Transient Limitation

When monitoring high current transients it is possible to exceed the internal dissipation limits of the unit. For unidirectional currents saturation of the core protects the secondary circuit. The energy of a bidirectional transient is not limited in this way. The heat generated by such a transient current is proportional to the time integral of the square of the current. For any given model the limit can be found by multiplying the peak current rating by the I•t product. Exceeding this I²t value may damage the unit.

For example, the l²t limit for the 301X would be 50 kA times 22 A-sec, or 1.1 x 10^{6} A²-sec. If an AC current of 5 kA RMS were applied, the maximum duration should be 1.1 x $10^{6}/(5 \times 10^{3})^{2} = 4.4 \times 10^{-2}$ sec.