DS200TCEB – Protective Termination Expander Board

The Protective Termination Expander Board (TCEB), located in the <P1> core, scales the PT and CT signals used by the TCCB board in the <R5> core. These signals are used for the generator and bus voltages and the line current and are landed on the PTBA terminal board. Signals for emergency overspeed and flame detect come from the PTBA terminal board and are passed through the TCEB board to the TCEA boards for processing. The 335 V dc needed for the flame detector devices passes across this board from the TCEA boards, is conditioned, sent to the PTBA terminal board and out to the sensors. The alarm horn for the Mark V LM is also located on the TCEB board.

TCEB Connectors

JKX/Y/Z – Carries the emergency overspeed magnetic pick up signals and flame detection signals to the TCEA boards in locations <X>, <Y>, and <Z> respectively.

JMP – Carries the PT and CT signals to the TCCB board in the <R5> core.

JU – Carries the magnetic pick up and flame detect signals from the PTBA terminal board.

JV – Carries the PT and CT signals from the PTBA terminal board.

JVA – Carries the 335 V dc to the PTBA terminal board for the UV flame detector devices.

JWX/Y/Z – Carries the 335 V dc from the TCEA board and conditions the signal prior to the TCEB board writing the 335 V dc to the PTBA terminal board via the JVA connector.

JPU – Typically not used.

JPV – Typically not used.

JPW – Typically not used.

The hardware document in Appendix B and the signal flow diagrams in Appendix D contain more information.

TCEB Configuration

Hardware. There are no hardware jumpers on the TCEB board. The alarm horn jumper is located on the PTBA terminal board.

Software. There is no software configuration for the TCEB board.

TCEB PT and CT Circuit

The PT and CT signals are read via t JV connector from the PTBA terminal board. These signals are stepped down and written to the TCCB board in the <R5> core via the JMP connector where they are used for imbedded functions. Any configuration associated with these signals is done in the <R5> core.

TCEB Flame Detection Circuit

The flame detection signals are read via the JU connector from the PTBA board and passed through and written to the TCEA boards via JKX/Y/Z connectors. Some conditioning is done on the 335 V dc signals passed through the TCEB board prior to being written to the PTBA terminal board. The signals are read on the JWX, JWY, and JWZ connectors, and written to the PTBA board via the JVA connector.

TCEB Emergency Overspeed Circuit

The magnetic pick up signals for emergency overspeed are read from the PTBA board via the JU connector and passed through the TCEB board to the TCEA boards via the JKX, JKY, and JKZ connectors.

DS200TCPD – Power Distribution Module

The Power Distribution Board (TCPD), located in <PD>, distributes the 125 V dc power to the TCPS boards in each IO core, the Control Engine core, and the TCEA boards in <P1> core. The TCPD board provides switches for powering down each core individually. The digital I/O cores (<Q11>, <Q21> and <Q51>) do not receive their power directly from <PD>, these cores get their power from their associated IO core. The DTBC and DTBD (solenoid output power) terminal boards in the digital cores are powered directly from the TCPD board. The 120/240 V ac power for the ignition transformers connected to DTBC is supplied directly from the TCPD board. The CTBA terminal board in the <R5> receives power from the TCPD for <PD> power output monitoring.

TCPD Connectors

J1R – Distributes the 125 V dc power to the TCPS board in the <R1> core.

J1S – Distributes the 125 V dc power to the TCPS board in the <R2> core.

J1T – Distributes the 125 V dc power to the TCPS board in the <R3> core.

J1C – Distributes the 125 V dc power to the TCPS board in the <R5> core.

J1D – Distributes the 125 V dc power to the TCPS board in the <R> core

J7W – Distributes the 125 V dc power to the TCTG board in the <P1> core.

J7X – Distributes the 125 V dc power to the TCEA board in location one ,<X>, in the <P1> core.

J7Y – Distributes the 125 V dc power to the TCEA board in location three, <Y>, in the <P1> core.

J7Z – Distributes the 125 V dc power to the TCEA board in location five, <Z>, in the <P1> core.

J8A – Distributes the 125 V dc power to the DTBC board in the <Q51> core for the solenoids.

J8B – Distributes the 125 V dc power to the DTBD board in the <Q51> core for the solenoids.

J8C – Distributes the 125 V dc power to the DTBC board in the <Q11> core for the solenoids.

J8D – Distributes the 125 V dc power to the DTBD board in the <Q11> core for the solenoids.

J12A – Distributes the 125 V dc power to the DTBA board in the <Q51> core for the wetted contact inputs.

J12B – Distributes the 125 V dc power to the DTBA board in the <Q11> core for the wetted contact inputs.

J15 – Typically not used.

J16 – Typically not used.

J19 – Typically not used.

J20 – Typically not used.