

Technical
Specifications

ECTANE 3

The most advanced surface array and tube inspection test instrument

Delivering fast reliable electromagnetic tubing and surface inspection data with RFA probes and Magnifi AI.

With more than a thousand units in the field, the Ectane® has empowered advanced electromagnetic inspections around the world for more than a decade. The third-generation unit is IP65 certified and supports a tenth technology, Remote-Field Array (RFA) for advanced tubing.

UNRIVALLED POWER AND FLEXIBILITY

Ectane is the reference when it comes to advanced electromagnetic tubing and surface inspections. Offering a broad 5 Hz to 10 MHz frequency range, eight channel inputs, and up to 32 timeslots, the instrument can tackle a broad spectrum of applications. Modular by design, the 11 models of Ectane 3 are upgradable and can be retrofitted to meet your inspection needs. The unit is available in three different array configurations: 64, 128, or 256 elements with support for 10 technologies.

RFA, THE LATEST ADVANCED TECHNOLOGY ADDITION

Using a patent pending low-frequency multiplexer, Ectane 3 exclusively supports Remote-Field Array (RFA) technology. This probe family is the latest addition to the multi-technologies test instrument and brings high-resolution C-scan imaging to carbon steel tubing heat exchanger inspections. Ectane 3 enables the highest quality inspections by allowing a wide range of technology combinations whether it be ECT, ECA, TECA™, NFT, NFA, RFT, RFA, MFL, MFLA, or IRIS.



SMARTMUX™

SmartMUX is the Ectane's integrated and programmable ECA multiplexer. It offers the freedom to use absolute, differential, or transmit-receive eddy current coil topologies. More elements means better coverage, higher resolution, uniform sensitivity, and faster inspections. The Ectane 3 can support probe designs with up to 256 channels.

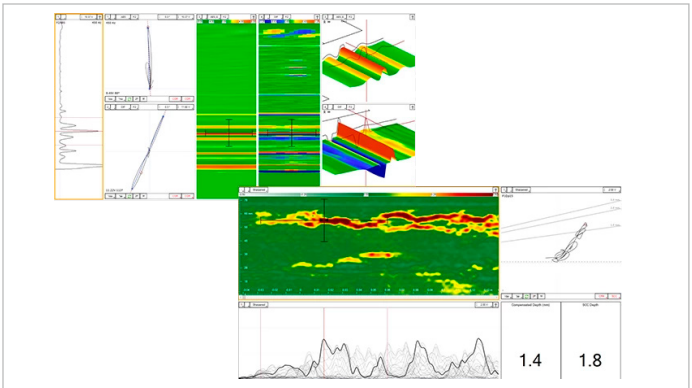


Figure 1: Screen capture of ECA array and RFT scans.

IP65 CERTIFIED

With a complete overhaul of the assembly, the Ectane 3 incorporates the latest electronic components available on the market in a more rugged platform than ever before. Building on the foundation laid by its predecessor for more than a decade, the IP65-certified Ectane 3 is the device you can count on to withstand even the harshest field environments.

MAGNIFI® ACQUISITION AND ANALYSIS SOFTWARE

Magnifi is the cutting-edge electromagnetic acquisition, analysis, and reporting software developed to take full advantage of the Ectane 3 capabilities. It is a constantly evolving platform boasting powerful data processing tools, multi-technologies support, easy report generation, and an intuitive graphical user interface (GUI). The Ectane 3 can be operated with Magnifi 4.8 or any more recent version of the software.

FLEXIBILITY FOR SYSTEM INTEGRATION

The Ectane 3 is ideal for semi-automated inspections involving eddy current array (ECA) probes manipulated by a robotic arm or crawler. Multiple analog inputs and outputs are available to facilitate the communication with a programmable logic controller (PLC):

- Five TTL inputs for remote acquisition control
- Three encoder inputs
- Three output relays for system status
- Real-time alarms and data streaming for single-channel probes
- Post-acquisition alarms and data export for array probes
- SDK-compatible acquisition software for inspection sequence automation



Figure 2: Annotated breakdown of Ectane 3 showing its key features.

HIGH PERFORMANCE PROBE PUSHER SYSTEM

Probot™ is Eddyfi Technologies' advanced probe pusher-puller compatible with Ectane 3 and Magnifi software. By enabling constant and optimal probe pulling speed, it supports the acquisition of high-quality encoded data. Designed for one-person operation, the Probot is controlled directly through the software interface. The solution ensures precise defect positioning and tackles the most critical heat exchanger inspections with efficiency.

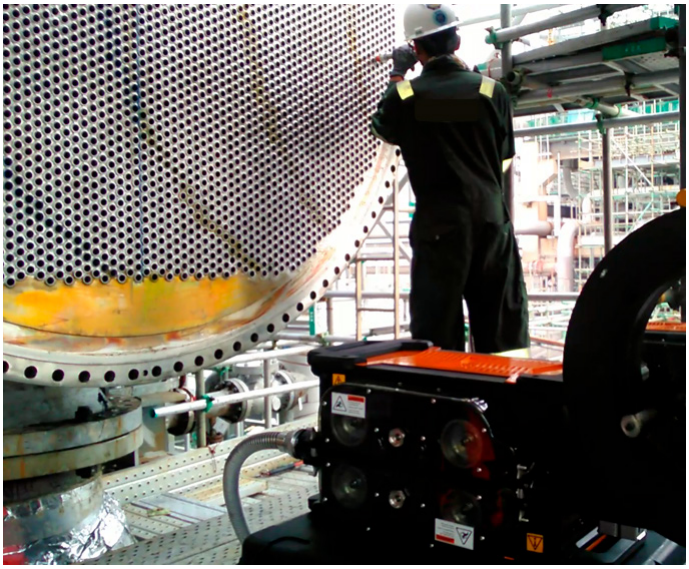


Figure 3: Heat exchanger inspection using the Probot.

OTHER OUTSTANDING FEATURES

- Automatic detection and quick connection between the Ectane 3 unit and the computer
- Automatic ECA surface probe recognition and pre-calibration for quick and easy setups
- Eight direct inputs for probes supporting high-speed Array inspections
- Motor drive for rotating pancake coil (RPC) probes
- Programmable built-in current source available on 41-pin connector to control current output feeding into partial saturation and magnetic bias ECT probes with a current source



Figure 4: Heat exchanger inspection using the internal rotary inspection system (IRIS) with Ectane 3.

	AVAILABLE MODELS				
	ECT	ECT ECA	RFT NFT MFL	RFA NFA MFLA	IRIS
ECTANE3-E	•				
ECTANE3-I					•
ECTANE3-ERNM	•		•		
ECTANE3-ERNMI	•		•		•
ECTANE3-E64RNM	•	• 64 ch.	•	• 64 ch.	
ECTANE3-E64RNMI	•	• 64 ch.	•	• 64 ch.	•
ECTANE3-E128RNM	•	• 128 ch.	•	• 128 ch.	
ECTANE3-E128RNMI	•	• 128 ch.	•	• 128 ch.	•
ECTANE3-E64	•	• 64 ch.			
ECTANE3-E128	•	• 128 ch.			
ECTANE3-E256	•	• 256 ch.			

WORLDWIDE SUPPORT YOU CAN COUNT ON

Eddyfi Technologies provides global after-sales support. We are on standby to lend a hand in the case of unforeseen situations. With nine service centers and full technical support teams, you can continue to rely on us to calibrate and maintain your system for optimal operating conditions.

SPECIFICATIONS

INSTRUMENT

Dimensions (W × H × D)		279.6 × 254.0 × 158.8 mm (11.0 × 10.0 × 6.25 in)
Weight	with batteries	6.8 kg (15 lbs)
	w/o batteries	5.9 kg (13 lbs)
Volume		10 L (610 in^3)
Power Requirements		100–240 VAC, 50–60 Hz
Power Supply		Direct VAC or onboard batteries
Batteries	Type	Li-ion, rechargeable, DOT compliant
	Typical Life	8 hours
IP Rating		IP65
Cooling		Sealed and fanless
Encoders		3 axes, quadrature with individual reset line
Remote Controls		Start, stop, balance, next file and more
Connectivity		1000 BASE-T
Probe Recognition and Setup		Automatic for Surface Array probes
Operating Temperature		0–45°C (32–113°F)
Operating Humidity		95%, non-condensing
Compliance		EN 61010-1, CE, FCC Part 15B, ICES-003, AS/NZS, CISPR 22, RoHS, ASME
Probe Inputs		4–8
Channels		64, 128 or 256
Frequency Range		5 Hz–10 MHz
Generator Output/Coil Drive		Up to 20 Vpp

CURRENT SOURCE FOR SATURATION PROBES

Range	0–1 A
Maximum Output Power	10 W
Maximum Output Voltage	15 V

MOTOR DRIVE FOR RPC PROBES

Voltage	0–24 V
Maximum Peak Output Current	2 A
Continuous Max. Output Current	1 A
Maximum Continuous Power	10 W

MAGNIFI COMPATIBLE VERSIONS	• Magnifi 4.8R26 • Magnifi 5.0R7 and above

ECT

Frequencies	Up to 160
Number of Generators/Coil Drivers	2
Injection Modes	Multiplexed, Simultaneous, Continuous
Receiver Gains	41 dB range, 23–64 dB
Data Resolution	16 bits
Acquisition/Sampling Rate	Up to 50 000 samples/s

RFT AND NFT

Frequencies	5
Number of Generators/Coil Drivers	2
Receiver Gains	50 dB range, 26–86 dB

MFL

Receiver Gains	41 dB range, 18–59 dB

IRIS UT

Channels	1, pulse-echo
Internal Pulser/Receiver	0–200 V drive 0–70 dB (1 dB steps) 0–40 dB DAC
Filters	4 user-selectable filters 25 MHz system bandwidth
Transducer Frequency	5–20 MHz
Digitizer	12 bits, 100 MHz
Maximum Pulsing Rate	Up to 26 kHz
Views	Real-time A, B and C-scans
Turbine Speed	Up to 100 RPS

ECA, TECA, NFA

Connector	Single or Double 160-pin Array
Multiplexer	SmartMUX

RFA

Frequencies	5 Hz to 2 kHz
Number of Generators/Coil Drivers	2
Receiver Gains	41 dB range, 23–64 dB
Connector	41-pin connector

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Beyond current

2026-06