



APPLICATION BULLETIN

H20230315A

March 15th, 2023

Subject: H-Series ASUH-LPAS/LMAS Wall Mount Electric Baseboard Heater Control

Introduction:

This bulletin provides instruction for control of electric baseboard as an auxiliary source for Airstage H-Series, ASUH-LPAS/LMAS indoor units in Single or Multi-Zone applications. For a complete description of external input and output use and functions, please refer to the system Installation Manual and Design and Technical Manual.

Discussion:

External output description

The H-Series ASUH series wall mount indoor units provide a 12 VDC output that can be used to energize a 3rd party, field provided solid state relay, rated for switching the line voltage power to the baseboard heater. The external output is active at any time the adjustable temperature threshold for auxiliary heat is exceeded. Although the heater is decoupled from the H-Series system, pilot duty control for baseboard operation is managed from the Airstage indoor unit.

Items required*

- (1) UTY-XWZXZ5- Fujitsu accessory connector
- (1) Solid State Relay, Aube Technologies RT850 or equivalent

* Optional control- When more than one external output is required, beyond the default capability of the IDU control board alone, up to (3) additional, external outputs may be provided through use of the following additional Fujitsu accessory:

- (1) UTY-XCSXZ2- External Input and Output PCB

Note- This bulletin only provides instruction for the external output from indoor unit circuit board CN47.

Control Circuitry

The 12 VDC, 50 mA maximum output is used energize the 3rd party SSR directly.

1. Field provided SSR- Aube Technologies Model 850 Electric Heating Solid State Relay, or equivalent. The relay control signal load must not exceed the Airstage indoor unit output:
 - a. 12 VDC
 - b. 50 mA maximum holding current

2. Fujitsu accessory- A external output accessory wiring harness is required:
 - a. UTY-XWZXZG
3. Control signal- The 12 VDC output from indoor unit connector CN47 is used as a control input to the SSR.

SSR Wiring- See Fig. 1, p. 3.

1. SSR installation- Install the SSR in accordance with the manufacturer's instructions.
 - a. Ensure the electric baseboard resistive load does not exceed the electrical rating of the SSR.
2. Connect Fujitsu accessory UTY- XWZXZG to the indoor unit control board connector CN47.
3. Wire the SSR VDC input to the leads from CN47. (24 VAC control input not used) Note: SSR is polarity sensitive:
 - a. CN47-1- to SSR VDC (+)
 - b. CN47-2- to SSR COM (-)
4. CN47 wiring notes:
 - a. Use 22 AWG twisted pair wiring from the indoor unit connector CN47 to the SSR (+) and (-). ("Fujitsu Pink" PN K00250LW [250' roll] or Honeywell Catalog #3254 acceptable)
 - b. Maximum cable length from indoor unit to relay: 82' (25m)
 - c. Keep twisted pair wiring separate from line voltage wiring.
 - d. UTY- XWZXZG to twisted pair wiring connections should be made by either:
 - i. Crimp (butt) type connectors. (wire nuts not permitted)



ii. Soldered and insulated

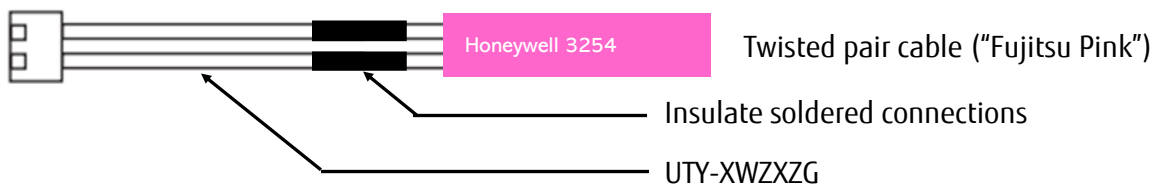
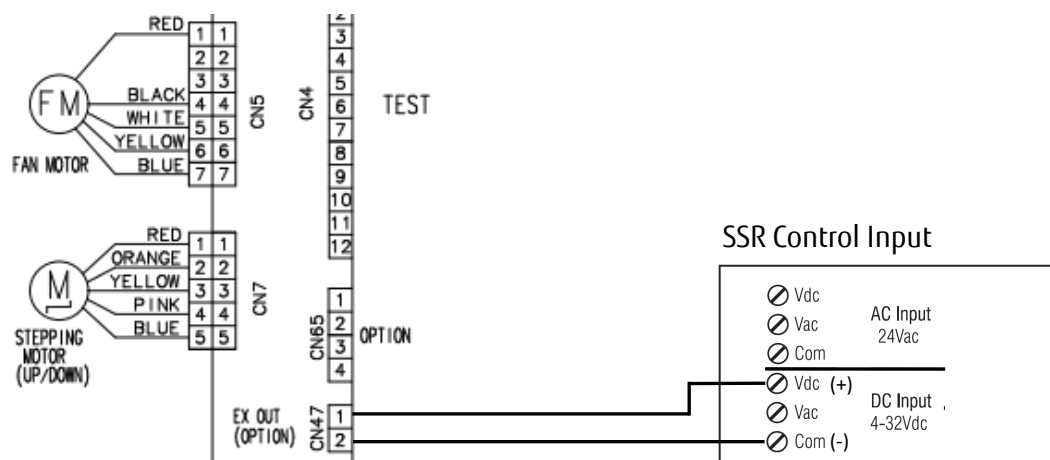


Fig. 1, Indoor Unit to SSR Control Wiring



* IMPORTANT- CONFIRM THE BASEBOARD HEATER LOAD DOES NOT EXCEED THE SSR VOLTAGE AND AMPACITY RATINGS.

Auxiliary Heater Sequence of operation

1. External heater output ON- Upon setpoint deviation from indoor unit setpoint as assigned from Function Setting 62, 12 VDC output is switched from indoor unit control board CN47, pins 1 & 2, to power the SSR control load. The SSR switches internally to provide the line voltage to the baseboard heater(s).
2. External heater output OFF- 0 VDC output from CN47 when the setpoint deviation is reduced. When the SSR is deenergized, line voltage is removed from the baseboard heater(s).

Indoor Unit Function Settings

Indoor Unit Function Setting changes are required to enable the external output to be active on CN47 for auxiliary heat control.

1. Required Function Setting change
 - a. Function number 60- "Switching functions for external output terminal". The default setting value is 00, which must be changed to 11 to enable the 12 VDC output on CN47 when auxiliary heat operation is required.

Function number	Setting value	Setting description
60	00	Operation status
	01 to 08	Other status (Refer to the Design & technical manual.)
	09	Error status
	10	Interlocked with indoor fans
	11	External heater output

2. Optional Function Setting Changes

a. Function number 61- "Control switching of external heater". The default setting value (00) will energize the 12 VDC heater output based upon deviation from the indoor unit setpoint as determined from function setting 62. Other auxiliary heater configurations are available to factor outdoor temperature for balance point and heat pump inhibit options or to allow the baseboard heat source to be primary heat with the heat pump as auxiliary.

1. Other auxiliary heater configurations are available to factor outdoor temperature for balance point and heat pump inhibit option.

Function number	Setting value	Setting description	Factory setting
61	00	Auxiliary heater control 1	◆
	01	Auxiliary heater control 2	
	02	Heat pump prohibition control	
	03	Auxiliary heater control by outdoor temperature 1	
	04	Auxiliary heater control by outdoor temperature 2	
	05	Auxiliary heater control by outdoor temperature 3	
	06	Auxiliary heat pump control	
	07	Auxiliary heat pump control by outdoor temperature 1	
	08	Auxiliary heat pump control by outdoor temperature 2	
	09	Auxiliary heat pump control by outdoor temperature 3	

b. Function number 62- "Operating temperature switching of external heaters". Heater ON and OFF temperature conditions are adjustable. The default setting value (00) will operate the 12 VDC heater output based upon setpoint deviation:

1. Heater ON= Room temperature $\geq -5.4^{\circ}\text{F}$. (-3°C) from setpoint
2. Heater OFF= Room temperature $\leq -1.8^{\circ}\text{F}$. (-1°C) from setpoint

c. Function number 72- "Heat pump backup setting". In the event of an error which renders the outdoor unit inoperable, this function will allow the auxiliary heat source to resume operation and bypass Function numbers 66 and 67, if used. In order to permit the baseboard heat to automatically resume operation in the event of a qualifying outdoor unit error, adjust the setting value to (01).

Function number	Setting value	Setting description	Factory setting
72	00	Disable	◆
	01	Enable	

Reference literature

For a complete description of external input and output functions, along with the complete function setting options, please log onto the Fujitsu [CONNECT](#) site for ASUH**LP/MAS system Installation and Design & Technical Manual downloads.

Additional notes

The information in this bulletin is subject to change without notice. Fujitsu General America, Inc., is not responsible for 3rd party circuit design.

To obtain additional support, please contact your regional Distributor TSA, Technical Service Advisor, or Fujitsu General America Technical Support, servicehvac@fujitsugeneral.com.