

Soft Starter Two Speed Motor Control

We have used our Soft Starters many times in conjunction with two speed motor applications. There are generally two forms, one using tapped windings (termed dahlander motors) to change the speed and the ratio, and the second that has two separate windings which are totally independent of each other to change the speed and the ratio. Please find attached two power and control circuit diagrams that we hope will be of interest, one showing the two speed dahlander connection and other showing the two speed connection.

The diagrams show momentary contact control however the starting could be controlled via a PLC etc. In this control scheme the Soft Starter has the control and the connections of the low or high speed are always made before the start signal is given. In this manner the Soft Starter synchronises with the supply and the rolling motor before the thyristors are switched therefore we always have a controlled start.

If the Soft Starter + version is used, use of the two parameter groups can be made. Therefore we can have one set of parameters for the low speed duty and another separate set of parameters for the high speed duty. Contacts off the contactor can be used for a voltage into one of the programmable inputs to switch between the two parameter groups.

It is important that the timers are set correctly to ensure that when we are changing from high to low speed there is enough time allowed for the motor to achieve the synchronise speed of the low speed motor before the Soft Starter is activated for the low speed. If this is not adhered to then there can be a large braking effect and high currents, which the Soft Starter will be subjected to before the motor falls to its low speed. On some high torque and high inertia applications if the timers are not set correctly this can lead to the Soft Starters overload tripping continuously or damage to the Thyristor assemblies.