Raptor™ Controller

Description

The LONMARK®-compatible Raptor™ Controller provides monitoring and control of mechanical equipment and energy management routines for your building's facility management system. Control sequences are created and edited using the TALON™ Block Editor program. The Raptor Controller resides on a LONWORKS® network, providing seamless interaction with all LONMARK products.

Features

- ***LONMARK compatibility*** enables peer to peer communication and information sharing with TALON Controllers and other LONMARK products.
- Easy-to-use, downloadable ***graphical programming*** allows intuitive creation of sequences to match equipment control applications.
- Firmware and control applications contained in Flash ROM, upgradeable from any network connection.
- Built-in energy management applications and DDC control strategies provide complete facility management capabilities.
- Real-time clock enables stand-alone operation and time-based functionality.
- Comprehensive alarm management and historical trend data collection.
- Management of scheduling, trending and alarming functionality.

Figure 2. Raptor Controller

Hardware

The Raptor Controller provides precise monitoring and control of air handling units and mechanical equipment through 32 Input/Output points.

The Raptor Controller consists of four major components:

- ***Input / Output Point Board -*** 32 input/output points (8 AI, 8 AO, 8 DI, 8 DO). The I/O board performs A/D and D/A conversion, signal processing, I/O commanding and communication with the controller board. The termination blocks are removable for easy termination of field wiring.
- ***Power Supply -*** provides 24V power. for Raptor Controller functions
- ***Controller Board -*** contains the main processor, Neuron, and LonTalk communication components.
- ***Internal Cover –*** provides protection for internal electronic components.

Input / Output Point Board

The Input / Output Board supports 32 control points.

The eight analog input points are selectable to be either:
- 0-10V
- 0-20mA
- 1K Ω RTD

The eight analog output points are selectable to be either:
- 0-10V
- 0-20mA

The eight digital inputs are:
- Dry contact
- Four being pulse accumulator inputs

The eight digital outputs are:
- 110V (4 amp) and 220V (2 amp) Form C rated relays

Wiring terminations are made using removable terminal blocks. This allows wiring of field terminations to prior to Controller installation.

Power Supply

The 24 V Power Supply provides regulated power to the Input/Output Point Board, active sensors, and the Controller Board.

The Power Supply ensures smooth power up and down sequences for the equipment controlled by the I/O Point Board, even during unstable power conditions.

Status LED's indicate 24 Vac power and 24 Vdc supplied to the Input / Output Point Board.

Controller Board

The Controller Board is a microprocessor-based multi-tasking platform for program execution and communication with other LONWORKS devices. The Controller Board scans field data, optimizes control parameters, and manages operator requests for data. Communication to the LonTalk network is provided through a Neuron® transceiver.

A lithium battery back-up protects programming and database information stored in RAM memory for a minimum of 60 days. This feature saves substantial programming and database re-entry effort, following an extended power interruption. The lithium battery is field-replaceable. When battery replacement is necessary, the Controller Board illuminates a "battery low" status LED and can send an alarm message to selected printers or the workstation.

The operating system firmware is stored in non-volatile Flash ROM memory. Flash ROM is easy to upgrade at the job site or remotely over any network connection.

Power interruption and recovery circuitry protect the Controller Board from power fluctuations. The controller programming and database are stored in Flash ROM, eliminating the need to re-load applications or databases after power failure.

Internal Cover

The internal cover protects the power supply and controller boards. It contains LED status lights that provide information on controller operation.

Optional Outside Enclosure with Door

The outside enclosure with door provides protection and knock-out conduit access to the controller. The enclosure can be installed and wired prior to installation of the electronics reducing damage to the controller board.

The enclosure is available in three styles:

- Enclosure only
- Enclosure with 115V transformer
- Enclosure with 230V transformer

The styled door provides protection and viewing of the system status LEDs.

Programmable Control with Application Flexibility

The high-performance Raptor Controller is easily configured with control strategy applications.

The easy-to use graphical programming provides direct digital control and energy-management sequences to precisely control equipment and optimize energy usage.

Built-in Energy Management Applications

The following applications are programmed in the Raptor Controller and require only simple parameter input to run. Applications include:

- Closed loop Proportional, Integral and Derivative (PID) control
- Logical equipment sequencing
- Equipment scheduling, optimization and sequencing
- Automatic Daylight Savings Time switchover
- Temporary schedule override
- Holiday scheduling
- Calendar-based scheduling
- Event scheduling
- Alarm detecting and reporting
- Trending capabilities

Specifications

Specification	
Processor Type	Neuron MC143150 Motorola 68302
Processor Clock Speed	10 MHz - Neuron 16.67 MHz - Motorola 68302
Network Communication Speed	78.8K bps
Memory Size	6 Mb (4 Mb flash/2 Mb RAM)
Battery Backup of RAM	60 days (minimum)
A/D Resolution (analog in)	12 bit
D/A Resolution (analog out)	10 bit
Local Network Communication Interface	LonTalk port
Voltage Requirements	24 Vac @ 50/60 Hz
Power Consumption	45 VA @ 24Vac
Enclosure Type	NEMA 1
Ambient Operating Environment	+32°F to +122°F (0°C to +50°C) 95% RH (Non-condensing)
Agency Listings	UL/CUL 916 PAZX/PAZX7 (Enclosed Energy Management)

Agency Compliance	FCC Part 15, Class B CISPR 22 Class B CE Mark Australian EMC Framework
Dimensions	
Raptor Controller with cover	11.6" H × 9.5" W × 3.5" D (294 mm × 241 mm × 89 mm)
Raptor enclosure with door	15/0" H × 16.2" W × 4.4" D (381mm × 411mm × 111mm)
Weight	Controller board: 5 lbs. Enclosure and door: 10.2 lbs.
Mounting Surface	Building Wall or Structural Member

Ordering Information

Controllers

Description	Product Number
Raptor Controller Board (controller with internal cover)	587-655
Raptor Enclosure	587-660
Raptor Enclosure with 115V transformer	587-661
Raptor Enclosure with 230V transformer	587-662
Raptor Styled Enclosure Door	587-663

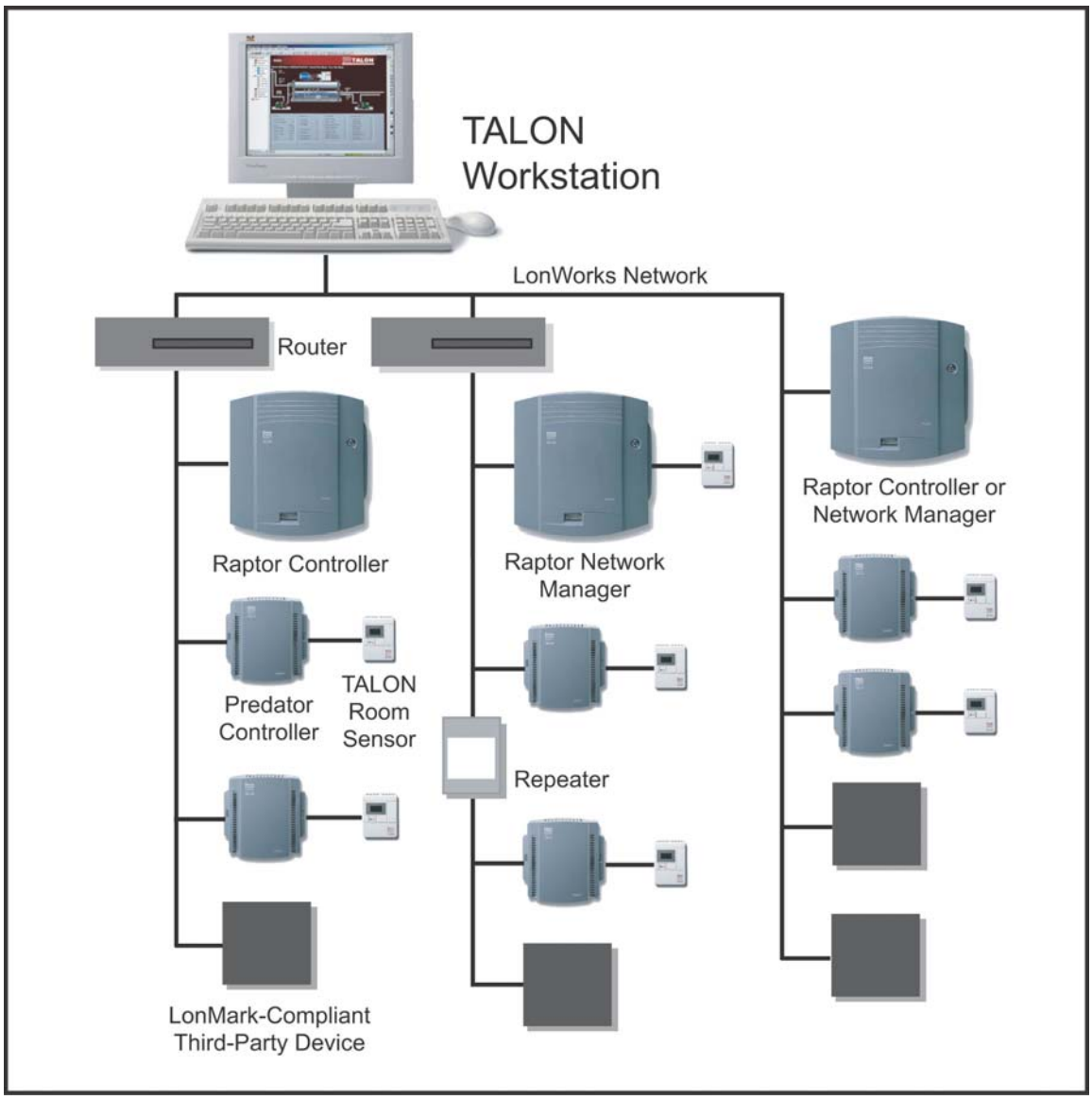
Accessories

Description	Product Number
Raptor battery replacement (package of 10)	587-667
Raptor power connector (package of 10)	587-668

Documentation

Description	Product Number
TALON Information Library CD	587-980

TALON Architecture



LONMARK® SPONSOR

Siemens Building Technologies, Inc.
HVAC Products
1000 Deerfield Parkway
Buffalo Grove, Illinois 60089
Phone 847-215-1000
www.staefa.com

Staefa Control System TALON