Systems Operation
EMCP 3
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Data Link

SMCS - 4490

Data Links

The EMCP 3 has up to three different data links:

- Primary Data Link
- Accessory Data Link
- System Control And Data Acquisition (SCADA) Data Link

Note: The "EMCP 3.1" has one Primary Data Link. The "EMCP 3.2" and "EMCP 3.3" have one Primary Data Link, one Accessory Data Link, and one SCADA Data Link.

Primary Data Link - J1939 (CAN 1)

The Primary Data Link is used for local communication among modules associated with a single genset such as the Electronic Control Module (ECM) for the engine (EUI engines only), Caterpillar Digital Voltage Regulator (CDVR), and the Thermocouple Module. On MUI engines, the engine sensors are wired directly to the EMCP 3. The Primary Data Link utilizes the Society Of Automotive Engineers (SAE) J1939 protocol and requires Controller Area Network (CAN) hardware running at 250k bits per second.

The Primary Data Link supports appropriate SAE J1939 Broadcast Parameter Group Numbers (PGN) and Suspect Parameter Numbers (SPN) for engine and genset data.

Accessory Data Link - J1939 (CAN 2)

The Accessory Data Link is used for local communication among modules associated with a single genset such as Annunciators, RTD Modules and Discrete Input Output Modules. It utilizes the Society Of Automotive Engineers (SAE) J1939 protocol and requires CAN hardware running at 250k bits per

second.

The Accessory Data Link supports appropriate SAE J1939 Broadcast Parameter Group Numbers (PGN) and Suspect Parameter Numbers (SPN) for engine and genset data.

SCADA Data Link - Modbus RS-485

The SCADA Data Link is used for communication with a System Control And Data Acquisition (SCADA) system, and for support of a service tool connection.

The SCADA Data Link uses the Modbus Protocol with an RS-485 half duplex hardware layer operating at a minimum of 2.4k bits per second. All data items are accessed as Modbus registers. Data that is less than 16 bits occupies a single register. Larger data occupies consecutive registers in order to allow access using single request.

The SCADA Data Link is a Master/Slave Data Link. The SCADA controller Service Tool or customer software will be the master and the genset controls will be slaves on the Data Link.

The SCADA controller can connect directly to the genset control or it may be connected remotely through a modem using an RS-485 to RS-232 converter. Passwords levels are used in order to restrict access to the genset control.

Each genset control on the SCADA Data Link has a unique Modbus Address. A setpoint is available to select the address for the genset control.

In order to use a modem connection to the SCADA Data Link, the modem must be pre-configured with all necessary communication parameters and set to automatically answer. No modem handshaking or control is performed by the genset controls.

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