

## Application Note #5517

### Connecting a Parker Compumotor brushless motor to Galil amplifiers

This application note describes the procedure to connect a Parker brushless motor (Model number: BE23FJ-N10N) to a DMC-40x0 Accelera series controller with an AMP-43040 drive installed. The system setup is shown in Figure 1. This setup can be used with other controller and amplifier combinations like the DMC-21x3 with AMP-20540, and the CDS-3310 single axis controller-amplifier package.

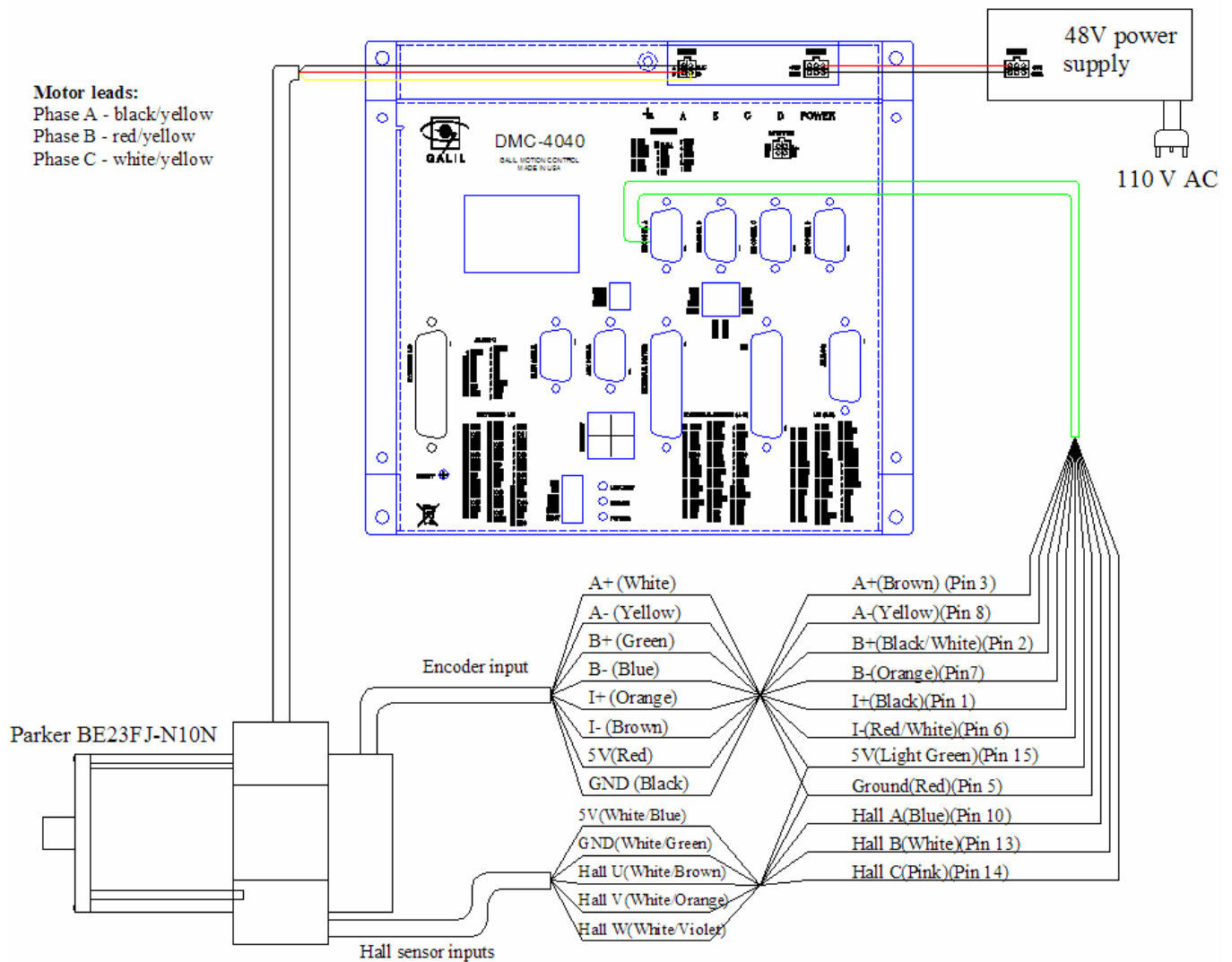


Figure 1 System setup

**\*NOTE: See Page 3 for wiring changes on BE series motor**

### Hardware used:

- Motor : BE23FJ-N10N
- Controller: DMC-40x0 with AMP-43040
- 48V power supply
- 15 pin high density cable with flying leads(part number: Cable-15pin-1m) or [ICS-48015-M](#)
- A PC running Windows XP and WSDK (for setting up and tuning the system)
- 100BaseT Ethernet cable and Hub or Crossover Ethernet cable

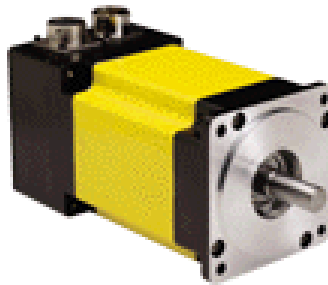


Figure 2 Parker motor

### Operation and Tuning

Table 1 shows the tuning parameters used under no load conditions to get the optimal step response.

Table 1 PID parameters (at amplifier gain setting AG 1)\*

Parameter	Accelera (DMC-40x0)	Econo/Optima (DMC-21x3)
KD	206.75	56.25
KP	19.5	5.25
KI	0.38	0.82

### Reference:

1. Datasheet for BE23FJ-N10N.  
<[http://www.parker.com/compumotor/cat/english/BE\\_Series.pdf](http://www.parker.com/compumotor/cat/english/BE_Series.pdf)>
2. Description for AMP-205x0, AMP-20542 D sub Cables.  
<<http://www.galilmc.com/support/appnotes/econo/note1241.pdf>>
3. Data sheet for High Density D-Sub Connectors from Digi-Key.  
<<http://dkc3.digikey.com/PDF/T063/0214-0215.pdf>>
4. Data sheet for High Density D-Sub Cables from L-Com.  
<<http://www.l-com.com/productfamily.aspx?id=1017>>

\* Note: PID values for the Accelera series controllers vary from those used in Optima/Econo series controllers. Check [Application Note 2501](#) for more details.

### **\*\*\*Wiring Changes for BE Series Motor**

Motor leads:

Red/Yel - Galil Phase A  
Wht/Yel - Galil Phase B  
Blk/Yel - Galil Phase C

Hall Leads:

Violet - Galil Hall A  
Brown - Galil Hall B  
Green - Galil Hall C

Be sure to connect the Green/White lead from the motor to Gnd. This lead is a Hall Return and therefore the motor hall sensors will not work without it connected. This is in addition to also connecting the Blk and Blk/Wht to ground which are labeled Enc Ret & Hall Ret.