

UNT Series

Unitary Controller



Unitary Controller

Description

The Unitary (UNT) Controller is an electronic device for digital control of packaged air handling units, unit ventilators, fan coils, heat pumps, and other terminal units serving a single zone or room. It can also be configured as a generic input/output device for basic point monitoring applications when used within a Metasys Network.

You can easily configure point inputs and outputs and software features to control a wide variety of HVAC equipment applications.

You may use the UNT as a standalone controller or connected to the Metasys Network through a Network Control Module (NCM), N30, or Companion Supervisory Controller.

Features

- standalone control enhances system reliability
- network communications over N2 bus provides facility-wide control efficiencies and cost effective sensor sharing
- multiple modes of operation for various occupancy conditions provide comfort with economy
- removable N2 and 24 VAC power plugs allow disconnection of an individual controller without disrupting other controller connections

- built-in control program library within HVAC PRO software tool allows easy configuration
- multiple packaging options for both field and factory installations allow for installation flexibility
- isolated N2 circuitry for more reliable operation
- LED indicator for Power/Zone Bus provides visual indication of proper system function
- screw terminals for I/O connections available in some models; "Quick Connect" lugs and crimping tool not required
- UNT112/113 include isolated binary outputs when separate power sources are used.

To Order

See the selection chart on the next page.

Options

Application Options	Software Options
Primary Equipment Types	Unit Vents ASHRAE Cycle 1 ASHRAE Cycle 2 ASHRAE Cycle 3 ASHRAE Cycle W Heat Pumps Water to Air Air to Air Packaged Rooftops Fan Coils
Primary Control Strategies	Room/zone control
Economizer Changeover Strategies	- Dry bulb - Outside air enthalpy - Differential outside/return air temperature - Binary input from external economizer - Supervisory network command
Mixed Air Control Strategies	Proportional output to OA/RA damper actuator Binary output to economizer actuator
Heating/Cooling Configuration	Modulated single coil Staged (2-stage max) Modulated common heating/cooling coil Reversing valve logic
Fan Start/Stop	Continuous Operation Cycled with call for heating/cooling
Lighting Control	On and off outputs to lighting relay in conjunction with Occ/Unocc mode.
Unoccupied Control	Setup and setback, morning warmup and cooldown
Pump Led / Lag	Lead/Standby pumps with common or separate flow switch(s)

Specifications

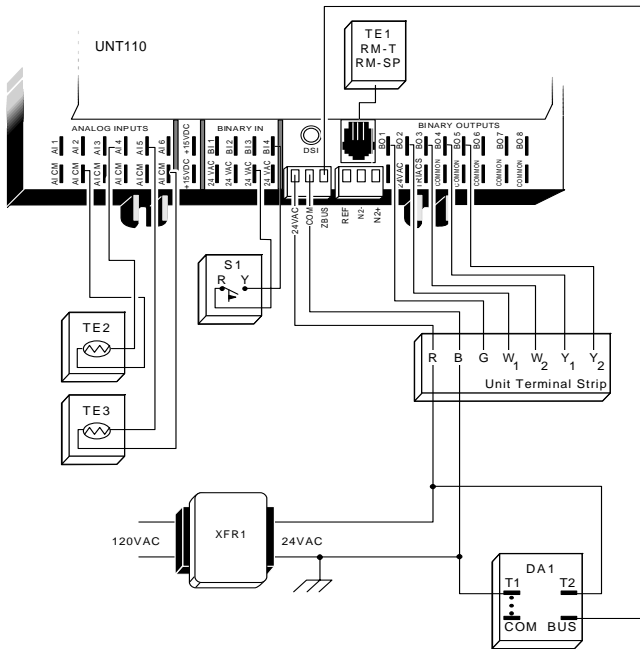
Unitary Controllers	
Product Codes	Spade quick connects: AS-UNT110-1, AS-UNT111-1 AS-UNT112-1, AS-UNT113-1 Screw terminations: AS-UNT140-1, AS-UNT141-1
Ambient Operating Conditions	0 to 60°C (32 to 140°F) and 10 to 90% RH
Dimensions (H x W x D)	165 x 163 x 56 mm (6.5 x 6.4 x 2.2 in.) without enclosure 173 x 185 x 119 mm (6.8 x 7.3 x 4.7 in.) with enclosure
Low Ambient Temperature Models	
Product Codes	Spade Quick Connects: AS-UNT120-1, AS-UNT121-1
Ambient Operating Conditions	-40 to 60°C (-40 to 140°F) 10 to 90% RH
Dimensions (H x W x D)	165 x 163 x 56 mm (6.5 x 6.4 x 2.2 in.) without enclosure 259 x 248 x 76 mm (10.2 x 9.8 x 3 in.) with enclosure
Low Ambient Temperature Models in Enclosures	
Product Codes	Spade quick connects: AS-UNT110-101, AS-UNT111-101 Screw terminations: AS-UNT140-101, AS-UNT 141-101 (mounted in EN-EWC10 enclosure with 50 VA Transformer)
Ambient Operating Conditions	0 to 60°C (32 to 140°F) and 10 to 90% RH
Dimensions (H x W x D)	7 x 13 x 6 in. (180 x 330 x 150 mm without enclosure)
All Models	
Ambient Storage Conditions	-40 to 70°C (-40 to 158°F) 10 to 90% RH
Power Requirements	24 VAC, 50/60 Hz at 40 VA (per typical system)
N2 Bus	Isolated
Zone Bus	8-Pin Phone Jack or Terminal Block on Controller
Shipping Weight	0.64 kg (1.4 lbs)
Agency Compliance	CSA C22.2 No. 205, FCC Part 15, Subpart J, Class A, IEEE 446, IEEE 472, IEEE 518, IEEE 587 Category A, UL 916, UL 864; NEMA ICS 2, Part 2-230, VDE 0871 Class B
Agency Listings	UL Listed and CSA Certified as part of the Metasys Network

UNT Series Unitary Controller (Continued)

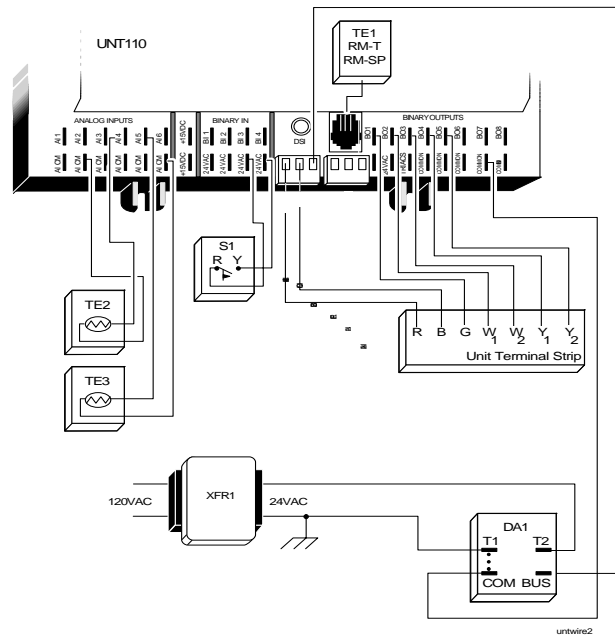
Selection Chart

Code Number	Termination Type	Analog Inputs	Binary Inputs	Analog Outputs	Binary Outputs
AS-UNT110-1	Spade Lug	6 • RTD Temp. Elem. (NI, SI or PT) • 0-10 VDC Trans. • 2K ohm Setpoint Potentiometers	4 • 4-Dry Contacts • 1-Momentary Push Button at Zone Sensor • BI4-Accum. Input	0	8 • 24 VAC Triacs at 0.5 amps • Low or High Side Common Selectable
AS-UNT111-1				2 • 0 to 10 VDC at 10 mA	6 (same as above)
AS-UNT112-1	Spade Lug	6 • RTD Temp. Elem. (NI, SI or PT) • 0-10 VDC Trans. • 2K ohm Setpoint Potentiometers	4 • 4-Dry Contacts • 1-Momentary Push Button at Zone Sensor • BI4-Accum. Input	0	8 • 24 VAC Triacs at 0.5 amps • Low or High Side Common Selectable • Electrically Isolated BO's
AS-UNT113-1				2 • 0 to 10 VDC at 10 mA	6 (same as above)
AS-UNT120-1	Spade Lug	6 • RTD Temp. Elem. (NI, SI or PT.) • 0-10 VDC Trans. • 2K ohm Setpoint Potentiometers	4 • 4-Dry Contacts • 1-Momentary Push Button at Zone Sensor • BI4-Accum. Input	0	8 • 24 VAC Triacs at 0.5 amps • Low or High Side Common Selectable
AS-UNT121-1				2 • 0 to 10 VDC at 10 mA	6 (same as above)
AS-UNT140-1	Screw Terminal	6 • RTD Temp. Elem. (NI, SI or PT.) • 0-10 VDC Trans. • 2K ohm Setpoint Potentiometers	4 • 4-Dry Contacts • 1-Momentary Push Button at Zone Sensor • BI4-Accum. Input	0	8 • 24 VAC Triacs at 0.5 amps • Low or High Side Common Selectable
AS-UNT141-1				2 • 0 to 10 VDC at 10 mA	6 (same as above)

Wiring Diagram 1 – External Control Power

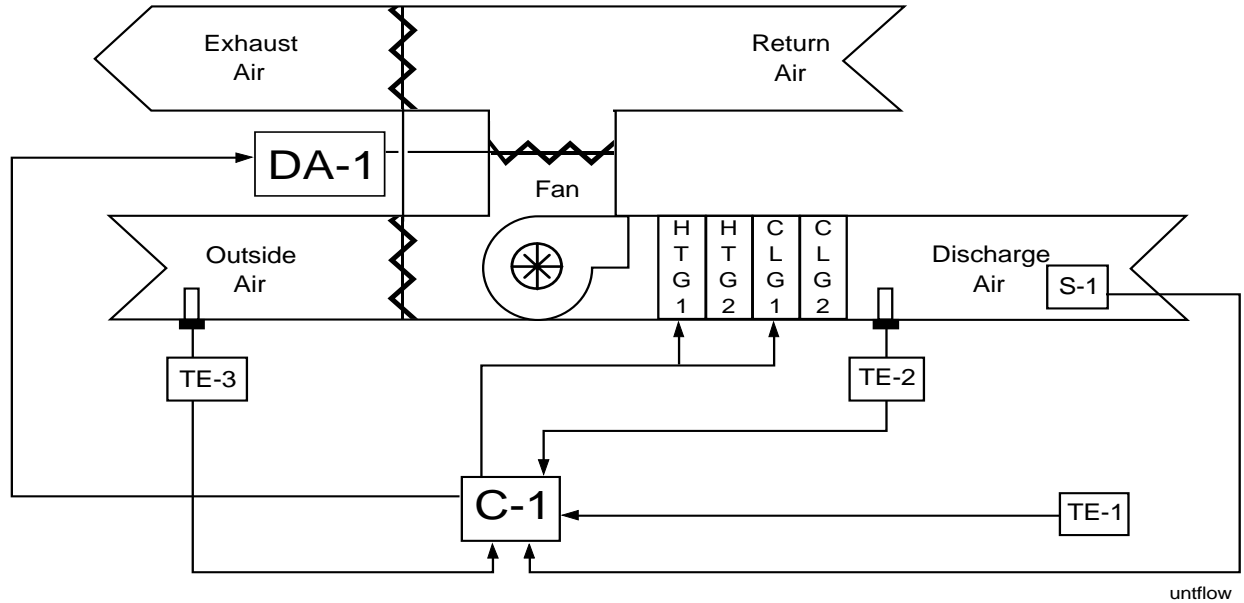


Wiring Diagram 2 – Internal Control Power



UNT Series Unitary Controller (Continued)

Room Control of Packaged Rooftop Unit - Flow Diagram



Configuration Selections

HVAC PRO Configuration Selections	
Economizer Output Type: Zone Bus	
Economizer Changeover Type	Dry Bulb
Heating Type	Two Stages
Cooling Type	Two Stages
Outdoor Air Lockout of Heating / Cooling	Two Stages
Zone Reset from Humidity	No
Heating / Cooling Diagnostics	Yes
Lighting Interface	No

Sequence of Operation

Digital Controller, C₁, shall modulate an economizer damper motor, DA₁, via zone bus and energize up to 2 stages each of heating or cooling to maintain a room temperature of 70°F. Economizer changeover shall be based on outdoor air temperature. The heating and cooling stages should be locked out based on 65°F or 50°F outdoor air temperature respectively.

Bill of Materials

ID	Qty.	Code Number	Description
C-1	1	AS-UNT110-1	Digital Controller
TE-1	1	TE-67NP-1B00	Zone Temperature Sensor
TE-2	1	TE-6100-2	Discharge Air Sensor
TE-3	1	TE-6001-2 TE-6000-1	Outdoor Air Sensor
S-1	1	P32AC-2	Air Flow Switch
DA-1	1	M110CGA-2	Damper Actuator
XFR-1	1	AS-XFR050-0	120/24 VAC, 50 VA Transformer