

# Humonics Veri-Flow 500 Electronic Flowmeter

## Product Specification



994-0281

### Features

- Calibrated for nitrogen, helium, hydrogen, air, and 5% argon/methane
- Range of 5.0-500mL/min; accurate to within  $\pm 2\%$  of reading or 0.25mL/min, whichever value is larger
- Continuous readings in volume, linear velocity or split ratio
- EPC compatible
- 9-pin RS 232 communication port for recording data
- Power adapter jack and recharger
- Compact size: 4 x 5 x 3" (10 x 12.5 x 7.5cm)

The Veri-Flow 500 unit is a simple, continuous-reading flowmeter for general GC applications. It is multi-point calibrated to NIST-certified volumetric standards for nitrogen, helium, hydrogen, air, and 5% argon/methane (certificate supplied) for superior accuracy, and to help you comply with ISO 9000, GLP, and other stringent quality control protocols. The display indicates flow in volume (sccm), in linear velocity (cm/second), or in split ratio. Operation is pulse-free, unaffected by temperature or pressure changes, and fully compatible with electronic pressure control systems. This flowmeter is powered by internal rechargeable batteries, and features very low power consumption and an automatic shut-off.

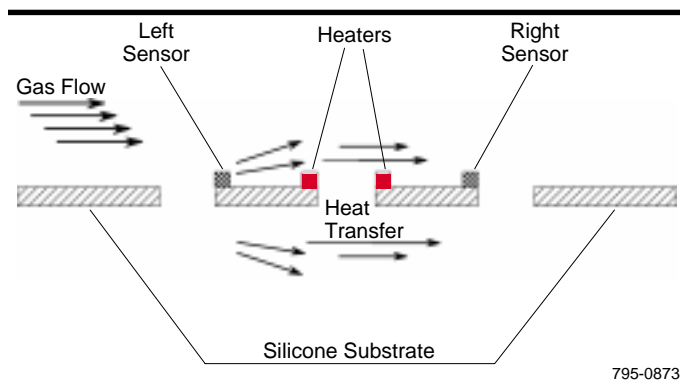
### Principle of Operation

Gas flow transfers heat from the left sensor to the right sensor in proportion to the mass and velocity of the gas flow (see Figure A). The heat imbalance from the left to the right sensor produces an electrical signal in the flow sensor, which is used to calculate mass flow. Fluctuations due to ambient temperature changes are minimized by the heat.

### Low Back Pressure

The Veri-Flow 500 flowmeter is specifically designed to provide low back pressure. At 500sccm (the high range limit), this unit produces about four-tenths of an inch (0.4") of water back

**Figure A. Veri-Flow Flowmeter Operating Schematic**



795-0873

pressure, which translates to about 0.0144psi as the upper limit within the functional range of the flowmeter. The back pressure produced shows a very linear drop in relation to the flow induced, so that at 250sccm the back pressure would be about 0.2", or about 0.0072psi, and so on as the flow is reduced further. At 100sccm, the back pressure introduced by this flowmeter should be less than a tenth of an inch of water. Similar units, in contrast to the Veri-Flow flowmeter, have back pressures as high as about 2.5psi at 500sccm.

### Serial Port Communication

The Veri-Flow 500 flowmeter will communicate with a computer terminal or printer via the built-in RS232 serial interface, using ASCII messages. The flowmeter can send continuous results enabling a permanent printed record, or both query and command types of messages can be sent to the flowmeter. The results of a command can be checked with a query to confirm that the desired change has occurred. The flowmeter normally processes and responds to a message in 50 to 100 milliseconds.

### Ordering Information:

Description	Cat. No.
<b>Humonics Veri-Flow 500 Electronic Flowmeter</b>	
110VAC	<b>23143</b>
International Version*	<b>23142</b>

\*International version supplied with:  
standard 110VAC USA power cord  
European 220VAC power cord

universal AC to DC power adapter/charger, tested and approved by Humonics, CE approved and labeled

The AC to DC adapter/charger has the following rating:

Input: 100-240VAC, 50-60 Hz; Output: 5VDC, regulated.

The adapter/charger will work everywhere, including the USA and Japan.

## Free Technical Literature From Supelco

Supelco produces a wide variety of technical literature, all of which is free. You may request this literature several different ways:

- Use the business reply card located at the back of our catalog.
- Call our Ordering and Customer Service department (800-247-6628 or 814-359-3441).
- Use our ChromFax™ service.

### How to Use ChromFax

ChromFax is Supelco's automated digital data system, which allows you to instantly obtain technical literature any time of the day or night. Supelco technical bulletins, application notes, lab hints, and product specification sheets can be sent to your Fax machine.

1. To use ChromFax you must dial from a touch-tone phone. If you do not have a touch-tone phone, call our Ordering and Customer Service department and we will Fax the publication to you.
2. Have the phone number of your Fax machine ready, and dial **800-652-8069 or 814-359-5748**. Remember you must have the *complete* Fax number (011 + country/city code + Fax number) when you are calling from outside the US or Canada, otherwise the document cannot be transmitted.
3. When ChromFax answers, follow the simple recorded instructions. Select the **ChromFax number** of the document you want. Be certain you order documents by their ChromFax numbers and NOT their literature numbers.
4. Enter your Fax number and hang up. The requested information will be sent to you within minutes. To report a problem with the ChromFax system contact our Technical Service department.

### Technical Literature Available on ChromFax

The listing of documents available on ChromFax is updated every month. We encourage you to request a list of available ChromFax documents each time you use the ChromFax system.

ChromFax is a trademark of Sigma-Aldrich Co.

Contact our Technical Service Department  
(phone 800-359-3041 or 814-359-3041, Fax 800-359-3044 or  
814-359-5468) for expert answers to your questions.

For more information, or current prices, contact your nearest Supelco subsidiary listed below. To obtain further contact information, visit our website ([www.sigma-aldrich.com](http://www.sigma-aldrich.com)), see the Supelco catalog, or contact Supelco, Bellefonte, PA 16823-0048 USA.

**ARGENTINA** · Sigma-Aldrich de Argentina, S.A. · Buenos Aires 1119 **AUSTRALIA** · Sigma-Aldrich Pty. Ltd. · Castle Hill NSW 2154 **AUSTRIA** · Sigma-Aldrich Handels GmbH · A-1110 Wien  
**BELGIUM** · Sigma-Aldrich N.V./S.A. · B-2880 Bornem **BRAZIL** · Sigma-Aldrich Quimica Brasil Ltda. · 01239-010 São Paulo, SP **CANADA** · Sigma-Aldrich Canada, Ltd. · 2149 Winston Park Dr., Oakville, ON L6H 6J8 **CZECH REPUBLIC** · Sigma-Aldrich s.r.o. · 186 00 Praha 8 **DENMARK** · Sigma-Aldrich Denmark A/S · DK-2665 Vallensbaek Strand **FINLAND** · Sigma-Aldrich Finland/YA-Kemia Oy · FIN-00700 Helsinki **FRANCE** · Sigma-Aldrich Chimie · 38297 Saint-Quentin-Fallavier Cedex **GERMANY** · Sigma-Aldrich Chemie GmbH · D-82041 Deisenhofen **GREECE** · Sigma-Aldrich (o.m.) Ltd. · Ilioupoli 16346, Athens **HUNGARY** · Sigma-Aldrich Kft. · H-1067 Budapest **INDIA** · Sigma-Aldrich Co. · Bangalore 560 048 **IRELAND** · Sigma-Aldrich Ireland Ltd. · Dublin 24 **ISRAEL** · Sigma Israel Chemicals Ltd. · Rehovot 76100 **ITALY** · Sigma-Aldrich s.r.l. · 20151 Milano **JAPAN** · Sigma-Aldrich Japan K.K. · Chuo-ku, Tokyo 103 **KOREA** · Sigma-Aldrich Korea · Seoul **MALAYSIA** · Sigma-Aldrich (M) Sdn. Bhd. · 58200 Kuala Lumpur  
**MEXICO** · Sigma-Aldrich Química S.A. de C.V. · 50200 Toluca **NETHERLANDS** · Sigma-Aldrich Chemie BV · 3330 AA Zwijndrecht **NORWAY** · Sigma-Aldrich Norway · Torshov · N-0401 Oslo  
**POLAND** · Sigma-Aldrich Sp. z o.o. · 61-663 Poznań **PORTUGAL** · Sigma-Aldrich Quimica, S.A. · Sintra 2710 **RUSSIA** · Sigma-Aldrich Russia · Moscow 103062 **SINGAPORE** · Sigma-Aldrich Pte. Ltd.  
**SOUTH AFRICA** · Sigma-Aldrich (pty) Ltd. · Jet Park 1459 **SPAIN** · Sigma-Aldrich Quimica, S.A. · 28100 Alcobendas, Madrid **SWEDEN** · Sigma-Aldrich Sweden AB · 135 70 Stockholm  
**SWITZERLAND** · Supelco · CH-9471 Buchs **UNITED KINGDOM** · Sigma-Aldrich Company Ltd. · Poole, Dorset BH12 4QH  
**UNITED STATES** · Supelco · Supelco Park · Bellefonte, PA 16823-0048 · Phone 800-247-6628 or 814-359-3441 · Fax 800-447-3044 or 814-359-3044 · email: [supelco@sial.com](mailto:supelco@sial.com)

H

Supelco is a member of the Sigma-Aldrich family. Supelco products are sold through Sigma-Aldrich, Inc. Sigma-Aldrich warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product for a particular use. Additional terms and conditions may apply. Please see the reverse side of the invoice or packing slip. AWE