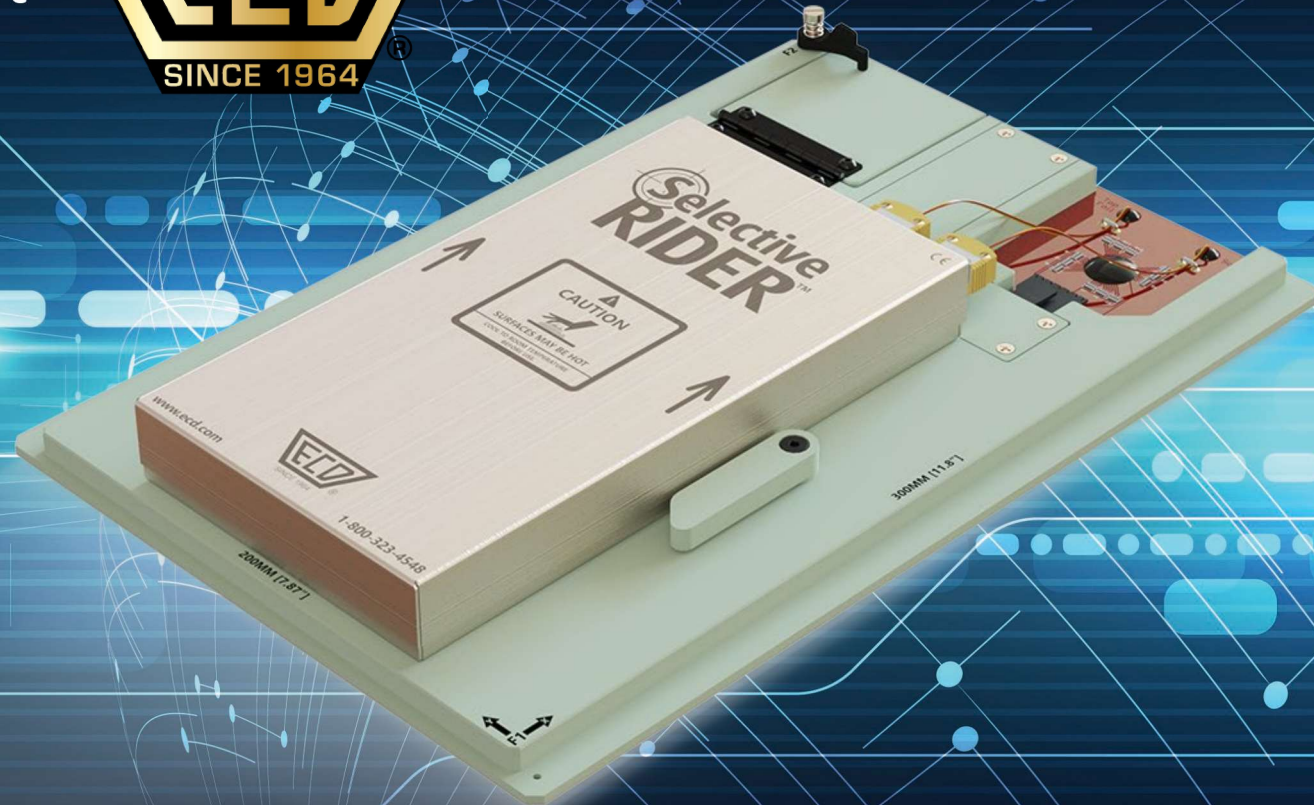


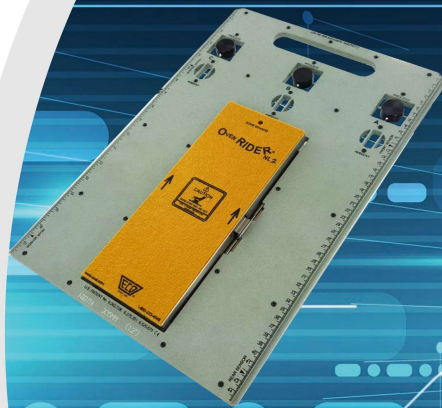
Selective Soldering Machine Measurement and Control



**Selective
RIDER™**



SuperM.O.L.E. Gold 2 (SMG2) - One Instrument, Full Control



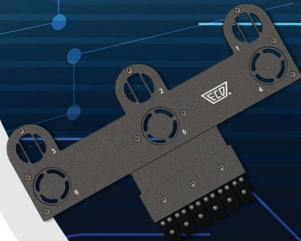
OvenRIDER®
NL2



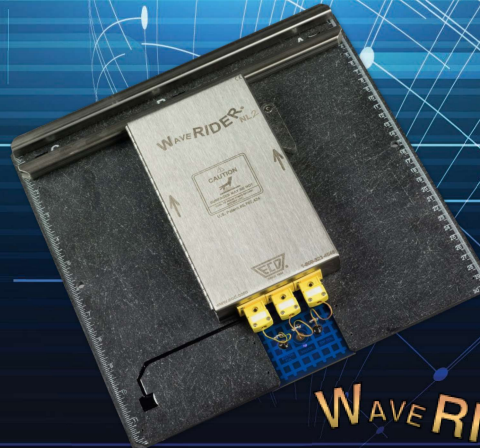
SuperM.O.L.E.
Gold 2
THERMAL PROFILES



Selective
RIDER



ReflowValidator



WAVE RIDER®
NL2





Overview

Selective soldering process measurements.

Latest addition to the SuperM.O.L.E. Gold2 family of process control tools.

Suitable for all brands of selective soldering machines.

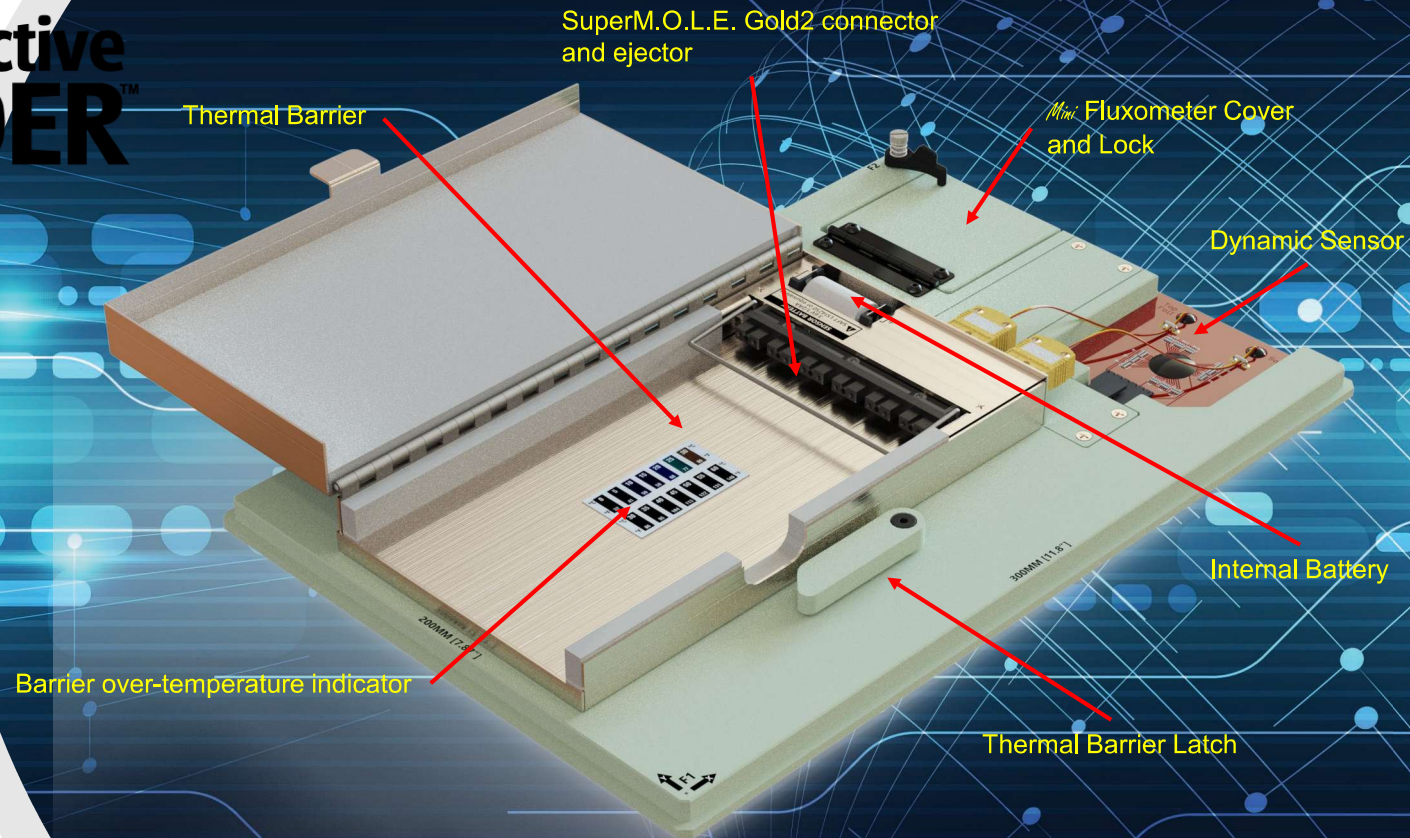
Self-contained and simple to use.

Full analysis software using ECD M.O.L.E. MAP



Pallet Overview

**Selective
RIDER™**



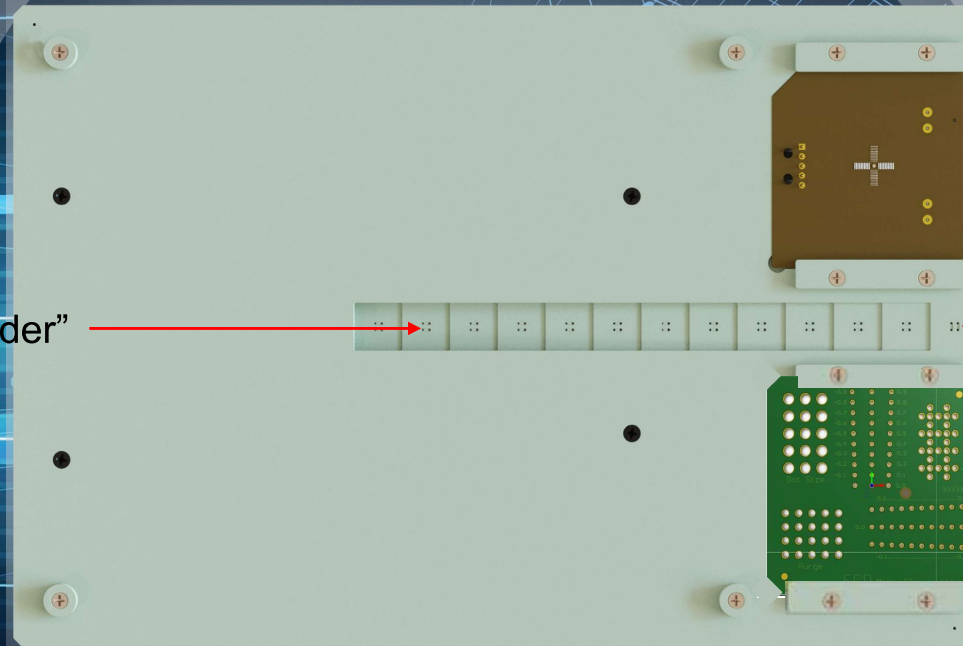
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Pioneers of SmartDRY™ Intelligent Dry Storage





Sensor Arrays

Wave Height "Ladder"



Dynamic Sensor

- Thermal measurements
- Wave XY
- Wave Diameter

Process Origin

Mini Fluxometer
V-Gauge

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Physical Features

- Designed to fit any transport system
- Can be used in a larger board carrier
- Weight 1.72kg (2 lbs)

Pallet Origin

Pallet Fiducial

200.0mm (7.9")

300.0mm (11.81")

35.4mm (1.40")

10.0mm (0.4")

Pallet Fiducial

Dynamic Sensor
Local Fiducials

Mini
Fluxometer
Local Fiducials

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Solder Process Parameters

Thermal Parameters

- Maximum preheat temperature (top of board)
- Solder temperature
- Delta T at point of soldering

Wave Dynamics

- Solder wave position (X and Y)
- Solder height (Z)
- Wave (nozzle) diameter
- Solder dwell time



Solder stage sequence

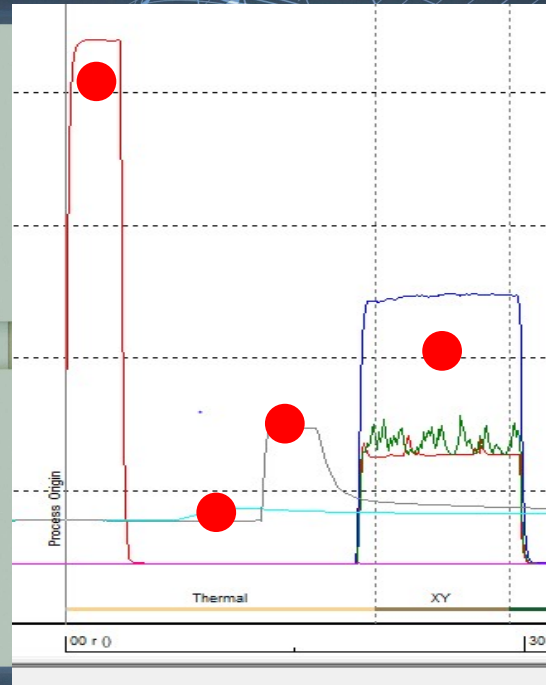
Selective
RIDER™

Process Origin

Preheat Sensor

Fountain Temperature

XY Sensor



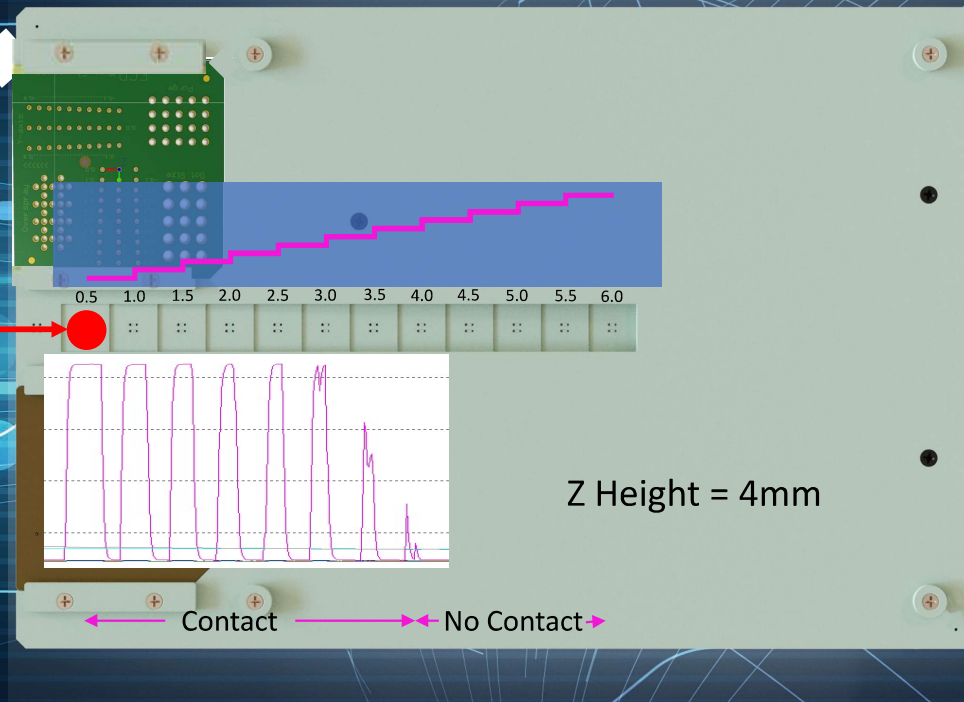
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Solder stage sequence

Selective
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Z Height Ladder



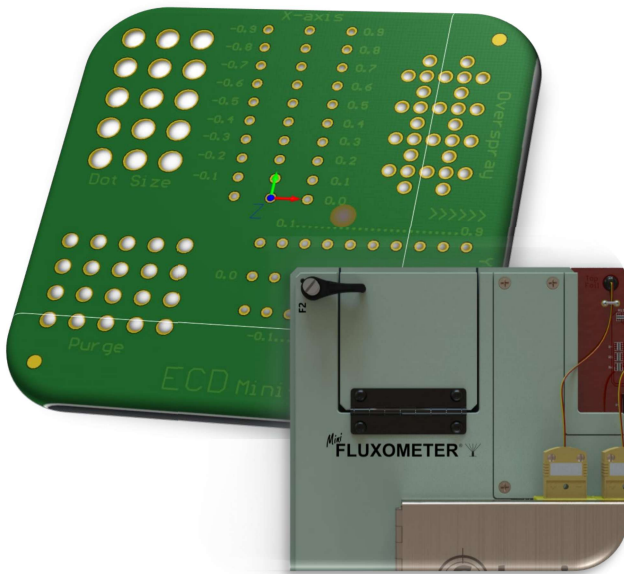
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Flux Measurements

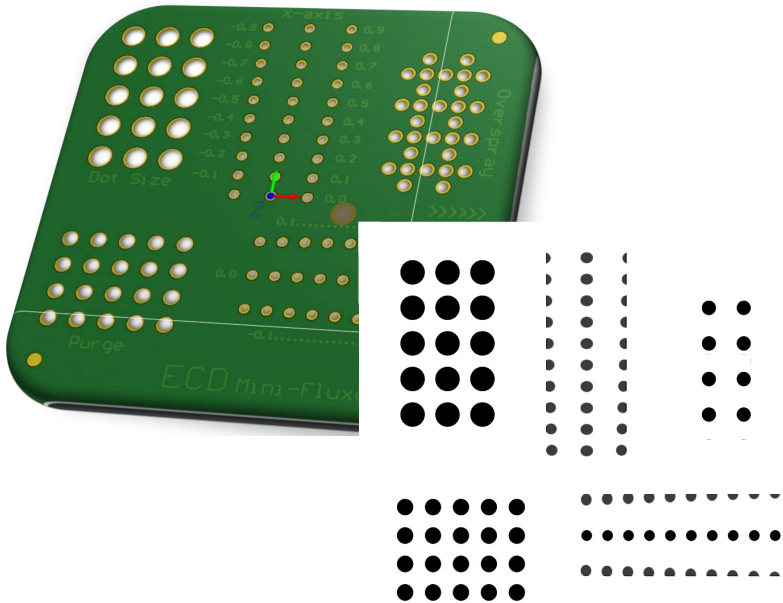
- Flux Deposit
 - Patented *Mini* Fluxometer
 - New V-Gauge Coupon
 - Dispense accuracy (X and Y)
 - Indicates blocked/unprimed spray head
 - Confirms dot size
 - Illustrates under/overspray





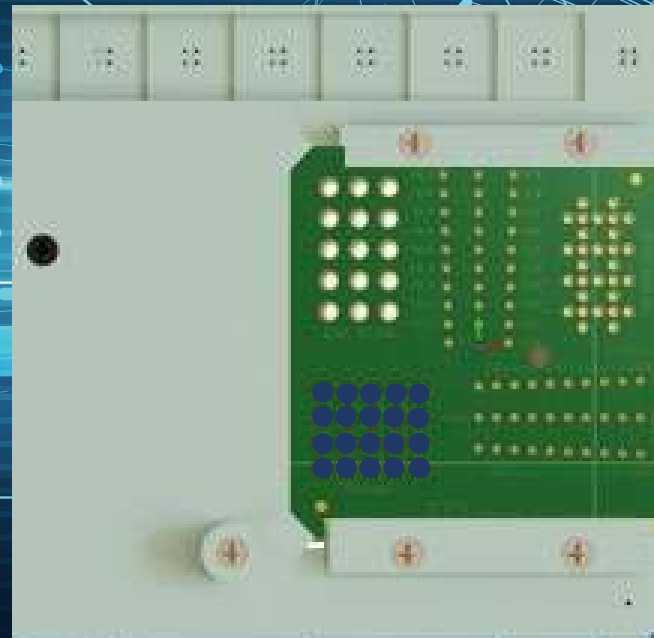
Mini Fluxometer V-Gauge

- Works like the normal Fluxometer
- A “good” spray pattern will look like this
- Missing, mis-aligned, insufficient, excessive, inconsistent will be highlighted by variation in this pattern





V-Gauge Fluxometer sequence – Nozzle Purge

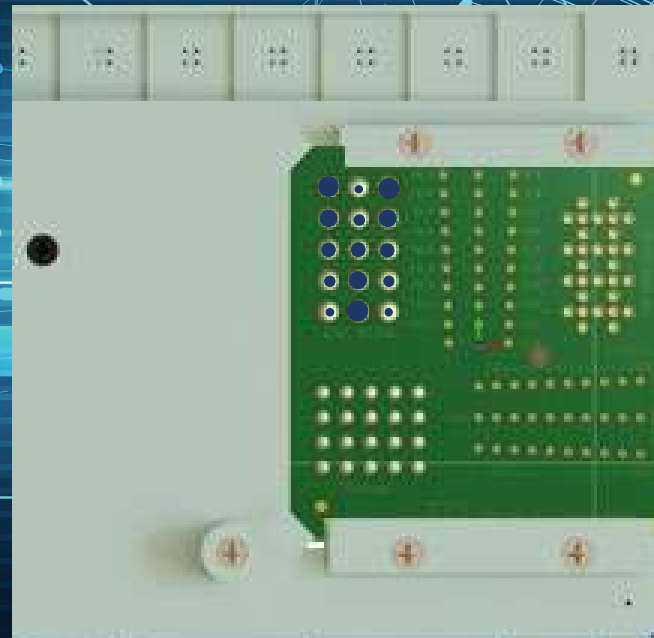


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V-Gauge Fluxometer sequence – Dot Control

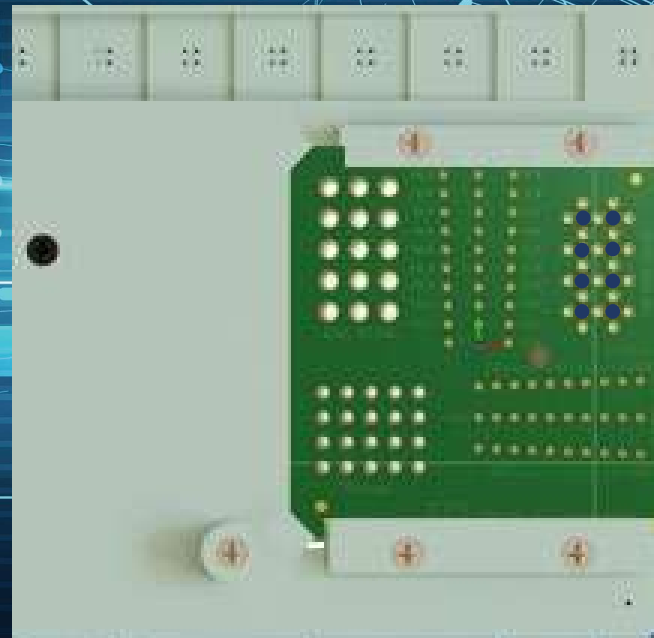


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V-Gauge Fluxometer sequence – Overspray

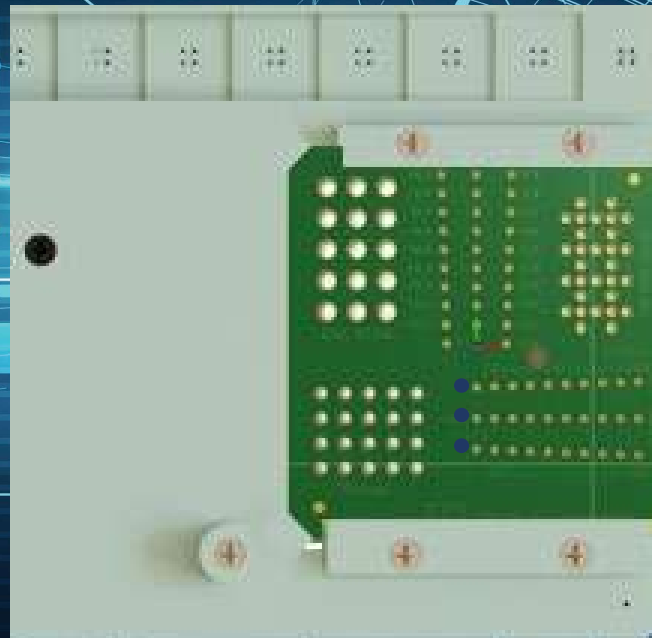


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V-Gauge Fluxometer sequence – Y Axis Offset

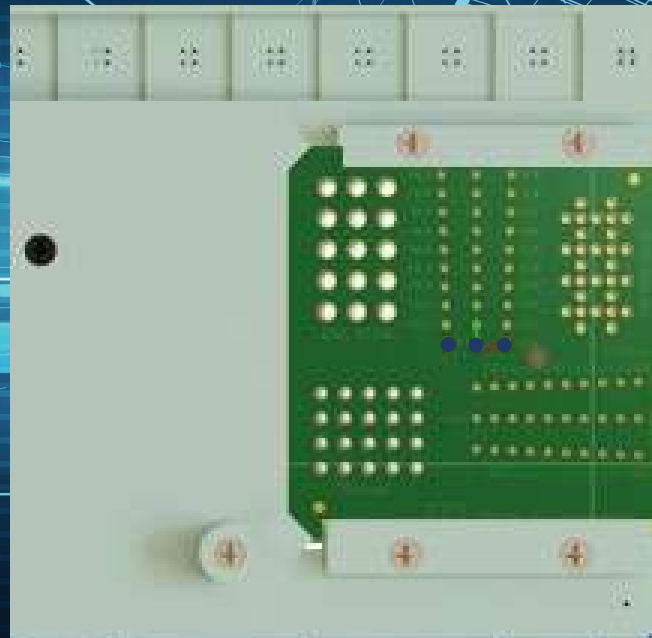


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V-Gauge Fluxometer sequence – X Axis Offset



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**Selective
RIDER™**



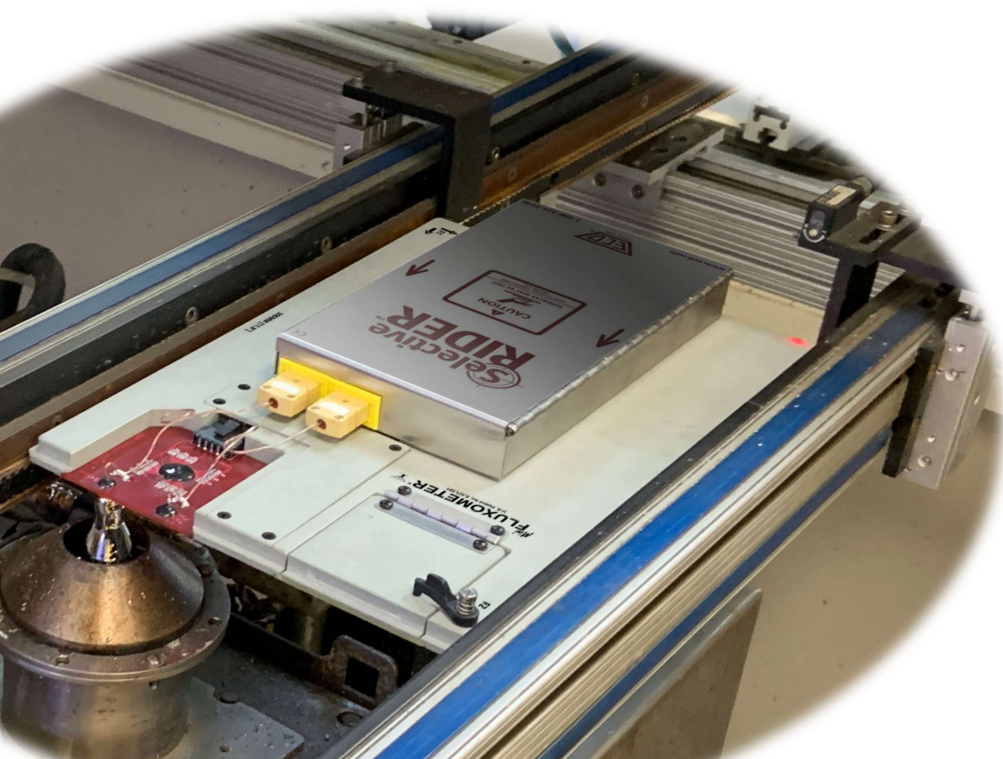
Operation

Requires a machine program. (Recipe)

- Flux stage (optional)
- Preheat stage (optional)
- Solder stage

Sensor co-ordinates entered via

- Gerber (supplied)
- .txt (supplied)
- Manual teaching

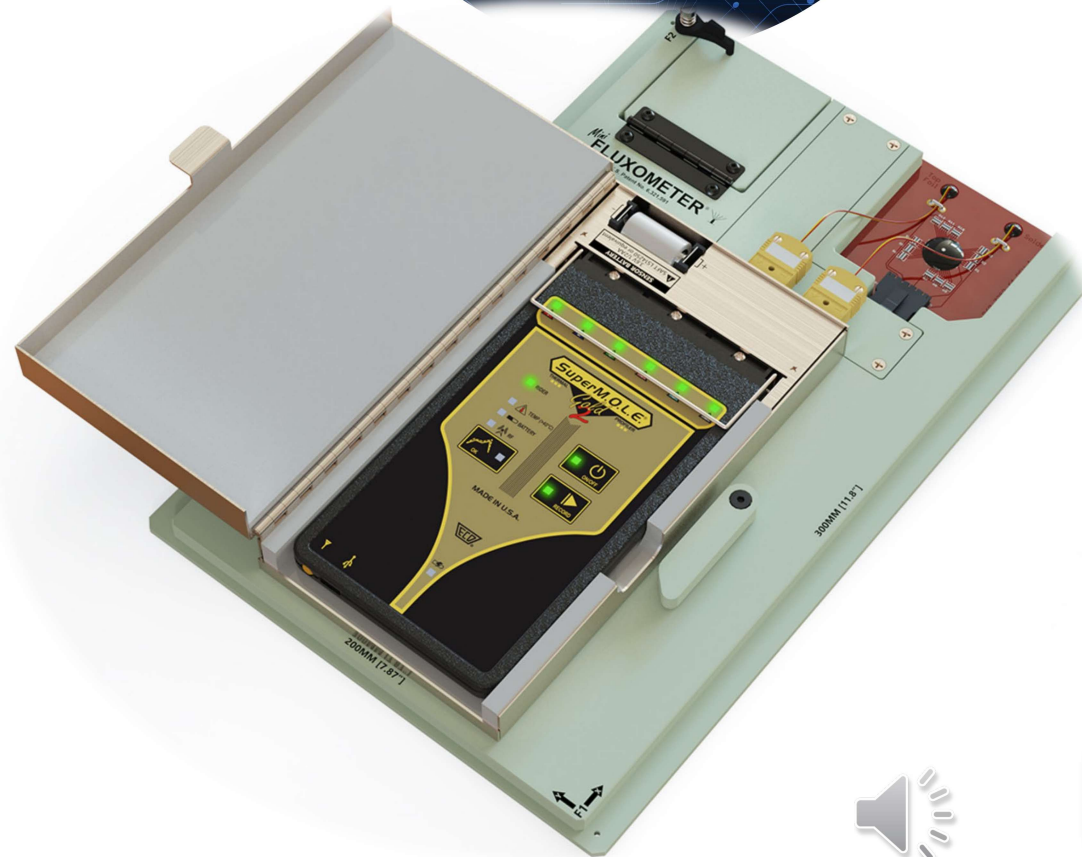


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Selective RIDER™



Simple to Use - 1

- Load recipe, stabilize machine
- Insert M.O.L.E. into SelectiveRIDER pallet
- Insert a Fluxometer paper
- Press ON/OFF to start M.O.L.E.
- Press Record to start logging
- Close and lock barrier
- Load SelectiveRIDER into the machine
- Start machine cycle

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The logo for Selective RIDER, featuring the word "Selective" in a smaller font above "RIDER" in a larger, bold font, with a stylized circular graphic to the left.

Selective RIDER™

Simple to Use - 2

- Unload SelectiveRIDER from machine
- Unlock and open barrier
- Press Record to stop logging
- Remove M.O.L.E. from SelectiveRIDER
- Connect to pc
- Download data run into M.O.L.E. MAP



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Data Presentation

M.O.L.E.(r) MAP V3.21 C:\ECD\MOLEMAP\SampleSelectiveRIDER

File Edit View Wizards M.O.L.E.(r) Machine Assembly Process Profile Tools Help

Start+ Engineer

selective test text.xmg

Report Date: 01/01/2006 00:00:00
Company Name: ECD SelectiveRIDER

Machine Name: Selective
Part Number: SelectiveRIDER
File Name: Sample Data

PASS / FAIL:

Operator: Signature: Date:

Thermal		Dynamic		Fountain Accuracy
Max Preheat Temp:	128.8 °C	Fountain:		
Delta T:	22.8 °C	X:	0.00 mm	
		Y:	0.00 mm	
Fountain Temp:	374.8 °C	Height:	3.00 mm	
		Diameter:	8.00 mm	
		Dwell:	3.30 sec	

- All meaningful measurements are presented on the “Summary” sheet
- Pictorial fountain accuracy display
- No need to look at “Profile”
- All runs are stored in “Spreadsheet” as normal
- Out of specification measurements highlighted **blue** or **red**
- SPC of all parameters as usual





Interpretation

M.O.L.E.(r) MAP V3.21 C:\ECD\MOLEMAP\SampleSelectiveRIDER

File Edit View Wizards M.O.L.E.(r) Machine Assembly Process Profile Tools Help

Start Engineer si-forest3a.xmg

OverRIDER:

Selective RIDER™

PASS / FAIL:

Operator: _____ Signature: _____ Date: _____

Thermal		Dynamic		Fountain Accuracy
Max Preheat Temp:	33.8 °C	Fountain:		
Delta T:	48.0 °C	X:	-0.92 mm	
		Y:	-0.50 mm	
Fountain Temp:	139.7 °C	Height:	1.08 mm	
		Diameter:	7.24 mm	
		Dwell:	4.30 sec	

- All meaningful measurements are presented on the “Summary” sheet
- Pictorial fountain accuracy display
- Out of specification measurements highlighted blue or red





Always Useful!

Pre machine purchase trials

Machine factory acceptance tests

Machine installation acceptance tests

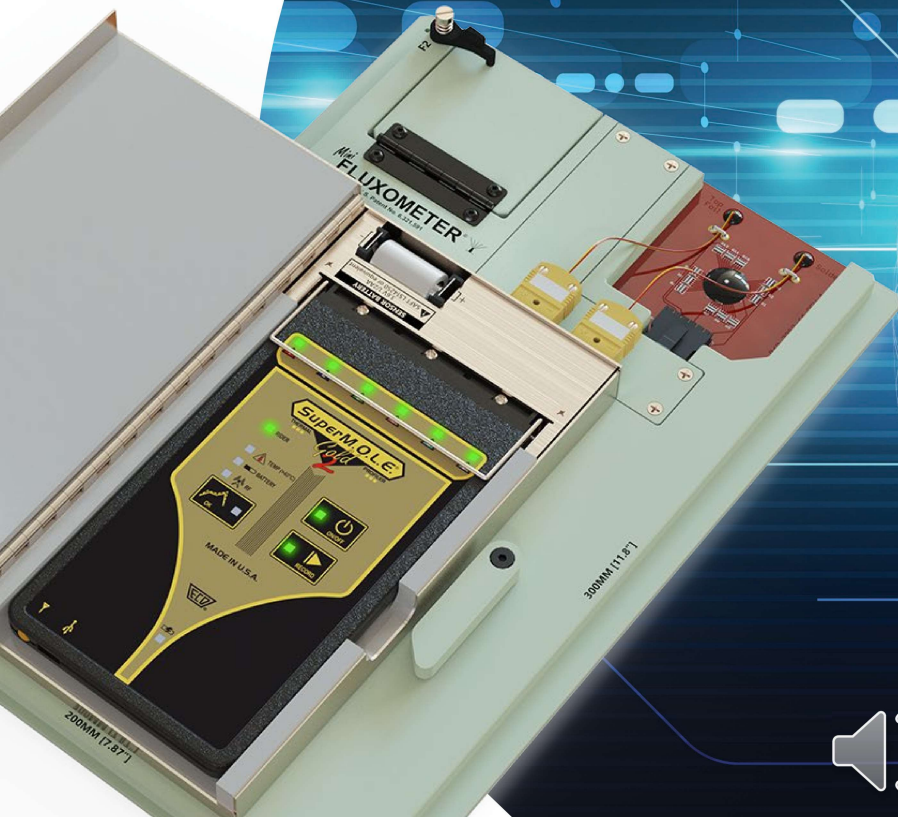
Machine set up check

Machine repeatability and control

New product confirmation check

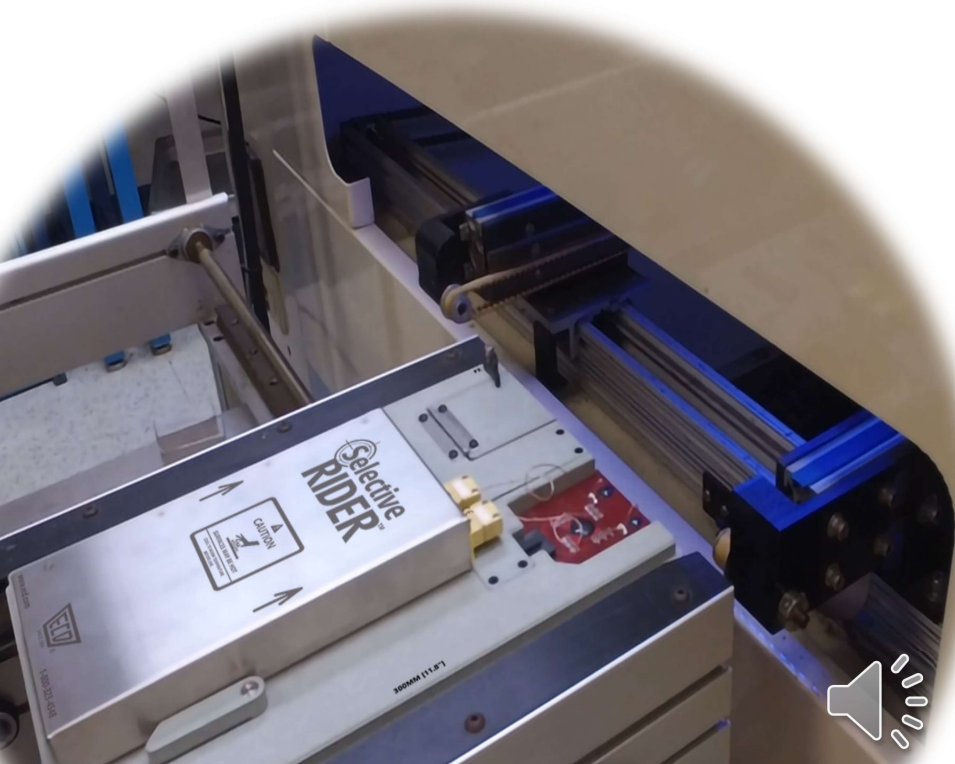
Post maintenance check

Product quality issue check



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Cost Effective

Increase product quality

Increase machine uptime

Independent analysis

One SelectiveRIDER – many machines

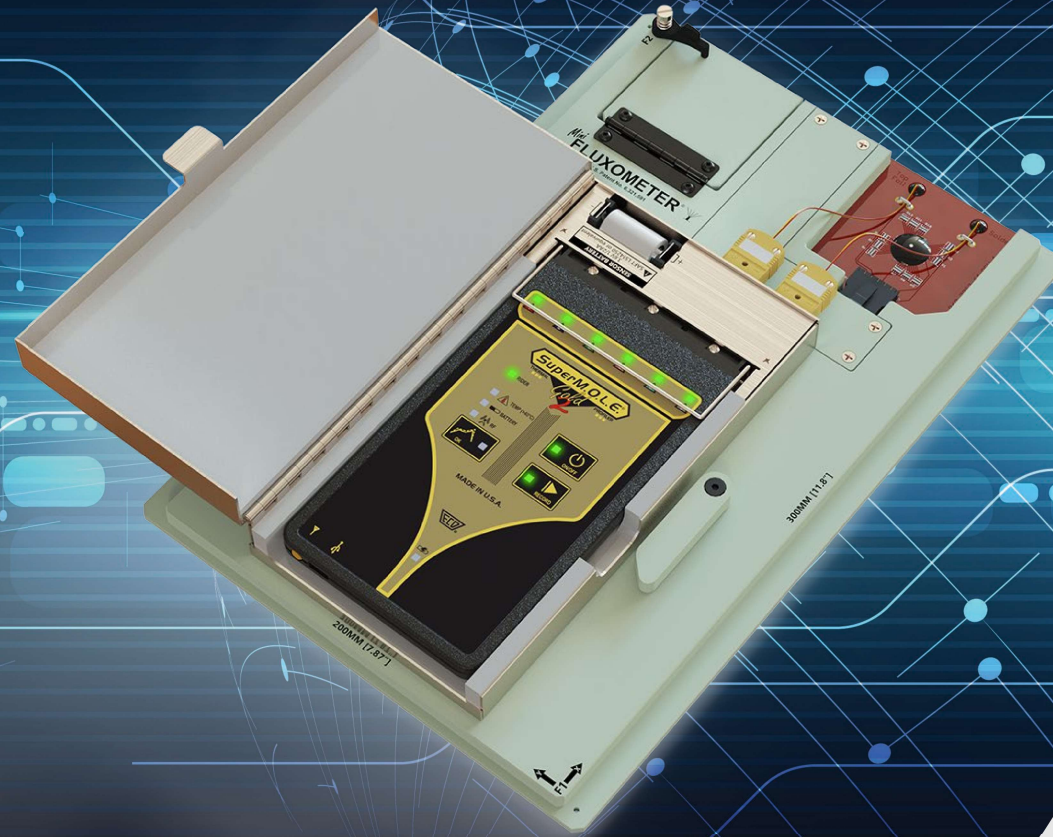
Quick maintenance/changeover confirmation

Provide traceability – keep customers happy

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Selective Soldering Machine Measurement and Control



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