



TECHNA PRODUCTS

|| JTEC MCBs

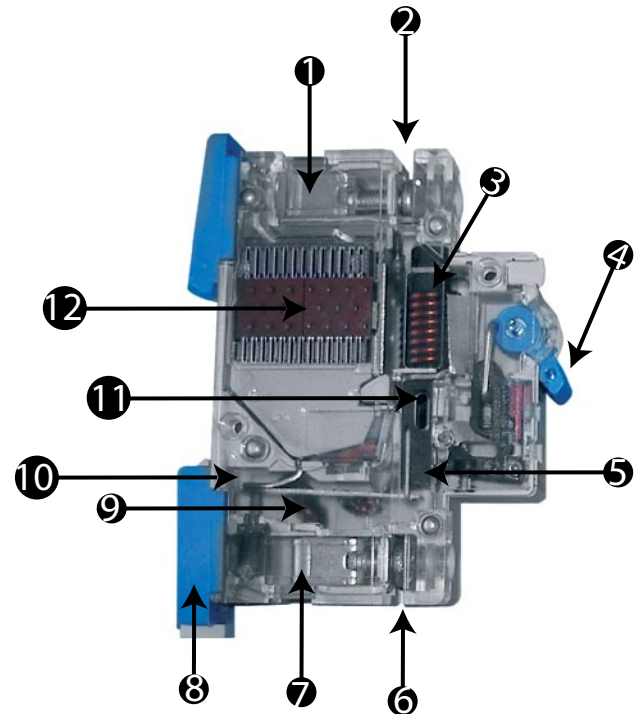
JTEC MCB's are DIN rail mountable, high performance thermal/magnetic circuit breakers. Their compact dimensions, ease of mounting and excellent performance make them ideal for the overload and short circuit protection of control components and associated wiring.

Their current limiting design and high interrupt/voltage ratings make them vastly superior to residential or 'push-to-reset' MCBs.

They are available in Supplementary (JTECUL) or Branch rated (JTEC489) versions in 1, 2 and 3 pole units, and offer industry standard trip curves. (B,C,D and K). Amp ratings available are 1/2A – 63A in both versions.

Anatomy of a High Performance MCB

- | | |
|----------------------------|---------------------|
| 1 - Box terminal | 7 - Box terminal |
| 2 - Busbar aperture | 8 - Din clip |
| 3 - Hammer action solenoid | 9 - Thermal element |
| 4 - Actuator handle | 10 - Arc runner |
| 5 - Moving Contact | 11 - Trip bar |
| 6 - Busbar aperture | 12 - Arc chamber |



Features and benefits common to both

- Current and energy limiting design reduces damage caused by short circuits.
- Higher voltage and amp ratings allow design flexibility.
- Dual DIN rail mount feature makes replacement easier in tight spaces.
- Optical indicator window shows contact status independent of toggle position.
- Can be reverse fed if toggle has to be oriented in a specific direction in a panel.
- DC versions are available up to 125VDC (1P) or 250VDC (2P in series)
- Extra set of terminal screws for easy power pickup points or optional busbar feature.
- Terminal screws are recessed to provide 'finger safe' protection.
- Full range of accessories available.

JTEC MCBs

JTECUL

JTECUL MCBs are certified as 'Supplemental Protectors' to UL1077 (CSA 235) and are intended for the overload and short circuit protection of individual control components. Supplemental devices are typically used on the load side of branch circuit devices to 'Supplement' the branch rated device. They are available in a wide range of current ratings and trip characteristics that allow them to be matched to the protection requirements of individual control devices.

JTECUL MCBs are also cULus to UL508 as Manual Motor controllers and can be used for direct across the line starting of individual or groups of motors. They are marked 'Suitable for use as motor disconnect' to meet emerging inspection requirements. They are not intended to be used in applications requiring a Branch rated device.

JTECUL MCB's can be matched with a wide variety of accessories to expand their capabilities.

1/2 - 63A 277/480Vac
B, C, D Trip curves
1, 2, 3 Pole versions.



cUL US LISTED to UL508

JTEC489

JTEC489 MCBs are approved to UL489 as 'Branch Circuit' overcurrent devices. In addition to having the same capabilities of the supplemental MCBs, they are also approved for use as a main incoming feeder or for field wiring applications. High 10kA interrupting rating is maintained up to 63A.

They are available in a wide variety of amp ratings and trip curves so they can be matched to the circuit requirements. JTEC489 MCBs can be used in place of Supplemental protectors.

JTEC489 MCB's are available with a wide variety of accessories to expand their capabilities.

1/2 - 63A 277/480Vac
B, C, D & K Trip Curves
1, 2, 3 Pole versions.



cUL US LISTED

Application

The Trip curve refers to the instantaneous trip current.(ie: Short circuit) in multiples of MCB rating. Trip times on overload are the same for all curves.

B trip - very fast(3-5x rating)

Sensitive electronic equipment with no inherent surges or momentary overloads.

- Solid state devices
- Switching power supplies
- Inputs and outputs for PLC's

C trip - normal trip (5-10x rating)

Mixed loads with some motor, transformer or solenoid content.

- General small panel control with mixed devices
- HVAC control
- Lighting control panels
- Discrete protection of lighting ballast
- Machine tools
- Mobile equipment, trailers
- Vending machines, ATM's
- Marine electrical systems

D trip - slow blow trip (10-20x rating)

Circuits consisting primarily of motor, transformer or solenoid/coil content.

- Motor starters
- Pump control panels
- Compressor and pump panels
- Generator panels
- Capacitor application
- Transformer primary protection.
- Solenoids.

K trip (489 only) - slow blow trip (10 to 16x rating)

Same as for "D" with slightly less delay.

A special curve developed by other manufacturers.

De-rating for Temperature and multiple devices.

If circuit loading does not exceed the Canadian Electrical Code requirement of 80%, then this effectively builds in a 'buffer' for higher ambient or multiple poles. De-rating is only required if the following conditions are exceeded.

Ambient temperature > 40°C

De-rate by 0.5% for every degree over 30*




Multiple poles > 5

De-rate by 1% for every additional pole.

MCB Application Table

Application	JTEC MCB type	Trip Curve	% of device or circuit full load rating
General circuit protection - mainly resistive	489	C	125%
Circuits with coils/solenoids/transformers	489	C or D	125%
Lighting ballast	489 or UL	D	200%
Heaters and resistors	489 or UL	C	125%
Transformer	489	D or K	125%
Transformer secondary	489	C or D	125%
Motor Circuits (5 sec run up max)	489 (1-10A)	D	175%
	489 (12-63A)	D	125%
	UL (1-10A)	D	200%
	UL (12-63A)	D	300%
Electronic devices	489 or UL	B	125%
Cable protection	489	C	100% of cable rating
Capacitors	489 or UL	D	200%

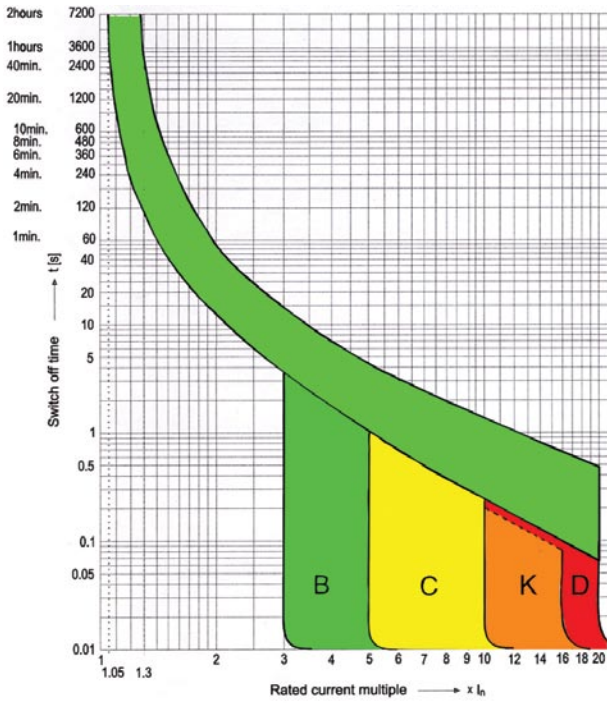
JTEC series Technical Data

General Specifications	JTECUL	JTEC489
Compliance	Supplemental to UL1077 (CSA 235) 	Branch rated to UL489 (CSA No. 5) 
UL motor disconnect standard	UL508 	N/A
IEC standard	IEC/EN60 898, DIN43880	
Approval marks	cURus(1077), cULus (UL508), IEC, CE	cULus, IEC, CE
Ambient temperature min/max	-25* to +60*C	
Mounting position	Any	
Degree of protection	IP20	
Mechanical life expectancy	100,000 on/off cycles	
Electrical life expectancy	6,000 on/off cycles	
Vibration resistance G/HZ	3G's (8-50HZ)	
Reverse feed capability	Yes	

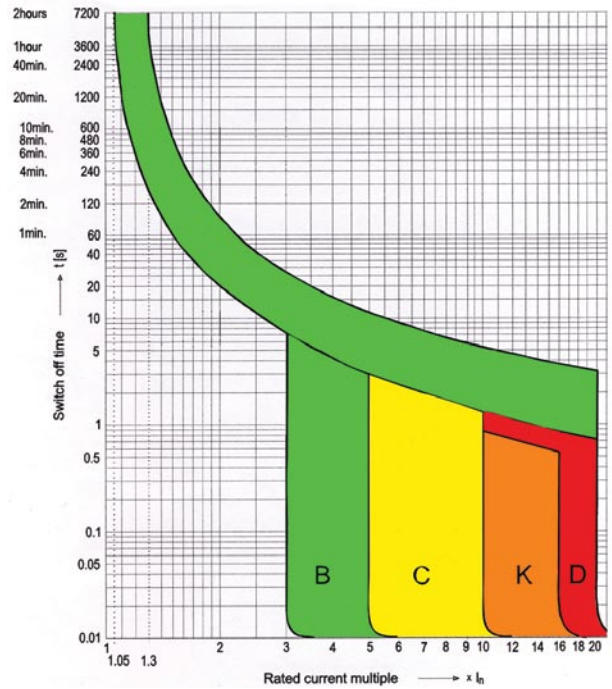
Electrical Specifications			
Amp ratings available		1/2, 1, 1.6, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63A	1/2, 1, 1.6, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63A
Number of poles available		1P, 2P, 3P, 1P+N, 3P+N	
Trip curves available		B, C, D	B, C, D, K
Rated voltage - standard models	AC	277/480Y 347/600Vac*Y	277/480Yto 32A 240Vac 35-63A
	DC	60Vdc*	
DC versions	DC	N/A	125Vdc 1P/250Vdc 2 poles in series
Rated frequency (AC)	HZ	50/60HZ	
Interrupting Ratings	277/480Y	1/2 - 6A 10kA	10kA up to 32A
		7-63A 5kA w/out backup fuse	-
		7-63A 10kA with backup fuse	-
	347/600Y*	1/2 - 63A 2kA w/out backup fuse	-
		1/2 - 63A 5kA with backup fuse	-
10kA with backup fuse, 5kA w/out	-		
Interrupting Rating	240Vac	10kA up to 63A	
	60DC*	10kA up to 63A	
Interrupting ratings - DC versions	125Vdc	10kA up to 63A	
	250Vdc	10kA - 2 Poles in series	
Backup fuse rating	600Vac	CSA/UL Class J - 4 X MCB rating	N/A
Magnetic Trip (instantaneous)	B	3-5X current rating	
	C	5-10X current rating	
	D	10-20X current rating	
	K	N/A	10-16X current rating
Overload Trip x In		1.13 - 1.45 current rating in <1hr	1.05 - 1.3 current rating in <1hr
Wire range	UL/CSA	AWG12-AWG3 (2.55mm ² - 25mm ²)	
Busbar tie point		125A max	
Tightening Torque		13-17 in/lbs (1.5-2Nm)	
*Note: 347/600Vac and 60Vdc ratings are self-certified only.			

Trip Curves for JTEC489 & JTECUL

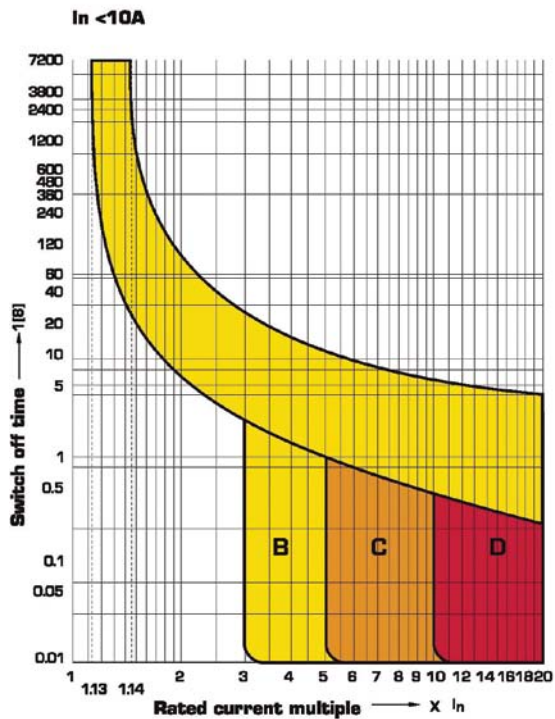
Tripping Characteristic of JTEC489
Circuit Breaker ($I_n < 10$)



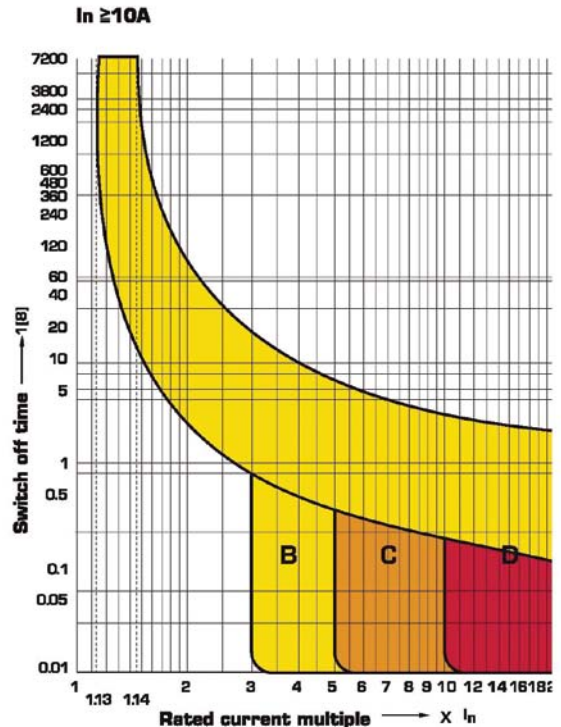
Tripping Characteristic of JTEC489
Circuit Breaker ($I_n > 10$)







Tripping Characteristic of
JTECUL Circuit Breaker ($I_n < 10A$)








Tripping Characteristic of
JTECUL Circuit Breaker ($I_n > 10A$)



JTEC Accessories		JTECUL	JTEC489	
Auxiliary Contacts Operates in tandem with MCB. Use for remote signalling or switching applications. Mounts to side of MCB with field kit.		1 Form C	JTECULAUX1CO	JTEC489AUX1CO
		2 Form C	JTECULAUX2CO	JTEC489AUX2CO
		1 form C + signal	JTECULAUXSCO	JTEC489AUXSCO
		1 form C + signal + test	JTECULAUXSTCO	JTEC489AUXSTCO
Shunt trip Use for remotely tripping the JTEC breaker. Mounts to side of MCB with field kit.		12Vac	JTECULST12AC	JTEC489ST12AC
		24Vac	JTECULST24AC	JTEC489ST24AC
		120Vac	JTECULST120AC	JTEC489ST120AC
		230Vac	JTECULST230AC	JTEC489ST230AC
		24Vdc	JTECULST24DC	JTEC489ST24DC
		48Vdc	JTECULST48DC	JTEC489ST48DC
		110Vdc	JTECULST110DC	JTEC489ST110DC
Neutral pole Use for adding a switched Neutral pole to any JTEC MCB. Mounts to side of MCB with field kit.				
		1/2 - 63 Amp	JTECULN2	JTEC489N2
Undervoltage release Use for automatically tripping the breaker in case of power loss. Mounts to side of MCB with field kit.		12Vac	use 489 series	JTEC489UV12AC
		24Vac	use 489 series	JTEC489UV24AC
		120Vac	use 489 series	JTEC489UV110AC
		230Vac	use 489 series	JTEC489UV230AC
		24Vdc	use 489 series	JTEC489UV24DC
		48Vdc	use 489 series	JTEC489UV48DC
		110Vdc	use 489 series	JTEC489UV110DC
Safety lockout device Use to lock the toggle in open or closed position to prevent tampering. (note: MCB contacts will still trip free even in locked 'On' position.) Requires padlocks with 4mm (5/32") or smaller hasps.		Yellow	JTECLP1YELLOW	
		Black	JTECLP1BLACK	

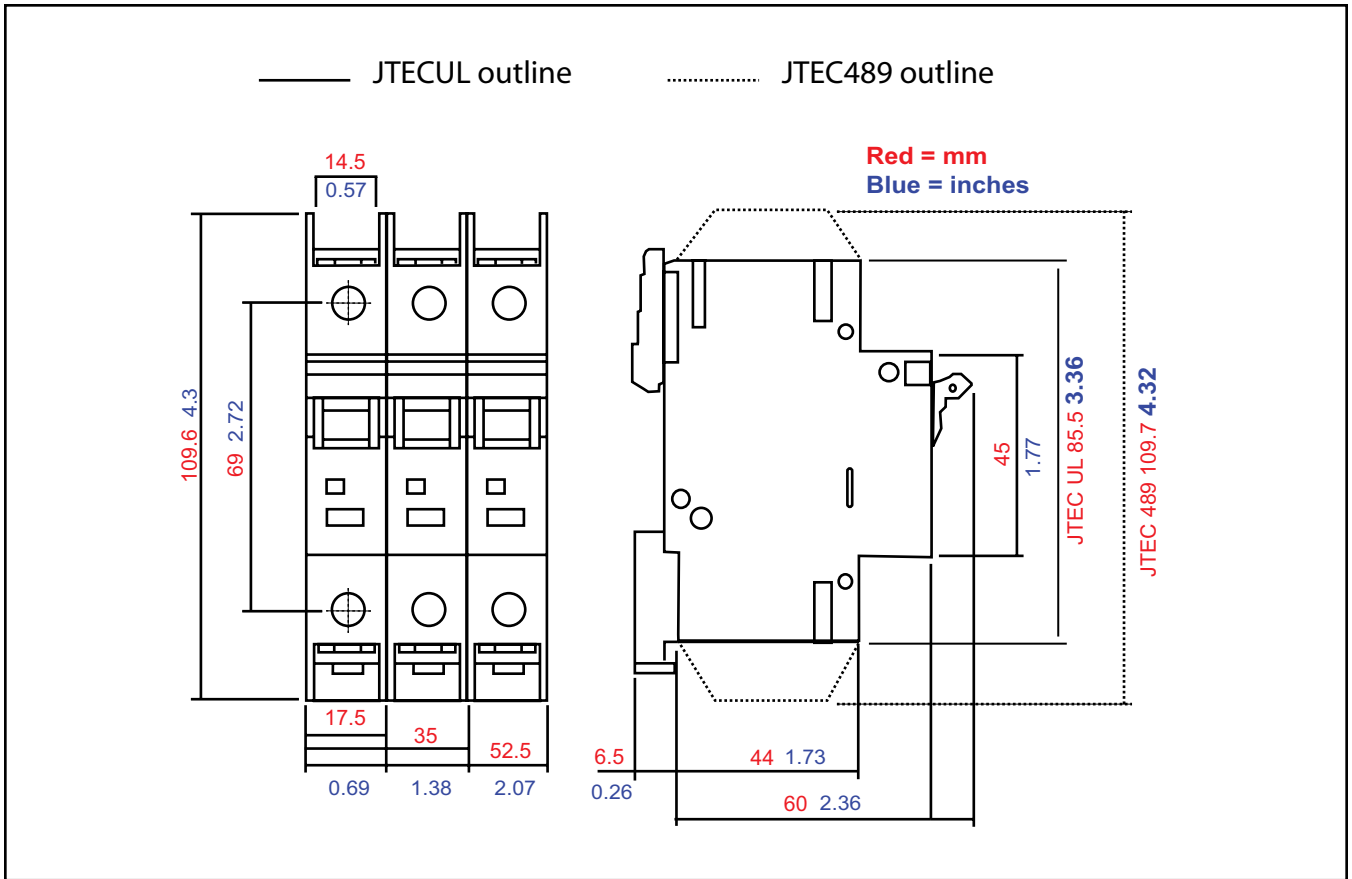
JTEC Accessories continued

		JTECUL	JTEC489	
Busbar Use Busbars to parallel multi poles to save labour and neaten installation. PIN type fits in place of wire. Spade type fits under screw terminal, leaving wire terminal free.		1 phase pin terminal	BBTEC1PPIN16	pending
		2 phase pin terminal	BBTEC2PPIN16	
		3 phase pin terminal.	BBTEC3PPIN16	
		1 phase spade terminal	BBTEC1PCOMB20	
		2 phase spade terminal	BBTEC2PCOMB16	
		3 phase spade terminal	BBTEC3PCOMB16	
Busbar connector terminal. Use to connect cable feed to busbar.		Power feed connector #1AWG - Max 125A	BBTECECCT35	-
Busbar cut end-cap. Use to insulate busbar end after cutting.		End cap	BBTECEC3P16	-
Front Mount Panel Adapter Used for mounting MCB's to rear of panel door			JTECFMA1P (1 pole)	
			JTECFMA2P (2 pole)	
			JTECFMA3P (3 pole)	
Panel mount adapter clip. Replaces DIN rail mounts. Use for screw mounting MCB's directly to panel.			JTECPANELCLIP For JTEC489 use plastic or nylon screws due to clearances.	

Accessory Specifications

Power Term. Capacity	#20 - #12AWG (2.5 - 25mm ²)
Tightening torque	3-4 in lbs (.33-0.5Nm)
Aux. & Signal term. Wire Capacity	#20-#12AWG (0.5-2.5mm ²)
Tightening torque	3-4 in lbs (.33-0.5Nm)
Auxiliary contact ratings	6A @ 120Vac, 3A @ 250Vac
Busbar ampacity	125A if center fed, 80A if fed from one end.

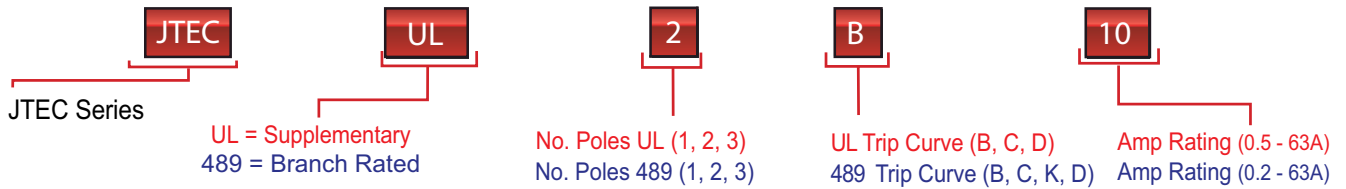
Dimensions



Ordering

Ordering Code - AC

RED = JTEC UL Series
BLUE = JTEC 489 Series



Ordering Code - DC (489 only)

