



Field Data Collection Unit (FDCU)

S7788

The Field Data Collection Unit (FDCU) is the primary receptacle for sensor data collection and communication in the field. It collects and processes sensor data and communicates that data to the end-user display units. The FDCU consists of a ZENO® 3200 Datalogger, a serial sensor expansion module (SSEM), various communications links, and power supply circuitry in an enclosure. The FDCU is sited at any sensor group location. The FDCU sends control and polling signals to the sensors and receives data signals from the sensors via a variety of communication protocols and formats depending on the sensor formats and customer communication requirements. It then converts all the signals into a standard protocol (typically ASCII data) – in the desired format, and sends it to the next link in the system.

Components of the FDCU

ZENO® 3200 Datalogger

The ZENO® 3200 Datalogger accepts and stores *analog, digital, and serial* sensor data. It also checks sensor function, alarms, and control functions (diagnostic inputs) including: ZENO® Datalogger power monitor, FDCU battery charger/load/voltage/charge monitors, FDCU DC power monitor, and FDU AC power fail. The ZENO® 3200 processes sensor data with a 32-bit micro-controller. A real-time clock is also provided. See the ZENO® 3200 Datalogger data sheet for more detailed information.

Serial Sensor Expansion Module (SSEM)

The SSEM is a microcomputer that expands the capability of the ZENO® 3200 Datalogger. The SSEM boosts the ZENO®'s ability to accept RS-232, RS-485, or RS-422 serial sensor data inputs. Maximum data rate is 15 kbits/s. System memory is 32 MB. The SSEM interprets, formats, and sends processed sensor data and other information to the end-user display or the ZENO® via the communications link.

Power Supply

The power supply circuits convert AC input power to DC power for use by other FDCU circuits.

Communications Links

The FDCU communicates point-to-point with the end user display units via either a wireless or a land-line link. The wireless link can be UHF radio, VHF radio, spread spectrum radio, or even satellite radio. The land-line link can be via fiber optic cable, twisted-pair cable, or a combination of fiber optic and twisted-pair cable.





Technical Specifications

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<u>Specification</u>	<u>Reason for Specification</u>
Universal Serial Interface	Allows the user to configure the ZENO [®] to retrieve data and diagnostic information from any serial sensor (that is RS-232 or RS-485 compliant) as well as control the sensor.
32 Bit Processor with Full Floating Point Math	<ol style="list-style-type: none">1. Lower power consumption to processing power ratio2. Programmable processing speed for difficult equations3. Capable of performing logarithms, FFT's, etc. very efficiently4. Can run multiple sampling schemes simultaneously5. Can send out multiple forms, formats, or types of data
5 Serial Ports (Expandable to 11 with the SSEM) 16 Analog Inputs, Expandable to 144 Inputs 15 Digital Inputs, 7 Configurable as Digital Outputs	Allows for additional sensors of any type to be attached and communication types added (serial ports allow telephone, leased line, cell phone, radio, microwave, satellite, etc.).
31 Independent Alarms or Built-in Tests	Allows you to test for sensor or system malfunctions, as well as adding alarms to certain conditions that occur in the data.
18 Bit Resolution in the Analog to Digital Conversion	<ol style="list-style-type: none">1. Gives you more accuracy2. Gives you more accuracy over a broader range3. Will not degrade the accuracy of existing sensors4. Can detect very small events
Fully Addressable	The ZENO [®] is fully addressable for data recovery or system parameter changes/commands. Clock can be synchronized through the network and Command Set is usable over any two-way form of communication, or on an RS-485 multi-drop line. Includes global Command Set.
Serial Pass Through Mode	Allows the user or the network to communicate directly with a serial sensor that is attached to a ZENO [®] , whether this is for the economy of a single phone line/cell phone connection, or to alter the settings of the serial sensor.
Hardware Watchdog Timer	Automatically reboots the ZENO [®] in case of power failure, lightning disruption, or any other condition that causes malfunction of the ZENO [®] while operating.
EEPROM Program Parameters Storage	Your program is saved – even in a power loss.
Real-Time Clock, Independently Powered	Provides independent time keeping.
Four Layer Surface Mount Circuit Board	Gives the unit a very long Mean-Time-To-Failure rate, and is very resistant to shock, thermal shock, and vibration.