

*Simplicity*TM

Hooking up a computer to the 3-wire *Simplicity*TM bus.

Purpose

One of the major advantages of the *Simplicity*TM control is its ability to be connected to a computer. The computer can be used to modify the control's setup, and monitor the status of the attached units so failures can be identified as soon as they happen. These instructions show how a typical system would be wired to a computer. Note that for this to be useful, the computer requires the necessary PC software to then communicate with the *Simplicity*TM control. See your local York dealer to get a copy of this free software.

1. Select a converter for RS-485.

There are a number of converters on the market, and most will work fine. York offers two models that should cover almost any application. The choice between them should be based primarily on how you want to connect to your computer.

FREEnet USB Adapter USB to RS-485

This converter connects to a USB port on your computer. There are a number of the newer computers on the market that do not have a serial port output, but have USB ports instead. For such systems, this is the converter you must choose. Otherwise, this is your best choice if you are thinking of buying a new computer, and the possibility exists that it would only have USB ports.

Advantages:

- One of the main advantages of this device is that it gets its power through the USB port. No extra batteries or external power supply are ever needed.

FREEnet Serial Adapter RS-232 to RS-485

This model communicates with the computer's RS-232 serial port. Until recently, virtually all personal computers have had serial ports. It is versatile, because it can obtain its power from any of three sources: from stealing power from the RS-232 interface, from two internal AAA batteries, or from an auxiliary 12 volt source wired to the terminal block. Usually the power stealing method is sufficient, but consider the other two power options if:

- The computer is a portable, laptop, or other battery powered type.

- The RS-232 output from the computer has only the basic signals TD (pin 3), RD (pin 2), and GND (pin 5), and no control output, DTR (pin 4) or RTS (pin 7).

This last condition can be checked at the connector that would plug into the RS-232 connector of the converter. There should be at least -5 volts between DTR and GND (pins 4 and 5) or between RTS and GND (pins 7 and 5). If not, power stealing will be unreliable.

If you are installing the converter in a permanent location, consider using an auxiliary 12VDC power supply, so you don't have to worry about power.

2. Wiring between the computer and converter.

The FREEnet USB Adapter comes with a standard USB cable. The "A" end plugs into the computer, and the "B" end plugs into the FREEnet USB Adapter.

The FREEnet Serial Adapter comes with a standard 9-pin Serial Extension Cable. It has a computer standard 9-pin male connector to plug into the converter, and a same style 9-pin female connector to plug into the computer. If the computer connections are the older 25-pin connector, a 25-pin female to 9-pin male cable or adapter will be needed.

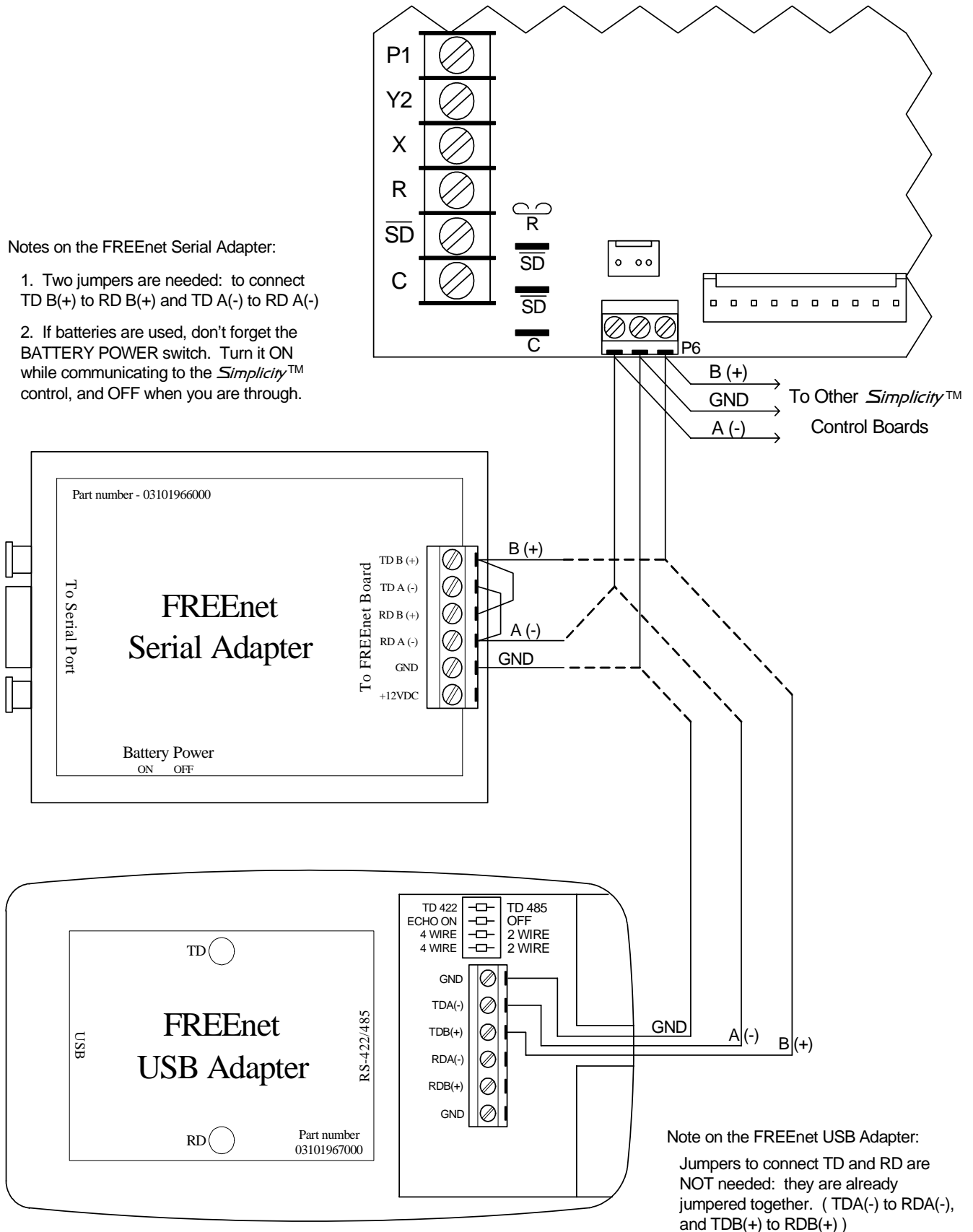
3. Wiring between the converter and the *Simplicity*TM board(s).

The final connection is a 3-wire cable from the converter to the last *Simplicity*TM control board, as the controls are daisy-chained together with the same 3-wire cable. The following diagrams show how the cable is wired at each end

Simplicity™ Control Board

Notes on the FREEnet Serial Adapter:

1. Two jumpers are needed: to connect TD B(+) to RD B(+) and TD A(-) to RD A(-)
2. If batteries are used, don't forget the BATTERY POWER switch. Turn it ON while communicating to the *Simplicity*™ control, and OFF when you are through.



Note on the FREEnet USB Adapter:
Jumpers to connect TD and RD are NOT needed: they are already jumpered together. (TDA(-) to RDA(-), and TDB(+) to RDB(+))

Figure 1

*Simplicity*TM Communication Installation Instructions

Tools Required: Wire Strippers, and a small strait head screw driver.

Materials Required: 18 gage 3 conductor foil shielded wire with an extra drain wire and Wire Nuts for 18 Gage Wire. This drain wire is only used to ground the shielded cable and is not to be used as a connection to the board.

Step One: On each end of the three-conductor cable, strip the outside insulation back approximately two inches. Tear off excess foil shield, leaving the bare drain wire and the three insulated conductors. On each end of the three insulated conductors in the cable, strip the insulation back approximately 1/8 to 1/4 inch. Pick a color pattern to follow and insert each of the three conductors into one each of the three terminals on the Simplicity board communication connector, and tighten each terminal until the wire is secure as in Figure Number 2. Ground the Drain Wire at one end of the Daisy Chain* and one end only. Do this on the first one in line. Drill a hole and insert a sheet metal screw in the back plate below the Communication Connector. Wrap the bare drain wire around the screw and tighten the screw as shown in Figure Number 2. This will be the only place the shield is grounded.

Step Two: Daisy Chain* the three-conductor wire between the remaining units connecting the drain wires together with the wire nuts as shown in Figure Number 3. Follow the stripping and connecting procedure in Step One.

Step Three: Run the cable from the last unit to the location of the Computer or Wireless Device. Follow the connection instructions for each device to wire up the Computer's RS232 to RS485/RS422 Interface and/or the Wireless Device.

Step Four: Make sure all the units are powered and operating properly. Then start at the first unit wired, and push the "Comm Set Up" button referenced in Figure Number 1. Within 5 seconds the LED will stop flashing at the 1 second rate and flash out the unit's address. The first one will always be number 2. Note the unit's Model Number, Serial Number, Description, and Location on its Address line in the "Commissioning and Start Up Sheet".

Step Five: Go to each unit and repeat Step Four's "Set Up Instructions". Each unit will increment the address and be one higher than the previous one.

Note: Be very careful to observe the polarity of each of the conductors in the Daisy Chained Cable.

* See Figure Number 3 for Daisy Chain Application.

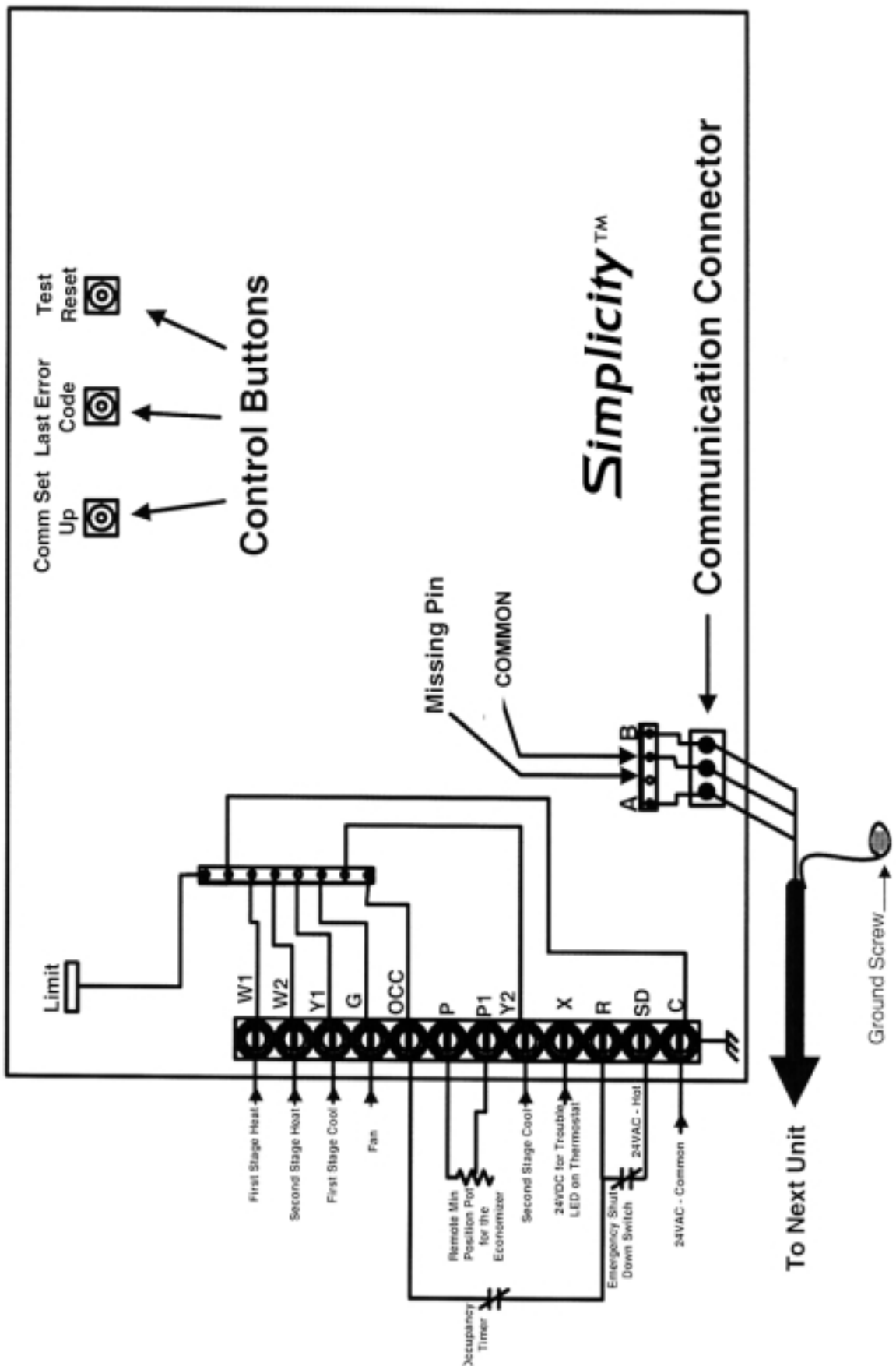


Figure 2

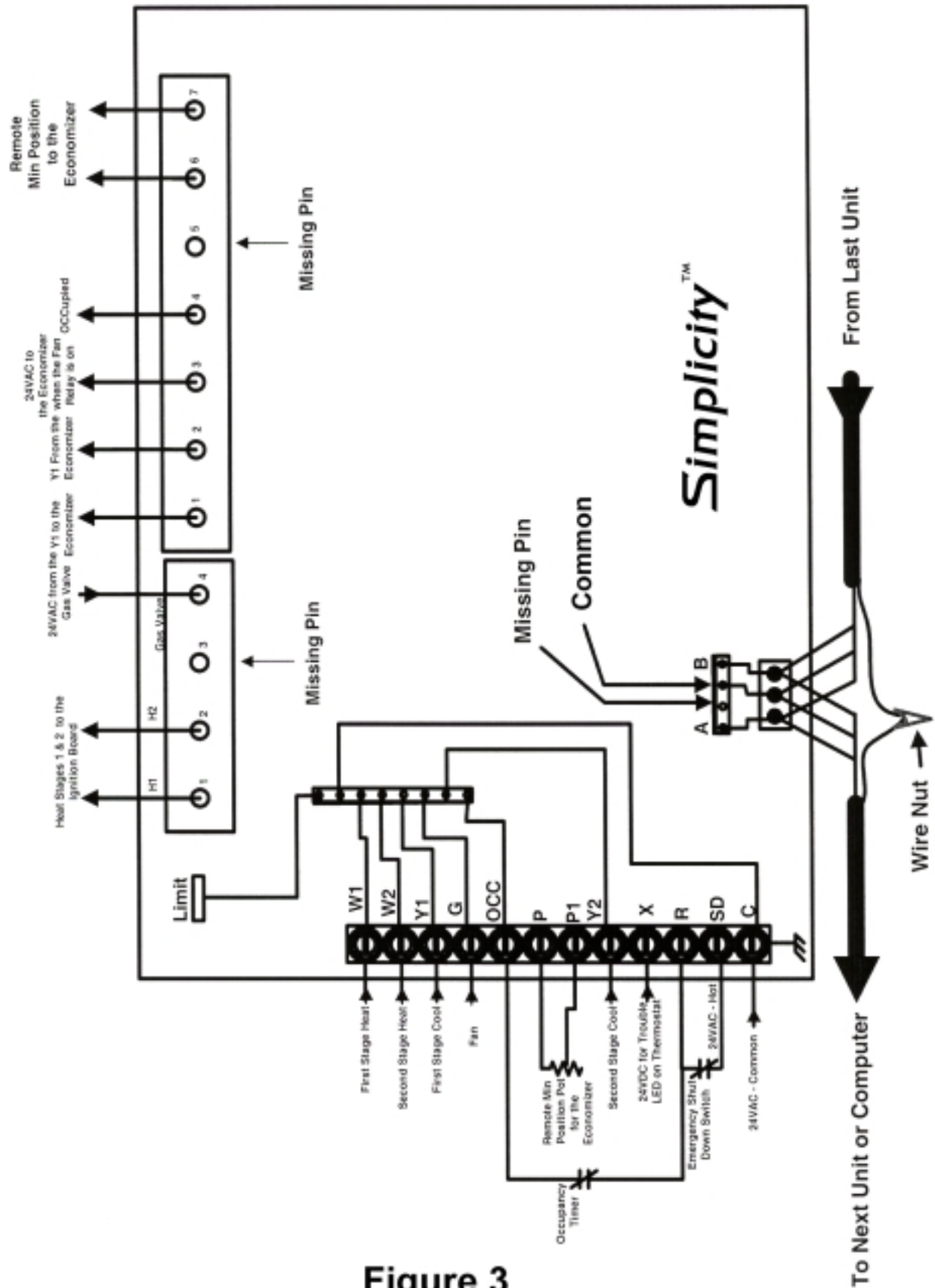


Figure 3

Example Commissioning and Start-up Sheet

Address	Description	Location / Name	Model #	Serial #
1	Reserved Address Space	N/A	N/A	N/A
2	6.5 Ton Predator	South Side Café	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
3	10 Ton Predator	Boss's Office	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
4	7.5 Ton Predator	Engineering Offices	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
5	12.5 Ton Predator	Engineering Labs	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
6	10 Ton Predator	Marketing Offices	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
7	8.5 Ton Predator	Finance Offices	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX
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Commissioning and Start-up Sheet

Address	Description	Location / Name	Model #	Serial #
1	Reserved Address Space	N/A	N/A	N/A
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Heating and Air Conditioning

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