

smartEDDY® 4.0 Industrial Instruments



Industrial instrument.

SE Systems' smartEDDY Industrial Instruments are designed for harsh, modern production environments where a rugged, eddy current instrument with a small footprint is required. These Industrial Instruments are NEMA 12 rated and can be used in dirty production

environments without temperature or humidity control. There is no other eddy-current test instrument that can so easily communicate with a control PLC or other production system controller as smartEDDY. No other instrument

is as fast and discriminating, nor has the programming flexibility and test frequency range as smartEDDY. And, smartEDDY delivers all this at a very reasonable price.

Features

smartEDDY Industrial Instruments are comprised of smartEDDY 4.0 instrument modules, smartEDDY test software, sensor and an industrial panel mount computer. Standard installation is in a customer's panel or in an SE System NEMA 12 enclosure. The instrument can be programmed to perform eddy-current test functions like making automatic, complex "accept/reject" decisions, checking if the test is working properly, and communicating with a PLC or other production control system. A bright, panel-mount, color touch screen LCD shows the eddy-current response metrics and alarm thresholds. Full manual control is available by using a keyboard. Specific operator control functions are available by using the programmable touch screen display or by adding a custom control panel.

► Broad Test-Frequency Range

The smartEDDY user can select any test frequency from 0 Hz to 25 MHz. Low frequencies provide deep penetration, i.e., a 1 Hz test can penetrate over 3 inches of aluminum; while high frequencies provide sensitivity to very small parts and flaws, i.e., a 25 MHz test can inspect fine wire and tubes only a few thousandths of an inch in diameter.

► Ultra High-Speed Digital Operation

With an instrument bandwidth of 5,000 Hz, smartEDDY can test and make complex "accept/reject" decisions in ~50 microseconds. Depending on the details, tests can be performed at line speeds as fast as 30,000 feet per minute. Depending upon their size, parts can be tested, theoretically, at rates as high as several thousand parts per second. Normally, test speeds are not limited by the smartEDDY instrument, but by mechanical considerations associated with handling the part or material.

► Complete, Fast, Robust Communication

These Industrial Instruments feature high-speed parallel communication. Eight alarm outputs and eight pre-assigned control inputs are available. Outputs are capable of switching resistive loads up to 3 Amps @ 125 volts. Inputs monitor control signals up to 24 volts. Outputs can be programmed to logical combinations of up to eight eddy-current response metrics.

Standard inputs can be used to balance the test, reset alarms, clear screen, pause the test, start the test, highlight data, provide a tick mark, inhibit outputs or record a data point.

Advanced inputs provide additional remote control features. Twelve different set-ups, programmed by the user, can be called by a PLC or other control interface. SE Systems factory can add other functions as required by the user.

► Easy Test Programming

No dials or switches are used to set up the test. All tests are programmed with an external keyboard. Critical hardware, data processing, and decision parameters are selected from an on-screen menu.

The test set-up parameters can be stored internally and loaded automatically when the instrument is turned on. Any number of other test set-ups can be stored for future use.

► **Advanced Real-Time Data Processing**

SmartEDDY performs advanced real-time data analysis to provide maximum flaw and material discrimination. Up to 8 measures of the response can be programmed and compared to 32 alarm thresholds. This outperforms typical eddy-current instruments that simply produce and respond to raw voltages.

smartEDDY Test Software

smartEDDY 4.0 Industrial Instruments include either standard or advanced smartEDDY software.

► **Standard 4.0 Test Software**

Standard Test Software includes:

- 16 bit data
- Auto store to RAM
- 8 use-defined metrics
- High-pass digital filters (four-pole)
- Low-pass digital filters (four-pole)
- Real-time vector analysis
- Magnification to 100,000X
- Learn functions
- LAC (lift off amplitude correction)
- CPANS (continuous phase angle noise suppression)
- Data replay
- Manual parameter store & retrieve
- Manual data store & retrieve
- Insert data to ASCII file
- Voltage plane display
- Cartesian/time display
- Split screen display

► **Advanced 4.0 Test Software**

Advanced Test Software includes important enhancements to the standard software.

- Auto data store to disk
- Auto defect data store to disk
- Parametric analysis
- ASCII file generator
- Polar/time Display
- Cartesian frequency scan display
- Advanced input control

► **Hardware Test Parameters**

The hardware parameters below can be programmed by the user as part of a test set-up.

- Frequency (0 Hz to 25 MHz)
- Gain (1 to 16)
- Drive level (0 to 5 volts)
- Data rates (10 to 15,000 dp/s)
- Impedance or reflectance modes
- Independent channels, multi-frequency, absolute/differential

► **Industrial Instrument Models**

Models include one, two and four channel/frequency instruments with standard or advanced smartEDDY 4.0 software.

SE 4.0-ITI

Industrial Test Instrument

- Industrial computer with I/O card
- Single channel instrument module
- Standard 4.0 test software
- Standard I/O control functions

SE 4.0-ITP

Industrial Test Instrument Plus

- Industrial computer with I/O card
- Single channel instrument module
- Advanced 4.0 test software
- Advanced I/O control functions

SE 4.0-IFD

Industrial 4-D Test Instrument

- Industrial computer with I/O card
- Dual channel/frequency instrument module
- Standard 4.0 test software
- Standard I/O control functions

SE 4.0-IFDP

Industrial 4-D Test Instrument Plus

- Industrial computer with I/O card
- Dual channel/frequency instrument module
- Advanced 4.0 test software
- Advanced I/O control functions

SE 4.0-IFD/2

Four Channel Industrial 4-D Test Instrument

- Industrial computer with I/O card
- Two dual-channel/frequency instrument modules
- Standard 4.0 test software
- Standard I/O control functions

SE 4.0-EFDP/2

Four Channel Industrial 4-D Test Instrument Plus

- Industrial computer with I/O card
- Two dual-channel/frequency instrument modules
- Advanced 4.0 test software
- Advanced I/O control functions

Integrated systems are available with 8, 16 and 32 channels/frequencies.

► **Industrial Instrument Options**

SE 4.0-INE

- NEMA 12 enclosure

SE 4.0-4DMS

- Four-Dimensional Vector-Measurement software

SE 4.0-SSIO

- Solid-state I/O boards, 50Volt open collector, sinks 25 mA @ less than 1V

Other options on request

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