

# LayTec XLink® off-line manual

for lab application and manually handled production lines



XLink® off-line system

LayTec's XLink® off-line metrology system provides -within seconds- non-destructive and highly accurate measurements of the EVA cross-linking degree at every stage of a solar module's life cycle, immediately after lamination, before shipment, at risk handover or of modules from the field. It replaces time-consuming and destructive methods like gel content test and DSC.

**Suitable for:** Manufacturers, testers, quality departments, certifiers, project developers, investors, debt providers (banks), insurances and R&D labs.

**The result:** Test the EVA quality in seconds - over and over again. Improved project bankability with traceable superior module reliability.

LayTec XLink® off-line enables consistent testing across the sector, around the globe, resulting in higher-performing, more durable solar modules.

## Testing homogeneity across a module

Add an important selling point to your product. Increase bankability by giving detailed proof of the long-term stability of your modules.

Use LayTec XLink® for a gapless quality management of all modules selected for your EPC (Engineering Procurement and Construction) power plant project!

## Benefits

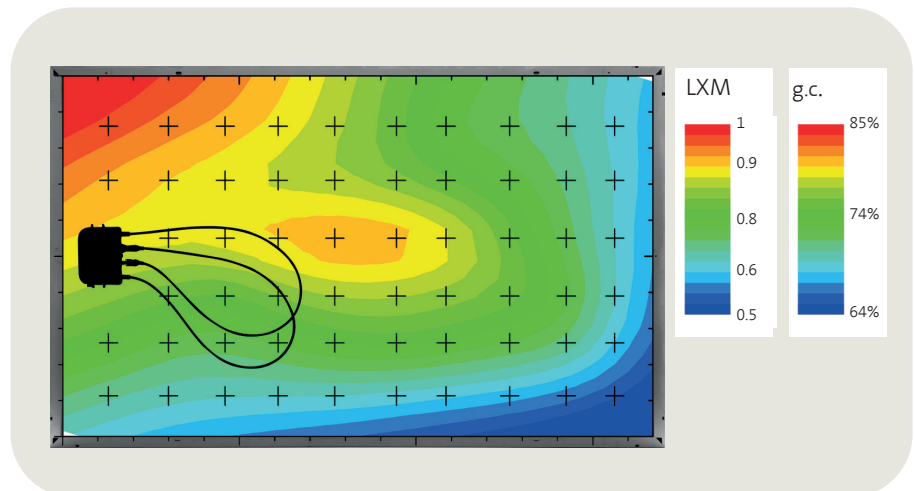
- Testing times of seconds
- Fast and flexible manual system
- Robust industrial technology
- Easy handling of metrology
- Trustful repeatable results
- Non-destructive
- No more scrapping of laminates
- Fast ROI

## Evaluating EVA cross-linking non-destructively within seconds

The manual off-line version allows multiple-point measurements on laminates, out-of-production modules and modules from the field. No sample preparation required. Map out the real homogeneity of the laminate. The software will keep track of your measurements. Compare results between shifts, lines, locations, weeks or years!

This setup is a highly useful quality control tool for module manufacturers, investors, certifiers, insurances and consultants. Using LayTec XLink® off-line could not be easier for engineers and operators. The user simply positions the module under the measurement head, supported by laser cross-hair targetting. The measurement is performed automatically.

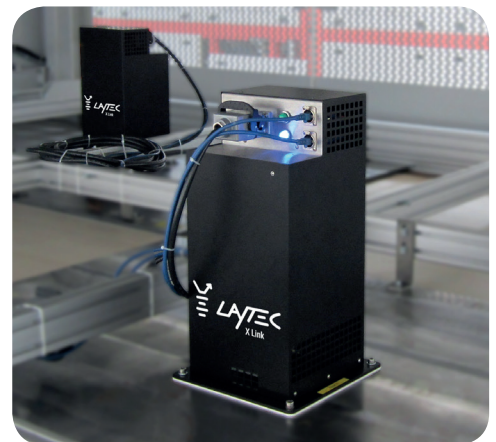
A touch panel provides intuitive operation, data display and database upload. Non-destructiveness proven by 1000+ hours damp heat test.



Degree of cross-linking in LXM (LayTec cross-linking metric) and g.c. (gel content) mapped across a module with 60 points in less than 1 hour. Corresponding degree of 64 % - 85 % measured with Soxhlet extraction method.

## The following versions are available, too!

Additionally, LayTec also offers X Link® as in-line version for fully automated production lines and an OEM version which provides most versatile options of integration into module production lines or fully automatic / semi-automatic metrology stations. LayTec X Link® can easily be integrated in any lamination process set-up (esp. Meyer Burger). Or let your own automation supplier integrate the X Link® OEM version into your production line.



LayTec X Link® in-line integration into Meyer Burger laminator

LayTec and Fraunhofer USA joined forces and successfully developed a novel method to measure the degree of EVA cross-linking within only a few seconds. The method is based on the measurement of physical properties associated with the level of cross-linking. This is done through the backsheet, thus determining the degree of EVA cross-linking non-destructively.