

LDD-700 Inline Process Monitor

Multifactor Weld Process Measurement Tool



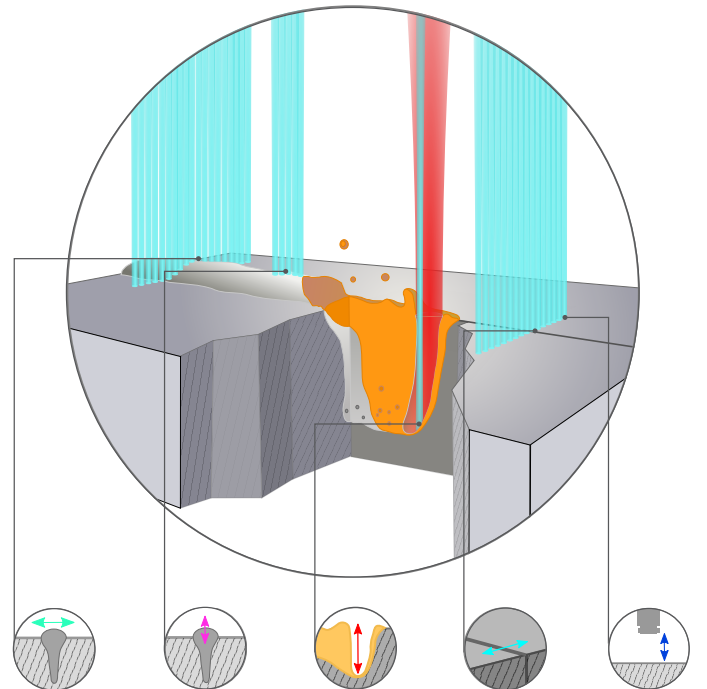

LDD-700

The LDD-700 Inline Process Monitor:


- ▶ High Speed, High Resolution
- ▶ Immune to Process Radiation
- ▶ Gives Data Similar to Sectioning, Immediately

Capable of Detecting Defects Including:


- ▶ Over and Under Penetration
- ▶ Part Misalignment: Height Variation, Gap Width
- ▶ Weld Bead Defects: Blowouts, Underfill


Transverse Profile
Measures the finished weld bead transverse profile.




Finished Weld Surface
Measured just behind the melt pool captures the height of the finished weld bead.



Keyhole Depth
Measured inside the keyhole during the weld to determine actual weld penetration depth in real time.



Seam Profile
A sweep ahead of the process looks for joint position on the workpiece.



Workpiece Height
Measures the distance between the material surface and the welding optics.



Applications

- ▶ Power Electronics
- ▶ Busbar Welding
- ▶ Battery Assembly
- ▶ E-mobility
- ▶ Micro-electronics

LDD Integration on IPG Beam Delivery



D30 Wobble/Welding Heads



D50 Wobble/Welding Heads



Mid-power Scanner

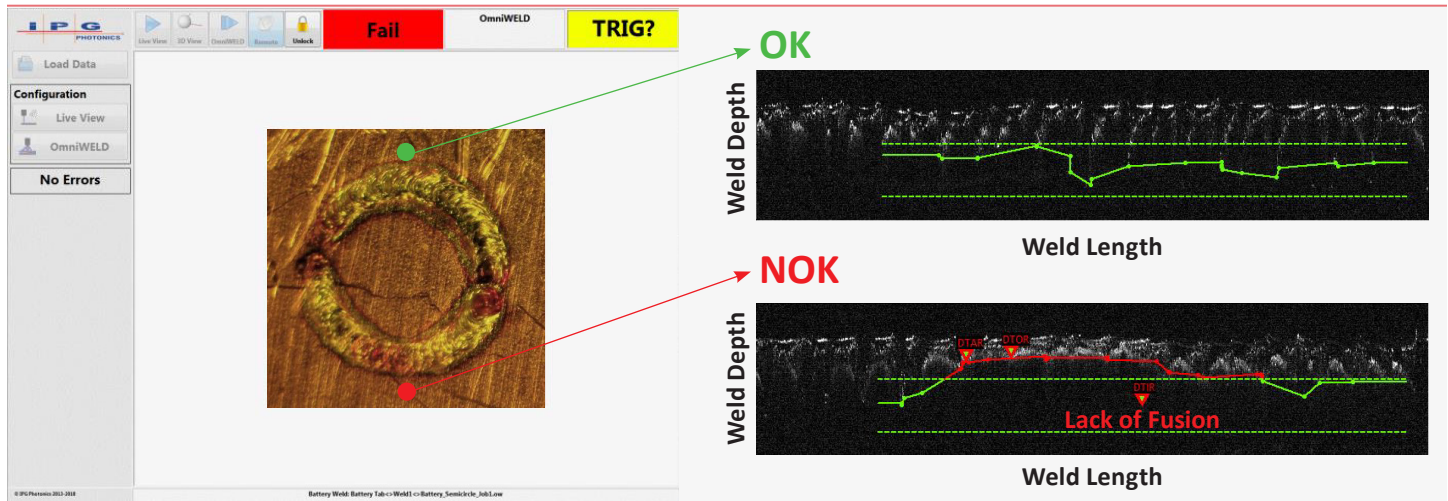


High-power Scanner

LDD-700 Inline Process Monitor

Copper to Nickel-plated Steel Lap Welding

Process Monitor Results



Contact

IPG Photonics looks forward to helping our customers with their laser applications; our Application Facilities will work with end users and systems integration partners from proof-of-concept through process development for all materials processing applications.

Contact any of IPG's worldwide application facilities to arrange complimentary sample processing, evaluation and project planning.

Go to www.ipgphotonics.com for more information on all of IPG's products.

The Application

- ▶ Copper to Nickel-plated Steel Lap Weld for Busbar Applications
- ▶ Wobbling Improves Weld Stability

Process Equipment Demonstrated



YLR-1000
Single Mode



Mid-power
Scanner



LDD-700 Inline
Process Monitor

+1-613-887-2331; sales.ca@ipgphotonics.com

www.ipgphotonics.com

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