



# 300SL

Automatic TDCR liquid scintillation counter





With more than 30 years of experience in design and manufacture of liquid scintillation counters Hidex introduces the 300 SL. An Automatic TDCR Liquid Scintillation Counter.

The Ingenious design utilizes three photomultiplier tubes aligned at 120 degrees from each other. These three PMT's enable triple to double coincidence ratio counting or TDCR.

TDCR, a technology familiar since 1970's, has only been employed in research instruments. Hidex is the first manufacturer to introduce a commercial TDCR instrument. The greatest advantage of TDCR is the easy and straightforward method of obtaining counting efficiency of the samples without any external or internal standard source of radioactivity.

The 300 SL is a compact instrument with small footprint and can easily be integrated into small laboratories due to its outstanding dimensions of 50 cm width, 60 cm depth and 65 cm height. Even with its 4-pi 60mm detector shield the gross weight is just 100 kg.



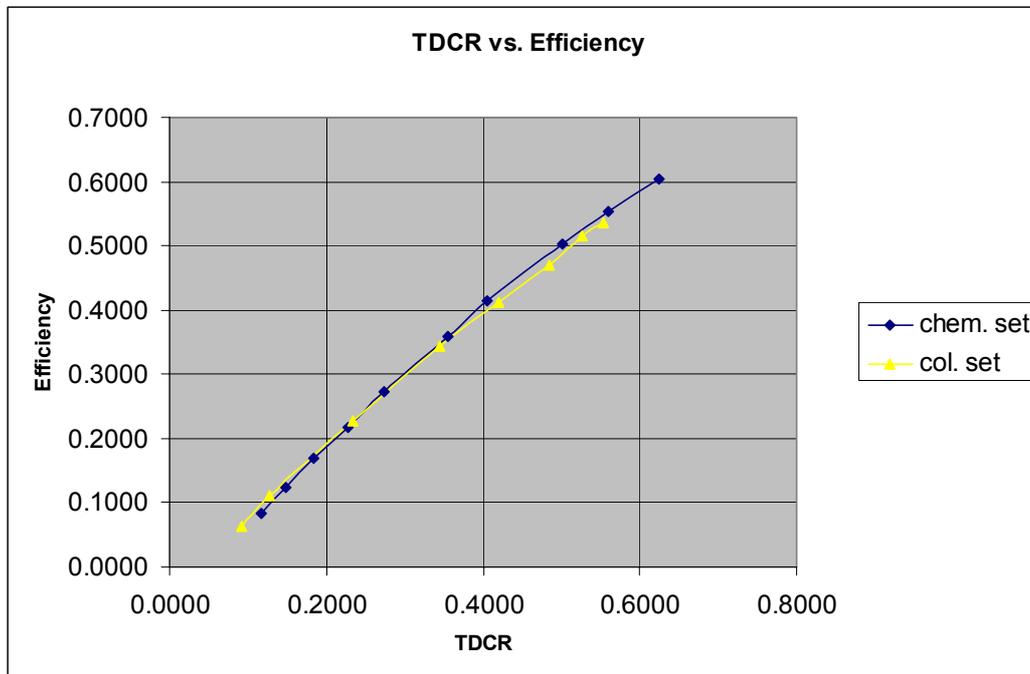
Another unique feature of 300 SL is that the vials are placed on a tray. With matrix format of 8 by 12 totals 96 7ml vials in one tray. Alternatively 5 by 8 matrix totaling 40 20ml vials can be used. The trays can be used in sample preparation instruments such as liquid handling stations or cell harvesters.

300 SL boasts such optional features as alpha/beta separation, cooling of instrument to 15 degrees centigrade, active guard for background reduction or external standard for traditional quench determination.



The instrument is operated from PC with MikroWin 2000 lite software. It has easy to use interface, unlimited number of prestored isotopes and protocols and easy interface to Excel or other data reduction programs. MikroWin 2000 can be upgraded to full version with 21 CFR part 11 compliency and extensive data reduction features such as quench

curve analysis, IC/EC 50 value calculations etc.



Graph 1. shows Triple to double coincidence ratios measured from both chemical and color quench series with H-3. Measured TDCR ratio corresponds excellently with efficiency of the sample.



### 300 SL automatic TDCR liquid scintillation counter

#### Technical data:

Width:	510mm
Height:	650mm
Depth:	550mm
Weight:	95kg
Electrical connections:	100-240V 50-60 Hz
Ports:	RS-232C, USB optional

#### Radiological Data (preliminary):

Energy Range $\beta$ 's:	0 – 2.000 keV
Energy Range $\alpha$ 's:	0 – 10.000 keV

Efficiency:	H-3 unquenched > 65 % H-3 (8 ml water sample, 12 ml Aqualight) > 26 % C-14 unquenched > 95% $\alpha$ 's ( Po-210, U-234/U238, Am-241,Rn-222, Ra-226)>95%
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Background:	H-3: 8 cpm (8 ml water sample, 12 ml Aqualight) $\alpha$ 's ( Po-210, U-234/U238, Am-241,Rn-222, Ra-226) <0.5CPM, in plastic vials
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LLoD <sup>1</sup> :	H-3: 10 Bq/l (8ml water sample, 12ml Aqualight)
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E <sup>2</sup> /B	H-3: 84.5 (8ml water sample, 12ml Aqualight)
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LLoD =  $V^{-1} \cdot K (k_{1-\alpha} + k_{1-\beta}) \text{SQRT}(R_0(1/t_0+1/t_b))$ ;  $k_{1-\alpha} + k_{1-\beta} = 4.6$ ;  $t_b = 2 \times 24\text{h}$ ; Measuring time  $t_0 = 2\text{h}$ ; (LLoD according to german DIN 25482, Teil 1, ISO 11929 part 1)

#### Ordering information

Code No	Item
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425-201	Automatic TDCR Liquid Scintillation Counter
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Code No	Options
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	External standard
	Low level option
	Alpha/Beta separation option

Code No	Other Options
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425-2000	Temperature Control for counter cooling to 15C
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Code No	Software
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426-100	MikroWin 2000 Lite PC control sw (Included in new deliveries) MikroWin 2000 Full Data reduction/instrument control 21CFR part 11
426-110	software
426-110U	Upgrade of MikroWin Lite to MikroWin 2000 Full version
426-110N	MikroWin 2000 net user license