

TECHNICAL NOTE

# Low voltage dry type transformers

## Infinite bus let-through amperage



Infinite bus let-through amperage is a simple worst-case calculation to determine the short-circuit current (SCC) that a transformer can deliver to the electrical system in distress. The manufacturer can show a value of this calculation, but the engineer of record must perform calculations that include tolerances and additional factors of the planned installation site.

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### Calculation

The calculation is straightforward:  
(% Z values in the table at right are nominal)

$$SCC \text{ secondary} = \frac{(FLA \text{ secondary} \times 100)}{\% Z}$$

ABB's most common transformers are the three-phase, general purpose, aluminum winding, 480 V primary, 208Y secondary with a 150 °C temperature rise. The table at right provides the data for these.

### Circuit breaker

Catalog	kVA	% Z	FLA (sec.)	Infinite bus SCC	Under 10 kAIC	Other AIC
9T10A1001	15	3.7	41.6	1124.3	Yes	n/a
9T10A1002	30	4.6	83.3	1810.9	Yes	n/a
9T10A1003	45	5	125	2500.0	Yes	n/a
9T10A1004	75	4.5	208.2	4626.7	Yes	n/a
9T10A1005	112.5	3.5	312.3	8922.9	Yes	n/a
9T10A1006	150	4.4	416	9454.5	Yes	n/a
9T10A1007	220	4.9	625	12755.1	No	22 k
9T10A1008	300	4.3	832.7	19365.1	No	22 k
9T10A1009	500	5.1	1387.9	27213.7	No	45 k
9T10A1302	750	6.1	2082	34131.1	No	45 k

Note: NEMA ST-20 Sec. 4.2.8.3b allows for a ±10% tolerance from the nominal impedance values in the table. Infinite bus SCC values are values expected directly at the transformer terminal and do not take into consideration any lugs, connection points or cables/wires that feed the over-current protection device within the panel under review.