

## QDC - Series Miniature Circuit Breakers



Dual Mount  
1 pole



Dual Mount  
2 pole



Dual Mount  
2 pole + Auxiliary



DIN Mount  
3 pole parallel

### Features

- DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- VDE, EAC and CCC approved, CE certified
- Ratings 0.1 to 63 A (1 & 2 pole), 3 pole parallel (150 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 / 250V 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

### Approvals



### Applications

- DC branch circuit protection (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)

## QDC - Series Miniature Circuit Breakers

### Technical Data

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

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

Breaker QDC	Wire Size mm <sup>2</sup> (IEC)	Torque (IEC)	Comments
1 Pole & 2 Pole	0.75 - 35 mm <sup>2</sup>	2.5 Nm	Pozidriv #2 Combi head
2 Pole Parallel	50 mm <sup>2</sup>	3.2 Nm	Bridge Terminal
3 Pole Parallel	95 mm <sup>2</sup>	5.6 Nm	Bridge Terminal

Product Type	QDC
Operating Temperature Range	-40 °C to +85 °C
Mounting Options	DIN Rail, surface mounting clip, plug-in terminal
Time Delay Curves	1, 9, U2, OP
Endurance	10000 operations - 1500 electrical at rated current and voltage (IEC 60947-2)
Dielectric Strength	1480 V (single pole) / 1830 V (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.

### Long Code

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

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

Continues on page 3

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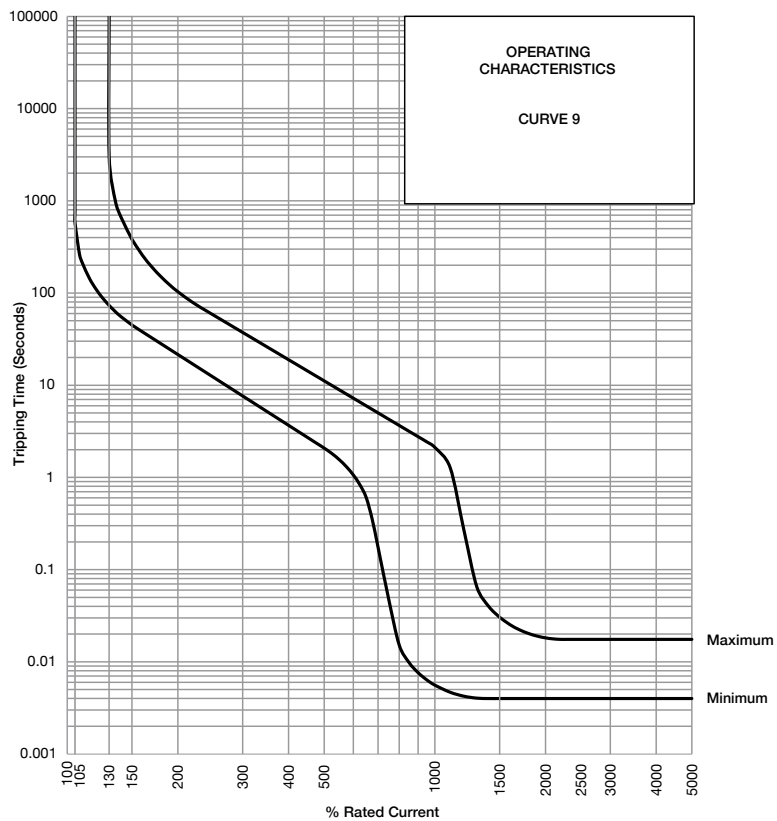
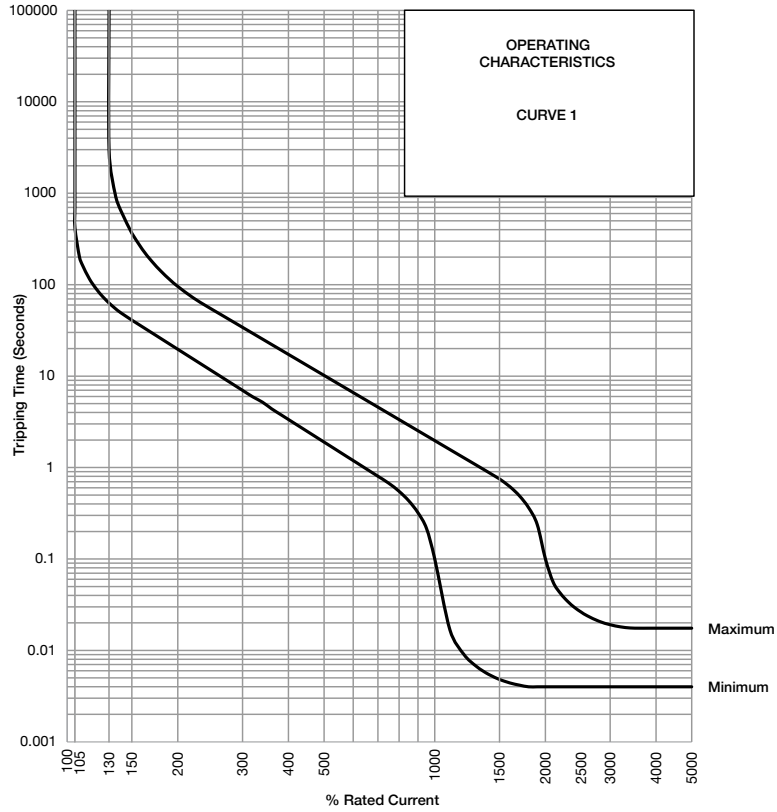
### Long Code continues

Group 1: Frame Type	Code	Description	Comments		
	QDC	13 mm wide Miniature Circuit Breaker	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		
	T	Trip Alarm (1 x Trip Alarm in 1 module)	6.5 mm module fitted on right-hand side		
	AT	Auxiliary Switch + Trip Alarm combo (combined in 1 module)	6.5 mm module fitted on right-hand side		
Group 4: No of Poles	Code	Description	Comments		
	1	Single pole			
	2	Double pole			
	3	Triple 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	
	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 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 (80 V DC), 30 - 100 A 2 pole parallel (125 V DC), 110 - 150 A 3 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	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 (factory fitted) pole 1 (-) to pole 2 (+)
	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
	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	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 (factory fitted) pole 1 (-) to pole 2 (+)
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	Code	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

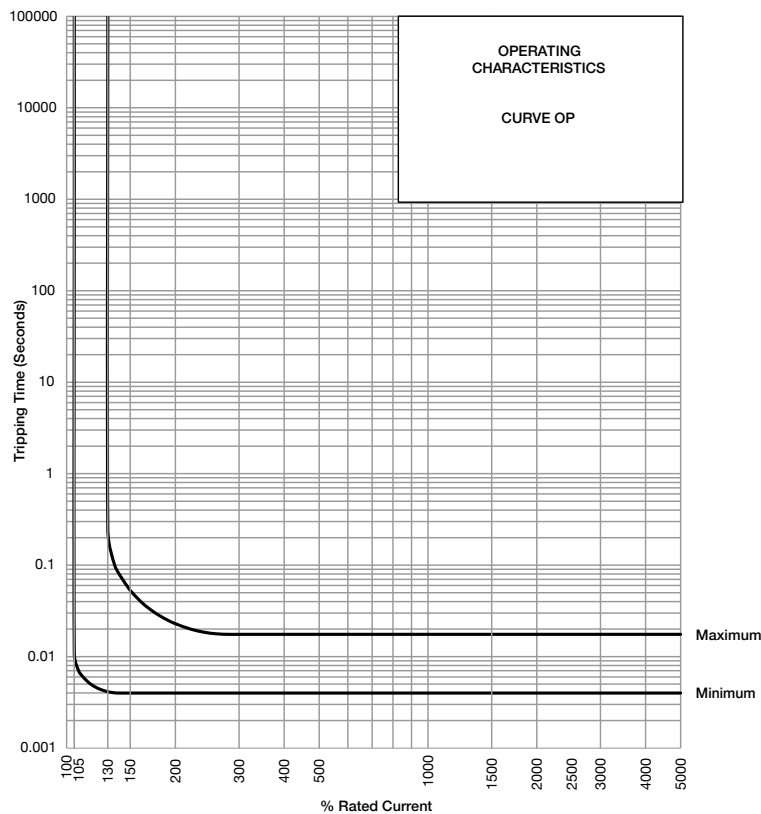
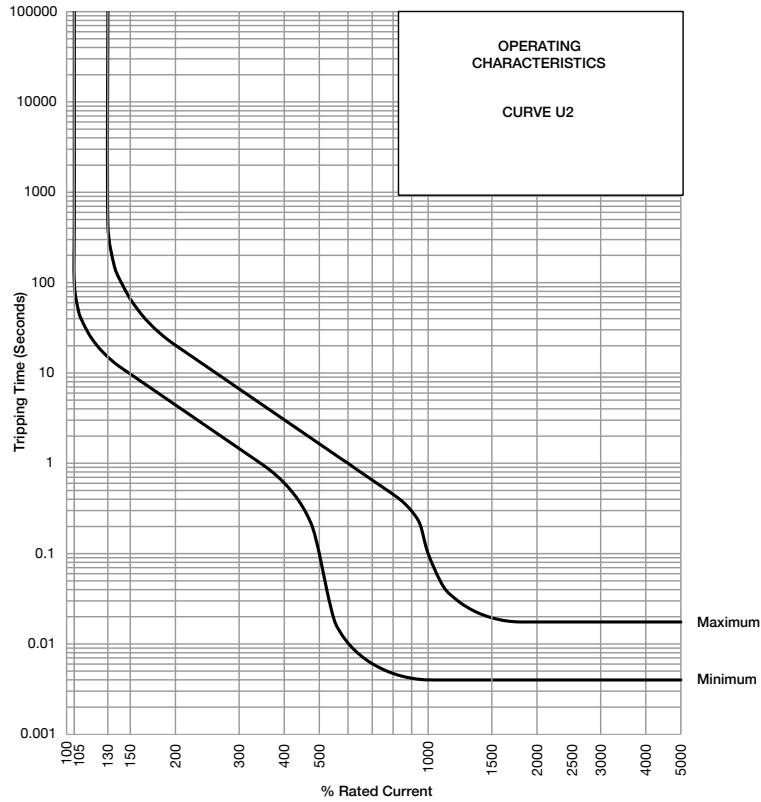
## QDC - Series Miniature Circuit Breakers

### Time Delay Curves



# QDC - Series Miniature Circuit Breakers

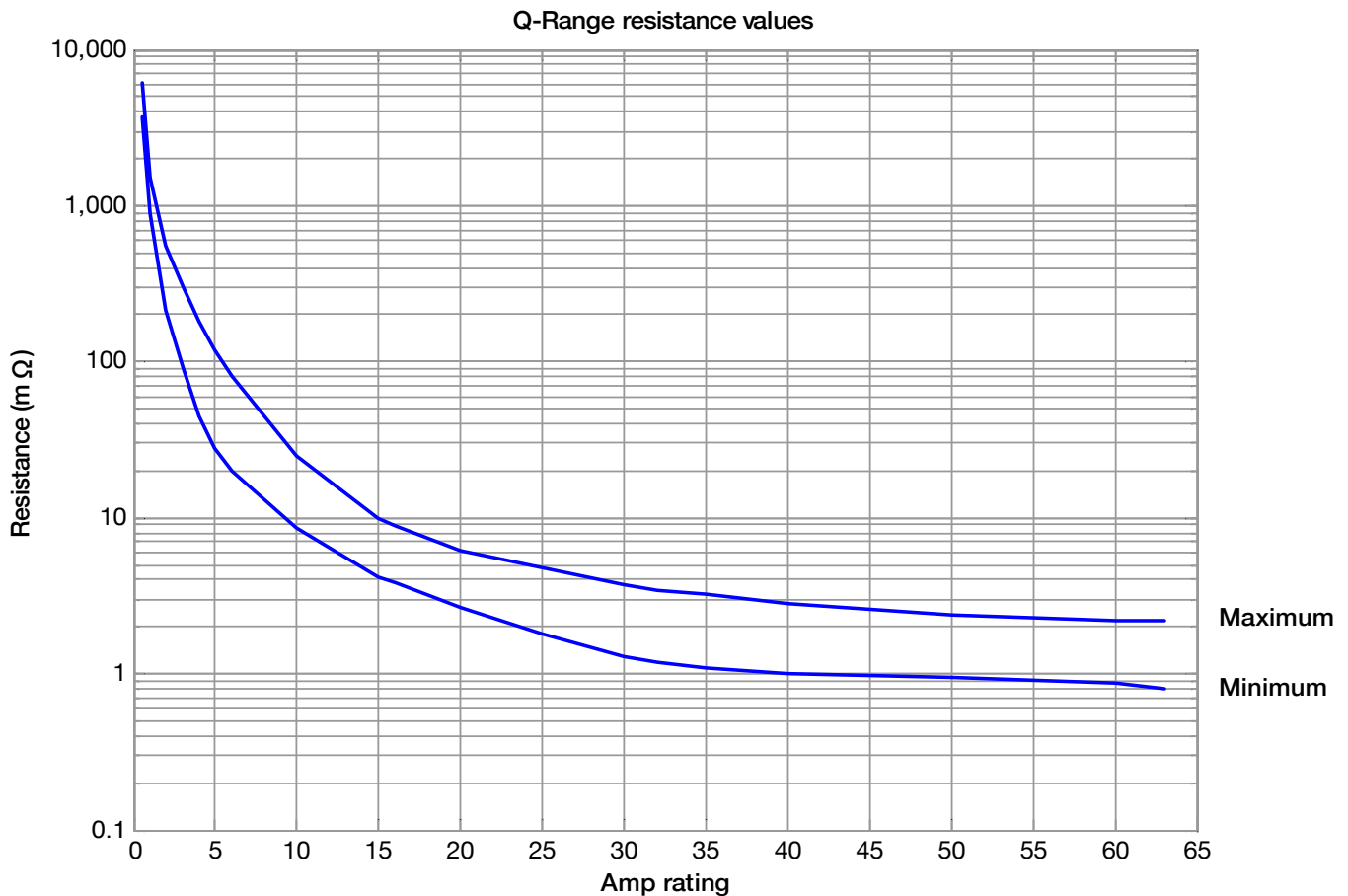
## Time Delay Curves



\* 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.

## QDC - Series Miniature Circuit Breakers

### Internal Resistance vs Current Rating



### Auxiliary Switch / Trip Alarm

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

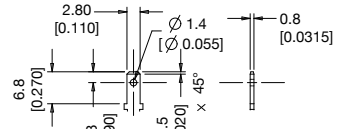
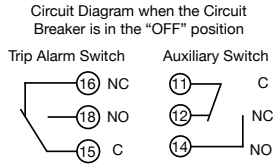
Available types as listed in Group 3:

- 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

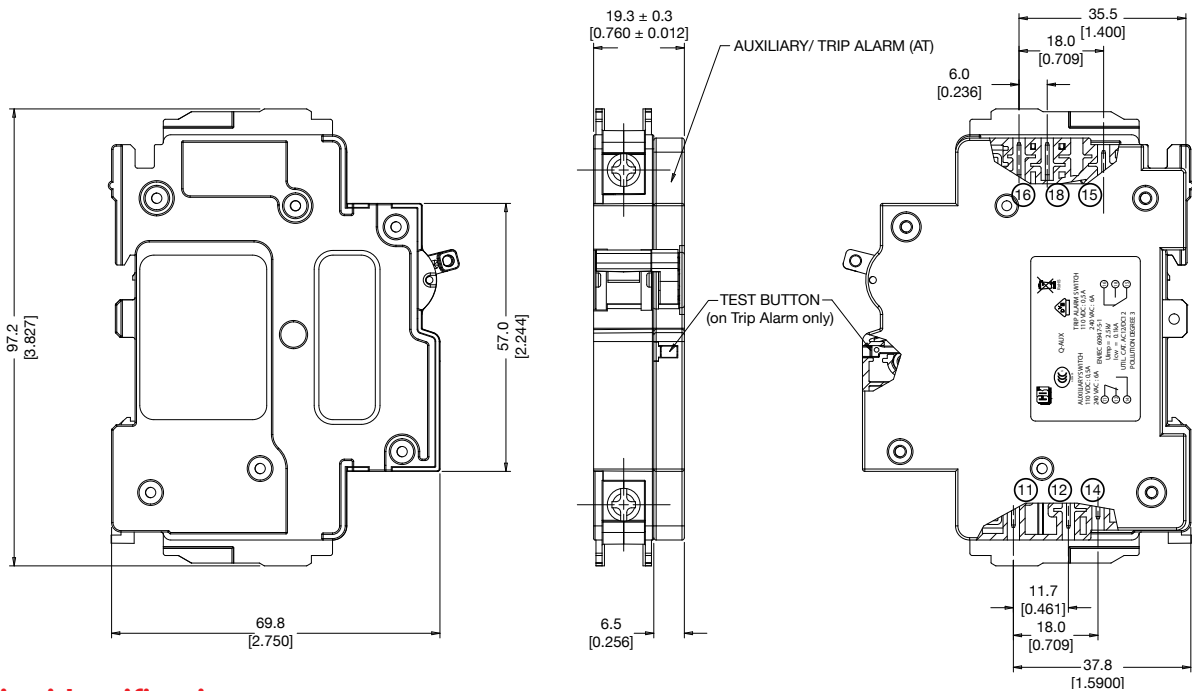
# QDC - Series Miniature Circuit Breakers

## Typical outline of Auxiliary Switch / Trip Alarm

Typical outline for an Auxiliary module attached to a Dual mount single pole Circuit Breaker  
 All dimensions in mm [ inch ]  
 Tolerance  $\pm 0.2$  unless otherwise specified

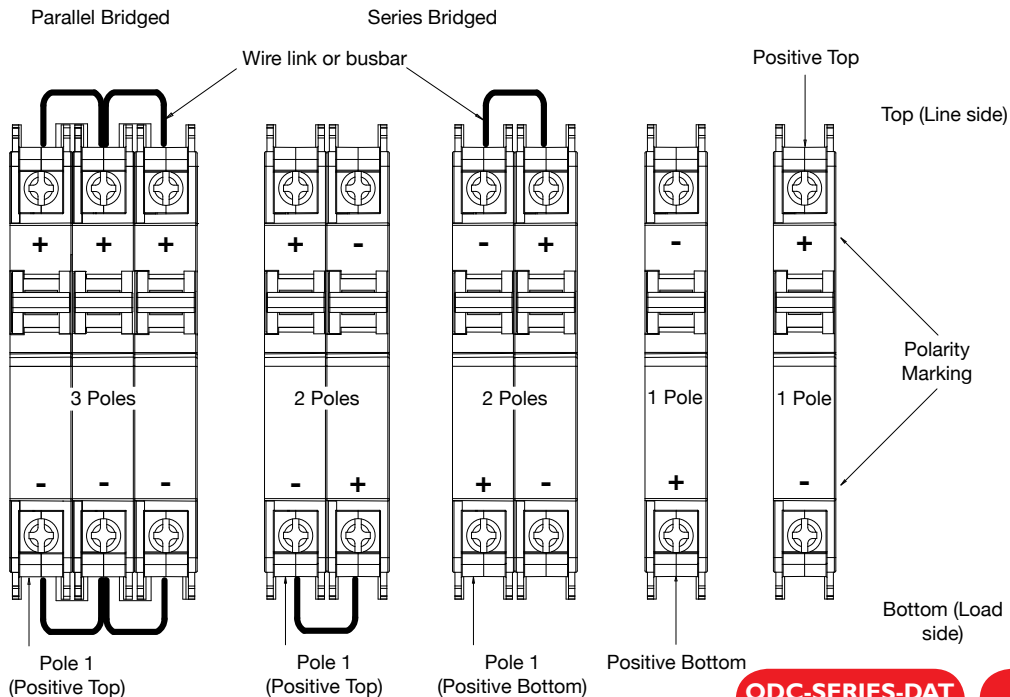


CONNECTING TERMINALS DETAIL (COMMON TO ALL)



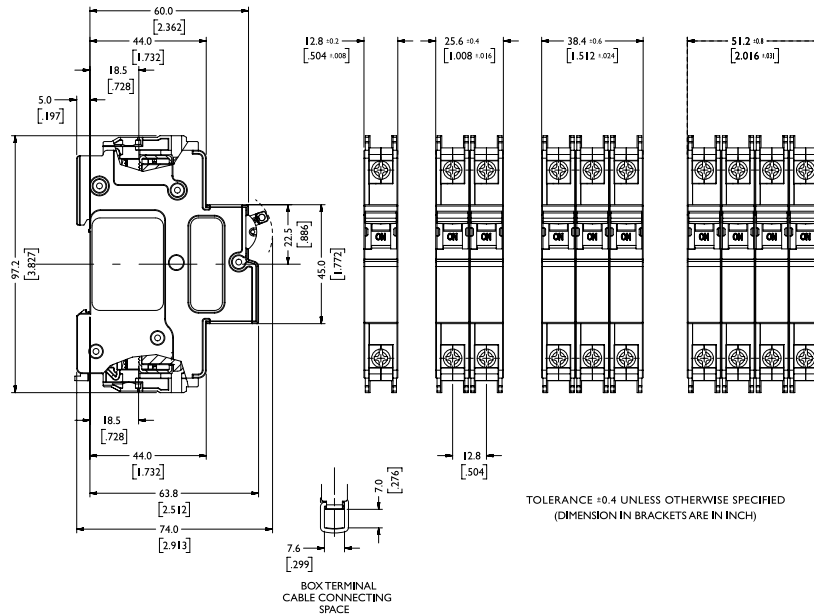
## Polarity identification

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 "-").

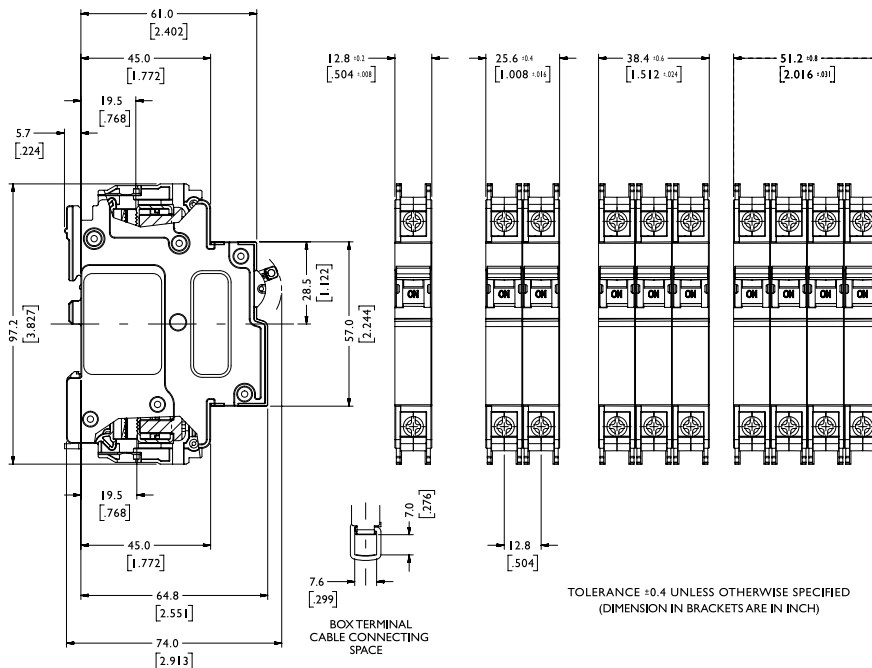


## QDC - Series Miniature Circuit Breakers

### Outline Dimensions: Dual mount



### Outline Dimensions: DIN mount



### Plug-in terminal dimensions available on request

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