

The Application Note is pertinent to the Quantum III /Mentor II DC Drive Family

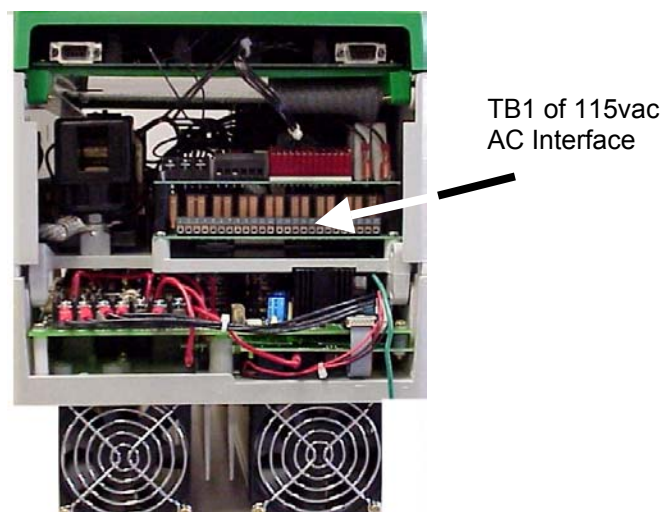
“Contactor-Less” Jog Delayed Motor Contactor Hold-In

When jogging, the “*banging*” of the contactor on Quantum III can be rather annoying not to mention causing things on the panel to vibrate loose and also tends to accelerate general wear and tear on this electromechanical device. It is often desirable to hold the contactor “in” for a couple of seconds after a jog (anticipating more jogging to follow) then “dropping out” the motor contactor. This can provide a “*contactorless*” jog feel and reduce the effects mentioned above.

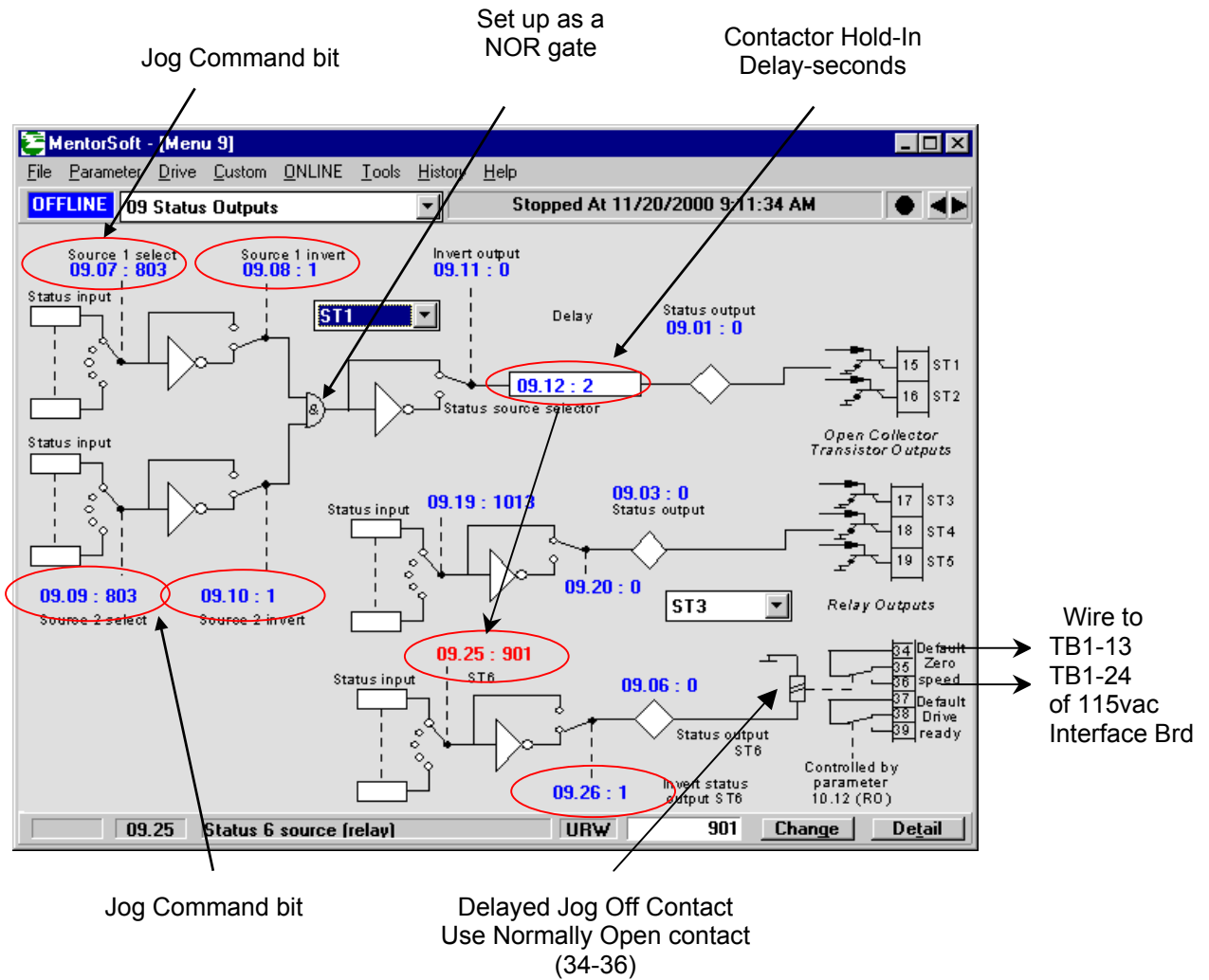
This application note illustrates how to utilize the “built-in” logic function and time-delay blocks to embellish the Jog function provided in the Quantum III.

The Quantum III has two built-in 2-input logic gates that can be configured as an AND, NAND, NOR or OR gate. Each logic gate has a programmable timer on their outputs. By inverting the JOG input command bit and delaying its’ output will achieve the function we want.

Now if we can only get that delayed output to interface with the 115vac Interface Board we could delay the contactor from dropping out. The Quantum III has a free programmable relay contact that is available for customer use on TB4 of the MDA2B Board (TB4 is under the snap on drive cover) that can help use with that interface.



To accomplish the necessary logic inversions and time delayed output from the jog command, one would make the following parameter changes.



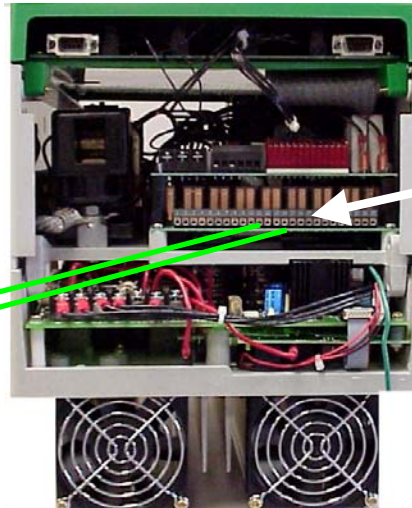
To complete this Quantum III application one would make the following wiring connections:

From	To
pin 34 of TB3 on the MDA2B board	pin 13 of the AC Interface Board
pin 36 of TB3 on the MDA2B board	pin 24 of the AC Interface Board
pin 14 of the AC Interface Board	pin 5 of the AC Interface Board

The Quantum III has a free programmable relay contact that is available for customer use on TB4 of the MDA2B Board (TB4 is under the snap on drive cover). Pins 34 and 36 of this terminal strip is the NO (normally open) contact of this relay. Factory defaults for this relay set it to activate AT ZERO SPEED, but you can set it to any other bit of your choice.



TB4 under Drive Cover

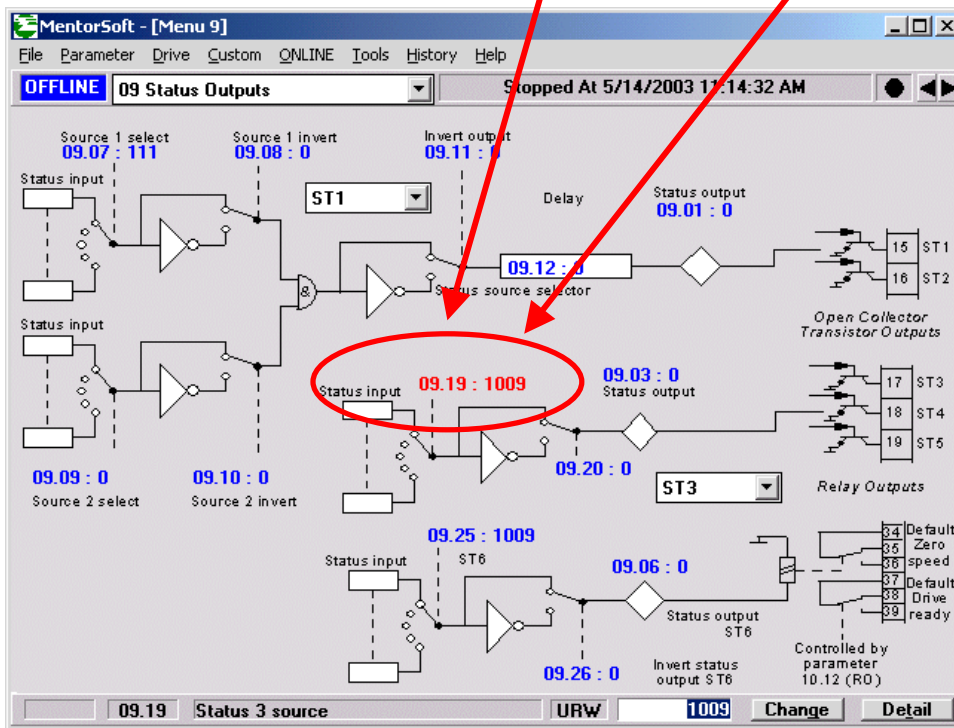


TB1 of 115vac AC Interface

These connections will provide a method for this delayed off contact to hold in the contactor but only after the contactor has been picked up by an initial Jog request. (The RUN/JOG contact, TB1 pins13-14 on the 115vac Interface board, is used as a permissive for the delayed contact created above).

If you need to have an output contact that indicates Zero Speed (since I decided to use it for Jog purposes above), you would have 2 options:

- a) Any of the available open collector outputs can be programmed as you wish. These open collectors can pull in a typical “ice-cube” relay coil (if less than 100mA). The internal Zero Speed indication bit is parameter #10.09 which can be placed into any free output source register.
- b) Leave the drive default assignment of Zero Speed on pin 34-36 and leave #9.25= 1009 but use any of the available open collector outputs to perform the relay function as described previously but substituting your external relay contacts instead of pins 34 & 36. In this case, this output source would need to be set for 901 ie #9.19=901



For example, these 3 outputs are typically free and available to drive an external relay

If you need assistance on how to drive an external relay using these open collectors consult our Application Note CTAN154.

www.emersonct.com/pdProducts/downloads/appNotesPDF/ctan154.pdf

Mentor II

A similar approach could be used for a Mentor II but one would need to make the necessary translations. (Jog F and Jog R would be the inputs to the NOR gate)

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