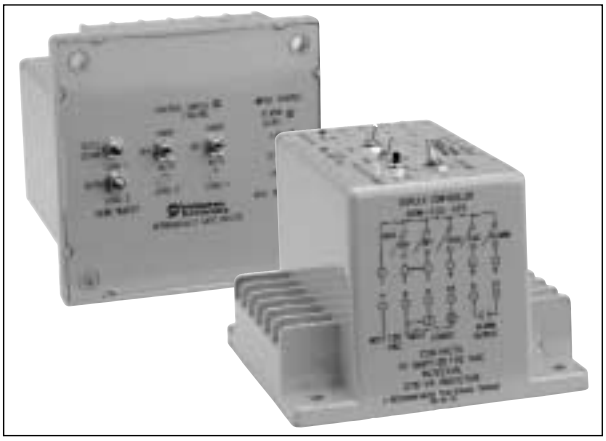
ARM SERIES

DIVERSIFIED ELECTRONICS

Integrated Duplex Controller with Intrinsically Safe Inputs



7m26
UL913

The ARM Series Alternating Relay is a microprocessor based controller designed for use in dual load installations to assure equal run time on each load. LED indicators show the status of the unit's five intrinsically safe control switch inputs, one alarm, and two load outputs. H-O-A switches, a lead select switch, and a test/clear button are provided for manual control. The ARM Series reduces the number of components required for this application by combining many functions into one unit.

SPECIFICATIONS

CONTROL VOLTAGE: 24 or 120 VAC ±10%, 50/60 Hz

CONTROL SWITCH
Open Circuit Voltage: 5 VDC
Short Circuit Current: .1mA

CONTACT RATING: (3) SPDT-N.O. 10 Amp Resistive, 1/4 hp, 278 VA Inductive @ 120 VAC

POWER REQUIRED: 4 VA Maximum

TEMPERATURES
Operate: -4° to 131°F (-20° to +55°C)
Storage: -40° to 185°F (-40° to +85°C)

RESPONSE DELAYS
Power Up: 3 sec. ±5%
Inrush Current: 5 sec. ±5%

LIFE EXPECTANCY
Mechanical: 20 Million Operations
Electrical: 75,000 @ Rated Load

DUTY CYCLE: Continuous

LED INDICATORS:

DESIGNATION	COLOR	STATE	CONDITION
Level/Alarm	Red	ON	cs5 Closed
Lag	Green	ON	cs4 Closed
Lead	Green	ON	cs3 Closed
Off	Green	ON	cs2 Closed
Aux. Off	Green	ON	cs1 Aux./cs2 Closed
Load 1	Green	ON	Load ON
Load 2	Green	ON	Load ON
Ctrl. Switch	Red	ON	Failure Open/Closed

TERMINATIONS: (12) # 8-32 screw terminals

FEATURES

☆ **TWO PUMP SEQUENCING**
Evenly distributes run time by automatically alternating lead and lag load designations when the off control switch input opens

☆ **UL913 INTRINSICALLY SAFE**
Control switch inputs are low voltage/low current and are electronically isolated from the control voltage and load-alarm contacts.

☆ **H-O-A SWITCHES**
Hand-of-automatic switches allow for manual operation.

☆ **LEAD SELECT SWITCH**
Disables the automatic sequencing function and allows loads to be locked into the 2-1 or 1-2 sequence.

☆ **CONTROL SWITCH FAULT DETECTION**
Unit detects open and shorted control switch failures.

☆ **TEST/CLEAR SWITCH**
Verifies function and resets the control switch fault detection algorithm.

☆ **ALARM OUTPUT**
Alarm contacts close when a control switch fails or the system's capacity is exceeded.

☆ **INRUSH CURRENT DELAY**
Reduces line sags by preventing both loads from energizing simultaneously.

☆ **VERSATILE MOUNTING**
Two (2) mounting configurations are available. The standard surface mount has top access to controls and indicators and is intended for back panel mounting. The panel mount option is intended for front panel or door cutout access to controls and indicators.

☆ **SPECIAL CONTROLS**
ARM-2003 and ARM-2010:
Standard operation without the HOA switches
ARM-2011:
Standard operation without the Control Switch Failure feature.

ORDER INFORMATION ARM-120-AFE

Part #	Control Voltage	Mounting	Comments
ARM-XXX-AFE*	24 or 120 VAC	Surface	Standard
ARM-XXX-AFEP*	24 or 120 VAC	Panel	Standard
ARM-2003	120 VAC	Surface	Special: w/o HOA switches
ARM-2010	120 VAC	Panel	Special: w/o HOA switches
ARM-2011	120 VAC	Surface	Special: w/o Control switch failure feature

*Replace XXX with desire control voltage (24, 120)

OPERATION

FOUR CONTROL SWITCHING

Do not remove factory-installed jumper between terminals 2 and 3. The control switches connected to terminals 3 through 6 are labeled OFF (cs2), LEAD (cs3), LAG (cs4) and ALARM (cs5). Under normal operation the lead load energizes when the off and lead control switches close in order. The lag load energizes when the lag closes and the alarm load energizes when the alarm switch closes. When all four switches reopen in the proper order all outputs are de-energized and the lead/lag output designations reverse.

FIVE CONTROL SWITCHING

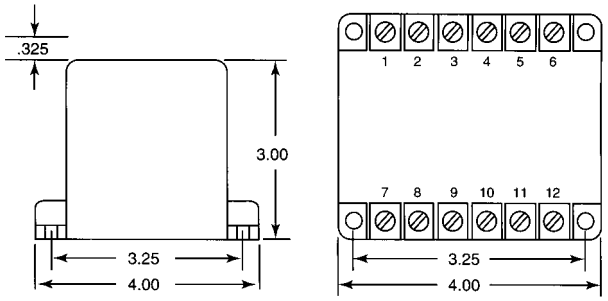
Remove factory installed jumper between terminals 2 and 3. After the jumper has been removed, the additional control switch is connected to terminal 2. The extra switch functions as an AUXILIARY OFF (cs1) switch. It is used to prevent loads from running continuously if the primary OFF (cs2) switch fails to open properly.

FAULT DETECTION ALGORITHM

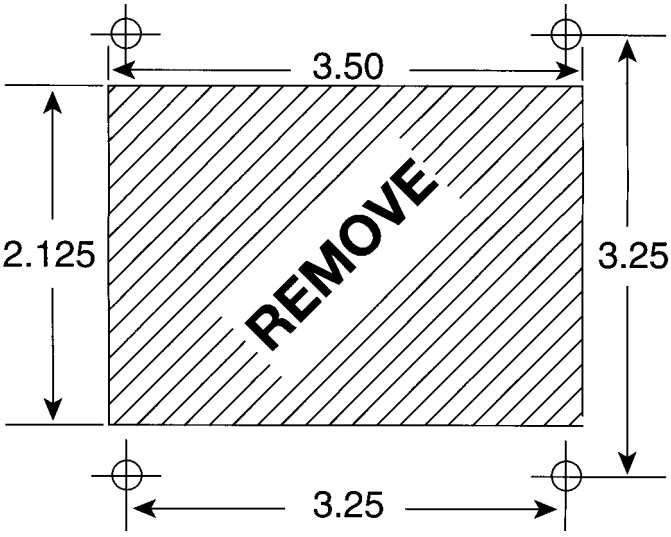
If any of the control switches open or close out of order, the alarm output energizes and a fault detection algorithm is used to identify the faulty switch. The faulty switch is then ignored and the OFF, LEAD, and LAG control switch designations are altered to maintain safe operation.

DIMENSIONS

INCHES

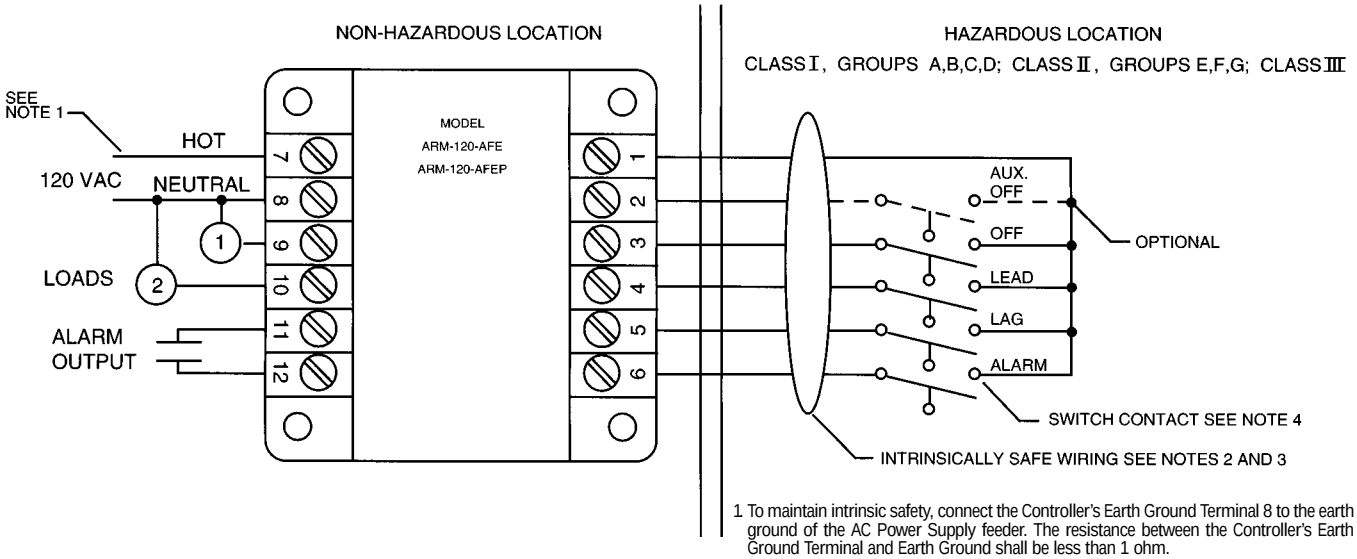


**PANEL MOUNT CUTOUT*



*GREENLEE PUNCH #60071 OR EQUIVALENT

CONTROL DRAWING 190



1. To maintain intrinsic safety, connect the Controller's Earth Ground Terminal 8 to the earth ground of the AC Power Supply feeder. The resistance between the Controller's Earth Ground Terminal and Earth Ground shall be less than 1 ohm.
2. Maximum distance between Controller and switch contact is 1000 feet.
3. All intrinsically safe wiring shall be separated from non-intrinsically safe wiring. Refer to article 504 of the National Electrical Code ANSI/NFPA 70 on procedures for intrinsically safe wiring.
4. Switch contact shall be any non-energy storing or generating mechanical switch type device containing no capacitance or inductance.