

Datasheet

QY Series Hydraulic-Magnetic Miniature Circuit Breakers



Dual mount 1 Pole



DIN mount 1 Pole



DIN mount 2 Pole



DIN mount 4 Pole + Auxiliary

Features

- DC Circuit Breaker
- Hydraulic-Magnetic Technology
- 100% Rating Capability Independent of Ambient Temperature
- Up to Two Poles (Four Poles Parallel)
- VDE, CE and CCC approved
- UL Listed (UL 489A)
- Ratings up to 200A
- Optional Auxiliary / Trip Alarm Switch - Factory Fitted
- Optional Shunt Trip
- Wide Range of Time Delays and Operating Currents
- Precision Tripping
- Ultra Compact – 13mm Width Module
- Trip Indication with Mid-Trip Handle
- Reset Immediately After Overload

Applications

- DC branch circuit protection
- Telecommunication equipment
- UPS equipment
- Alternative energy equipment
- Battery protection & switching
- Telecommunication DC power distribution

Approvals



IEC EX

Technical Data

Approval	IEC / EN 60947-2						
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 Vdc		250 Vdc
Minimum Current Rating	0.1A	0.1A	30A	30A	110A	200A	0.1A
Maximum Current Rating	63A	50A	100A	100A	150A	200A	50A
Ultimate S/C Breaking Capacity (Icu)	10 kA						

Approval	UL 489A							
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series	4 series
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80/125 Vdc	80 Vdc	250 Vdc	600 Vdc
Minimum Current Rating	0.1A	0.1A	30A	20A	110A	200A	0.1A	0.1A
Maximum Current Rating	63A	50A	100A	100A	150A	200A	50A	20A
Ampere Interrupting Capacity (AIC)	10 kA							

Product Type	QY
Ambient Operating Temperature	-40°C to +85°C
Mounting Options	Dual mounting (DIN & mini), Surface mounting clip
Time Delay Curves	1,9, U2, U3, OP
Endurance	10000 operations - 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)* Minimum of 1000 operations with current (UL 489A Clause 12)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8)*
Rated Impulsive Withstand Voltage	4 kV (IEC 6097-2 Clause 8.3.3.2)*
Weight	102 g per pole, 160 g with auxiliary (unpacked)
Altitude	Certification tests done at altitude = 2000 meters. Will operate at higher altitudes
Shock	16 G (IEC 60068-2-27)
Vibration	2 G (IEC 60068-2-6) (sinusoidal wave)
Flammability	I3 - ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

Circuit Breaker	Wire Size mm ² (IEC)	Wire Gauge (UL)	Torque (IEC)	Torque (UL)	Comments
1 Pole & 2 Pole	0.75 - 25 mm ²	18 - 2 - AWG	2.5 Nm	20 in-lb	Pozidriv #2 Combi head
2 Pole Parallel	50 mm ²	14 - 1/0 - AWG	3.2 Nm	28 in-lb	Bridge terminal
3 Pole Parallel	95 mm ²	14 - 5/0 - AWG	5.6 Nm	50 in-lb	Bridge terminal

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QY-Series Miniature Circuit Breakers

Long Code

Example Code: QY-3-13-D-U2-150.0-B0

Group	1	2	3	4	5	6	7	8
Requirement	QY Frame	Auxiliary	Triple pole	13 mm module width	DIN Rail	Medium delay curve U2	Current rating 150 A	Voltage 80 Vdc
Long Code	QY	A	3	13	D	U2	150.0	B0
Group 1: Frame Type	Code	Description			Comments			
	QY	Miniature Circuit Breaker			UL 489A, IEC / EN 60947-2, GB 14048.2			
Group 2: Auxiliary	Code	Description			Comments			
	–	Not applicable			if auxiliary is not required			
	A	Auxiliary switch 1 x Aux in 1 module)			6.5 mm module fitted on right-hand side (DIN & Dual mount)			
	T	Trip alarm (1 xx Trip alarm in 1 module)			6.5 mm module fitted on right-hand side (Dual mount)			
	AT	Auxiliary switch + trip alarm combo (combined in 1 module)			6.5 mm module fitted on right-hand side (Dual mount)			
Group 3: No. of Poles	Code	Description			Comments			
	1	Single pole						
	2	Double pole						
	3	Triple pole						
Group 4: Module Width	Code	Description			Comments			
	13	13 mm module width			13 mm			
Group 5: Mounting	Code	Description			Comments			
	D	DIN rail mount			DIN mount supplied in grey only - 45 mm escutcheon, grey body			
	DM	Dual mount			Dual mount supplied in black only - 57 mm escutcheon, black body			
Group 6: Time Delays	Code	Description			Instantaneous Trip Point (x In)		Comments	
	1	Long time relay, high instantaneous trip			10 - 20		Orange handle	
	9	Long time delay			7 - 12		White handle	
	U2	Medium time delay			5 - 10		White handle	
	U3	Short time delay			3 - 5		White handle	
	OP	Instantaneous			None		White handle	
Group 7: Current Ratings	Code / Description			Comments				
	0.1, 0.2, 0.3, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25, 30, 32, 35, 40, 45, 50, 60, 63, 70, 80, 90, 100, 120, 125, 150, 200 A			Ratings available vary depending on certification, bridging configuration and voltage. *Other ratings are available as special orders.				
Group 8: Voltage (see diagram on pg 7)	Code	Voltage	Description		Comments			
	B0	80 Vdc	Not polarity sensitive					
	B1	125 Vdc	Polarity sensitive. Positive bottom.					
	B2	250 Vdc	Polarized. Positive bottom		Two poles intended to be bridged in series from the Top of (Pole 1) to the bottom of (Pole 2), bridging to be done by customer			
	B3	250 Vdc	Polarized. Positive bottom / Positive top		Factory bridged at the top			
	B4	600 Vdc	Polarized. Positive bottom / Positive top / Positive bottom / Positive top		Factory bridged top / bottom / top			
	T1	125 Vdc	Polarized. Positive top					
	T2	250 Vdc	Polarized. Positive top		Two poles intended to be bridged in series from the bottom of (Pole 1) to top of (Pole 2) – bridging to be done by customer			
	T3	250 Vdc	Polarized. Positive top / Positive bottom		Factory bridged at the bottom			
	T4	600 Vdc	Polarized. Positive top / Positive bottom / Positive top / Positive bottom		Factory bridged bottom / top / bottom			
	B1 - T1	125 Vdc	Polarity sensitive		1 Pole Positive bottom / 2 Pole positive top			
	T3 - B3	250 Vdc	Polarity sensitive		1 & 2 Pole Bottom bridged / 3 & 4 Pole top bridged in series			

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QY-Series Miniature Circuit Breakers

QY Series Single Pole (up to 80 VDC)



Type: Single Pole (up to 80 VDC)		
Current Ratings (amps)	Description	Order Number
0.5	QY-1-13-DM-U2-0.5	7940102623
1	QY-1-13-DM-U2-1.0	7940102624
2	QY-1-13-DM-U2-2.0	7940102625
3	QY-1-13-DM-U2-3.0	7940102626
4	QY-1-13-DM-U2-4.0	7940102627
5	QY-1-13-DM-U2-5.0	7940102628
6	QY-1-13-DM-U2-6.0	7940102629
7	QY-1-13-DM-U2-7.0	7940102630
8	QY-1-13-DM-U2-8.0	7940102631
10	QY-1-13-DM-U2-10.0	9926251910
15	QY-1-13-DM-U2-15.0	9926251915
20	QY-1-13-DM-U2-20.0	9926251920
25	QY-1-13-DM-U2-25.0	7940102635
30	QY-1-13-DM-U2-30.0	7940102636
35	QY-1-13-DM-U2-35.0	7940102637
40	QY-1-13-DM-U2-40.0	7940102638
45	QY-1-13-DM-U2-45.0	7940102639
50	QY-1-13-DM-U2-50.0	7940102640
60	QY-1-13-DM-U2-60.0	9926251960

QY Single Pole Positive Bottom (up to 125 VDC)



Type: Single Pole (up to 125 VDC)		
Current Ratings (amps)	Description	Order Number
1	QY-1-13-DM-U2-1.0-B1	7940102609
2	QY-1-13-DM-U2-2.0-B1	9926251802
3	QY-1-13-DM-U2-3.0-B1	7940102611
4	QY-1-13-DM-U2-4.0-B1	7940102612
5	QY-1-13-DM-U2-5.0-B1	7940102613
6	QY-1-13-DM-U2-6.0-B1	7940116300
10	QY-1-13-DM-U2-10.0-B1	7940102615
15	QY-1-13-DM-U2-15.0-B1	9926251815
20	QY-1-13-DM-U2-20.0-B1	7940102617
25	QY-1-13-DM-U2-25.0-B1	7940102618
30	QY-1-13-DM-U2-30.0-B1	7940102619
35	QY-1-13-DM-U2-35.0-B1	7940112672
40	QY-1-13-DM-U2-40.0-B1	7940102620
50	QY-1-13-DM-U2-50.0-B1	7940102621
60	QY-1-13-DM-U2-60.0-B1	7940102622

QY Series Double Pole (125 VDC)



Type: Double Pole (125 VDC)		
Current Ratings (amps)	Description	Order Number
0.5	QY-2-13-DM-U2-0.5	7940109143
1	QY-2-13-DM-U2-1.0	7940109144
2	QY-2-13-DM-U2-2.0	7940109145
3	QY-2-13-DM-U2-3.0	7940109146
5	QY-2-13-DM-U2-4.0	7940109147
5	QY-2-13-DM-U2-5.0	7940102685
10	QY-2-13-DM-U2-10.0	7940102686
15	QY-2-13-DM-U2-15.0	7940126751
20	QY-2-13-DM-U2-20.0	7940126752
25	QY-2-13-DM-U2-25.0	7940109148
30	QY-2-13-DM-U2-30.0	7940126753
35	QY-2-13-DM-U2-35.0	7940109149
40	QY-2-13-DM-U2-40.0	7940115443
45	QY-2-13-DM-U2-45.0	7940109150
50	QY-2-13-DM-U2-50.0	7940109151
60	QY-2-13-DM-U2-60.0	7940109152

QY Series Single Pole w/ Auxiliary Contact (up to 80 VDC)



Type: Single Pole (up to 80 VDC)		
Current Ratings (amps)	Description	Order Number
0.5	QY-A-1-13-DM-U2-0.5	7940102717
1	QY-A-1-13-DM-U2-1.0	7940102718
2	QY-A-1-13-DM-U2-2.0	7940102719
3	QY-A-1-13-DM-U2-3.0	7940102720
4	QY-A-1-13-DM-U2-4.0	7940102721
5	QY-A-1-13-DM-U2-5.0	7940102722
6	QY-A-1-13-DM-U2-6.0	7940115105
8	QY-A-1-13-DM-U2-8.0	7940104413
9	QY-A-1-13-DM-U2-9.0	7940115104

QY Series Single Pole Long Time Relay (up to 80 VDC)



Type: Single Pole (up to 80 VDC)		
Current Ratings (amps)	Description	Order Number
1	QY-1-13-DM-1-1.0	7940112648
2	QY-1-13-DM-1-2.0	7940112649
3	QY-1-13-DM-1-3.0	7940115098
4	QY-1-13-DM-1-4.0	7940112650
5	QY-1-13-DM-1-5.0	7940112651
7	QY-1-13-DM-1-7.0	7940115097
25	QY-1-13-DM-1-25.0	7940112652

QY Series Double Pole Positive Bottom (125 VDC)



Type: Double Pole (125 VDC)		
Current Ratings (amps)	Description	Order Number
5	QY-2-13-DM-U2-5.0-B1	7940102677
10	QY-2-13-DM-U2-10.0-B1	7940102678
15	QY-2-13-DM-U2-15.0-B1	7940102679
20	QY-2-13-DM-U2-20.0-B1	7940126750
30	QY-2-13-DM-U2-30.0-B1	7940102681
32	QY-2-13-DM-U2-32.0-B1	7940102682

QY Series Single Pole Instant Trip (up to 80 VDC)



Type: Single Pole (up to 80 VDC)		
Current Ratings (amps)	Description	Order Number
1	QY-1-13-DM-OP-1.0	7940114110
2	QY-1-13-DM-OP-2.0	7940102606
3	QY-1-13-DM-OP-3.0	7940112396
5	QY-1-13-DM-OP-5.0	7940112397
6	QY-1-13-DM-OP-6.0	7940102607
10	QY-1-13-DM-OP-10.0	7940114112
20	QY-1-13-DM-OP-20.0	7940102608

Mounting Options

If the product is not vertically mounted in the normal DIN-rail mounting orientation, a rating factor must be applied. Figure 1 shows a diagram of the rating factor to apply. The published curves for these circuit breaker products are produced with the circuit breaker in the vertical mounting position. The rating factor only applies to the must hold and must trip points of the curve as the other parts (instantaneous trip point) stay largely unaffected.

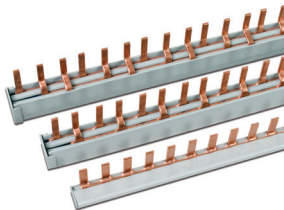
It is important to note that in environments that are exposed to a high degree of vibration, the cables that connect to the circuit breaker must be securely held in place, as the breaker is not designed to carry the weight of the cables. A maximum of 35N can be applied to the terminal area, in a direction perpendicular to the mounting axis.

Optional Accessories

- Auxiliary Switch
- Auxiliary Switch + Trip Alarm
- Trip Alarm
- Handle Lock
- Surface Mounting Clips
- Busbar

Busbar

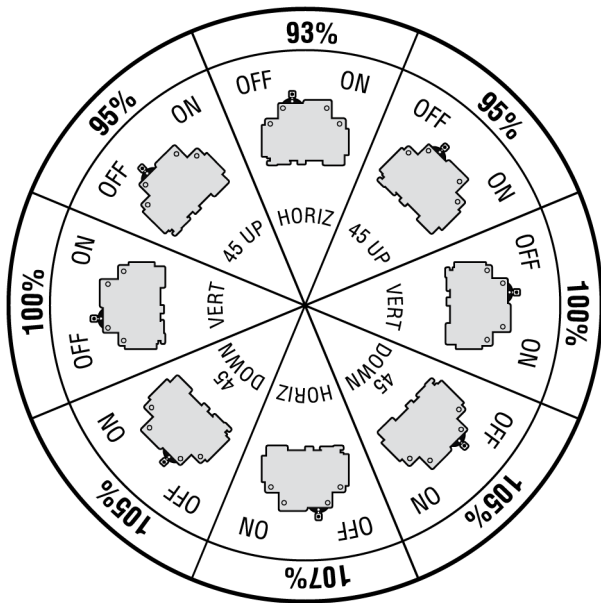
Type	
Busbar (1 pole, insulated, 1 meter)	7940099731
Busbar end cap, 1 pole	7940099740
Bus - bar (2 pole, insulated, 1 meter)	7940099739
Bus - bar end cap, 2 pole	7940099741



Type	
Power lug, 90° (14mm)	7940099737
Power lug, straight (32 mm)	7940099746



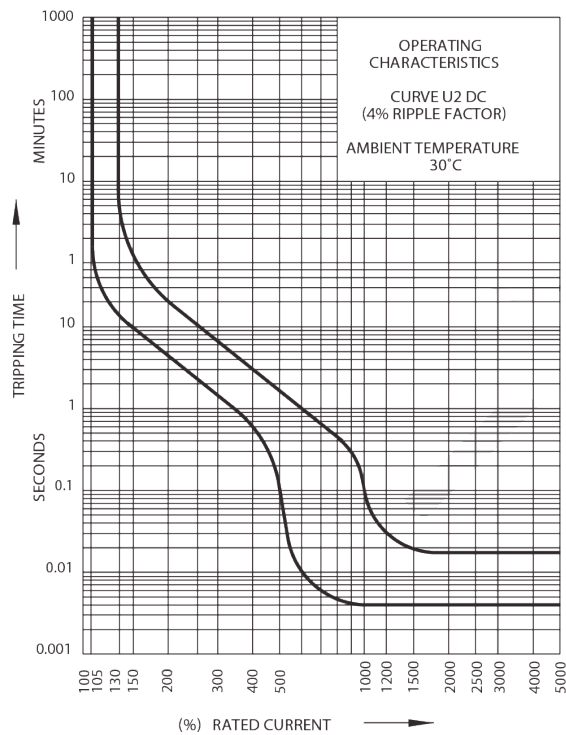
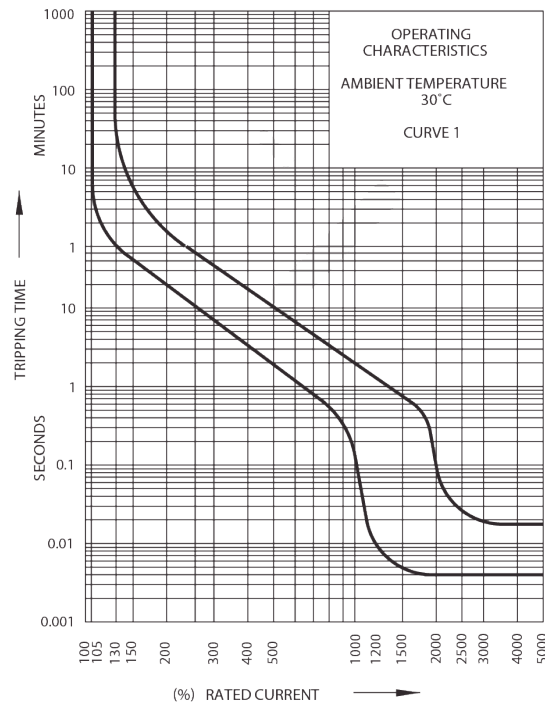
Type	
Lock-out handle	7940099734



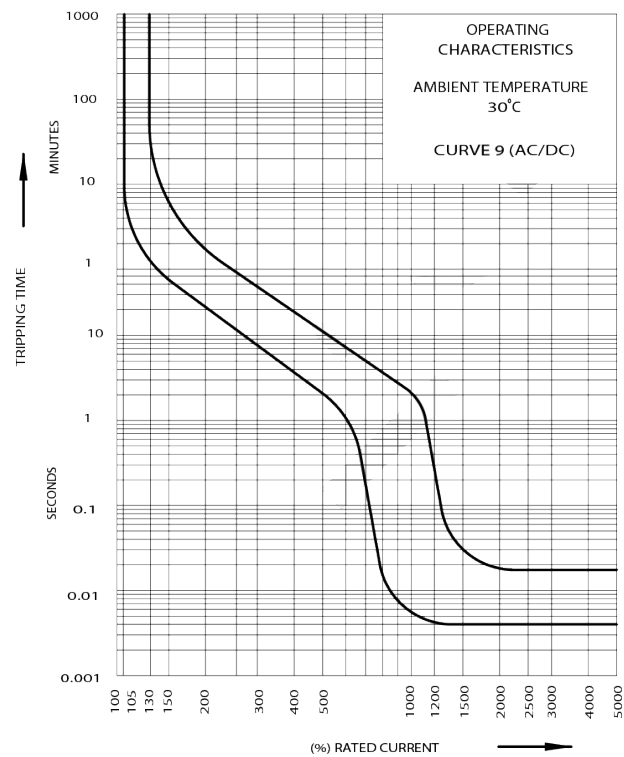
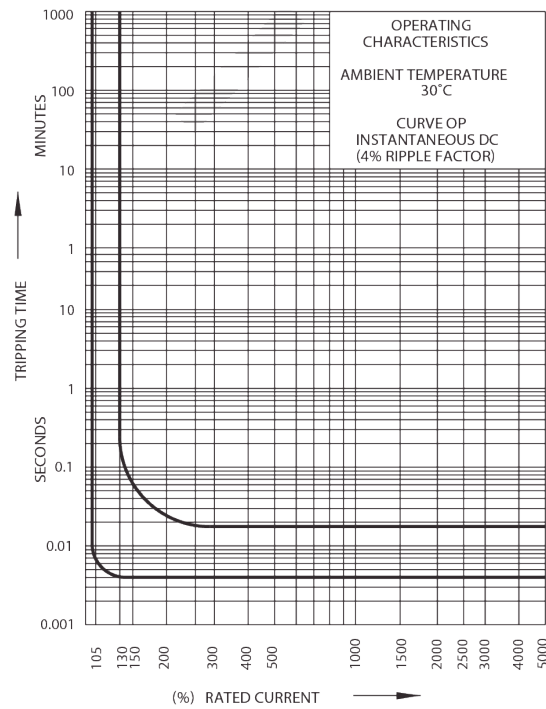
Auxiliary Switch, Trip Alarm & Combo Features

- AC or DC Voltages
- UL 489 Listed (Auxiliary switch: 6A 250V AC, 0.5A 80V DC; Trip alarm: 5A 250V AC, 0.5A 125V DC)
- IEC 60947-5-1 Approved (Auxiliary switch: 6A 250V AC, 0.5A 80V DC; Trip alarm: 5A 250V AC, 0.5A 125V DC)
- Factory Fitted
- Attached to Right Hand Side of Circuit Breaker
- Compact 6.5mm Width
- Available in Dual and DIN Rail Mounting

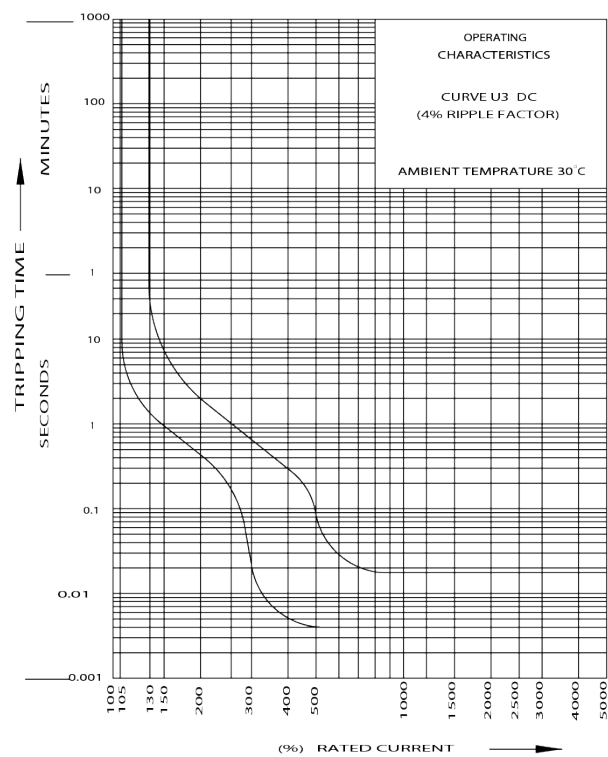
Standard Time Delay Curves



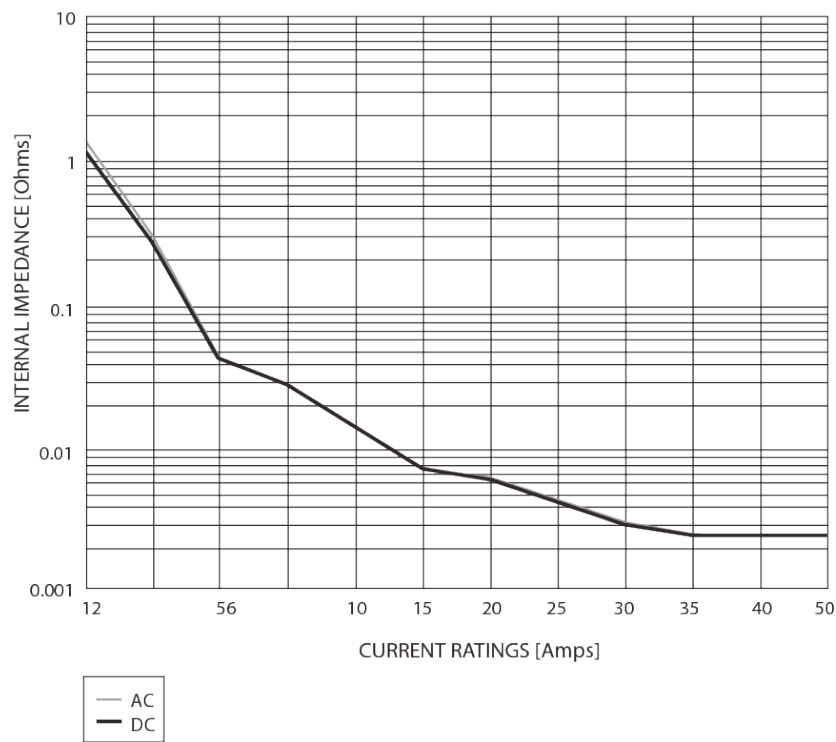
Standard Time Delay Curves



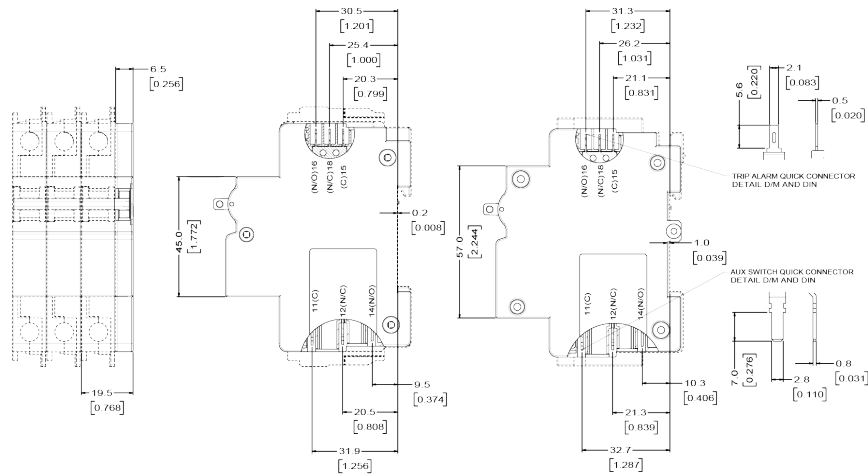
Standard Time Delay Curves



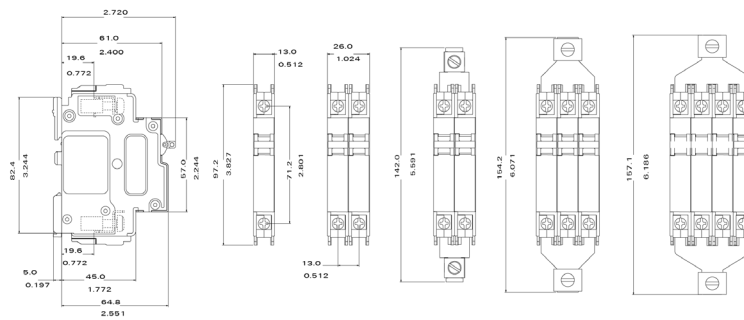
Internal Impedance vs Current Rating



Auxiliary Outline Dimensions: DIN and Dual Mount



Outline Dimensions: Dual mount



Outline Dimensions: DIN mount

