GE AEPA I/O Modules

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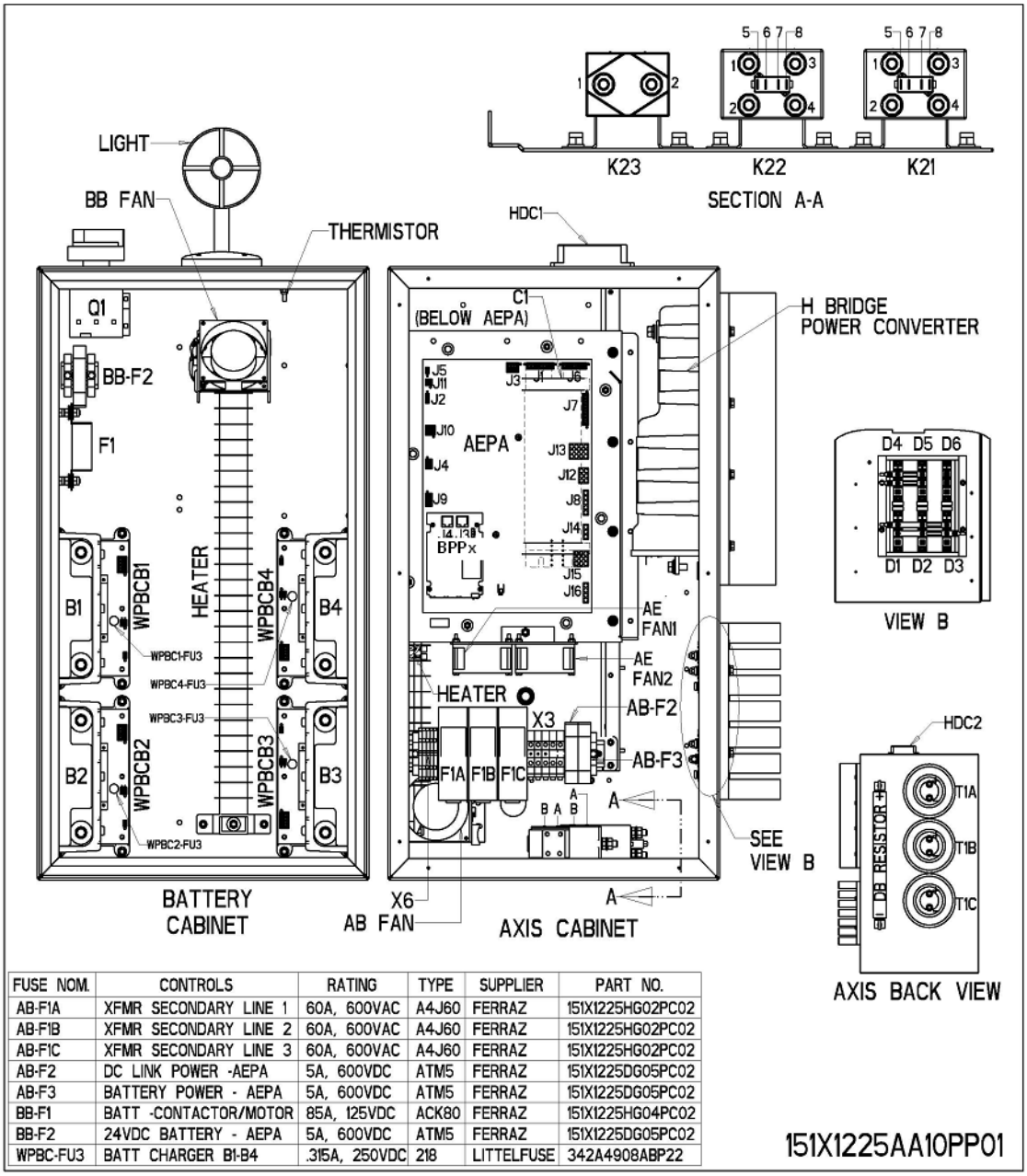
5 Axis Box

The Axis box contains an application board (AEPA), a 3-phase transformer (three single-phase toroidal transformers), a 3-phase rectifier, power converter, and dc contactors. The AEPA accepts position references received by the AEPC from the turbine controller, and converts the position reference to a torque reference that is sent to the power converter. The main 400 V ac power is converted to approximately 63 V ac, and then rectified to supply the Pitch power converter with 80 V dc. The Pitch power converter controls the dc motor.



FUSE NOM.	CONTROLS	RATING	TYPE	SUPPLIER	PART NO.
AB-F1A	XFMR SECONDARY LINE 1	60A, 600VAC	A4J60	FERRAZ	151X1225HG02PC02
AB-F1B	XFMR SECONDARY LINE 2	60A, 600VAC	A4J60	FERRAZ	151X1225HG02PC02
AB-F1C	XFMR SECONDARY LINE 3	60A, 600VAC	A4J60	FERRAZ	151X1225HG02PC02
AB-F2	DC LINK POWER -AEPA	5A, 600VDC	ATM5	FERRAZ	151X1225DG05PC02
AB-F3	BATTERY POWER - AEPA	5A, 600VDC	ATM5	FERRAZ	151X1225DG05PC02
BB-F1	BATT -CONTACTOR/MOTOR	85A, 125VDC	ACK80	FERRAZ	151X1225HG04PC02
BB-F2	24VDC BATTERY - AEPA	5A, 600VDC	ATM5	FERRAZ	151X1225DG05PC02
WPBC-FU3	BATT CHARGER B1-B4	.315A, 250VDC	218	LITTELFUSE	342A4908ABP22

Typical Axis and Battery Boxes Layout

5.1 AEPA Module

Refer to Mark VIe Control Renewable Energy Distributed I/O Modules (GEH-6779).

The AEPA is a special-purpose I/O module that controls the pitch of a wind turbine blade through a series-wound dc motor. The IS215AEPA is replaced as a single module (AEPA module and BPPx processor board). The ToolboxST application includes an AEPA HTML help file.

5.1.1 Compatibility

Refer to the section, Replacing an AEPA.

The AEPA module has two versions and includes a compatible BPPx processor boards, as listed in the following table.

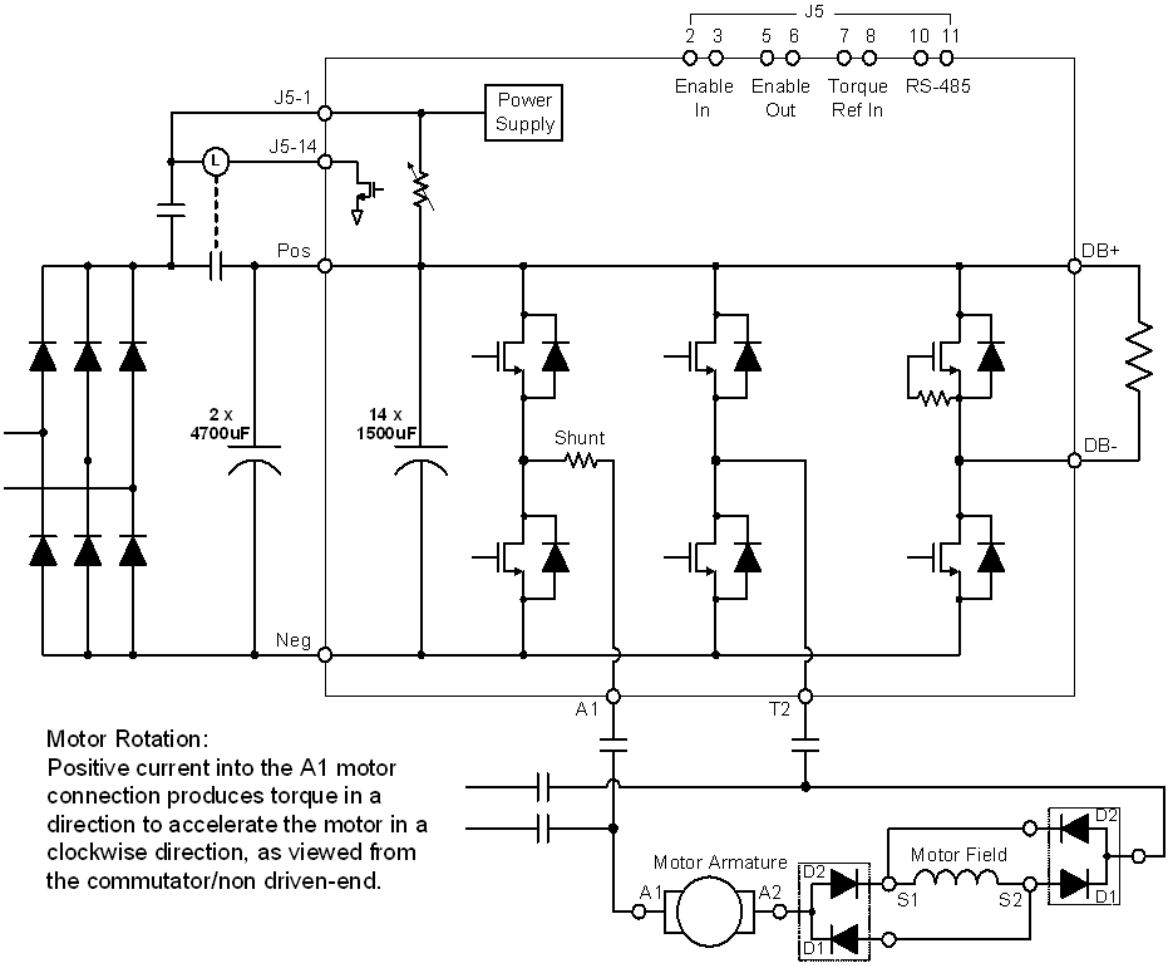
Version	Description
AEPAH1A	BPPB processor board
AEPAH1C	BPPC† processor board
† Supported with ControlST* software suite V04.06 and later	

5.2 Pitch Motor Power Converter

The Pitch Motor Power Converter supplies the power to the pitch motor by pulse-width modulating (PWM) the dc voltage to regulate dc motor current. The AEPA supplies a hard-wired output *Enable* signal and a 4-20 mA current reference to the motor controller. The RS-485 link sends converter feedbacks and diagnostics from the converter to the AEPA. The Pitch Motor Power Converter provides the AEPA with a hard-wired *Enable Acknowledge* signal.

Attention

Do not service the Pitch Motor Power Converter. If a problem occurs, replace the entire component.



Pitch Motor Power Converter