



# INFINET II

## i2865/866/885-V VAV Controllers with Built-in Actuator

The i2865-V, i2866-V, and i2885-V are unique, low-cost VAV box controllers that come equipped with a built-in actuator to streamline hardware installation and save commissioning time. Universal inputs, an airflow sensor, Form A triac-based outputs, and an integrated damper actuator make these controllers perfect for VAV applications. The i2865/866-V models feature a room sensor input, which supports an Andover Continuum Smart Sensor, or any standard room temperature sensor.

- Low-cost VAV control in compact package
- 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 stores both application program and operating system
- Easy on-line software updates
- On-board airflow sensor
- Optional Andover Continuum Smart Sensor Display
- Local on-board service port
- Support for Wireless Infinet II Field Bus communications

	i2865-V	i2866-V	i2885-V
Universal Inputs	4	4	2
Airflow Sensor	Yes	Yes	Yes
Smart Sensor Input	Yes	Yes	No
Form A Triac Outputs	3	3	2
Analog Outputs	-	2	-
Integrated Actuator	Yes	Yes	Yes
Service Port	Yes	Yes	Yes
Wireless Option	Yes	Yes	Yes

- The i2865-V is the base model with four universal inputs, an airflow sensor, three Form A triac-based outputs, and an integrated damper actuator.
- The i2866-V model is identical to the i2865-V, with the exception that it also offers damper position feedback and two analog outputs to control reheat valves, lighting ballasts, etc.
- The i2885-V has a reduced I/O point count for smaller VAV applications.
- All VAV models feature Flash memory, user memory for programs and a fast (32-bit) processor for faster scan times, with plenty of additional memory available for data logging of your critical data.

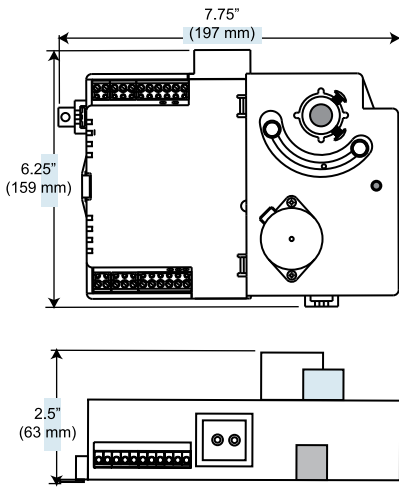
The i2865/866-V VAV controllers communicate with the entire Andover Infinet RS-485 field bus (i.e. both Infinet and Infinet II controllers) and are compatible with both the Continuum CyberStation and Infinity SX 8000 front ends. The i2885-V VAV controllers are compatible with the Continuum CyberStation front end (v1.5 and higher). Up to 254 Infinet devices can be networked to any Andover Continuum network controller.

### INCREASED RELIABILITY WITH FLASH MEMORY

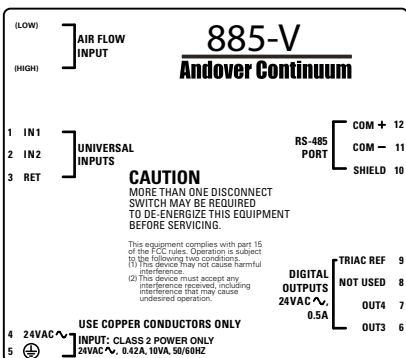
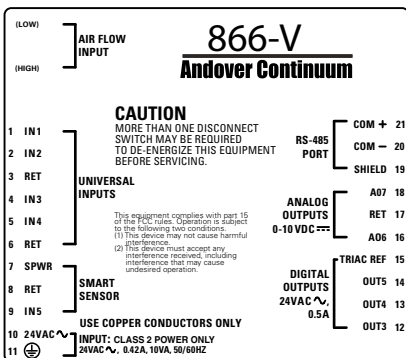
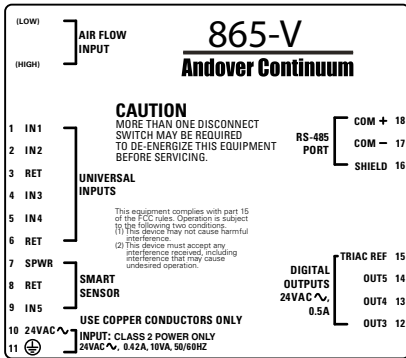
The i2865/866/885-V controller's non-volatile Flash memory stores your operating system and application programs, so that in the event of a power loss, your application is restored when power is returned. In addition, the Flash memory allows for easy upgrades of your operating system via software downloads, eliminating the need to swap out memory chips. Each controller, except the i2885-V, includes an on-board battery to safeguard your runtime data — protecting all point data and log data from being lost if power is removed.



## DIMENSION DRAWING



## CONNECTION LABELS



## OPTIONAL WIRELESS INFINET

The i2865/866/885-V Infinet controllers can also communicate using a wireless mesh network. Simply plug Andover Continuum Wireless Adapters into the service ports of these controllers with wireless compatible firmware to create a wireless mesh network that sends and receives Infinet messages.

## INPUTS

The input configuration on the i2865/866-V controllers consist 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. The i2885-V controller consists of two full-range Universal inputs. The i2865/866-V models also offer an additional input to support the Andover Continuum Smart Sensor, or any standard room temperature sensor.

## OUTPUTS

The i2865/866-V controllers contain three Form A Triac-based outputs. The i2885-V controllers contains two Form A Triac-based outputs. 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-V controller also offers two (0-10V) analog outputs.

## DAMPER ACTUATOR

The integrated damper actuator allows simple direct mounting of the controller directly over the existing damper shaft. This eliminates the need for separate mounting, wiring, and positioning of the damper motor. Also, the actuator has a built-in clutch button to temporarily disengage the direct-drive gears during commissioning. The controller's actuator may be preset for a limited range of motion using the mechanical "stops" provided.

## SOFTWARE CAPABILITIES

The dynamic memory of the controllers can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover 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 controllers using the Andover Continuum CyberStation application. Programs are then stored and executed by the controller. Programming multiple controllers is inherently easy with Plain English. A complete copy of one i2865/866/885-V's programs can be loaded directly into other i2865/866/885-Vs without changing any point names or programs.

## SMART SENSOR INTERFACE

The i2865/866-V controllers provide a built-in connection for Andover Continuum Smart Sensor. The Smart Sensor provides a two-character LED display and a six-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 four-digit custom LCD that provides the following icons: PM, %, °, Setpoint, Cool, Heat, CFM, Fan, OA, and SP.

# SPECIFICATIONS

## i2865/866/885-V Controller

### ELECTRICAL

#### Power

24 VAC, +10%-15%, 50/60 Hz,  
Class 2 Limited Power

#### Power Consumption

Less than 10 VA

#### Overload Protection

Fused, MOV protected

### MECHANICAL

#### Operation Environment

32° to 122°F (0-50°C), 10 - 90% RH  
(non-condensing)

#### Dimensions

7.75" W x 6.25" L x 2.5" H  
(197 mm W x 159 mm L x 63 mm H)

#### Weight

2.30 lbs (1.04 kg)

### BATTERY

#### Battery Backup:

Replaceable, rechargeable battery.  
Provides 30 days typical accumulated  
power failure backup of RAM memory.  
All data stored in Flash on power loss.

### COMMUNICATIONS

#### RS-485 port for implementing Infinet II connection, including:

Three-position removable screw  
terminal

Standard service port, four-position  
shrouded connector

#### LEDs:

TD = Transmit Enable  
RD = Received Data  
Wired/Wireless Field Bus

#### RS-485 port for implementing Wireless Infinet II connection, including:

Standard service port, four-position  
shrouded connector

### USER LEDs

#### Status Indicator LEDs:

CPU CPU Active  
Yellow = Infinet II

### DAMPER SHAFT MOUNTING SCREWS

#### Torque Minimum

Varies according to shaft material

#### Torque Maximum

30 inch-pounds (3.4 Nm)

#### Hex Screws

10-32 (with supplied hex wrench)

### AIRFLOW INPUT

#### Range

0 to 1" W.C. (0-250 Pa)

#### Resolution

0.0013" W.C. (0.33Pa) @ 73°F (23°C)

#### Accuracy

± 0.05" W.C. (12.50 Pa) @ 73°F (23°C)

### DAMPER ACTUATOR MOTOR

#### Shaft Diameter

1/2" (with a 3/8" adapter)  
12.6 mm (with a 9.45 mm adapter)

#### Shaft Torque

53 inch-pounds (5.989 Nm)

#### Damper Speed

180 sec. @ 60 Hz and 216 sec @ 50 Hz:  
for 90° adjustable end limits with two  
set screws

#### Motor

Type: 24 VAC synchronous

Motor Protection: Mechanical clutch

Manual clutch override with a  
push-button release

Hardware position feedback  
(model i2866-V only)

### UNIVERSAL INPUTS

#### Connections

Model i2865 -V: Four inputs and two  
returns

Model i2866-V: Four inputs and two  
returns

Model i2885-V: Two inputs and one  
return

#### Input Voltage Range

0 to 5.115 VDC

#### Input Impedance

10K ohm to 5.120 V

#### Input Voltage Resolution

5.0 mV

#### Digital Resolution

10 bits

#### Input Voltage Accuracy

± 15m V

#### Temperature Range

-30° to 230°F (-34° to 110°C)

#### Temperature Accuracy

± 1° F from -10° to 150°F  
(± 0.56°C from -23° to +66°C)

#### Counter Frequency

4 Hz @ 50% duty cycle

#### Input Protection

± 1000 V transients

#### Input Filter

16 Hz with one pole RC filter

#### Connector

Removable, 5 mm screw terminal

### SMART SENSOR INTERFACE

#### Connections

Model i2865-V: One input, SPWR,  
and return

Model i2866-V: One input, SPWR,  
and return

Model i2885-V: Not available

### DIGITAL OUTPUTS

#### Connections

Model i2865-V: Three triac outputs  
and one reference

Model i2866-V: Three triac outputs  
and one reference

Model i2885-V: Two triac outputs  
and one reference

#### SPST Accuracy

0.1 second for pulse width modulation

#### Contact Ratings

0.5 A Maximum, 24 VAC

#### Connector

Removable, 5mm screw terminal

# SPECIFICATIONS

## i2865/866/885-V Controller (continued)

### ANALOG OUTPUTS

#### Connections

Model i2865 : Not available

Model i2866: Two analog outputs and one return

Model i2885: Not available

#### Analog Output Channels Required

Two, voltage only

#### Voltage Output Range

0 - 10 V

#### Output Source Current

5 mA Maximum

#### Voltage Output Load

2K ohm Minimum Impedance

#### Voltage Output Resolution

50 mV

#### Digital Resolution

8 bits

#### Output Voltage Accuracy

100 mV

#### Connector

Removable, 5mm screw terminal

### AGENCY LISTINGS

FCC Rules and Regulations CFR 47, Part 15, Class A, ICES-003, AS/NZS 3548, European Union (EU) Directive 2002/96/EC

### MODELS

#### i2865-V

Infinet II 865-V VAV Controller

#### i2866-V

Infinet II 866-V VAV Controller

#### i2885-V

Infinet II 885-V VAV Controller

#### i2865-V-WL

Wireless Infinet II 865-V VAV Controller

#### i2866-V-WL

Wireless Infinet II 866-V VAV Controller

#### i2885-V-WL

Wireless Infinet II 885-V VAV Controller

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