

QY - Series Miniature Circuit Breakers



DIN Mount
1 pole



Dual Mount
2 pole



DIN Mount
3 pole



Dual Mount
4 + N

Features

- DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- VDE, EAC and CCC approved, CE certified
- UL listed (UL 489A)
- Ratings 0.1 to 63 A (1 & 2 pole), 3 pole parallel (150 A maximum), 4 pole parallel (200 A maximum)
- Optional shunt trip (approvals pending)
- Wide range of time delays and operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip handle
- Reset immediately after overload
- DIN mount product in grey shells
- Dual mount product in black shells
- 80V DC devices are reverse feedable
- 125 / 250 / 600V DC devices are polarity sensitive
- Suitable to use for electrical isolation

Auxiliary Switch, Trip Alarm & Combo: Features

- Auxiliary switch (DIN and Dual Mount)
- Auxiliary switch + trip alarm (Dual Mount only)
- Trip alarm (Dual Mount only)
- AC and DC voltages
- UL 489 listed (Auxiliary Switch: 6 A 250V AC, 0.5 A 80V DC)
- IEC 60947-5-1 approved (auxiliary switch: 6 A 240V AC, 0.5 A 110V DC; trip alarm: 6 A 240V AC, 0.5 A 110V DC)
- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width

Applications

- DC branch circuit protection (UL 489A, IEC / EN 60947-2)
- Telecom / datacom equipment
- UPS equipment
- Alternative energy equipment
- Battery protection & switching
- Telecommunication DC power distribution
- Railway signalling equipment

Optional Accessories

- Handle lock
- Surface mounting clips
- Busbar
- 57 mm escutcheon blank (Dual Mount only)
- 57 mm safety blank (Dual Mount only)

Approvals



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Technical Data

Approvals	IEC / EN 60947-2, VDE							
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series	1 pole plug-in
Operating Voltages	80V DC, 125V DC		80V DC	125V DC	80V DC		250V DC	80V DC
Minimum Current Rating	0.1 A	0.1 A	60 A	30 A	110 A	200 A	0.1 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	200 A	50 A	50 A
Interrupting Capacity	10 kA							

Approvals	UL 489A								
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series	4 series	1 pole plug-in
Operating Voltages	80V DC, 125V DC		80V DC	125V DC	80 / 125 V DC	80V DC	250V DC	600V DC	80V DC
Minimum Current Rating	0.1 A	0.1 A	30 A	20 A	110 A	200 A	0.1 A	0.1 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	200 A	50 A	20 A	50 A
Interrupting Capacity	10 kA								

Approvals	CCC					
Number of Poles	1	2	2 parallel	3 parallel	4 parallel	1 pole plug-in
Operating Voltages	80V DC					
Minimum Current Rating	0.1 A	0.1 A	30 A	110 A	200 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	150 A	200 A	50 A
Interrupting Capacity	10 kA					

Product Type	QY
Operating Temperature Range	-40 °C to +85 °C
Mounting Options	Dual mounting (DIN & Mini), surface mounting clip, plug-in terminal
Time Delay Curves	1, 9, U2, U3, OP
Endurance	10000 operations - 1500 electrical at rated current and voltage (IEC 60947-2) 1000 electrical operations (UL 489A)
Dielectric Strength	1480V (single pole) / 1830V (multi pole), 50 Hz for one minute after testing
Weight	102 g per pole, 160 g with auxiliary (unpacked)
Humidity	35 to 85% relative
Altitude	Certification tests done at altitude ≈ 2000 metres. 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.

Breaker QY	Wire Size mm ² (IEC)	Wire Gauge (UL)	Torque (IEC)	Torque (UL)	Comments
1 Pole & 2 Pole	0.75 - 35 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
4 Pole Parallel	95 mm ²	14 - 5/0 - AWG	5.6 Nm	50 in-lb	Bridge Terminal

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Long Code

Example Code: **QY--A-3(13)-D-U2-150A-B0---Z**

Group	1	2	3	4	5	6	7	8	9	10	11	12
Requirement	QY Frame	Switch / Neutral	Auxiliary	Triple pole	13 mm module width	DIN Rail	Medium delay curve U2	Current Rating 150 A	Voltage 80V DC	No Shunt Trip	Future use	Parallel bridged (by customer)
Long Code	QY	-	A	3	(13)	D	U2	150A	B0	-	-	Z

Group 1: Frame Type	Code	Description	Comments		
	QY	13 mm wide Miniature Circuit Breaker	UL 489A, IEC / EN 60947-2, VDE, CE, CCC		
Group 2: Switch/Neutral	Code	Description	Comments		
	-	Not applicable	Overload poles do not have any further coding		
Group 3: Auxiliary	Code	Description	Comments		
	-	Not applicable	Use this code if no Auxiliary used		
	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 x Trip Alarm in 1 module)	6.5 mm module fitted on right-hand side (Dual Mount only)		
	AT	Auxiliary Switch + Trip Alarm combo (combined in 1 module)	6.5 mm module fitted on right-hand side (Dual Mount only)		
Group 4: No of Poles	Code	Description	Comments		
	1	Single pole			
	2	Double pole			
	3	Triple pole			
	4	Four pole			
Group 5: Module Width	Code	Description	Comments		
	(13)	13 mm module width	13 mm per pole		
Group 6: Mounting	Code	Description	Comments		
	D	DIN rail mount – 45 mm Escutcheon, grey body	DIN mount supplied in grey only		
	DM	Dual mount – 57 mm Escutcheon, black body	Dual mount supplied in black only		
Group 7: Time Delays	Code	Description	Instantaneous Trip Point (x In)	Comments	
	I	Long time delay, 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 8: 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. (See comments in Group 9) * Other ratings are available as special orders. Check availability.		
Group 9: Voltage	Code	Voltage	Description	Comments	
(see diagram on page 7)	B0	80 V DC	Not polarity sensitive	0.1 - 63 A 1 pole, 0.1 - 50 A 2 pole, 60 - 100 A 2 pole parallel (80V DC), 30 - 100 A 2 pole parallel (125V DC), 110 - 150 A 3 pole parallel, 200 A 4 pole parallel (ratings available vary depending on certification)	
	B1	125 V DC	Polarity sensitive. Positive bottom.		
	B2	250 V DC	2 poles in series bridged (2 x 125 V) Positive = pole 1 bottom		0.1 - 50 A 2 pole series bridged at the top (by customer) pole 1 (-) to pole 2 (+)
	B3	250V DC	2 poles in series bridged (2 x 125 V) Positive = pole 1 bottom		0.1 - 50 A 2 pole series bridged at the top (factory fitted) pole 1 (-) to pole 2 (+)
	B4	600V DC	4 poles in series bridged (4 x 125 V) Positive = pole 1 bottom		0.1 - 20 A 4 pole series bridged (factory fitted) As per wiring diagram printed on unit
	T1	125 V DC	Polarity sensitive. Positive top.		0.1 - 63 A 1 pole, 0.1 - 50 A 2 pole, 30 - 100 A 2 pole parallel, 110 - 150 A 3 pole parallel, 200 A 4 pole parallel
	T2	250 V DC	2 poles in series bridged (2 x 125 V) Positive = pole 1 top		0.1 - 50 A 2 pole series bridged at the bottom (by customer) pole 1 (-) to pole 2 (+)
	T3	250V DC	2 poles in series bridged (2 x 125 V) Positive = pole 1 top		0.1 - 50 A 2 pole series bridged at the bottom (factory fitted) pole 1 (-) to pole 2 (+)
	T4	600V DC	4 poles in series bridged (4 x 125 V) Positive = pole 1 top		0.1 - 20 A 4 pole series bridged (factory fitted) As per wiring diagram printed on unit

Continues on page 4

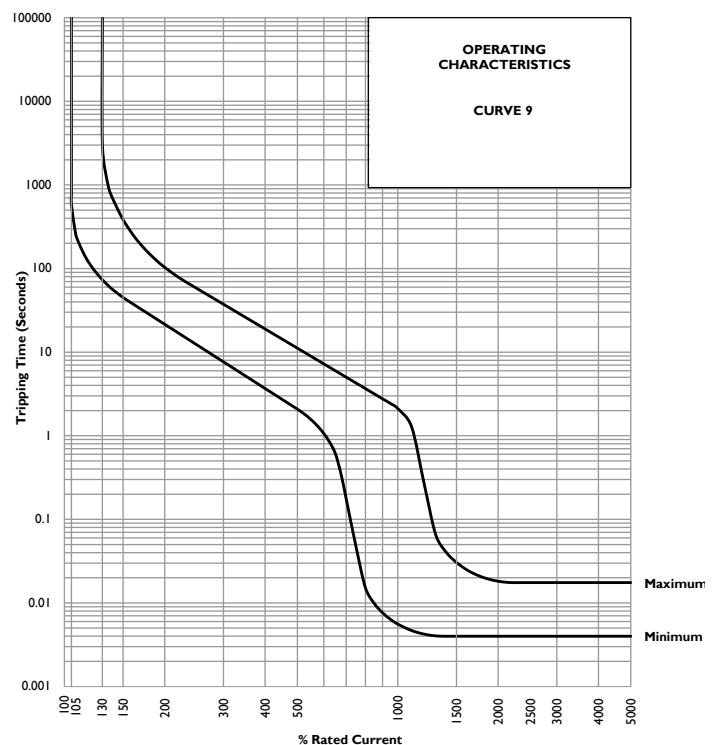
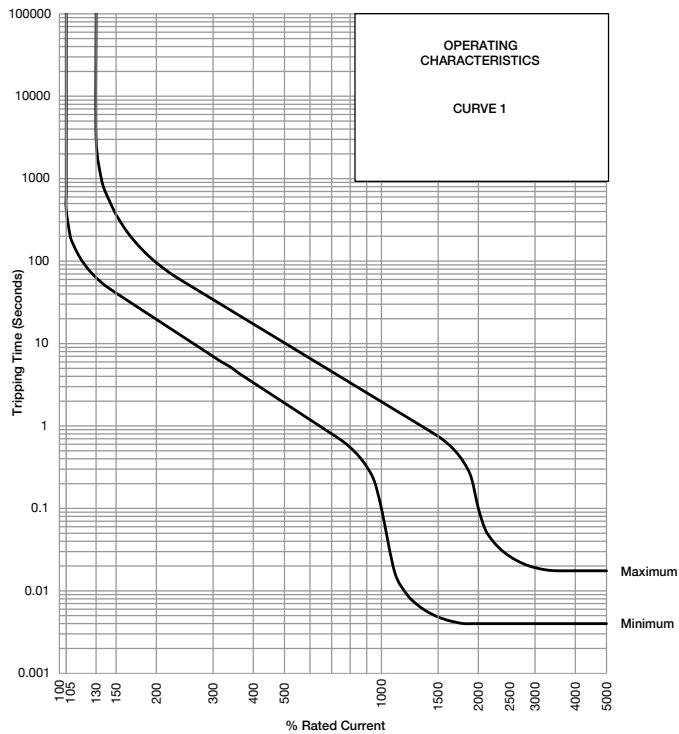
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Long Code continues

Group 10: Shunt Trip	Code	Description	Comments
(not certified, only offered as special order)	-	Not applicable	Use this code if no Shunt Trip is used
	V0	100 – 480 V	Fly leads (approximately 60 mm long)
	V5	100 – 480 V	Internally connected
Other voltages are available as special orders. Check availability.			
Group 11	For future use (-)		
Group 12: Special Termination	Code	Description	Comments
	-	Not applicable	Use this code if no special terminations are used
	P	Plug-in	
	Z	Bridged unit (bridge to be fitted by customer)	
	ZL	Bridged unit (factory fitted)	

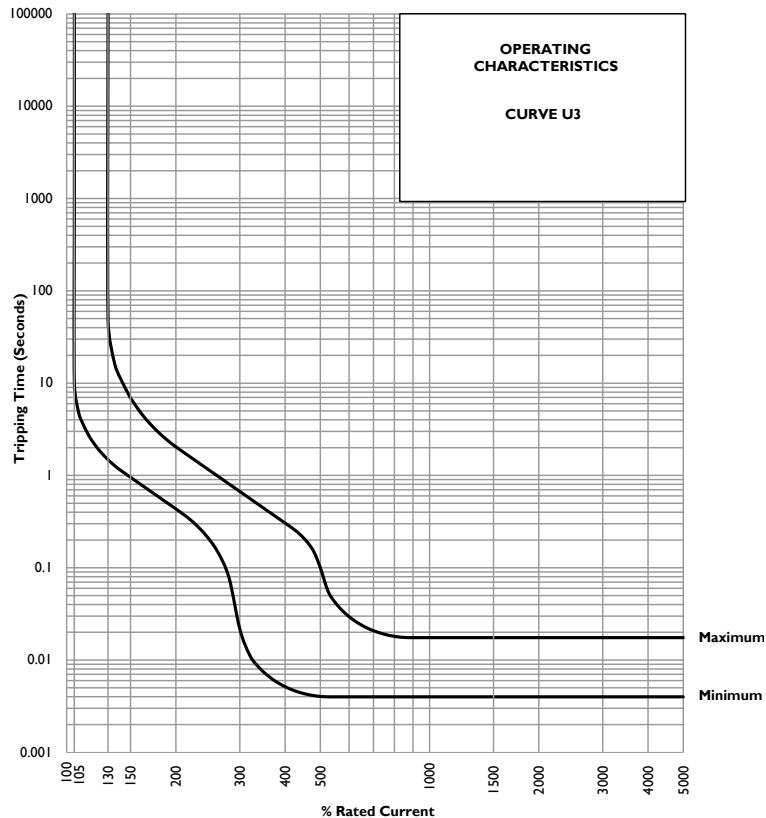
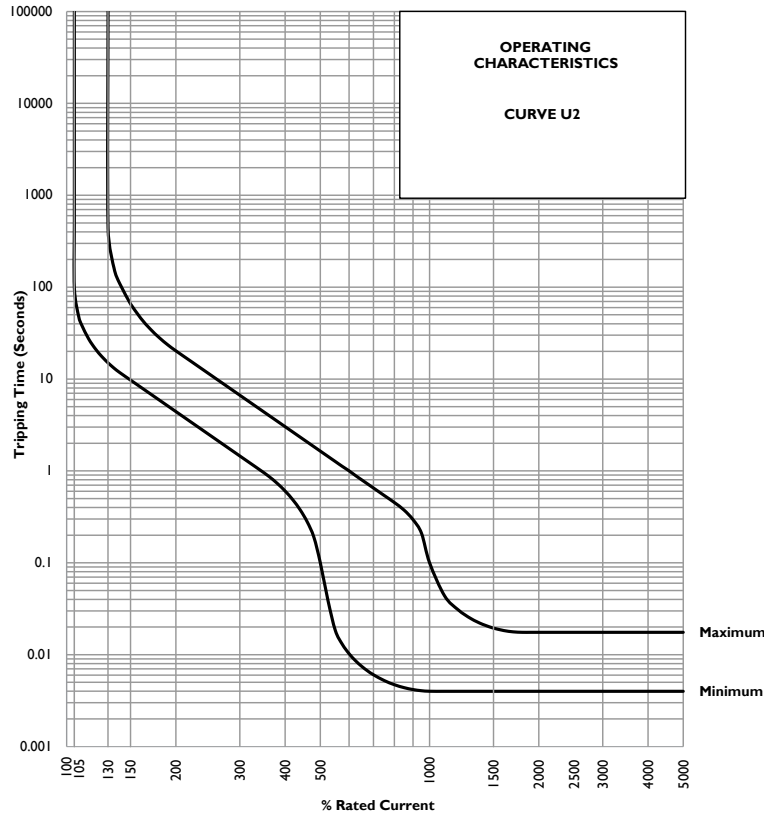
For options not listed, please contact CBI for assistance

Time Delay Curves



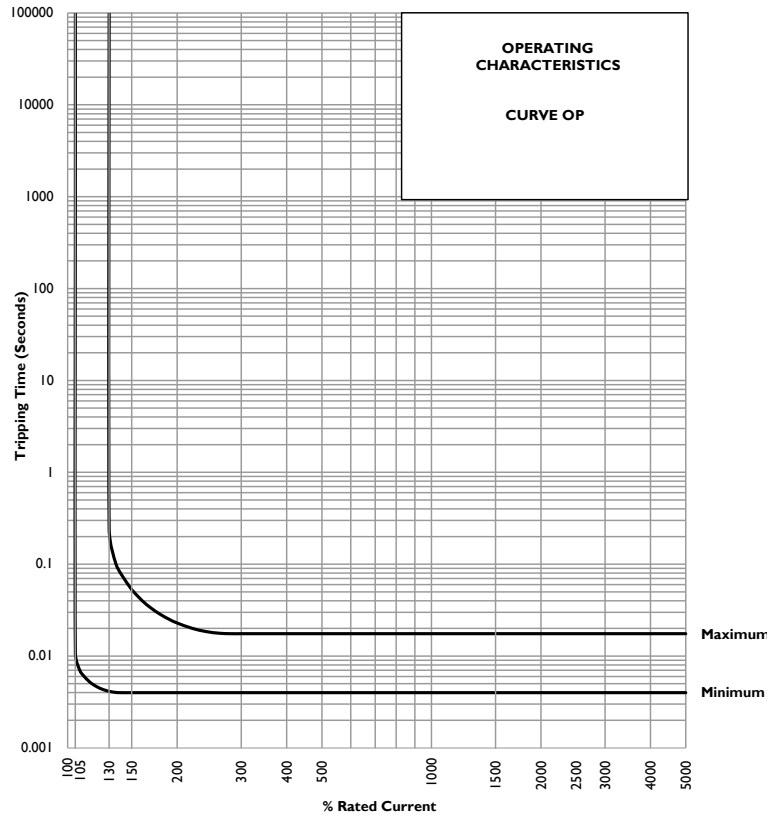
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Time Delay Curves



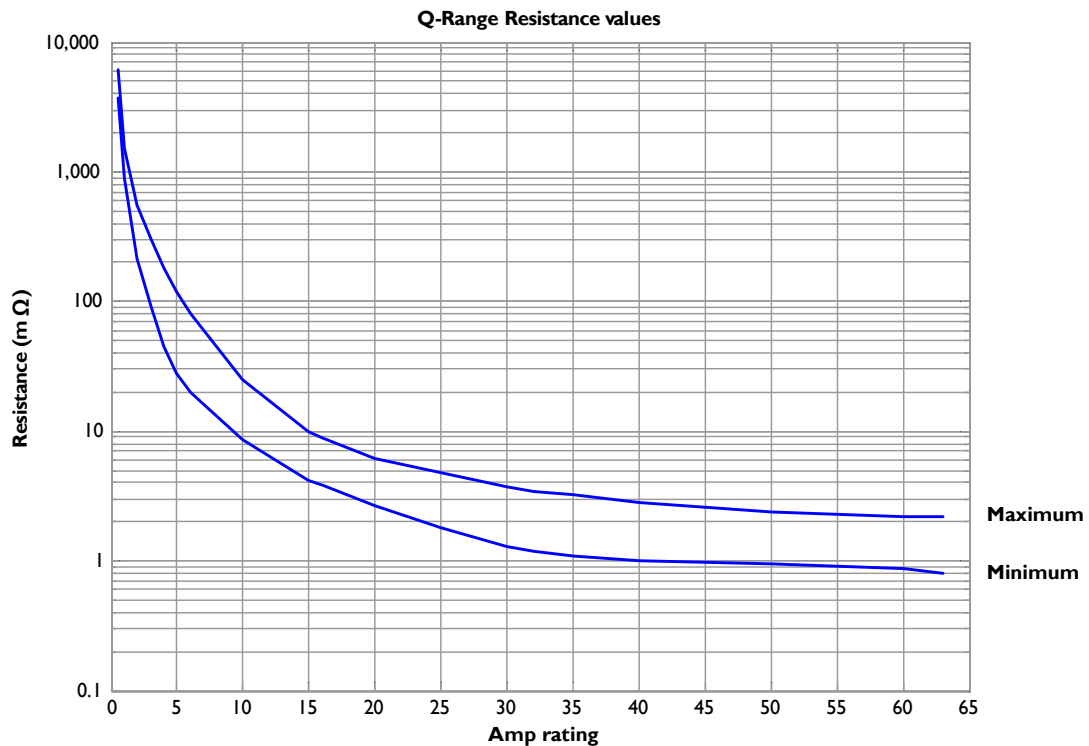
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Time Delay Curves



* The published time delay curves are generated at 30°C ambient temperature with the Circuit Breaker mounted in the up-right position. The “must hold”, “must trip” and “instantaneous trip” current values are not affected by temperature, although delay time for the other operating current values may have to be adjusted using the temperature compensation curve which is available on request.

Internal Resistance vs Current Rating



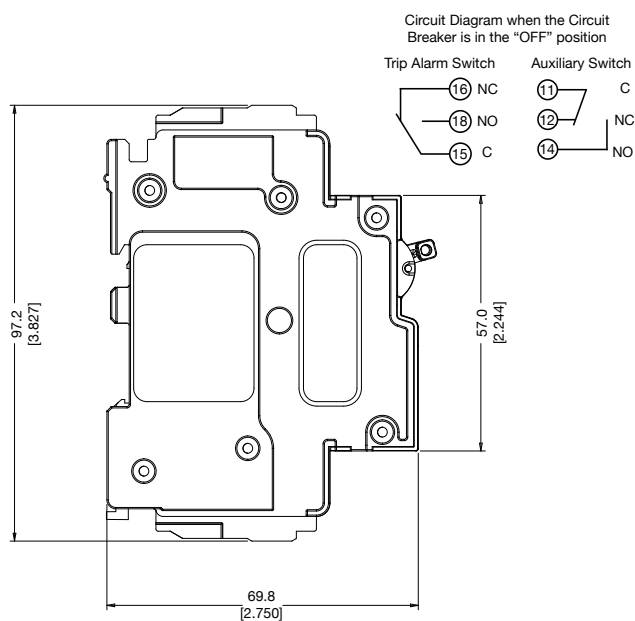
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Typical outline of Auxiliary Switch / Trip Alarm

Auxiliary available (6.5 mm module width) to match the unit to which it is attached.

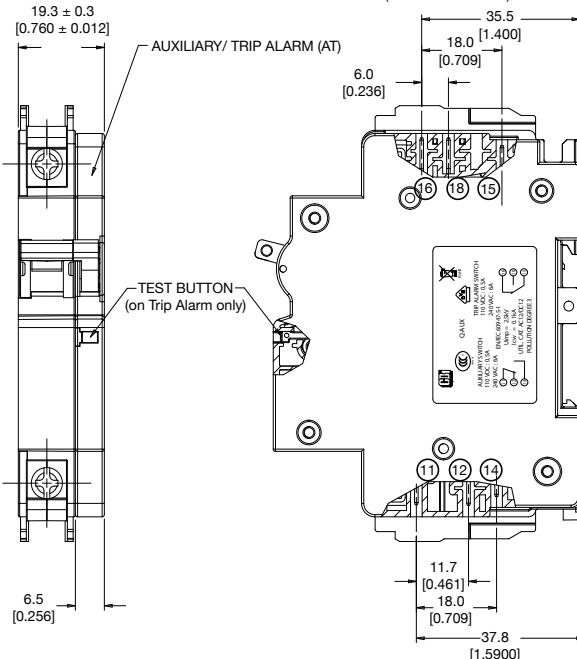
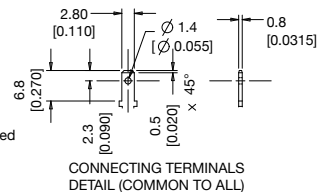
Available types as listed in Group 3:

- Type T - Trip Alarm as shown in outline drawings (fitted on a Dual mount product)
- Type AT - Auxiliary Switch + Trip Alarm (as shown)
- Type A - Auxiliary Switch



Typical outline for an Auxiliary module attached to a Dual mount single pole Circuit Breaker

All dimensions in mm [inch]
Tolerance ± 0.2 unless otherwise specified

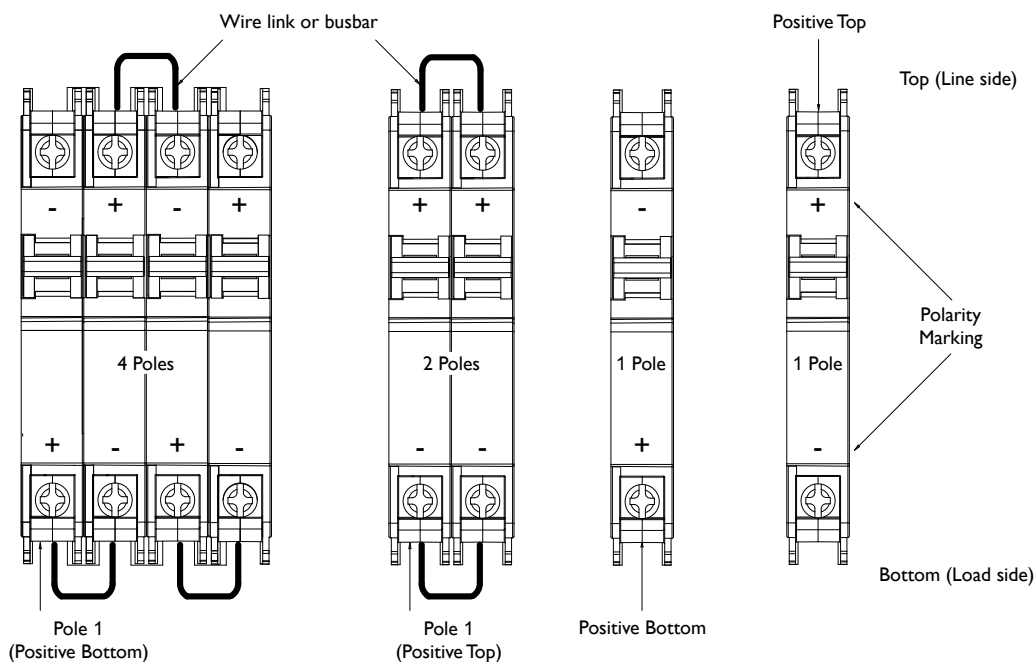


Polarity identification

Diagram identifying the polarity of 125 V DC products in reference to Group 9 on page 3. Devices are shown viewed from the front. Series devices (standard) - each pole is opposite polarity from the next pole on the left (bridged "-" to "+"). Parallel devices - each pole has the same polarity (bridged "+" to "+", "-" to "-").

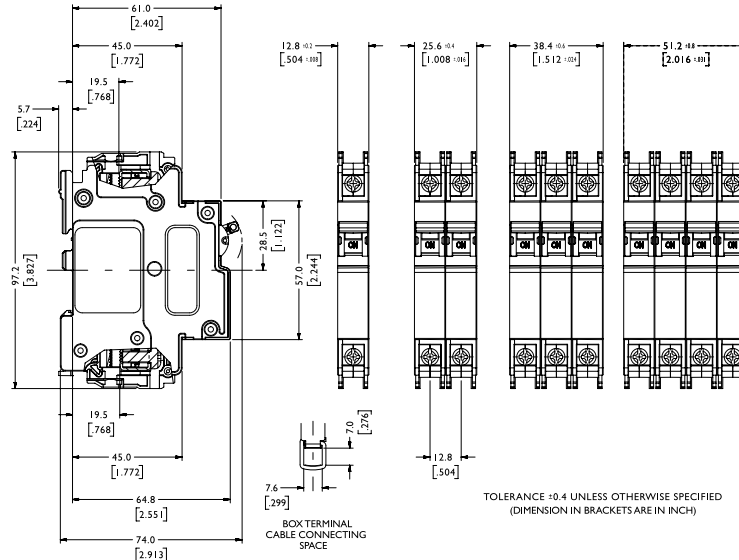
Series Bridged

Parallel Bridged

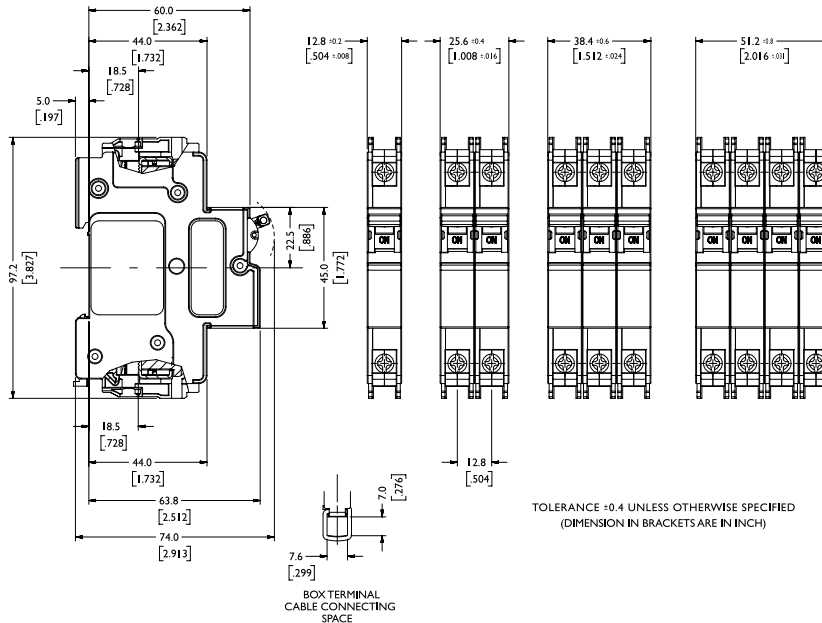


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Outline Dimensions: Dual mount



Outline Dimensions: DIN mount



Plug-in terminal dimensions available on request

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