INFINET II

i2865/866 VAV Controllers with Built-in Actuator

The Infinet II (i2) 865 and 866 are unique, low-cost VAV box controllers that come equipped with a built-in actuator to streamline hardware installation and save commissioning time. Four universal inputs; an airflow sensor; three Form A triac-based outputs; and an integrated damper actuator, make these controllers perfect for VAV applications requiring reheat control. Both models feature a room sensor input, which supports Andover's *Smart Sensor*, or any standard room temperature sensor.

The i2866 model is identical to the i2865, with the exception that it also offers two analog outputs to control reheat valves, lighting ballast control, etc.

Similar to all i2 controllers, the i2865 features Flash memory, increased user memory, and a fast (32-bit) processor for faster scan times, with plenty of additional memory available for data logging of your critical data.

The i2865 communicates with the entire Andover Controls Infinet™ RS-485 field bus; i.e., both Infinet and Infinet II controllers, and is compatible with both the *Continuum* CyberStation and *Infinity* SX 8000 front-ends. Up to 254 Infinet devices can be networked to any Andover network controller.

INCREASED RELIABILITY WITH FLASH MEMORY

The i2865's non-volatile Flash memory stores your operating system *and* application programs, so that in the event of a power loss, your application will be restored when power is returned. In additon, the Flash memory allows for easy upgrades of your operating system via software downloads, eliminating the need to swap out proms. The i2865 includes an on-board battery to safeguard your runtime data — protecting all point data and log data from being lost if power is removed.
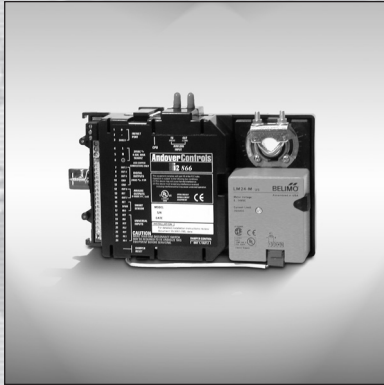
- Compact Terminal Controllers Provides Low-cost VAV Control

- Built-in Damper Actuator Simplifies Hardware Installation

- Universal Inputs with Form A, Form K, and Analog Outputs for Flexible Control Options

- Non-Volatile Flash Memory Provides Utmost Reliability — Stores Both Application Program and Operating System

- Flash Memory Allows Easy On-Line Software Updates

- On-Board Airflow Sensor

- View and Modify Information with Optional Andover *Smart Sensor* Display

- Local On-Board Service Port

INPUTS

The input configuration on the i2865 consists of four full range Universal inputs that accept voltage (0-5VDC), digital (on/off), counter signals (up to 4Hz), or temperature signals, plus an on-board air flow sensor. Both models also offer an additional input to support the Andover *Smart Sensor*, or any standard room temperature sensor.

OUTPUTS

The i2865 contains three Form A Triac-based outputs. Each Triac is ground referenced. These outputs can be used separately for on/off or pulsed control of lighting, heat, and fan units or for bi-directional control of dampers and valves; or configured into one Form K Tri-state output and one Form A output. (Note: Any two consecutive Triac outputs can be configured as a Form K output.) Outputs are rated for AC loads only. The i2866 also offers two (0-10V) analog outputs.

DAMPER ACTUATOR

The integrated Belimo® damper actuator allows simple direct mounting of the i2865 directly over the existing damper shaft. This eliminates the need for separate mounting, wiring, and positioning of the damper motor. All i2865 controllers have built-in software over-drive protection which senses repeated motor limit stall conditions and helps to prevent motor damage. Also, the actuator has a built-in clutch button to temporarily disengage the direct-drive gears during commissioning. The i2865 actuator may be preset for a limited range of motion using the mechanical "stops" provided.

SOFTWARE CAPABILITIES

The dynamic memory of the i2865 can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover Controls *Plain English®* programming language. Our object-oriented *Plain English* language with intuitive keywords provides an easy method to tailor the controller to meet your exact requirements. Programs are entered into the i2865 using the *Continuum* CyberStation, *Infinity* SX 8000 Workstation, or local user terminal. Programs are then stored in, and executed by, the i2865.

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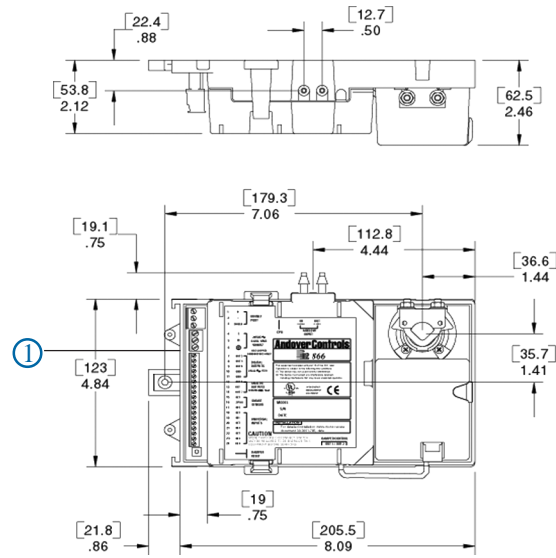
Dimensional Drawing
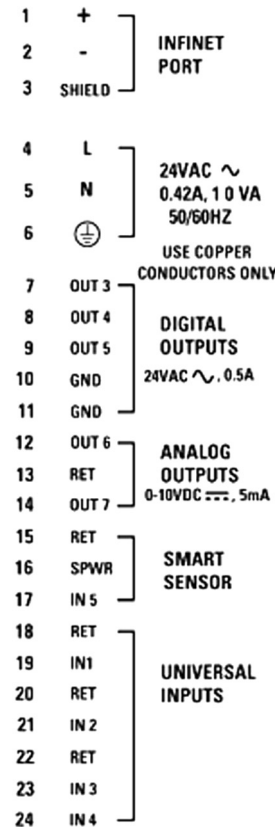
① Wiring Drawing

ELECTRICAL

Power:	24 VAC, +10% -15%, 50/60 Hz
Power Consumption:	10 VA
Overload Protection:	Fused with 2 amp fuse. MOV protected.
Software Real-Time Clock:	Synchronized through Infinet by network controller

MECHANICAL

Operating Environment:	32°–120°F (0–49°C), 10–95% RH (non-condensing)
Size:	5.59"H x 8.95"W x 2.46"D (142H x 227W x 62) mm
Weight:	1.86 lbs. (.85 kg)
Enclosure Type:	UL Open class, IP 10. Flammability rating of UL94-5V

BATTERY

Battery Backup:	Replaceable, non-rechargeable, lithium battery. Provides 5 years typical accumulated power failure backup of RAM memory.

COMMUNICATIONS

Communications Interface:	Through Infinet RS-485 field bus to network controller
Communications Speed:	1200 to 19.2K baud
Bus Length:	4,000 ft. (1,220m) standard for Infinet, i2 Infilink module allows extension to longer distances and is required after every group of 32 units on the network.
Bus Media:	Infinet: twisted, shielded pair, low capacitance cable
Comm. Error Checking:	International Standard CRC 16
Compatibility:	*Continuum* Cyberstation and *Infinity* SX 8000 systems

INPUTS/OUTPUTS

Inputs:	4 Universal inputs: Voltage (0-5.115 VDC); Temperature -30°F to 230°F (-34°C to 110°C), Digital (on/off), Counter (up to 4Hz at 50% duty cycle, 125 ms min. pulse width). Current input (0 - 20 mA) using external 250 ohm resistor 1 airflow sensor (0 to 2″ W.C.) 1 *Smart Sensor* Temperature Input (32°F to 105°F) (0°C to 41°C)
Input Voltage Range:	0-5.115 volts DC
Input Impedance:	10K ohm to 5.120V or 5M ohm with pull-up resistor disabled
Input Protection:	24 VAC or 24 VDC temporarily on any single channel, ±1000V transients (Tested according to EN61000-4-4)
Input Resolution:	5.0 mV
Input Accuracy:	±15mV (±0.56°C from -23°C to +66°C or ±1°F from -10°F to +150°F)
Airflow Input:	
Range:	0 to 2″ W.C. (0-500 Pa)
Resolution:	0.005″ W.C. (1.25 Pa) @ 23° C (73° F)
Accuracy:	±0.05″ W.C. (12.50 Pa) @23°C (73°F)

INPUTS/OUTPUTS (CONTINUED)

Outputs:	3 single pole single throw (SPST) Form A Triacs (any two consecutive outputs can be configured as one Tri-state Form K); 1 integrated damper actuator; 2 analog outputs (0-10V) (i2866 only)
Output Rating:	
For SPST:	Maximum 0.5A, 24VAC, ±2000V transients (Tested according to EN61000-4-4) Minimum: 20 mA AC Each Triac is ground referenced, DC loads not permitted.
For 0-10V:	5 mA maximum, 2K ohm minimum impedance, ±1000V transients (Tested according to EN61000-4-4)
Output Accuracy:	
For SPST:	0.1 sec. for pulse width modulation
For 0-10V:	50 mV resolution/100mV accuracy

DAMPER ACTUATOR

Rated Torque:	35 in-lb. (3.95 Nm)
Range of Travel:	0-95 degrees, with adjustable mechanical stops
Rotation Speed:	1.0 degree/sec nominal
Position Resolution:	0.1 degrees with a 1.0 degree min. positioner movement
Actuator Output:	1.0 sec minimum pulse duration
Shaft Accommodations:	Accepts shafts 1/4" - 5/8" diameter (6.35mm - 15.9mm)

CONNECTIONS

Power:	3-position fixed screw terminal connector
Communications:	3-position removeable screw terminal connector
Inputs/Outputs/Smart Sensor:	18-position fixed screw terminal connector
Damper Shaft:	1/4″ - 5/8″ diameter (6.35mm - 15.9mm)
Service Port:	4-position shrouded connector

USER LEDS/SWITCHES

Status Indicator LEDS:

CPU	CPU Active
TD	Transmit Data
RD	Receive Data

Switches:
- DAMPER LEARN
- RESET
- Input Pull-up Resistor Switch (per input)
- Motor Direction Switch (CW/CCW)

GENERAL

Memory:	128K SRAM, 1MB FLASH
Processor:	Motorola 32-bit Coldfire

AGENCY LISTINGS

UL/CUL 916, FCC CFR 47 Part 15, ICES-003, EN55022, AS/NZS 3548, and VCCI Class A, CE

CE

c(UL)us
LISTED
58B2
OPEN ENERGY
MANAGEMENT EQUIPMENT

OPTIONS

UL864, Smoke Control System Equipment, UUKL (i2865-S, i2866-S)

SOFTWARE CAPABILITIES (CONTINUED)

Programming multiple i2865s is inherently easy with *Plain English*. A complete copy of one i2865's programs can be loaded directly into other i2865s without changing any point names or programs.

SMART SENSOR INTERFACE

The i2865/866 provides a built-in connection for Andover's *Smart Sensor*. The *Smart Sensor* provides a 2-character LED display and a 6-button programmable keypad that enables operators and occupants to change setpoints, balance VAV boxes, monitor occupancy status, and turn equipment on and off. An enhanced version of the *Smart Sensor* is also available with a 4-digit custom LCD that provides the following icons: PM, %, °, Setpoint, Cool, Heat, CFM, Fan, OA, and SP.

Andover Controls
WE'RE BUILDING SMART
A Balfour Beatty Company

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