

# ICL SERIES

## DIN Rail-Mount Hydraulic Magnetic Circuit Protectors

The ICL is designed specifically for 35mm DIN rail, Airpax ICL series Rail-Mount Magnetic circuit protectors offer the advantage of quick and easy mounting or removal which result in efficient and economical wiring, while conserving space.

These circuit protectors are available in 1,2,3 pole model with a choice of handle color with on/off and international I/O markings. These protectors comply with GB, TUV, UL and CSA standards. Typical applications include railway signal equipment, computers, telecom/datacom equipment, telecommunications, medical equipment, residential equipment, industrial equipment etc. They provide the reliable performance associated with magnetic circuit protection.

These circuit protectors are designed to mount on standard 35mm DIN rails, such as 35x7.5 or 35x15 DIN EN50022. Other specialty rails are available from suppliers that provide a means of mounting non DIN mount components by means of special captive jam nuts.



### Features

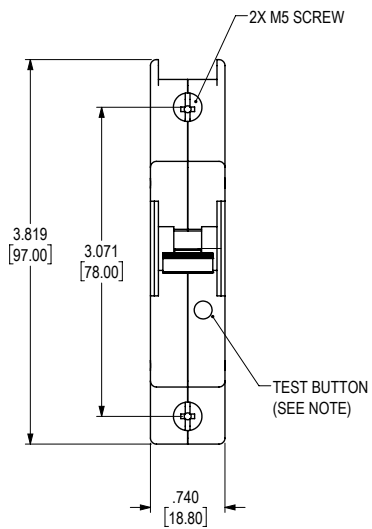
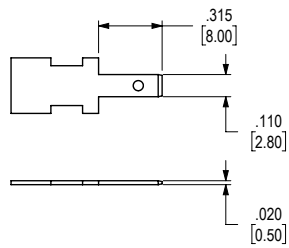
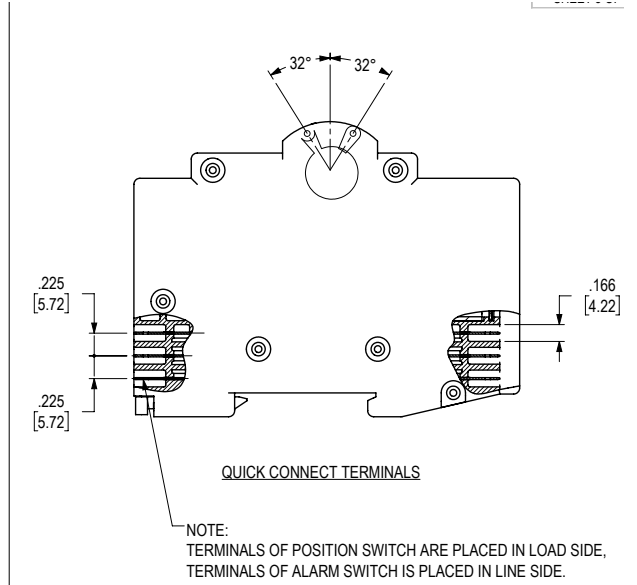
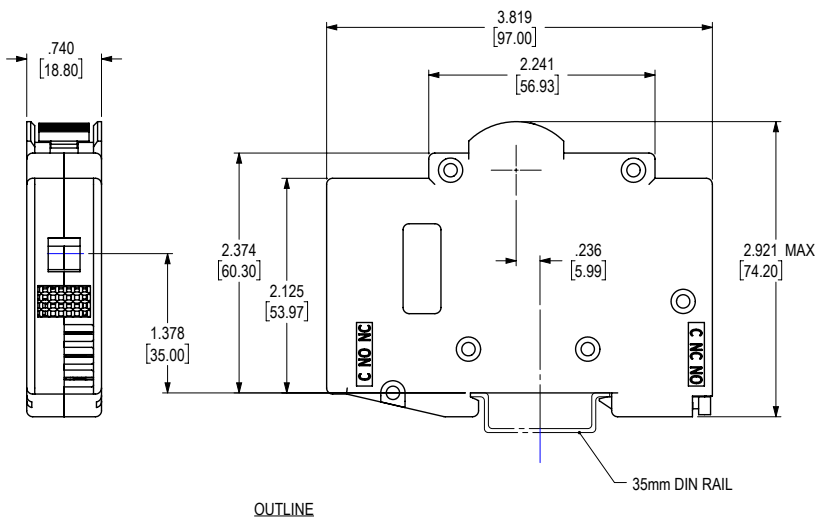
- Hydraulic-Magnetic technology
- Up to 3poles, 0.5amps to 63amps rated current at MAX 415VAC
- TUV and CCC approved, CE certified
- UL1077 recognized (supplementary protector)
- MAX 10,000AIC short circuit amperage rating
- Available in various current and time delays
- Precise trip characteristics
- Trip indication with mid-trip position
- Auxiliary and Alarm switches are available
- NFPA130, EN45545-2, BSS7239 Fire & Smoke

### SPECIFICATIONS

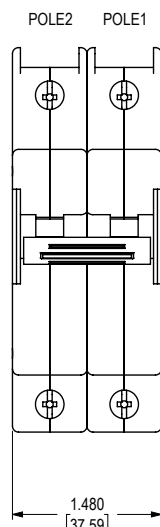
Type (Decision 1, SHT.2)	Poles	Hertz	Max (Volts)	Rated (Amps)	Short Circuits (Amps)	Agency
ICLR / ICLHR	1, 2	N/A	80DC	0.50 - 63.0	10,000	CCC (GB 14048.2) &TUV (IEC 60947-2) & CRCC
	1, 2	N/A	110DC	0.50 - 63.0	10,000	
	2	N/A	220DC	0.50 - 50.0	6,000	
	1, 2	50/60/400	240AC	0.50 - 63.0	6,000	
	1, 2	50/60/400	240AC	0.50 - 63.0	3,000	
	2	50/60/400	415AC	0.50 - 25.0	6,000	
	2,3	50/60/400	415AC	0.50 - 50.0	3,000	
	1, 2, 3	N/A	110DC	0.50 - 63.0	10000	UL 1077 &CSA*
1, 2, 3	50/60	240AC	0.50 - 63.0	6000		

\*Model ICLR/ICLHR are supplementary Protectors listed to CSA Std. C22.2 No. 235

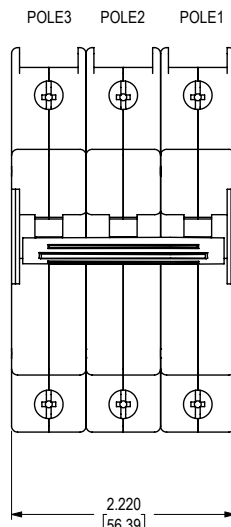
# DIMENSIONS



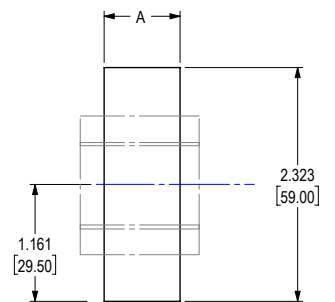
1 POLE



2 POLE

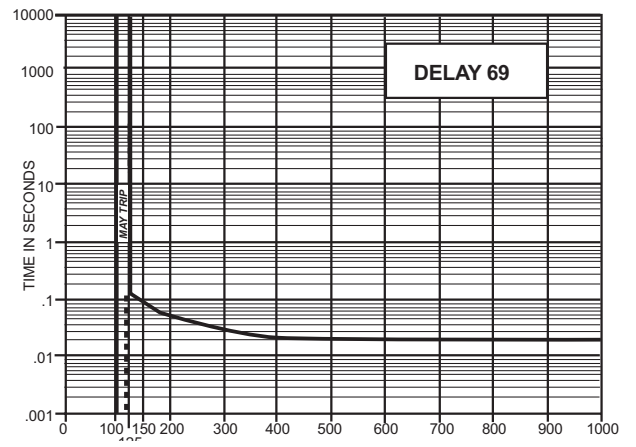
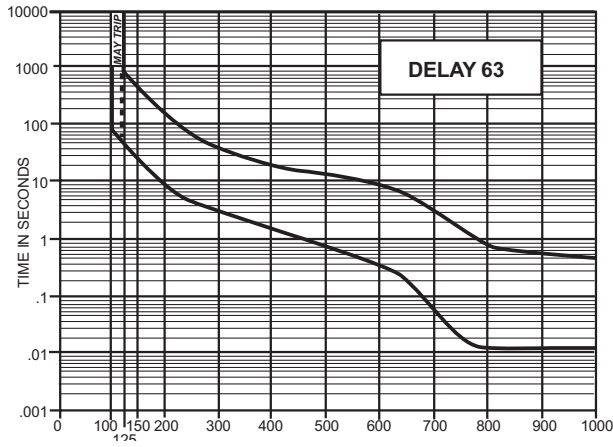
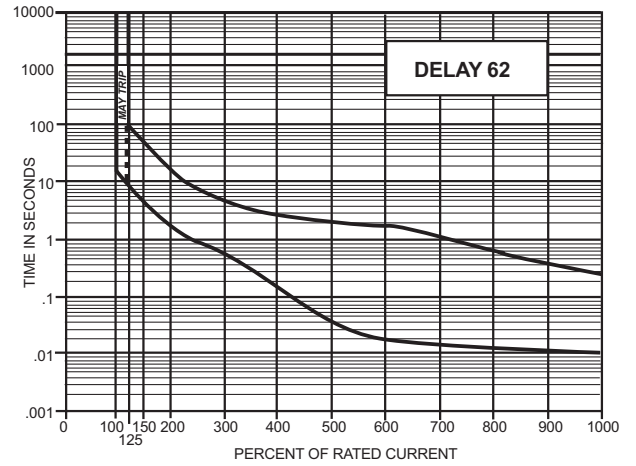
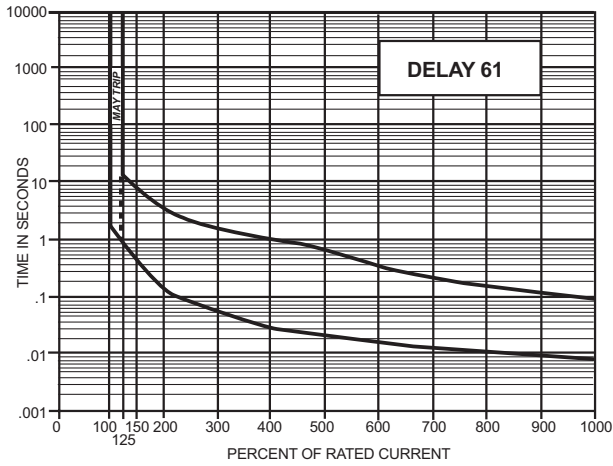


3 POLE

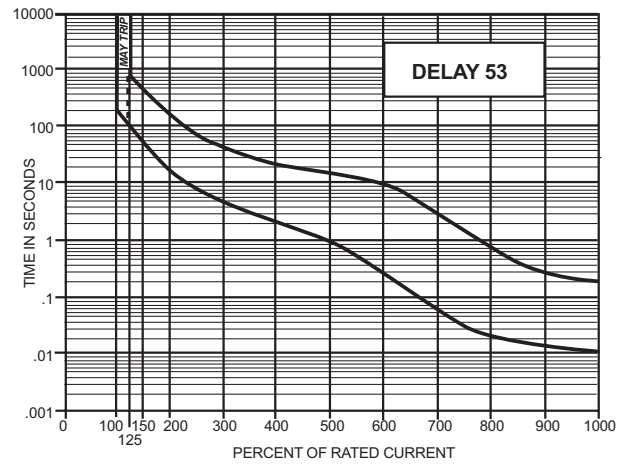
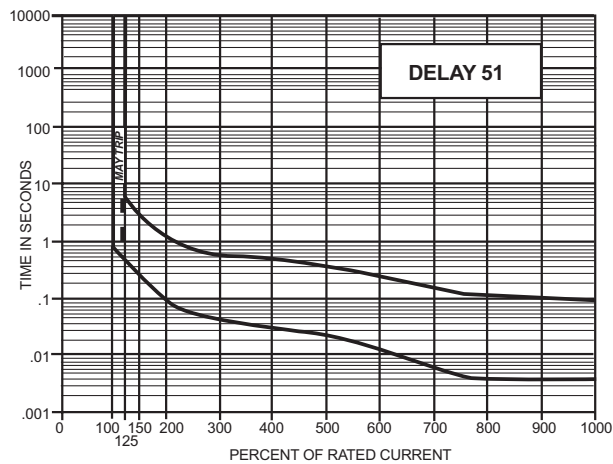


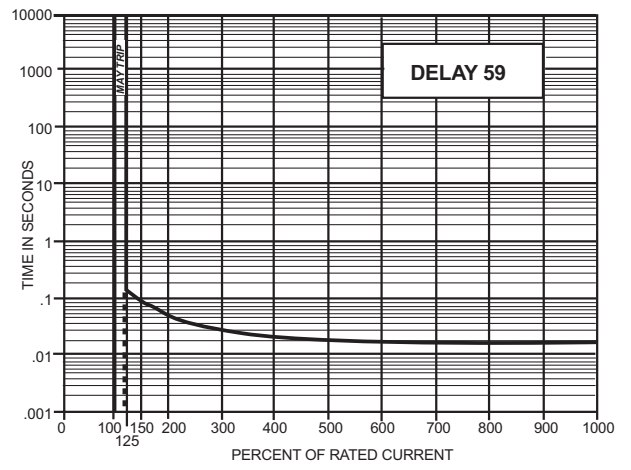
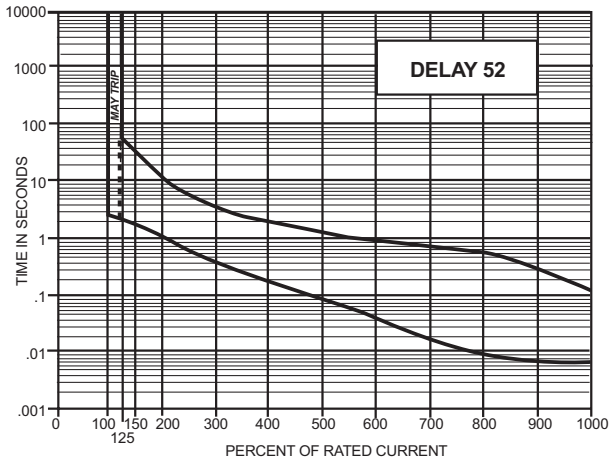
DIMENSION "A"	
1 POLE	0.755 [19.18] min
2 POLE	1.520 [38.61] min
3 POLE	2.270 [57.66] min

## AC DELAY CURVES

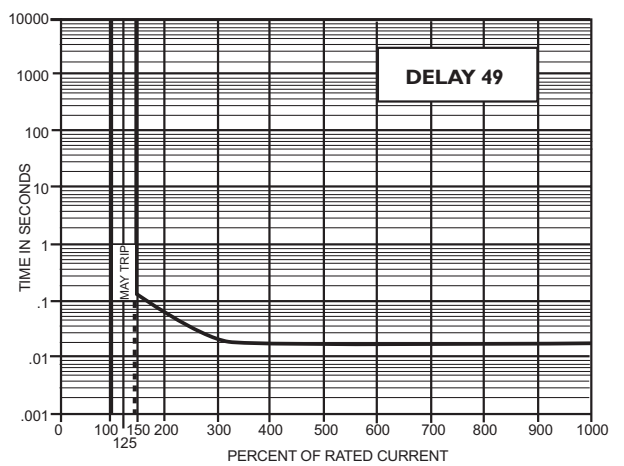
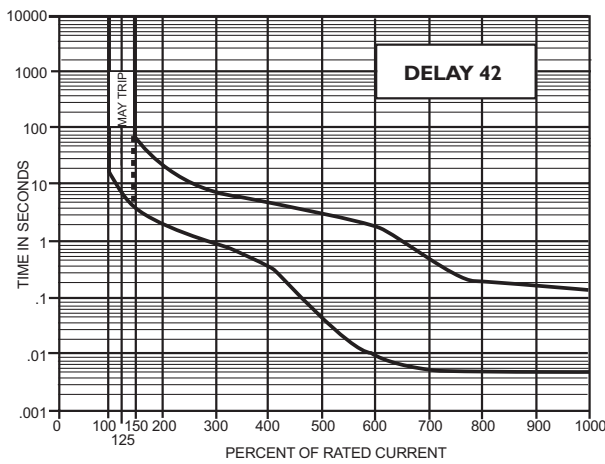
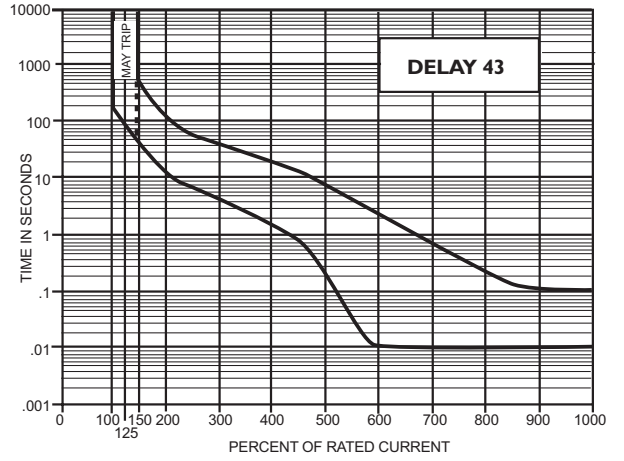
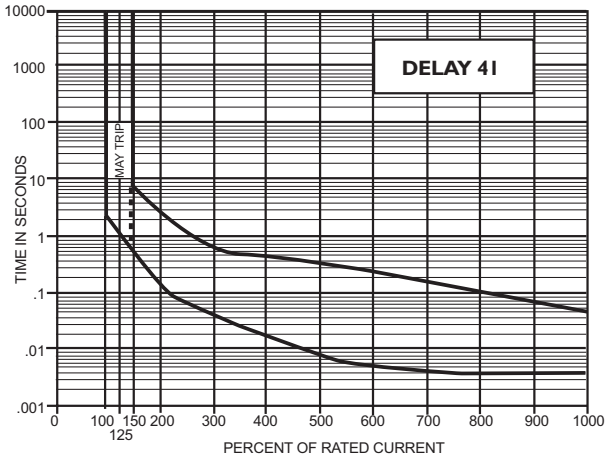


## DC DELAY CURVES

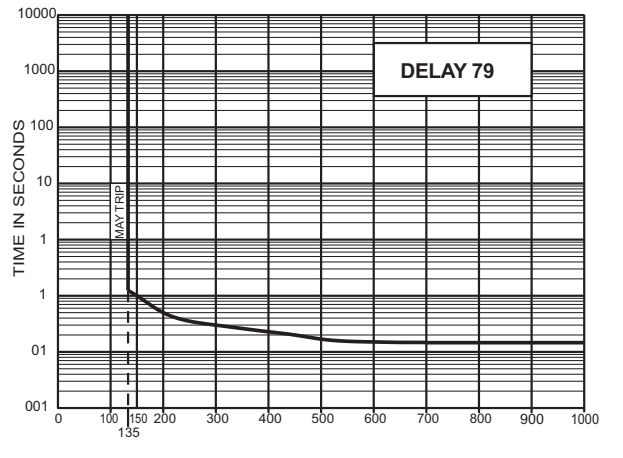
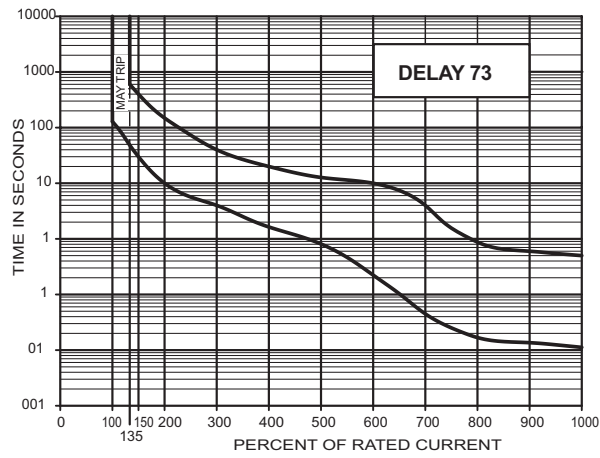
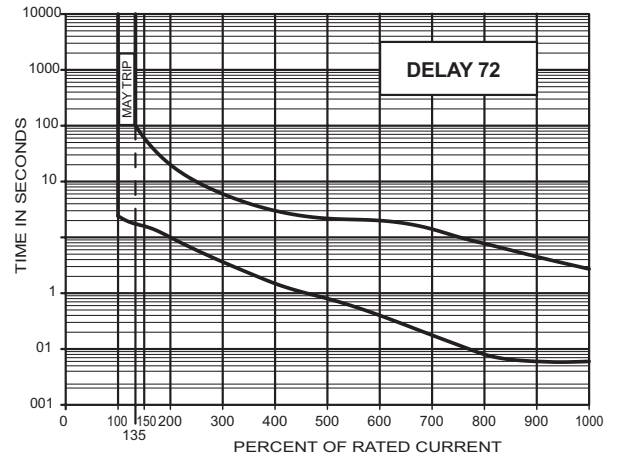
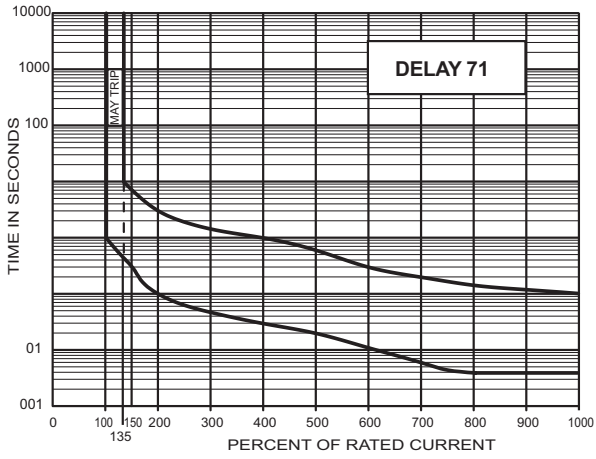




**400HZ DELAY CURVES**



# DC/50/60HZ DUAL-FREQUENCY DELAY CURVES



## PERCENTAGE OF RATED CURRENT VS. TRIP TIME IN SECONDS

% Overload - Trip Time in Seconds								
Delay	100%	125%	150%	200%	400%	600%	800%	1000%
41	NO TRIP	MAY TRIP	.5-8	.15-1.9	.02-.4	.006-.25	.004-.1	.004-.05
42	NO TRIP	MAY TRIP	5-70	2.2-25	.4-5	.012-.2	.006-.2	.006-.015
43	NO TRIP	MAY TRIP	35-350	12-120	1.5-20	.015-2.2	.01-.22	.01-.1
49	NO TRIP	MAY TRIP	.100 MAX.	.050 MAX.	.020 MAX.	.020 MAX.	.020 MAX.	.020 MAX.
51	NO TRIP	.5-6.5	.3-3	.1-1.2	.031-.5	.011-.25	.004-.1	.004-.08
52	NO TRIP	2-60	1.8-30	1-10	.15-2	.015-1	.008-.5	.006-.1
53	NO TRIP	80-700	40-400	15-150	2-20	.015-9	.015-.55	.012-.2
59	NO TRIP	.120 MAX.	.100 MAX.	.050 MAX.	.022 MAX.	.017 MAX	.017 MAX.	.017 MAX.
61	NO TRIP	.7-12	.35-7	.130-3	.030-1	.015-.3	.01-.15	.008-.1
62	NO TRIP	10-120	6-60	2-20	.2-3	.015-.8	.015-.8	.01-.25
63	NO TRIP	50-700	30-400	10-150	1.5-20	.013-.85	.013-.85	.013-.5
69	NO TRIP	.120 MAX	.100 MAX	.050 MAX.	.022 MAX.	.017 MAX.	.017 MAX.	.017 MAX.
71	NO TRIP	.44-10	.3-7	.1-3	.03-1	.012-.3	.004-.15	.004-.1
72	NO TRIP	1.8-100	1.7-600	1-20	.15-3	.015-2	.008-.79	.006-.28
73	NO TRIP	50-600	30-400	10-150	1.8-20	.015-10	.015-.88	.011-.5
79	NO TRIP	.120 MAX	.100 MAX	.050 MAX	.022 MAX	.016 MAX	.015 MAX	.015 MAX

## INRUSH PULSE TOLERANCE

Delay	Pulse Tolerance
61, 62, 63, 71, 72, 73	10X (approx.) Rated Current
61F, 62F, 63F, 71F, 72F, 73F	12X (approx.) Rated Current

## TYPICAL RESISTANCE / IMPEDANCE

Typical Breaker Resistance / Impedance Chart			
Current Rating (Amps)	DC Resistance (Ohms)	50/60 Hz Impedance (Ohms)	400 Hz Impedance (Ohms)
	51, 52, 53, 59	61, 62, 63, 64, 65, 66, 69	41, 42, 43, 49
.200	45.8	28.5	71.94
1.0	1.38	1.10	2.85
2.0	.371	.29	.76
5.0	.055	.051	.12
10.0	.017	.016	.032
20.0	.006	.006	.010
30.0	.003	.004	.006
50.0	.0019	.0018	.0019
63.0	.00157	.00134	

# ORDERING OPTIONS

ICLHR    11   -   -1   -   -61   -   10.0   -   E   -   -00   -   -C   -   RA

## Type

- ICLR** one handle per unit
- ICLHR** one handle per pole
- ICLMR** one handle per unit with midtrip function
- ICLMHR** one handle per pole with Mid-trip function

## Poles

- 1:** Single pole
- 11:** Two pole
- 111:** Three pole

## Signal

- 0:** Switch only
- 0A:** Switch only with position switch\*\*
- 1:** Series
- 1A:** Series with position switch
- 1B:** Series with alarm switch, mid-trip \*
- 1C:** Series with position & alarm switch, mid-trip \*
- 2:** Dual coil
- 3:** Shunt
- 4:** Relay
- 9:** No voltage

Note:

- \*1. "1b" & "1c" Are Not Applicable For Configuration Of 415vac Which Sixth Decision Is "G" Or "I".
- 2. One Or More Descriptions May Be Use As Required For Multi-Poles Product. For Example, -11a1b, -1a1b1.
- \*\* "0a" Only Tuv Certificates Are Available.

## Frequency & Delay

- SW:** Switch only
  - 41:** 400Hz short delay
  - 42:** 400Hz long delay
  - 43:** 400Hz motor start
  - 49:** 400Hz 150% instant trip
  - 51:** DC short delay
  - 52:** DC long delay
  - 53:** DC motor start
  - 59:** DC 125% instant trip
  - 61:** 50/60Hz short delay
  - 62:** 50/60Hz long delay
  - 63:** 50/60Hz motor start
  - 69:** 50/60Hz 125% instant trip
  - 71:** DC/60Hz short delay
  - 72:** DC/60Hz long delay
  - 73:** DC/60Hz motor start
  - 79:** DC/60 Hz 135% instant trip
- For inertial delay, add an "f" to any delay.

Note:

- 1. Delay 41 to 49 & delay 71 to 79 are not applicable for ul approved product
- 2. TUV has no "F" follow to delays

## Rated Current (AMPS)

Use three numbers to print required value (see ratings table on sheet 1 for amp range, according to max. Volts and agency.)

## Circuit Breaker Module Configuration

- B: 80VDC 10KA NOTE:
- C: 110VDC 10KA
- D: 240VAC, Icu:3KA
- E: 240VAC, Icu:6KA
- F: 220VDC, 2 POLE 6KA
- G: 415VAC, 2 POLE (SEE NOTE 2) 6KA
- H: COVER VENTING TYPE
- I: 415VAC 3 Phase 3ka (No Mid Trip)
- K: Terminal Block For Aux. Switch
- L: 35 Sqmm Wiring Box
- T: Test Button

1. One Or More Descriptions May Be Used As Required. Could Be B, C, D, E, F, G, I Followed By Groups Of H, K, L & T
2. Decision "G" Is For 415vac, 2 Poles To Be Connected In Series.

## Handle Color

- 00: Black Handle
- 10: Yellow Handle
- 20: Red Handle
- 30: Blue Handle
- 40: Green Handle
- 50: Gray Handle
- 60: Orange Handle
- 90: White Handle

## Agency Approvals

- C: CCC
- R: CRCC
- U: UL
- T: TUV
- A: CSA
- N: NO AGENCY

## Remote Control Module Configuration

RA: ROCB  
POWER: 110VDC  
CONTROL: 110VDC PULSE  
SIGNAL: 110VDC  
FUNCTION: A TYPE

## AGENCY CERTIFICATIONS & APPROVALS

Agency Certification	Rated Amperage	Maximum Voltage	Short Circuit Amperage
UL 489	2 to 20 amps	240 VAC, 50/60 Hz	5000
TÜV (EN60947-2)	2 to 20 amps	240 VAC, 50/60 Hz	5000





**RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE**

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions can result in death or serious injury.**

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