

Installation Instructions

iQ Drive System Field Wiring Instructions

SCOPE

This document describes basic field wiring required to interconnect components of NORDYNE iQ Drive heating and air conditioning systems. These systems include one or more of the following: an iQ air conditioner, an iQ heat pump, and/or an iQ modulating gas furnace. All use an iQ thermostat/controller and equipment with variable speed motors, interconnected through a serial communication bus. The focus of this document is on the field-installed control wiring unique to each system combination. Wiring for an iQ Zone system is also included.

This document does not cover (a) general thermostat usage, (b) generic split refrigeration system installation guidelines, such as relates to line set length, differences in elevation between units, (c) refrigerant charging procedures, (d) physical installation of units, gas lines, refrigerant lines.

Information for connecting generic accessories is included with each indoor unit section.

IDENTIFY APPLICABLE SECTIONS FOR YOUR iQ SYSTEM COMBINATION

Table A1 lists the system combinations covered. Locate the row in the table which includes the components for the system being installed. The first column of that row lists the relevant sections of this document (identified by letters) for your specific system. Refer to **Table A2**, at the end of this document, to see the model and SKU numbers associated with the system components.

REFER TO SECTIONS	SYSTEM COMPONENTS			
	OUTDOOR UNIT	INDOOR UNIT	COIL	THERMOSTAT
B, C, D	iQ Air Conditioner or iQ Heat Pump	iQ Air Handler	---	iQ Controller
B, C, E*	iQ Air Conditioner	G6 Gas Furnace* with iQ Blower Kit	C5	iQ Controller
B, C, F	iQ Air Conditioner or iQ Heat Pump	G7 Gas Furnace (1 or 2 stage)	C6	iQ Controller
B, C, G	iQ Air Conditioner	G7 Gas Furnace (1 or 2 stage)	C5	iQ Controller
B, C, H	iQ Air Conditioner or iQ Heat Pump	MQ Modulating Gas Furnace	C6	iQ Controller
B, I	1 stg non-iQ A/C or no A/C	MQ Modulating Gas Furnace	Any	iQ Controller
B, J	2 stg non-iQ A/C	MQ Modulating Gas Furnace	Any	iQ Controller
B, K	1 stg non-iQ NORDYNE Heat Pump	MQ Modulating Gas Furnace	C6	iQ Controller
B, L	2 stg non-iQ NORDYNE Heat Pump	MQ Modulating Gas Furnace	C6	iQ Controller
M	Any of the above (*except G6 Furnaces) with iQ Zone			iQ Controller

*iQ Zone is NOT compatible with G6 gas furnaces.

Table A1. Section Reference Guide (abbreviated)

Accessories such as humidifier or electrostatic filter are not included as part of the system combinations.

NOTE: Thermostat models 920339C/D/E/F/G and 920340C/D/E/F/G are included in iQ Thermostat Kits 920620C/D/E/F/G and 920621C/D/E/F/G.

TABLE OF CONTENTS

A. GENERAL AND PROCEDURES COMMON TO ALL COMBINATIONS.....	3
B. iQ THERMOSTAT FIELD WIRING	3
C. iQ AIR CONDITIONING or iQ HEAT PUMP OUTDOOR UNIT.....	3
D. B5VM or B4VM iQ AIR HANDLER	4
E. G6 GAS FURNACE with iQ BLOWER KIT + C5 COIL.....	5
F. SINGLE STAGE G7/MGC2S GAS FURNACE with CONSTANT CFM BLOWER KIT or TWO STAGE G7/PGC2T GAS FURNACE with CONSTANT CFM BLOWER OPTION, + C6 COIL.....	6
G. SINGLE STAGE G7/MGC2S GAS FURNACE with CONSTANT CFM BLOWER KIT or TWO STAGE G7/PGC2T GAS FURNACE with CONSTANT CFM BLOWER OPTION, + C5 COIL.....	8
H. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + iQ AIR CONDITIONER or iQ HEAT PUMP.....	8
I. G7/PGC2 MODULATING GAS FURNACE + NON-IQ SINGLE STAGE AIR CONDITIONER or NO AIR CONDITIONER.....	10
J. G7/PGC2 MODULATING GAS FURNACE NON-IQ TWO STAGE AIR CONDITIONER	10
K. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + NORDYNE NON-IQ SINGLE STAGE HEAT PUMP	11
L. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + NORDYNE NON-IQ TWO STAGE HEAT PUMP.....	11
M. IQ ZONE WIRING.....	12

A. GENERAL AND PROCEDURES COMMON TO ALL COMBINATIONS

Check the order

Prior to site visit, check that the parts on hand match the sales order. Check the combination of parts against the above table to confirm that it is a valid iQ system combination. At the jobsite, confirm the components ordered with the homeowner, and inspect the parts for damage when unpacking each of the system components.

Documents Needed

Installers need to have Technical Specifications and Installation Instructions on hand for each piece of equipment which makes up the iQ system being installed.

Field-supplied wires:

- 4-conductor shielded cable (for the thermostat), AWG 18 recommended for durability.
- 3-conductor (minimum) shielded cable (for the outdoor unit), AWG 18 recommended for durability.
- 2-conductor (minimum) shielded cable or 2-wire thermostat wire (for control power), AWG 18 recommended for durability.

B. iQ THERMOSTAT FIELD WIRING

Installation of the unique iQ thermostat/system controller is required and common to all of these system combinations.

Consult with the homeowner to determine the preferred thermostat location if an existing location does not exist. The location must not be hidden or protected from normal air circulation, such as in a closet, in a laundry room, or behind a door which may be opened to block air flow to the thermostat. Note that room temperature and relative humidity are measured by sensors located on the thermostat itself.

Hardware is provided inside the thermostat packaging to mount its backing plate to the wall. If the hole in the wall is much larger than the thermostat wire bundle, use duct tape and/or insulation to fill and block as much of the opening as possible. This will prevent air inside the wall from influencing the thermostat temperature and humidity readings.

Run 4-conductor shielded cable to the thermostat from the furnace or air handler. Connect the 4 wires to the labeled screw terminals as shown in **Figure 1A** through the hole in the thermostat backing plate. Grounding of the shielded wiring must be done at one end only, at the furnace or air handler end.

Exception: For systems using a non-iQ heat pump as the outdoor unit (with an iQ modulating gas furnace), an additional 2 wires must be run to the thermostat to connect to the outdoor temperature sensor. Wire type may be any of those recommended in Section A, but colors distinct from the other 4 wires connecting to the thermostat should be used to minimize the possibility of wiring errors. Use thermostat backing plate terminals “GND” and “OD”. Refer to **Figure 1B**. Polarity is not important. See also Sections K or L.

IMPORTANT!

It essential that the wire meant to connect to the “R” terminal (24 vac) is not mistakenly connected to any of the other thermostat terminals. This voltage will damage the device!

After the wires are connected to their respective screw terminals, plug the thermostat face into the backing plate. Make sure that the plastic extensions on the right and left sides of the face match up with the corresponding slots on the backing plate before pushing the pieces together. The thermostat face may be installed or removed with or without control power present on the “R” terminal. Refer also to thermostat user instructions. When the thermostat is first powered up, check the version number which appears on the “iQ” screen which is initially displayed. This should agree with that noted in the System Controller column of the System Configuration Table, for the combination of components being installed. (Thermostat version can only be confirmed from the powered-up display.)

C. iQ AIR CONDITIONING or iQ HEAT PUMP OUTDOOR UNIT

Prior to beginning installation of the outdoor unit, check that home wiring has a single phase 208/230 volt circuit dedicated to air conditioning equipment, with circuit ampacity equal to or exceeding that listed on the equipment nameplate. Confirm presence of a suitable earth ground.

Refer to the Air Conditioner or Heat Pump Installation Instructions for unit installation other than field wiring.

Line Power Wiring

Route line voltage wiring (3 wires, including earth ground) from the indoor power panel to the outside disconnect following National Electric Code as supplemented by local electrical codes.

Remove the curved sheet metal housing covering the control panel on the unit. Route line voltage wiring (3 wires, including earth ground) from the outside disconnect through the hole in the bottom left side of the control panel of the outdoor unit. Connect line wires to L1 and L2 screw lugs at the base of the contactor, and the ground wire to the grounding screw to the left of the contactor. See **Figure 2**.

Control Wiring

Field-installed control wiring to the outdoor unit consists of:

- a 3-conductor shielded cable dedicated for iQ system communication
- 2 wires for 24 vac control power. This control power cable/wiring should be separate from the shielded cable intended for communication.

The indoor connection of these wires is described in Sections D through L.

Pass the 5 control wires into the hole in the bottom right side of the control panel of the outdoor unit, into the small low voltage wiring compartment. Locate the 5 corresponding factory-wired leads with stripped ends. Assure that each of these 5 wires (on the factory wiring side of the wire connections) loops one time around and through the “donut” (toroidal choke). Refer to **Figure 3** which shows one wire making a single loop.

- a 3-conductor (minimum) shielded cable connecting from the air handler to the outdoor unit (communications)
- 2 wires for 24 vac control power to the outdoor unit. This control power cable/wiring should be separate from the shielded cable intended for communication.

Refer to **Figures 6, 7, and 12**. Locate the 3½” x 4” interface circuit board (with 4 black rectangular relay blocks next to a 6-screw terminal strip) in the blower compartment. On that board locate three white connectors along one edge. The middle one, marked “OD UNIT” on the edge of the board, has three wires (YEL*, WHT, GRN) with stripped ends (pigtails). First assure that each of these 3 wires loop once around and through the “donut” (toroidal choke) as shown in **Figure 3**. Using wire nuts, connect these wires to the field-installed shielded wiring which connects to the three communication wires of the outdoor unit (Section C of this document).

* Earlier B5VM units used RED, WHT, GRN for these communication wires.

On the same indoor interface circuit board, locate the two leftmost screw terminals, labeled “R” and “C”, and locate the “donut” (toroidal choke) as shown in **Figure 3**. Pass the two field-installed wires which connect to the control power wires of the outdoor unit (Section C of this document) through the toroid two times (one loop). Connect these wires to the “R” and “C” screw terminals. Match the wire terminations with the outdoor unit control wires as follows:

Control Wiring to iQ A/C Unit

Communication Wiring			
Interface Board Terminal	Interface Board plug wire color	Outdoor unit wire color	Inverter terminal
DX+	YEL (or RED*)	YEL (or RED*)	DX+
DX-	WHT	WHT	DX-
GND	GRN	GRN	GND

Control Power Wiring			
R (screw)	[no factory wire]	RED (or BLK-striped YEL*)	(to High Pressure Switch)
C (screw)	[no factory wire]	GRY (or BLK*)	(contactor coil)

* on earlier iQ A/C units

Control Wiring to iQ Heat Pump Unit

Communication Wiring			
Indoor Interface Board Terminal	Indoor Interface Board plug wire color	Outdoor unit wire color	Outdoor Interface Board Terminal (RHS circuit board)
DX+	YEL	YEL	3 pin 3 wire white connector plug at RHS circuit board terminal “INDOOR”
DX-	WHT	WHT	
GND	GRN	GRN	

Control Power Wiring			
R (screw)	[no factory wire]	RED	“R” terminal screw
C (screw)	[no factory wire]	GRY	(contactor coil, RHS)

* on earlier iQ A/C units

IMPORTANT!

For iQ air conditioning units, trace the factory-installed red wire to determine which wire color scheme shown in Figure 4A matches the unit. (The wires reserved for 24 volt control power are either GRY and RED in units made starting mid-2009, or BLK and YEL-with-black-stripes in units made prior to mid-2009. Join each of the 5 field-run wires to its factory-wired counterpart using a wire nut, as shown in Figure 4A.

For iQ heat pumps join each of the 5 field-run wires to its factory-wired counterpart using a wire nut, as shown in **Figure 4B**. **Figure 5** shows all these control connections within the separate control wiring compartment of the control panel lower right side. NOTE: the RED and GRY wires are reserved for 24 volt control power in the heat pump. The wire from “R” must be connected to RED, and the wire from “C” must be connected to GRY.

IMPORTANT!

It essential that the wires meant to provide 24 volts to the outdoor unit are not mistakenly connected to the communication terminals. Check again before you apply power!

Outdoor EXV Board DIP Switch Settings

Check that the red DIP switch block of the EXV circuit board (see **Figure 10**) located in the upper left side within the controls compartment has been set in accordance with **Figure 8**. Note that for iQ heat pumps, switch 6 is set differently on indoor and outdoor EXV boards.

D. B5VM or B4VM iQ AIR HANDLER

Prior to beginning installation of the indoor unit, check the proposed or existing site for the equipment for routing of power and control wires. Follow Air Handler Installation Instructions for hardware and line power installation of the unit.

External Control Wiring

Field-installed control wiring consists of:

- a 4-conductor shielded cable connecting from the air handler to the thermostat (control power plus communications)

For iQ Air Conditioning units, be sure to confirm the outdoor unit wire color scheme (per **Figure 4A**) before making the outdoor connections.

On the same interface circuit board, locate the lower white connector, marked “THERMOSTAT” on the edge of the board. This connector has four wires (RED, YEL, WHT, GRN) with stripped ends (pigtails). First assure that each of these 4 wires loop once around and through the “donut” (toroidal choke) as shown in **Figure 3**. Using wire nuts, connect these to the four field-installed wires leading to the iQ thermostat (Section B of this document). Match the wire terminations as follows:

Interface Board Terminal	Interface Board plug wire color	Thermostat Terminal
R	RED	R
DX+	YEL	A+
DX-	WHT	B-
GND	GRN	C

Indoor EXV Board DIP Switch Settings

Check that the red DIP switch block of the EXV circuit board (see **Figure 10**) located inside the blower compartment has been set in accordance with **Figure 8**. Note that for systems with an iQ Heat Pump switch 6 should be on (1), and for systems with an iQ air conditioning unit switch 6 may be on or off.

Accessories

If a humidifier is installed, the iQ system can be used to control this accessory (acting as a humidistat). A 24 vac control output is provided between the “H” output (second screw terminal from the right on the interface board, **Figure 6**) and any “C” terminal (screw or tab) to operate the humidifier. The thermostat activates this output in order to maintain the configured humidification setpoint when the system is actively heating and (with Version 4.0 thermostat software and later) when the fan is in the manual/on mode with no call for heating or cooling.

E. G6 GAS FURNACE with iQ BLOWER KIT + C5 COIL

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires.

Follow Gas Furnace and iQ Blower Kit Installation Instructions for hardware and line power installation. Note: The G6 furnace without an iQ blower kit is not compatible with the iQ system. Control power transformer kit 904077 is also required.

Field Wiring, Coil to Furnace

Follow coil Installation Instructions for hardware installation, including refrigeration lines.

Control wiring between the coil and the EXV board in the furnace blower compartment, including operation and troubleshooting, is covered in Installation Instruction Addendum “iQ Drive EXV”, NORDYNE publication 7088380. Control wiring between the coil and the furnace consists of the following (see also **Figure 9**):

Number of conductors in cable	Wire colors	Number of Positions in Connector	Termination in Furnace
6	various	6 holes	“EXV” on EXV board
3	WHT, GRN, BLK (in gray sheath)	4 holes	“THERM/PRESS” on EXV board
2	RED	3 holes	“THERM #1 #2” on EXV board
2	RED, BLK (in gray sheath)	2 tabs	“COIL THERMISTOR” on interface board

- one 6-wire harness for EXV power, terminating in a 6-pin white plug (routed through the hole in the coil cover down to the EXV board in the furnace control compartment)
- one 3-wire harness for pressure transducer signal, terminating in a 4-pin white plug (routed through the hole in the coil cover down to the EXV board in the furnace control compartment)
- one 2-wire harness (red wires) for a temperature sensor, terminating in a 3-pin white plug (routed through the hole in the coil cover down to the EXV board in the furnace control compartment)
- one 2-wire cable with quick-connect terminals (routed through the hole in the coil cover down to the interface board in the furnace compartment).

Refer to **Figures 6, 10, and 11**. Make sure that the “ears” of each connector plug faces the white plastic back on its corresponding board terminal.

Indoor EXV Board DIP Switch Settings

Check that the red DIP switch block of the EXV circuit board (see **Figure 10**) located in the blower compartment electrical enclosure has been set in accordance with **Figure 8**. NOTE: For systems with an iQ air conditioning unit switch 6 may be on or off.

Control Power Transformer Replacement

Locate the control power transformer in the furnace burner compartment. Replace the standard 40va control power transformer with the 60va transformer (NORDYNE kit number 904077).

External Control Wiring

Field-installed control wiring consists of

- a 4-conductor shielded cable connecting from the furnace to the thermostat (control power plus communications)
- a 3-conductor (minimum) shielded cable connecting from the furnace to the outdoor unit (communications)
- 2 wires for 24 vac control power to the outdoor unit. This control power cable/wiring should be separate from the shielded cable intended for communication.

Refer to **Figures 6, 7 and 12**. Locate the 3½” x 4” interface circuit board (with 4 black rectangular relay blocks next to a 6-screw terminal strip) in the blower compartment. On that board locate three white connectors along one edge. The middle one, marked “OD UNIT” on the edge of the board, has three wires (YEL*, WHT, GRN) with stripped ends (pigtails). First assure that each of these 3 wires loop once around and through the “donut” (toroidal choke) as shown in **Figure 3**. Using wire nuts, connect these wires to the field-installed shielded wiring which connects to the three communication wires of the outdoor unit (Section C of this document).

* Earlier units used RED, WHT, GRN for these communication wires.

On the same indoor interface circuit board, locate the two leftmost screw terminals, labeled “R” and “C”, and locate the “donut” (toroidal choke) as shown in **Figure 3**. Pass the two field-installed wires which connect to the control power wires of the outdoor unit (Section C of this document) through the toroid two times (one loop). Connect these wires to the “R” and “C” screw terminals. Match the terminations with the outdoor unit control wires as follows:

Control Wiring to iQ A/C Unit

Communication Wiring			
Interface Board Terminal	Interface Board plug wire color	Outdoor unit wire color	Inverter terminal
DX+	YEL (or RED*)	YEL (or RED*)	DX+
DX-	WHT	WHT	DX-
GND	GRN	GRN	GNDA

Control Power Wiring			
R (screw)	[no factory wire]	RED (or BLK-stripped YEL*)	(to High Pressure Switch)
C (screw)	[no factory wire]	GRY (or BLK *)	(contactor coil)

* on units produced prior to mid-2009

Be sure to confirm the outdoor unit wire color scheme (per **Figure 4A**) before making the outdoor connections.

On the same interface circuit board, locate the lower white connector, marked “THERMOSTAT” on the edge of the board. This connector has four wires (RED, YEL, WHT, GRN) with stripped ends (pigtails). First assure that each of these 4 wires loop once around and through the “donut” (toroidal choke) as shown in **Figure 3**. Using wire nuts, connect these to the four field-installed wires leading to the iQ thermostat (Section B of this document). Match the wire terminations as follows:

Indoor Interface Board Terminal	Indoor Interface Board plug wire color	Thermostat Terminal
R	RED	R
DX+	YEL	A+
DX-	WHT	B-
GND	GRN	C

Accessories

If a humidifier is installed, the iQ system can be used to control this accessory (acting as a humidistat). A 24 vac control output is provided between the “H” output (second screw terminal from the right on the interface board, **Figure 6**) and any “C” terminal (screw or tab) to operate the humidifier. The thermostat activates this output in order to maintain the configured humidification setpoint when the system is actively heating and (with Version 4.0 thermostat software and later) when the fan is in the manual/on mode with no call for heating or cooling.

F. SINGLE STAGE G7/MGC2S GAS FURNACE with CONSTANT CFM BLOWER KIT or TWO STAGE G7/PGC2T GAS FURNACE with CONSTANT CFM BLOWER OPTION, + C6 COIL

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow Gas Furnace and Constant CFM Blower Kit Installation Instructions for hardware and line power installation.

Note: The single stage G7/MGC2S furnace without a constant cfm blower kit is not compatible with the iQ system. Do not proceed if this is not a compatible equipment combination.

Field Wiring, Coil To EXV Board

Follow coil Installation Instructions for hardware installation, including refrigeration lines.

Note that with this coil, the EXV circuit board must be field-mounted to the outside of the coil’s enclosure, and the following connections must be made in the field between the EXV board and components inside the coil enclosure. Refer to **Figures 10 and 11**. Make sure that the “ears” of each connector plug faces the white plastic back on its corresponding board terminal.

Number of conductors in cable	Wire colors	Number of Positions in Connector	EXV board terminal identification
6	various	6	EXV
3	WHT, GRN, BLK	4	THERM/PRESS
2	RED	3	THERM #1 #2

EXV operation and wiring troubleshooting is covered in Installation Instruction Addendum “iQ Drive EXV”, NORDYNE publication 7088380. This wiring is shown in the upper portion of **Figure 14**.

Indoor EXV Board DIP Switch Settings

Check that the red DIP switch block of the EXV circuit board (see **Figure 10**) has been set in accordance with **Figure 8**. Note that for systems with an iQ Heat Pump switch 6 should be on (1), and for systems with an iQ air conditioning unit switch 6 may be on or off.

Field Wiring, Coil To Furnace Motor Control Board

Locate the blower motor control board in the control enclosure within the furnace blower compartment. Control wiring between the coil with its EXV board and this board consists of installing the following 5 wires (refer to **Figures 13 and 14**):

- “R” wire (red, provided with the coil), between the EXV board and the blower motor control board (both .25” tab quick connect terminals). Attach the piggyback terminal at the blower control board end.
- “C” wire (gray, provided with the coil), between the EXV board and the blower motor control board (both .25” tab quick connect terminals)
- “Y” wire (yellow, provided with the coil), between the EXV board and the blower motor control board (.188” tab terminal at the EXV board, .25” tab at the blower motor control board OUTPUT terminal “Y/Y2”)
- one 2-wire cable with .25” tab quick connect terminals (provided with the coil) to be routed through the hole in the coil cover down to the adjacent blower control board INPUT terminals “SENSOR” and “GND”. Polarity is not important.

Origin	Wire colors	Terminal Type	Terminal(s) on Blower Motor Control Board
EXV Board R	RED	.25” tab (piggyback)	R
EXV Board C	GRY	.25” tab	C
EXV Board Y	YEL	.25” tab	Y/Y2 (OUTPUTS)
Coil Temperature Sensor (2 wires)	RED, BLK (in gray sheath)	2 @ .25” tabs	SENSOR, GND (INPUTS)

Control Power Transformer Replacement

Locate the control power transformer in the furnace burner compartment. Replace the standard 40va control power transformer with the 60va transformer provided with the C6 coil.

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace to the thermostat (control power plus communications)
- a 3-wire (or more) shielded cable connecting from the furnace to the outdoor unit (communications)
- a 2 wire cable connection from the furnace to the outdoor unit (24 vac control power). The control power should not be run within the shielded cable intended for communication.

Locate the blower motor control board in the furnace blower compartment. Near the center of the lower edge are two 4-position terminal blocks, one above the other. The upper one is a receptacle for a 4-pin connector, and the lower one is either the same or a 4-position screw terminal block (depending upon the version of the board). See **Figure 15**. Each of the positions, left to right, in these two terminal sets are identical. (Photographs used as figures in this document show the version with the screw terminals.)

While this arrangement provides alternatives for wiring to the thermostat and to the outdoor unit, the following describes the recommended approach.

Using the 4-wire connector with pigtails (NORDYNE part 634680) provided with the thermostat, connect this to the 4 pin terminal as shown in **Figure 16**. Make sure that the “ears” of the connector plug face the white plastic back on the board terminal.

NOTE: Alternatively the screw terminals (if present) may be used. Wire installation to these screw terminals may be facilitated by unfastening the lower portion of the board. In order to release the board, locate plastic standoffs which pass through holes in the board. **Assure that line power is off first!** Squeeze “wings” on these standoffs with needle nose pliers to allow the board to be lifted from them. When finished, the board will snap back onto the standoffs. *When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.*

Using wire nuts or similar hardware, connect the 4 wires leading to the iQ thermostat/controller and 3 wires providing communication with the outdoor unit to these terminals as shown in the following table. Note that the right side terminal (R) will only join with one wire (to the thermostat). The other 3 terminals (YEL, WHT, GRN) will each join two other wires – one to the thermostat and one to the outdoor unit. See **Figure 17**.

Pin or screw Position	Blower Control Board Terminal	wire color (connector 634680)	Destination Terminal(s)
1 (right)	R	RED	Thermostat R
2	DX+	YEL	Thermostat A+
			Outdoor unit YEL* wire (DX+)
3	DX-	WHT	Thermostat B-
			Outdoor unit WHT wire (DX-)
4 (left)	C	GRN	Thermostat C
			Outdoor unit GRN wire (GND)

* RED in iQ A/C units made before mid-2009

IMPORTANT!

If the “R” wire is incorrectly connected to one of the communication terminals, it will damage the device!

Control power is provided to the outdoor unit from R and C source terminals. There are several possible sources for these within the furnace. The recommended sources are the R and C screw terminals on the furnace board located in the burner compartment. It is strongly recommended that R and C be run in a separate cable/group from the shielded communication wires.

The R and C screw terminals are shown for the single stage G7 furnace board in **Figure 18** and for the two stage board in **Figure 19**. For iQ Air Conditioning units, be sure to confirm the outdoor unit wire color scheme (per **Figure 4A**) before making the outdoor connections. 24 volt control power must NOT be connected to a DX+ terminal on the inverter board!

Furnace Board Screw Terminal	iQ Outdoor Unit Wires	
	iQ Air Conditioner	iQ Heat Pump
R	RED (or black-striped yellow)	RED
C	GRY (or BLK)	GRY

Accessories

If a humidifier is installed, the iQ system can be used to control this accessory (acting as a humidistat). A 24 vac control output is provided between the “H” output (the bottom tab in the OUTPUTS group on the motor control board, **Figure 13**) and any “C” terminal to operate the humidifier. The thermostat activates this output in order to maintain the configured humidification setpoint when the system is actively heating and (with Version 4.0 thermostat software and later) when the fan is in the manual/on mode with no call for heating or cooling.

In order to take full advantage of the humidification capabilities of the iQ thermostat (including humidification when the fan is in the manual/on mode with no call for heating or cooling),

provide full time 115 vac to the humidifier (if required by that device) from any external source rather than from the furnace board.

An electronic air cleaner (EAC) may be powered with 115 vac from the “EAC” tab (.25”) at the base of the furnace control board in the burner compartment. This tab is energized whenever the furnace is operating and calling for the blower to run.

G. SINGLE STAGE G7/MGC2S GAS FURNACE with CONSTANT CFM BLOWER KIT or TWO STAGE G7/PGC2T GAS FURNACE with CONSTANT CFM BLOWER OPTION, + C5 COIL

While the G7 furnaces are designed and intended to be matched with C6 coils, it is understood that in some cases they will be instead installed with C5 coils. This section addresses that situation. Such a system is not compatible with an iQ heat pump.

Expect that extra sheet metal adaptation will be required, since the coil and furnace widths will not match.

Required NORDYNE parts not provided with thermostat, coil, or furnace:

- EXV circuit board 624734
- control power transformer NORDYNE part number 622396

For this system an EXV circuit board must be purchased and installed separately. It is not provided with either the C5 coil or with the furnace. Select a vertical surface where there is no possibility of wetting or other contamination for mounting the EXV board. On this surface drill four 3/16” holes in a 3.0” x 3.5” rectangular pattern.

Otherwise, follow the field wiring instructions of Section F.

H. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + iQ AIR CONDITIONER or iQ HEAT PUMP

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow iQ Modulating Gas Furnace Installation Instructions for hardware and line power installation.

Field Wiring, Coil To EXV Board

Follow coil Installation Instructions for hardware installation, including refrigeration lines. Note that with this coil the EXV circuit board must be field-mounted to the coil’s enclosure, and the following connections must be made in the field between the EXV board and components inside the coil enclosure. Refer to **Figures 10 and 11**. Make sure that the “ears” of each connector plug faces the white plastic back on its corresponding board terminal.

Number of conductors in cable	Wire colors	Number of Positions in Connector	EXV board terminal identification
6	various	6	EXV
3	WHT, GRN, BLK	4	THERM/PRESS
2	RED	3	THERM #1 #2

EXV operation and wiring troubleshooting is covered in Installation Instruction Addendum “iQ Drive EXV”, NORDYNE publication 7088380. This wiring is shown in the upper portion of **Figure 14**.

Indoor EXV Board DIP Switch Settings

Check that the red DIP switch block of the EXV circuit board (**Figure 10**) has been set in accordance with **Figure 8**. Note that for systems with an iQ Heat Pump switch 6 should be on (1), and for systems with an iQ air conditioning unit switch 6 may be on or off.

Field Wiring, Coil To Furnace Motor Control Board

Locate the blower motor control board in the furnace blower compartment. Control wiring between the coil with its EXV board and this board consists of installing the following 5 wires (see **Figures 13 and 14**):

- “R” wire (red, provided with the coil), between the EXV board and the blower motor control board (both .25” tab quick connect terminals). Note that the red wire from the EXV board has a piggy back terminal which will allow it and the blue wire (used for the furnace) to share the “R” terminal at the blower board. Attach the piggyback terminal at the blower control board end.
- “C” wire (gray, provided with the coil), between the EXV board and the blower motor control board (both .25” tab quick connect terminals)
- “Y” wire (yellow, provided with the coil), between the EXV board and the blower motor control board (.188” tab terminal at the EXV board, .25” tab at the blower control board OUTPUT terminal “Y/Y2”)
- one 2-wire cable with .25” tab quick connect terminals (provided with the coil) to be routed through the hole in the coil cover down to the adjacent blower control board INPUT terminals “SENSOR” and “GND”. Polarity is not important.

Origin	Wire colors	Terminal Type	Terminal(s) on Blower Motor Control Board
EXV Board R	RED	.25” tab (piggyback)	R
EXV Board C	GRY	.25” tab	C
EXV Board Y	YEL	.25” tab	Y/Y2 (OUTPUTS)
Coil Temperature Sensor (2 wires)	RED, BLK (in gray sheath)	2 @ .25” tabs	SENSOR, GND (INPUTS)

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace board to the thermostat (control power plus communications)

- a 3-wire (or more) shielded cable connecting from the furnace to the outdoor unit (communications)
- a 2 wire cable connection from the furnace to the outdoor unit (24 vac control power). The control power should not be run within the shielded cable intended for communication.

This wiring is slightly different from the single or two stage G7 furnace due to differences in the furnace board and different terminal usage on the motor control board.

Locate the furnace control board in the burner compartment. Find a block of four screw terminals near the top edge of the board labeled “R DX+ DX- C”. Refer to **Figures 20, 21**, and **22**. Connect these to the iQ thermostat as follows:

Furnace Board Terminal	Thermostat Terminal
R	R
DX+	A+
DX-	B-
C	C

When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Locate the blower motor control board in the furnace blower compartment. Near the center of the lower edge are two 4-position terminal blocks, one above the other. The upper one is a receptacle for a 4-pin connector, and the lower one is either the same or a 4-position screw terminal block (depending upon the version of the board). See **Figure 15**. The function of each of the positions, left to right, in these two terminal sets is identical. (Photographs used as figures in this document show the version with the screw terminals.)

While this arrangement provides alternatives for wiring to the thermostat and to the outdoor unit, the following describes the recommended approach.

Using the 4-wire connector with pigtails (NORDYNE part 634680) provided with the thermostat, connect this to the unused 4 pin terminal marked “C DX- DX+ R”. Make sure that the “ears” of the connector plug face the white plastic back on the board terminal.

NOTE: If the screw terminals are present, they must be used. This approach is shown in **Figure 23**. Wire installation to these screw terminals may be facilitated by unfastening the lower portion of the board. In order to release the board, locate plastic standoffs which pass through holes in the board. Assure that line power is off first! Squeeze “wings” on these standoffs with needle nose pliers to allow the board to be lifted from them. When finished, the board will snap back onto the standoffs. When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Connect the 4 wires providing communication and control power to the outdoor unit to these terminals. Note that only the left side terminal (“C”) will connect to two wires. The other 3 terminals will each have a single destination at the outdoor unit. See **Figure 22**. Utilize the terminals on the motor control board to connect to the outdoor unit as follows: In the table “Destination Terminal” is for reference only –wire-to-wire connections only are required.

Wiring Summary, Blower Control Board to Outdoor Unit (iQ Air Conditioner)

Pin or screw Position	Blower Control Board Terminal	wire color (connector 634680)	Outdoor Unit Matching Wire	Destination Terminal
1 (right)	R	RED	RED (or BLK-stripped YEL)*	OD unit high pressure switch
2	DX+	YEL	YEL (or RED)*	OD Unit Inverter DX+
3	DX-	WHT	WHT	OD Unit Inverter DX-
4 (left)	C	GRN	GRN	OD Unit Inverter GND
			GRY (or BLK)*	OD unit contactor coil

* in iQ A/C units made before mid-2009

Wiring Summary, Blower Control Board to Outdoor Unit (iQ Heat Pump)

Pin or screw Position	Blower Control Board Terminal	wire color (connector 634680)	Outdoor Unit Matching Wire	Destination Terminal
1 (right)	R	RED	RED	OD interface board “R” screw terminal
2	DX+	YEL	YEL	OD interface bd “INDOOR” DX+
3	DX-	WHT	WHT	OD interface bd “INDOOR” DX-
4 (left)	C	GRN	GRN	OD interface bd “INDOOR” GND
			GRY	OD unit contactor coil

! IMPORTANT!

If the “R” wire is incorrectly connected to one of the communication terminals, it will damage the device!

Accessories

For humidifier or electronic air filter control wiring refer to “Accessories” under Section F.

I. G7/PGC2 MODULATING GAS FURNACE + NON-IQ SINGLE STAGE AIR CONDITIONER or NO AIR CONDITIONER

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow iQ Modulating Gas Furnace Installation Instructions for hardware and line power installation.

Field wiring is similar to Section H except that wiring to the A/C condensing unit (if present) is simpler, and there are no connections between the furnace and the coil.

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace to the thermostat (control power plus communications)
- a 2 wire connection from the furnace to the outdoor unit (24 vac compressor start signal).

Locate the furnace control board in the burner compartment. Find a block of four screw terminals near the top edge of the board labeled “R DX+ DX- C”. Refer to **Figures 20, 21, and 24**.

Connect these to the iQ thermostat as follows:

Furnace Board Terminal	Thermostat Terminal
R	R
DX+	A+
DX-	B-
C	C

When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Locate the blower motor control board in the furnace blower compartment. Run two control wires from .25” tab connections on the left side of the motor control board to the outdoor unit (if present) as follows (see **Figure 24**).

Blower Control Board Terminal	Destination Terminal(s)
“C”	Outdoor unit “C”
“Y/Y2” (OUTPUTS)	Outdoor unit “Y”

Accessories

For humidifier or electronic air filter control wiring refer to “Accessories” under Section F.

J. G7/PGC2 MODULATING GAS FURNACE NON-IQ TWO STAGE AIR CONDITIONER

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow iQ Modulating Gas Furnace Installation Instructions for hardware and line power installation.

Field wiring is similar to Section H except that wiring to the A/C condensing unit is simpler, and there are no connections between the furnace and the coil.

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace to the thermostat (control power plus communications)
- a 3 or 4-wire connection from the furnace to the outdoor unit (4-wire for NORDYNE air conditioners with a Comfort Alert module).

Locate the furnace control board in the burner compartment. Find a block of four screw terminals near the top edge of the board labeled “R DX+ DX- C”. Refer to **Figures 20, 21, and 25**. Connect these to the iQ thermostat as follows:

Furnace Board Terminal	Thermostat Terminal
R	R
DX+	A+
DX-	B-
C	C

When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Locate the blower motor control board in the furnace blower compartment. Run three (or four) control wires from .25” tab connections on the left side of the motor control board to the outdoor unit as follows (see **Figure 25**). If the air conditioner requires an “R” wire, use a brass Y-shaped terminal adapter provided in the thermostat kit to allow both this field-installed wire and the factory-installed BLU wire to be connected to the “R” terminal on the blower motor control board.

Blower Control Board Terminal	Destination Terminal(s)
“C”	Outdoor unit “C”
“Y1” (OUTPUTS)	Outdoor unit “Y1”
“Y/Y2” (OUTPUTS)	Outdoor unit “Y2”
“R”	Outdoor unit “R” (needed for NORDYNE A/C units with Comfort Alert modules)

Accessories

For humidifier or electronic air filter control wiring refer to “Accessories” under Section F.

K. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + NORDYNE NON-IQ SINGLE STAGE HEAT PUMP

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow iQ Modulating Gas Furnace Installation Instructions for hardware and line power installation.

Field wiring is similar to Section H except that wiring to the outdoor unit is different, and there are no connections between the furnace and the coil.

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace to the thermostat (control power plus communications)
- a 5-wire connection from the furnace to the outdoor unit (24 vac)
- a 2-wire connection from the outdoor temperature sensor (NORDYNE kit #920938) to the thermostat.

Locate the furnace control board in the burner compartment. Find a block of four screw terminals near the top edge of the board labeled “R DX+ DX- C”. Refer to **Figures 20, 21, and 26**. Connect these to the iQ thermostat as follows:

Furnace Board Terminal	Thermostat Terminal
R	R
DX+	A+
DX-	B-
C	C

When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Locate the blower motor control board in the furnace blower compartment. Run five control wires from the motor control board (4 from the left side, 1 from the right side) as follows to the outdoor unit’s defrost control board. All are .25” tab terminals. (See **Figure 26**) Use a brass Y-shaped terminal adapter provided in the thermostat kit to allow both the field-installed “R” wire and the factory-installed BLU wire to be connected to the “R” terminal on the blower motor control board.

Blower Control Board Terminal	Destination Terminal(s)
“C”	Outdoor unit defrost board “C”
“R”	Outdoor unit defrost board “R”
“Y/Y2” (OUTPUTS)	Outdoor unit defrost board “Y”
“W/O” (OUTPUTS)	Outdoor unit defrost board “O”
“Y1/E” (INPUTS)	Outdoor unit defrost board “W2”

Install the outdoor temperature sensor (from NORDYNE kit #920938) in a location that would be expected to provide a reasonably accurate temperature reading in cold weather. Splice the ends of the sensor leads to wires which are to be routed to the thermostat. Connect to thermostat terminals “OD” and GND”. See **Figure 1B**. Refer also to the installation instructions included with the kit for more details.

Accessories

For humidifier or electronic air filter control wiring refer to “Accessories” under Section F.

L. G7/PGC2 MODULATING GAS FURNACE + C6 COIL + NORDYNE NON-IQ TWO STAGE HEAT PUMP

If this is a full furnace installation, first check the proposed or existing equipment site for routing of power and control wires. Follow iQ Modulating Gas Furnace Installation Instructions for hardware and line power installation.

Field wiring is similar to Section H except that wiring to the outdoor unit is different, and there are no connections between the furnace and the coil.

External Control Wiring

Field-installed control wiring consists of

- a 4-wire shielded cable connecting from the furnace to the thermostat (control power plus communications)

- a 6-wire connection from the furnace to the outdoor unit (24 vac)
- a 2-wire connection from the outdoor temperature sensor (NORDYNE kit #920938) to the thermostat.

Locate the furnace control board in the burner compartment. Find a block of four screw terminals near the top edge of the board labeled “R DX+ DX- C”. Refer to **Figures 20, 21, and 27**. Connect these to the iQ thermostat as follows:

Furnace Board Terminal	Thermostat Terminal
R	R
DX+	A+
DX-	B-
C	C

When connecting to screw terminals, it is essential that there be no “strand shorts” between adjacent connections.

Locate the blower motor control board in the furnace blower compartment. Run six control wires from the motor control board (5 from the left side, 1 from the right side) as follows to the outdoor unit’s defrost control board. All are .25” tab terminals. (See **Figure 27**) Use a brass Y-shaped terminal adapter provided in the thermostat kit to allow both the field-installed “R” wire and the factory-installed BLU wire to be connected to the “R” terminal on the blower motor control.

Blower Control Board Terminal	Destination Terminal(s)
“C”	Outdoor unit defrost board “C”
“R”	Outdoor unit defrost board “R”
“Y1” (OUTPUTS)	Outdoor unit defrost board “Y”
“Y/Y2” (OUTPUTS)	Outdoor unit defrost board “Y2”
“W/O” (OUTPUTS)	Outdoor unit defrost board “O”
“Y1/E” (INPUTS)	Outdoor unit defrost board “W2”

Install the outdoor temperature sensor (from NORDYNE kit #920938) in a location that would be expected to provide a reasonably accurate temperature reading in cold weather. Splice the ends of the sensor leads to wires which are to be routed to the thermostat. Connect to thermostat terminals “OD” and GND”. See **Figure 1B**. Refer also to the installation instructions included with the kit for more details.

Accessories

For humidifier or electronic air filter control wiring refer to “Accessories” under Section F.

M. iQ ZONE WIRING

This section describes how to connect an iQ Zone system to an iQ heating and/or cooling system described under any of the preceding sections. A single plug-in 12 volt dc power supply provided with iQ zone serves all zoning network components (main Airzone control board, local zone thermostats, zone modules, and damper motors).


iQ Zone System Wiring

Installation of the iQ Zone system requires wiring between all zoning system components (main Airzone control board, local zone thermostats, zone modules, and damper motors). It is assumed that all of this has been completed following the iQ Zone Installation Instructions (separate document). Figure 28 shows the wiring between these components for reference. Recommended cable for wiring between modules is shielded 4-conductor cable, AWG20, stranded copper.

Zone wiring shielding should only be connected to ground at one point, e.g. at the ground symbol terminal on the Airzone control board. The shielding wires for each segment of zone control wiring should be interconnected by twisting, external to the connector blocks.

External Control Wiring

The only additional field wiring required is the interconnection between the rest of the iQ communication bus to the Airzone control board (Figures 28 and 29) and grounded shielding. Connect these wires as follows, splicing into the iQ bus at any convenient location (usually in the furnace or air handler).

iQ Bus Conductor	Airzone Control Board Terminal
A+ or DX+	A
GND or C	None
B- or DX-	B
Shielding	

NOTE: The third iQ communication bus wire (GND or C) should not be connected to the zone control board, since for some equipment the ‘C’ connection is floating and not grounded. Zone system wire shielding should be connected as indicated in Figure 28, at the earth ground symbol, and it should not be grounded elsewhere in the zone system circuit. Grounding for all zone system wiring is made through the iQ wire shielding to its sole ground point (e.g. in a furnace).

Table A2. Equipment Configurations Addressed (with model and SKU numbers)

See Sections	Indoor Unit	Indoor Coil	Outdoor Unit	System Controller
A, B, C, D	<p>B4VM, B5VM, B6VM iQ Air Handler Models: B5VM-E36K-B (SKU 904390E) B5VM-E48K-C (SKU 904391E) PAH2VM E36KB (SKU 904390PE) PAH2VM E48KC (SKU 904391PE) B4VM-E24K-B (SKU 920778) B4VM-E36K-B (SKU 920779) B4VM-E48K-C (SKU 920780) PAH4VM E24KB (SKU 920778P) PAH4VM E36KB (SKU 920779P) PAH4VM E48KC (SKU 920780P) B6VMAI 24K-B (SKU 921173) B6VMAI 36K-B (SKU 921174) B6VMAI 48K-C (SKU 921175)</p>	(included with Air Handler)	<p>iQ A/C Condensing Unit Models: FS4BI-024KA (SKU 919281F) FS4BI-036KA (SKU 919282F) FS4BI-048KA (SKU 919283F) PSA4BI-024KA (SKU 919281P) PSA4BI-036KA (SKU 919282P) PSA4BI-048KA (SKU 919283P)</p>	<p>iQ Thermostat Models (all): 919724 919724A 919725, 919725A 920622, 920623 920339A,C,D,E,F, G 920340A,C,D,E,F, G (Software versions 1.4 and later)</p>
A, B, C, E	<p>G6 Furnace with iQ Blower Kit iQ Blower Kit: SKU 904621 or FG6TE nnnC-IQx or FG6TE nnnN-IQx (where n is a number and x may be a letter or absent) (SKU range 904623F to 904630F, 904582F to 904589F) (NOTE: G6 furnaces are not compatible with iQ Zone.)</p>	<p>C5 Coil Coil Models: C5BH-E36C-B (SKU 919230E) C5BH-E48C-C (SKU 919231E) E36 FRU SKU 919457E E48 FRU SKU 919458E</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models (all): 919724 919724A 919725, 919725A 920622, 920623 920339A,C,D,E,F,G 920340A,C,D,E,F,G (Software versions 1.4 and later)</p>
A, B, C, F	<p>1 Stage G7 Gas Furnace with Constant CFM Blower Kit Furnace Models: numbers containing "G7S" or "MGC2S" Blower Kit Models: SKUs 904876, 904877, 904878, 904879</p>	<p>C6 Coil Models: C6BH-Ennx-x (where n is a number and x is any letter), SKUs 920162 to 920165 and 920409 to 920412</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models: 920622, 920623 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 3.1 and later)</p>
A, B, C, F	<p>2 Stage G7 Gas Furnace with Constant CFM Option Furnace Models: FG7Tx nnnx-Vx or PGC2Tx nnnx-Vx (where n is a number and x is any letter) SKUs: 904709F to 904726F, 904735F to 904742F, 904709P to 904726P, 904735P to 904742P</p>	<p>C6 Coil Models: C6BH-Ennx-x (where n is a number and x is any letter), SKUs 920162 to 920165 and 920409 to 920412</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models: 920622, 920623 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 3.1 and later)</p>
A, B, C, G	<p>1 Stage G7 Gas Furnace with Constant CFM Blower Kit Furnace Models: numbers containing "G7S" or "MGC2S" Blower Kit Models: SKUs: 904876, 904877, 904878, 904879</p>	<p>C5 Coil Models: C5BH-E36C-B (SKU 919230E) C5BH-E48C-C (SKU 919231E) E36 FRU SKU 919457E E48 FRU SKU 919458E</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models: 920622, 920623 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 3.1 and later)</p>
A, B, C, G	<p>2 Stage G7 Gas Furnace with Constant CFM Option Furnace Models: FG7Tx nnnx-Vx or PGC2Tx nnnx-Vx (where n is a number and x is any letter) SKUs: 904709F to 904726F, 904735F to 904742F, 904709P to 904726P, 904735P to 904742P</p>	<p>C5 Coil Models: C5BH-E36C-B (SKU 919230E) C5BH-E48C-C (SKU 919231E) E36 FRU SKU 919457E E48 FRU SKU 919458E</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models: 920622, 920623 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 3.1 and later)</p>
A, B, C, H	<p>G7 Modulating Gas Furnace Furnace Models: numbers containing "FG7MQ" or "PGC2MQ" SKUs: 904743F to 904746F, 904743P to 904746P</p>	<p>C6 Coil Models: C6BH-Ennx-x (where n is a number and x is any letter), SKUs 920162 to 920165 and 920409 to 920412</p>	<p>iQ A/C Condensing Unit Models: as above</p>	<p>iQ Thermostat Models: 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 4.0 and later)</p>

See Sections	Indoor Unit	Indoor Coil	Outdoor Unit	System Controller
A, B, C, D	B4VM or B6VM iQ Air Handler <u>Models:</u> B4VM-E24K-B (SKU 920778) B4VM-E36K-B (SKU 920779) B4VM-E48K-C (SKU 920780) PAH4VM E24KB (SKU 920778P) PAH4VM E36KB (SKU 920779P) PAH4VM E48KC (SKU 920780P) B6VMAI 24K-B (SKU 921173) B6VMAI 36K-B (SKU 921174) B6VMAI 48K-C (SKU 921175)	(included with Air Handler)	iQ Heat Pump <u>Models:</u> FT4BI-024K (SKU 920269F) FT4BI-036K (SKU 920270F) FT4BI-048K (SKU 920271F) PSH4BI-024K (SKU 920269P) PSH4BI-036K (SKU 920270P) PSH4BI-048K (SKU 920271P)	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
A, B, C, F	1 Stage G7 Gas Furnace with Constant CFM Blower Kit <u>Furnace Models:</u> numbers containing "G7S" or "MGC2S" <u>Blower Kit Models:</u> SKUs 904876, 904877, 904878, 904879	C6 Coil <u>Models:</u> C6BH-innx-x, SKUs 920781 to 920785 and 920790 to 920794	iQ Heat Pump <u>Models:</u> as above	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
A, B, C, F	2 Stage G7 Gas Furnace with Constant CFM Option <u>Furnace Models:</u> FG7Tx nnnx-Vx or PGC2Tx nnnx-Vx (where n is a number and x is any letter) SKUs: 904709F to 904726F, 904735F to 904742F, 904709P to 904726P, 904735P to 904742P	C6 Coil <u>Models:</u> C6BH-innx-x, SKUs 920781 to 920785 and 920790 to 920794	iQ Heat Pump <u>Models:</u> as above	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
A, B, C, H	G7 Modulating Gas Furnace <u>Furnace Models:</u> numbers containing "FG7MQ" or "PGC2MQ" SKUs 904743F to 904746F, 904743P to 904746P	C6 Coil <u>Models:</u> C6BH-innx-x, SKUs 920781 to 920785 and 920790 to 920794	iQ Heat Pump <u>Models:</u> as above	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
A, B, C, I	G7 Modulating Gas Furnace <u>Furnace Models:</u> as above	Any	None	iQ Thermostat <u>Models:</u> 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 4.0 and later)
A, B, C, I	G7 Modulating Gas Furnace <u>Furnace Models:</u> as above	Any	Non-iQ Conventional Single Stage A/C <u>Models:</u> any	iQ Thermostat <u>Models:</u> 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 4.0 and later)
A, B, C, J	G7 Modulating Gas Furnace <u>Furnace Models:</u> as above	Any	Non-iQ Conventional Two Stage A/C <u>Models:</u> any	iQ Thermostat <u>Models:</u> 920339C,D,E,F,G 920340C,D,E,F,G (Software versions 4.0 and later)
A, B, C, K	G7 Modulating Gas Furnace <u>Furnace Models:</u> as above	C6 Coil <u>Models:</u> as above	Non-iQ Conventional NORDYNE Single Stage Heat Pump <u>Models:</u> any	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
A, B, C, L	G7 Modulating Gas Furnace <u>Furnace Models:</u> as above	C6 Coil <u>Models:</u> as above	Non-iQ Conventional NORDYNE Two Stage Heat Pump <u>Models:</u> any	iQ Thermostat <u>Models:</u> 920339D,E,F,G 920340D,E,F,G (Software versions 5.0 and later)
M	iQ Zone® with any of the above combinations (except G6 furnaces)			iQ Thermostat <u>Models:</u> 920339F,G 920340F,G (Software versions 6.0 and later)

FIGURES
and
DIAGRAMS

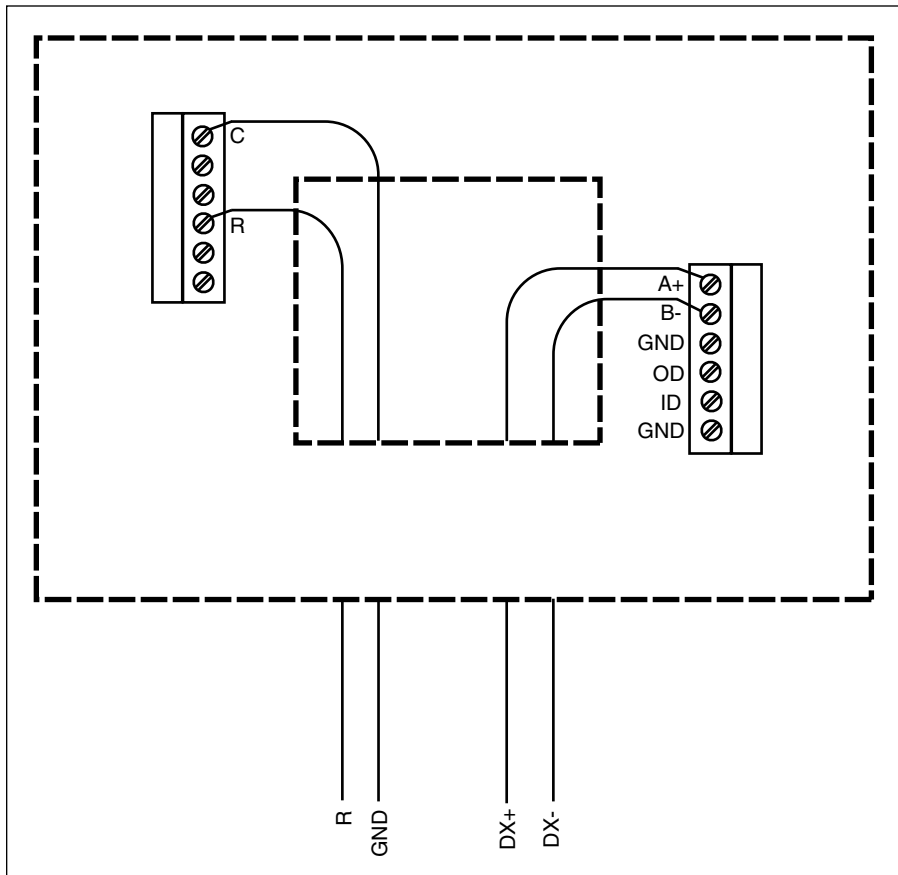


Figure 1A. iQ Controller/Thermostat Back Plate Wiring

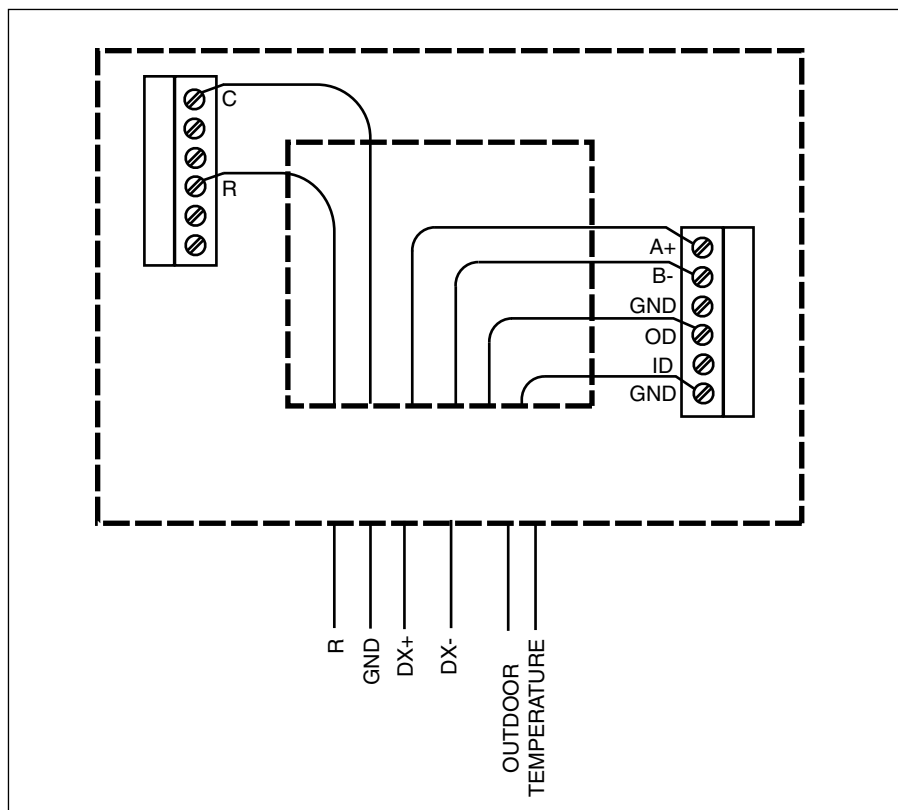


Figure 1B. Thermostat Wiring Including Outdoor Temperature Sensor (non-iQ Heat Pumps Only)

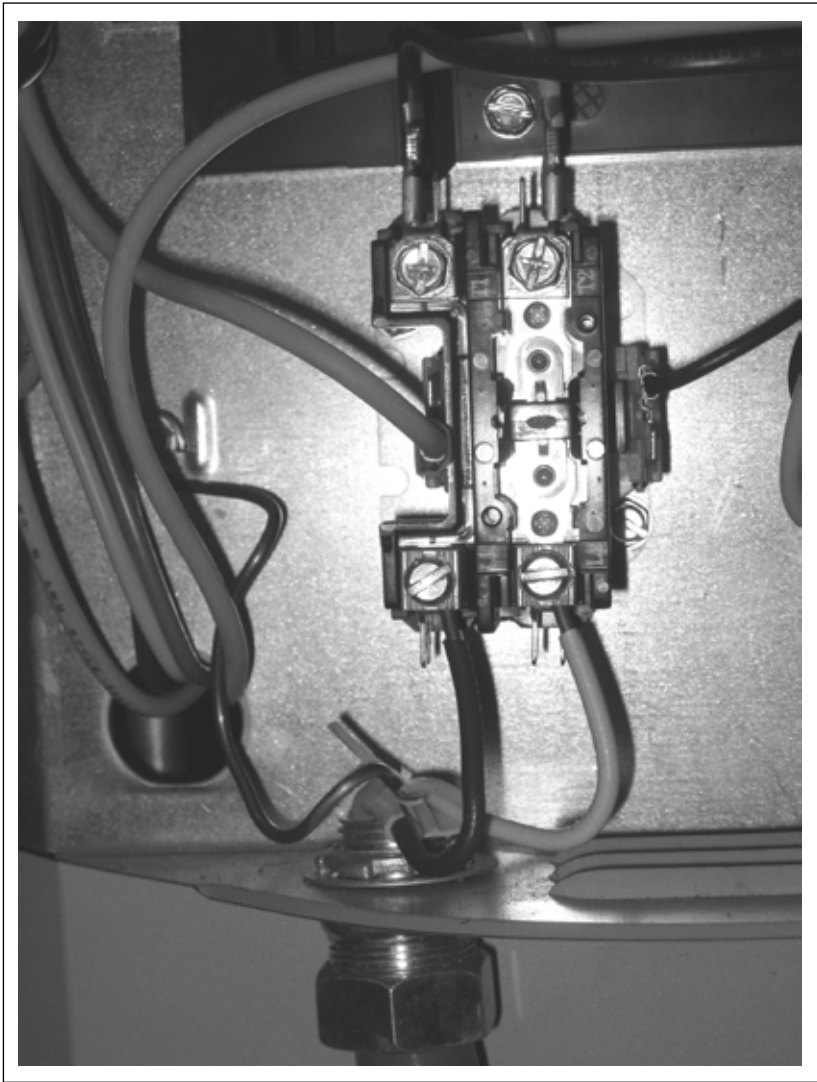


Figure 2. Line Voltage Connections, iQ Outdoor Unit

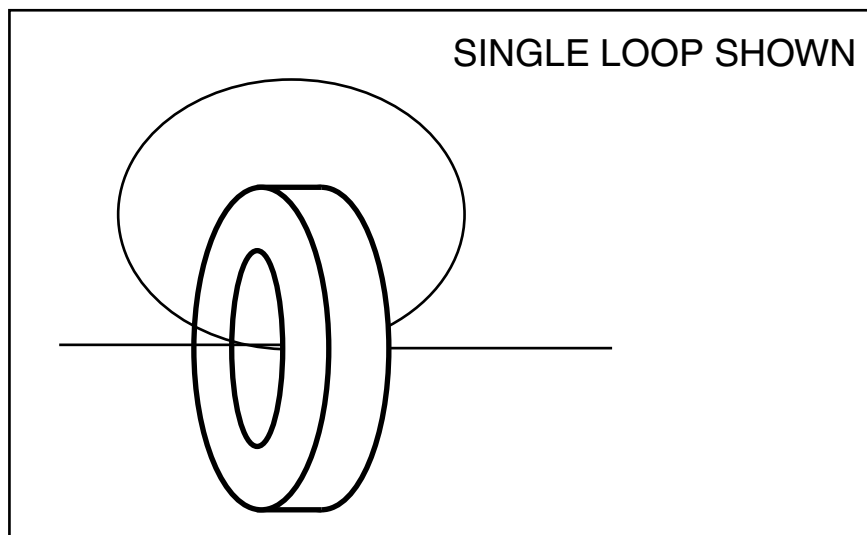
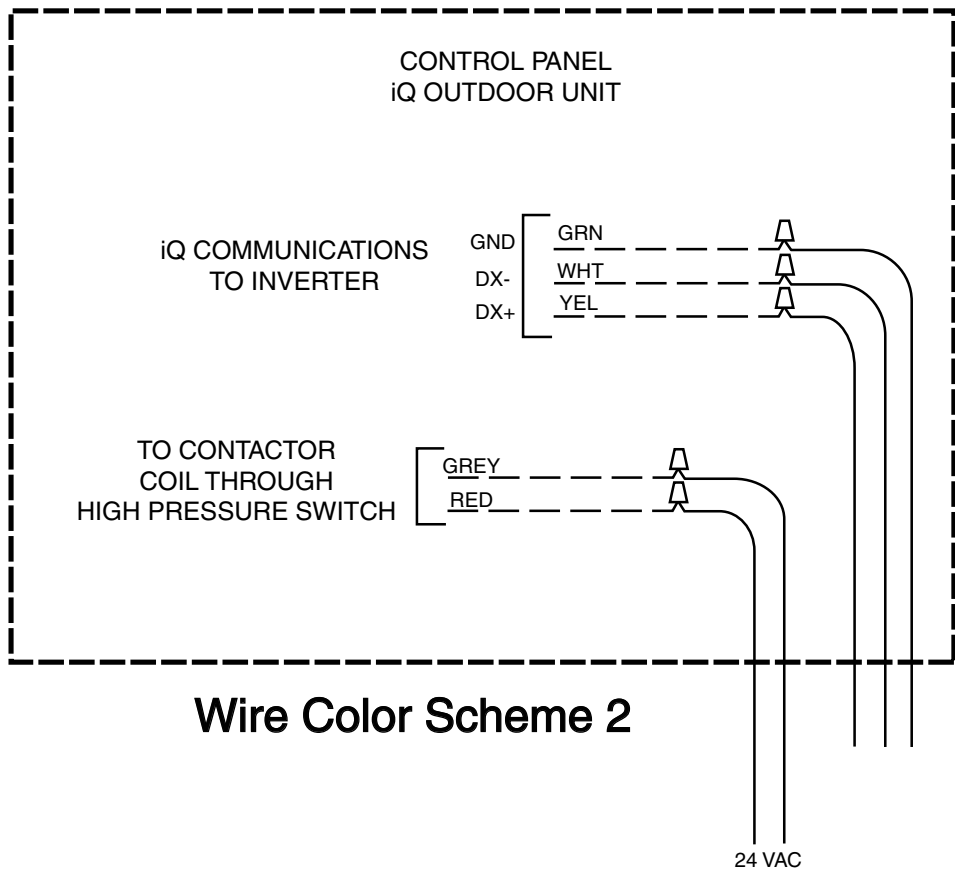
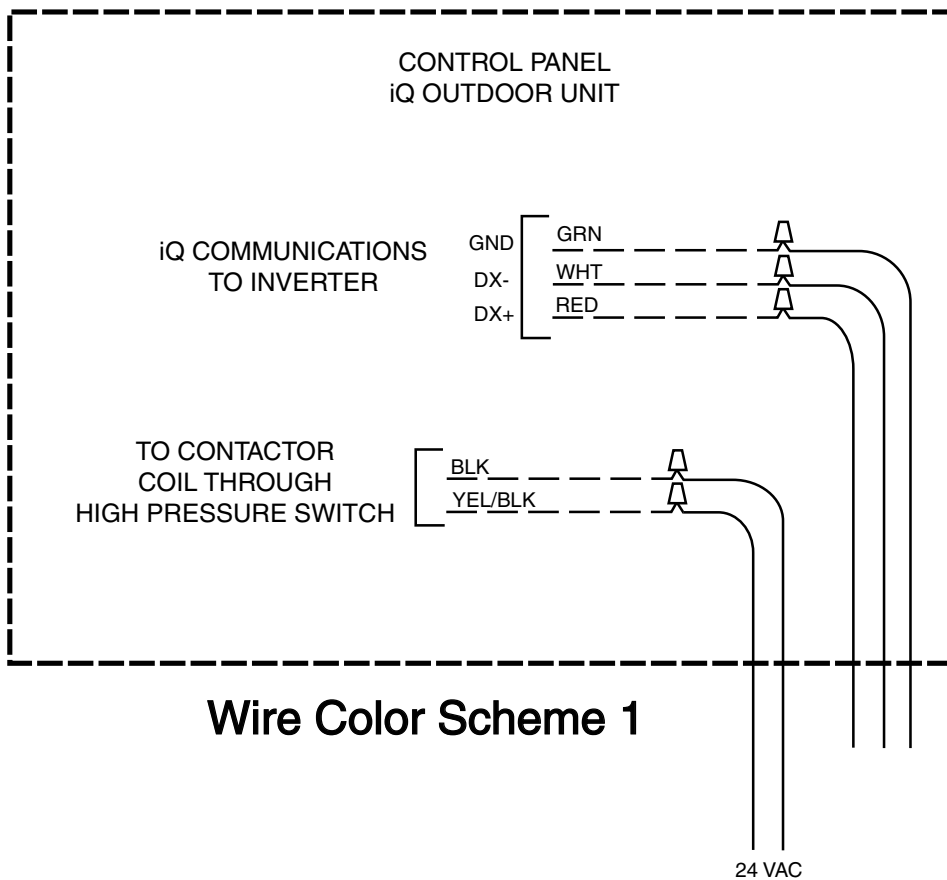


Figure 3. Noise Reduction Toroid



Wire Color Scheme 2



Wire Color Scheme 1

Figure 4A. Control Wiring Connections, iQ Air Conditioning Outdoor Unit

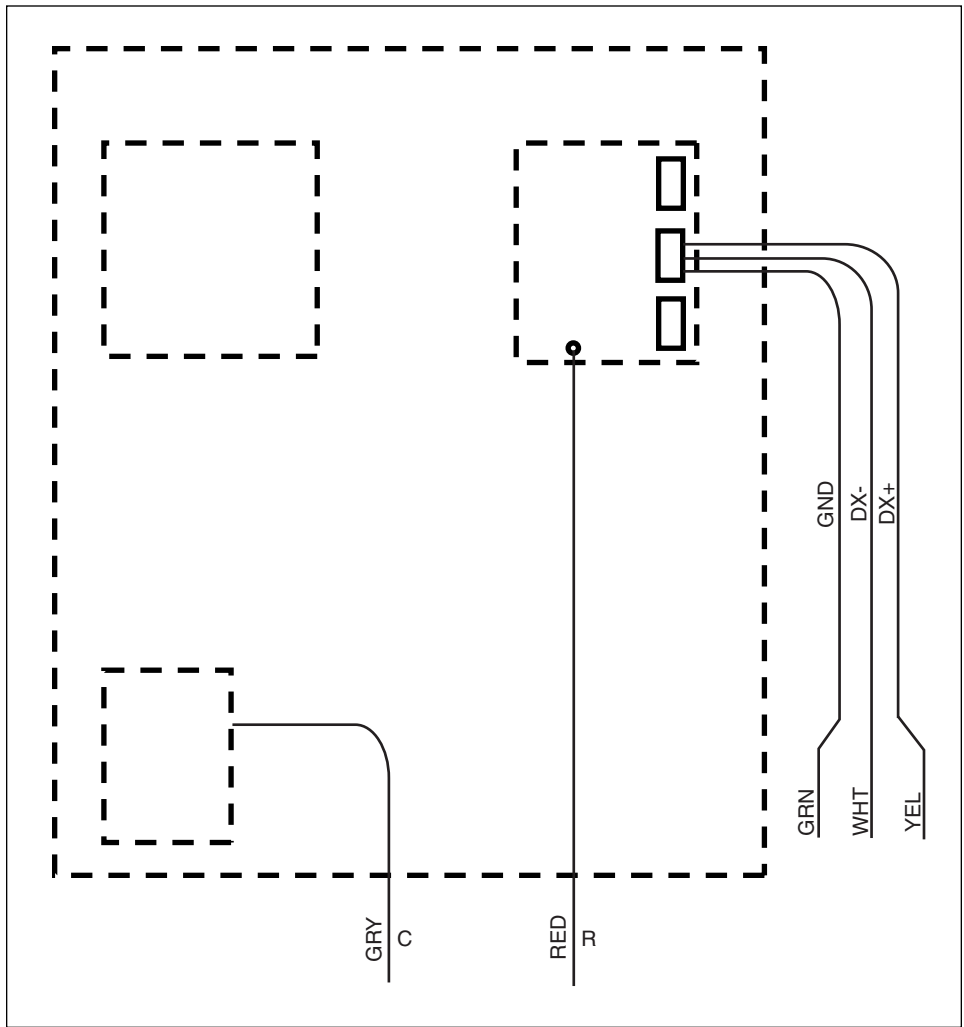


Figure 4B. Control Wiring Connections, iQ Heat Pump Outdoor Unit

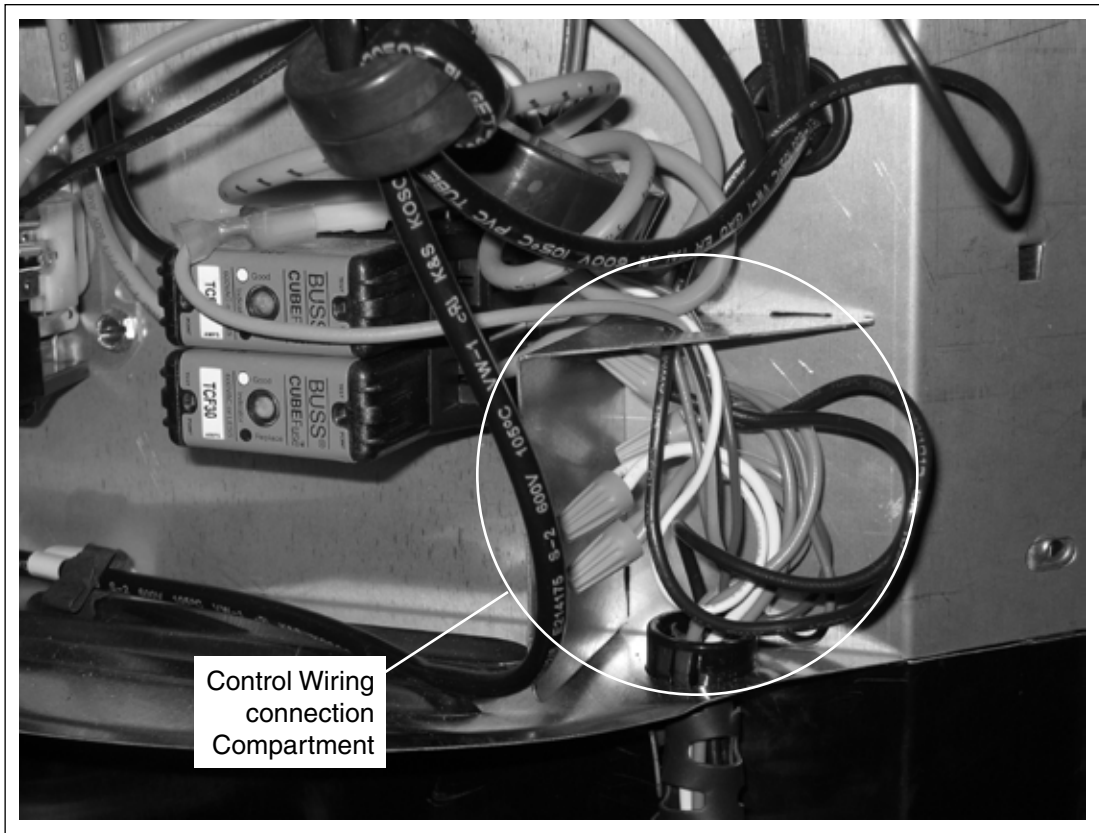


Figure 5. Control Wiring Connections, iQ Outdoor Unit (Air Conditioner Shown)

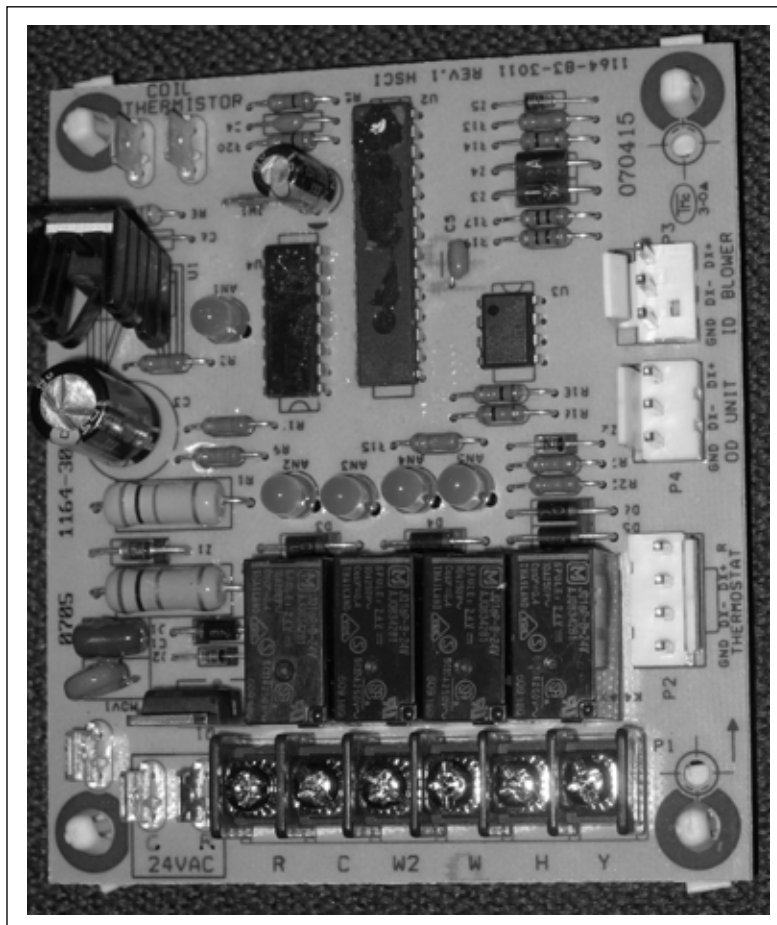


Figure 6. Indoor iQ Interface Board Unwired

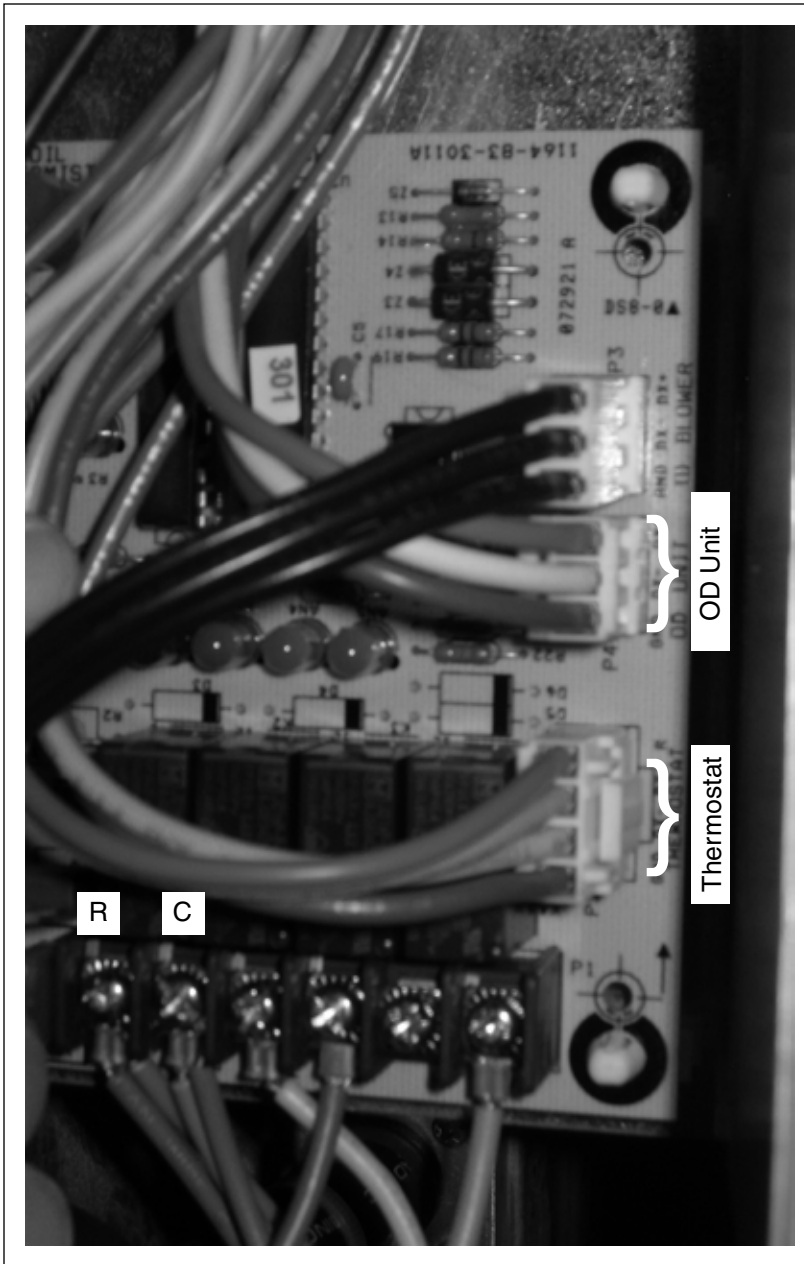


Figure 7. Control Wire Connections. Indoor iQ Interface Board.

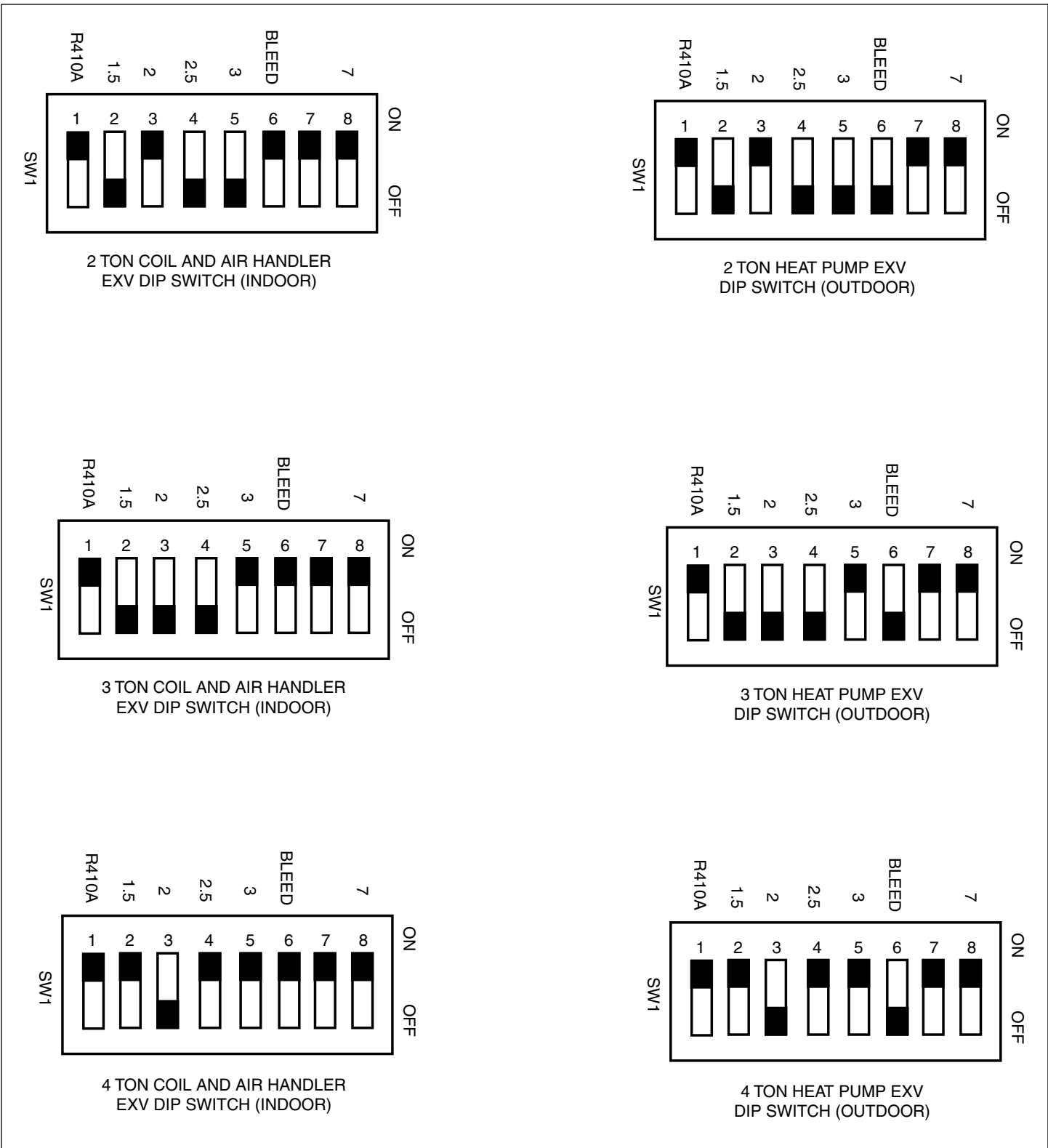


Figure 8. EXV Board DIP Switch Settings

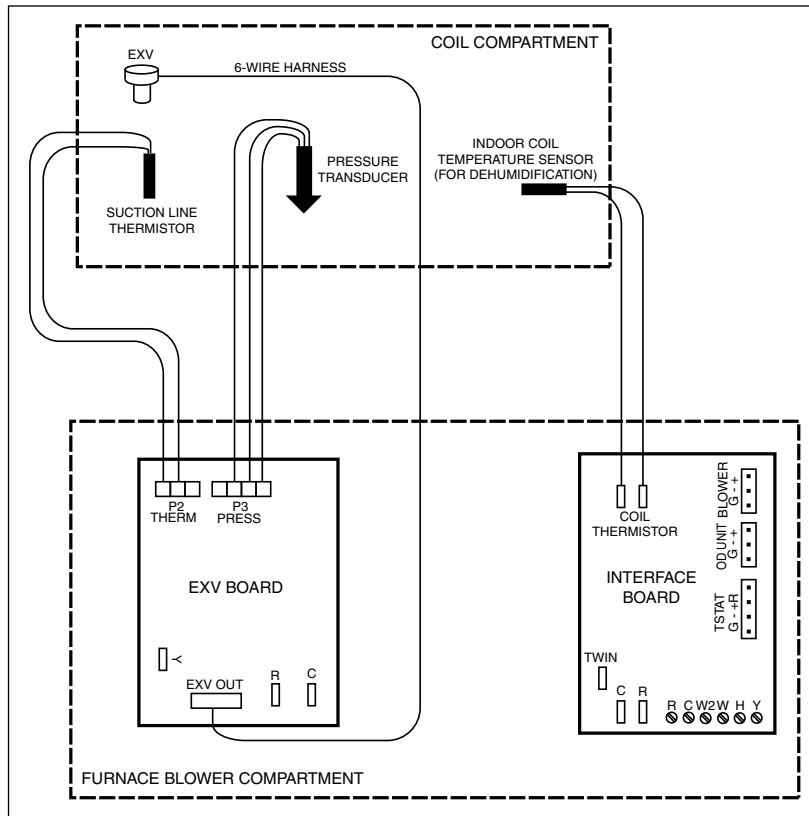


Figure 9. Control Wiring Between EXV Board and G6 Furnace

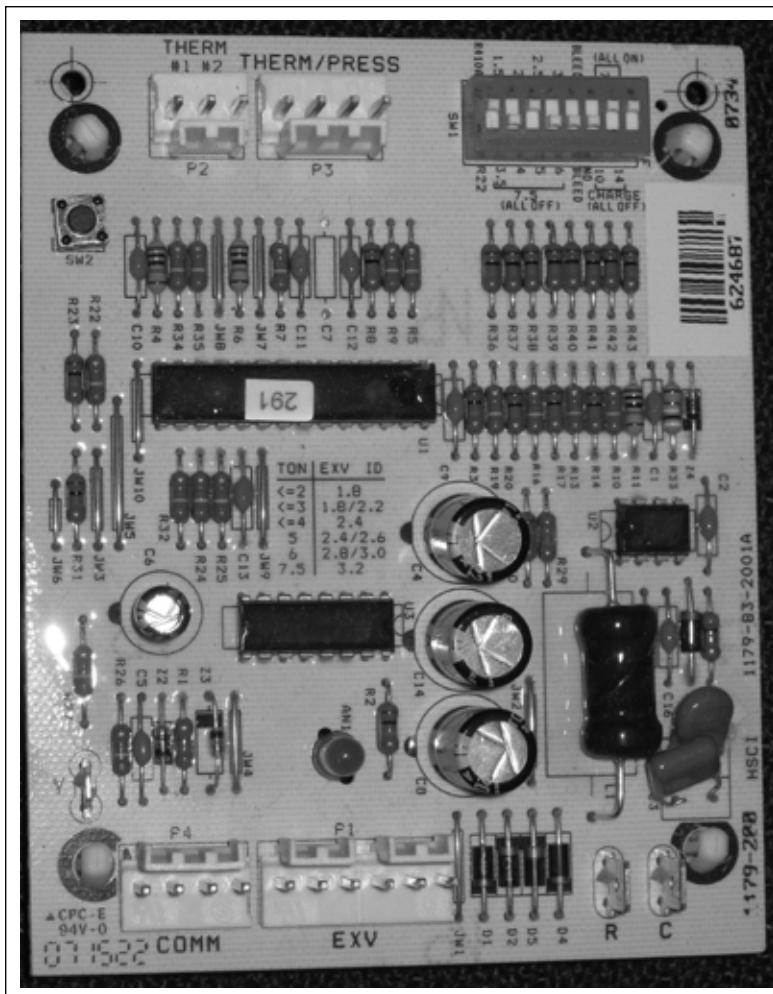


Figure 10. EXV Board Unwired

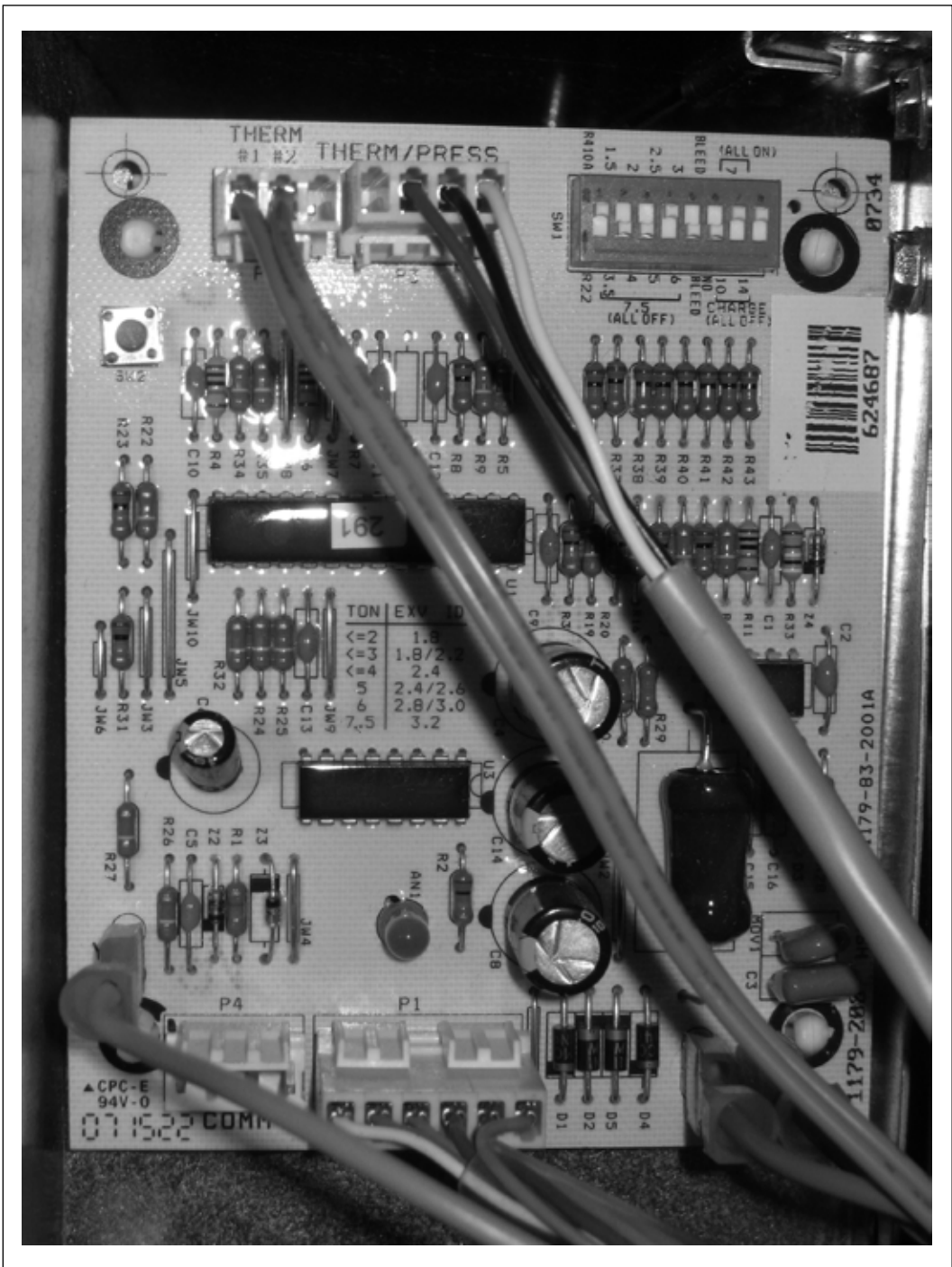


Figure 11. EXV Board Showing Connections

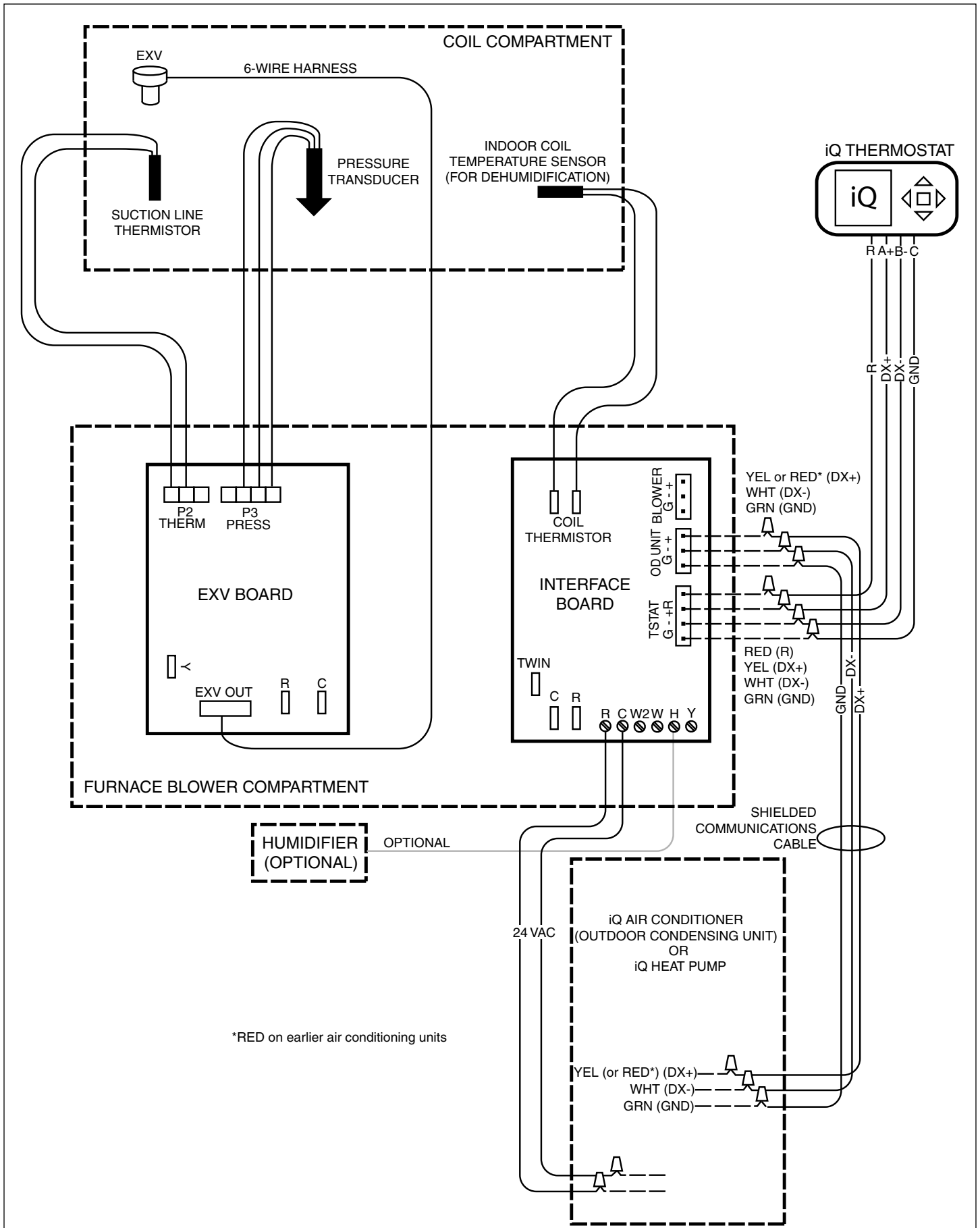


Figure 12. Control Wiring Between Interface Board, iQ Thermostat, and Outdoor Unit (G6 Gas Furnaces and B5VM/B4VM Air Handlers)

*RED on earlier air conditioning units

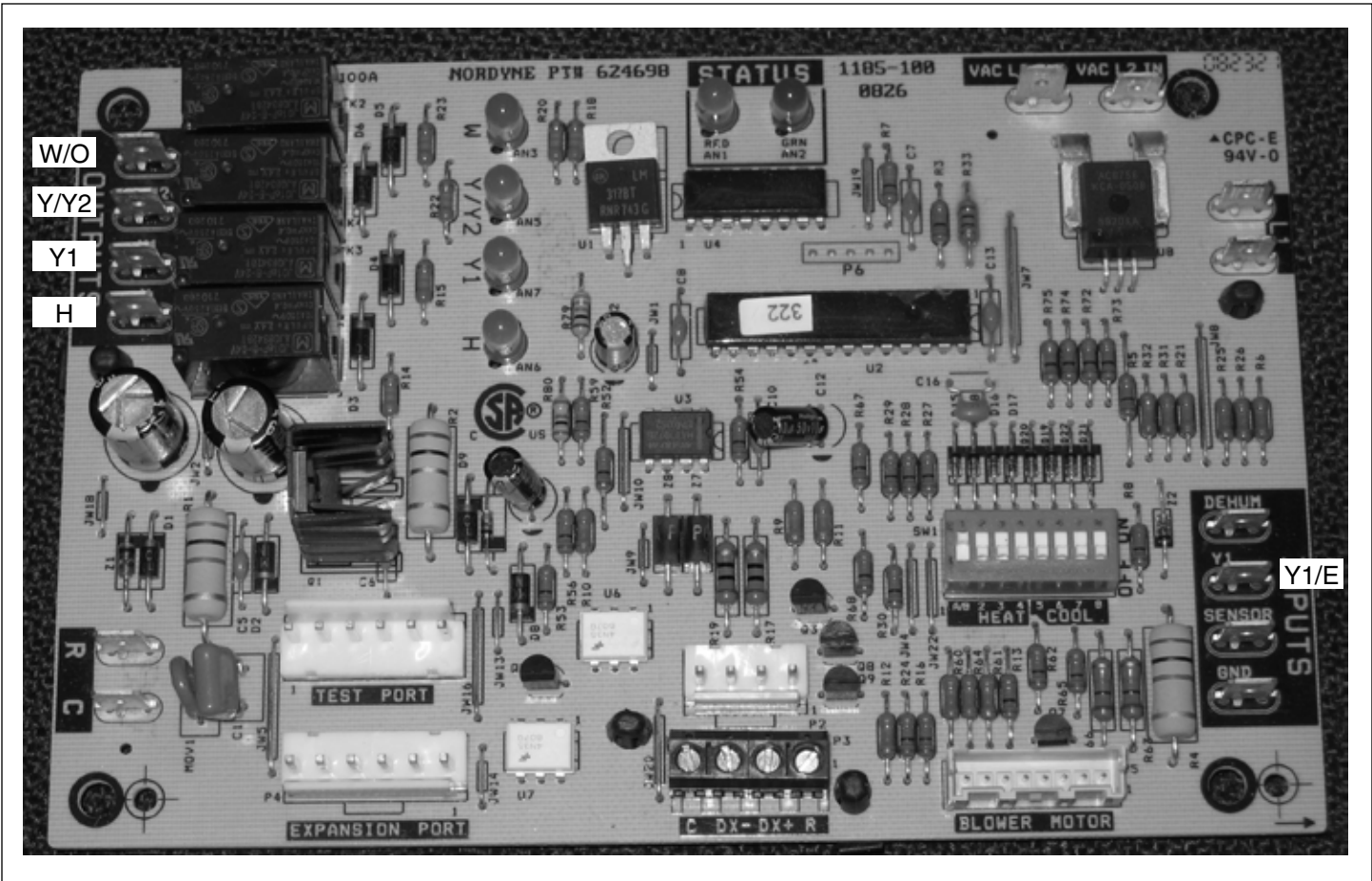


Figure 13. Blower Motor Control Board Unwired

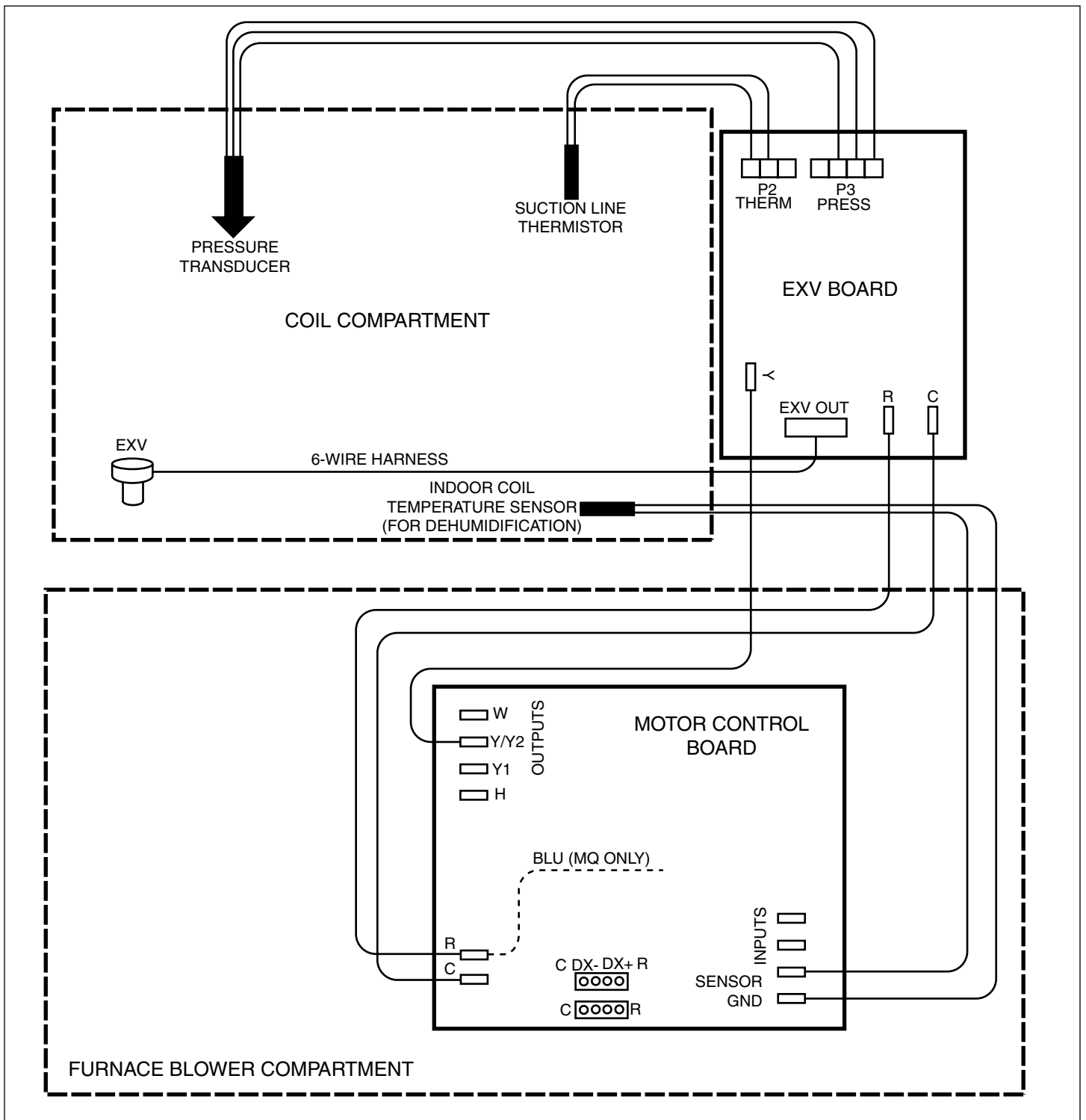


Figure 14. Control Wiring Between EXV Board and Blower Control Board

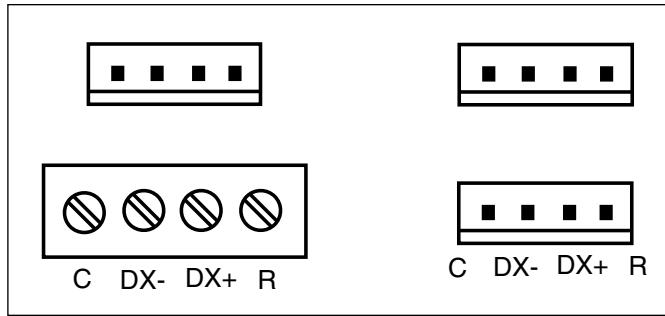


Figure 15. Control Wire Connections, Blower Motor control Board (Alternative Configurations)

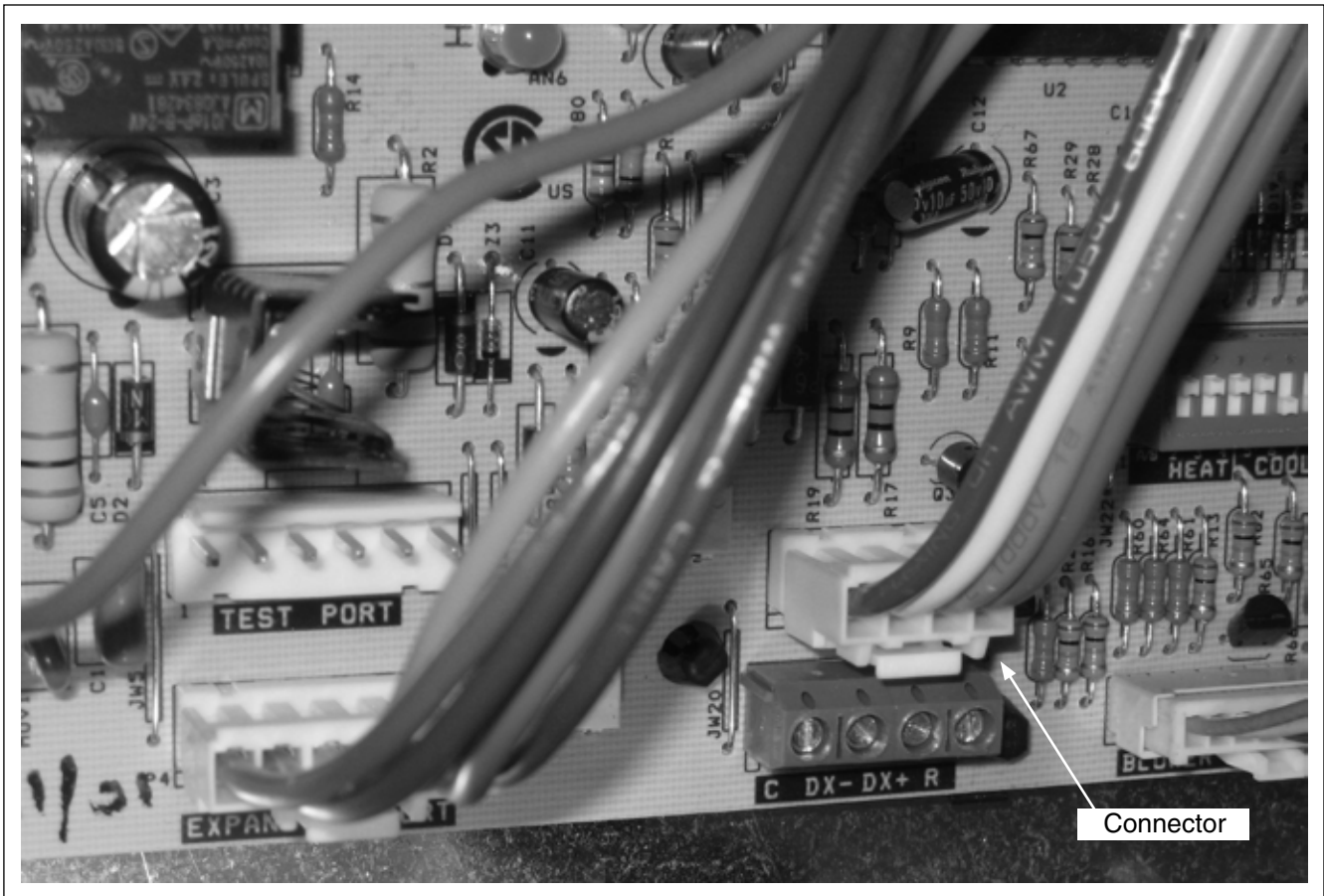


Figure 16. Four-wire connector on Motor Control Board

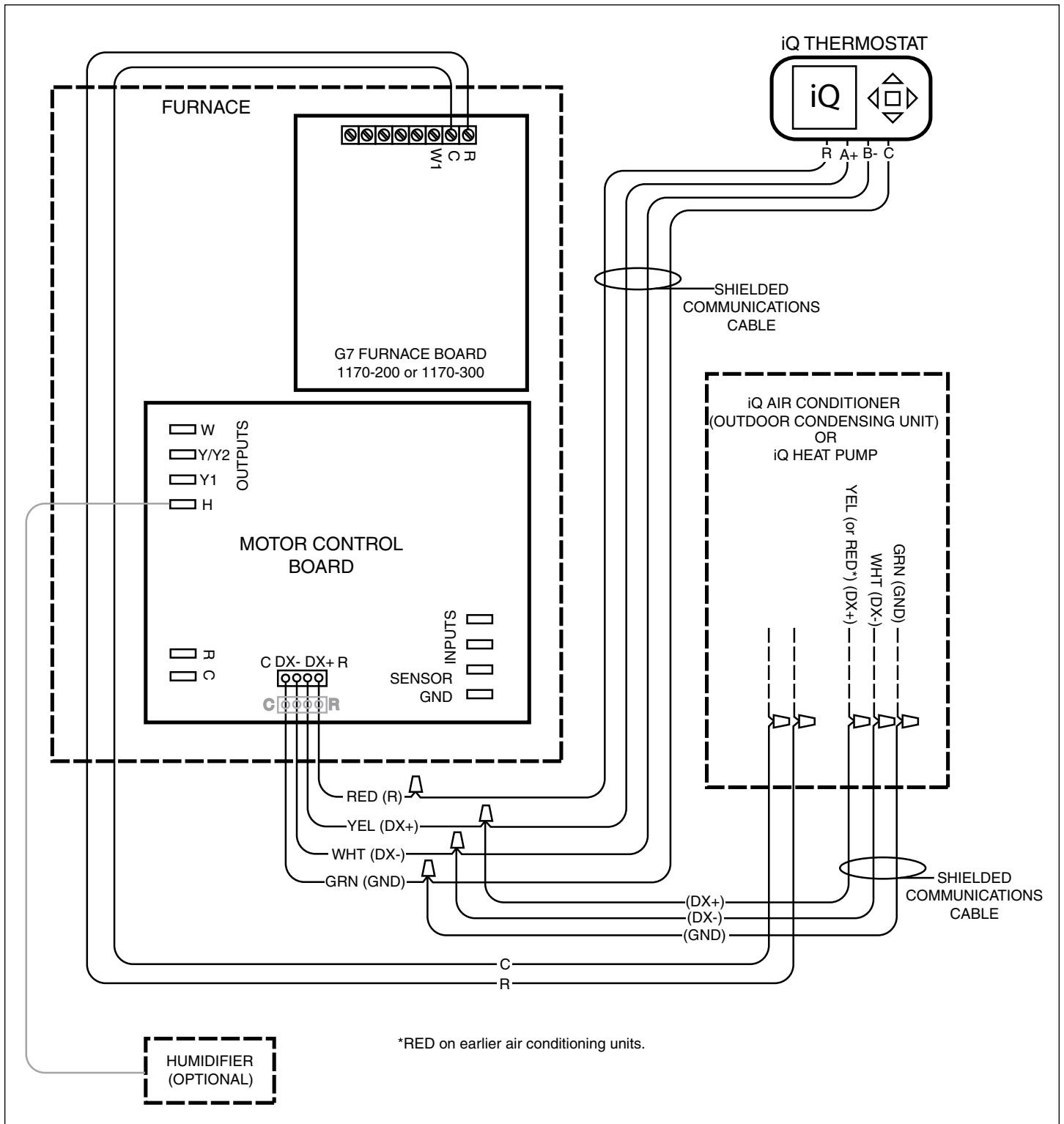


Figure 17. Control Wire Connections, G7 Single and Two Stage Furnaces With contactor CFM Motor control Board

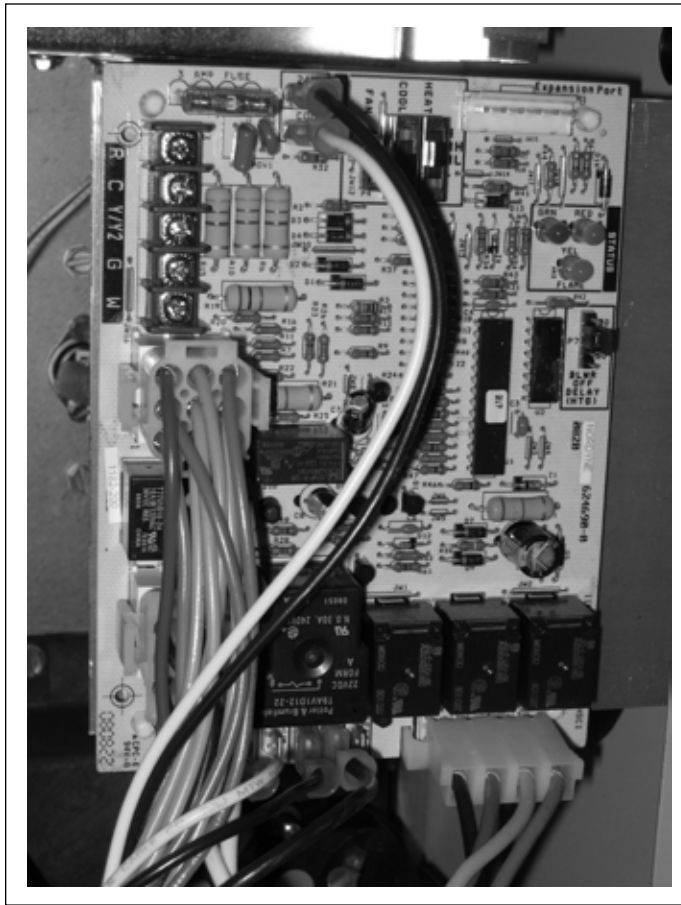


Figure 18. Single Stage G7 Furnace Board

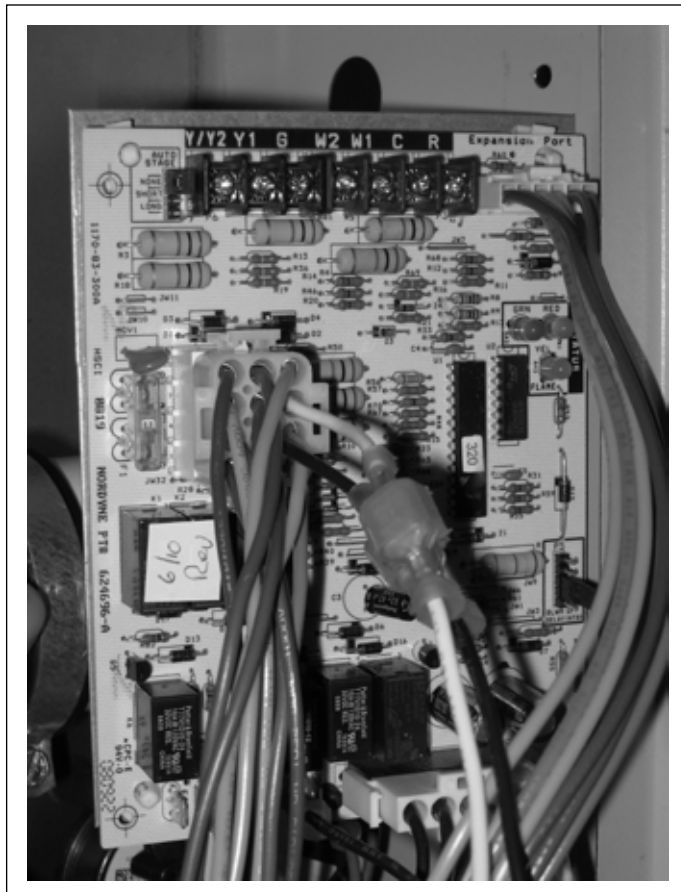


Figure 19. Two Stage G7 Furnace Board

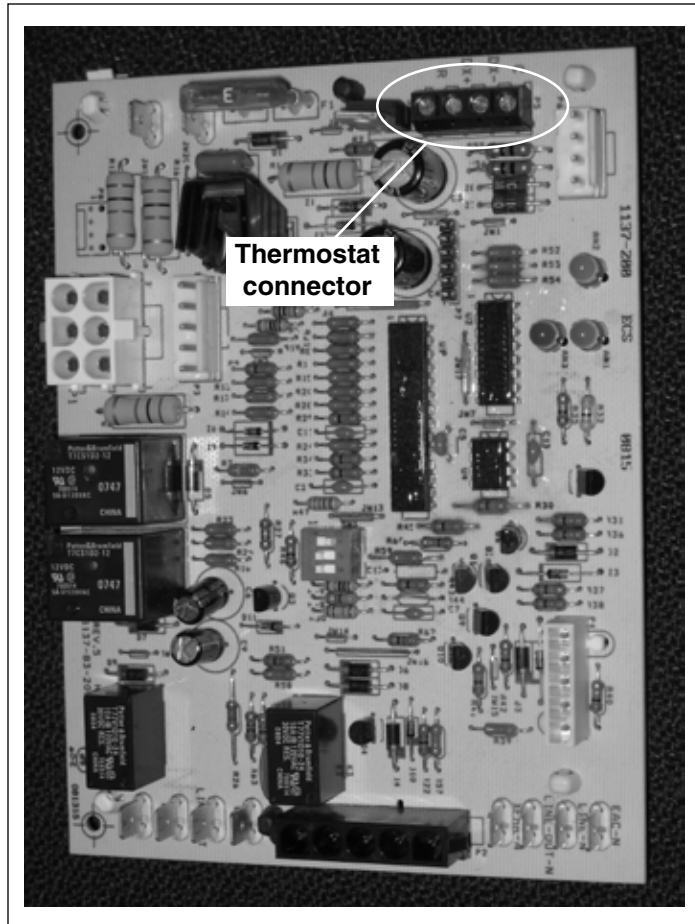


Figure 20. Modulating Gas Furnace Board Unwired

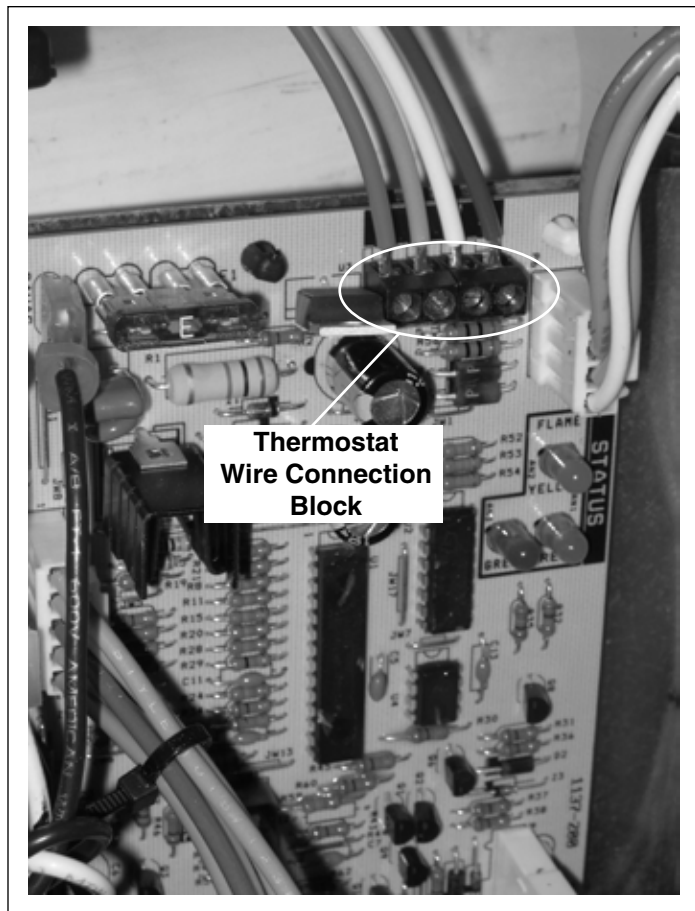


Figure 21. Modulating Gas Furnace Board Thermostat Connection

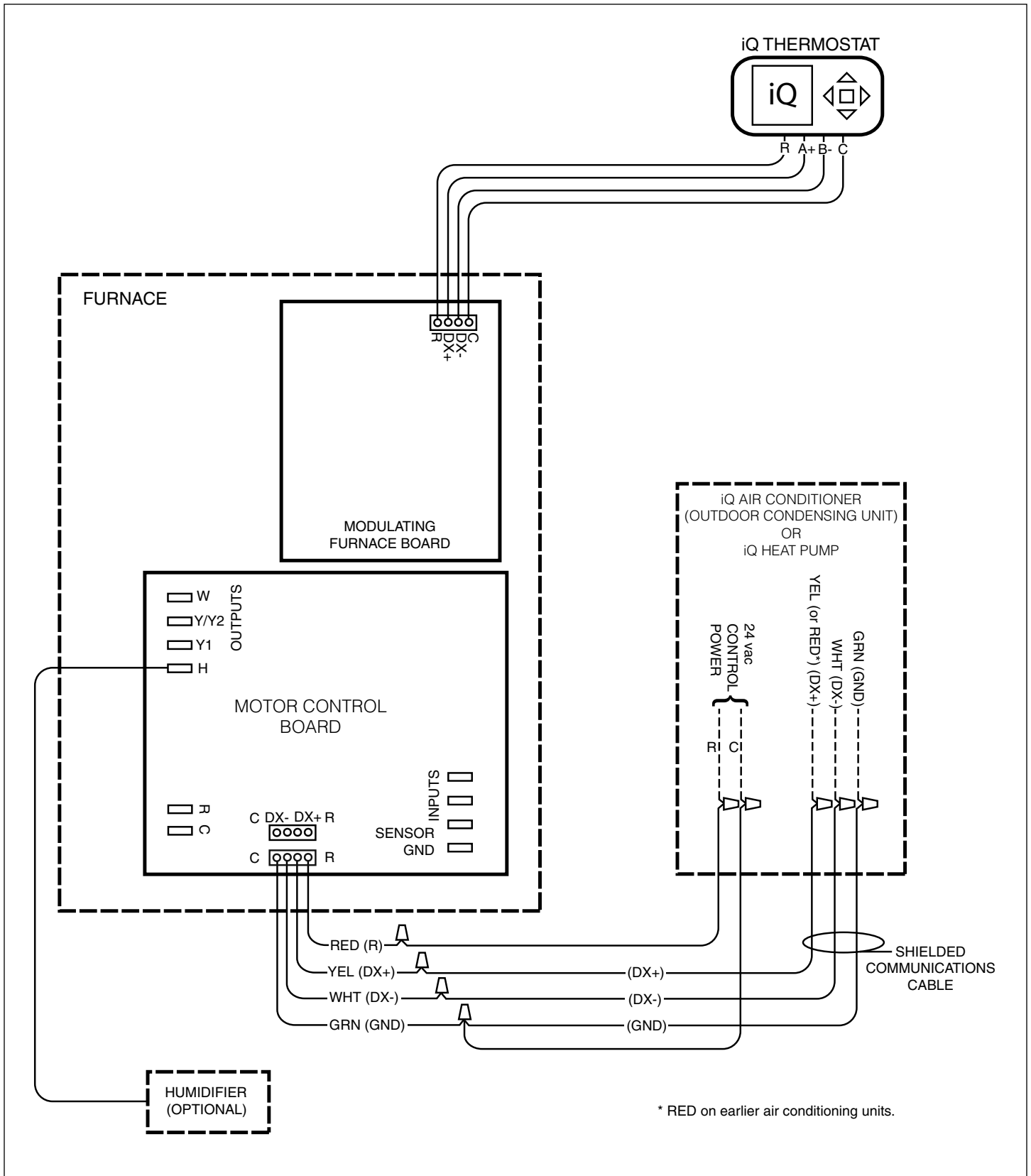


Figure 22. Control Wire Connections, G7 Modulating Gas Furnace

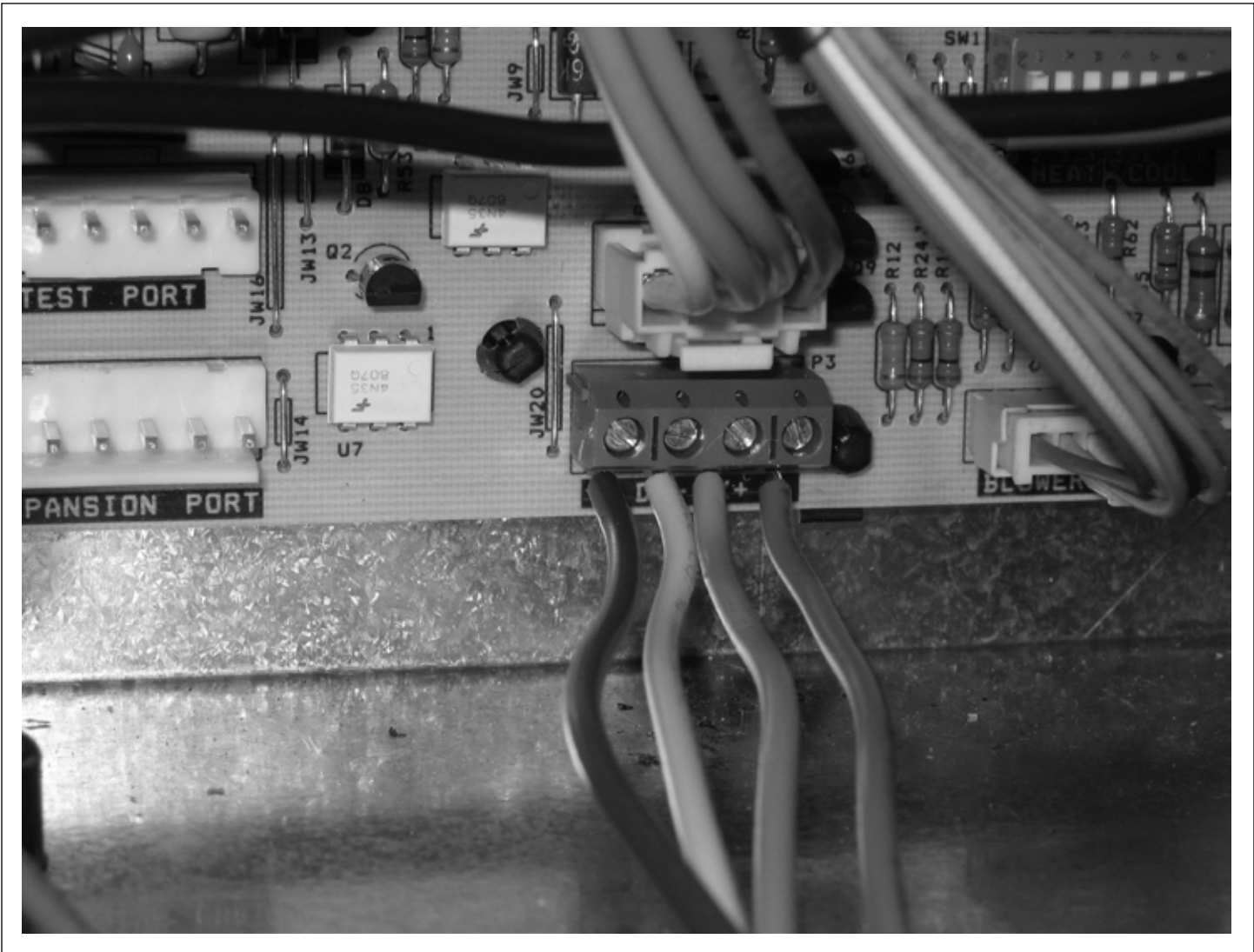


Figure 23. Control Wire Connections to Outdoor iQ Unit from Motor control Board

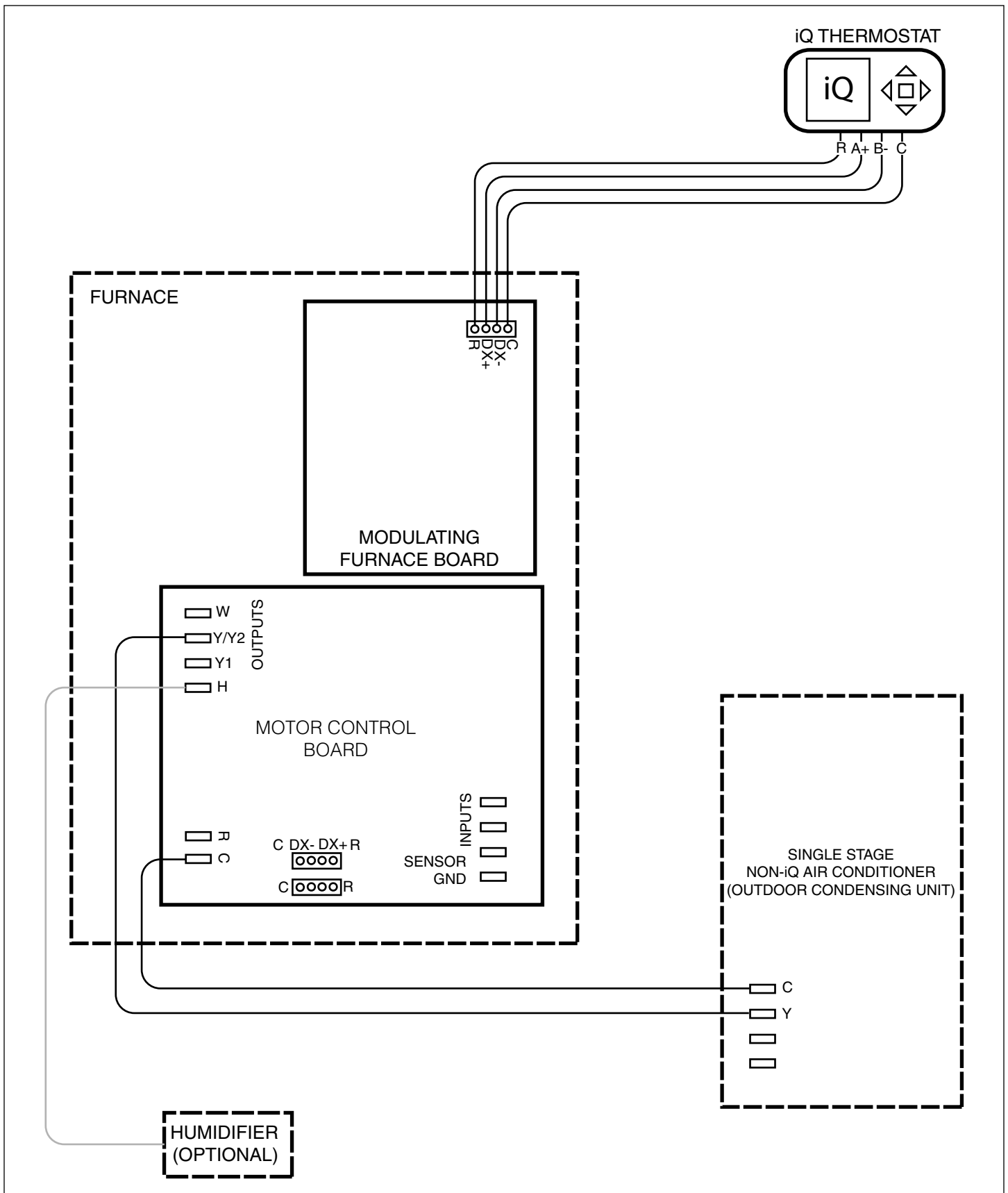


Figure 24. Control Wire Connections, G7 Modulating Gas Furnace with non-iQ Single Stage Air Conditioner

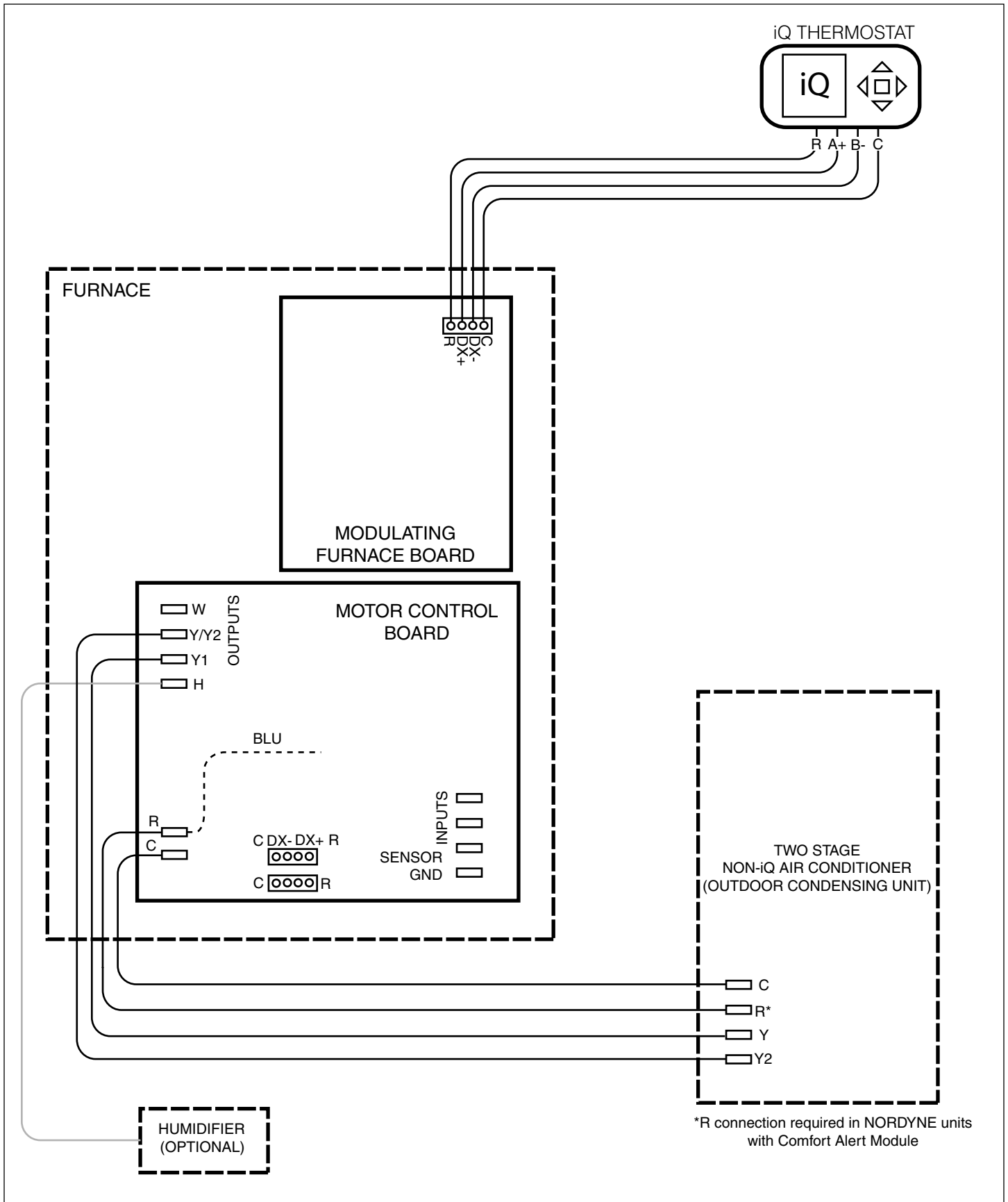


Figure 25. Control Wire Connections, G7 Modulating Gas Furnace with non-iQ Two Stage Air Conditioner

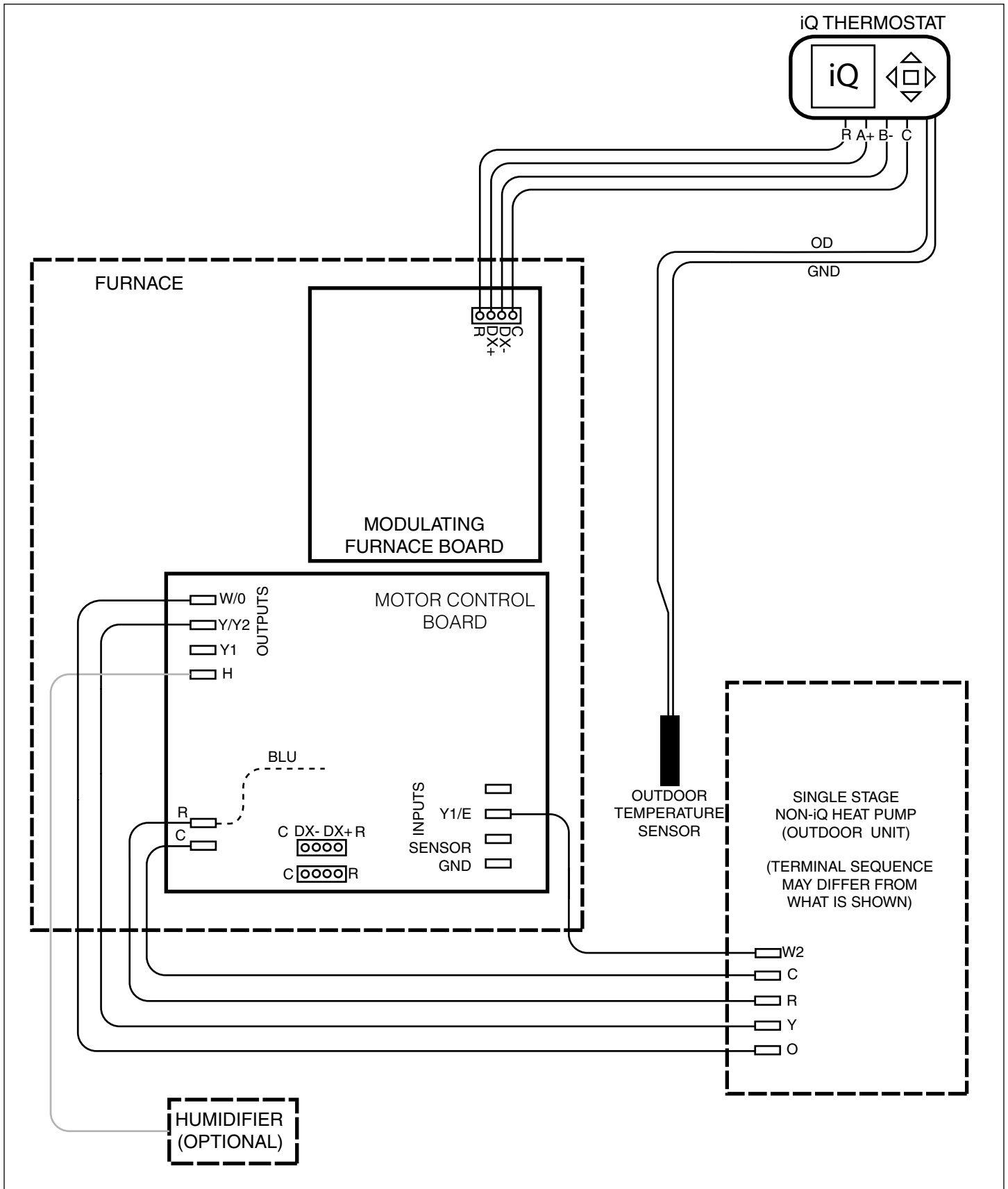


Figure 26. Control Wire Connections, G7 Modulating Gas Furnace with non-iQ Single Stage NORDYNE Heat Pump

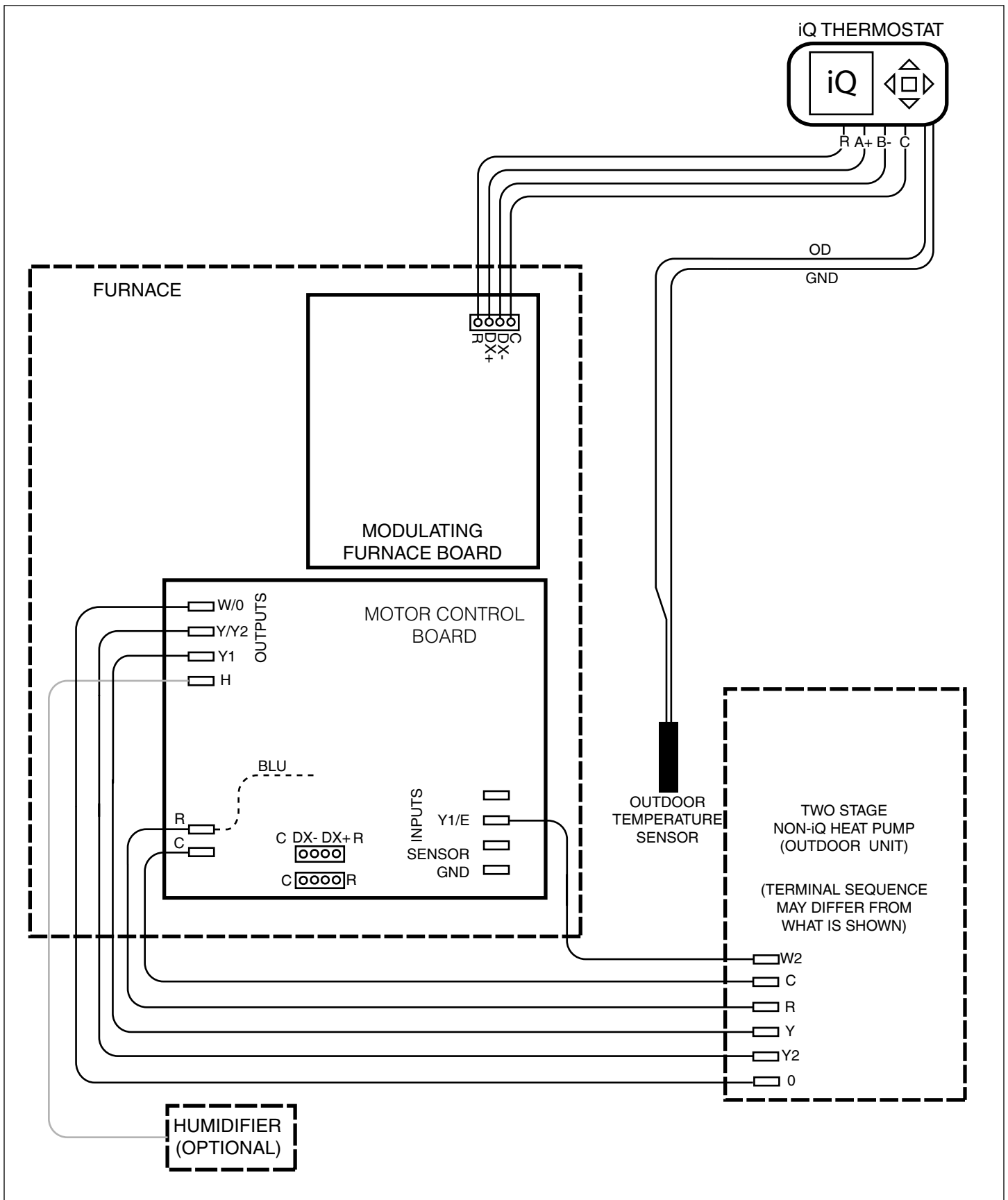


Figure 27. Control Wire Connections, G7 Modulating Gas Furnace with non-iQ Two Stage NORDYNE Heat Pump

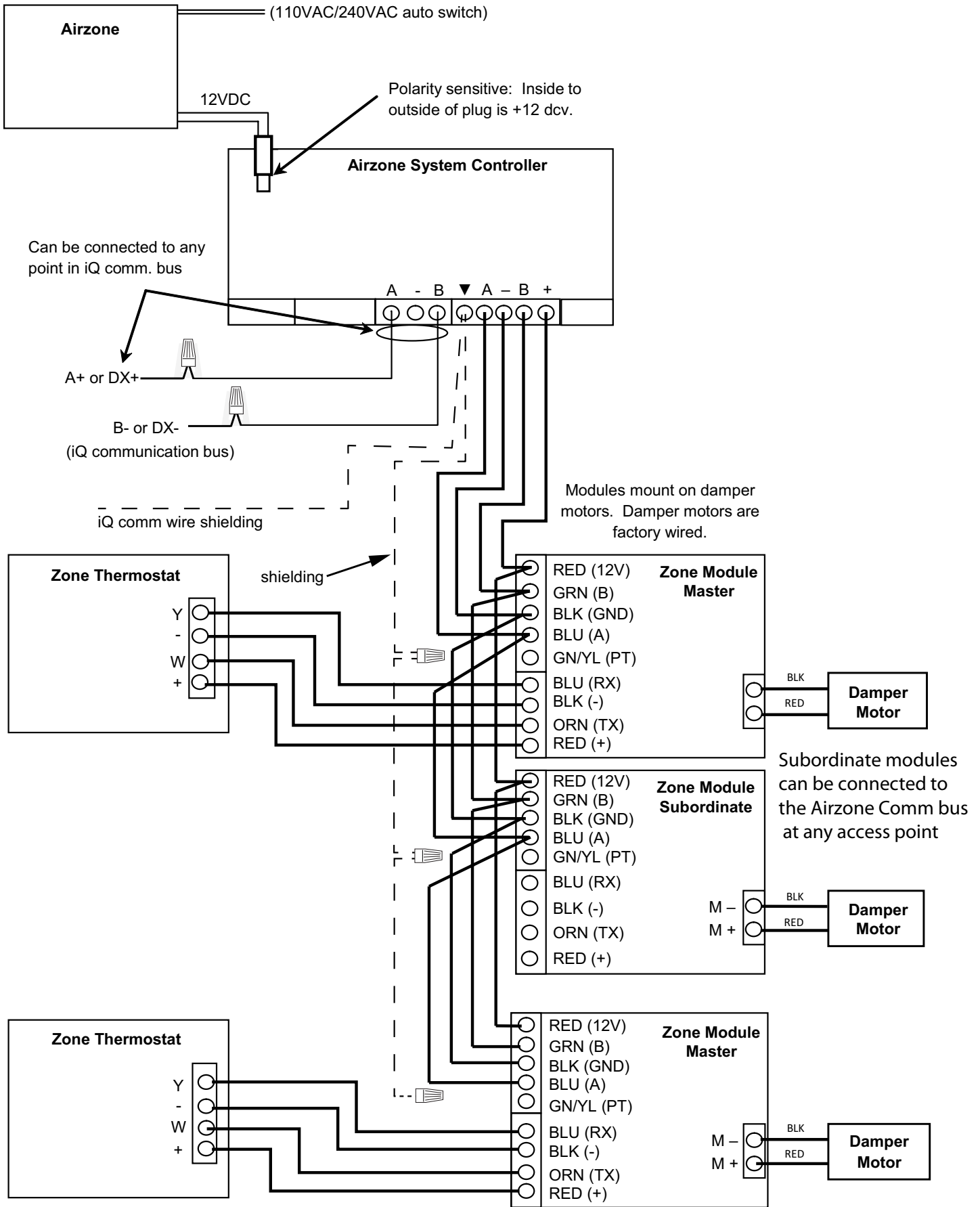
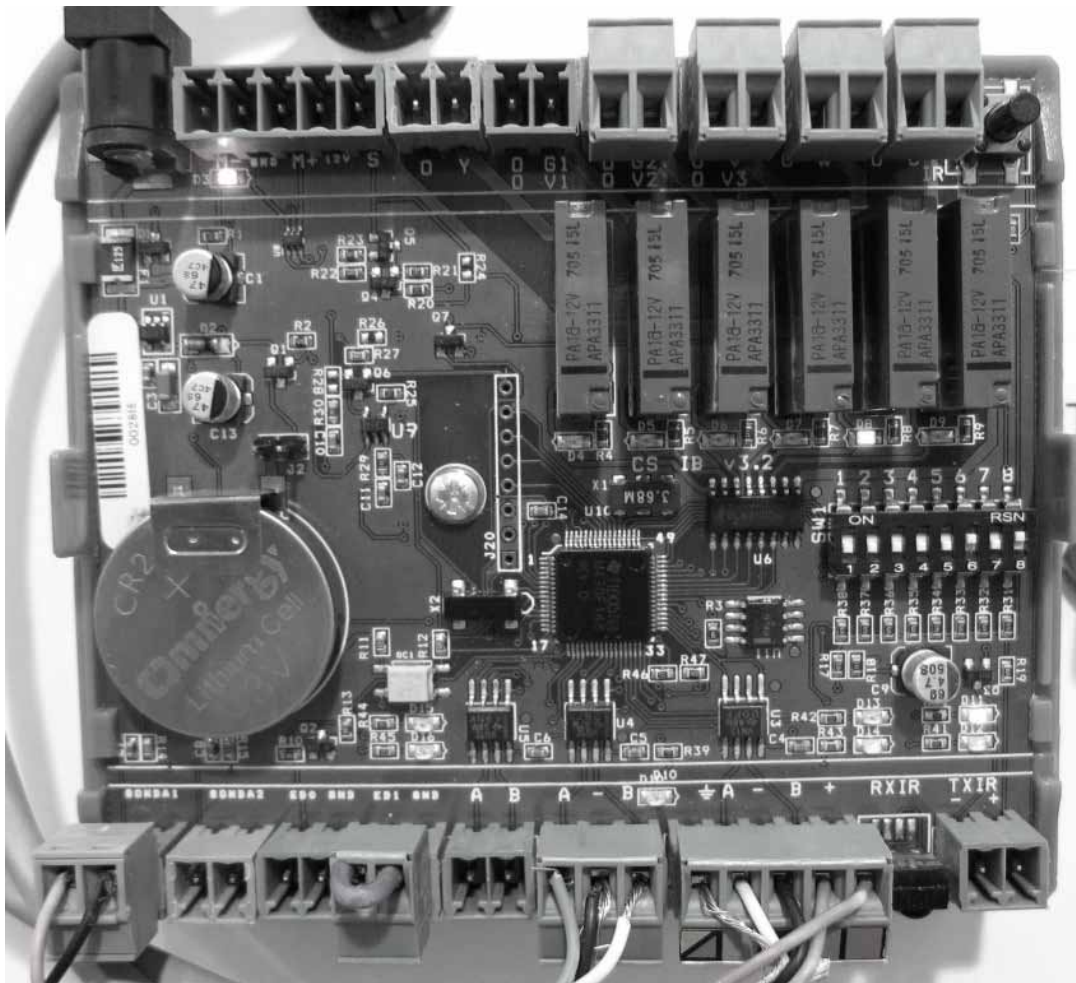


Figure 28. iQ Zone Control Wiring



A - B

Figure 29. Airzone Control Board (iQ Zone)

**INSTALLER: PLEASE LEAVE THESE
INSTALLATION INSTRUCTIONS
WITH THE OWNER.**

