

smartEDDY® 4.0 Embedded Instruments

SE Systems' smartEDDY embedded eddy-current instruments are designed to be incorporated into the control system of modern, automated production lines. There is no other eddy-current test instrument that is as easily and completely integrated, and is as

fast and discriminating as smartEDDY. No other instrument can match its programming flexibility and can operate over as wide a test frequency range. And, smartEDDY delivers all this at a very reasonable price.

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 Embedded 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.

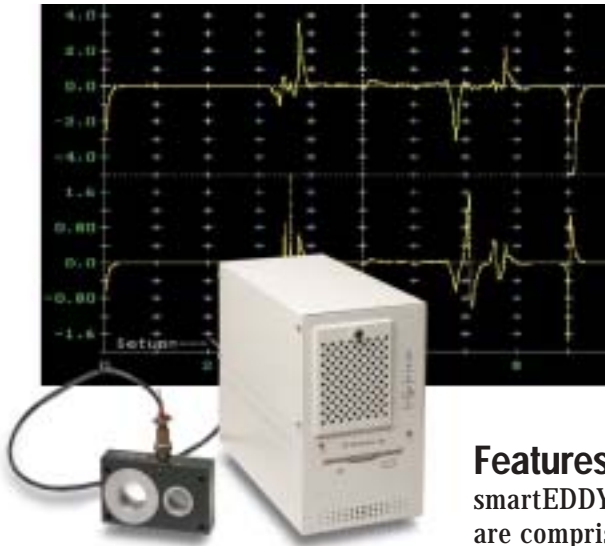
Standard inputs can be used to balance the test, reset alarms, clear screen, pause the test, start the test, highlight data, provide a tick mark, inhibit outputs or record a data point.

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

The smartEDDY 4.0 Embedded Instruments only uses a power switch. No dials or switches are used during normal operation. All tests are programmed with an external keyboard and monitor. Critical hardware, data processing, and decision parameters are selected from an on-screen menu.

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



Embedded smartEDDY.

Features

smartEDDY Embedded Instruments are comprised of smartEDDY 4.0 instrument modules, smartEDDY test software, sensor and an embedded computer. 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 LCD can be added to show the eddy-current responses while full manual control is available by adding a keyboard. Specific operator control functions are also available by adding a custom control panel or programmable touch screen display.

► 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 wires 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

► **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 Embedded 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 user-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

With an external monitor, the following displays are possible:

- Voltage plane display
- Cartesian/time display
- Split screen display

► **Advanced 4.0 Test Software**

Advanced Test Software includes important enhancements to the Standard Test 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

► **Embedded Instrument Models**

Models include one, two and four channel/frequency instruments with Standard and Advanced smartEDDY 4.0 Software.

SE 4.0-ETI

Embedded Test Instrument

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

SE 4.0-ETP

Embedded Test Instrument Plus

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

SE 4.0-EFD

Embedded 4-D Test Instrument

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

SE 4.0-EFDP

Embedded 4-D Test Instrument Plus

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

SE 4.0-EFD/2

Four Channel Embedded 4-D Test Instrument

- Embedded 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 Embedded 4-D Test Instrument Plus

- Embedded 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.

► **Embedded Instrument Options**

SE 4.0-LCD

- 12" color, liquid crystal, panel mount display

SE 4.0-TSLCD

- 12" color, touch screen, liquid crystal, panel mount display

SE 4.0-ENE

- NEMA 12 enclosure with keyboard drawer

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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Specifications subject to change without notice.
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