



F3400/F1000

ARCHITECT AND
ENGINEER SPECIFICATIONS

RLE TECHNOLOGIES

1. GENERAL SPECIFICATION

- 1.1 The contractor shall provide a RLE Technologies Falcon F-series Model 3400 or Model F1000 Monitoring System (hereinafter referred to as the “F3400/F1000”) as described in subsequent sections of this specification to perform the functions of sensor monitoring, data collection, alarm reporting, network management and network communications.
- 1.2 The contractor shall supply the complete F3400/F1000 system with components that shall include but not be limited to: a Falcon F3400/F1000 Monitoring System and optional installation accessories.
- 1.3 The F3400/F1000 components listed above shall be manufactured by RLE Technologies, 104 Racquette Drive, Fort Collins, CO 80524, U.S.A. Tel (970) 484-6510, Fax (970) 484-6650, URL: www.rletech.com
- 1.4 The manufacturer shall warrant the F3400/F1000 against defects in materials and workmanship for a period of twelve (12) months from the date of shipment. This warranty shall be limited to parts and labor to repair or replace the system if it is found to be defective. To ensure warranty coverage, all installation and other instructions must be followed properly. All installation and setup work must be performed by qualified personnel who are knowledgeable of the equipment and aware of appropriate safety, wiring, and other applicable practices.
- 1.5 The contractor shall submit copies of all applicable drawings, specifications, datasheets and user guides.
- 1.6 All materials and equipment used for this project shall be new and unused.

2. CODES/STANDARDS COMPLIANCE

- 2.1 The F3400/F1000 shall have the following listings and approvals for international standards specifying general safety requirements for electrical equipment intended for professional, industrial process, and educational use:
 - 2.1.1 CE Certified; EMC – EN61326 Class A
 - 2.1.2 UL STD 61010A-1; EN STD 61010-1; CAN/CSA C22.2 STD NO. 61010-1
 - 2.1.3 CL2P/CMP per UL STD E162948 (Falcon Premium Water Leak Detection Cable)

3. SYSTEM DESCRIPTION

- 3.1 The Falcon Monitoring System shall consist of the F3400/F1000 basic unit. The F3400/F1000 shall monitor analog and dry contact outputs from devices such as temperature sensors, humidity sensors, gas detectors, smoke detectors, fire suppression systems, surveillance products (IP cameras), leak detection systems, power monitoring systems, uninterruptible power supplies (UPSs), power distribution units (PDUs), generators, DC power plants, commercial power, HVAC units, ATS, TVSSs, and access keypads.
- 3.2 The F3400/F1000 shall analyze the outputs from these devices according to user instructions and take actions based on the outputs. Actions shall include: digital relay outputs; SNMP traps; email, pager or cellphone notification via SMTP/SMS; pager or cellphone notification via TAP; webpages; and front panel LED notification.
- 3.3 The F3400/F1000 shall integrate with other RLE products with analog or digital dry contact outputs, such as the SeaHawk LD series Leak Detection Systems, other Falcon series systems, and the Raptor series, as a part of an enterprise’s network management system (NMS) or building management system (BMS).

4. COMPONENT DESCRIPTION

4.1 PHYSICAL DESCRIPTION

- 4.1.1 The F3400/F1000 shall be a stand alone system, running its own firmware and proprietary operating system.
- 4.1.2 The F3400/F1000 shall be constructed as a stand alone unit suitable for rack mounting or optional wall mounting.
- 4.1.3 The overall size of the F3400/F1000 shall be 16.8"W x 1.8"H x 7.9"D (427mmW x 46mmH x 201mmD).
- 4.1.4 The F3400/F1000 shall operate on 24VDC @600mA max. The F3400/F1000 shall include both a barrel-type connector for a 24VDC wall adapter, and a terminal block for direct connection.
- 4.1.5 The F3400/F1000 shall be suitable for operating at ambient temperatures between 32°F and 158°F (0°C and 70°C), relative humidity between 5% and 95%, non-condensing, and a maximum altitude of 10,000 feet (3,048m). The F3400/F1000 Controller shall be suitable for storage at temperatures between -40°F and 185°F (-40°C and 85°C).
- 4.1.6 The F3400/F1000 shall have the following front panel indicators:
 - A.) Four Modem Communications LEDs:
 - TX – illuminates green when data is being transmitted by the F3400/F1000.
 - RX – illuminates green when data is being received by the F3400/F1000.
 - OH – “Off Hook,” illuminates green if the modem detects a dial tone.
 - CD – illuminates green if a carrier is detected.
 - B.) One System Status/Fault LED that flashes red during initial bootup, illuminates solid red when an alarm is present, and is dark when the F3400/F1000 is running normally and no alarms are present.
 - C.) Two Network Communications LEDs:
 - Link – illuminates green if network link is established, red if no network is present.
 - Active – illuminates green when data is being transmitted or received by the F3400/F1000.
 - D.) One Power LED that illuminates green when the power is on.
- 4.1.7 The F3400/F1000 shall have the following rear panel indicators and switches:
 - A.) Communications LEDs:
 - RS232 or RS485 TX – illuminates green when data is being transmitted by the F3400/F1000.
 - RS232 or RS485 RX – illuminates green when data is being received by the F3400/F1000.
 - B.) Switch SW1 – connects the RS485 100-ohm termination resistor.
 - C.) Switch SW2 – toggles between RS485 2 wire and 4 wire connections.

4.2 INPUT/OUTPUT

- 4.2.1 The F3400/F1000 shall include 4 non-isolated universal inputs, configurable as either 4-20mA current loop inputs with 12-bit digital conversion, or digital dry contact inputs.
- 4.2.2 The F3400/F1000 shall include 4 inputs configurable as thermistor inputs or digital dry contact inputs.
- 4.2.3 The F3400/F1000 shall include 2 Form C relay outputs with contacts rated at 1A at 24VDC, 0.5A resistive at 120VAC.
- 4.2.4 In addition to the 4 universal inputs and 4 thermistor/dry contact inputs, the F3400 shall include 24 digital dry contact inputs

- 4.2.5 Each F3400/F1000 input shall have associated with it 2 high alarm levels and 2 low alarm levels. The alarm levels shall be user configurable. The actions taken when an alarm level is reached or exceeded shall also be user configurable, and shall include a combination of the following: illuminating a front panel LED; energizing or de-energizing a relay output; sending notifications via TAP (cell phone or pager); SMTP/SMS (email, cell phone or pager); SNMP traps; Modbus; or BACnet.

4.3 LOGGING

- 4.3.1 The F3400/F1000 shall maintain the following Logs: an Alarm Log listing the last 256 alarms; an Event Log listing the last 100 events (or actions); a Web User Access Log listing the last 100 HTML accesses; a Digital Status Log listing the last 100 digital status entries; and a Trend Log listing the last 244 analog entries for each channel, and high/low/average values for each minute of the previous 65 minutes, each hour of the previous 25 hours, and each day of the previous 7 days. The F3400/F1000 shall have the capability of transferring some or all of the Log data to other networked devices.

4.4 NETWORKING

- 4.4.1 The F3400/F1000 shall be capable of integration into larger systems, such as network management systems (NMS) via Modbus or SMTP protocols, or building management systems (BMS) through BACnet protocols.
- 4.4.2 The F3400/F1000 shall be capable of communication with other devices through an optional internal modem connected to an RJ11 connector. The modem shall be capable of V.34bis/33.6kbps max data rate, and shall support dial-in/dial-out, DTMF signaling, and PPP.
- 4.4.3 The F3400/F1000 shall be capable of serial communications through a 9-pin DIN RS232 connector. The F3400/F1000 shall support communication with other devices through PPP, Modbus/DTE, Modbus/DCE, BACnet, Telnet, and HTTP/HTML. The F3400/F1000 shall also support communication with a PC via RS232 for local configuration, firmware downloads and troubleshooting.
- 4.4.4 The F3400/F1000 shall be capable of Modbus/RTU Slave communications via the RS485 serial port. The COM1 port shall be selectable for either RS485 or RS232 communications.
- 4.4.5 The F3400/F1000 RS485 network shall not exceed 4,000ft (1,219m) in cable length, and shall be terminated with a 100-ohm termination resistor. The F3400/F1000 shall include a configuration switch for connecting a termination resistor when the F3400/F1000 is the first or last device in the RS485 network.
- 4.4.6 The F3400/F1000 shall be capable of 10baseT/Ethernet communications via an RJ45 Ethernet connector. The F3400/F1000 shall support the following protocols over the Ethernet connection: Modbus/IP (Slave only); BACnet/IP; SNMP V1 (Get/Set/Trap); TCP/IP; UDP/IP; ICMP/IP; IPv4; SMTP; HTTP/HTML.
- 4.4.7 The F3400/F1000 shall use a real-time clock for time and date stamping of trend and event log entries. The date and time shall be set through the F3400/F1000 HTTP/HTML interface. If the F3400/F1000 is connected to a network, the date and time shall be continuously maintained by connection to a Network Time Protocol (NTP) server.
- 4.4.8 The F3400/F1000 shall be accessible and configurable from a standard Web browser on a PC connected to the F3400/F1000 through Ethernet or RS232. The HTML-based webpages shall display the F3400/F1000 device, input and alarm status and trends, and a link to the configuration menus. Configuration menus shall be password protected.
- 4.4.9 The F3400/F1000 shall also be accessible and configurable from any VT100 terminal emulator connected to the F3400/F1000 through Ethernet or RS232. The text-based output shall display the F3400/F1000 device, input and alarm status, accessible through simple keyboard commands. Text-based configuration menus shall also be available, and shall be password protected.

5. SYSTEM COMMISSIONING AND MAINTENANCE

- 5.1 Upon completion of the system installation, the installer shall perform the following tests in the presence of the owner and shall provide the owner with a copy of the results:
 - 5.1.1 System Turn-On
 - A.) Upon switching System Power to On, the System Status LED shall blink rapidly for up to 10 seconds during the bootup sequence. Upon completion of the bootup sequence, the System Status LED shall either be dark (if no alarms are present) or illuminated red (if alarms are present) and the Power LED shall be illuminated green. Other LEDs may also be illuminated.
 - 5.1.2 Communications
 - A.) After the F3400/F1000 IP address has been set according to instructions in the F3400/F1000 User Guide, Section 2-3, "Set the F3400/F1000/F1000's IP Address," the IP address shall be entered in a Web browser window of a PC connected to the F3400/F1000 through Ethernet or RS232. The F3400/F1000 shall respond by displaying the Main Menu, according to instructions in the F3400/F1000 User Guide, Section 3-2, "Main Menu."
- 5.2 The RLE Technologies Falcon Monitoring System shall be maintained as recommended in the F3400/F1000 User Guide.



FORT COLLINS CO
970 484-6510
970 484-6650 FAX
www.rletech.com