Maximum Starts Per Hour

For many applications it is important that the soft starter operate continuously even under extreme loads or environmental conditions. A conservative selection of SCR's and a superior heatsink-cooling system has made continuous, reliable operation of the soft starter possible.

The soft starter is limited to the number of starts it can perform in an hour. The number of starts per hour is dependent upon the following:

– Ambient temperature inside the enclosure
– Starting current (percentage of starter FLC)
– Duration of starting current (during which full starting current is flowing)

An appropriate formula for calculating the maximum starts per hour:

$$N = 4 \times \frac{SFLC \times 400 \times 30}{MFLA \times CL \times T}$$

Where: N = the number of starts per hour
SFLC = the soft starter's rated full load amps
MFLA = the rated full load amps of the motor
CL = "Current Limit" setting
T = actual starting time

EXAMPLE:

The motor is rated at 65 amps. The soft starter is rated at 72 amps with a "Current Limit" setting of 350%. The actual measured starting time is 5 seconds.

$$N = 4 \times \frac{72 \times 400 \times 30}{65 \times 350 \times 5}$$

$$N = 30 \text{ starts per hour}$$

Note: It is assumed that the starts will *not* be one immediately after another, but will be spread out throughout the hour.

WARNING

For very frequent starts (inching/jogging), the heatsink (which has a very large mass) will heat up more slowly than the SCR junction. This could cause a failure in the SCR prior to the starter tripping on "OVERTEMPERATURE". Therefore, the jogging current should be considered the full load current.