan coils
Daisy chain wiring to connect RC to all fan coils

Branch Selector Box

Outdoor Unit

F1 F2 In
F1 F2 Out
VRV Basic Control Wiring
Fan Coil T1 T2 Forced Off

VRV Fan Coil control includes selectable Forced Off operation from an outside safety device (dry contact) using the T1 T2 terminals
- Optional Condensate Pump Float Switch
- Motion Sensor or Door Switch
- Card Key Remote Start/Stop
- Fire Safety System

Factory Default - Forced Off (N.O.) Manual Restart
- Field Setting – 12 (22) 1-01
- Input N.O. – Normal Operation
- Input Closed – Unit Stop – Manual Restart Required – AO Fault
- Reprogram Setting to External Protection Device (N.C.)
- Auto restart on contact close (Condensate Float Switch)

Reprogram Field Setting – 12 (22) 1-03
- Input N.C. – Normal Operation
- Input Open – Unit / Condenser Stop – AO Fault Code on connected RC, other RC’s indicate U9 Fault Code
- Auto reset on contact close

VRV Basic Control Wiring
Manifolded Systems

Q1 Q2 - Manifolded Modules – VRVIII & VRV-WIII

The unit in which F1 F2 In is connected from the Indoor fan coils or BS Boxes becomes the Master Unit

The Master Unit Control PCB is used for the commissioning procedures
VRV Condenser Basic Installation

VRVIII Condenser Placement

Refer to the VRVIII Heat Pump and Heat Recovery Installation Manuals for all clearance applications.
### VRVIII-S Condenser Placement

Condenser should be installed on a level base
The air inlet side requires a min. of 4” clearance to a wall
The air outlet should have a min. of 20” clearance
Refer to the Installation Manual for all clearance applications
Condenser should be installed above the snow line

### VRV-WIII Water cooled

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Model Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Units</td>
<td>RWEYQ72PTJU RWEYQ84PTJU</td>
<td>1 Unit = 6 or 7 Ton Master Station</td>
</tr>
<tr>
<td>Multi Units</td>
<td>RWEYQ144PTJU RWEYQ168PTJU</td>
<td>2 Units = 12 &amp; 14 Ton Master Station</td>
</tr>
<tr>
<td>Multi Units</td>
<td>RWEYQ216PTJU RWEYQ252PTJU</td>
<td>3 Units = 18 &amp; 21 Ton Master Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub Station 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub Station 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub Station 3</td>
</tr>
</tbody>
</table>
VRV-WIII Service space

Required Service Clearance Space

Inverter Board Heat Vent Grille
Requires min. of 12" clearance

Thank You
Objectives

• Understand the Daikin DIII-Net control features & Installation requirements

• Identify the Daikin DIII-Net Remote Controllers and understand the features

• Explain the installation procedures for each Remote Controller

• Explain the basic programming procedures for each Remote Controller

• Understand the Field Settings and Group Address procedures
Daikin DIII-Net – The Basics

- Integrated communications architecture sharing a common protocol
- Proprietary to all Daikin VRV systems
- Basic 2-conductor control wire design simplifies installation
- Reliable daisy-chain communication wiring – 16vdc.

DIII-Net The Advantages

- The Daikin DIII-Net protocol is a system of bi-directional data packets that continuously move between the condenser and the indoor units
- Error checking insures accurate and reliable communications
- System auto-addressing as standard, simplifying commissioning
  - In the startup sequence, the condenser recognizes the number and type of indoor units
  - Assigns addresses for the DIII-Net communications
  - No manual Rotary or DIP switches are used for system component addressing
- Control system flexibility for simple to sophisticated applications
**DIII-Net Basic Control Wiring**

- Wire - 16/18 AWG • 2-Conductor • Stranded • Non-Shielded
  - indoor unit PCB powers Remote Controller on 16 vdc circuit – P1 P2
  - Daisy-chain wiring
  - Two conductor terminal connections from Condenser unit to each indoor unit and remote controller (F1 F2In → F1 F2 → P1 P2)
  - Splices should be soldered - Wire nut splices are not allowed

**DIII-Net Remote Controllers**

- **BRC1E72**: Remote Controller
- **BRC2A71**: Remote Controller
- **BRC4C/7C/7E/7F**: Remote Controller

*DIII-Net Remote Controllers are compatible with all Daikin VRV and SkyAir RZQ/RZR systems*
BRC1E72

Navigation Remote Controller

BRC1E72 Basic Features

- Large Backlit LCD Display
- Display configurable to Detailed, Standard, and Simple
- Room temperature display – Day and Time
- Selectable display languages & °F or °C Temp
- Automatic Changeover Heat Pump & Heat Recovery
- Weekly Schedule
  - 7-Day • 5-2 • 5-1-1 • 1 (Everyday) schedules
  - Up to 5 events per day
- Dual and Single Cool & Heat setpoints
  - 60 °F to 90 °F, 1 °F increments
  - Configurable Setpoint Range Limitations
- Independent Setback Setpoints
  - 40 °F to 95 °F, 1 °F increments
- Selectable 12/24 hour clock display
  - 48 hour backup power for clock & day
- Auto-adjustable Daylight Savings Time (DST)
- Max. 16 connectable indoor units
- Optional Face Decals to hide unnecessary or locked out buttons
**BRC1E72 Basic Operation**

- Display Backlight Function
  - First button pressed enables backlight only
  - All Function Buttons are then fully enabled
  - Backlight automatically turns off 30 seconds after the last button is pressed

- Backlight must be illuminated for any of the function buttons to be enabled
  - When two remote controllers are used to control one indoor unit or a group of indoor units, only the first controller in use will have a functioning backlight.

**BRC1E72 Basic Installation & Configuration**

- Installation
  - Wall Mounting
  - Control Wiring
- Function Button Layout
- Initial Settings – Main Menu
  - Display Mode
  - Language
  - Clock Format
  - Date & Time
  - Daylight Savings
  - Celsius / Fahrenheit
- Service Settings
  - Field Settings
  - Group Address
**BRC1E72 Mounting & Wiring**

- Determine the proper controller location
  - Avoid direct sunlight
  - Avoid outside walls
- Separate controller upper & lower case
- Install controller on a solid wall surface
  - Electrical box – 2x4 Single or 4x4 Double gang box
  - Screws and drywall anchors
- Cut control wire conductor lengths with a 3/8" difference – Remove 2" of outer jacket

![Mounting & Wiring Diagram](image)

**BRC1E72 Function Button Layout**

- Backlit LCD Display: First button pressed
- System Mode Select Master Configuration
- User Fan Speed Select
- Main Menu Select OK-Confirm Selection
- System ON/OFF Op., System Status LED
- Scroll Button: Up/Down, Right/Left Keys
- Return to prev. screen: Service Settings Menu, Maintenance Menu
## BRC1E72 LCD Display Menus

- There are 4 main display categories
  - Main Display
  - Main Menu
  - Service Settings Menu
  - Maintenance Menu
- Backlight must be ON before button functions are enabled
- Main Menu – Press Menu/OK one time
- Service Settings – Press & Hold Cancel (5 sec.)
- Maintenance Menu – Press & Hold Cancel while in Service Settings Menu (5 sec.)

## BRC1E72 Configuration & Programming Menus

<table>
<thead>
<tr>
<th>Menu Name and Number</th>
<th>Selections</th>
<th>Active Scroll Buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Menu 1 / 2</td>
<td>Schedule</td>
<td>Setting</td>
</tr>
<tr>
<td></td>
<td>Off Timer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Celsius / Fahrenheit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Configuration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current Settings</td>
<td></td>
</tr>
<tr>
<td>Main Menu 2 / 2</td>
<td>Clock &amp; Calendar</td>
<td>Setting</td>
</tr>
<tr>
<td></td>
<td>Daylight Saving Time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td></td>
</tr>
</tbody>
</table>

### Service Settings 1 / 3
- Test Operation
- Maintenance Contract
- Field Settings
- Energy Saving Options
- Prohibit Buttons
- Minimum Setpoints Differential

### Maintenance Menu 1 / 2
- Model Name
- Operation Hours
- Indoor Unit Status
- Outdoor Unit Status
- Forced Defrost
- Error Display

### Maintenance Menu 2 / 2
- Swap Unit No.
- Addressed Sensor Value

### Service Settings 2 / 3
- Group Address
- Indoor Unit AirNet Address
- Error History
- Indoor Unit Status
- Outdoor Unit Status
- Forced Fan On

### Service Settings 3 / 3
- Switch Main Sub Controller
- Filter Indicator

**NOTE:** Group Address setting will only appear when system (DIII-Net) is connected to a Multi-zone controller or Gateway.
**BRC1E72 Power up – Initial Settings**

- Power is provided to the remote controller from the indoor unit PCB (16vdc – P1 P2)
- Upon Power Up of the indoor unit, the display on the Remote Controller will verify communications, and within 15 seconds the display will go into the “Standard” display mode.
- This Standard Display is very basic, and does not show the day of the week, current time, or space (room) ambient temperature.
- “Initial Settings” are required to configure a new BRC1E72 Remote Controller.
  - The “Initial Settings” are performed from the **Main Menu**

**BRC1E72 Main Menu**

- **Standard Display - Factory Default**
- **Initial Settings** are required to configure a new BRC1E72 Remote Controller.
BRC1E72 Initial Setting – Language

- English (Default) - French / Spanish selectable
- Language: Main Menu > Language

BRC1E72 Initial Setting – Fahrenheit to Celsius

- Fahrenheit (default) – Celsius selectable
- Main Menu > Fahrenheit to Celsius
To configure different display options, such as Room Temperature the “Standard” display can be changed to the “Detailed” or “Simple” display.

- Press any button to bring on the backlight
- Press the MENU/OK button once for Main Menu
- Use DN arrow button to highlight Configuration
- Press MENU/OK once
- Use DN arrow button to highlight Display
- Press MENU/OK once
- Highlight is on Display Mode Standard
  Press MENU/OK

Main Menu → Configuration → Display → Display Mode
**BRC1E72 Initial Setting – Display Item**

**Room Temperature**

- The Room Temperature display is the default setting.
- Backlight must be ON.
- Press the MENU/OK button once.
- Use DN arrow button to highlight Configuration.
- Press MENU/OK once.
- Use arrow button to highlight Display.
- Press MENU/OK once.
- Highlight is on Display Mode.
- Use DN arrow key to select Display Item Room.
- Press MENU/OK once.
- Pressing the ▼ displays the following:

**BRC1E72 Display Overview**

Configurable display mode – Detailed, Standard, and Simple

<table>
<thead>
<tr>
<th>Display Mode</th>
<th>Detailed</th>
<th>Standard</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display image</td>
<td><img src="image" alt="Display Image" /></td>
<td><img src="image" alt="Display Image" /></td>
<td><img src="image" alt="Display Image" /></td>
</tr>
<tr>
<td>Cn/OFF status on LED (LED blinks when an error occurs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mode</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Setpoint (Dual/Single)</td>
<td>X *1</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Room temperature</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fan speed</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Air flow direction (refers to blower's availability)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Day and Time</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Status icon</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Key lock icon</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Error message</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*1. OFF can be displayed instead of the operation mode when the unit is turned off with the field setting.
*2. Can be removed from the display when the unit is turned off with a field setting.
*3. Can be removed from the display with a field setting.
**BRC1E72 Initial Setting – Display Configurations**

- Following display configurations are available through field settings
  - Applicable to all three display modes
  - Display OFF instead of Mode while the unit is off (1b-13-02)
  - No setpoint display while the unit is off (1b-12-02)
  - No Fan Speed display (1b-15-02)

**BRC1E72 Status Icon Elimination**

- Status icon and other information on the display can be eliminated through Field Setting
  - e.g. “Central Control” icon is not necessary in hotel room

<table>
<thead>
<tr>
<th>Item</th>
<th>Available Display mode</th>
<th>Field Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>STSANDBY icon</td>
<td>X X X</td>
<td>1b-7</td>
</tr>
<tr>
<td>Day/Clock</td>
<td>X</td>
<td>1b-11</td>
</tr>
<tr>
<td>CENTRAL CONTROL icons</td>
<td>X X</td>
<td>1e-9</td>
</tr>
<tr>
<td>Prohibit button message</td>
<td>X X X</td>
<td>1e-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Choice</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1b-7</td>
<td>01: display in Defrost or Hot Start</td>
<td>02: Not display</td>
</tr>
<tr>
<td>1b-11</td>
<td>01: display</td>
<td>02: Not display</td>
</tr>
<tr>
<td>1e-9</td>
<td>(MASTER CONTROL icon too)</td>
<td></td>
</tr>
<tr>
<td>1e-10</td>
<td>01: Key lock icon blinks for 5 sec</td>
<td>02: Message</td>
</tr>
<tr>
<td></td>
<td>(Key lock icon is not displayed in Simple display mode)</td>
<td></td>
</tr>
</tbody>
</table>
**BRC1E72 Initial Setting – Single Setpoint Display Mode w/Face Decal**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Everything</th>
<th>No Mode Change</th>
<th>Fan Speed Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Display Image</td>
<td><img src="image1" alt="Display Image" /></td>
<td><img src="image2" alt="Display Image" /></td>
<td><img src="image3" alt="Display Image" /></td>
</tr>
</tbody>
</table>

Optional Face Decal

Face Decal can be applied to Detailed and Standard display mode too.

- **M**: Mandatory, **O**: Optional setting

<table>
<thead>
<tr>
<th>Display mode - Simple (Main menu)</th>
<th>BRC1E72RMF</th>
<th>BRC1E72RF</th>
<th>BRC1E72RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display item - Room Temp (Main menu)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Single setpoint (Drv menu – Min Setpoint Diff - Single SP)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Prohibit Menu/OK and Cancel buttons (Special sequence required)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mode button prohibit (Drv menu – Prohibit functions – Prohibit button)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fan icon display off (Field Setting 1b-15-02) Fan button also prohibited</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Off display instead of Mode while the unit is off (Field setting 1b-13-02)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Erase setpoint display while the unit is off (Field setting 1b-12-02)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Face Decal can be applied to Detailed and Standard display mode too.

**BRC1E72 Initial Setting – Dual Setpoint Display Mode w/Face Decal Cont.**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Everything</th>
<th>No Mode Change</th>
<th>Fan Speed Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Display Image</td>
<td><img src="image4" alt="Display Image" /></td>
<td><img src="image5" alt="Display Image" /></td>
<td><img src="image6" alt="Display Image" /></td>
</tr>
</tbody>
</table>

Optional Face Decal

Face Decal can be applied to Detailed and Standard display mode too.

- **M**: Mandatory, **O**: Optional setting

<table>
<thead>
<tr>
<th>Display mode - Simple (Main menu)</th>
<th>BRC1E72RMF2</th>
<th>BRC1E72RF2</th>
<th>BRC1E72RM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display item - Room Temp (Main menu)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dual setpoint (Drv menu – Min Setpoint Diff - 0 to 7F)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Prohibit Menu/OK and Cancel buttons (Special sequence required)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mode button prohibit (Drv menu – Prohibit functions – Prohibit button)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fan icon display off (Field Setting 1b-15-02) Fan button also prohibited</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Off display instead of Mode while the unit is off (Field setting 1b-13-02)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Erase setpoint display while the unit is off (Field setting 1b-12-02)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
### BRC1E72 Optional Face Decals

- **Single Setpoint Face Decals**

- **Dual Setpoint Face Decals**

### BRC1E72 Initial Setting – Date & Time

- **To display Day of the Week and Time**
  - Backlight must be ON
  - Press the MENU/OK button once
  - Use DN arrow button to highlight Clock & Calendar
  - Press MENU/OK once
  - Use arrow button to highlight Date & Time
  - Press MENU/OK once
  - Using the scroll arrows – set the Year, Month, Day, and current Time AM/PM

---

**Main Menu**

- **Current Settings**
  - Backlight
  - Daylight Saving Time
  - Language

**Clock & Calendar**

- **Date & Time**
  - Year 2013
  - Month 05
  - Day 14
  - Thursday
  - Time 10:05
BRC1E72 Initial Setting – Date & Time Cont.

- Save the Date & Time settings: “Yes”
  - Press MENU/OK once
- Save the settings - Highlight Yes
  - Press MENU/OK
- Main Display should now be complete

BRC1E72 Initial Setting – Clock Format

- 12/24 Hour Clock Format Change
  - 12 hr. clock format is the default
  - 12 hr. is changed to 24 hr. through Clock & Calendar menu
  - Press the Menu/OK button after each screen selection
**BRC1E72 Initial Setting – Enable Daylight Saving**

- Main Menu ➔ Daylight Saving Time
  - Use the scroll buttons to select Enable/Disable. Press the Menu/OK button.
  - Use the scroll buttons to select Enable. Press the Menu/OK button.
  - Use the scroll buttons to select Yes. Press the Menu/OK button.

**BRC1E72 Initial Setting – Set Daylight Saving Dates**

- Main Menu ➔ Daylight Saving Time (Default is US DST dates)
  - Use the scroll buttons to select DST Dates. Press the Menu/OK button.
  - Use the scroll buttons to select a month from 12 months (January to December) for the Start and End month.
  - Use the scroll buttons to select a week from 5 weeks (1st Sunday to Last Sunday) for both Start and End.
  - Press the Menu/OK button.
  - Use the scroll buttons to scroll to Yes. Press the Menu/OK button.
BRC1E72
Service Settings

BRC1E72 Field Settings

- Field Settings provide unique features and functions to be programmed into the control system for each or all indoor units connected to a remote controller.
- Only those program codes that apply to the connected indoor unit(s) will appear in the Field Settings code display.
- To access the Field Settings mode, bring on the display backlight: press and hold the CANCEL button for 5 sec. to enter the Service Settings Mode and select Field Settings.
- Press the Menu/OK button to confirm each display selection, and use scroll arrows to select the desired code numbers.
• There are two Modes for each setting:
  “Group” & “Individual”
• The first set of 2-digit numbers refers to
  Group and Individual. Group is the first
  number & Individual is in the parenthesis
• “Group ##” is used if there is only one
  indoor unit per Remote Controller or the
  setting you chose is intended for all indoor
  units being controlled by the same Remote
  Controller
• “Individual (##)” is used when there is more
  than one indoor unit being controlled by
  one Remote Controller and the settings
  being programmed are intended for one of
  the indoor units in the group

---

### BRC1E72 Indoor Unit Field Settings

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description</th>
<th>Second Code No. (Note 2)</th>
<th>Field in field are factory default settings</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>BRC1E72</td>
<td>Indoor and Remote Control</td>
<td>Indoor and Remote ON/OFF</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Multi-set E72</td>
<td>Indoor and Remote Control</td>
<td>Indoor and Remote ON/OFF</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Indoor and Remote Control</td>
<td>Indoor and Remote Control</td>
<td>Indoor and Remote ON/OFF</td>
<td></td>
</tr>
</tbody>
</table>

- **Field Setting codes are comprised of 3 segments:** [Example: 10 – 02 - 03]
  - Mode No. – Program Setting for 1 indoor unit or Group
  - First Code No. – Setting Contents
  - Second Code No. – Specific Operation or Setting
- **Specific Field Setting codes for a particular indoor unit can be found in the Indoor Unit Installation Manual or Engineering Manual**
- Any Field Setting codes that do not apply to the particular indoor unit will not be configurable
- Field Settings are stored in the non-volatile memory in the Control PCB of the Indoor Unit or Remote Controller

**EXAMPLE:** Field Setting for assigning the room temperature sensor

1. Set the room temperature sensor to be primary and the remote controller thermostat to secondary.
2. Set the room temperature value range to match the indoor unit.
3. Set the remote controller thermostat to be utilized.
4. Set the remote controller thermostat in the secondary setting.

---
### Field Setting Availability by Indoor Unit Type

**Availability of Indoor Unit Field Settings (Control Related)**

As of 12/01/2012

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Code No.</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>Second Code No.</td>
<td>01/02</td>
<td>03</td>
<td>01/02</td>
<td>01/03/04</td>
<td>01/02/03</td>
<td>01/02/04</td>
<td>01/02/05</td>
<td>01/02/06</td>
<td>01/02/07</td>
</tr>
</tbody>
</table>

*Field settings highlighted in orange may not be available in units manufactured before 9/1/2009.**

**Field settings highlighted in blue may not be available in units manufactured before 1/1/2007.**

***Factory default value is indicated in parenthesis.***

---

### Field Settings – Indoor unit

**Field Settings – Indoor Units (Control Related)**

**Note 1:** The format of the data is ( Indoor Unit Type, Remote Control Group, Control Related, Field Setting, Indoor Unit Field Setting, Remote Control Group Field Setting, Remote Control Group Field Setting, Remote Control Group Field Setting, Remote Control Group Field Setting).

<table>
<thead>
<tr>
<th>Field Setting</th>
<th>Indoor Unit Type</th>
<th>Remote Control Group</th>
<th>Control Related</th>
<th>Field Setting</th>
<th>Indoor Unit Field Setting</th>
<th>Remote Control Group Field Setting</th>
<th>Remote Control Group Field Setting</th>
<th>Remote Control Group Field Setting</th>
<th>Remote Control Group Field Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Field settings are normally applied to the entire remote control group, however if individual indoor units in the remote control group require specific settings for confirmation that settings have been established, utilize the mode number in parenthesis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Any features not supported by the installed indoor unit will not be displayed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. When 12 (22) is selected, only the return air temperature value is reported to the multi-zone controller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The actual default deadband value will depend upon the indoor unit model.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Mode No.**

- **01**
  - Priority of thermistor sensors for space temperature control
  - The return air thermistor is primary and the remote controller thermistor is secondary.
  - Only the return air thermistor will be utilized.
  - Only the remote controller thermistor will be utilized.

- **02**
  - Room temperature value reported to multi-zone controllers
  - Return air thermistor
  - Thermistor designated by 10-2 above (Note 3)
  - --

- **03**
  - The remote controller thermistor is used in Remote Controller Group
  - No
  - Yes

- **04**
  - Indoor unit T1-T2 input
  - Forced Off
  - Closed Contact-Indoor unit is forced off and Central Control icon is displayed. Unit cannot be turned on manually. Operation can be overridden by central control.
  - Open Contact-Indoor unit can resume normal operation. Unit must be turned on manually or by central control.

- **05**
  - Thermo-On/Off deadband (Note 4)
  - 2F (1C) 1F (0.5C)
  - --

- **06**
  - Fan Speed in Heating Thermo-Off
  - LL User set
  - Off

- **08**
  - Return air sensor offset
  - 2C None

---

**Field Setting No.**

- **01**
  - Field settings highlighted in orange may not be available in units manufactured before 9/1/2009.
  - **02**
  - Field settings highlighted in blue may not be available in units manufactured before 1/1/2007.
  - **03**
  - Factory default value is indicated in parenthesis.
### Field Settings – BRC1E72

**Green highlighted items are new from BRC1E71**

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Second Code No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
<td>01</td>
<td>02</td>
<td>STANDBY icon Display in Defrost or Hot Start Not Displayed</td>
</tr>
<tr>
<td>1c</td>
<td>11</td>
<td>02</td>
<td>Day/Clock Displayed Not Displayed</td>
</tr>
<tr>
<td>1e</td>
<td>13</td>
<td>02</td>
<td>Setpoint display while the unit is off Displayed Not Displayed</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>02</td>
<td>Mode display while the unit is off Displayed Display OFF instead of the mode</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>02</td>
<td>Fan icon display Displayed Not Displayed</td>
</tr>
<tr>
<td></td>
<td>1c</td>
<td>01</td>
<td>Thermistor sensor used for Auto-changeover and Setback control Return Air Thermistor–return air temperature displayed on controller as room temperature Remote Controller Thermistor – remote controller temperature displayed on controller as room temperature</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Temperature Sensor Offset 01: -5.4°F (-3.0°C) 02: -4.5°F (-2.5°C) 03: -3.6°F (-2.0°C) 04: -2.7°F (-1.5°C) 05: -1.8°F (-1.0°C) 06: -0.9°F (-0.5°C) 07: 0.0°F (0.0°C) 08: +0.9°F (+0.5°C) 09: +1.8°F (+1.0°C) 10: +2.7°F (+1.5°C) 11: +3.6°F (+2.0°C) 12: +4.5°F (+2.5°C) 13: +5.4°F (+3.0°C)</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>Schedule and Auto-changeover enabled when multi-zone controller is detected and a group address is assigned Key lock icon blinks for 5 seconds Message displayed on screen: “Under Centralized Control. Adjustments at the remote control are being restricted.”</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>Auto changeover guard timer 15 min 30 min 60 min 90 min 15 min 30 min 60 min 90 min</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Auto changeover point 0.9°F (0.5°C) 1.8°F (1.0°C) 2.7°F (1.5°C) 3.6°F (2.0°C) Quick changeover point beyond the auto changeover point 0.9°F (0.5°C) 1.8°F (1.0°C) 2.7°F (1.5°C) 3.6°F (2.0°C)</td>
</tr>
</tbody>
</table>

1. Native remote controller Schedule and Auto-changeover functions are disabled when a multi-zone controller is detected and a group address is assigned.

---

### Factory Default Field Settings on BRC1E72

**BRC1E72 Field Setting - Factory Default Values**

- Do not change from the factory default value in the cells below highlighted in grey.
- This table would be referred to confirm the default value when you might have changed the unnecessary field setting accidentally.

<table>
<thead>
<tr>
<th>First Code No.</th>
<th>Mode No.</th>
<th>1b</th>
<th>1c</th>
<th>1e</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>02</td>
<td>02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>02</td>
<td>02</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>02</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>01</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>04</td>
<td>02</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>01</td>
<td>01</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>01</td>
<td>01</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>01</td>
<td>02</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>05</td>
<td>01</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>01</td>
<td>01</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>07</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>01</td>
<td>07</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>01</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>01</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>01</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>01</td>
<td>01</td>
<td></td>
</tr>
</tbody>
</table>
**BRC1E72 Sensor - Field Settings**

- To use only BRC1E72 sensor, set field settings as 10-2-03, 10-5-02, & 1C-1-02
- 10-2-03, 10-5-02 availability
  - All _M series (except FXFQ, FXHQ, FCQ, FHQ)
    - Manufactured after 9/1/2009: always available
    - Manufactured before 9/1/2009: confirm if 10-2-03, 10-5-02 are available.
  - never available: FXFQ_MVJU, FXHQ_MVJU, FCQ_MVJU, FCQ_PVJU, FHXQ_PVJU, FHXQ_MVJU, FHXQ_PVJU
    - Set 10-2-02 and use Remote sensor (or Return air sensor) only
- Field setting – 10-2, 10-5 and 1C-1 settings are necessary

<table>
<thead>
<tr>
<th>Which single sensor is used?</th>
<th>For indoor unit control (Cool/Dry/Heat VRV and thermo-on/off control)</th>
<th>For BRC1E72 control (Auto changeover and setback control)</th>
<th>For Multi-zone Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRC1E72</td>
<td>10-2-03</td>
<td>1C-1-02 (default)</td>
<td>10-5-02</td>
</tr>
<tr>
<td>Remote sensor</td>
<td>10-2-02</td>
<td>1C-1-01</td>
<td>10-5-01 (default)</td>
</tr>
<tr>
<td>(or Return air sensor)</td>
<td>(it is always available)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Initial Setting – Setpoint Range**

- Service Settings → Energy Saving Options → Setpoint Range Limitation

- User can change the setpoint within the range
- Setup setpoint is configurable between
  - “Cool setpoint max + 2°F (1°C)” and “95°F”
- Setback setpoint is configurable between
  - “Heat setpoint min – 2°F (1°C)” and “40°F”
**Initial Setting – Setback Recovery Differential**

- Service Settings → Energy Saving Options → Setback Configuration
  - Setback Configuration won’t be available if you have not enabled the setback control (Field setting 1e-2-04 is necessary).

- Determine the point when unit is turned off again from the setback control (the unit is turned on by setback control when room temperature is above the setup setpoint or below the setback setpoint)
  - Setup setpoint - 4°F as default (2 - 10°F selectable)
  - Setback setpoint + 4°F as default (2 - 10°F selectable)

**Initial Setting – Enable Setback**

- Field setting is available in the Service Settings
  - Setback function is disabled (1e-2-01) by default
  - To enable it, set 1e-2-04
Initial Setting – Prohibit R/C buttons

- To configure which buttons to prohibit
  - Service Setting → Prohibit Functions → Prohibit Buttons
    - Enable = permit
    - Disable = prohibit
    - Disable in Off = prohibit only while the unit is off
- To enable Prohibit Buttons – see next slide

Menu/OK and Cancel button will be prohibited when any of the buttons are prohibited.

Enable/Disable Prohibit Buttons

- To enable Prohibit Buttons, holding Right arrow button, push Mode, Fan Speed and Cancel at the same time while the main screen is displayed
- To release it, same as above
- Then if you push prohibited button, you will see a key icon blinking three times
  - Key icon is available in Detailed and Standard display mode only (In simple display mode Key icon is not displayed)

These buttons can be pressed from above the optional Face Decals to enable/disable prohibit buttons
Initial Setting – Prohibit Mode

- To configure modes which cannot be selected by a user
  - Service Setting → Prohibit Functions → Prohibit Mode
  - Enable = selectable, Disable = not selectable

<table>
<thead>
<tr>
<th>Service Settings</th>
<th>1/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Operation</td>
<td></td>
</tr>
<tr>
<td>Maintenance Contact</td>
<td></td>
</tr>
<tr>
<td>Field Settings</td>
<td></td>
</tr>
<tr>
<td>Energy Saving Options</td>
<td></td>
</tr>
<tr>
<td>Prohibit Buttons</td>
<td></td>
</tr>
<tr>
<td>Prohibit Mode</td>
<td></td>
</tr>
<tr>
<td>Fan</td>
<td>Enable</td>
</tr>
<tr>
<td>Cool</td>
<td>Enable</td>
</tr>
<tr>
<td>Heat</td>
<td>Enable</td>
</tr>
<tr>
<td>Auto</td>
<td>Enable</td>
</tr>
<tr>
<td>Dry</td>
<td>Enable</td>
</tr>
<tr>
<td>VentClean</td>
<td>Enable</td>
</tr>
</tbody>
</table>

Initial Setting – Min. Setpoint Differential

- Service Settings → Min Setpoint Differential
- Configurable to 0 – 8°F (0 – 4°C), default is 2°F (1°C) for Dual SP or Single SP

- When the differential is set to 0 – 8F, Cool and Heat setpoints are maintained as
  - Cool setpoint ≥ Heat setpoint + Differential
- When Single SP is set, there is one setpoint for Cool and Heat
- When a multi-zone controller is connected, the differential is set to Single SP automatically.
Schedule, Auto changeover disabled

• When a group address is assigned and a multi-zone controller is connected, Schedule and Auto changeover on BRC1E72 are disabled.
  • To prevent conflict between BRC1E72 and I-TC or BMS control
  • Min. setpoint differential would be set at Single SP
    * When setpoint is changed from a multi-zone controller, the both cooling and heating setpoints are overridden with the same value.
• Field setting 1e-4-02 re-enables BRC1E72 Schedule and Auto changeover. Make sure Schedule/Auto changeover is disabled in the I-TC/BMS to prevent conflict.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description</th>
<th>Second Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1e</td>
<td>4</td>
<td>Schedule and Auto-changeover enabled if multi-zone controller is detected (Note 1)</td>
<td>00</td>
</tr>
</tbody>
</table>

BRC1E72 - Auto-changeover

- Automatic changeover in Heat Pump and Heat Recovery Systems
  • At 1°F above cooling or 1°F below heating setpoint (default)
  • Configurable between 1°F – 4°F (improved) Field Setting 1e-12
  • Another 1°F above cooling or 1°F below heating changeover points immediate changeover ignoring guard timer (new)
  • Configurable between 1°F – 4°F (new) Field Setting 1e-13
  • Guard timer to prevent frequent mode change (improved)
    • 15, 30, 60 (default), or 90 minute guard timer settable Field Setting 1e-11

- Cooling SP
  - Min Differential (0 to 7°F)
  - Scalable Change to Cooling (1 to 4°F) Field Setting 1e-12
  - Change to Cooling (with Guard Timer) (1 to 4°F) Field Setting 1e-11

- Heating SP
  - Change to Heating (with Guard Timer) (1 to 4°F) Field Setting 1e-10
  - Sure Change to Heating (1 to 4°F) Field Setting 1e-11
Example #1 = Dual Setpoints

Cooling Setpoint = 72°F
74°F Surely Change to Cooling
73°F Change to Cooling
(with Guard Timer)
1°F (Configurable to 1-4F)

Heating Setpoint = 70°F
69°F Change to Heating
68°F Surely Change to Heating
1°F (Configurable to 1-4F)

C/H Differential = 2°F (Configurable to 0-7F)

Example #2 = Single Setpoint

Single Setpoint = 71°F
74°F Surely Change to Cooling
73°F Change to Cooling
(with Guard Timer)
1°F (Configurable to 1-4F)

2°F (Configurable to 1-4F)

69°F Change to Heating
68°F Surely Change to Heating
1°F (Configurable to 1-4F)

BRC1E72 Settings Group Address

• When a multi-zone controller such as the iTouch Controller, iTouch Manager, or BMS Gateways are connected, Group Address settings must be configured through the Service Settings mode.
• A Group consists of 1 to 16 indoor units connected to the same Remote Controller.
• There are 64 Group Addresses available
  • 1-00 to 1-15
  • 2-00 to 2-15
  • 3-00 to 3-15
  • 4-00 to 4-15
Set D-Net (AirNet) Address

- To identify each indoor unit on the Service checker, D-Net (AirNet) address setting is available in Service Settings.

BRC1E72 Indoor Unit Sensor Display

- The connected indoor unit(s) temperature sensors may also be displayed on the Nav. Remote screen by accessing the “Indoor Unit Status” mode in the Service Settings Menu.
- To access the Service Settings Menu, press and hold the CANCEL button 5 seconds.
  - Scroll down and select “Indoor Unit Status” on the 2nd screen.
  - Sensor values are displayed in Fahrenheit.
- Press the CANCEL button twice to return to the main display.

NOTE: Service Settings “Indoor Unit Status” used for reading sensors on “P” series indoor units.
**Indoor Unit Temperatures**

- **Service Settings → Indoor Unit Status**
- **Applicable for P-series indoor units (FXMQ_P, FXTQ_P)**

<table>
<thead>
<tr>
<th>Th #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Th1</td>
<td>Return air sensor (Remote sensor) temperature</td>
</tr>
<tr>
<td>Th2</td>
<td>Liquid line temperature</td>
</tr>
<tr>
<td>Th3</td>
<td>Gas line temperature</td>
</tr>
<tr>
<td>Th4</td>
<td>Discharge air temperature (FXMQ_P only)</td>
</tr>
<tr>
<td>Th5</td>
<td>Remote controller sensor temperature</td>
</tr>
<tr>
<td>Th6</td>
<td>Temperature to be used for indoor unit control</td>
</tr>
</tbody>
</table>

(See field setting 10(20) - 2)

**BRC1E72 Indoor Unit Address ID**

- To determine the group address and the unit number assigned to an indoor unit in a group, use the "Forced Fan ON" mode (indoor units must be turned OFF)
  - Press and hold the CANCEL button for 5 sec. - Service Settings
  - Scroll down to the second "Service Settings" screen and select Forced Fan On
  - The "Forced Fan ON" screen appears with system address (Unit No.) "0"
  - Within several seconds the indoor unit assigned unit "0" will turn on
  - Use the scroll arrow to change the Unit No. from "0" to 1, 2, 3 etc. and the fans in those indoor units will energize in HH accordingly
  - Press CANCEL button twice to de-energize the fan and return to Main Display
BRC1E72 Indoor Unit Model Display

- The connected indoor unit(s) model number ("P" series only) may be displayed on the Nav. Remote screen by accessing the Maintenance menu
  - Press and hold the CANCEL button for 5 sec. - Service Settings
  - Press and hold the CANCEL button a 2nd time for 5 sec. for the Maintenance Menu
    - Select Model Name (MENU/OK)
  - Press CANCEL twice to go back to the main display
BRC1E72 Indoor Unit Operating Status

- The connected indoor unit(s) operating status may be displayed on the Nav. Remote screen by accessing the Maintenance menu
  - Press and hold the CANCEL button for 5 sec. twice for the Maintenance Menu
  - Select: Indoor Unit Status MP: Drain Pump ON/OFF EH: Elec. Htr. ON/OFF Hu: Humidifier ON/OFF
  - Press CANCEL to go back to the main display

BRC1E72 Indoor Unit Sensor Display

- The connected indoor unit(s) temperature sensors may be displayed on the Nav. Remote screen by accessing the “Addressed Sensor Value” mode in the Maintenance Menu
  - To access the Maintenance Menu, press and hold the CANCEL button 5 sec. to Service Settings
  - Press and hold the CANCEL button a 2nd time to the Maintenance Menu and scroll down to the second screen, then scroll and select “Addressed Sensor Value”
  - Scroll to display each of 4 sensor codes - These sensor readings are in Celsius
    Sensor “00” = RC sensor  “01” = RA sensor  “02” = Liq. sensor  “03” = Gas sensor
  - Press the CANCEL button twice to return to the main display

NOTE: Maintenance Menu “Addressed Sensor Values” used for reading sensors on “M” series indoor units
BRC2A71

Simplified Remote Controller

BRC2A71 – Basic Features

- English LCD Display
- System Operation Status LED
- System On/Off
- Operating Mode
  - (Cool, Dry, Heat, Fan, Auto*)
- Set-point (60-90°F; 1F basis)
- Fan speed (H/L)
- Prohibit buttons with optional face plates
- Optional face plate to remove pictograms
- Fault Diagnosis (Error code)
- Field Settings
- Max. 16 connectable indoor units (Group)
- Internal mounting for remote temperature sensor**

*Auto mode is available in the heat recovery system only

** Optional remote temperature sensor is separate and requires wiring to the indoor unit PCB.

The Simplified Remote Controller does not have a sensor for measuring space temperature
BRC2A71 – Button Layout

- Master Controlled
- System Operation Mode
- System Malfunction
- Setpoint Temp or Mode No.
- Setpoint Adjust Up and Down
- System Operation Status LED
- ON/OFF Button
- Central Control
- Fan Speed H L
- DEFROST / HOTSTART
- GROUP No. or Field Setting Code
- Fan Speed Select Button
- System Mode Select Button

BRC2A71 – Basic Installation

- Installation
  - Cable Routing
  - Wall Mounting
  - Power on
- Service Settings
  - Field Settings
  - Group Address
**BRC2A71 – Mounting**

- Separate and remove the upper part of the controller with a flat blade screwdriver.
- Carefully route the control wire from the P1 P2 terminals.
- Secure the Lower part of the controller to the electrical box with the screws provided.
- Install cover onto the lower part and ensure that all buttons operate.
- Cover must be removed for all Service Settings.

**BRC2A71 – Optional Face Plates**

You can physically remove unnecessary buttons with optional face plates.

**INSTALLATION PROCEDURE**

1. Remove the cover from the remote controller. Remove standard faceplate from the cover. Add new faceplate to the remote control cover.
2. Remove film from adhesive packing on replacement faceplate. Affix new faceplate to the remote control cover.
3. Re-attach cover to remote controller.
BRC2A71 – Field Settings

- Remove cover from the controller
- Press BS6 Button to enter Field Settings
- Press BS2 and BS3 to select the Mode No.
  - With multiple indoor units press BS6 to change Unit No.
- Press BS9 to select the First Code No.
- Press BS10 for the Second Code No.
- Press BS7 to Set the field Setting code
- Press BS6 to confirm (88) and return to Normal Display

BRC2A71 – Group Address

- Press BS6 to enter Group Address Mode
  - 00 display for Centralized Controller
  - 01 display for no Centralized Controller
- GROUP No. flashing with 1-00 Group Address displayed
  - Press BS7 if Group No. is not flashing
- Press BS9 & BS10 to set desired address – Max. 64
  - 1-00 to 1-15
  - 2-00 to 2-15
  - 3-00 to 3-15
  - 4-00 to 4-15
- Press BS7 to lock in selection
  - GROUP No. on solid
- Press BS6 to exit to normal display
Air flow adjustment

- The simplified remote controller does not provide for manual adjustment of the discharge louvers on indoor unit styles with louvers. This includes FXFQ, FXZQ, FXHQ and FXAQ unit types.

- In the cooling mode the louvers automatically adjust to discharge air in a horizontal pattern. (Factory default setting)

- In the heating mode the louvers automatically adjust to discharge air in a vertical pattern. (Factory default setting)

- An iTouch controller or Centralized Controller can set the louver action on indoor units. Additionally, a building automation system via the Daikin BACnet Interface can set the louver action. The LON Interface is excluded as there is no applicable network variable.

- A temporarily connected BRC1E72 remote controller can set the louver action on the indoor unit.
BRC4C/7CE – Hand-Held Wireless

- Wireless Remote Controllers are provided as “kits”
- Temperature display is setpoint (H or C)
- Wireless Controllers only communicate with the indoor unit when they are pointed at the receiver and a button is pressed
- Listen for a “beep” or “beep beep” for confirmation

The Hand-Held Remote Controllers do not have a sensor for measuring space temperature

BRC4C/7CE – Field Settings

- To enter the Field Setting Mode press the TEST button for 5 sec. The display will change to “00”
- Press the MODE button until the desired first Code No. appears
- Press the UP button to set the first no.
- Press the DOWN button to set the second no.
- Press RESERVE button to lock in the field setting
- Listen for the “Beep Beep”
- Press TEST button twice
• To set the Group Address press and hold the TEST button for 5 sec.
  • Display will change to “00”
  • Press the UP button to set the first address no.
  • Press the DOWN button to set the second address no.
  • Max 64 groups
  • Press RESERVE to lock setting
  • “Beep Beep” to confirm
  • Press TEST button to exit to normal display

When the System Status LED on the wireless receiver is flashing, the Hand-Held Controller is used to identify the specific Fault Code by performing the following procedure:

• Press the TEST button once to display CODE “00”
  • UNIT No. “0” is flashing
• Press the MODE button – Displays flashing CODE “0” on left
  • Press UP or DN buttons repeatedly to change the left CODE numbers until receiver emits 2 beeps
• Press the MODE button - Displays flashing CODE “0” on right
  • Press UP or DN buttons repeatedly to change the right CODE numbers until receiver emits one long beep
  • The applicable fault code is now displayed
• Press the MODE button to return to the normal display
**DIII-Net System Control**

Setting the Changeover Master

A designated Remote Controller must be configured as the Changeover Master in a Heat Pump system, or in a Heat Recovery system where a Branch Selector Box is connected to multiple indoor units controlled by individual Remote Controllers.

---

**DIII-Net – Configure Remote Controller Changeover Master**

- To configure a **BRC1E72** (NAV Remote) as a Master on a new system:
  - Press any button to bring on the display back light
  - The icon will be flashing on all NAV remote controllers
  - Press the Mode button once and the icon will disappear on the Master RC
  - All other NAV Remote Controllers (slaves) will display solid

- To configure a **BRC2A71** (Simplified)
  - The Master Controlled symbol will be flashing ("Changeover Under Control") on all Simplified RC’s
  - Press the Mode button once and the symbol will disappear on the Master RC
  - All other “Simplified” Slave Remote Controllers will display solid

- To change the Master, press & hold the Mode button for 5 sec. on the Master RC
  All RC’s go into Master configuration mode with flashing icons
**DIII-Net – Configure Wireless Hand-Held Remote Controller Changeover Master**

- On power up of indoor units, all “Master Controlled” icons or symbols will be flashing on the wired Controllers ONLY. The wireless Controllers do not display an icon for Master.
- Go to the wireless Controller you want set as the Changeover Master and while pointing the wireless Controller at the indoor unit receiver:
  - Press and hold the MODE button for approx. 4 seconds - you will hear “BEEP-BEEP” then a second “BEEP-BEEP”
  - Press the MODE button a second time and listen for a “BEEP-BEEP” again; this is the confirmation that you have configured this indoor unit Remote Controller as the system Master.
- To change the Master to a different Remote Controller in the system:
  - Press and HOLD the MODE button for 4 seconds until “BEEP-BEEP”
  - Go to the new Remote Controller and press the MODE button once to set the MASTER.

---

**DIII-Net Remote Controller Additional Information**

Refer to the specific Remote Controller model Installation and Operation Manuals for more information.

Indoor Unit Field Setting codes are found in both the specific indoor unit Installation Manuals, and Condenser Service Manuals - Indoor Unit sections.

All VRV and SkyAir system components must be correctly wired using the Daikin specified control wire and installation practices to insure reliable system communications and control operation.

Additional Controls Training: [http://daikinuniversity.com](http://daikinuniversity.com)
- Controls Product & Application
- Controls Installation & Commissioning
- Controls Integrator
Thank You
# Field Settings for Daikin VRV / SkyAir indoor unit and BRC1E72

Control Engineering, Daikin AC (Americas)
7/31/2013

## Availability of Indoor Unit Field Settings (Control Related)

As of 7/31/2013

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>First Code No.</strong></td>
<td>01/02</td>
<td>03</td>
</tr>
<tr>
<td><strong>Second Code No.</strong></td>
<td>FXSQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXMQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXMQ72/96MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXMQ_PVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXDQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXTQ_PVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FTQ_PAVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FTQ_PBVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>BEQ_MVJLR1 (FXOQ)</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXLQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FNXQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXAQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FAQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXAQ_PVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXZQ_M7VJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FXFQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FCQ_MVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FCQ_PBVJU</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FHFQ_MVJU</td>
<td>X</td>
</tr>
</tbody>
</table>

* Field settings highlighted in purple may not be available in units manufactured before 1/1/2013.
** Field settings highlighted in orange may not be available in units manufactured before 9/1/2009.
*** Field settings highlighted in blue may not be available in units manufactured before 1/1/2007.
**** Factory default value is indicated in parenthesis.
### Field Settings – Indoor Units (Control Related)

<table>
<thead>
<tr>
<th>Mode No. (Note 1)</th>
<th>First Code No.</th>
<th>Description</th>
<th>Second Code No. (Note 2) (Cells in bold are factory default settings)</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
</tr>
</thead>
<tbody>
<tr>
<td>10(20)</td>
<td>2</td>
<td>Priority of thermistor sensors for space temperature control</td>
<td>The return air thermistor is primary and the remote controller thermistor is secondary.</td>
<td>Only the return air thermistor will be utilized.</td>
<td>Only the remote controller thermistor will be utilized.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5</td>
<td>Return air thermistor</td>
<td>Room temperature value reported to multizone controllers</td>
<td>Thermostat designated by 10-2 above (Note 3)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>6</td>
<td>No</td>
<td>The remote controller thermistor is used in Remote Controller Group</td>
<td>Yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>12(22)</td>
<td>0</td>
<td>KRP1B71 X1-X2 status output</td>
<td>Indoor unit Thermo-On/Off status</td>
<td>--</td>
<td>Indoor unit Operation On/Off status</td>
<td>Indoor unit Alarm status</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Indoor unit T1-T2 input</td>
<td>Forced Off</td>
<td>On/Off</td>
<td>External Protection Device</td>
<td>Closed Contact-Indoor unit is forced off and Central Control icon is displayed. Operation cannot be turned on manually. Operation can be overridden by central control.</td>
<td>Closed Contact-Indoor unit is turned on.</td>
<td>Open Contact-Indoor unit is turned off.</td>
</tr>
<tr>
<td>2</td>
<td>Thermo-On/Off deadband (Note 4)</td>
<td>2F (1C)</td>
<td>1F (0.5C)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>Fan Speed in Heating Thermo-Off</td>
<td>LL</td>
<td>User set</td>
<td>Off</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>6</td>
<td>Fan Speed in Cooling Thermo-Off</td>
<td>LL</td>
<td>User set</td>
<td>Off</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>Return air sensor offset</td>
<td>2C</td>
<td>None (for remote sensor)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

1. Field settings are normally applied to the entire remote control group, however if individual indoor units in the remote control group require specific settings or for confirmation that settings have been established, utilize the mode number in parenthesis.
2. Any features not supported by the installed indoor unit will not be displayed.
3. When mode 10-2-01 is selected, only the return air temperature value is reported to the multizone controller.
4. The actual default deadband value will depend upon the indoor unit model.
<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description</th>
<th>Second Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
<td>7</td>
<td>STANDBY icon</td>
<td>Display in Defrost or Hot Start</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Displayed</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Day/Clock</td>
<td>Displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Displayed</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Setpoint display while the unit is off</td>
<td>Displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Displayed</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Mode display while the unit is off</td>
<td>Displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Display OFF instead of the mode</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Fan Speed button configuration</td>
<td>Fan Speed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fan ON/Auto (Fan LL in thermo-off) (Applicable to SkyAir only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FAN ON/Auto (Fan Off in thermo-off) (Applicable to SkyAir only)</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Fan icon display</td>
<td>Displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Displayed</td>
</tr>
<tr>
<td>1c</td>
<td>1</td>
<td>Thermistor sensor used for Auto-changeover and Setback control</td>
<td>Return Air Thermistor–return air temperature displayed on controller as room temperature</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Remote Controller Thermistor – remote controller temperature displayed on controller as room temperature</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Temperature Sensor Offset</td>
<td>01: -5.4°F (-3.0°C) 02: -4.5°F (-2.5°C) 03: -3.6°F (-2.0°C) 04: -2.7°F (-1.5°C) 05: -1.8°F (-1.0°C) 06: -0.9°F (-0.5°C) 07: 0.0°F (0.0°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13: +5.4°F (+3.0°C) 12: +4.5°F (+2.5°C) 11: +3.6°F (+2.0°C) 10: +2.7°F (+1.5°C) 09: +1.8°F (+1.0°C) 08: +0.9°F (+0.5°C)</td>
</tr>
<tr>
<td>1e</td>
<td>2</td>
<td>Setback availability</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heating mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cooling mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cooling/Heating modes</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Schedule and Auto-changeover enabled when a multizone controller is detected (Note 1)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>CENTRAL CONTROL icon</td>
<td>Not displayed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Displayed when under control by a multizone controller</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Message when button pushed which has been prohibited by a multizone controller</td>
<td>Key lock icon blinks for 5 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Message displayed on screen: &quot;Under Centralized Control. Adjustments at the remote control are being restricted.&quot;</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Auto changeover guard timer</td>
<td>15 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>90 min</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Auto changeover point</td>
<td>0.9°F (0.5°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.8°F (1.0°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.7°F (1.5°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.6°F (2.0°C)</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Quick changeover point beyond the auto changeover point</td>
<td>0.9°F (0.5°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.8°F (1.0°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.7°F (1.5°C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.6°F (2.0°C)</td>
</tr>
</tbody>
</table>

1. Native remote controller Schedule and Auto-changeover functions are disabled when a multizone controller is detected and a group address is assigned.
BRC1E72 Field Setting - Factory Default Values

- Do not change from the factory default value in the cells below highlighted in grey.
- This table would be referred to confirm the default value when you might have changed the unnecessary field setting accidentally.

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>1b</th>
<th>1c</th>
<th>1e</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>02</td>
<td>02</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>02</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>2</td>
<td>--</td>
<td>02</td>
<td>01</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>--</td>
<td>01</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>04</td>
<td>02</td>
<td>01</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>01</td>
<td>01</td>
<td>02</td>
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