INFINET II

i2 850 Series of Terminal Controllers

The Infinet II (i2) 850, 851, and 853 controllers provide cost-effective DDC control of individual terminal units: VAV boxes, fan-powered induction units, unit ventilators, heat pumps, etc. The i2850 series is a perfect fit for your VAV applications where external damper actuators are used. And because all i2850s feature a built-in expansion port for additional I/O, these controllers are perfect for your more demanding control applications.

Choose the the i2850 series controller with the input configuration that matches your application:

- The i2850 has four full range Universal inputs plus a fifth input for an on-board air flow sensor for VAV airflow measurement.
- The i2851 contains four Universal inputs as well, but does not have the on-board air flow sensor and is perfect for applications not requiring airflow measurement, such as heat pumps and fan coils.
- The i2853 is for dual-duct VAV applications. It contains two on-board airflow sensors and four universal inputs.

All three models feature an additional room sensor input, which supports Andover's *Smart Sensor*, or any standard room temperature sensor; plus three Form A relays and one Form K Tri-state relay output.

Similar to all i2 controllers, the i2850 series 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 i2850 series 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 i2850's non-volatile Flash memory stores your operating system *and* application programs, so that in the event of a power loss, your

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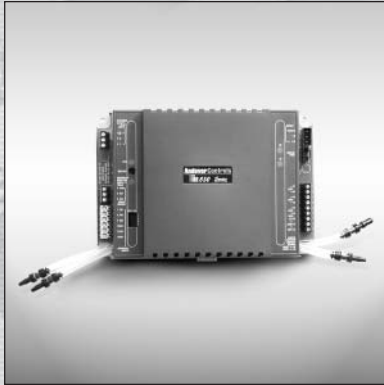
- Compact Terminal Controllers Provide VAV Control for a Broad Range of Applications

- Compatible with Both *Continuum* and *Infinity* Systems

- Expandable I/O Meets Additonal Point Count Needs

- Universal Inputs with Form A and Form K 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

- Optional Display/Keypad Provides Easy Operator Interface (Mounted Separately)

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

- Local On-Board Service Port

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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 i2850 controllers include an on-board battery to safeguard your runtime data — protecting all point data and log data from being lost if power is removed.

INPUTS

The input configuration on the i2850 series consists of four full range Universal inputs that accept voltage (0-5VDC), digital (on/off), counter signals (up to 4Hz), or temperature signals. The i2850 features one on-board air flow sensor; the i2853 provides two. All models offer an additional input to support the Andover *Smart Sensor*, or any standard room temperature sensor.

OUTPUTS

The i2850 series contains three Form A relay outputs and one Form K Tri-state output. Each relay is rated for 24 VAC/VDC, 3 amp. These outputs can be used separately for on/off or pulsed control of lighting, heat, and fan units. The pre-configured Form K Tri-state output can be used for bi-directional control of dampers and valves. (Note: Any two consecutive Form A outputs can be configured to form an additional Form K output.)
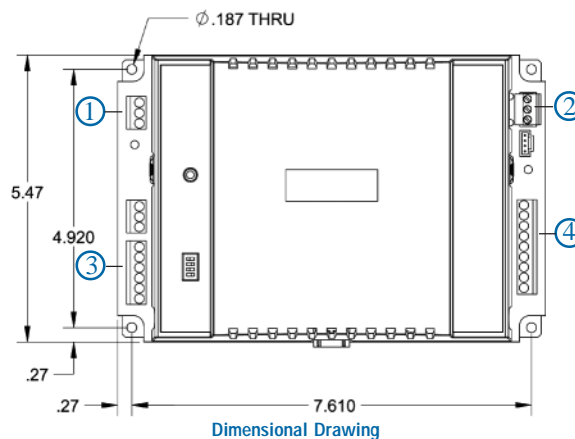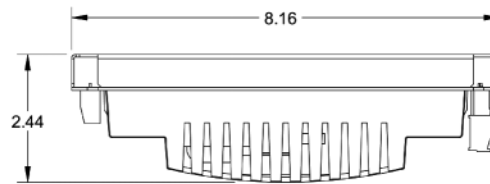
I/O EXPANSION

The i2850 series contains an I/O expansion port for the addition of up to two xP expansion modules directly on the bottom of the controller. The i2 family of modules includes the DI-8, D0-2, D0-4, AO-2, and AO-4. In addition, the I/O bus supports the xP Display Module, which allows the user to view and change point values.
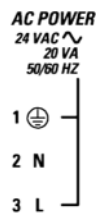
SOFTWARE CAPABILITIES

The dynamic memory of the i2850 series 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 i2850 series using the *Continuum*
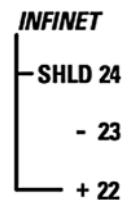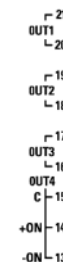
Dimensional Drawing

① Power Drawing

② Communications Drawing

③ Inputs/Smart Sensor Drawing

④ Outputs Drawing

ELECTRICAL

Power:	24 VAC, +10% -15%, 50/60 Hz
Power Consumption:	20 VA
Overload Protection:	Fused with 2 amp fuse. MOV protected.
Software Real-Time Clock:	Synchronized through Infinet by network controller (i2850 & i2853 only)
Real-Time Clock:	Battery-backed real-time clock (i2851 only)

MECHANICAL

Operating Environment:	32°–120°F (0–49°C), 10–95% RH (non-condensing)
Size:	5.47"H x 8.16"W x 2.44"D (139H x 207W x 62) mm
Weight:	1.08 lbs. (.50 kg)
Enclosure Type:	UL Open class, IP 10. Flammability rating of UL94-5V
Mounting:	Panel mount

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 *Smart Sensor* Temperature Input (32°F to 105°F) (0°C to 41°C) Airflow sensor (0 to 2" W.C.) (i2850 -1; i2853-2)
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)

INPUTS/OUTPUTS (CONTINUED)

Airflow Input:	
Range:	0 to 2" W.C. (0-500 Pa)
Resolution:	0.005" W.C. (1.25 Pa) @ 23° C (73° F)
Accuracy:	±0.025" W.C. (6.25 Pa) @23°C (73°F)
Outputs:	3 single pole single throw (SPST) Form A relays 1 Form K Tri-state relay output (Any two consecutive Form A outputs can be configured as one Form K Tri-state)
Output Rating:	Maximum 3A, 24VAC/VDC, ±1500V transients (Tested according to EN61000-4-4)
Output Accuracy:	0.1 sec. for pulse width modulation
Expansion Bus:	Interfaces to optional xP I/O Expansion Modules

CONNECTIONS

Power:	3-position fixed screw terminal connector
Inputs:	6-position fixed screw terminal connector
Outputs:	9-position fixed screw terminal connector
Smart Sensor:	3-position fixed screw terminal connector
Communications:	3-position removeable screw terminal connector
Expansion Port:	6-position shrouded connector
Service Port:	4-position shrouded connector

USER LEDS/SWITCHES

Status Indicator LEDS:

CPU	CPU Active
TD	Transmit Data
RD	Receive Data
EXPANSION PORT PWR	Power Status

Switches:
RESET
Input Pull-up Resistor Switch (per input)

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, Class A, CE

OPTIONS

UL864, Smoke Control System Equipment, UUKL (i2850-S, i2851-S, i2853-S)

SOFTWARE CAPABILITIES (CONTINUED)

CyberStation, *Infinity* SX 8000 Workstation, or local user terminal. Programs are then stored in, and executed by, the i2850 series controllers.

Programming multiple i2850 series controllers is inherently easy with *Plain English.* A complete copy of one i2850's programs can be loaded directly into other i2850s without changing any point names or programs.

SMART SENSOR INTERFACE

The i2850 series 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.

LOCAL DISPLAY

The local display with keypad (xP Display) allows for the addition of a fully programmable local display module that can be mounted within 10 feet (3 meters) of the controller. Connected via a ribbon cable, the xP-Display easily allows the Operator Interface to be mounted on the door of an enclosure or on a wall below or next to the controller.

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