



## RLE TECHNOLOGIES FALCON FACILITY MONITORING SYSTEM P-FALCON FMS



### DESCRIPTION

The **Falcon Facilities Monitoring System (FMS)** provides additional equipment protection by monitoring critical operating parameters in enterprises, remote network facilities, communication rooms, remote and unmanned facilities, and critical support systems. The **FMS** is a stand-alone system. It operates via embedded firmware that handles all data collection, alarm reporting, and multiple concurrent communication mediums.

The **FMS** typically monitors analog, dry contact, Modbus, and SNMP integer outputs from a variety of devices. During operation, the **FMS** performs internal diagnostics and monitors its status. It uses LED indicators to report its condition. The **FMS** embedded firmware enables system configuration, I/O setup, status inquiries, alarm reports, data logs, and troubleshooting. The **FMS** is menu driven and operates with any Web browser, ASCII terminal, or terminal emulation application (HyperTerminal). A base **FMS** unit ships in a 1U rack-mount enclosure. Up to four expansion cards can be added to the base **FMS** to increase the functionality of the device. The 1U enclosure has room for one expansion card, in addition to the base **FMS** unit. A 2U **FMS** has room for three expansion cards, in addition to the base **FMS** functionality.



### 1U Configuration



### 2U Configuration



### FEATURES

- Accommodating up to 104 hardwired inputs (form "C" dry contacts, 4-20mA, 0-5VDC and 0-10VDC inputs)
- 32 integrated slave devices with as many as 1,000 values (accepts SNMP/Modbus/BACnet)
- 10 IP links
- 34 relay outputs for integration into other monitoring systems or control functionality
- Data trending and extended logging
- User configurable interactive graphical facility mapping
- PUE/DCiE monitoring

### ORDERING INFORMATION

MODEL	DESCRIPTION
<b>FMS-X-N-24</b>	FMS 1 rack unit with 1 available expansion card slot, 24VDC
<b>FMS-X-Y-24</b>	FMS 1 rack unit with 1 available expansion card slot and internal temp/RH sensor, 24VDC
<b>FMS-X-N-48</b>	FMS 1 rack unit with 1 available expansion card slot, 48VDC
<b>FMS-X-Y-48</b>	FMS 1 rack unit with 1 available expansion card slot and internal temp/RH sensor, 48VDC
<b>FMS-XXXX-N-24</b>	FMS 2 rack units with 4 available expansion card slots, 24VDC
<b>FMS-XXXX-Y-24</b>	FMS 2 rack units with 4 available expansion card slots and internal temp/RH sensor, 24VDC
<b>FMS-XXXX-N-48</b>	FMS 2 rack units with 4 available expansion card slots, 48VDC
<b>FMS-XXXX-Y-48</b>	FMS 2 rack units with 4 available expansion card slots and internal temp/RH sensor, 48VDC

**NOTE:** Each "X" in the product code designates an empty expansion card slot that can be populated with one optional expansion card. See Related Items information below for Expansion Card selection.

	RELATED PRODUCTS
<b>EXP-A-24/48</b>	A Card: 12 universal inputs (N/O Dry Contact, 4-20mA, 0-5 VDC, 0-10 VDC) and 8 relay outputs. Limit one A card per 48VDC FMS.
<b>EXP-C-24</b>	C Card (24VDC): 24 Digital inputs. For use with 24VDC models only.
<b>EXP-C-48</b>	C Card (48VDC): 12 Digital inputs. For use with 48VDC models.

	ACCESSORIES
<b>EXP-IM</b>	Internal Modem
<b>FMS-V-3</b>	Firmware upgrade to support SNMPv3 protocol
<b>WMB</b>	Wall mount bracket



# NETWORK

## RLE TECHNOLOGIES FALCON FACILITY MONITORING SYSTEM P-FALCON FMS

### SPECIFICATIONS

<b>Power</b>			<b>Pager (Modem) – Optional</b>	15 text, numeric, or alphanumeric pager numbers; each digital and analog alarm (HighLimit and LowLimit) can notify any 5 of the 15 pagers
<b>FMS-X</b>	24VDC Model: 24VDC (±10%), 1A max., power supply included; 48VDC Model: 36-72VDC, 0.5A max.		<b>Email (Ethernet, Modem PPP)</b>	8 email recipients; email sent on Alarm and Return To Normal; each alarm can notify any or all of the 8 email recipients
<b>FMS-XXXX</b>	24VDC Model: 24VDC (±10%), 2.5A max., power supply included; 48VDC Model: 36-72VDC, 1.25A max.		<b>SNMP Traps (Ethernet)</b>	V1 and V2c: 8 Community Strings; V3 (optional): 4 users, 4 Trap Destinations
<b>Inputs</b>			<b>Escalation</b>	Additional notification to 1 of the 15 pager numbers when the initial page results in a Failure To Acknowledge status
<b>Analog/Digital</b>	8 Configurable as 4-20mA (12-bit A/D conversion) or Dry Contact NO/NC (<25mA)		<b>Self-Monitoring</b>	Self resetting; captured in Event Log
<b>Internal Temp/RH</b>	±0.5°F (@ 25°C), ±4°F (@ -40° to 185°F); ±3%RH (@ 20% to 80%RH); (Internal Temperature/Humidity optional)		<b>Internal Hardware</b>	
<b>Keypad</b>	Standard 3x4; 3000VAC RMS optically isolated; 20 User Access Codes (also accessible via phone/DTMF through modem)		<b>Real Time Clock</b>	Battery backed; ±1.53 min/month accuracy
<b>Outputs</b>			<b>Memory</b>	16MB RAM; 128K NVRAM; 16MB Flash
<b>Relay</b>	2 Dry Contact, Form C, 1A @ 24VDC, 0.5A resistive @ 120VAC (controllable via user programmable logic)		<b>Logging Capabilities</b>	
<b>Sensor/Accessory Power</b>	24VDC (±10%) @ 300mA max. (power for external sensors and/or devices)		<b>Alarm Log</b>	Last 256 Alarms
<b>Expansion Cards</b>	24V requires EXP-x-24 option cards		<b>Event Log</b>	Last 100 Events (e.g., Acknowledgement By Code, System Boot, Page Successful, etc.)
<b>EXP-A-24 or EXP-A-48</b>	48V requires EXP-x-48 option cards		<b>Web User Access Log</b>	Last 100 HTML Accesses (User, Date, and Time)
	12 analog (Jumper selectable for 4-20mA, 0-5VDC or 0-10VDC) or digital normally open dry contact inputs (non-isolated, individual ground only); 8 Form C Relay Outputs, 1A @ 24VDC, 0.5A resistive @ 120VAC. 48V FMS accepts only 1 EXP-A card.		<b>Digital Status Log</b>	Last 100 Digital Status entries
<b>EXP-C-24 or EXP-C-48</b>	24 digital normally open or normally closed dry contact inputs, 3000VAC RMS optically isolated (common or individual ground)		<b>Trending of Analog Inputs</b>	244 entries per time frame, per channel. High, low, and average values logged over specific minutes, hours, and days.
<b>Communication Ports</b>			<b>Extended Trending (Analog Inputs)</b>	3,840 entries over 32 inputs, physical or over Modbus. Logging at defined, user-selectable intervals.
<b>Ethernet</b>	10/100BaseT, RJ45 connector; 500VAC RMS isolation		<b>Login Security</b>	
<b>RS-232</b>	DB9 female connector; 9600 baud; 3000VAC RMS optically isolated; 15kV ESD protection		<b>Web Browser Access (Ethernet, Modem PPP)</b>	1 Administrator plus 7 users individually selectable for Read Only, Read/Write or Administrator
<b>EIA-485 (selectable as RS-232)</b>	Two-wire half duplex; terminal block (selecting RS-232 switches to DB9 male connector); 1200, 2400, or 9600 baud configurable; 3000VAC RMS optically isolated		<b>Terminal Emulation Access (Modem)</b>	1 Administrator (password for Modem access)
<b>Modem (RJ11 Telco; optional)</b>	V.34bis/33.6 kbps; DTMF capable; PPP-enabled; FCC Part 68 approved; 1500VAC RMS isolation barrier; 2100V peak surge protection		<b>Front Panel Interface</b>	1 on/off power switch. Red and green LEDs indicate status, network link, network activity, and modem activity
<b>Protocols</b>			<b>Operating/Storage Environment</b>	
<b>TCP/IP; UDP/IP; ICMP/IP; FTP; NTP;</b>	IPv4		<b>Operating Temperature</b>	32° to 158°F (0° to 70°C)
<b>HTTP/HTML; SNPP; Telnet</b>	1.1/4.0; up to 10 URL links to other IP addressable cameras/devices; webpages comply with Rehabilitation Act of 1973, sections 504 and 508, US Dept. of Education (website accessibility for computer users with disabilities)		<b>Humidity</b>	5% to 95% RH, non-condensing
<b>SNMP</b>	V1: MIB-2 compliant; NMS Manageable with Get, Set, and Traps; V2c: Traps or Informs Supports Client Authentication (plain and login); compatible with ESMTTP Servers		<b>Altitude</b>	15,000ft (4,572m) max.
<b>SMTP (email)</b>	RTU transmission protocol; function codes: slave - 03; master - 01,02,03,04		<b>Storage Temperature</b>	-40° to 185°F (-40° to 85°C)
<b>Modbus</b>	Modbus Slave; TCP/IP transmission protocol; Reads up to 628 registers and converts to SNMP and BACnet		<b>Dimensions</b>	
<b>Modbus/IP</b>	Reads up to 106 instances and converts to SNMP and Modbus		<b>FMS-X</b>	16.8"W x 1.8"H x 7.9"D (427mmW x 46mmH x 201mmD)
<b>BACnet/IP</b>	VT100 compatible		<b>FMS-XXXX</b>	16.8"W x 3.5"H x 7.9"D (427mmW x 89mmH x 201mmD)
<b>Terminal Emulation</b>	Telocator Alphanumeric Protocol v1.8		<b>Weight</b>	
<b>TAP (Pager)</b>			<b>FMS-X</b>	6 lbs. (2.72kg)
<b>Alarm Notification</b>			<b>FMS-XXXX</b>	10 lbs. (4.54kg)
			<b>Mounting</b>	Rack mount; wall mount brackets available (not included)
			<b>Approvals</b>	CE; ETL listed: conforms to UL 61010A-1, EN 61010; certified to CAN/CSA C22.2 NO. 1010.1; RoHS compliant

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NETWORK

NEW!

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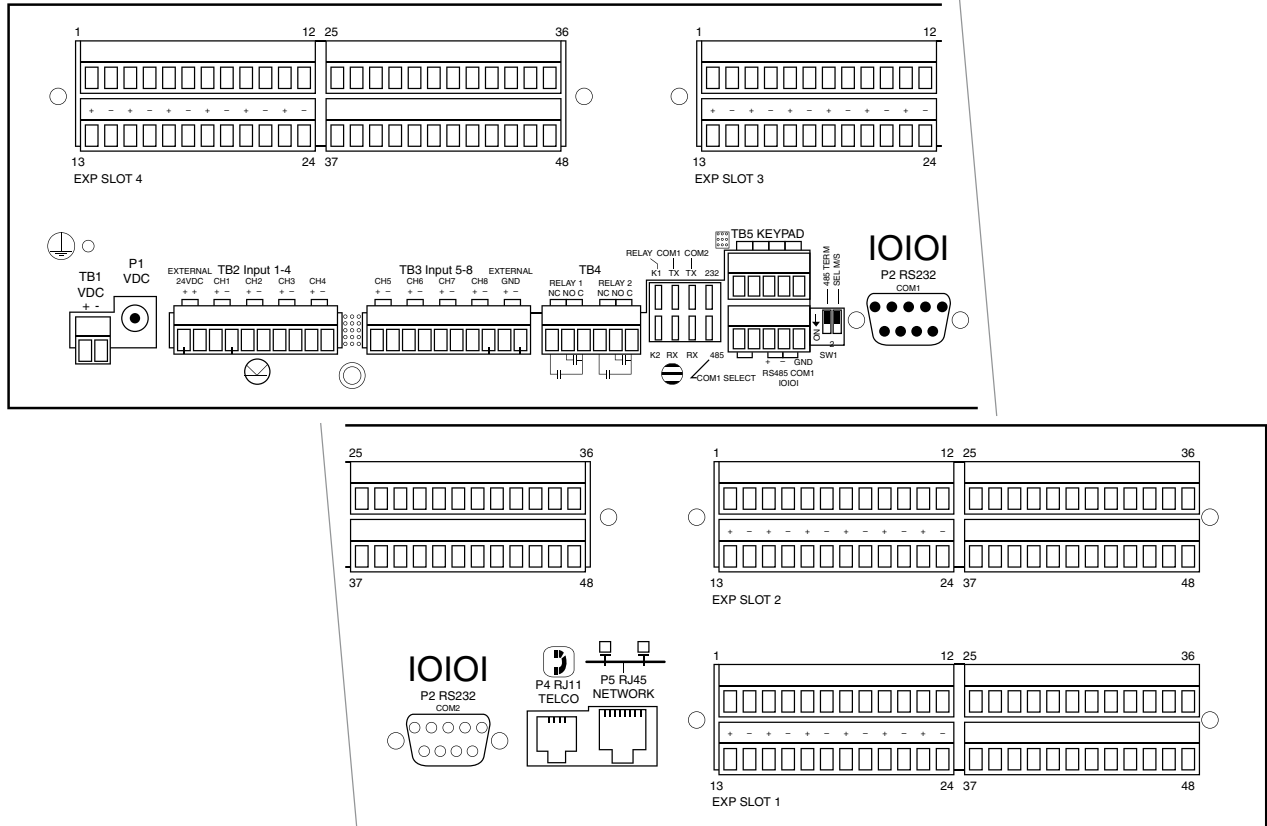
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September 2016



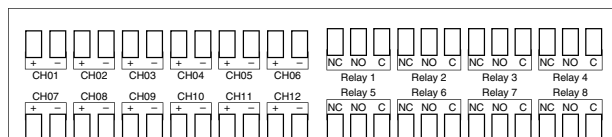
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### WIRING



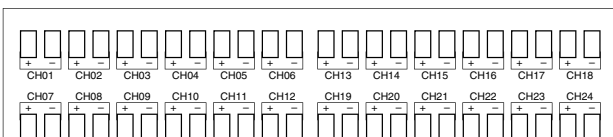
### FMS TERMINAL BLOCK DESIGNATIONS

<b>TB1-1</b>	(+) Input for 24 or 48 VDC (optional) power	<b>TB3-1</b>	Channel 5 positive (+)	<b>TB5-1</b>	Keypad column 1
<b>TB1-2</b>	(-) Input for 24 or 48 VDC (optional) power	<b>TB3-2</b>	Channel 5 positive (-)	<b>TB5-2</b>	Keypad column 2
<b>P1</b>	24 VDC wall adapter input (center +) (not available with 48 VDC version)	<b>TB3-3</b>	Channel 6 positive (+)	<b>TB5-3</b>	Keypad column 3
<b>TB2-1</b>	24 VDC positive (+) external output (power for sensors)	<b>TB3-4</b>	Channel 6 positive (-)	<b>TB5-4</b>	Keypad row 1
<b>TB2-2</b>	24 VDC positive (+) external output (power for sensors)	<b>TB3-5</b>	Channel 7 positive (+)	<b>TB5-5</b>	Keypad row 2
<b>TB2-3</b>	Channel 1 positive (+)	<b>TB3-6</b>	Channel 7 positive (-)	<b>TB5-6</b>	Keypad row 3
<b>TB2-4</b>	Channel 1 positive (-)	<b>TB3-7</b>	Channel 8 positive (+)	<b>TB5-7</b>	Keypad row 4
<b>TB2-5</b>	Channel 2 positive (+)	<b>TB3-8</b>	Channel 8 positive (-)	<b>TB5-8</b>	COM1 EIA-485 positive (+) (configurable)
<b>TB2-6</b>	Channel 2 positive (-)	<b>TB3-9</b>	24 VDC ground external output (power for sensors)	<b>TB5-9</b>	COM1 EIA-485 negative (-) (configurable)
<b>TB2-7</b>	Channel 3 positive (+)	<b>TB3-10</b>	24 VDC ground external output (power for sensors)	<b>TB5-10</b>	EIA-485 ground
<b>TB2-8</b>	Channel 3 positive (-)	<b>TB4-1</b>	Relay 1 normally closed (NC)	<b>SW1-1</b>	Unit EIA-485 termination switch
<b>TB2-9</b>	Channel 4 positive (+)	<b>TB4-2</b>	Relay 1 normally open (NO)	<b>SW1-2</b>	Reserved for future use
<b>TB2-10</b>	Channel 4 positive (-)	<b>TB4-3</b>	Relay 1 common (C)	<b>P2</b>	COM1 EIA-232 male DB9 pin
		<b>TB4-4</b>	Relay 2 normally closed (NC)	<b>P3</b>	COM2 EIA-232 female DB9 pin connector (configurable)
		<b>TB4-5</b>	Relay 2 normally open (NO)	<b>P4</b>	RJ11 telephone line connector
		<b>TB4-6</b>	Relay 2 common (C)	<b>P5</b>	RJ45 Ethernet 10/100BaseT connector



**EXP-A-24/48**

Expansion Card A - Analog inputs with 8 relay outputs



**EXP-C-24 or EXP-C-48**

Expansion Card C - 24 Digital inputs