Predator Fan Coil Unit Controller

Description

The LONMARK® certified Predator® Fan Coil Unit (FCU) Controllers provide direct digital control of fan coil units. The Predator is designed to reside on a LONWORKS® network, providing seamless interaction with all LONMARK products. The Predator FCU Controller offers cost-effective flexibility by providing various input/output configurations; each designed to meet individual fan coil unit application requirements.

Features

- Conforms and is certified to the LONMARK inter-operability guidelines, enabling information sharing with other LONMARK products.
- LONMARK-compliant with space-comfort controller functional profile number 8501.
- Field-selectable parameters allow entry and updating of setpoint and control parameters via the TALON® Interface.
- Unique two-piece design, consisting of a plenum-rated Enclosure Cover with Embedded Controller Board and a separate Wiring Base, to protect electronic parts from potential damage during installation.
- Three I/O platform configurations for application flexibility.
- Advanced PID control minimizes offset and maintains tighter setpoint control.
- Return to service from power failure without operator intervention.

Applications

The Predator FCU Controller can be configured to control a variety of fan-coil unit applications, including:

- Fan coil cooling only
- Fan coil heating only
- Two-pipe fan coil unit shared cooling and heating
- Four-pipe fan coil unit cooling and heating
- Fan coil unit with 1 to 2 stages of DX cooling and electric heat
- Fan coil unit with 1 to 2 stages of DX cooling and hot water coil

The Predator FCU Controller can also control perimeter heat, in addition to the above configurations.

Additionally, based upon availability of input and output capacity, occupancy and outdoor air temperature sensors and lighting can be controlled via these applications.

Hardware

The unique design of the Predator FCU Controllers consists of two components:

- Enclosure with Embedded Controller Board
- Wiring Base

This design reduces threat of damage to the controller board during installation and reduces service time. The wiring connections are made to the wiring base, allowing this component to be installed early in the project cycle. Additionally, if the board needs repair, the controller board can be removed easily, without disrupting the wiring connections.

Enclosure Cover with Embedded Controller Board

To further enhance the protection of the controller board, it is embedded into the enclosure cover. Installation consists of snapping the enclosure cover onto the wiring base.

The Enclosure Cover with Embedded Controller Board is available in the following configurations:

- 4 Inputs, 6 Digital Outputs, 1 Room Sensor port
- 5 Inputs, 8 Digital Outputs, 2 Analog Outputs, 1 Room Sensor port
- 5 Inputs, 8 Digital Outputs, 2 Analog Outputs, 1 Room Sensor port

The Controller Board communicates to all LONMARK devices via a Neuron®-chip. The controllers are shipped with pre-loaded applications, reducing engineering start-up time.

The control application is stored in Flash memory. Flash memory allows an application to be changed without removing the existing controller or memory chip.

Spare Input/Output Points

The Predator Controller, depending upon the application, may have up to 3 input and 2 output spare points available. These points can be used for control of devices located in close proximity to the Predator Controller, reducing installations costs.

Basic Predator Controller features compact design and 2 IN/4DO controller board.

Wiring Base

The Predator Wiring Base is available in two configurations:

- Full Point
- Reduced Point
- Basic

The Full Point base is designed to handle either the Full Point 5IN/8DO/2AO controller or Reduced Point 4IN/6 DO controller. This base provides the flexibility of replacing a Reduced Point I/O-style controller with a Full Point I/O style-controller if needs change.

The Reduced Point base matches the Reduced Point 4IN/6DO controller board style providing a cost effective solution for lower point count applications.

The Basic base has been downsized to match the compact design offered by the 2 IN/4DO controller board style. This base and controller offer the most cost effective solution for the basic point VAV solutions.

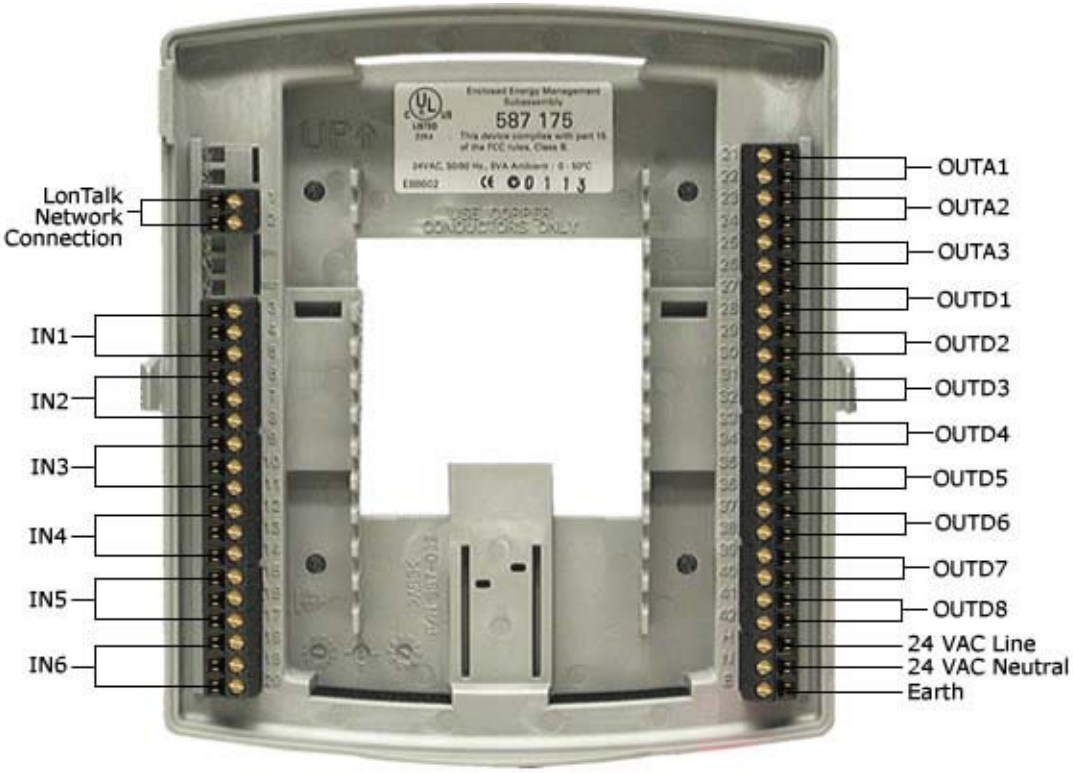
Specifications

Specification	
Processor Type	Neuron 3150
Processor Clock Speed	10 MHz - Neuron
Network Communication	TP/XF-10 (78.8K bps)
Memory Size	49 K Flash Memory 10 K SRAM
Voltage Requirements	24 Vac @ 50/60 Hz
Power Consumption	5 VA plus loads
Ambient Operating Environment	+32°F to +122°F (0°C to +50°C) 5 to 95% RH (Non-condensing)
Agency Listings	UL/CUL 916 PAZX/PAZX7 (Enclosed Energy Management) LONMARK 3.2

Regulatory Compliance	FCC Part 15, Class B CISPR 22 Class B CE Mark Australian EMC Framework
Predator Dimensions:	6.75" H × 7" W × 2.45" D (171 mm × 178 mm × 62 mm)
Basic Predator Dimensions:	4.5” H x 5.5”W x 2.3” D (114 mm x 139 mm x 58 mm)
Predator Weight	2 lbs. (.9 kg)
Basic Predator Weight	1.4 lbs. (.6kg)

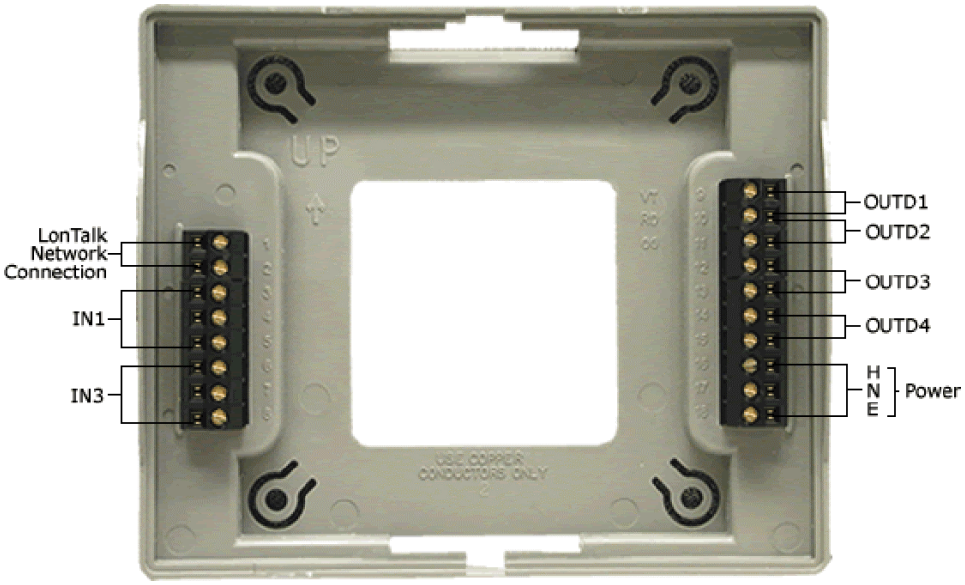
Wiring

Full Point



NOTE: Input 6 is not available on the Predator FCU Controller.

Basic



Wiring Recommendations:

Input/AO	20 to 22 AWG
DO	18 to 22 AWG
Power	16 to 18 AWG
LONWORKS Network	22 AWG Level 4

Transformer Requirements and Recommended Voltages

Type	Class 2, 24 Vac, 50/60 Hz

Optional Accessories

Predator Room Temperature Sensors

The Predator Room Temperature Sensors offer a wide range of features and functions. These sensors work with the Staefa TALON building automation system to deliver exceptional occupant comfort in even the most demanding application environments. The product family ranges from temperature-sensing-only variants to types that include LCD display, setpoint, and override. The sensors incorporate precision temperature sensing elements to accurately and reliably measure room temperature. The compact design results in an attractive, inconspicuous installation. A styled ventilation ring optimizes airflow through the cover for fast measurement response.

Predator Room Sensor Specifications

Dimensions	3-11/32" H × 2-1/2" W × 1-1/2" D (85 mm × 63 mm × 38 mm)
Temperature Monitoring Range	55° to 95°F (13° to 35°C)
Thermistor Resistance Value	10,000 Ohms @ 77°F (25°C)
Setpoint Range	55-95°F
Calibration Adjustments	None Required
Standard Color	White

Ordering Information

Controllers

Description		Product Number
Predator DX FCU Full Point Controller 5IN 8DO 2AO		587-221
5 IN	(2) 100K Ω Thermistor / (3) 0-10 Vdc or Dry Contact	
8 DO	24 Vac, 12VA, Triac	
2 AO	0-10 Vdc	
1 RS	10K Ω Thermistor Room Sensor	
Predator CH/HW FCU Full Point Controller 5IN 8DO 2AO		587-220
5 IN	(2) 100K Ω Thermistor / (3) 0-10 Vdc or Dry Contact	
8 DO	24 Vac, 12VA, Triac	
2 AO	0-10 Vdc	
1 RS	10K Ω Thermistor Room Sensor	
Predator DX FCU Reduced Point Controller 4IN 6DO		587-211
4 IN	(2) 100K Ω Thermistor / (2) 0-10 Vdc or Dry Contact	
6 DO	24 Vac, 12VA, Triac	
1 RS	10K Ω Thermistor Room Sensor	

Predator CH/HW FCU Reduced Point Controller 4IN 6DO		587-210
4 IN	(2) 100K Ω Thermistor / (2) 0-10 Vdc or Dry Contact	
6 DO	24 Vac, 12VA, Triac	
1 RS	10K Ω Thermistor Room Sensor	
Basic Predator DX FCU 2IN 4DO		587-201
2 IN	(1) 100 K Ω Thermistor / (1) 0-10 Vdc or Dry Contact	
4 DO	24 Vac, 12VA, Triac	
1 RS	10K Ω Thermistor Room Sensor	
Basic Predator CH/HW FCU 2IN 4DO		587-200
2 IN	(1) 100 K Ω Thermistor / (1) 0-10 Vdc or Dry Contact	
4 DO	24 Vac, 12VA, Triac	
1 RS	10K Ω Thermistor Room Sensor	
Predator Full Point Wiring Base		587-175
Termination support up to 5IN, 8DO and 2AO		
Predator Reduced Point Wiring Base		587-170
Termination support for the 4IN and 6DO		
Predator Basic Wiring Base		587-160
Termination support for the 2IN and 4DO only		

Accessories

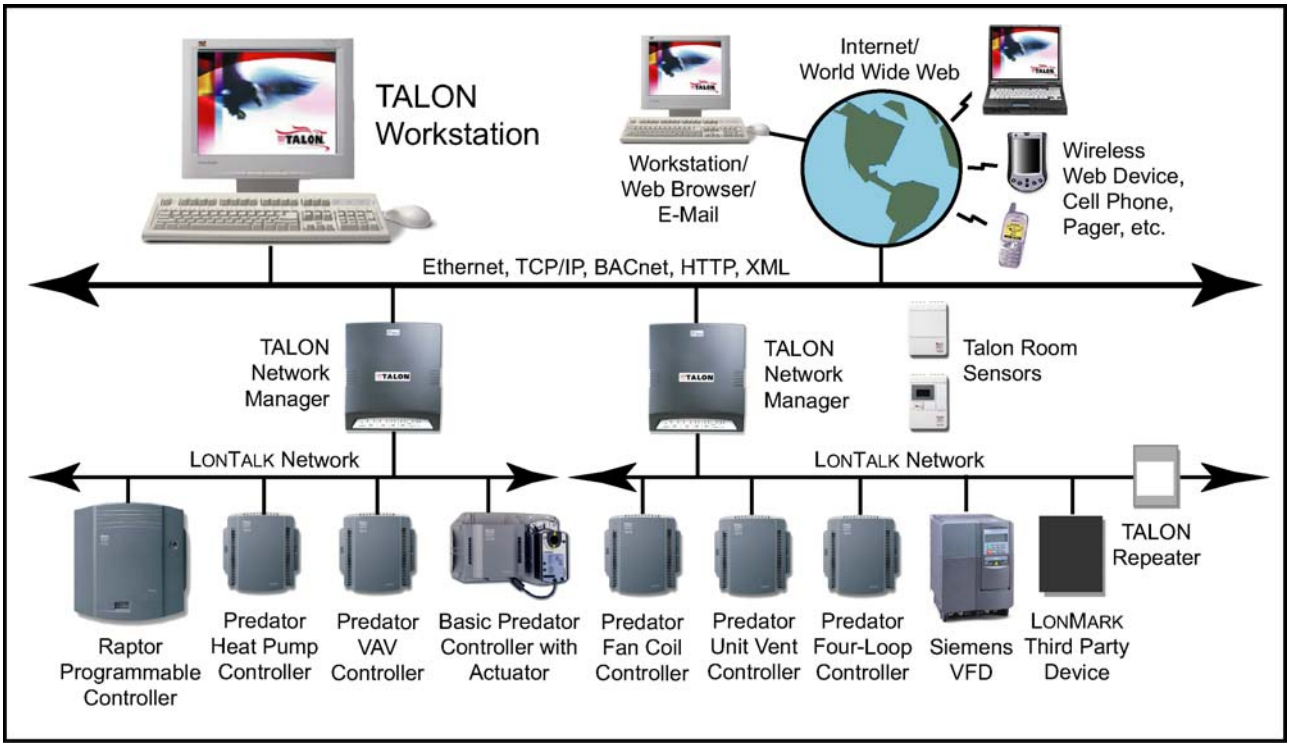
Description	Product Number
Predator Room Sensors	
Sensing Only	587-180
Bypass	587-181
Setpoint	587-182
Temperature Display	587-183[1]
Setpoint and Bypass	587-184
Bypass and Temperature Display	587-185[1]
Setpoint and Temperature Display	587-186[1]
Setpoint, Bypass and Temperature Display	587-187[1]
Predator Termination Connector Kit	587-171

Documentation

Description	Product Number
TALON Information Library CD	587-980

Note: 1. Sensor will display Fahrenheit or Celsius temperature.

TALON Architecture



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