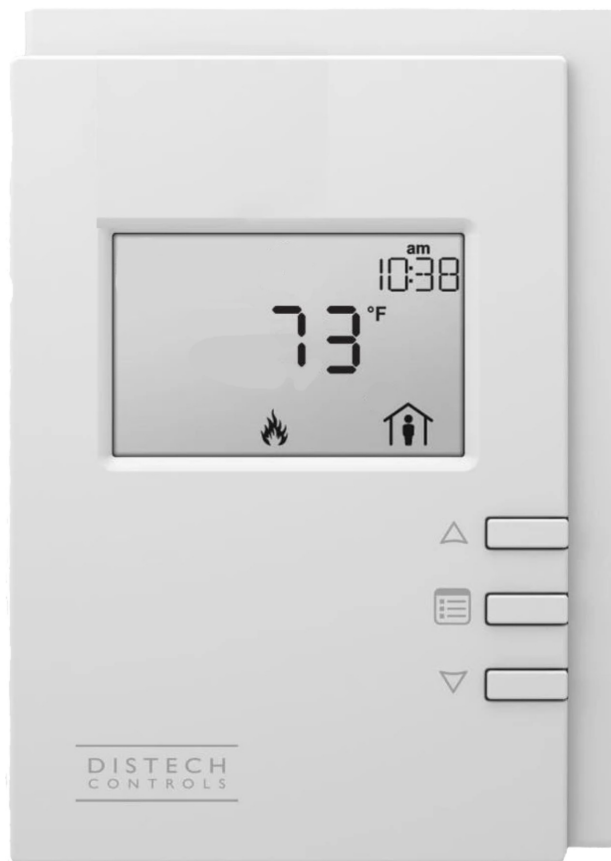# ER-3 Controls

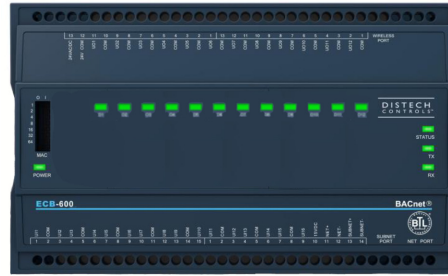## Pure and Simple Solutions

Energy Recovery DDC control system with advanced features for heating, cooling, ventilating and makeup-air systems.

112321

ER-3 Controls

LCD Human Machine Interface

- Easy to read, back-lit display with all necessary information for control and diagnostics available.

- Scrolling main display for system status at a glance.

- Intuitive menu system for ease of navigation.

- View system faults in plain English format for ease of diagnostics.

- Edit set points and system configuration in real time.

- 7-day occupancy schedule with night setback and cycle control.

- Enthalpic Frost Protection to keep exchanger operating at optimum effectiveness.

- Connects via CAT-5E cable with a maximum length of 600 feet.

Unit Controller

- ARM Cortex M3 32 bit processor operating at 72 MHz.

- 1 MB non-volatile Flash for applications and 2 MB for data storage.

- Operating temperature 32°F to 122°F.

- Real Time Clock with battery backup.

- Up to 12 digital HMI's can be daisy-chained together for unit control.

- Comes standard with 28 I/O points and is expandable to 84 I/O points for additional features if necessary.

- EnOcean wireless ready supporting up to 28 wireless devices.

- CE, FCC, UL (CDN & US), UL-864, CSFM, and CEC listed appliance.

ER-3 Controls

Standard Features

- Programmable 7-day schedule with five programmable special events.
- Supports direct fired gas, indirect fired gas, hot water, steam and electric heating types.
- Occupied and unoccupied temperature set points.
- Selectable operation mode.
- Enthalpic Frost Protection to keep exchanger operating at optimum effectiveness.
- Heat exchanger modulates to prevent over-heating on 'shoulder' days and provides proper ventilation temperature when needed.
- Space or discharge temperature control selectable at the HMI.
- Selectable cycle settings for occupied and unoccupied times.
- Simplified menu structure.
- Individual fault reporting for diagnostics.
- BMS connectivity via BACnet MS/TP or LonWorks.

Optional Features

- Filter monitoring with notification.
- Low temperature lockout alarm.
- Mild weather heating and cooling lockouts for energy efficiency.
- Remote wired space temperature sensor so the HMI can be in a secure location.
- Building pressure control for reduced space stratification and increased comfort.
  - i. Supply Fan Control.
  - ii. Exhaust Fan Control.
- Cooling capabilities include:
  - i. Evaporative Media.
  - ii. Analog DX Control.
  - iii. Analog Heat Pump.
  - iv. Single Stage DX Control.
  - v. 2 stage DX Control.
    - a. With or without integrated stage timer.
  - vi. Chilled Water Coil.

ER-3 Controls

BMS Network Interface

- BACnet MS/TP or LonWorks connection included with every unit.
    - i.   Selectable at time of order.
- Full system control via the included BACnet MS/TP or LonWorks connection.
- Will operate as a stand-alone system or in conjunction with a BMS.
- Standardized points list for ease of integration.
- Automatic network baud rate detection on power up.
- Occupancy, temperature and building pressure overrides from the network allow for unit averaging so multiple units can function under a single control.
- Modbus gateway friendly. Uses no 'null' values and keeps all network commands numeric.

Other AbsolutAire Control Solutions

Unified Control Systems

Allows multiple units in a common area or facility to operate as a system. Benefits include unified building pressure control, averaged space temperature control, scheduled purge or exhaust sequences, routine maintenance reminders and custom graphics for your facility. This option can be more cost effective than installing a full BMS system and has many of the same benefits.

Individual unit thermostat control

This control option allows each air-handling unit to operate as a stand-alone system. Temperature set points and on/off commands are entered at the thermostat. Scheduling can also be made available for occupied and unoccupied temperature set points to help reduce energy costs. This is a simple, cost effective way to control a makeup air unit.

Discrete I/O Controls

If an existing BMS has a local programmable logic controller or user interface panel with available inputs and outputs, these can be wired directly into the terminal strip on the AbsolutAire equipment. This option works well, but doesn't provide as much functionality as an AbsolutAire control package. Each function requires a separate set of wires to be run from the I/O module and some options will require the addition of control relays, sensors or temperature control hardware.

Owner-Specified Controls

When AbsolutAire equipment will be monitored and controlled by an existing BMS, owner-specified controllers may be required to match specific BMS operating requirements. In such cases, AbsolutAire will install the hardware, but the customer is responsible for programming and must provide an authorized DDC technician during our factory testing of the controls. Certain technical requirements also apply to meet the safety requirements and applicable ANSI standards. Full disclosure of customer responsibilities will be included in the equipment control specifications.

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