ACCESSORY KIT INSTALLATION MANUAL

COMMUNICATING INTERFACE CONTROL FIELD KIT - RETRO FIT APPLICATIONS

FOR USE WITH MODELS: ALL MODELS (NON-COMMUNICATING UNITS)

GENERAL INFORMATION

To be used with non-communicating indoor units and some applications when a non-communicating outdoor unit is present. See Tables 2-5 for more details.

This kit is used to retro fit a S1-TTSCC0* thermostat or HX™ Thermostat (S1-THXU280B or S1-THXU280W) to conventional, non-communicating system components. The control supplied in this kit will communicate with a serial interface to the thermostat and in turn provide 24VAC outputs to the conventional controls within existing residential (and some light commercial), HVAC equipment.

Kit Contents

Description	Quantity
Communicating Interface Control	1
Mounting Screws	4

LED Heartbeat/Communication Indicator

Condition	Heartbeat/Communication Indicator Behavior
System has 24 VAC present and the microprocessor is active.	2 sec ON / 2 sec OFF
System is active and presently communicating successfully	0.5 sec ON / 0.5 sec OFF

Fault Code Display

The table below describes the display of the LED during fault code.

Description	Status Flash Code (RED) Display
Operational Faults	
Control Failure	ON
Low Voltage (<19.2VAC) preventing further relay outputs	5
Low Voltage (<16 VAC) stopped current relay outputs	6

SAFETY CONSIDERATIONS

This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, and **CAUTION**.

DANGER indicates an **imminently** hazardous situation, which, if not avoided, **will result in death or serious injury.**

WARNING indicates a **potentially** hazardous situation, which, if not avoided, **could result in death or serious injury**.

CAUTION indicates a potentially hazardous situation, which, if not avoided **may result in minor or moderate injury**. It is also used to alert against unsafe practices and hazards involving only property damage.

LAYOUT

The graphic in Figure 1 shows the indoor communicating control from a top view. There are two, four wire communication terminals on the right hand side of the control. One of the communications connectors is a Plug and the other is a screw terminal. The communication terminals are used as a “hub” to interface with any communicating equipment in the system. On the bottom of the control there are 24 VAC output terminals. The output terminals are used to conventionally relay communicating commands delivered by the thermostat. Output functions are listed in Table 1.

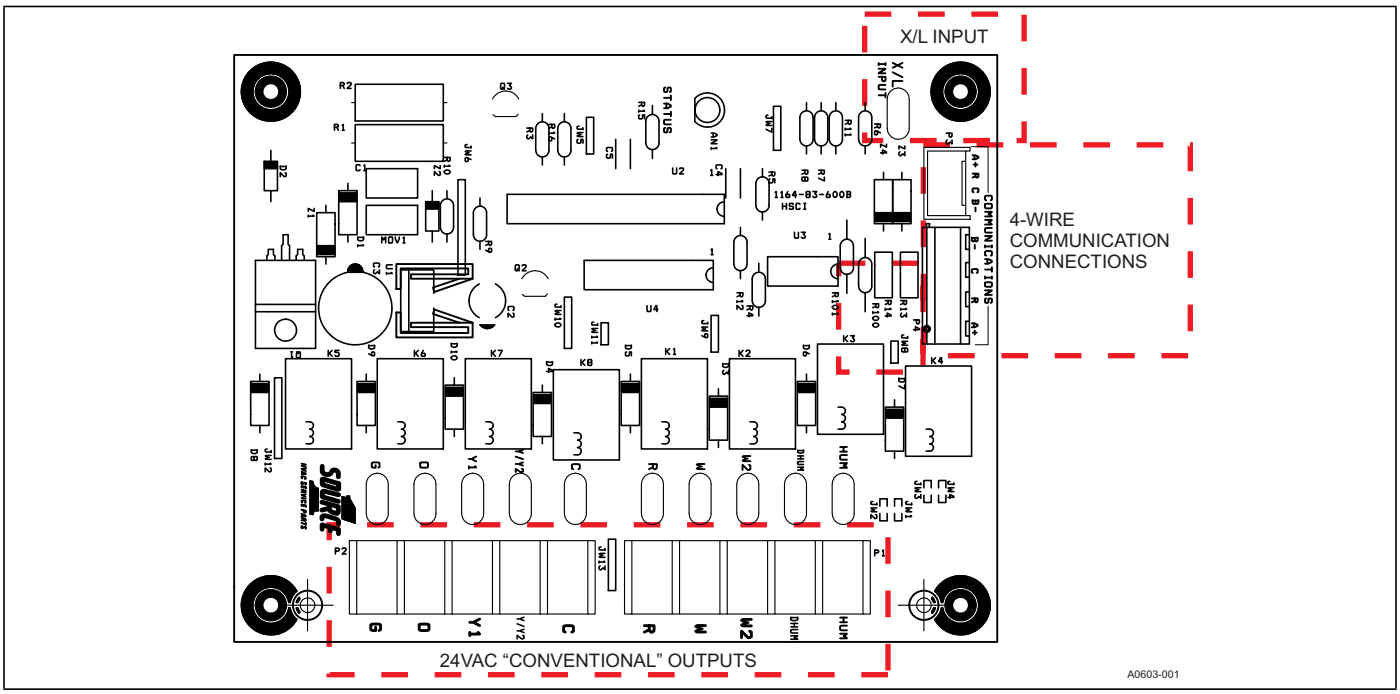

FIGURE 1: Control Board

TABLE 1: Interface Control Conventional Terminals

Terminals	Description
R	24 VAC system power
C	24 VAC system common
G	Fan output signal
Y/Y2	Full/Second stage compressor output signal (depending on whether the equipment is single or two stage)
Y1	First stage compressor output signal
O	Reversing valve output signal (energized in cooling mode)
W	First/Single stage heat output signal (depending on whether the equipment is single or two stage)
W2	Second stage heat output signal
HUM	Humidity output signal
DHUM	De-Humidity output signal

APPLICATIONS

There are four generic applications that this kit was designed to address.

1. A **communicating outdoor** (heat pump or air conditioner) with a **non-communicating indoor** (air handler or furnace).

NOTICE

This control CANNOT be used with variable capacity heat pumps or air conditioners.

2. A **non-communicating air conditioner** with a **non-communicating indoor** (air handler or furnace).
3. A **non-communicating heat pump** (equipped with a demand defrost board with a **non-communicating indoor** unit (air handler or furnace).
4. A **non-communicating indoor** (air handler or Furnace) with **no outdoor** present.

NOTICE

Each of the applications has several variations that may not be mentioned in this document. The thermostat *will direct the installer through screens that will help setup and define the system’s functionality.*

Installation

Installation of this control board varies greatly dependent upon the application. To find the configuration that correlates with your application see the System ID table located at the end of this document.

Physical Installation

⚠ WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer or service agency.

⚠ CAUTION

This product must be installed in strict compliance with the enclosed installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

⚠ WARNING

Disconnect all system power at indoor unit shut off. This will insure that the indoor unit can be safely accessed.

1. Use the template at the end of this document to mark four holes inside the control assembly area or the outside of the indoor unit See Figure 2.

NOTICE

If there is not space for the template anywhere in the suggested location, you may need to place the interface control on the outside of the unit. In the event that the control cannot be placed inside of the unit, the installer may need to build a protective box around the control to keep it safely stored away from moisture and personal contact.

2. Using a 1/8” drill bit, drill holes where marked (in Step 1).
3. Attach the Communicating Interface Control (using the screws provided) over the pre-drilled holes.

⚠ CAUTION

Depending on where the control is installed, screws may be sticking out where they can cause potential hazard. If screws are exposed take proper precaution to avoid risk to others.

4. Connect the applicable 24 VAC outputs from the Communicating Interface Control to the 24 VAC inputs on the non-communicating indoor unit. See Figures 3 or 4.
5. Connect all communicating system components. See Figures 3 or 4.
6. Apply power to system.
7. Follow install setup screens on the thermostat.

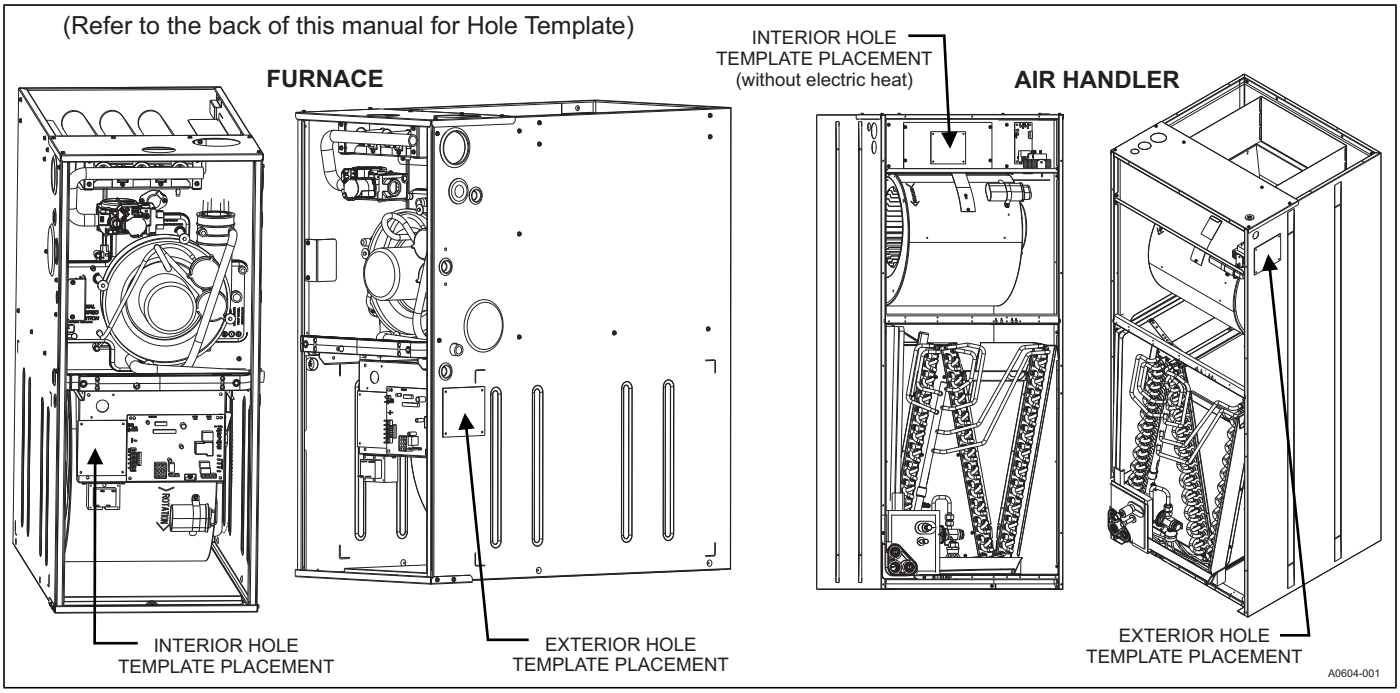

FIGURE 2: Possible Mounting Locations in Furnace

Setup

While the thermostat will guide the installer through the auto setup, it is a good idea to understand all system components included in the installation. To achieve proper system functionality with the thermostat, proper wiring of the indoor and outdoor unit is necessary.

For ease of installation note the following (before powering the system):

- Type of indoor unit (Air handler, Furnace)
- Staging of auxiliary heat (1 or 2 stage)
- Type of outdoor unit (A/C, HP)
- Staging of outdoor unit (1 or 2 stage)

Wiring

The interface control is used to relay communicating commands given by the thermostat. The interface control will deliver 24 VAC “thermostat calls” to the indoor (and in some cases the outdoor) unit.

NOTICE

Some examples of the communicating low voltage wiring diagrams are shown below. If your system is not listed and you would like more information access low voltage wiring diagrams on UPGnet.com.

The wiring diagrams listed in this document are a few samples shown of the flexibility available with this control. The control follows common HVAC rules and can be wired similar to a conventional thermostat.

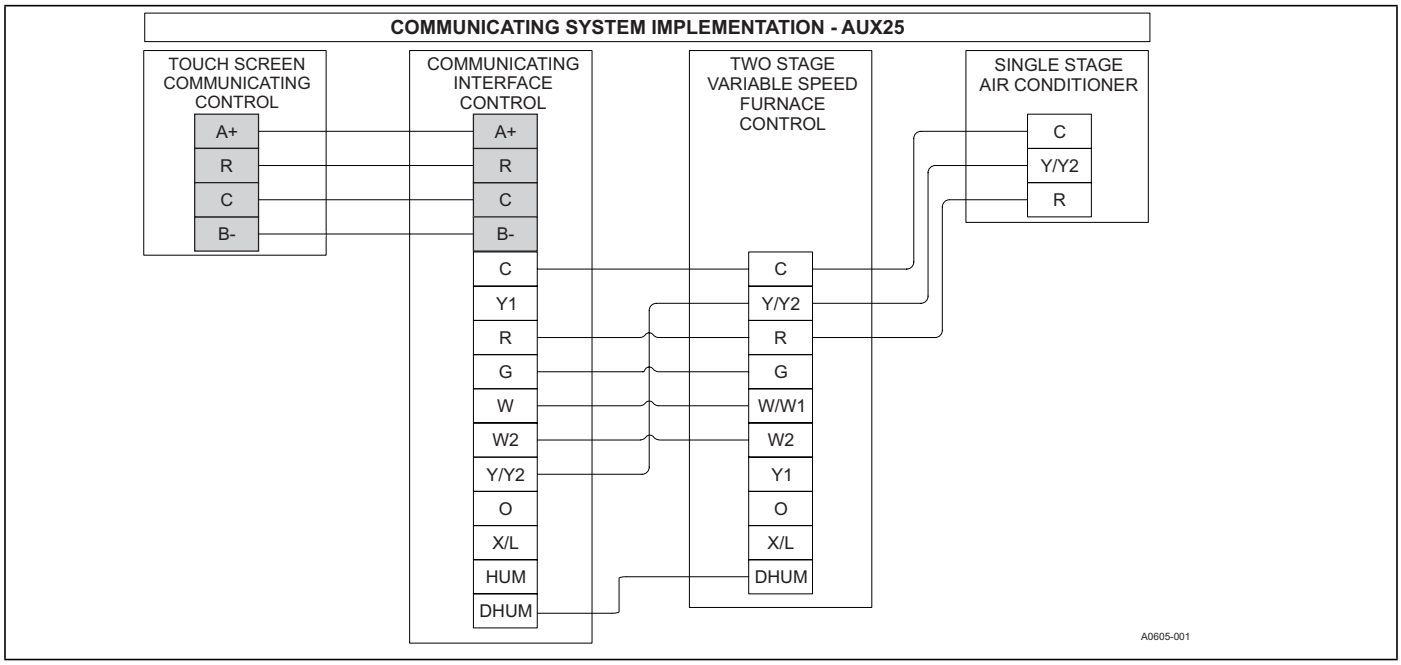

FIGURE 3: Two Stage Furnace with Single Stage A/C

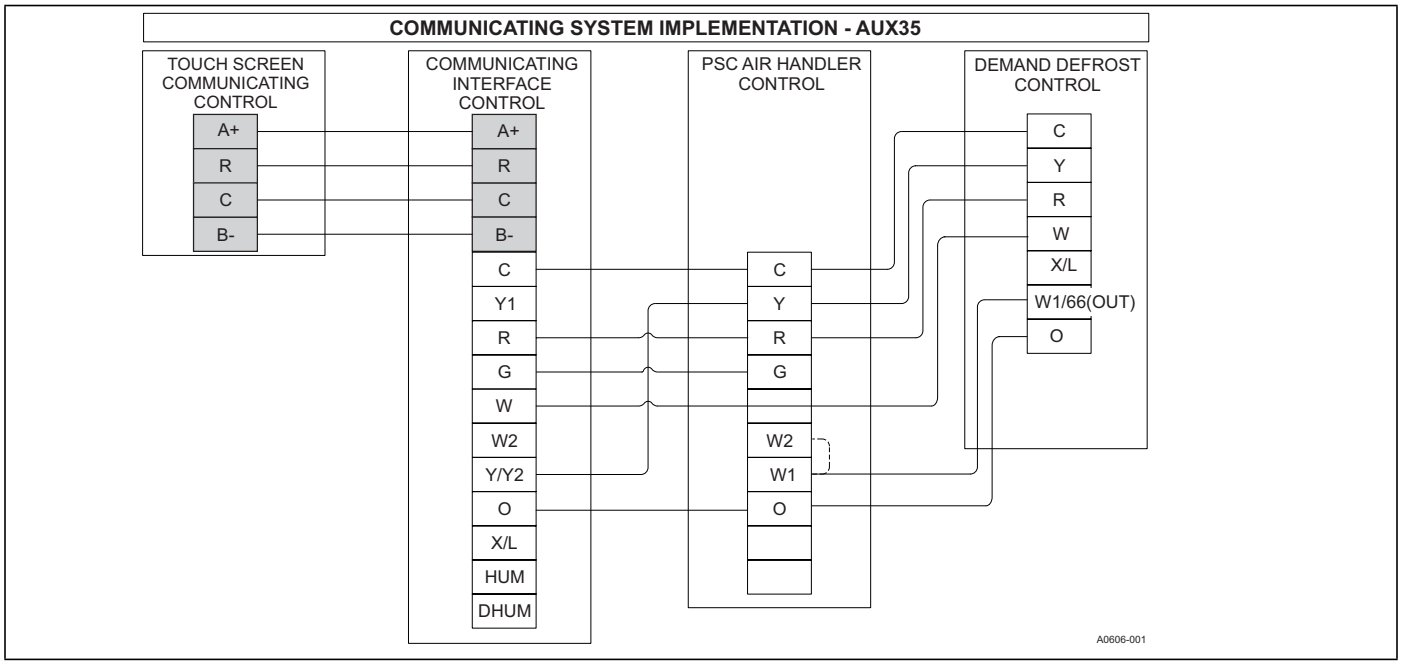

FIGURE 4: PSC Air Handler with Single Stage Heat Pump

TABLE 2: Non-communicating Indoor Units/Communicating Outdoor Units

2-Stage Air Conditioner	Air Handler Electric Heat	Aux2
2-Stage Air Conditioner	Air Handler NO Heat	Aux14
1-Stage Air Conditioner	Air Handler Electric Heat	Aux15
1-Stage Air Conditioner	Air Handler NO Heat	Aux16
2-Stage Heat Pump (Hot Heat Pump)	Air Handler Electric Heat	Aux17
2-Stage Heat Pump (Hot Heat Pump)	Air Handler NO Heat	Aux18
2-Stage Heat Pump	Air Handler Electric Heat	Aux19
2-Stage Heat Pump	Air Handler No Heat	Aux20
1-Stage Heat Pump (Hot Heat Pump)	Air Handler Electric Heat	Aux21
1-Stage Heat Pump (Hot Heat Pump)	Air Handler No Heat	Aux22
1-Stage Heat Pump	Air Handler Electric Heat	Aux23
1-Stage Heat Pump	Air Handler No Heat	Aux24
1-Stage Air Conditioner	1-Stage Furnace	Aux33
2-Stage Air Conditioner	1-Stage Furnace	Aux34
1-Stage Heat Pump (Hot Heat Pump)	1-Stage Furnace	Aux29
1-Stage Heat Pump	1-Stage Furnace	Aux30
2-Stage Heat Pump (Hot Heat Pump)	1-Stage Furnace	Aux27
2-Stage Heat Pump	1-Stage Furnace	Aux28
1-Stage Air Conditioner	2-Stage Furnace	Aux5
2-Stage Air Conditioner	2-Stage Furnace	Aux6
1-Stage Heat Pump	2-Stage Furnace	Aux7
1-Stage Heat Pump (Hot Heat Pump)	2-Stage Furnace	Aux8
2-Stage Heat Pump	2-Stage Furnace	Aux9
2-Stage Heat Pump (Hot Heat Pump)	2-Stage Furnace	Aux10

TABLE 3: Non-communicating Indoor Units/Non-Communicating Air Conditioner

2-Stage Air Conditioner	Air Handler Electric Heat	Aux1
2-Stage Air Conditioner	Air Handler NO Heat	Aux11
1-Stage Air Conditioner	Air Handler Electric Heat	Aux12
1-Stage Air Conditioner	Air Handler NO Heat	Aux13
1-Stage Air Conditioner	1-Stage Furnace	Aux31
2-Stage Air Conditioner	1-Stage Furnace	Aux32
1-Stage Air Conditioner	1-Stage Furnace	Aux41
1-Stage Air Conditioner	2-Stage Furnace	Aux25
2-Stage Air Conditioner	2-Stage Furnace	Aux26
2-Stage Air Conditioner	2-Stage Furnace	Aux8

TABLE 4: Non-communicating Indoor Units/Non-Communicating Heat Pump

1-Stage Heat Pump	Air Handler Electric Heat	Aux35
1-Stage Heat Pump	Air Handler No Heat	Aux36
1-Stage Heat Pump	2-Stage Furnace	Aux37
1-Stage Heat Pump	1-Stage Furnace	Aux38

TABLE 5: Non-communicating Indoor Units/No Outdoor Unit

No Outdoor Unit	Air Handler Electric Heat	Aux39
No Outdoor Unit	Air Handler No Electric Heat	Aux40
No Outdoor Unit	2-Stage Furnace	Aux41
No Outdoor Unit	1-Stage Furnace	Aux42

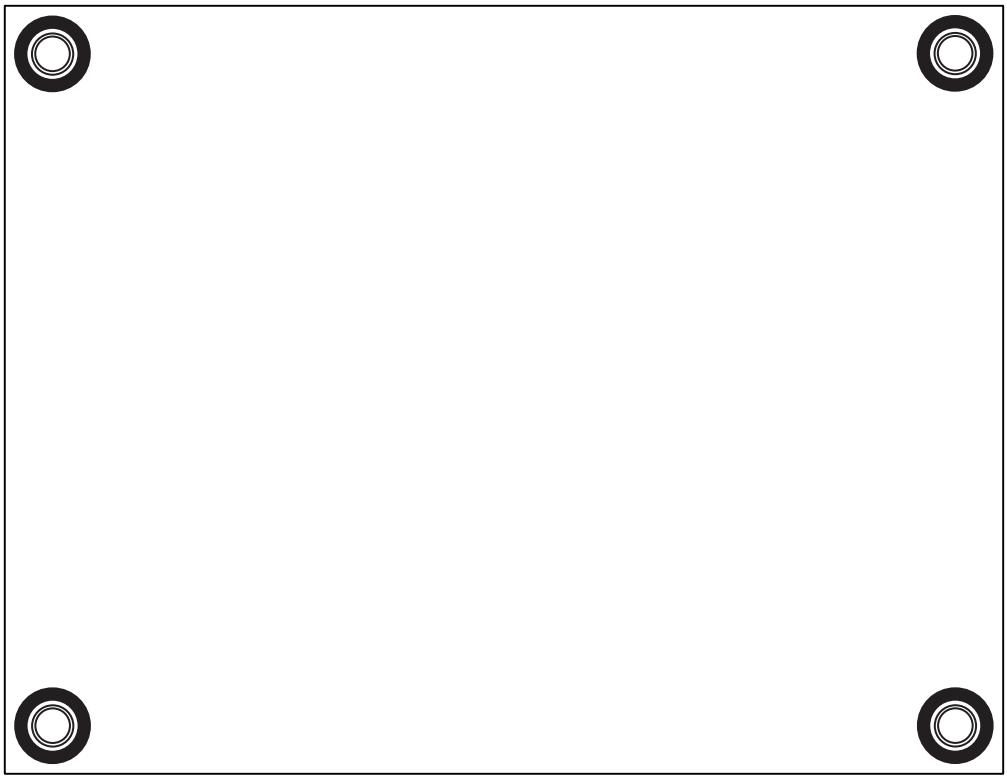

FIGURE 5: Hole Template

5271251-UAI-B-0617
Supersedes: 5271251-UAI-A-1016

York International Corp.
5005 York Drive
Norman, OK 73069