EDCF Board

The EDCF board measures field current and field voltage at the SCR bridge and interfaces to the EISB board over a high-speed fiber-optic link. The fiber-optic link provides voltage isolation between the two boards, and high-noise immunity. Field current is measured using a shunt in the dc field circuit. The field voltage feedback circuit provides seven selector settings to scale the bridge voltage, depending on the type of bridge application. For more information refer to *Chapter 4* and *GEI-100464*.

Note EDCF handles bridge dc voltage and current feedback.

EACF Board

The EACF board measures the exciter PPT ac supply voltage and current. The EACF terminal board contains transformers for a 3-phase voltage measurement, and terminals for two Flux/Air core coils. The outputs of the voltage and current circuits are fanned out to three DB9 connectors for cables to controllers M1, M2, and C. These cables can be up to 90 m in length. There are three versions of this board, EACFG1 is for inputs up to 480 V rms, EACFG2 is for inputs up to 1000 V rms, and EACFG3 is used for inputs up to 1400 V rms. For more information refer to *Chapter 4* and *GEI-100465*.

Note EACF handles bridge ac voltage and current feedback.

Bridge and Protection Boards and Modules

The exciter bridge and protection boards are as follows:

- IS200EGPA Exciter Gate Pulse Amplifier board (EGPA)
- IS200EHPA Exciter Gate Pulse Amplifier board (EHPA)
- IS200EHFC 100 mm Fan Control board (EHFC)
- IS200EXCS Conduction Sensor board (EXCS or EMCS)
- IS200EDEX Exciter De-Excitation and crowbar board (EDEX)
- IS200EGDM Exciter Field Ground Detector Module (EGDM)
- IS200EXAM Exciter Attenuator Module (EXAM)

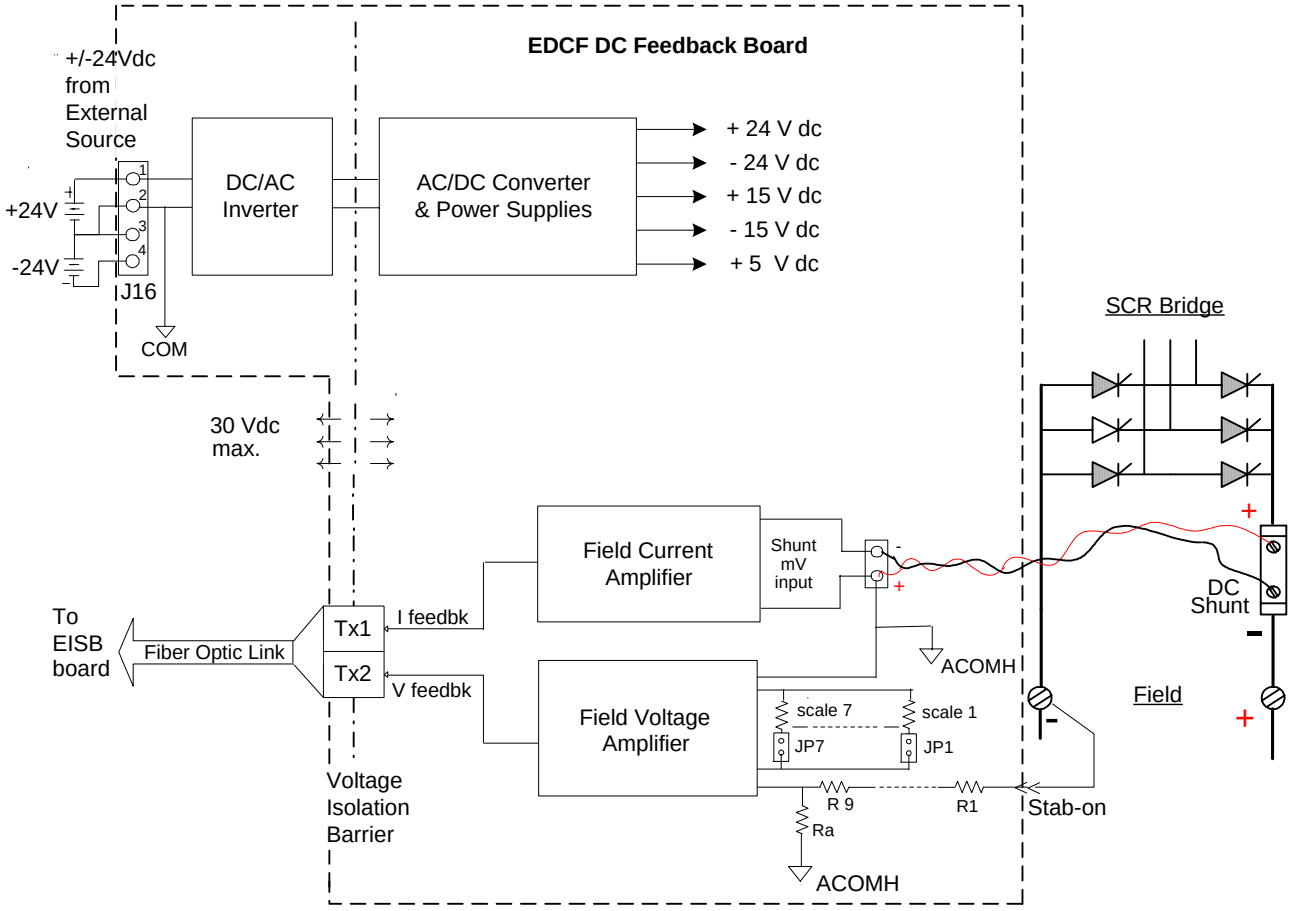
EGPA and EHPA Boards

The EGPA or EHPA board interfaces the control to the power bridge. The gate pulse amplifier board takes the six gate commands from the ESEL and controls the gate firing of up to six SCRs on the bridge. It is also the interface for current conduction feedback, and the bridge airflow and temperature monitoring.

Note Bridge control passes through EGPA or EHPA. One gate pulse amplifier board is required per PCM.

Exciter dc Feedback

The EDCF board measures field current and field voltage at the SCR bridge, and interfaces to the EISB board in the controller over a high-speed fiber-optic link. The fiber optics provides voltage isolation between the two boards, and high noise immunity. For a circuit block diagram, refer to the figure *Field Voltage and Current Measurement*. The field voltage feedback circuit provides seven selector settings to scale down the bridge voltages appropriate to the application.



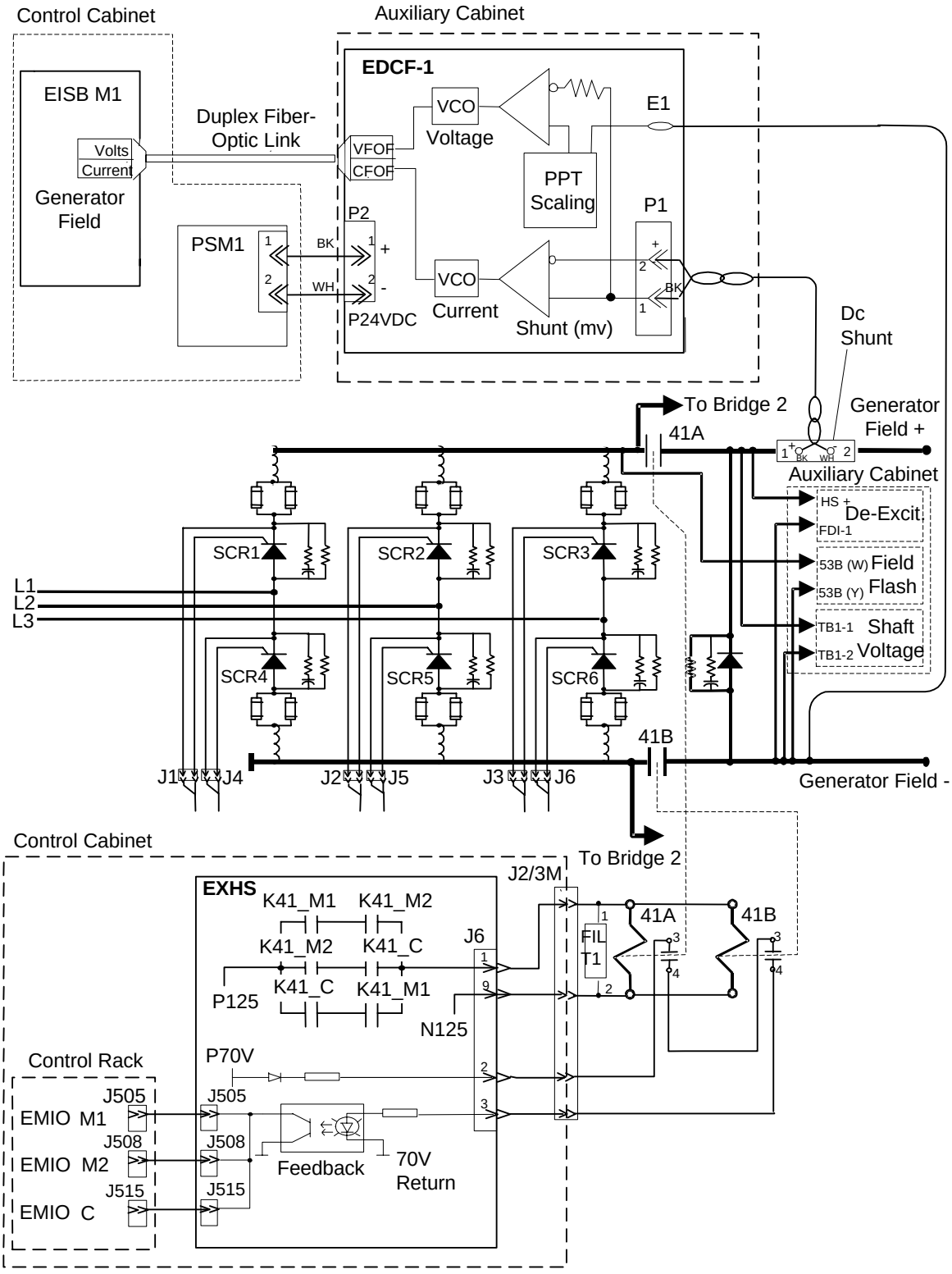
Field Voltage and Current Measurement

Field Current Feedback

The field current is measured across a dc shunt at the output of the power converters. This generates a nominal 100 mV signal, which is input to a differential amplifier. The output voltage from the amplifier ranges from –5 V to +5 V. A VCO produces a linear proportional frequency of 0 - 2 MHz with an accuracy of 1% of full scale reading. These pulses drive the LED in the optical isolator coupled to the fiber-optic cable.

Field Voltage Feedback

The bridge voltage is measured across the output of the power converter modules. After scaling the voltage with the jumpered resistors, the signals are input into a differential amplifier, which controls the VCO. The VCO produces a linear proportional frequency of 0 - 2 MHz with an accuracy of 1% of full-scale reading. The pulses drive the LED in the optical isolator coupled to the fiber-optic cable.



Dc Field Circuit Contactor and Control Board