

FlexMax Drives

Instructions for Zeroing Motor Feedback using PC



Note: Procedure can also be performed with standard keypad

If your *Flexmax* Drive was ordered as part of a motor/drive package, it was shipped from the factory with the correct feedback phasing parameters stored in its “Saved Parameter Set” in non-volatile flash memory. Since all standard Powertec motors are shipped from the factory with a consistent mechanical feedback alignment, that phasing should be correct for any Powertec motor with the same feedback, unless that mechanical alignment has been changed (i.e. by changing motor feedback).

If your *Flexmax* Drive was ordered as a drive-only, the default parameter set is for resolver feedback. No phasing should be necessary to run a Powertec motor with standard resolver feedback unless the factory set mechanical resolver alignment has been changed.

Required:

- 1) PC with open serial port
- 1) Serial cable with PCI-485 interface for connection of PC to drive
- 1) WinPX and PXBasic software

Set-up:

- 1) Connect AC input and motor leads to drive per the manual. Be sure to connect both input ground and motor ground to drive ground.
- 2) Connect motor feedback cable to appropriate sub-D connector:
 - a. Resolver to XFR Connector – rightmost connector on EXP-BRS
 - b. Halls/encoder to XE Connector – leftmost connector on Regulation Board
- 3) Connect a switchable input to Digital Input 0 (Enable, pos 12 on X1 terminal strip) per the manual.
- 4) If WinPX is not installed on PC, install by running *setup.exe* file (Disk 1)
- 5) Install PXBasic by running *setup.exe* file (Disk 2).
- 6) Connect drive to PC using serial cable and PCI-485 Interface. The PCI-485 Interface should be connected directly to the PC serial port, and the other end of the serial cable connected to the XS connector on the regulation card. This is the SUB-D connector on the right on the regulation (bottom) card. Make sure the dip switches on PCI-485 Interface are set to **ON**.

Procedure for phasing (zeroing) feedback:

Note: See drive manual page 91 for detailed instructions.

Note: All file locations shown are the default locations from the set-up program. If you did not use the default locations, substitute the correct path on your PC in the instructions.

- 1) Power-up drive.
- 2) Launch *WinPX* by clicking on the *WinPX for FlexMax* icon.
- 3) Open a parameter file into WinPX:
 - a. *soxxxxx_x.par* from the 3.5" diskette labeled "Disk 2", or
 - b. C:\Program Files\Powertec Industrial Motors\WinPX\PXBasic\V1.280\PXBasicV1_280.par, or
 - c. Another parameter file that is known to be of the same version level as the *PXBasic* you are using
- 4) If necessary, select "Connect" from the "Target" menu.
- 5) To upload the parameters currently stored in drive flash memory:
 - a. Highlight "All parameters" in the left hand menu tree
 - b. Select "Read all" from the "Parameters" menu (or click on the "Read all parameters" icon). The parameters should turn from red to black to indicate that the parameter displayed is confirmed by the PC to be resident in the drive active (volatile) memory.
- 6) From the "Parameters" menu, select "On line mode".
- 7) In the *30-Encoder parameters* folder, confirm that the proper feedback is selected:
 - a. For resolver feedback:
 - i. IPA#20010 *ENCODER TYPE*: Resolver
 - ii. IPA#20011 *ENCODER PULSES*: 2048
 - iii. IPA#20012 *ENCODER SUPPLY*: 5.25
 - b. For Powertec Hall Effect Encoder feedback:
 - i. IPA#20010 *ENCODER TYPE*: Hall (for phasing only)
 - ii. IPA#20011 *ENCODER PULSES*: 30, 45, or 60
 - iii. IPA#20012 *ENCODER SUPPLY*: 5.25
 - c. For digital encoder with index and commutation tracks:
 - i. IPA#20010 *ENCODER TYPE*: Dig. + Hall
 - ii. IPA#20011 *ENCODER PULSES*: ppr value (ie 1024, 2048, etc)
 - iii. IPA#20012 *ENCODER SUPPLY*: 5.25 (normally)
 - d. For digital encoder with commutation tracks but no index:
 - i. IPA#20010 *ENCODER TYPE*: Hall (for phasing only)
 - ii. IPA#20011 *ENCODER PULSES*: ppr value (ie 1024, 2048, etc)
 - iii. IPA#20012 *ENCODER SUPPLY*: 5.25 (normally)
- 8) In the *10-Drive parameters* folder, set IPA# 20023 *Drive configuration* to "Encoder phasing".
- 9) Reset the drive and save parameters to target flash
- 10) Go to the *211-Serv. phasing* folder and monitor the parameters
- 11) Enable the drive
 - a. Shaft will rotate slightly and lock in "zero" position
 - b. Shaft will then rotate CW part of a revolution and stop in a fixed position (if shaft does not rotate CW, check wiring)

- 12) Note the parameter values and then disable the drive
- 13) Repeat steps 10 & 11 three or four times
 - a. Parameter values should be within a few electrical degrees of each other
- 14) In the *10-Drive parameters* folder, set IPA# 20023 *DRIVE CONFIGURATION* to “Speed” (or other desired configuration).
- 15) If the feedback is Powertec Hall Effect Encoder or digital encoder with commutation tracks but no index:
 - a. Go to the *30-Encoder parameters* folder
 - b. Set IPA#20010 *ENCODER TYPE* to: “Dig. + Hall”
- 16) Reset the drive and save parameters to target flash
- 17) Save the parameter file to hard drive or disk under the appropriate filename