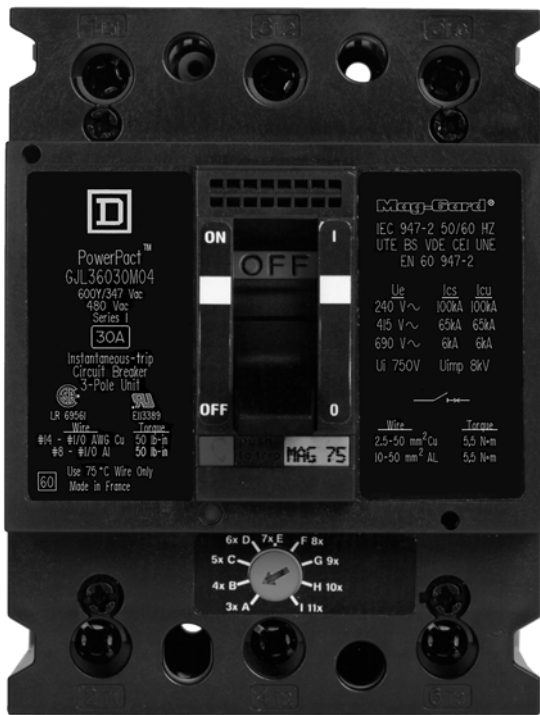


GJL 100 A Molded Case Circuit Breaker GJL 75 A Motor Circuit Protector

Catalog
0500CT9702R409
2009
Class 525/580



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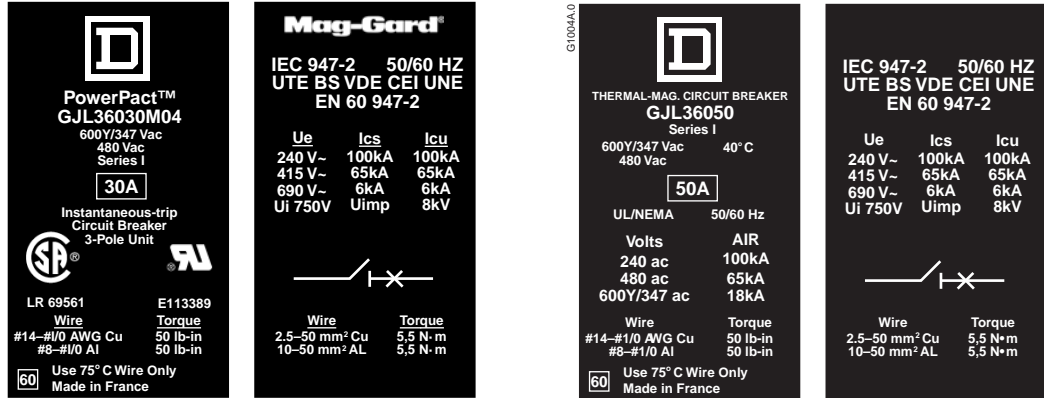


by Schneider Electric

GJL Circuit Breaker and Motor Circuit Protector General Characteristics

General Characteristics

Compliance with Standards



Compliance with North American Standards

GJL circuit breakers are built and tested in accordance with Underwriters Laboratories Inc. UL 489 Standard. Circuit breakers and their accessories, except where noted, are Listed or Recognized under UL files E63335, E103740, E103955 and E113389.

Compliance with International Standards

GJL circuit breakers and their accessories comply also with the following international standards:

- IEC 947-1: general rules
- IEC 947-2: circuit breakers; In that these standards are applied in most countries, GJL circuit breakers and their accessories comply with European (EN 60947-1 and EN 60947-2) and the corresponding national standards
- France NF
- Germany VDE
- U.K. BS
- Australia AS
- Italy CEI

Compliance with the Specifications of Marine Classification Organizations

GJL circuit breakers have been approved for marine application by the American Bureau of Shipping, Bureau Veritas, Lloyd's Register of Shipping, Registro Italiano Navale, Germanischer Lloyd's and Det Norske Veritas. They comply with the following standards:

- UL 489 Supplement SA (marine use on vessels over 65 feet in length)
- US Coast Guard specifications
- IEC 92-504 and marine specifications: inclination, vibrations, insulation resistance
- IEC 803 Electromagnetic Disturbance Immunity

GJL Circuit Breaker and Motor Circuit Protector

General Characteristics

Tropicalization

GJL circuit breakers comply with NF C 63-100 standard level 2 conditions (95% relative humidity at 45°C or 80% at 55°C, hot and humid climate conditions). They also comply with the following standards:

- IEC 68-2-30 damp heat
- IEC 68-2-2 dry heat
- IEC 68-2-11 salt spray
- IEC 68-2-1 low temperatures

Pollution Degree

GJL circuit breakers are certified for operation in pollution degree III environments as defined by IEC standard 947 (industrial environments).

Environmental Protection

GJL circuit breakers take into account concerns for environmental protection. Most components are recyclable and parts are marked as specified in applicable standards.

Suitability for Isolation/Positive Contact Indication

All GJL circuit breakers are suitable for isolation as defined in the IEC 947-2 Standard:

- The isolation position corresponds to the O (OFF position)
- The operating handle cannot indicate the OFF position unless the contacts are open
- Padlocks may not be installed unless the contacts are open. Installation of a rotary handle or a motor mechanism does not alter the functionality of the position indication system. The isolation function is certified by tests guaranteeing
- The mechanical reliability of the position indication system
- The absence of leakage currents
- Overvoltage withstand capacity between upstream and downstream connections

Circuit Breaker Marking



Installation in Class II Switchboards

All GJL circuit breakers, even when fitted with a rotary handle or a motor mechanism, can be installed through the door of Class II IEC switchboards (as per IEC 664 Standard). Refer to circuit breaker installation instructions prior to installing circuit breaker.

Installation requires no special insulation because GJL circuit breakers provide Class II insulation between the front face and all internal circuits.

GJL Circuit Breaker and Motor Circuit Protector Circuit Breakers

Circuit Breakers



GJL Circuit Breaker

Table 1: GJL Circuit Breaker Ratings and Interrupting Ratings

UL 489 Listed Ratings¹				
Number of Poles			3	
Rated Voltage		AC 50/60 Hz	480 V 600Y/347 V	
Rated Current		40°C	15–100 A	
Interrupting Ratings		240 Vac	100 kA	
		480 Vac	65 kA	
		600Y/347 Vac	18 kA	
IEC 947-2 and EN 60947-2 Ratings				
Number of Poles			3	
Rated Insulation Voltage	Ui		750 V	
Rated Impulse Withstand Voltage	Uimp		8 kV	
Rated Operational Voltage	Ue	AC 50/60 Hz	690 V	
		DC	250 V	
Rated Current (A)	In	40°C	15–100 A	
Ultimate Breaking Capacity	Icu	AC 50/60 Hz	220/240 V	100 kA
			380/415 V	65 kA
			660/690 V	6 kA
			125 V (1 pole)	10 kA
			250 V (2 poles in series)	10 kA
Service Breaking Capacity	Ics	(% Icu)	50	
Utilization Category			A	

¹ Circuit breaker is Listed under UL file E63335

Table 2: Protection Characteristics

Protection against overloads and short circuits with a built-in thermal-magnetic trip unit (fixed thresholds).

Ratings	40°C	15 A	20 A	30 A	40 A	50 A	60 A	70 A	80 A	90 A
Overload Protection										
Thermal	Non-Adjustable									
Short-Circuit Protection										
Magnetic	Non-Adjustable									
Hold	600	600	600	600	800	800	800	800	800	800
Trip	1200	1200	1200	1200	1400	1400	1400	1400	1400	1400

Motor Circuit Protectors



GJL Motor Circuit Protector

Table 3: GJL Motor Circuit Protector Ratings and Interrupting Ratings

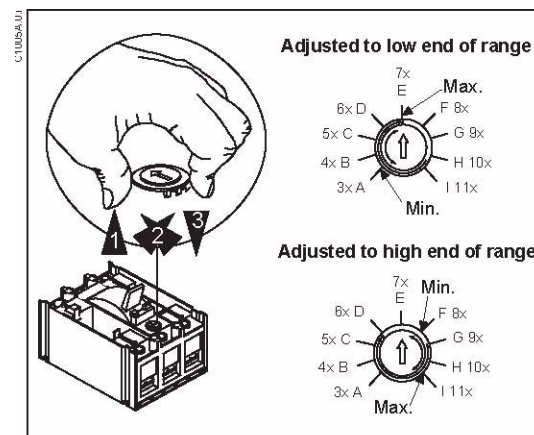
UL 489 Recognized Component ¹				
Number of Poles				3
Rated Voltage				600Y/347 V
Rated Current	In	40°C		3–75 A
Interrupting Ratings			In combination with Telemecanique LC1 contactors and LR2 overload relays	
IEC 947-2 and EN 60947-2 Ratings				
Number of Poles				3
Rated Insulation Voltage	Ui			750 V
Rated Impulse Withstand Voltage	Uimp			8 kV
Rated Operational Voltage	Ue		AC 50/60 Hz	690 V
Rated Current (A)	In	40°C		3–75 A
Ultimate Breaking Capacity	Icu	AC 50/60 Hz	220/240 V	100 kA
			380/415 V	65 kA
			660/690 V	6 kA
Service Breaking Capacity	Ics	(% icu)		50
Utilization Category				A

¹ Motor circuit protector is Recognized under UL file E113389 and Certified under CSA file LR 69561.

Table 4: Motor Circuit Protector Trip Ranges

Ampere Rating	Adjustable Trip Range
3	9–33 A
7	21–77 A
15	45–165 A
30	90–330 A
50	150–330 A
70	225–825 A

Mag-Loc™ Feature



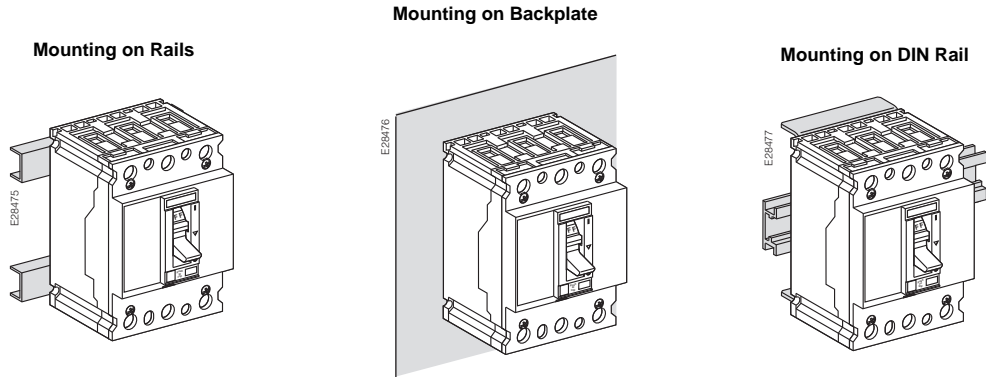
The Mag-Loc adjustment range limiter allows a user to limit the adjustment of the instantaneous-trip setting within the range of 3–11 times the rated current. Once the range has been set, replace the cover and install a cover seal to prevent tampering. This feature allows adjustment within a predefined, customized range of short-circuit protection.

GJL Circuit Breaker and Motor Circuit Protector Installation and Connections

Installation and Connections

Refer to circuit breaker installation instructions before installing circuit breaker, accessories or wiring.

Fixed Mounting



Cable Connections

See page 13.

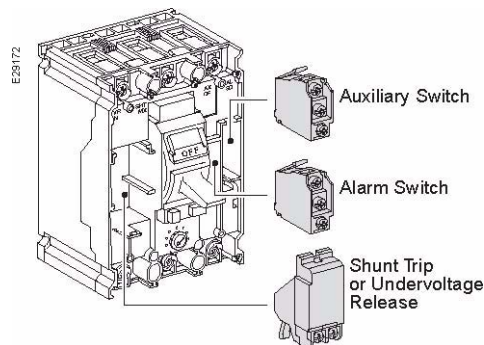
Terminal covers are optional (see page 10).

Accessories

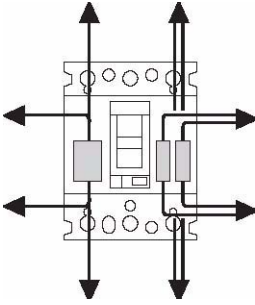
NOTE: Molded case circuit breakers contain factory-sealed and calibrated elements. The seal (hologram) must not be broken and the circuit breaker must not be tampered with. Molded case circuit breakers should not be field adjusted or repaired. In the case of a malfunction, the circuit breaker should be replaced or inspected at the factory or by an authorized representative.

Location

Internal accessories comply with requirements of Underwriters Laboratories Inc. UL 489 and Canadian Standards Association CSA C22.2 No. 5.1 Standards. All internal accessories are Listed for field installation per UL file E103955 and Certified under CSA file LR69561.



Connections



Each electrical accessory is fitted with numbered terminal blocks for wires, Maximum wire size for auxiliary switches, shunt trip or undervoltage release is 18–14 AWG (0.75–2.5 mm²).

Auxiliary circuits exit the device through a knock-out in the front cover.

Auxiliary and Alarm Switches



- Auxiliary switch (open/closed) indicates the position of the circuit breaker contacts and can thus be used for indications, electrical locking, relays, etc.
- Alarm switch (trip indication) indicates that the circuit breaker has tripped due to:
 - An overload;
 - A short circuit;
 - The operation of shunt trip or undervoltage trip or the push-to-trip button which resets when the circuit breaker is reset.
- All of the above auxiliary switches are also available in low-level versions capable of switching very low loads (e.g., for the control of PLCs or electronic circuits).
- Auxiliary switches comply with UL 489 and IEC 947-5 Standards.

Installation

- Auxiliary switch and alarm switch snap into cavities under the front accessory cover of the circuit breaker.
- One model serves both indication functions depending on where it is fitted in the circuit breaker.

Electrical Ratings

		Low-Level Switches				Regular Switches				
UL 489 and CSA C22.2 No. 5.1 Ratings										
Minimum Rating		1 mA–4 V				10 mA–24 V				
	50/60 Hz	240 V	5				6			
		480 V	5				6			
		600 V	—				3			
Maximum Rating	DC	48 V	2.5				2.5			
		125 V	0.8				0.8			
		250 V	0.3				0.3			
IEC 947 Ratings										
Rated Thermal Current		5				6				
Minimum Rating		1 mA–4 V				10 mA–24 V				
Utilization Category (IEC 947-4)		AC12	AC15	DC12	DC14	AC12	AC15	DC12	DC14	
Operational Current	24 V	5 A	3 A	5 A	1 A	6 A	6 A	2.5 A	1 A	
	48 V	5 A	3 A	2.5 A	0.2 A	6 A	6 A	2.5 A	0.2 A	
	110 V	5 A	2.5 A	0.8 A	0.05 A	6 A	5 A	0.8 A	0.05 A	
	220/240 V	5 A	2 A	—	—	6 A	4 A	—	—	
	250 V	—	—	0.3 A	0.03 A	—	—	0.3 A	0.03 A	
	380/415 V	5 A	1.5 A	—	—	6 A	3 A	—	—	
	440 V	5 A	1.5 A	—	—	6 A	3 A	—	—	
660/690 V	—	—	—	—	6 A	0.1 A	—	—		

GJL Circuit Breaker and Motor Circuit Protector Accessories

Shunt Trip and Undervoltage Trip

A voltage release can be used to trip the circuit breaker via a control signal.



Undervoltage Trip

- Trips the circuit breaker when the control voltage drops below a tripping threshold
- Drops out between 35% and 70% of the rated voltage
- Circuit breaker closing is possible only if the voltage exceeds 85% of the rated voltage
- Permanent type
- When an overvoltage condition exists, operation of the closing mechanism of the circuit breaker will not permit the main contacts to touch, even momentarily

Shunt Trip

- Trips the circuit breaker when the control voltage rises above 70% of its rated voltage
- Impulse type 20 ms or maintained control signals
- AC shunt trips can be operated at 55% of their rated voltage, making them suitable for ground-fault protection when combined with a Class I ground-fault sensing element.

Operation

- The circuit breaker must be reset locally after being tripped by a shunt trip or undervoltage trip
- Undervoltage or shunt-trip tripping has priority over manual closing. In the presence of a standing trip order, such an action does not result in any closing, even temporarily, of the main contacts
- Endurance—50% of the rated mechanical endurance of the circuit breaker

Installation and Connection

- Accessories are located within the circuit breaker behind the front accessory cover
- Each terminal can be connected by one stranded copper wire 8–14 AWG (0.75– 2.5 mm²).

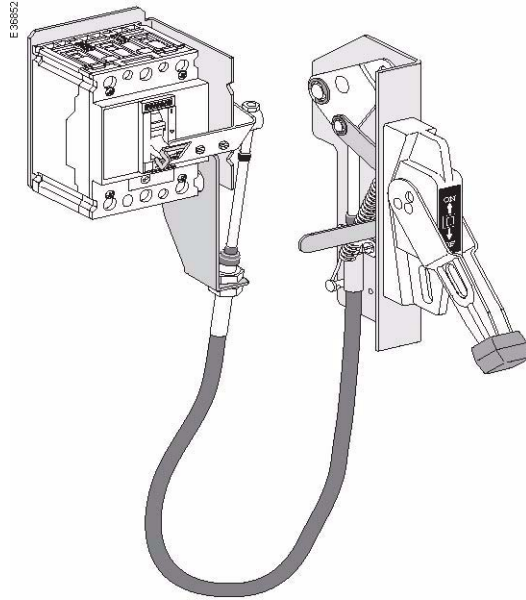
Electrical Characteristics

		Vac ¹		Vdc			
Rated Voltage		42	220/140	24	110/125		
		48	277				
		110/130	380/415			48	250
		208	440/480				
Consumption	Pickup (Shunt Trip)	< 10 VA		< 5 W			
	Seal-in (Undervoltage Trip)	< 5 VA		< 5 W			
Clearing Time		< 50 ms		< 50 ms			

¹ 42 Vac rating not available on undervoltage trip.

Operating Mechanisms

Class 9422 Flange-Mounted Handle Cable Operating Mechanism



The cable operator maintains:

- Suitability for isolation
- Indication of three positions O (Off), I (On) and tripped
- Access to push-to-test button
- The circuit breaker may be locked in the off position by one to three padlocks
- Door can be locked closed due to interlocking features of the handle operator

Installation

Handle is mounted on flange of enclosure using specified mounting dimensions while circuit breaker and operating mechanism are mounted to inside of enclosure using two screws.

Cable lengths available in 3, 5 or 10 ft. lengths to accommodate a variety of mounting locations.

Handles available in painted NEMA 1, 3, 3R, 4 (sheet steel) and 12 ratings or chrome NEMA 4, 4x.

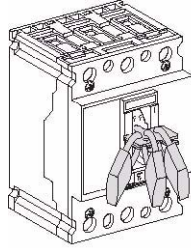
Class 9421 —Type L Circuit Breaker Operating Mechanisms

The Type L door-mounted, variable-depth operating mechanisms are component parts kits featuring heavy-duty, all metal construction with trip indication:

- All of the operating mechanisms can be padlocked in the OFF position when the enclosure door is open.
- The handle assemblies can be locked OFF with up to three padlocks which also lock the door shut. The 3-inch handle accepts one padlock.
- A door drilling template is supplied with each kit to ease installation.
- The component parts kits are rated for installation into NEMA 1, 3, 3R, 4, and 12 enclosures.
- All NEMA 1, 3, 3R, 4, and 12 handle assemblies are painted. The handle is flat black and the base ring is silver.
- Complete installation instructions are included with each kit.

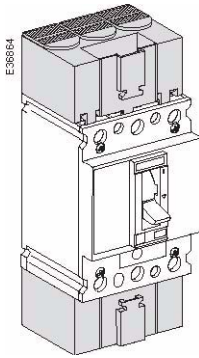
Locking and Interlocking Systems

Locking Systems



Padlocking systems can receive up to three padlocks with diameters ranging from 0.19 to 0.31 in. (5 to 8 mm) (padlocks are not supplied).

Terminal Covers



Terminal covers provide protection against contact with live parts. Internal interphase barriers provide additional electrical clearances between poles. Terminal covers are sealable.

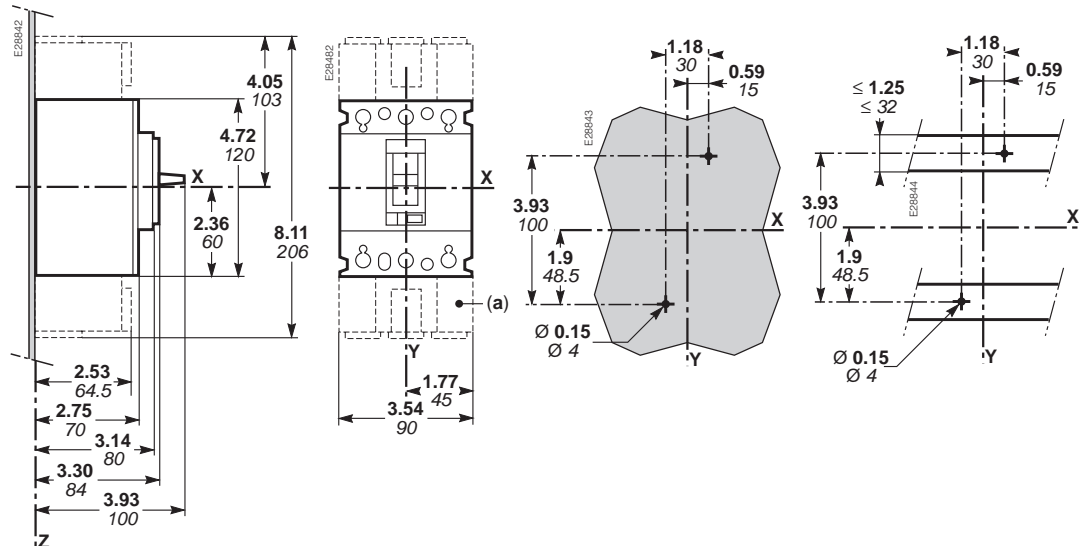
Terminal covers provide protection against contact with live parts. Internal interphase barriers provide additional electrical clearances between poles. Terminal covers are sealable.

GJL Circuit Breaker and Motor Circuit Protector Dimensions

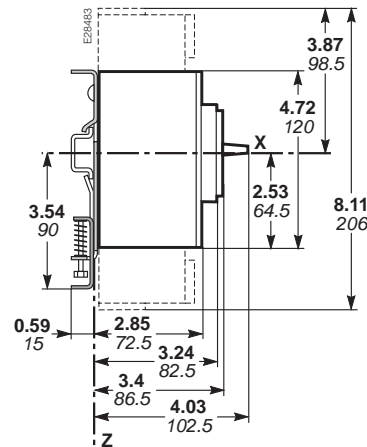
Dimensions

GJL Circuit Breaker Dimensions

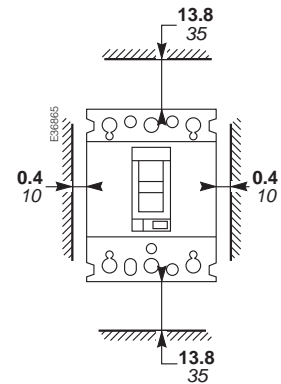
Mounting on Backplate or on Rail



Mounting on DIN Rail

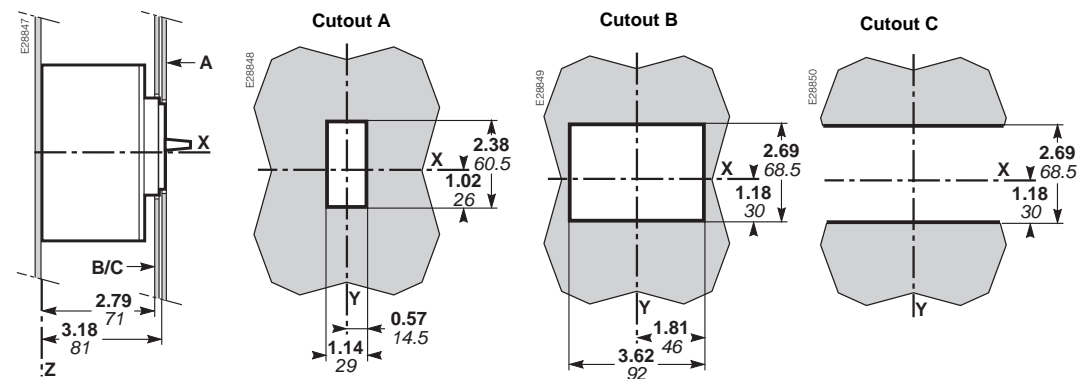


Electrical Clearances



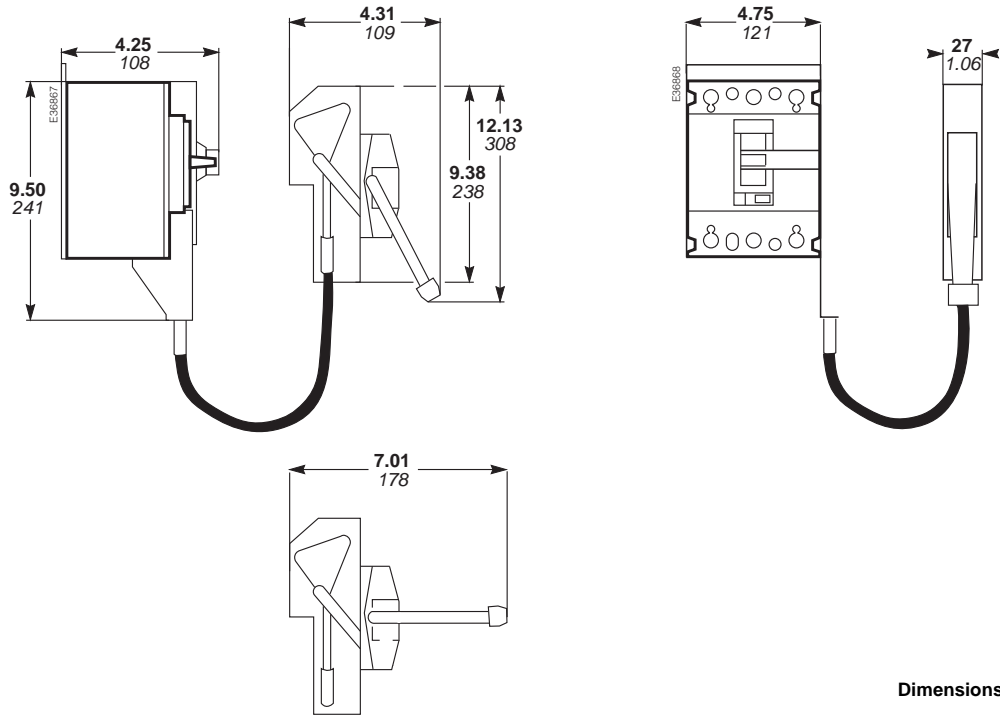
(a) Terminal shields.

Front Panel Cutouts



GJL Circuit Breaker and Motor Circuit Protector Dimensions

Cable Operating Handle

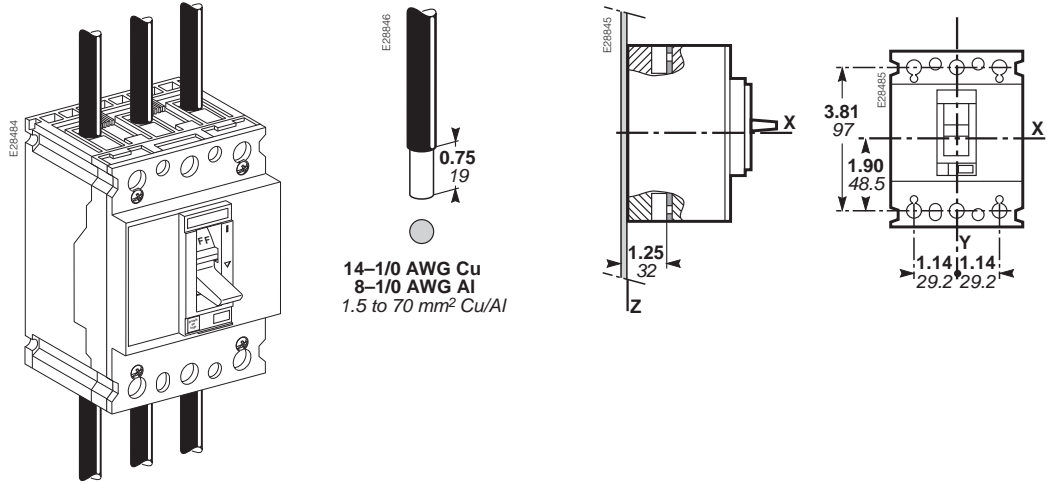


Dimensions: inch
mm

GJL Circuit Breaker and Motor Circuit Protector Connections

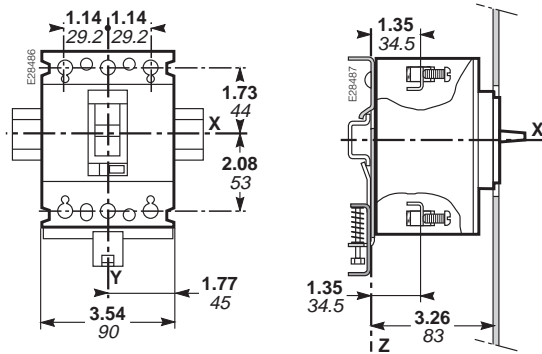
Connections

Front Connections



14-1/0 AWG Cu
8-1/0 AWG Al
1.5 to 70 mm² Cu/Al

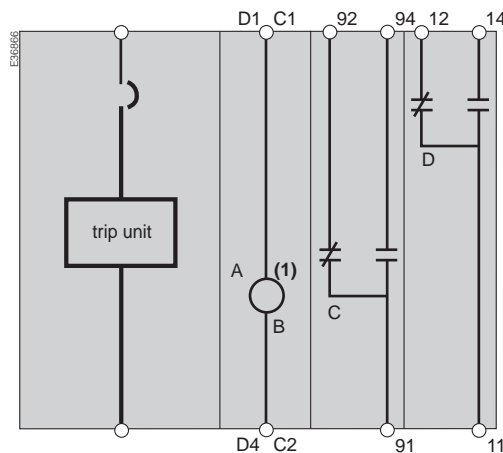
Mounting on DIN Rail



Dimensions: inch
mm

Wiring Diagrams

Auxiliary Switches, Shunt Trip and Undervoltage Trip



Symbols

- A. Undervoltage trip
- B. Shunt trip
- C. Alarm switch
- D. Auxiliary switch

Legend

(1) : Undervoltage or shunt trip

GJL Circuit Breaker and Motor Circuit Protector Trip Curves

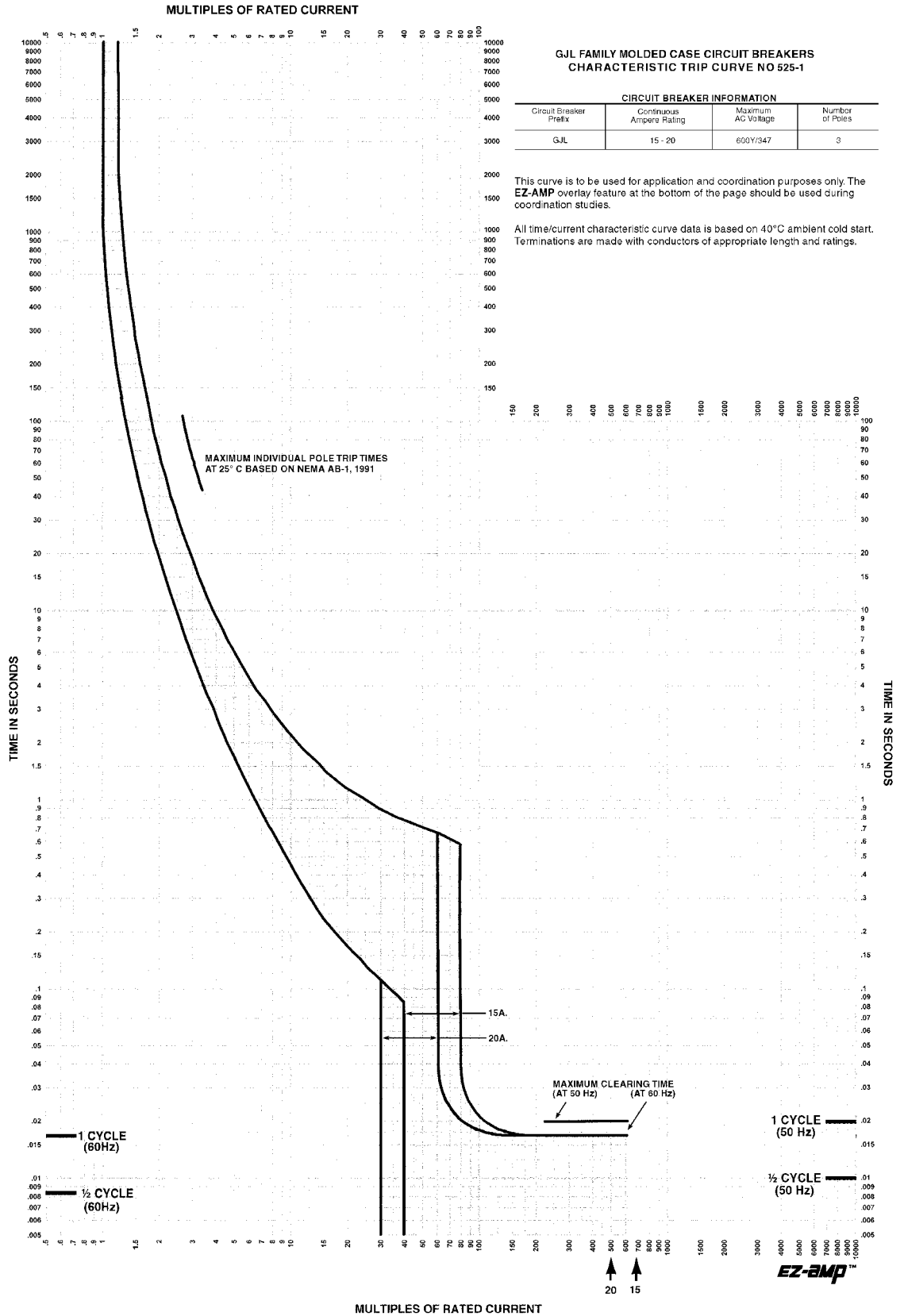
Trip Curves

Effect of High Temperatures

When the ambient temperature is greater than 40°C, overload protection characteristics are slightly modified. When determining tripping times using time/current curves, the Ir values corresponding to the thermal setting on the circuit breaker must be reduced using the coefficients below:

45°C	50°C	55°C	60°C	65°C	70°C
0.975	0.95	0.925	0.90	0.875	0.85

GJL Circuit Breaker and Motor Circuit Protector Trip Curves



**GJL FAMILY MOLDED CASE CIRCUIT BREAKERS
CHARACTERISTIC TRIP CURVE NO 525-1**

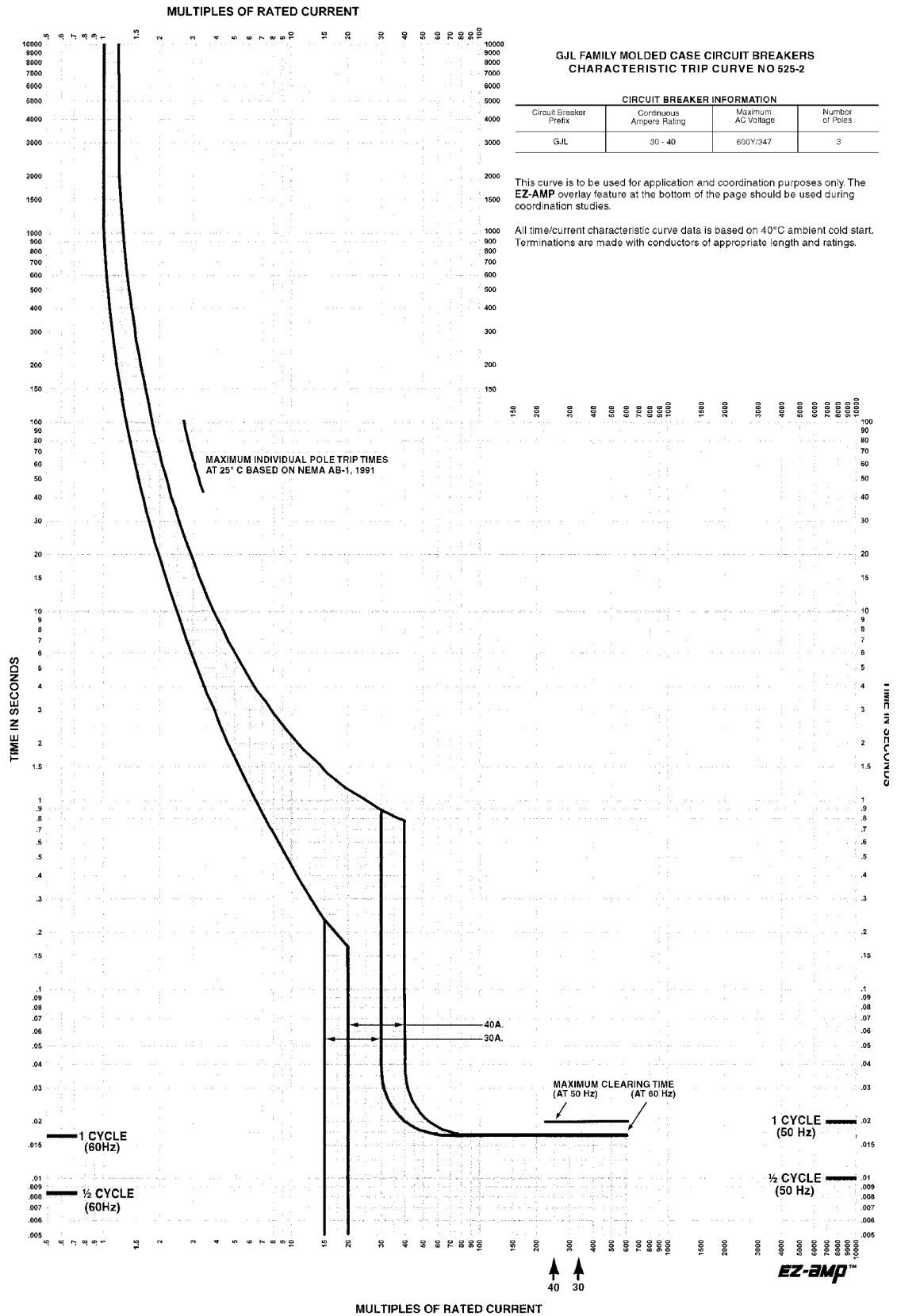
CIRCUIT BREAKER INFORMATION			
Circuit Breaker Prefix	Continuous Amperes Rating	Maximum AC Voltage	Number of Poles
GJL	15 - 20	600Y/347	3

This curve is to be used for application and coordination purposes only. The EZ-AMP overlay feature at the bottom of the page should be used during coordination studies.

All time/current characteristic curve data is based on 40°C ambient cold start. Terminations are made with conductors of appropriate length and ratings.

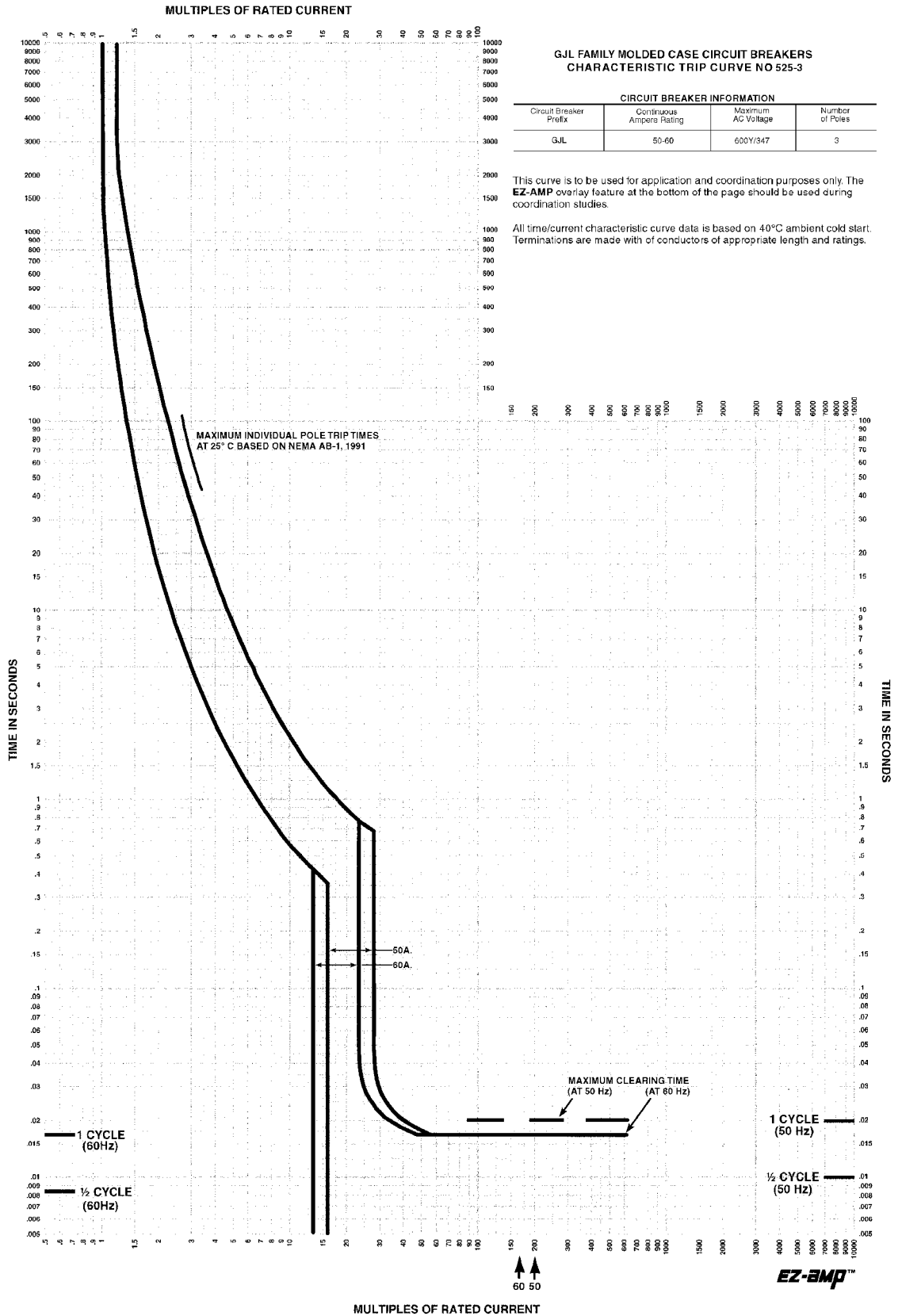
Curve No. 9552TC9701
Drawing No. Ref. MG 3CT028

GJL Circuit Breaker and Motor Circuit Protector Trip Curves

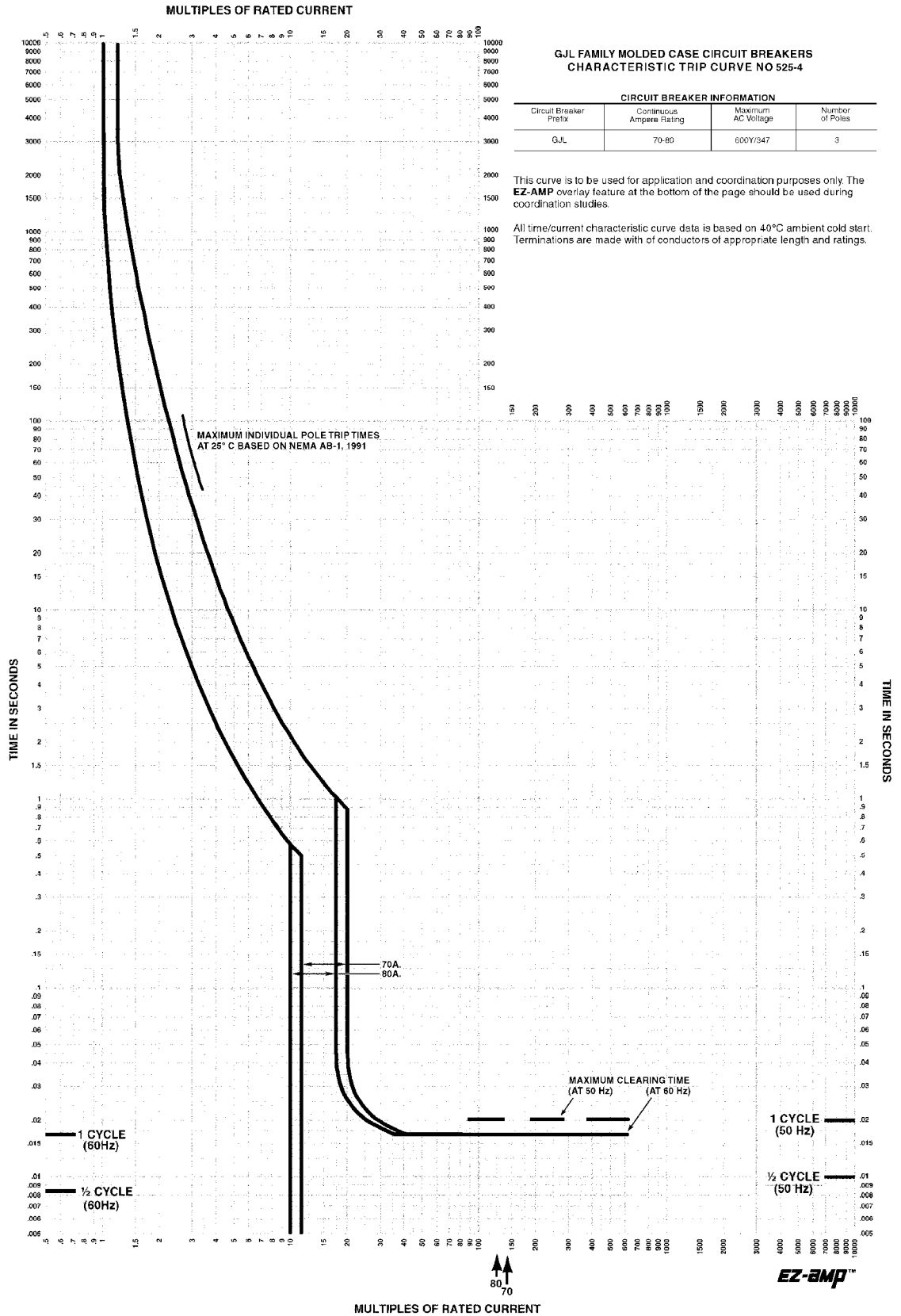


Curve No. 052ETC9702
Drawing No. Ref M3 3CT028

GJL Circuit Breaker and Motor Circuit Protector Trip Curves



GJL Circuit Breaker and Motor Circuit Protector Trip Curves



Curve No. 6525TC3704
Drawing No. 091 MGS 00-7029

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