

# WaveRIDER™ NL 2

KNOW THE PAST... PREDICT THE FUTURE

## WAVE RIDER™ NL 2

The wave soldering process is one of the most challenging procedures to set up. The ECD WaveRIDER™ NL 2 greatly simplifies wave solder set up and ensures perfect repeatability, time after time. Board recipe preheat temperatures, conveyor speed, wave height, contact times and parallelism are all measured and monitored using the WaveRIDER™ NL 2 process pallet.



[www.ecd.com/wr](http://www.ecd.com/wr)

**WAVE RIDER™ NL 2**

CAUTION  
SURFACES MAY BE HOT  
U.S. Patent #5,767,424

www.ecd.com 1-800-323-4548

**FEATURES:**

- PROCESS DEVELOPMENT & VALIDATION
- MACHINE QUALITY MANAGEMENT
- USER INTERFACE ANALYSIS & OPTIMIZATION
- COMPONENT DRY STORAGE

**SOFTWARE INTERFACE DATA:**

Temp:	Delta T at Contact	Contact Time	Wave Height	Conveyor Speed	Parallelism
84.4 °C	22.2 °C	2.5 °C/sec	6.71 cm	6.19 cm	5.42 cm
38 °C	253 °C	2.6 sec	2.4 sec	2.1 sec	0.23 cm
					-0.5 sec

**Coupon Temperature Statistics:**

Channel	Min °C	Max (+) °C	Max (+) Slope °C/sec	Time Above 8.0 sec
	22	125	3.7	0.0
		-0.6	8.9	8.0

**ICONS:** ELECTRONICS, BAKING, SPI/ADDITIVE, SOLAR, INDUSTRIAL

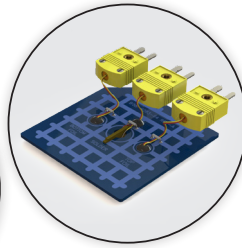
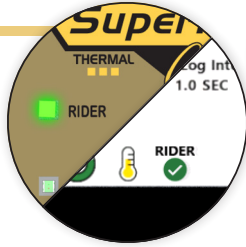
**USA** Made in USA



# FEATURES

## RIDER INDICATOR

The Rider LED Indicates when SuperM.O.L.E.™ Gold 2 is connected to a WaveRIDER™ NL 2 test pallet. And when connected to a M.O.L.E.™ EV6, a "RIDER" symbol appears on the display. This also automatically sets the M.O.L.E.'s configuration.

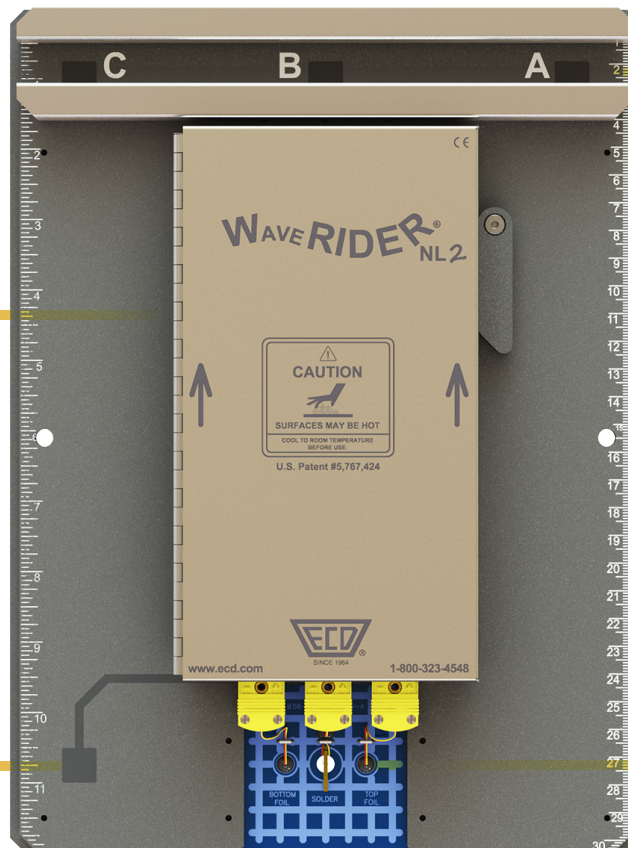


## REPLACEABLE TEST COUPON

Polyimide 3-thermocouple circuit board. Newly designed it now includes an anchor which fixes the "Solder" sensor at a 2mm [0.08"] depth. This provides optimum repeatability and a better representation of solder temperatures.

## THERMAL BARRIER

This is the thermal protective barrier for the M.O.L.E.™



## DWELL SENSORS

Time spent in immersion across the solder pot also provides critical Contact Length, Immersion Depth and Parallelism data. Manage (SPC) optimum and repeatable board-to-wave orientation, icicles mitigation, conveyor finger maintenance, adequate pot replenishment, auto-start and pump maintenance.

## SPEED SENSOR

Time delay between the "C" and Speed Sensors striking the main wave is used to calculate conveyor speed for every run to verify consistency (SPC) and catch an incorrect recipe setting. Creates event triggers for Coupon Sensors too.

## COUPON SENSORS

Three thermocouples are aligned with the Speed Sensor. Coupon Top, Bottom and Solder record board temperatures, Preheat Max Temp (top side), Preheat Max Slope, Wave surface temperature and Delta T at Wave. Provide key wave soldering measurements to verify machine readiness for production (SPC).

## M.O.L.E.™ MAP SOFTWARE

- SPC tells you when a parameter gets out of Spec before it's out of control
- Key Parameters: Preheat Ramp, Delta T at Wave, Solder Temperature, Top & Bottom side Board Temperature, Immersion Depth, Wave Parallelism, & Conveyor Speed





# WAVERIDER™ NL 2 SYSTEM



## KITS INCLUDE:

### WaveRIDER™ NL 2 pallet

- Includes 6 sensors & thermal barrier
- 9", 12", 15" & 18" widths

### Lead-free Polyimide Test Coupon

### M.O.L.E.™ MAP Software

### Quick Reference & Expert Guides

### Carrying Box

1 year warranty on materials and workmanship



*Engineering Process Control Solutions for Over 50 years*

# SPECIFICATIONS

## PHYSICAL (WaveRIDER™ NL 2)

**Length:** 305 mm [12in.]

**Height:** 33 mm [1.3in.]

**Width:**

- Standard: 229mm [9"], 305 mm [12"], 381mm [15"], 458 mm [18"]
- Custom: >145mm [5.7"]

**Weight:**

- 9": 1.36 kg [3.0 lbs]
- 12": 1.72 kg [3.8 lbs]
- 15": 1.86 kg [4.1 lbs]
- 18": 2.61 kg [5.75 lbs]

**Max. Operational Temperature (Pallet):** 300°C [572°F]

## PALLET SENSORS

6 - Distance/Time & Coupon

Special Limits of Error K-Type thermocouple wire  
(± 1.1°C or 0.4%, whichever is greater)

## DATA ACQUISITION (THERMAL PROFILER)

**Data Capacity:**

- SuperM.O.L.E.™ Gold 2: 2,500 minutes (100% memory)
- M.O.L.E.™ EV6: 2.6 mega points at 6 channels or 200 data runs (whichever comes first)

**Time Accuracy:** ±10 millisecond

**Time Resolution:** 0.1 Second

**Temperature Accuracy:** +/- 1°C (1.8°F)

**Temperature Resolution:**

- SuperM.O.L.E.™ Gold 2: 0.056°C [0.1°F]
- M.O.L.E.™ EV6: 0.0056°C (0.01°F)\*

**Measurement Range:**

- SuperM.O.L.E.™ Gold 2: -200°C to 1271°C (-328°F to 2320°F)
- M.O.L.E.™ EV6: -200°C to 1,200°C (-328°F to 2,192°F)

\*>= 0.5 seconds/sample

## COMPLIANCE



## WARRANTY

1 year parts and labor

## WEBSITE

[www.ecd.com](http://www.ecd.com)

## SYSTEM KITS:

### WaveRIDER™ NL 2 Standard Systems

- E36-9285-00: 229 mm [9 in.] wide pallet
- E36-9285-02: 305 mm [12 in.] wide pallet
- E36-9285-05: 381mm [15 in.] wide pallet
- E36-9285-08: 458 mm [18 in.] wide pallet

### WaveRIDER™ NL 2 Custom System

- E36-9285-12: >145mm [5.7in.] wide pallet

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