

## Section 237413 – PACKAGED, OUTDOOR, CENTRAL-STATION AIR-HANDLING UNITS

The following replaces paragraphs 2.10.C.11 and 2.10.C.12.

### 2.10 CONTROLS

#### D. Controller

##### 11. Economizer Outdoor-Air Damper Operation:

- a. Manufactured, brand labeled or distributed by BELIMO.
- b. Economizer shall be capable of single dry bulb, differential dry bulb, single enthalpy or differential enthalpy control strategy, as required, per ASHRAE 90.1. Sensing devices shall be non-proprietary.
- c. ASHRAE Climate Zone selection for high limit setting shall be through entry of the installed location zip code through the MMI without the use of printed documentation.
- d. The device shall incorporate brownout protection that will prevent the compressors from operating in low voltage conditions while remaining in control. Upon startup from a brownout or blackout condition the unit shall provide automatic random on to prevent electrical surge from multiple compressor starting.
- e. Alarms for fault detection and diagnostics shall be indicated by both a visual LED indicator and text description accessible through the MMI. Current and historical alarms (including elapsed time since occurrence) shall be accessible via the MMI. Upon sensor failure the economizer shall automatically detect the proper economizer sequence to maintain control.
- f. Device shall be compliant with the latest version of the following energy codes: ASHRAE 90.1, CA Title 24, and NECB.
- g. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.
- h. Occupied Periods.
  - i. Open to **[10] [25] <Insert percent>** percent fixed minimum intake and maximum 100 percent of the fan capacity to comply with ASHRAE 90.1. Controller shall permit air side economizer operation when outdoor air is below the outdoor air temperature/enthalpy as determined by entry of the installed location zip code on the integrated display.
  - ii. Economizer dampers shall be capable of being sequenced with the mechanical cooling system and be capable of providing a partial cooling load with the mechanical cooling.
  - iii. The outdoor air intake minimum position shall automatically reduce upon reaching a predetermined high limit setpoint. When outdoor air is 100% and the mechanical cooling is enabled the outdoor air damper shall close to reduce freeze conditions if required.
- i. Unoccupied Periods.
  - i. Close outdoor air damper and open return air damper.
- j. **[Carbon Dioxide Sensor Operation.**
  - i. **Occupied Periods. Reset minimum outdoor air down to minimum [10] <Insert percent> percent to maintain maximum concentration per ASHRAE 90.1**

- ii. **Unoccupied Periods: Close outdoor air damper and open return air damper.]**