



# Short Range Systems

## ERL-10 Lightning Relay Module



- ✓ 1, 2 or 3 alarms levels (Red, Red/Yellow, Red/Orange/Yellow)
- ✓ All Clear output (Green)
- ✓ Fully configurable alarm distances, durations and high electric field levels
- ✓ 20 miles/32 km range, optionally extendable to 40 miles/64km
- ✓ High electric field alarm warns of conditions where first strike is more likely to occur
- ✓ Coincidence Mode virtually eliminates false alarms
- ✓ Fault output indicates status of the system
- ✓ Status Monitor software shows current alarm state and minutes:seconds until All Clear
- ✓ USB port for configuration and/or Status Monitor software
- ✓ RS-485 output for transmitting status messages to other equipment and/or to a distant Status Monitor computer
- ✓ Optional fiber optic data connection between sensor and ERL-10 available

### Operation

The ERL-10 receives data from the EFM-100 Electric Field Mill short-range sensor (<20 miles/32 km) and optionally also an LD-250 long range lightning detector. It constantly monitors for lightning and activates its timed relay outputs when lightning is detected. Up to three alarms can be configured, referred to as Red, Orange and Yellow Alert levels. The green All Clear state is entered when no lightning has been detected within the configured time period.

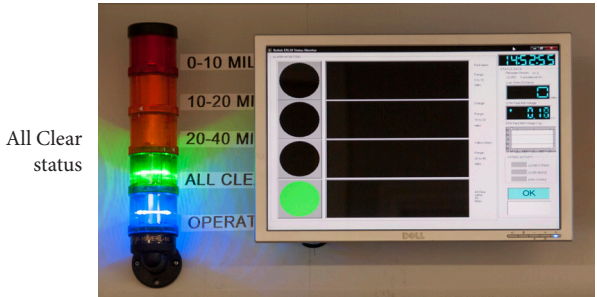
When the ERL-10 is first turned on it enters Survey Mode where it looks for lightning. After several minutes without lightning (configurable but typically 10-20 minutes) the system enters the All Clear state. The green All Clear light on the ERL-10 illuminates and the All Clear relay output activates.

### Coincidence Mode

With Coincidence Mode enabled a lightning strike must be detected by both the EFM-100 and LD-250 for an alarm to activate. This virtually eliminates false alarms that could be caused by persons, animals or birds coming too near the EFM-100 lightning sensor. Coincidence Mode is only applicable within the range of the EFM-100 (0-20 miles/0-32 km)

### Status Monitor

The ERL-10 Status Monitor software (included) allows the system status and countdown timers to be displayed. Countdown timers clearly indicate the number of minutes:seconds until All Clear. All alarm activations are timestamped and logged to disk. Configuration software and graphical log-file viewing software is also included.



All Clear status



Stacklight connected to an ERL-10 (stacklight not provided)

ERL-10 Status Monitor Software (included)

# ERL-10 Lightning Relay Module

## SPECIFICATIONS

Alarms	
Number of alert levels	1, 2 or 3 configurable
All levels configurable	Strike distance: 0 - 20 miles / 0 - 32 km ( 0 - 40 miles / 0 - 64 km with LD-250) High electric field: -20 to +20 kV/m
LED Indicators	
Power (green)	On when power applied
EFM Data (green)	Flashes as EFM data is received
LD-250 Data (green)	Flashes as LD-250 data is received
Fault (red)	On when a sensor or module fault is detected
Fault Code (red)	Blinks active fault codes
All Clear (green)	On when no lightning has been detected
Yellow Alert (yellow)	On when lightning is detected within the configured Yellow Alert range
Orange Alert (orange)	On when lightning is detected within the configured Orange Alert range
Red Alert (red)	On when lightning is detected within the configured Red Alert range
Fault codes	
0	ERL-10 Processor Fault
1	No EFM Data
2	No LD-250 Data
3	EFM Rotor Fault
4	EFM Selftest Fault (EFM-200 only)
5	EFM Syntax Fault
6	EFM Checksum Fault
7	EFM Unknown Fault
8	Watchdog Timer Reset
9	Configuration Fault
10	LD-250 Syntax Fault
11	LD-250 Checksum Fault
12	LD-250 Unknown Fault
Software	
ERL-10 Configuration Software	Included
ERL-10 Status Display Software	Included
Operating System	Microsoft Windows 10, 8, 7, Vista, XP, 2000, NT
Communications	
Configuration Port	USB
Status Data Port	USB, RS-485
RS-485 Format	Delimited ASCII Sentences 115,200 bps, 8N1
EFM Data	RS-485 / Multimode ST fiber optic
LD-250 Data	RS-232, 9600 bps 8N1
Relay Outputs	
Red Alert	Solid-state relay 80VDC/57VAC/2A configurable NO/NC
Orange Alert	Solid-state relay 80VDC/57VAC/2A configurable NO/NC
Yellow Alert	Solid-state relay 80VDC/57VAC/2A configurable NO/NC
All Clear	Solid-state relay 80VDC/57VAC/2A configurable NO/NC
Fault	SPDT relay 250VAC/8A, 30VDC/5A with both NO/NC connections
Power	
Connector	2.1mm/5.5mm coaxial, screw terminals
Voltage	11.5VDC - 14VDC
Power Consumption	4 W
Source	120VAC US plug or 120-240VAC international multi-plug wall adapter

## Enclosure

Material	Aluminum
IP Rating	20
Dimensions	3.9" x 4.5" x 1.1" / 100 mm x 114mm x 28mm

## Environmental

Operating Temperature	-40 to 60 C / -40 to 140 F
Operating Humidity	0 to 99% non-condensing

## Agency Approvals Warranty

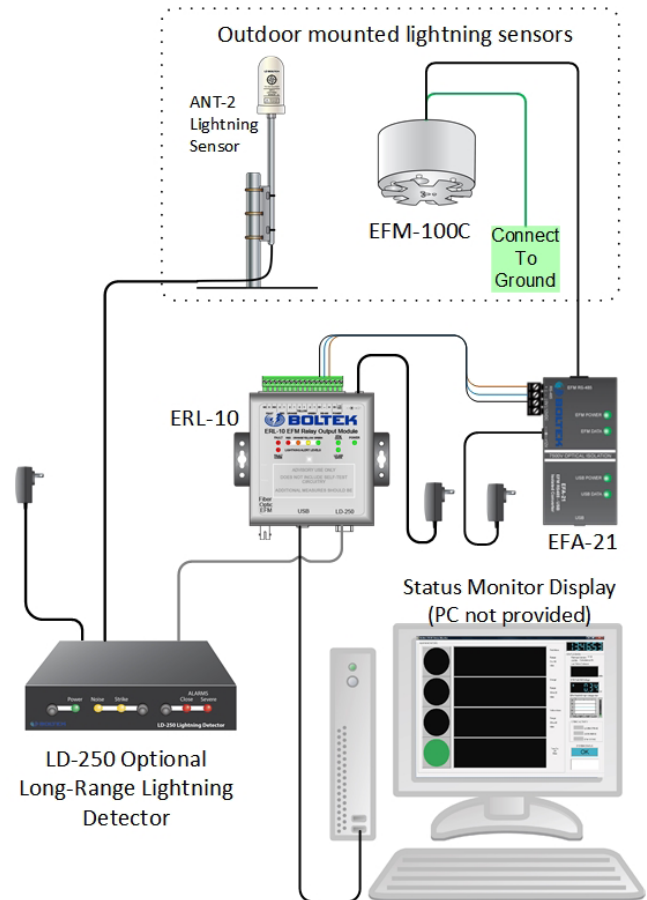
CE, FCC, cULus, C-tick
1 Year

## Ordering Information

ERL10-KIT1-120V-100FT	ERL-10/EFM-100 for 120VAC
ERL10-KIT2-120V-100FT	ERL-10/EFM-100/LD-250 for 120VAC
ERL10-KIT1-220V-100FT	ERL-10/EFM-100 for 220VAC
ERL10-KIT2-220V-100FT	ERL-10/EFM-100/LD-250 for 220VAC

Standard kit includes 100'/30m sensor cables.  
 Additional cable lengths available on request.

## CONNECTION DIAGRAM (Fiber-optic option also available)



**ADVISORY USE ONLY**  
 This equipment does not include self-test circuitry to warn of loss of functionality. Additional measures should be in place to safeguard personnel or equipment.

