

ISO 9001  
CERTIFIED

HIRSCHMANN®  
LABORGERÄTE

# solarus®

HiClass Titration.



Sunshine-  
Power



# solarus<sup>®</sup>.

## The sunshine in your lab.

*solarus<sup>®</sup>, Hirschmann Laborgeräte's new digital burette sets new standards in manual titration.*

*Revolutionary: The integrated solar panels supply the energy for the electronic components and the display. I.e. no more charging or changing batteries.*

*Additional advantage: The serial bi-directional interface (RS 232) for taking down the performed titrations, further processing of the titration data and input of the user-specific calibration factor.*

*solarus<sup>®</sup> replaces ideally any breakable glass burette or high end titration automates, if they are too expensive. It needs only a small space and absolutely no power connection. Meniscus reading errors are prevented to a 100% with the clear digital display.*

*The serial reagent recirculation system makes priming the unit much easier, prevents the loss of expensive reagents and is easy on the environment.*

*Exchangeable valves, simple user-specific calibration "Quick Cal" and the permanently stored default calibration make individual adaptations possible.*

*solarus<sup>®</sup> is available in a 20 ml and a 50 ml version.*

*The modern and ergonomical design makes routine titration work much easier, or put it that way: Titration as perfect as it could be.*

*solarus<sup>®</sup>: The brilliant synthesis of esthetics and function.*

# solarus®.

## Unlimited power.

The most important accessory is invaluable. But you get it for free: Solar energy.

The solar panels on the back of the solarus® supply the energy needed for the electronic components of the device. Charging or changing batteries, high standby costs and the impractical exchange of Lithium cells at the factory belong to the past.

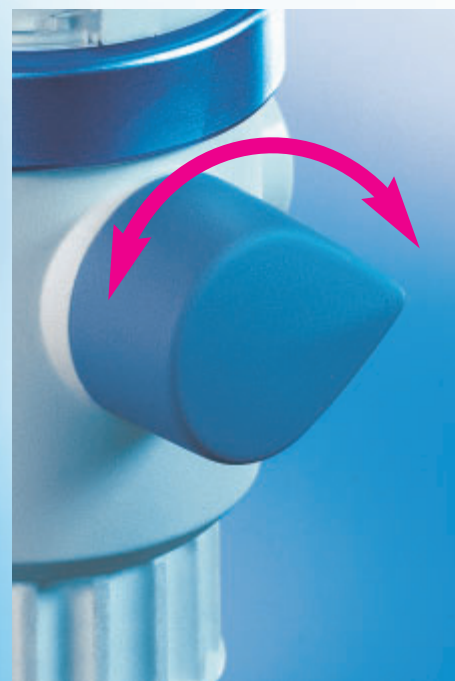
**Enjoy the advantages of solar technology instead. Convenient, simple, environmentally friendly, inexhaustible and free.**

Even with limited lighting conditions, a reliable energy supply is secured by using high-graded solar panels.




### **Precision is the key**

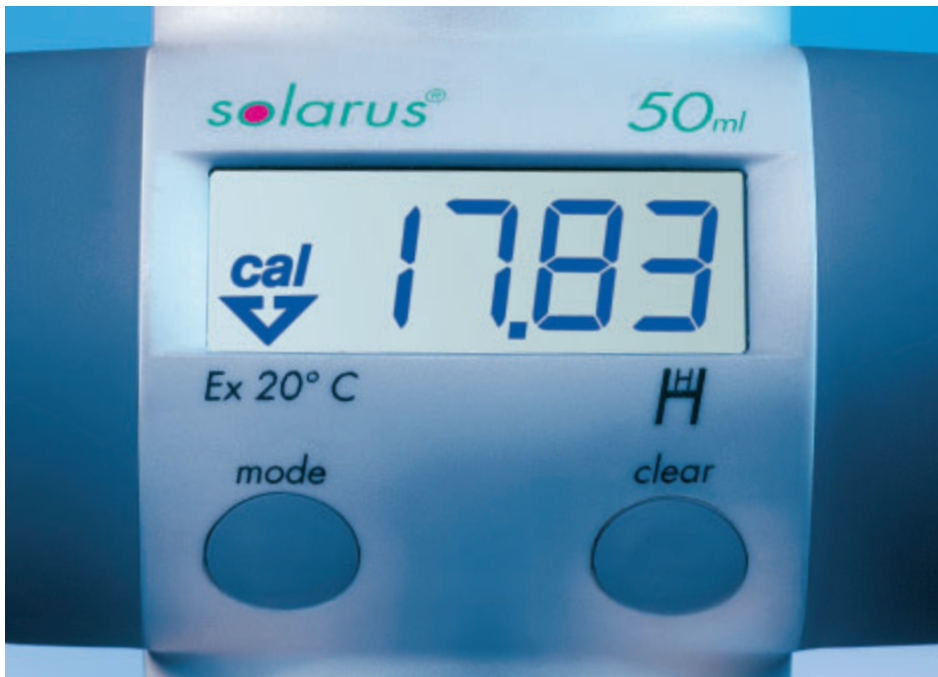
The hand wheels equipped with a softtouch surface guarantee maximum grip and together with the smoothly operating gear provide a very sensitive titration.



### **Easy on the environment and your budget**

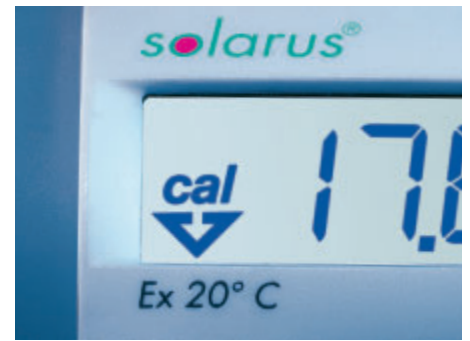
The user-friendly Hirschmann reagent recirculation system primes the device fast, simple and without unnecessary loss of reagent.

 Our product is fulfilling all requirements of the EC-guidelines and it has been tested in accordance to the laid down processes



### An intelligent head

Clear, self-explaining and user-friendly. The display is always clearly readable, regardless of the angle of view, volume range 0.01 ml - 99.99 ml. The turning direction Fill or Titrate is indicated by arrows and the operation of the keys is obvious. The result: correct volumes and error free readings, even for very sensitive titrations.



### Quick-Cal

Makes individual calibration possible for user-specific adaptations. By merely touching a button the device switches from the default calibration to the user-specific calibration and back at any time.



### Rotate 360 degrees

An important detail for the daily lab work: you can turn solarus® freely on the bottle. The advantage: labels or lettering on the bottle always face the user. Hence you have everything right before you.



### Connection to the future

The serial bi-directional interface permits the user to report titration results and to process data further. An individual calibration factor may also be entered. A suitable connecting cable is available as an accessory.



### Test samples are good. Individual tests are better.

Each solarus® is individually tested for accuracy. The individual test certificate indicates the tested values as well as the individual serial number and certifies the conformity with the German "Eichordnung". It can therefore also be accepted as part of the quality documentation in conjunction with the DIN EN ISO 9000 standard.

**Solar:**

Power supply through solar panels:  
no batteries, no charging

**Informative:**

Easily readable, large LC display

**Quick-Cal:**

Individual calibration

**Tested:**

Individual quality certificate,  
conformity certified.

**Durable:**

Permanent storage of  
default calibration

**Future-oriented:**

Serial, bi-directional  
interface

**Perfect ergonomics:**

Efficient and non-tiring work

**Correctly positioned:**

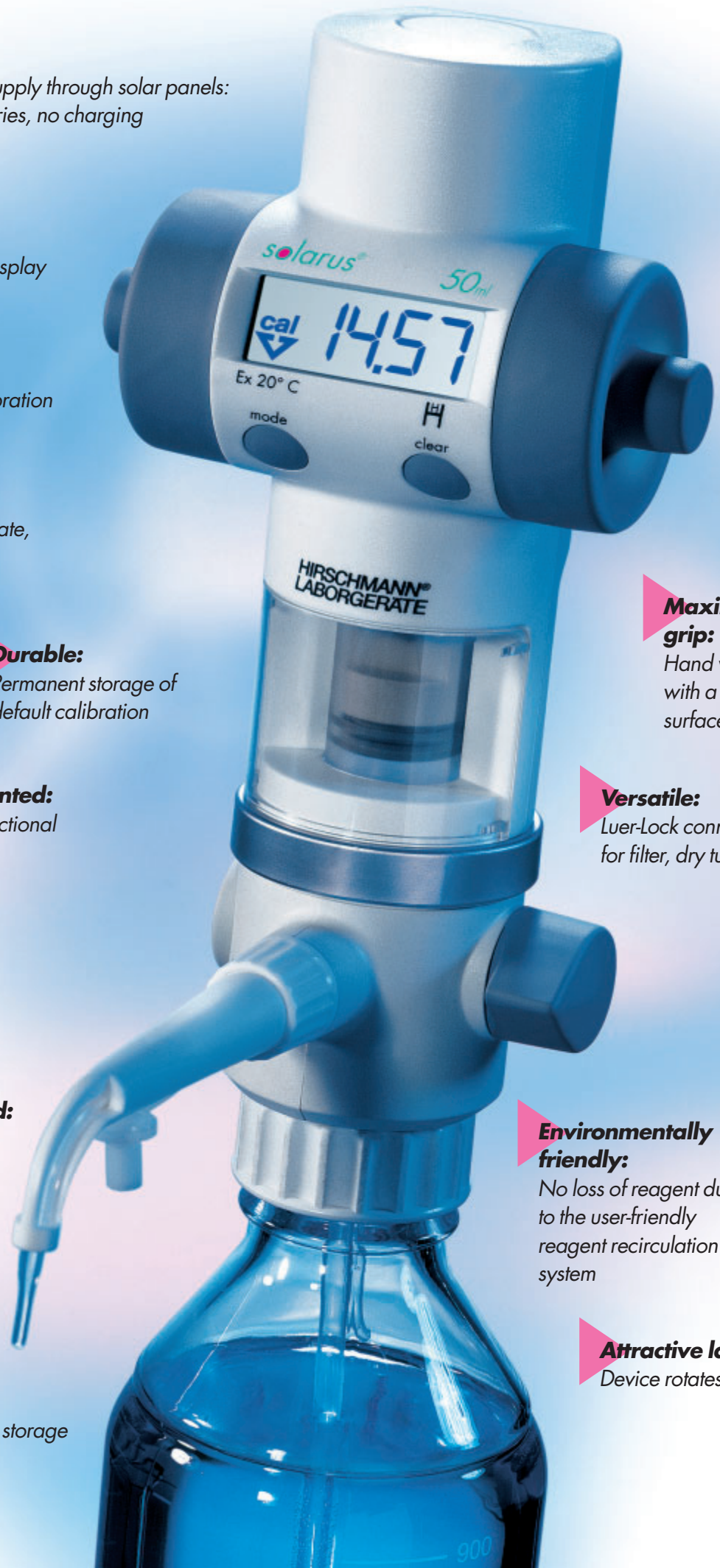
Stable discharge unit

**Easy service:**

All valves are easily  
exchangeable

**Clean and neat:**

Closure cap in safe storage  
position

**Maximum grip:**

Hand wheels  
with a softtouch  
surface

**Versatile:**

Luer-Lock connection  
for filter, dry tube etc.

**Environmentally friendly:**

No loss of reagent due  
to the user-friendly  
reagent recirculation  
system

**Attractive layout:**

Device rotates freely

## solarus® Top performance in titration.

### Technical data

Titration steps	10 µl
Volume range	0,01 ml to 99,99 ml
Volume accuracy	precise and reproducible with absolute accuracy (R) 0,2% and standard deviation (CV) 0,1%
Piston	Teflon-compound ECTFE, PTFE
Cylinder	predominantly inert and wear-free, made of calibrated DURAN glass
Valves	predominantly inert and wear-free, ball and seat are made of borosilicate glass, valve spring of Hastelloy. The valves are easily dismantled and exchangeable with a wrench (supplied with each solarus®)
Plastic components	all components which come into contact with media are manufactured from highly inert fluorine plastics: valve block and valve housing are made of ECTFE, suction tube and dispensing tube are made of FEP
Sterilization	all components which come into contact with media, including the discharge unit, are steam sterilizable (121°C)
Breakage resistance	completely closed protective mantle, made of plastics, with a clear view glass, protects against breakage
Test documentation	every solarus® is individually tested and certified with an individual serial number

### Scope of supply

- solarus® with mounted discharge unit and A45 female thread
- thread adapters A32, A38 and S40
- suction tube, return tube, wrench, individual test certificate

### Order data

	volume ml	accuracy R ≤ ± (%)	repro- ducibility CV ≤ (%)	code no.
<b>solarus®</b>	20 ml	0,2	0,1	939 20 20
<b>solarus®</b>	50 ml	0,2	0,1	939 20 50

### Accessories

	code no.
<b>interface connection cable</b>	956 40 05
<b>discharge unit, spiral-shaped</b>	931 30 27

More on our solutions for pipetting, dispensing, titration and volumetric measuring is available at [www.hirschmann-laborgeraete.de](http://www.hirschmann-laborgeraete.de). We are looking forward to your visit on our website.

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For ordering and further details, please consult your supplier