

Model	Equipment Supplied
1450-021	1 × 1224-510 Windows WorkStation
1450-028	1 × 1224-510 Windows WorkStation
1450-030	1 × 1450-101 Flexible 96-well cassette 1 × 1450-130 384-well cassette 1 × 1450-105 Rigid 96-well cassette 1 × 1295-041 Roller 1 × 1450-451 ID Support Plates 1 × 1450-452 ID Label Binder 1 × 1450-479 Normalization Standards 1 × 1450-940 Instrument Manual & Customer Application Folder 1 × 1450-401 Flexible 96-well plate 1 × 1450-514 Isoplate™ 1 × 1450-461 Sealing Tape (permanent) 1 × 1200-439 SuperMix
1450-029	1 × 1224-510 Windows WorkStation 1 × 1295-041 Roller 1 × 1450-451 ID Support Plates 1 × 1450-452 ID Label Binder 1 × 1450-479 Normalization Standards 1 × 1450-940 Instrument Manual & Customer Application Folder 1 × 1450-514 Isoplate™ 1 × 1450-461 Sealing Tape (permanent) 1 × 1200-439 SuperMix 1 × 1450-216 RLS 384-well cassette

Equipment Ordered Separately

Filtermat WorkStation

1495-041	1 × 1450-104 8 × 12 filtermat cassette 1 × 1450-421 Filtermat A 1 × 1450-432 Sample bag 1 × 1295-012 Bag sealer 1 × 1205-440 Betaplate Scint 1 × 1450-441 MeltiLex A
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Plate Starter Kit

1450-486	5 of 1450-401 Flexible 96-well plate 5 of 1450-402 Flexible 24-well plate 10 of 1450-514 Isoplate™ 20 of 1450-461 Sealing Tape (permanent) 20 of 1450-462 Sealing Tape (removable)
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Accessories and Consumables

Hardware Accessories

1450-212	Temperature Control	
1450-214	Plate I.D. Barcode Reader	
1450-211	Conversion kit (RLS-16 plate)	
1450-215	Conversion kit (RLS-16 plate)	
1450-208	Cart for 32-shelf models	

Cassettes

1450-101	Flexible 96-well plate	(10)
1450-102	Flexible 24-well plate	(10)
1450-104	8 × 12 filtermat	(10)
1450-105	Rigid 96-well plate	(10)
1450-106	Millipore MultiScreen	(10)
1450-107	1/4 Betaplate	(10)
1450-110	Corning 24-well plate	(10)
1450-111	8 × 12 luminescence filter	(1)
1450-116	4 × 6 filtermat	(10)
1450-117	4 ml tube	(4)
1450-118	P-32 filtermat	(1)
1450-130	384-well plate	(10)
1450-216	384-RLS cassette	(1)
1450-217	96-RLS cassette	(1)

ID Supports and Labels

1450-451	ID Support Plate	(100)
1450-452	ID Label Binder	(1)

Heat Sealers & Supports

1495-021	MicroSealer	(1)
1495-027	Filtermat Heat Sealer	(1)
1495-022	96-well Heat Support	(1)
1495-023	24-well Heat Support	(1)
1495-025	MeltiLex Heat Support	(1)
1295-012	Bag Heat Sealer	(1)

Punchers

1495-033	MeltiLex Pipette	(1)
1495-034	MeltiLex Row Pipette	(1)
1495-035	Filtration Plate Punch (8)	(1)
1495-036	Filtration Plate Punch (96)	(1)

Rigid Plates

1450-514	Isoplate	(25)
1450-515	Isoplate	(100)
1450-516	Isoplate TC	(25)
1450-517	Isoplate TC	(100)
1450-518	Isoplate HB	(25)
1450-519	Isoplate HB	(100)
1450-571	Black Isoplate	(25)
1450-572	Black Isoplate	(100)
1450-573	Black Isoplate TC	(25)
1450-574	Black Isoplate TC	(100)
1450-575	Black Isoplate HB	(25)
1450-576	Black Isoplate HB	(100)
1450-581	B&W Isoplate	(25)
1450-582	B&W Isoplate	(100)
1450-583	B&W Isoplate TC	(25)
1450-584	B&W Isoplate TC	(100)
1450-585	B&W Isoplate HB	(25)
1450-586	B&W Isoplate HB	(100)
1450-601	White Visiplate	(17)
1450-602	White Visiplate	(68)
1450-603	White Visiplate TC	(14)
1450-604	White Visiplate TC	(56)
1450-605	Black Visiplate TC	(14)
1450-606	Black Visiplate TC	(56)

Flexible Plates

1450-401	96-well	(25)
1450-402	24-well	(25)
1450-408	24-well, (heat seal)	(25)

Plate Sealers

1450-461	Sealing Tape (permanent)	(100)
1450-462	Sealing Tape (removable)	(100)
1450-463	Heat Foil	(100)

ScintiPlates

1450-501	ScintiPlate	(10)
1450-502	ScintiPlate	(100)
1450-551	ScintiPlate SA	(10)

Filters / Sample Bags

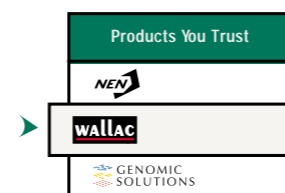
1450-421	Filtermat A	(100)
1450-521	Filtermat B	(50)
1450-522	Filtermat DEAE	(100)
1450-523	Filtermat P30	(100)
1450-423	Nylon Membrane	(25)
1450-422	4 × 6 Filtermat A	(100)
1450-424	4 × 6 Filtermat B	(50)
1450-432	Sample Bag	(100)

Scintillators

1200-439	SuperMix	(5L)
1205-440	Betaplate Scint	(5L)
1450-441	MeltiLex	(100)
1450-442	MeltiLex B/HS	(75)

Miscellaneous

1450-525	HARVEST Plate	(50)
1450-467	Silicon Paper Envelope	(75)
1450-433	MultiScreen Liner	(20)
1200-421	4ml tubes	(3000)
1450-109	Costar X-talk elim. tubes	(24)
1450-431	Waste Bag	(100)
1450-481	Frame for flexible plate	(25)
1495-032	Transport Tray	(1)
1450-108	Eppendorf Adaptors	(24)
1450-471	Normalization Standards	(1)
1295-013	Light Box	(1)



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Microplate counting

1450 MicroBeta® TriLux Features Guide



General Description

MicroBeta® TriLux is a multi-detector instrument designed for liquid scintillation or luminescence detection of samples in microtitration plates, tubes or on filters.

Three different MicroBeta models are available. Two manually loaded models have sample capacities of up to 16 or 32 plates. The third model is fitted with an external loading platform for fully automatic loading by robot systems.

MicroBeta TriLux has 1, 2, 3, 6 or 12 detectors and can count in 96 and 24 or 96 and 384 formats. Software features include the facility to count non-standard 4 × 6 and 16 × 24 formats.

Each detector in MicroBeta comprises two photo-multiplier tubes, one above the sample and one below. This arrangement provides the best possible counting geometry for every assay type.

A bar code reader that focuses on a re-usable barcode on the cassette provides identification of up to 100 counting protocols and other counting commands.

Counting Modes

Single and dual label CPM
Single and dual label DPM
ParaLux Count Mode
Luminescence counting

Crosstalk Correction

Count rate correction is provided for optical and isotopic crosstalk in samples that cannot be prepared in non-crosstalk format.

Standard Software Features

Windows Workstation interface
Spectrum plot
ASCII, Excel or CSV filing.
Column and or plate formats
Context specific HELP function

Example Liquid Scintillation Counting Efficiency

Unquenched sample with a volume of 150 microlitres of cocktail unpurged, in the 1450-401 96-well sample plate:

³H: typically 57%

¹⁴C: typically 94%

Typical Luminescence Counting Performance

Black microtitration plate
Maximum count rate 24 million CPS,
background 100 CPS, crosstalk 0.002%.

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LIQUID SCINTILLATION AND LUMINESCENCE

Specifications

Model	Detectors	Capacity, plates	Counting Formats	Width, mm	Height, mm	Depth, mm	Weight, kg	Power consumption, VA
1450-021	6	16	96/24 ³	433	609	653	85	360 max.
1450-022	3							
1450-023	2							
1450-024	1							
1450-025 ¹	6	RLS	96/384			785	95	
1450-027 ²	6	32						
1450-028	12	16						
1450-029 ¹	12	RLS						
1450-030 ²	12	32				1207	763	95

¹ RLS, Robot Loading System, takes one plate at a time. ² 32 plate MicroBetas are supplied with a cart. Width, 950 × depth, 660 × height, 712mm. ³ 96/384 format available on request.

Mains voltage selectable 100, 115, 120, 240 V ±10%

Frequency 50/60 Hz

Standard Features, ScintiPlate or FlashPlate

Detector Design

Each detector consists of two photo-multiplier tubes. This provides unsurpassed counting efficiency irrespective of the sample type. For example, SPA, Milipore MultiScreen, Costar and all other tissue culture plates, all solid (or dry) scintillators such as MeltiLex, yttrium silicate, Scintiplate or FlashPlate and any type of liquid cocktail, are all ideal for use with the MicroBeta.

Automatic optimized photo-multiplier movement gives the correct geometry for microtitration plates, filtermats or tubes up to a maximum sample height of 45 mm. The maximum sample height in robot loading MicroBetas is 20 mm.

Multi-tasking

Instrument software design permits the use of either an IBM compatible PC (running a DOS or Windows interface) or a Macintosh computer. Other applications can be performed on the controlling computer while the counter is operating.

The recommended option is the Windows WorkStation. In this case counting protocols can be edited and data analyzed using popular Windows applications at any time.

Cassettes

Cassette support for all sample types provides the only practical way to count flexible microtitration plates, complete filtermats or tubes. The instrument shelf stacking system provides easy access and identification of samples.

Isotopes

Optimized counting conditions for all the commonly counted isotopes are included as standard. Settings for other beta and gamma isotopes can be made by the user.

Counting Control

Each counting protocol can be edited to include repeat, replicate and cycle counting.

Count Delay Options

Count delay can be used for an automatic, unattended assay start after an incubation period. **Cycle delay** and **Plate delay** are also possible.

Live Display

8 × 12, 4 × 6 or 16 × 24 live display provides instant feedback to the user.

Counting Commands

Next sample or next assay commands are available while the counter is operating.

Count Termination

Count termination is either by fixed time or by counting precision.

Counting Protocols

Up to 100 different counting protocols can be set. These are linked to normalizations for CPM or luminescence counting, or standardizations for DPM counting.

Normalizations

Up to 100 normalizations can be stored and linked to any one of 100 counting protocols to provide corrections for detector efficiencies and possible background and crosstalk.

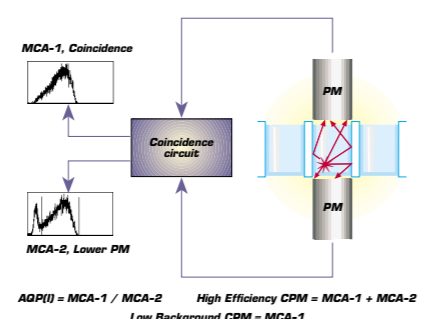
Standardizations

Up to 100 standardizations can be stored and linked to any one of 100 counting protocols to provide DPM results that are also corrected for detector efficiencies and possibly crosstalk.

ParaLux™ Count Mode

For SPA counting ParaLux Count Mode fully utilizes the advantage of twin photo-multiplier tubes. Compared to all other methods counting efficiency is increased by up to 500%. The new ultra-sensitive,

high dynamic range quench parameter, AQP(I), provides superior DPM calculations.



For SPA counting ParaLux™ Count Mode represents a genuine improvement in counting efficiency and provides a more effective quench parameter.

Easy DPM

Pre-stored quench data is modified by counting just two standard samples. Errors in sample preparation and lengthy standardization counting times are thereby avoided.

Three Counting Windows

Counting data from three separate and independent counting regions can be obtained.

Background Subtraction

Fixed sample or values obtained from detector normalizations can be deducted from unknown CPM values.

Plate Mapping

Plate layout can be entered for each protocol so that specific positions are counted.

Half-life correction

There is a correction facility for CPM and DPM values. The zero time may be the start of the assay or a specified date and time.



Cassettes provide the only practical way to count flexible plates, filtermats and tubes in a multi detector instrument.

Chemiluminescence Correction

There is an automatic correction for unwanted single photon activity. This is based on delayed coincidence and dual MCA technology.

Statistics Monitor

Distorting contributions from static electricity can be detected and reported.

DPM Monitor

Samples outside the range of the quench curve are reported.

Data Output

Comprehensive output options in addition to standard count rate information are freely selectable. Output options include sample /plate ID, quench parameters, spectrum plot, date and time, CPM & DPM monitors and statistical analysis.

Output can be customized in either column and/or plate format.

EasyGLP

Routines are included for monitoring detector performance by counting standard samples. Results can be printed and saved to file.

Diagnostics

Instrument based service routines are used to verify instrument performance.

Passwords

Password protection for counting, normalization and standardization protocols.

Hardware Accessories

1450-212 Temperature control

Option for upper photo-multiplier luminescence counting. Peltier device maintains constant temperature down to 7° Celsius below ambient.

1450-214 Plate ID Barcode reader

Option for reading barcodes fixed to short right hand edge of plate. Compatible with Code 39, Codabar, Code 128, Interleaved 2 of 5, UPL and EAN languages.

1450-211 Conversion kit

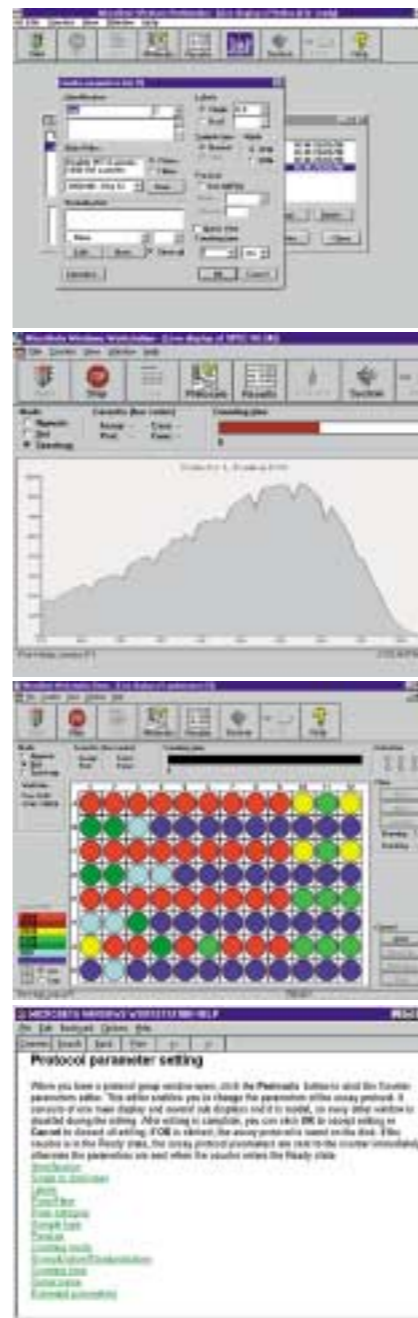
Converts 16 plate counter to Robot Loading System.

1450-215 Conversion kit

Converts Robot Loading System to 16 plate counter.

1450-208 Cart for 32-shelf models

Width, 950 × depth, 660 × height 712 mm



WorkStation software quickly puts you in control of the MicroBeta.

Windows WorkStation Software

MicroBeta Windows WorkStation runs under Windows versions 95, 98 and NT. The Windows interface is Y2K certified.

Operating Features

- Live spectrum display.
- Numeric or colour intensity display in 96 or 24 formats.
- Full control of injector module setup and automatic functions.
- Protocol Groups.
- Protocol templates with user defined restrictions for quick and easy editing.
- Protocol specific plate mapping with 'Auto fill' feature.
- Master plate for fast plate map editing.
- Protocol editing while the counter is operating.
- 'Execute' function automatically boots selected application software for data analysis.
- 'Plate Orientation' caters for plates, that are rotated or inverted during sample preparation.
- Status bar indicates instrument operation.
- Hypertext HELP.
- Password protection

Filing Features

- Excel, ASCII or CSV file types in column and or plate formats.
- Spectrum file saving.
- Automatic file run numbers to avoid loss of data by overwriting old data.
- File names can combine several identifiers such as counter name, protocol owner, protocol name, protocol number, plate index or plate ID.

Networking Features

- **WorkStation Server** (Special Product) provides a means to create all protocols on one server and then synchronize these with one or more identical MicroBetas connected to the network.
- **Error Handler** can call up a network application to send an error message to, for example, the 'owner' of a protocol.

Please note. PerkinElmer products are subject to continuous development. We therefore reserve the right to make changes to the specifications presented here. Limitations due to the nature of liquid scintillation and luminescence counting mean that some combinations of features are not physically possible. Some software features are not available in all operating systems. If in doubt please contact your PerkinElmer Life Sciences representative.

Equipment supplied with MicroBeta TriLux Models

Model	Equipment Supplied
1450-022	1 × 1450-101 Flexible 96-well cassette
1450-023	1 × 1450-102 Flexible 24-well cassette
1450-024	1 × 1450-105 Rigid 96-well cassette
1450-027	1 × 1295-041 Roller 1 × 1450-451 ID Support Plate 1 × 1450-452 ID Label Binder 1 × 1450-472 Normalization Standards 1 × 1450-940 Instrument Manual & Customer Application Folder 1 × 1450-401 Flexible 96-well plate 1 × 1450-402 Flexible 24-well plate 1 × 1450-514 Isoplate™ 1 × 1450-461 Sealing Tape (permanent) 1 × 1200-439 SuperMix
1450-025	1 × 1224-510 Windows WorkStation 1 × 1295-041 Roller 1 × 1450-451 ID Support Plate 1 × 1450-452 ID Label Binder 1 × 1450-472 Normalization Standards 1 × 1450-940 Instrument Manual & Customer Application Folder 1 × 1450-514 Isoplate™ 1 × 1450-461 Sealing Tape (permanent) 1 × 1200-439 SuperMix

