

EFL – EARTH FAULT LOCKOUT AND FROZEN CONTACTOR PROTECTION RELAY

Compliant with AS/NZS 2081:2011, Sections 7 & 9

Application

Ampcontrol's EFL Relay is compliant to AS/NZS 2081:2011 and has been designed for installation on mining outlets that require earth fault lockout and frozen contactor protection. The EFL is capable of being installed on a wide range of system voltages from 110V up to 1.1kV. In addition to EFLO and FC protection, the EFL also offers a selectable undervoltage protection function.

The EFL is for use in non-hazardous areas only, for intrinsically safe applications, use the Ampcontrol EFL-IS Relay (174624) and EFL-IS Barrier (174623).



Features

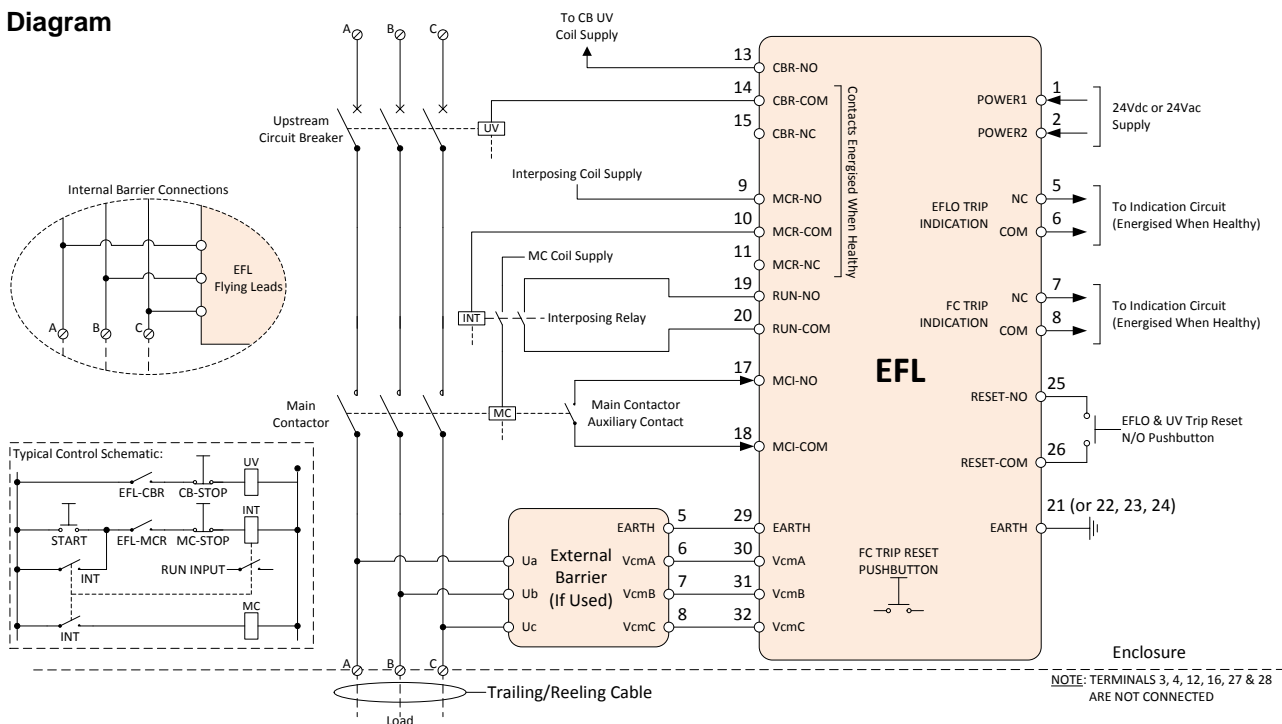
- AS/NZS 2081:2011 compliant
- Earth Fault Lock-out (EFLO) protection
- Frozen Contactor (FC) protection
- Selectable Undervoltage (UV) protection
- Selectable Back EMF Timer
- Compatible with a wide range of system voltages
- Internal or external barriers available

Description

The EFL relay will continually monitor the load side of the outlet for an earth fault. If a resistance is detected below the acceptable level, then the EFL will initiate an EFLO trip. The EFL will also monitor the state of the outlet's main contactor to provide Frozen Contactor protection. The FC trip operates when voltage is detected when the MC is open or if the state of the MC is opposite to what is expected.

The EFL also incorporates a Back EMF timer to inhibit a frozen contact trip function upon opening of MC. Additionally, an undervoltage protection function can be utilised to trip the EFL when the supply voltage falls below 50% of the selected system voltage.

Diagram



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SPECIFICATIONS

Supply Voltage			
<i>Regulated Voltage</i>	24Vd.c ± 20% or, 24Va.c ± 20%, 50Hz		
<i>Power Consumption</i>	< 5W		
System Voltage			
1.1kV Barrier (174623)	110V to 1.1kV		
EFL Tripping Thresholds			
3PH Load Disconnected	Trip by 3MΩ (Refer to Section 6.2)		
3PH Load Connected	Trip by 1MΩ (Refer to Section 6.2)		
Undervoltage Protection	<50% of Voltage setting (Refer to Section 6.4)		
Relay Contacts			
<i>Group</i>	<i>Type</i>	<i>Rating</i>	
<i>MCR Trip Contacts</i>	1 x CO (NO-COM-NC)	250V a.c., 6A, 300VA (AC1), 60VA (AC15) 30V d.c., 1.2A (DC1)	
<i>CBR Trip Contacts</i>	1 x CO (NO-COM-NC)	250V a.c., 6A, 300VA (AC1), 60VA (AC15) 30V d.c., 1.2A (DC1)	
<i>EFLO Indication Contacts</i>	1 x NC	250V a.c., 6A, 300VA (AC1), 60VA (AC15) 30V d.c., 1.2A (DC1)	
<i>FC Indication Contacts</i>	1 x NC	250V a.c., 6A, 300VA (AC1), 60VA (AC15) 30V d.c., 1.2A (DC1)	
Inputs			
<i>MCI Input (Dry Contact)</i>	Internal Sensing Voltage: 3.3V, Sensing Current 10µA		
<i>RUN Input (Dry Contact)</i>	Internal Sensing Voltage: 3.3V, Sensing Current 10µA		
<i>RESET Input (Dry Contact)</i>	Internal Sensing Voltage: 3.3V, Sensing Current 10µA		
Mechanical & Environment			
<i>Dimensions (HxWxD)</i>	111 x 45 x 114mm (EFL) 111 x 22 x 114mm (Barrier) 111 x 75 x 114mm (EFL with Internal Barrier)		
<i>IP Rating</i>	IP20		
<i>Operating Temperature</i>	-20°C to 60°C		
<i>Humidity</i>	Between 10% relative humidity and the dew point, non-condensing		
<i>Air Flow</i>	The EFL is to be mounted in a position that allows unrestricted air flow through the upper and lower air vents.		
LED Indication			
LED	ON	OFF	FLASHING
Status	Internal Fault	-	OK
Trip (FC)	-	FC Healthy	FC Trip
Logical (FC)	Logical FC Trip	-	-
Elec (FC)	Electrical FC Trip	-	-
Undervoltage	UV Trip	System Healthy or UV Not Activated	-
EFLO Status	EFLO Trip	EFLO Healthy	EFLO Test Underway
Part Numbers			
173151	EFL Protection Relay		
173175	EFL Protection Relay with Internal 110V-1100V Barrier		
173176	External 110V-1100V Barrier to suit EFL Protection Relay		
141479	P/SUPPLY 24V 1A DIN MOUNT		
Find Out More			
For more information on this product, contact Ampcontrol Customer Service on +61 1300 267 373 or customerservice@ampcontrolgroup.com or visit the Ampcontrol website: ampcontrolgroup.com			

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