

Fast Bus Transfer - Revised

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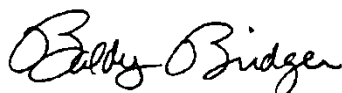
Fast bus transfer is normally used for transferring a bus supplying motors to an emergency power source on failure of the normal source of power. It is essential that this transfer be accomplished with a minimum of "dead time" to prevent loss of critical motors or damage to the motors on re-energization.

Two schemes of operation are used for fast transfer. In the first scheme, the trip signal to the opening breaker and the close signal to the closing breaker are given simultaneously. This is called a simultaneous fast bus transfer and the dead time will typically be 1-3 cycles. However, there is a possibility of overlap between the two sources, which may lead to the incoming breaker closing into a fault. This can be prevented by adding a few milliseconds of time delay to the closing signal. In the second scheme, the closing signal of the second breaker is initiated by a "b" contact of the opening breaker. This may be either standard "b" contact or a fast "b" contact. This is called a sequential fast bus transfer and the dead time will typically be 5-7 cycles. Both the schemes require a high speed sync check relay between the alternate source and the motor bus for phase angle measurement. Make sure that the V/Hz value does not exceed 1.33 p.u across the alternate source and the motor bus before closing the alternate source breaker.

We have performed the timing tests on the PowlVac[®] vacuum circuit breaker to determine fast transfer dead times. The following table lists the dead times for simultaneous and sequential fast bus transfer schemes.

Source of Closing Signal	Dead Time, ms	
	No Arcing	With Arcing
Simultaneous Close and Trip Signals	7.0 - 17.0	(1.0)* - 9.0
Trip Then Close, Using Fast "b" Contact	53.0 - 63.0	45.0 - 55.0
Trip Then Close, Using Standard "b" Contact	57.5 - 67.5	49.5 - 59.5

*Possible overlap



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