



***DiaLog™ Elite* Automatic Dialing Alarm System Specifications**

The automatic dialing alarm system shall be microprocessor based and have the capability to monitor from 8 to 48 dry contact or digital inputs, 8 to 48 analog inputs or energize from 4 to 24 relays in any combination. Each of these inputs shall monitor a set of dry contacts (normally-closed or normally-open). In addition, the dialer shall monitor the AC power and battery voltage continuously. Upon detecting an alarm on any of its inputs, a low battery condition or detecting loss of its AC power, the dialer shall begin dialing the first of up to 16 user-programmed telephone numbers.

The dialer shall speak user-recorded messages to the called party describing its location and the alarm conditions that are present. The dialer shall then verbally request that an acknowledgment be given. The called party shall acknowledge the call by momentarily depressing the '8', '9' or '*' key on their telephone keypad. If the dialer is not acknowledged during the call, it shall hang up, wait from 1 to 3600 seconds and then dial the next number in its phone list. If a successful acknowledgment occurs, the dialer shall give a sign-off message, hang up and then wait a user-programmed period of time for the alarm conditions to be corrected. If this period of time elapses and the alarm condition(s) still exist, the dialer shall begin the alarm notification cycle again.

The dialer shall have relay outputs that shall remain energized as long as the dialer has any unacknowledged alarms. This output shall be available to allow for wiring to an external horn, buzzer, light, or other local alarm device. Alternatively, the user shall be able to program the dialer to allow remote activation of this relay from a telephone keypad.

1.0 CONSTRUCTION

- A. **Enclosure:** Minimum rating should be NEMA 4X or Panel/Flush mount.
- B. **Environmental Limits:**
 - Temperature: Electronics: -40 to 158°F (-40 to 70°C) Humidity: 0-80% non-condensing @ 140°F
 - Battery: -4 to 158°F (-20 to 70°C) 0-90% non-condensing @ 104°F
- C. **Power Requirements:** 100-240VAC; 50/60 Hz; 1.5/0.7Amps
Maximum current draw on DC power: 850 mA at 15 VDC
- D. **Current Loop Supply:** 24VDC provided on each analog input card. 240 ohm loop resistance.
500ma total current per Elite.
- E. **Relay Output Rating:** 8A at 125VAC, 6A at 277VAC, 5A at 30VDC
- F. **Dimensions:** 12"W x 13.75"H x 6.25"D (305mm W x 350mm H x 159mm D)
- G. **Weight:** 15.1 lbs. (6.9kg)
- H. **Serial Ports:** 2 with DB9(male) and RS-485 connections

- I. **Electrical Protection:** Transient voltage/surge protection shall be provided on power line, telephone and all input channels. Solid state surge protection provided on digital input, analog input, serial port, parallel port, telephone and AC power circuitry. All fuses shall be solid-state automatically resettable such that the user is never required to manually change a fuse.
- J. **Upgrades:** The automatic dialer shall be field upgradeable (without returning unit to the manufacturer) for the following:
- Dry Contacts or Digital Inputs from 0 to 48 input channels
 - Analog Inputs from 0 to 48 input channels
 - Relay Outputs from 0 to 24 outputs
 - 14.4Kbaud modem
 - Datalogging of 10,000 analog time/date stamped values
 - 4x20 Vacuum Fluorescent Display (LCD is standard)
 - Modbus RTU Master and/or Slave support
- K. **Field Wiring:** All I/O wiring shall use quick-disconnect pluggable connectors.
- L. **Digital Inputs:** Dry Contact/Digital Input cards shall be capable of interfacing directly to dry contacts or digital input signals with voltages up to 24VDC. No switches shall be required to select any Digital Input options.
- M. **Analog Inputs:** Analog Input cards shall be capable of interfacing directly to 4-20ma, 0-20ma, 0-1V, 1-5V and 0-10V signals. Each channel shall be programmable for range independently from any other channel on the same board. All channel range programming shall be via the keypad, phone or PC with no switches or resistors required. All channels shall be internally converted and presented to the user in engineering units.
- All analog input cards shall have a 24VDC power supply on the card. The dialer shall be capable of driving 24 current loops at 20ma.

2.0 PERFORMANCE SPECIFICATIONS

- A. **Telephone Number Capacity:** 16 lists of 16 numbers, each number containing up to 50 digits
- B. **Recorded Speech Capacity:** 6 seconds per input channel message
6 seconds for System Identification message
- C. **Monitoring Capacity:** Up to 48 inputs in any combination of digital (8 per board) or analog (8 per board)
- D. **Speech Technology:** Digitally recorded voice messages plus permanent library.
- E. **Programming:** The dialer shall be programmable locally from the integral keypad or with a laptop (requires modem option). Remote programming via a phone or PC.
- F. **Telephone Number Requirements:** Up to 512 available numbers up to 50 digits each. Numbers can include '*', '#', delays, and detection of dial tone.

G. Types of Alarms:

The alarm dialer shall have the following alarm types:

- System –
 - loss of primary power,
 - low battery,
 - temperature,
 - open loop sensor,
 - Modbus communication loss,
 - phone fault that can drive any relay
- Digital –
 - on or off
 - number of times in a condition – pulse totalization that can be multiplied by a scale factor and reported in engineering units
 - accumulated time in a condition – total run time reported in Days Hours Minutes Seconds.
- Analog –
 - a user-specified high or low limit for a specified period of time,
 - a user-specified positive or negative rate of change.

All alarms shall be recorded with date/time in the event log.

H. Alarm Prioritization:

The automatic dialer shall have the capability to prioritize alarms by the telephone list designated to each alarm channel. Additionally, alarms shall be prioritized by time of day to different phone lists.

I. Alarm Acknowledgment:

The automatic dialer shall provide acknowledgement of alarms from:

- the front panel,
- an input channel (digital, analog or Modbus),
- a phone that is called with an alarm condition,
- a dial-in from a remote location with appropriate access codes.

All acknowledgements will be recorded in the event log with the date/time of the acknowledgement, the method of acknowledgement and the Caller ID if from a remote location.

J. Status Report:

The automatic dialer shall have the ability to issue a formatted report detailed the current status of all channels including system channels to a local printer, PC connected to a serial port, fax or to the Internet.

K. Event Log:

The automatic dialer shall have the capability of documenting all alarms, dial-out, dial-in, and alarm acknowledgement, activities with time and date to a standard parallel printer or over a modem connection to a PC.

The event log shall contain the last 1000 events. Each event shall have the date/time of the event and the action performed.

L. Caller ID:

The automatic dialer shall record the Caller ID in the event log of anyone calling into the dialer to acknowledge alarms or perform any programming functions.

M. Channel Status:

Each alarm channel shall be individually programmed to be either enabled for alarms, disabled or status only.

N. **Alarm Notification:** The automatic dialer shall be capable of notifying of alarm conditions by the following methods:

telephone and cell phone	digital and alphanumeric pager
modem call-out	modem call-in
fax	LEDs
parallel printer	relay activation

Each alarm channel shall be programmable to continue alarm notification if the condition returns to normal.

O. **Arming and Disarming:** The dialer shall be capable of being armed or disarmed manually. Arming or disarming shall be recorded to the event log.

P. **Battery Backup:** The dialer shall have internal battery back-up capacity sufficient for an 8-channel dialer to perform its alarm call-out function for a minimum of 48 consecutive hours upon loss of primary power.

Q. **Modbus Communication:** A dialer option shall support Modbus RTU communication from direct connect or remote SCADA and HMI software packages without any additional hardware or requiring any visits by any personnel to the dialer to install this option. The Modbus option shall support reading of all digital and analog inputs, alarm states, acknowledgement states, and reading and writing relays.

R. **Communication between Dialers:** Any dialer with the Modbus RTU option shall be able to communicate with any other dialer directly over a phone or cell phone connection to have complete activation and de-activation control of the relays on the called dialer.

S. **Customer Service:** The automatic dialer manufacturer shall have a toll-free number for customer service calls. The automatic dialer shall have a 2-key sequence that can be entered from the local keypad that will place an automatic speaker phone call to the manufacturer's customer service facility.

T. **Certifications:** The automatic dialer shall meet:

- FCC Part 15, Class A and Part 68 requirements and shall have a valid FCC registration number per Part 68,
- Industry Canada CS03 and have a valid IC registration number
- CE Mark and have third-party verified testing
- Certified according to Council Decision 98/482/EC for pan-European connections to public switched telephone network (PSTN). Compatible according to EG 201-121 in:

Austria	Belgium	Denmark	Finland
France	Germany	Greece	Iceland
Ireland	Italy	Luxembourg	Netherlands
Portugal	Sweden	Switzerland	UK

3.0 WARRANTY

Five year warranty shall be standard with the purchase of a new unit.