



**VC 3000 Series
Line Voltage Switching
Relay Pack Controllers
Installation Guide**
For Commercial and Lodging HVAC
Fan Coil Applications

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INSTALLATION



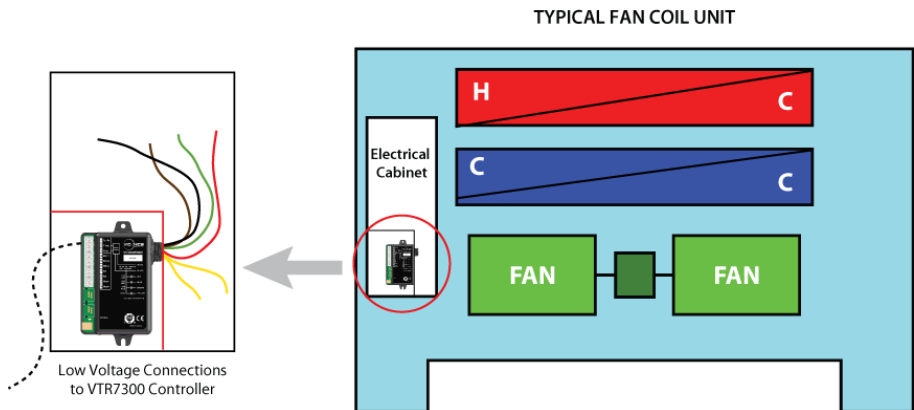
IMPORTANT: ALL WIRING MUST CONFORM TO LOCAL AND NATIONAL ELECTRICAL CODE REGULATIONS.

Please read the following instructions carefully before proceeding with the installation. Failure to follow the instructions could damage the product or cause a hazardous condition. Installation must be performed by a qualified service technician or electrician. Disconnect power supply before installing in order to prevent electrical shock.

There are three basic methods for installing the VC3000 transformer relay pack controller.

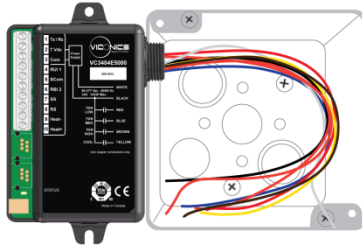
A) Inside an electrical cabinet of a fan coil unit

- Use the plastic mounting tabs to secure the unit to the inside of the electrical enclosure.
- Secure to the inside with screws.
- Cut one or both plastic mounting tabs if space is needed inside the enclosure.
- Install a low voltage or high voltage metal separator if required.
- Do not exceed the maximum rated temperature of the unit. (50 °C/122 °F)



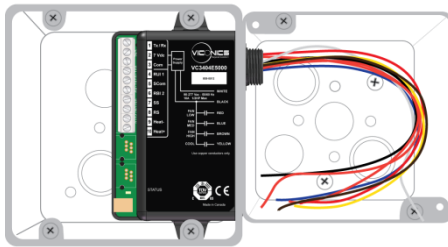
B) Outside of a junction box or electrical cabinet

- Use the supplied lock nut to secure the transformer relay pack to the electrical junction box or to the electrical cabinet of the fan coil unit.



C) Enclosed low voltage junction box type installation (if required by local codes)

- Install the transformer relay pack inside a 4"x 4" junction box.
- Cut one or both plastic mounting tabs if space is needed inside the enclosure.
- Use the supplied lock nut to secure the transformer relay pack (inside its junction box) to the main electrical junction box or to the electrical cabinet of the fan coil unit.



- **If replacing** an old line voltage fan coil controller, label the wires before removal of the old controller.
- **Electronic controls** are static sensitive devices. Discharge yourself of any electrostatic build-up before manipulating or installing the terminal equipment controller.
- **A short circuit** or wrong wiring may permanently damage the terminal equipment controller or the equipment.
- **VC3000 series** transformer relay packs are to be used only as operating controls. If installed incorrectly the intended application may fail or lead to personal injury or loss of property. It is the responsibility of the end user to ensure that the device has been properly installed by a certified professional and that proper safety precautions have been taken to protect against failures.

COMMUNICATION WIRING TO VTR73xxA

TERMINAL EQUIPMENT CONTROLLER



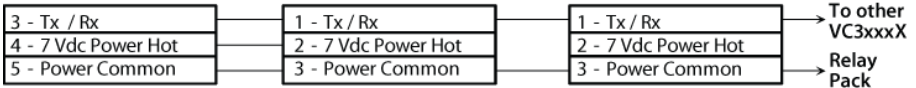
**VTR73xxA
Terminal Controller**



**VC3504E
Relay Pack**



**VC3300E
Relay Pack**



Only one VC3xxxX relay pack with remote monitoring inputs can be used under a single VTR73xxA controller. All other slave units must be either VC3xxxX relay pack(s) WITHOUT remote inputs. A maximum of 10 VC3xxxX relay packs can be used for a single VTR73xxA terminal equipment controller.

From the VTR73xxA to the first VC3xxxX

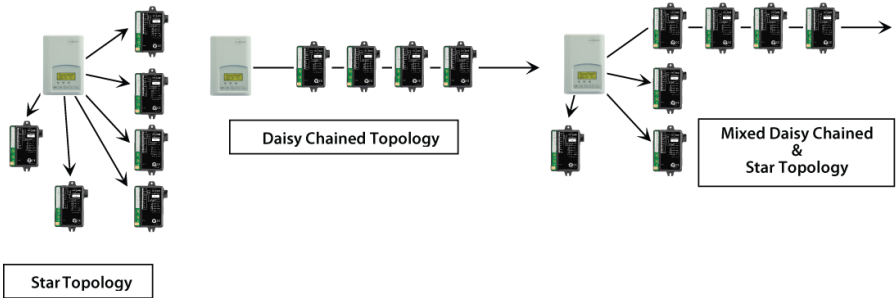
- o Existing or new field wires
- o 3 minimum required 14-22 Ga solid or stranded. Shield not necessary.7

From the first VC3xxxX to the controller to all other VC3xxxX Relay Pack(s)

- o Existing or new field wires
- o 2 minimum required 14-22 Ga solid or stranded. Shield not necessary.
- o Connect only common and 2 Tx / Rx communication

Possible network wiring topology

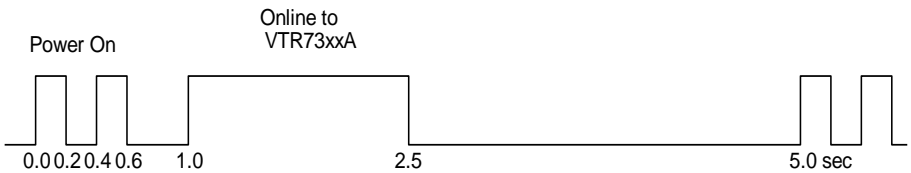
The VTR7300 to VC3000 transformer relay pack can use any network wiring topology as required or based on topology of existing wires.



VC3XXX LED OPERATION

Condition of the status LED

Condition of the Status LED	Cause	Solution
➤ 2 short blinks	No communication between the VTR73xxA and the VC3xxxX relay pack. The VC3xxxX Relay Pack will resume its output "no communication active" status	Check communication wiring and or power cycle the controllers
➤ 2 short blinks and a longer blink	Normal communication between the VTR73xxA and the VC3xxxX relay pack.	N/A



On/off LED vs. time (normal operation)

WIRING OF REMOTE INPUTS TO VC3504E AND VC3404E



Remote RUI 1 Input by configuration:

- None (monitoring only)
- Local changeover sensor (10K type2 COS)
- Local changeover contact (COC NO or COC NC)
- Service alarm (Service)
- Filter Alarm (Filter)

Remote RBI 2 Input by configuration:

- None (monitoring only)
- Service alarm (Service)
- Filter Alarm (Filter)

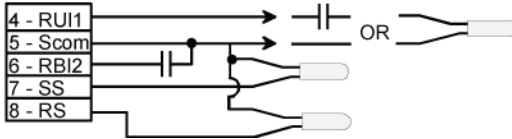
SS Supply sensor:

- 10K type2 monitoring only
- Auto detected

RS Return Air Sensor:

- 10K type2 main temperature copntrol
- Auto detected (by-passes VTR73xxA internal sensor)

**VC30x04E
Relay Pack**



MODEL CHART

Part #	VC3500E5000	VC3504E5000	VC3514E5000 Occ. Output	VC3400E5000	VC3404E5000	VC3300E5000 Slave Fan Unit
Applications	2 pipes 2 pipes with reheat 4 pipes	2 pipes 2 pipes with reheat 4 pipes	2 pipes 2 pipes with reheat 4 pipes	2 pipes 2 pipes with modulating pulsed reheat	2 pipes 2 pipes with modulating pulsed reheat	Slave fan control only
Fan control	Up to 3 speed	Up to 3 speed	Up to 3 speed	Up to 3 speed	Up to 3 speed	Up to 3 speed
Monitoring inputs	None	4 FCU remote inputs	4 FCU remote inputs	None	4 FCU remote inputs	None
Control types	On-Off line switched valve output control - 1 heat / cool output - 1 cool output - 3 fan outputs	On-Off line switched valve output control - 1 heat / cool output - 1 cool output - 3 fan outputs	On-Off line switched valve output control - 1 heat / cool output - 1 cool output - 3 fan outputs - Occupancy output	On-Off line switched valve output control - 1 heat / cool output - 1 Modulating pulsed Vdc output for SSR electric reheat control - 3 fan outputs	On-Off line switched valve output control - 1 heat / cool output - 1 Modulating pulsed Vdc output for SSR electric reheat control - 3 fan outputs	Slave fan control only 3 fan outputs

Ordering Information Notes:

- Please refer to the "Operation overview" section for related information on VTR73xxA and VC3xxxX arrangements and possible combinations.
- More than one VC3xxxX Relay Pack can be used for a single VTR73xxA Terminal Equipment Controller.
- Only one VC3x4X Relay Pack with monitoring inputs can be used for a single VTR73xxA Terminal Equipment Controller

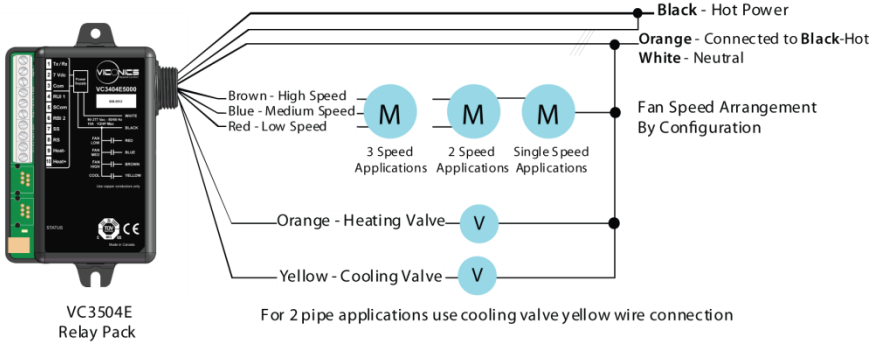
Ordering examples:

- A VC3500E5000 is for a 90 to 277 Vac powered FCU mounted Relay Pack with the following outputs:
 - Three 90 to 277 Vac switching fan relay outputs
 - Two 90 to 277 Vac switching valve relay outputs
- A VC3504E5000 is for a 90 to 277 Vac powered FCU mounted Relay Pack with the following inputs and outputs:
 - One configurable universal input
 - One configurable binary input
 - One dedicated discharge air temperature monitoring input
 - One dedicated return air temperature control input
 - Three 90 to 277 Vac switching fan relay outputs
 - Two 90 to 277 Vac switching valve relay outputs
- A VC3300E5000 is for a 90 to 277 Vac powered FCU mounted Relay Pack with the following outputs:
 - Three 90 to 277 Vac switching fan relay outputs

TERMINALS, WIRE IDENTIFICATION & RATINGS

Part #	VC3500E5000	VC3504E5000	VC3514E5000 Occupancy Output	VC3400E5000	VC3404E5000	VC3300E5000 Slave Fan Unit
Low Voltage Terminals	No local inputs	Low voltage inputs	Low voltage inputs	No local inputs	Low voltage inputs	No local inputs
1	1- Tx/Rx	1- Tx/Rx	1- Tx/Rx	1- Tx/Rx	1- Tx/Rx	1- Tx/Rx
2	2- 7 VDC	2- 7 VDC	2- 7 VDC	2- 7 VDC	2- 7 VDC	2- 7 VDC
3	3- Com	3- Com	3- Com	3- Com	3- Com	3- Com
4		4- RUI 1	4- RUI 1		4- RUI 1	
5		5- Scom	5- Scom		5- Scom	
6		6- RBI 2	6- RBI 2		6- RBI 2	
7		7- SS	7- SS		7- SS	
8		8- RS	8- RS		8- RS	
9			9-Occ	9- Heat -	9- Heat -	
10				10- Heat +	10- Heat +	
LINE VOLTAGE CONNECTIONS						
Power Supply	Power supply: - 90 to 277 VAC universal all models - Black Hot L1 Power VAC(Switches: Brown, Blue, Red, and Yellow) - White neutral power VAC					
Fan line voltage contact Wire connection ½ HP Maximum	3 Fan Speed Control Wires Brown, Blue, Red	3 Fan Speed Control Wires Brown, Blue, Red	3 Fan Speed Control Wires Brown, Blue, Red	3 Fan Speed Control Wires Brown, Blue, Red	3 Fan Speed Control Wires Brown, Blue, Red	3 Fan Speed Control Wires Brown, Blue, Red
Valve line voltage contact output Yellow wire connection 10A maximum	4 Pipes Cool output Or 2 Pipes Heat / Cool output	4 Pipes Cool output Or 2 Pipes Heat / Cool output	4 Pipes Cool output Or 2 Pipes Heat / Cool output	2 Pipes Heat / Cool output	2 Pipes Heat / Cool output	N/A
Valve line voltage isolated contact output 2 x Orange wires connection 10A maximum	4 Pipes Heat output Or 2 Pipes reheat output	4 Pipes Heat output Or 2 Pipes reheat output	4 Pipes Heat output Or 2 Pipes reheat output	N/A	N/A	N/A

TYPICAL WIRING EXAMPLE



— Orange - Electric Reheat — **R** —

For electric reheat applications where current draw is under above 10 A use a line powered coil pilot duty relay or contactor for the heating element in place of the heating valve.

SPECIFICATIONS

Power Supply: 90 to 277 VAC universal, 50-60 Hz

Fan line voltage contact electrical ratings: Brown, Blue, Red wires ½ HP maximum

Main heat and cool line voltage contact electrical ratings: Yellow wire 10A maximum

Isolated heat line voltage contact electrical ratings: Orange wires 10A maximum

Output ratings:

-Heat Valve: (Orange wire): 10 Amps @ 277 VAC maximum

-Cool Valve: (Yellow wire): 5 Amps @ 277 VAC maximum

-Fan: (red, blue, brown wire(s)): 1/2 HP @ 277 VAC maximum

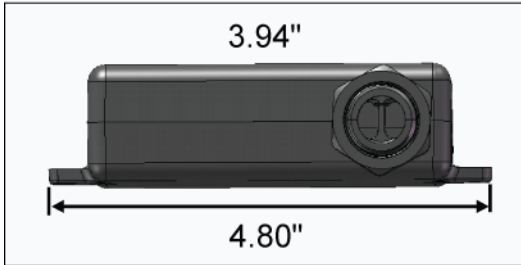
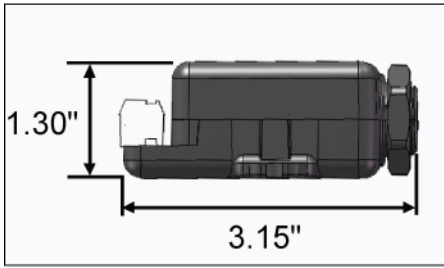
Operating conditions: 0C to 50C (32F to 122F)
0% to 95% RH non-condensing

Approximate shipping weight: 0.75lb (0.34kg)

Agency approvals all models:

- cTUVus:** UL 873 (US) and CSA C22.2 No. 24 (Canada)
- CE:** LVD 2006/95/EC (Europe Union)
- CE:** EMC 2004/108/EC (Europe Union)
- CE for RF:** RTTE 1999/5/EC
- FCC:** Compliant to: Part 15, Subpart B
- FCC for RF:** Compliant to: Part 15, Subpart C

DIMENSIONS



IMPORTANT NOTICE



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Please check with your local government for instruction on disposal of this product



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