



ELECTRONIC AND ELECTROMECHANICAL CIRCUIT BREAKERS FOR ELECTRIC MOTORS

INDEX

Electromechanical

- Type B03.....Page 2
- Type B05.....Page 2

Electronic analog

- Type DTA.....Page 3
- Type DTB.....Page 3

Electronic digital

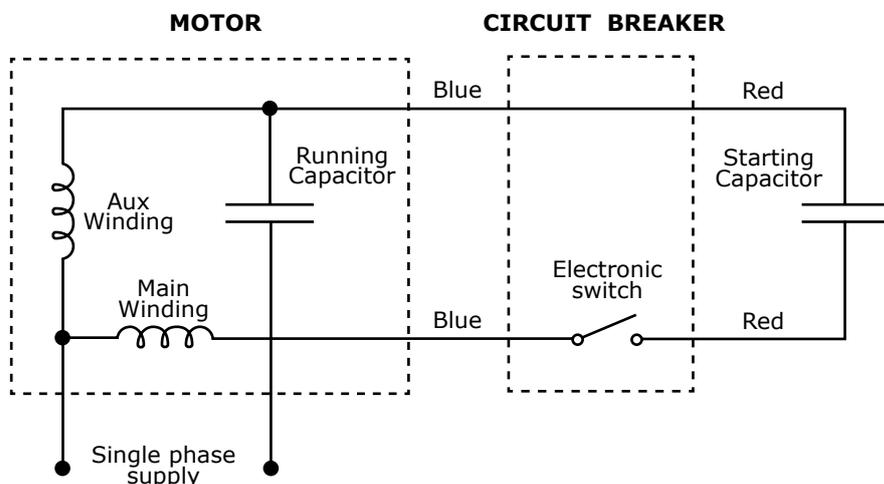
- Type DEA.....Page 4
- Type DEB.....Page 4
- Type DE 1.0.....Page 4

Device selection.....Page 5

ELECTROMECHANICAL TYPE B03 - B05



The **electromechanical** type B0 circuit breaker is a device who connects a **start capacitor** (that can be integrated with the device) to the permanent **run capacitor** during the starting phase when a **high torque** is required and disconnects it after a prefixed time (standard 1"). Lifetime of B0 depends on several factors like the capacitance of Start Capacitor, the tension measured on the run capacitor, operating time, frequency and temperature: the higher those values, the shorter the lifetime of device. Vice versa an higher pause between consecutive starts preserves its correct working for a longer time. B0 circuit breaker is largely adopted in several applications such as compressors, floor sweepers, high-pressure cleaners, pumps, coffee grinders, chainsaws and generally for all those applications where the motor is supposed to overcome a considerable opposite mechanical torque.



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UL APPROVAL file E251816

Type B03 for 110Vac motor	
Motor supply voltage	100-120Vac
Frequency	50/60Hz
Is max.	16A
Working temperature	-25°C + 70°C
Operating time Ton *	1"
Minimum pause between 2 consecutive starts Toff *	3"
Number of advisable max start-up *	6/min
Starting Capacitance max	100uF
Dimensions	
Without capacitor **	50x55mm
Up to 16uF	45x94mm
From 20uF a 50uF	50x94mm
From 60uF a 80uF	50x118mm
From 85uF a 100uF	55x118mm

Type B05 for 220Vac motor	
Motor supply voltage	220-240Vac
Frequency	50/60Hz
Is max.	16A
Working temperature	-25°C + 70°C
Operating time Ton *	1"
Minimum pause between 2 consecutive starts Toff *	3"
Number of advisable max start-up *	6/min
Starting Capacitance max	100uF
Dimensions	
Without capacitor **	50x55mm
Up to 16uF	45x94mm
From 20uF to 50uF	50x94mm
From 60uF to 80uF	50x118mm
From 85uF to 100uF	55x118mm

* Adjustable on request | ** Also in Box version 45x42x33 mm.
On request

ELECTRONIC ANALOG TYPE DTA – DTB

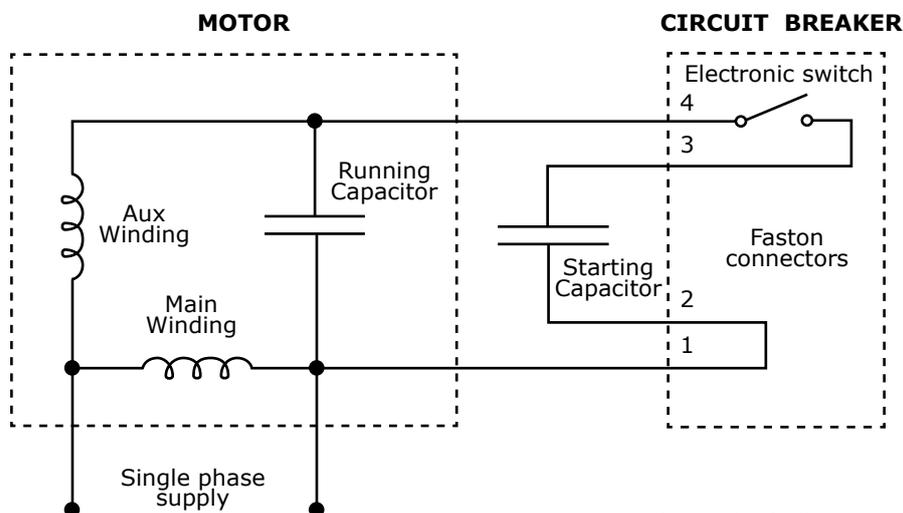


The **electronic** DT is an analog device that helps the start-up of a single-phase motor connecting a start capacitor to the run capacitor and cutting out when the motor reaches its speed.

The working of the DT is based on the relationship between the tension on the motor's auxiliary winding and the RPM . A so-called **Cut-off** tension, at least 75% of motor's tension, is set up and when the tension reaches this value, the DT disconnects the start capacitor.

A minimum and/or maximum working time can be set in any case (standard min. 0,15" – max. 1,5").

The **electronic analog** DT is suggested for applications like coffee grinders, small appliances, floor machines, etc.



PATENT PENDING



UL APPROVAL file E251816

Type DTA for 110Vac motor	
Motor supply voltage	100-120Vac
Frequency	50/60Hz
Is max. *	25A
Working temperature	-25°C + 70°C
Cut-off standard **	150Vac
Min/Max working time **	0,15"/1,5"
Pause between 2 consecutive starts	1"
Max Start Capacitance	200uF
Box dimension	45x42x32mm
Connections	4 tabs

Type DTB for 220Vac motor	
Motor supply voltage	220-240Vac
Frequency	50/60Hz
Is max. *	25A
Working temperature	-25°C + 70°C
Cut-off standard **	300Vac
Min/Max working time **	0,15"/1,5"
Pause between 2 consecutive starts	1"
Max Start Capacitance	150uF
Box dimension	45x42x32mm
Connections	4 tabs

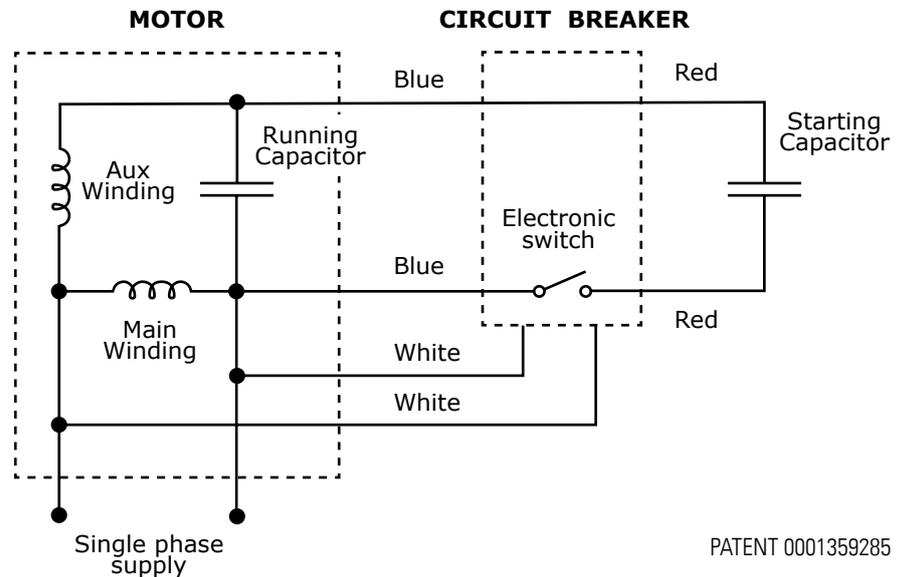
* Version 16A on request | ** Cut-off and Min/Max working time can be changed on request
Pause between 2 consecutive starts 1"

ELECTRONIC DIGITAL TYPE DEA - DEB



The **electronic** DE is a digital device that connects a Start Capacitor (that could be integrated with the device up to 150uF) to the Run Capacitor during starting phase when an high Torque is requested and disconnects it when the tension reaches the so-called **Cut-off**, a prefixed programmed value of tension on auxiliary winding equivalent at least to 75% of working tension. The program allows to stay connected just the necessary time for starting, no less no more, saving and not stressing the components, included the Start Capacitor, reducing noise and vibrations. It can support high capacitances and currents and doesn't need pause between consecutive starts but the necessary time for discharging the capacitor (a discharge resistance is in the circuit) cause all solid state components. The DE can be programmed, on request, with the function to start up again whenever the motor speed has fallen to a **Cut-in** value, indicating that's stopping, the DE reconnects the Start Capacitor trying to restart (we prefer to limit the attempts at 5). The **electronic digital** DE is suggested for very hard and stressful applications with high currents and capacitances, frequent starts, and so on.

DE 1.0 Version 1.0 provides an automatically variable Cut-off / Cut-in values according to a variable supply tension: this function allows to get always a perfect working with different tension supplying conditions (for example low voltage due to long wiring runs).



Type DEA for 110Vac motor	
Motor supply voltage	100-120Vac
Is max. *	25A
Working temperature	-25°C+70°C
Cut-off value	Programmed
Cut-in value **	Programmed
Max Starting Capacitance	250uF
Dimensions	
Without capacitor cylindrical case	50x55mm
Box	45x42x33mm

Type DEB for 220Vac motor	
Motor supply voltage	220-240Vac
Is max. *	25A
Working temperature	-25°C+70°C
Cut-off value	Programmed
Cut-in value **	Programmed
Max Starting Capacitance	250uF
Dimensions	
Without capacitor cylindrical case	50x55mm
Box	45x42x33mm

* 50A on request – max start capacitance 500uF | ** On request

DEVICE SELECTION

	B03-B05	DTA-DTB	DEA-DEB	DEA-DEB 1.0
Fixed working time	X	X	X	X
Variable working time Cut-off *		X	X	X
Minimum working time		X	X	X
Maximum working time		X	X	X
Restart (Cut-in) **			X	X
Variabile working time (Cut-off and Cut-in) related to different supplying voltage				⊗
Rotation inversion		X	X	X
Without minimum time between 2 consecutive starts ***			X	X
Start capacitor higher than 100uF		X	X	X
Start capacitor higher than 150uF (max 500uF)			X	X
Electrolytic start capacitor		X	X	X

* Variable working time depends on the reaching of a prefixed voltage value called Cut-off

** When the voltage goes down a prefixed value (Cut-in), the DE re-connects the start capacitor – function on request

*** For type B0 standard minimum time T_{off} is 3" with maximum suggested cycles 6/min.
 For type B0 with working time T_{on} higher than 1", T_{off} longer and max cycles/min lesser
 For type DT pause between 2 consecutive starts 1"

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