Solutions for Advanced Scientific Research

Laboratory Software, Imagers, Reagents, and Accessories



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The LI-COR Story



For over 50 years, LI-COR Biosciences continues to be a leading biotechnology innovator of imagers, analysis software, reagents, and consumables for drug discovery, protein research, and small animal imaging. We provide complete research solutions and support for Western blot, targeted therapeutic, virology, and microbiome studies that help you solve the challenges facing humanity.

The LI-COR Advantage

The LI-COR Advantage aims to provide everything you need to start and finish your research. LI-COR offers comprehensive experimental solutions—including data integrity tools, laboratory best practices, and professional training courses and support—that lay the groundwork, establish protocols, and distill your results all in one place.

For more solutions, visit licor.com/bio

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Empiria Studio Software is a post-processing, Data Integrity Software for quantitative data analysis. Created in partnership with high impact journals, Empiria Studio provides key advantages over signal identification software—such as step-by-step workflows, validation and analysis features, assay development tools, and shareable files for easy collaboration.

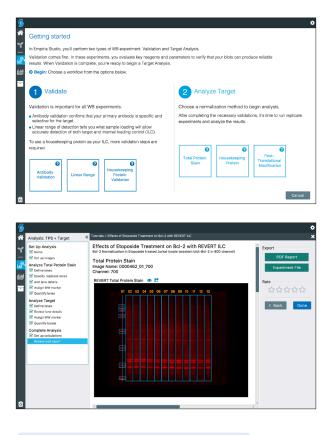
Outperform with Data Integrity Software

A signal identification software only identifies an image's signal levels. As the only available Data Integrity Software, Empiria Studio quantifies signal levels using raw pixel intensity and provides expert data analysis. It incorporates publishers' best practices and systematic workflows for faster, consistent, and more reliable results among all users. When compared to a signal identification software, Empiria Studio users achieve a significantly lower % CV and complete their analyses in less time.

Step-By-Step Workflows

Empiria Studio's workflows are based on industry best practices and designed to walk lab members of all experience levels through the validation, analysis, replicability, and publication stages of quantitative data analysis. This step-bystep process ensures consistency in and the reliability of each researcher's results. In particular, they also help develop and optimize In-Cell Western[™] Assays with key steps—such as antibody titration, blocker evaluation, cell stain linearity, and target analysis.

With the Empiria Studio Experiment Designer, you can even design an experimental microplate map in Empiria Studio. This feature helps chart your microplates well-by-well, so you know which ones contain positive and negative controls, background, and treatments. Together, the workflows and a new Template Library and Emperiment Designer make setup and data analysis easier than ever before.



Get a free trial at licor.com/empiria

Validation Features



Antibody Validation

Confirm that the primary antibody is specific and selective to the target.

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Linear Range Validation

Determine sample loading that will fall within a combined linear range of the target and internal loading control.

Housekeeping Protein (HKP) Validation

Verify that the selected HKP is stably expressed and not affected by experimental conditions before using it as an internal loading control.

Analysis and Publication Features



Normalization

Quantify the internal loading control and targets, allowing Empiria Studio to automatically normalize the target signals to the internal loading control.



Adaptive Lane Finding

Automatically detect lane number and boundaries for faster analysis, fewer sources of variability, and improved total protein stain quantification.



Adaptive Background Subtraction

Automatically detect and subtract image background for minimal or eliminated user bias and impact from subjective choices.



Replicate Analysis

Compare replicate target analyses to confirm the accuracy of observed changes and get statistically significant results.

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Publication Packs

Create and easily share packages containing experimental data and procedures with publishers and colleagues.

Empiria Studio and Odyssey Imagers

Empiria Studio is designed to integrate seamlessly with Odyssey Imagers, making it easy to import raw images and generate publishable results via the step-by-step workflows. With standardized methods and validation, analysis, assay development, and replicability features, each Odyssey Imager user can perform analyses correctly and consistently—regardless of their level of experience.

Odyssey M Imager

Seek Discovery and Leave Limitations Behind with M

The Odyssey M Imager is the most powerful imager currently offered for fluorescent (i.e., near-infrared (NIR) and visible), luminescent, and white light imaging. With high precision and sensitivity, the Odyssey M Imager is all encompassing for even the most advanced research initiatives.

Expand Research Versatility

While other imagers have limited versatility, the Odyssey M Imager is equipped to image a vast range of experiments—such as tissue sections, membranes, plate-based assays (e.g., In-Cell Western Assays, ELISA assays, and cell health assays), and gels (e.g., EMSA and DNA and protein gels). This versatility enables it to expand and grow over the years with your research initiatives, saving time and money on additional or replacement imagers.

DDYSSEY M

- Images up to eighteen channel combinations
- Uses an industry-leading
 5-µm resolution for precise,
 detailed imaging
- Integrates with an optional luminescent module

Secure Publishable Data Images

The Odyssey M Imager works jointly with LI-COR Acquisition Software, which is responsible for organizing and preserving raw image data that can then be imported into Empiria Studio. The software also includes step-by-step workflows that walk users through image acquisition to ensure that the results are uniform from person to person. Unlike other imaging software, LI-COR Acquisition Software is intended to ultimately ensure userto-user consistency, data replicability, and publishable results.

- Tags images with their assay types for easy organization
- Retains raw data images to meet publication guidelines
- Allows for routine image adjustments (e.g., crop, rotate, and flip)

Odyssey M Imager Key Specifications

Optical System

Image Area:

 Total Image Area:

 25 cm W × 18 cm D (9.8" W × 7.1" D)

 Image Area of Chemi Region:

 15 cm W × 11 cm D (5.9" W × 4.3" D)

Pixel Resolution: 5, 10, 20, 50, or 100 μm

Dynamic Range*:

>6 logs for chemiluminescence (optional) and fluorescence

Detectors:

sCMOS image sensor *Sensor for chemiluminescence:* CCD (pixel size 6.45 μm)

Laser Lifetime:

685 nm and 785 nm: 20,000 hours 488 nm and 520 nm: 40,000 hours Class 1 Laser Product

Light Sources:

RGB LED (trans-illumination) RGB LED (reflective illumination) Solid-state diode laser at 488 nm Solid-state diode laser at 520 nm Solid-state diode laser at 685 nm Solid-state diode laser at 785 nm

Focusing:

Microscope is adjustable -1.00 to 5.00 mm above the scan bed to obtain best signal-to-noise ratio.

*This dynamic range is obtained in a single acquisition. Specifications subject to change without notice.

Size and Weight

Dimensions (Instrument Only): 61 cm W × 76 cm D × 38 cm H (24" W × 30" D × 15" H) *Height with hood fully open:* 71 cm (28")

Weight:

55 kg (121 lbs) w/ chemiluminescence module 52 kg (115 lbs) w/o chemiluminescence module

Software Specifications

LI-COR Acquisition Software

Operating System Windows 10 (64 bit) Memory Minimum 16 GB Hard Drive Solid state

Empiria Studio Software

Operating System Windows 10 (64 bit) Mac OS Mojave or Catalina Memory Minimum 8 GB

Learn more about the Odyssey M Imager at licor.com/bio/odyssey-m

Odyssey DLx Imager

Explore NIR Imaging and See the Difference with DLx

The Odyssey DLx Imager is a flexible, NIR imager that captures Western blots, platebased assays, tissue sections, and gels. As an effective and high-throughput imager, the Odyssey DLx Imager takes premium, unsaturated images in a single acquisition.

Simplify and Speed Up the Imaging Process

A faster setup means a faster imaging procedure. The Odyssey DLx Imager has several primary features that simplify and increase imaging turnaround. Together, they capture data detail and complexity without sacrificing integrity.

- Has over six logs of dynamic range
- Does not require camera setting adjustments
- Captures a single image with the full data range



Take Unsaturated, High-Quality Images

Unlike other NIR imagers, the Odyssey DLx Imager uses the same optical settings for all acquired images. Its advanced NIR laser technology also allows for highly sensitive imaging with over six logs of dynamic range. Together, these allow the Odyssey DLx Imager to capture the full range of data into a single image that has authentic band signals and no saturation.

- Images pixel by pixel with laser-point technology
- Produces images with accurate band signals
- Uses 21-µm resolution for high-precision imaging

Odyssey DLx Imager Key Specifications

Optical System

Image Area: 25 cm W × 25 cm D (9.8" W × 9.8" D)

Pixel Resolution: 21-337 µm

Dynamic Range*: Manual: >4 logs

Auto: >6 logs Detectors: Silicon avalanche photodiodes

Laser Lifetime:

40,000 hours of operation Class 1 Laser Product

Light Sources:

700 Channel Laser Source Solid-state diode laser at 685 nm 800 Channel Laser Source Solid-state diode laser at 785 nm

*This dynamic range is obtained in a single acquisition. Specifications subject to change without notice.

Size and Weight

Dimensions (Instrument Only): 53 cm W × 62 cm D × 37 cm H (21" W × 24.5" D × 15" H) *Height with hood fully open*: 74 cm (29") Weight: 33 kg (72 lbs)

Software Specifications

LI-COR Acquisition Software

Operating System Windows 10 (64 bit) Memory Minimum 16 GB Hard Drive Solid state

Empiria Studio Software

Operating System Windows 10 (64 bit) Mac OS Mojave or Catalina Memory

Minimum 8 GB

Learn more about the Odyssey DLx Imager at licor.com/bio/odyssey-dlx

Odyssey XF Imager

Drive Your Research and Capture the Essentials with XF

The Odyssey XF Imager is a robust NIR and chemiluminescent imager that provides enhanced detection for Western blots and gels. Combining the essential assays into a single imager, the Odyssey XF Imager takes consistent and low-background images every time.



Create a Solid Research Foundation

The Odyssey XF Imager lays the groundwork for credible research by taking precise, high-integrity images. By gathering all the vital components of separate NIR and chemiluminescent imagers into one unit, the Odyssey XF Imager is ready to be used by researchers of all experience levels.

- Images NIR and chemiluminescent membranes and protein and DNA gels
- · Covers fundamental imaging needs for most labs
- Multiplexes with over six logs of dynamic range for high sensitivity

Accurately Image without Artificial Software Enhancements

Other digital imagers take images that need to be corrected or manipulated in postprocessing—using tactics such as binning, flat fielding, and image stacking—which can lead to inaccurate and irreplicable results. The Odyssey XF Imager's patented optics deliver images that are uniform and have low background, eliminating the need for image manipulation and safeguarding against these tactics' errors.

Odyssey XF Imager Key Specifications

Optical System

Image Area: 12 cm W × 10 cm D (4.7" W × 3.9" D) Imaging Tray (Internal Dimensions): 12 cm W × 14 cm D (4.7" W × 5.5" D) Pixel Resolution: 125 µm Dynamic Range*: >6 logs Detectors:

Low-noise CCD, thermoelectrically cooled CCD pixel size: $6.45 \ \mu m$

Laser Lifetime: 20,000 hours of operation

Class 1 Laser Product Light Sources: 525 nm LED

700 Channel Laser Source Solid-state diode laser at 685 nm 800 Channel Laser Source

Solid-state diode laser at 785 nm Patented FieldBrite™ XT² Technology CV <3% across field

*This dynamic range is obtained in a single acquisition. Specifications subject to change without notice.

Size and Weight

Dimensions (Instrument Only): 41.4 cm W × 47 cm D × 67.3 cm H (16.3" W × 18.5" D × 26.5" H) Depth with imaging drawer open: 59.7 cm (23.5")

Weight: 27 kg (60 lbs)

Software Specifications

LI-COR Acquisition Software Operating System Windows 10 (64 bit) Memory Minimum 16 GB Hard Drive Solid state Empiria Studio Software Operating System Windows 10 (64 bit) Mac OS Mojave or Catalina Memory Minimum 8 GB

Learn more about the Odyssey XF Imager at licor.com/bio/odyssey-xf

C-DiGit Blot Scanner

The C-DiGit Blot Scanner is a chemiluminescent digital scanner for protein blot analysis. It is the perfect integration of affordability and reliability; you can switch from sharing just one expensive scanner with the entire lab to having a C-DiGit Blot Scanner for every member. It also increases the dynamic range-so the scanner can capture faint and bright bands that are otherwise unachievable by traditional, film-based detection methods and can reduce the impact of constantly changing enzymatic reactions.

Concentrate on the Data

- Reduces the need for multiple exposures
- Lowers the risk of saturation

Focus on Research. Not the Price Tag

- Requires minimal maintenance
- Eliminates film expenses

Pack Scientific Advancement into a Single Drawer

- Saves valuable space in the lab
- Simplifies workspace and workflow

C-DiGit Blot Scanner Key Specifications

Optical System

Image Area: $10.0 \text{ cm W} \times 8.5 \text{ cm D} (3.9" \text{ W} \times 3.3" \text{ D})$ Resolution: 196 µm × 196 µm Image Generation and Format: 16 bit floating point TIFFs Detectors: Low-noise CCD

Size and Weight

Dimensions (Instrument Only):

22.23 cm W × 27.94 cm D x 7.3 cm H (8.75" W x 11" D x 2.875" H)

Weight: 2.18 kg (4.8 lbs)

Software Specifications

For operating system compatibility, please visit the table located at licor.com/bio/ image-studio/specifications

Specifications subject to change without notice

Learn more about the C-DiGit Blot Scanner at licor.com/cdigit



D-DiGit Gel Scanner

The D-DiGit Gel Scanner is a nucleic acid digital scanner for DNA and RNA gel analysis. With LED detection, a large scan area, and a sensitivity of 0.04 ng per band, the D-DiGit Gel Scanner streamlines workflows and improves protocol efficiency.

Protect Against Harmful UV Rays

- Detects with high-sensitivity LED light
- Eliminates the risk of UV exposure to the user and sample

Expand Current Studies with Flexible Scanning

- Suits assorted gel sizes with a large scan area
- Streamlines workflows with acquisition software
- Allows for band extraction on the scan area



D-DiGit Gel Scanner Key Specifications

Optical System

Image Area: 12.7 cm W × 17.8 cm D (5" W × 7" D) Resolution: 150, 300, or 600 dpi Image Generation and Format: JPG (8 bit), TIFF (8 or 16 bit) Detectors: CCD Light Source: Blue LED Excitation: $475 \text{ nm} (\pm 15 \text{ nm})$ Emission: ≥ 520 nm Sensitivity: 0.04 ng per band

Size and Weight

Dimensions (Instrument Only): 30.48 cm W × 30.48 cm D × 12.70 cm H (12" W × 12" D × 5" H)

Weight: 4.8 kg (10.56 lbs) With viewing shield: 5 kg (11 lbs)

Software Specifications

Operating System Microsoft Windows 7, 8, or 10; 512 MB RAM or above Pentium IV PC; 300 MB HDD or above

Specifications subject to change without notice

Learn more about the D-DiGit Gel Scanner at licor.com/ddigit

Pearl Trilogy Small Animal Imager

Near-Infrared Fluorescence and Bioluminescence Imaging

The Pearl Trilogy Small Animal Imager is a sensitive, NIR imager that captures fluorescence and bioluminescence in live animals and excised tissue. This imager's multi-channel detection allows for easy characterization and monitoring of specificity, biodistribution, clearance, delivery, and efficacy.

At the heart of the Pearl Trilogy is a revolutionary FieldBrite[™] Xi² system, which uniformly illuminates the sample. This innovative approach detects smaller and deeper targets accurately and in a single acquisition—without saturation or the need for image adjustments.



Accessory Products

- SmartFlow Anesthesia Suite: Inhalation isoflurane anesthesia system
- Pearl Clean Box: HEPA-filtered imaging bed with isoflurane administration
- Pearl Docking Station: HEPA-filtered anesthesia provider for Pearl Imaging Bed and Pearl Clean Box
- Compound Injection Clip: Drawer attachment during imaging for real-time injection imaging
- Organ Tray Base and Trays: Unheated surface for organ imaging and transport
- Pearl Imaging Bed: Removable imaging bed with isoflurane administration
- Pearl Imaging Cart: Mobile cart for imaging instruments and systems

Pearl Trilogy Small Animal Imager Key Specifications

Optical System

Image Area:

11.2 cm W × 8.4 cm D (4.4" W × 3.3" D) at the surface of the imaging bed
Resolution: 85, 170, or 255 μm
Dynamic Range*: >6 logs
Detectors: CCD, thermoelectrically cooled
Acquisition Times: 500 ms to 60 s, depending on camera settings
Laser Lifetime:

20,000 hours of operation Class 1 Laser Product

White Channel Laser Source: Excitation: N/A Emission: 450-650 nm

Bioluminescence Channel Laser Source: Excitation: N/A Emission: 450-650 nm

Light Sources: 700 Channel Laser Source Excitation: 685 nm Emission: 720 nm

800 Channel Laser Source Excitation: 785 nm Emission: 820 nm

Capacity:

One animal with linked look-up tables for image normalization

Gas Anesthesia:

Inlet and outlet ports flow anesthesia gas through a nose cone in the imaging drawer. A rotameter is included for flow rate control.

Size and Weight

Dimensions (Instrument Only): 41 cm W × 41 cm D × 66 cm H (16" W × 16" D × 26" H) *Depth with imaging drawer open:* 63.5 cm (25") *Imaging Drawer:* 16.8 cm W × 12 cm D (6.6" W × 4.75" D) Vertical clearance to top of drawer: 7.5 cm (3") *Field of View:* 11.2 cm W × 8.4 cm D (4.4" W × 3.3" D) at surface of imaging bed Weight: 25 kg (55 lbs)

Software Specifications

Please contact LI-COR for compatibility with software packages.

*This dynamic range is obtained in a single acquisition. Specifications subject to change without notice.

Imaging Applications and Detection Capabilities

	Odyssey M	Odyssey DLx	Odyssey XF	C-DiGit	D-DiGit	Pearl Trilogy
Quantitative Western blots	O	O	O	-	-	_
In-Cell Western Assays	v	O	-	-	-	_
On-Cell Western assays	0	I	-	-	-	_
Cell health assays	S	0	-	-	-	_
ELISA	S	-	-	-	-	_
Chemiluminescent Western blots	⊘ *	-	•	Ø	-	_
Nucleic acid electrophoresis gels	Ø	0	0	-	0	_
Protein gels	0	0	0	_	_	_
EMSA	S	I	-	_	-	_
Tissue Sections	S	O	_	-	_	_
<i>In vivo</i> imaging	-	-	-	_	-	S
<i>Ex vivo</i> imaging	S	O	_	-	-	\checkmark
NIR fluorescence	S	I	S	-	-	
Visible fluoresence	S	-	_	_	_	_
Luminescence	<₽*	-	0		-	

*Optional feature

Reagents and Consumables

LI-COR reagents and consumables are compatible with a diverse range of imaging applications—including fluorescent and chemiluminescent Western blots, In-Cell Western Assays, immunohistochemistry and small animal imaging. Explore IRDye[®] secondary antibodies and protein labeling kits, WesternSure[®] chemiluminescent reagents and optical probes, and antibody diluents and blocking buffers. As part of the comprehensive packages offered by LI-COR, they are designed to pair effectively with each imager for exceptional performance and consistency.

Imaging Applications

Detection Capabilities



Lambda U is an online learning platform that offers modular courses on Western blotting—from introductory walk-throughs and laboratory techniques to step-by-step guides and best practices. These learning paths are designed for new lab students, seasoned professionals, and everyone in between.

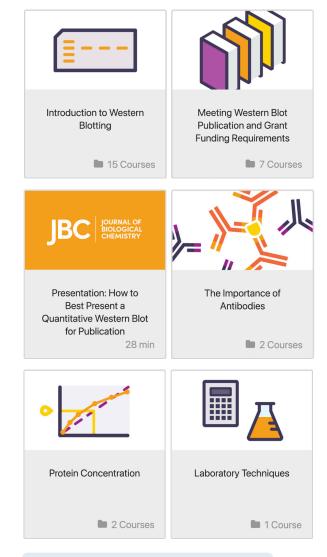
Lambda U Advantage

- Quick and easy to sign-up
- Numerous free courses in diverse areas of study
- In-lab tutorials for proper techniques and procedures
- Adaptable to each lab member's experience level

Training and Support

In addition to online learning courses, advanced training is offered for every imager purchase and installation to ensure that your lab is prepared to maximize its potential and generate accurate, publishable imaging results. Also available are in-person and remote support and online resources—from product documentation and manuals to videos and frequently asked questions—to help answer your questions and get experiments back on track.

Learning Paths



Get a free trial at licor.com/ondemand

Regulatory/CFR Products

LI-COR Regulatory Services

LI-COR offers a number of regulatory service packages. Work with confidence knowing your system validation was performed by the manufacturer. LI-COR employs a dedicated regulatory and compliance staff to ensure that LI-COR standards meet or exceed the highest applicable regulatory standards for data acquisition, access control, and more.

IQ/OQ (Limited)

Basic IQ/OQ services for your instrument and software, recommended only for labs that are not externally audited. A certified LI-COR technician will confirm installation and operation of the instrument and complete the appropriate paperwork for certification, demonstrating that the system meets LI-COR standards. Does not include product verification (PV) or manufacturer audit (MA).

IQ Service

The standard installation qualification (IQ) protocol for your instruments and software. A certified LI-COR technician will confirm the installation of the instrument and complete the appropriate documentation, demonstrating that the system has been installed according to LI-COR standards. Recommended for labs that are audited externally.

OQ/PV Service

The standard operational qualification (OQ) protocol for your instruments and software. A certified LI-COR technician will confirm that your instruments and software are performing according to LI-COR standards. Performance verification (PV) will also be completed with standard Plate Verification from LI-COR to ensure consistent performance of instruments and software over time. It's recommended that each instrument owner purchase their own verification plate. No additional charges will be incurred for a

manufacturer audit. Recommended for labs that are audited externally.

LI-COR Regulatory Products

LI-COR offers regulatory products in addition to services to provide complete coverage of installation, operation, and performance verification and validation of your LI-COR instruments and software.

21-CFR Part 11-Ready Software

Secure, database-driven software that ensures traceability for access control, data acquisition, and analysis for regulated labs with a controlled workflow. Trained LI-COR technicians will install the software according to LI-COR standard operating procedures, interface the software with your existing IT infrastructure, and will work alongside your IT personnel to provide training for administration of the software.

For specific 21 CFR Part 11 compliance information, download the Image Studio[™] Software 21 CFR Part 11 Compliance Guide at licor.com/21CFRpart11.

Odyssey Imager Verification Plates

Odyssey verification plates are designed and optimized to confirm consistent performance of your Odyssey DLx Imager and Odyssey XF Imager over time.

Odyssey Verification Plate Recertification

Each Odyssey Verification Plate may be sent back to LI-COR for recertification, ensuring that the plate is still performing as designed. Recertification includes cleaning and statistical performance tests against a LI-COR standard to confirm consistent performance over time.

Schedule a regulatory service or purchase a regulatory product at licor.com/regulatory.

Benefits of Extended Coverage

Support your instrument with a LI-COR Support Contract or Extended Warranty* to save money and time. Without a support contract or extended warranty, you will be charged separately for parts, labor, and travel. LI-COR is the sole manufacturer and service provider for the Odyssey Family and Pearl Imagers. LI-COR Certified Parts are specifically designed and engineered to work with your instrument.

Options for Coverage

Choose the level of support that fits your lab's needs.

	Basic	Standard	Premium
Technical and Scientific Web Support	S	S	Ø
Technical and Scientific Telephone Support	I	S	0
Technician Labor	0	0	0
Technician Travel	S	S	Ø
Reagent and Accessory Discount ¹	-	10%	10%
Lambda U	-	10 Passes	10 Passes
Empiria Studio Software License ² and Live Software Webinars	-	-	1 License
Preventive Maintenance ³	-	-	Annual On-Site
LI-COR Certified Parts	0	0	Ø

Request more information and pricing at coverage@licor.com**

Footnotes

- A 10% discount is offered for most reagents and accessories that are purchased directly from LI-COR. Reagent discounts are not valid with any other offers. Ask your representative for details, as some exclusions may apply.
- Empiria Studio Software is not included in Pearl Imager Premium support contracts/ extended warranties. Premium coverage includes one license per year purchased.
- 3. 21 CFR Part 11 Key sold separately.

*Your instrument must meet certain specifications to be eligible for coverage. Not all systems will meet eligibility requirements. LI-COR Support Contract or Extended Warranty options may differ outside the United States.

**Please have your instrument serial number available when you inquire.



Make an Impact

Learn about LI-COR solutions for advanced scientific research today.

licor.com/bio/contact





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