

Van London Co.
"When Accuracy Matters"

Laboratory Electrode Brochure

**Electrodes, Meters
& Accessories for:**

- pH
- ORP
- Chlorine
- Dissolved Oxygen
- Conductivity
- Ion Selective Electrodes
- Custom Electrodes

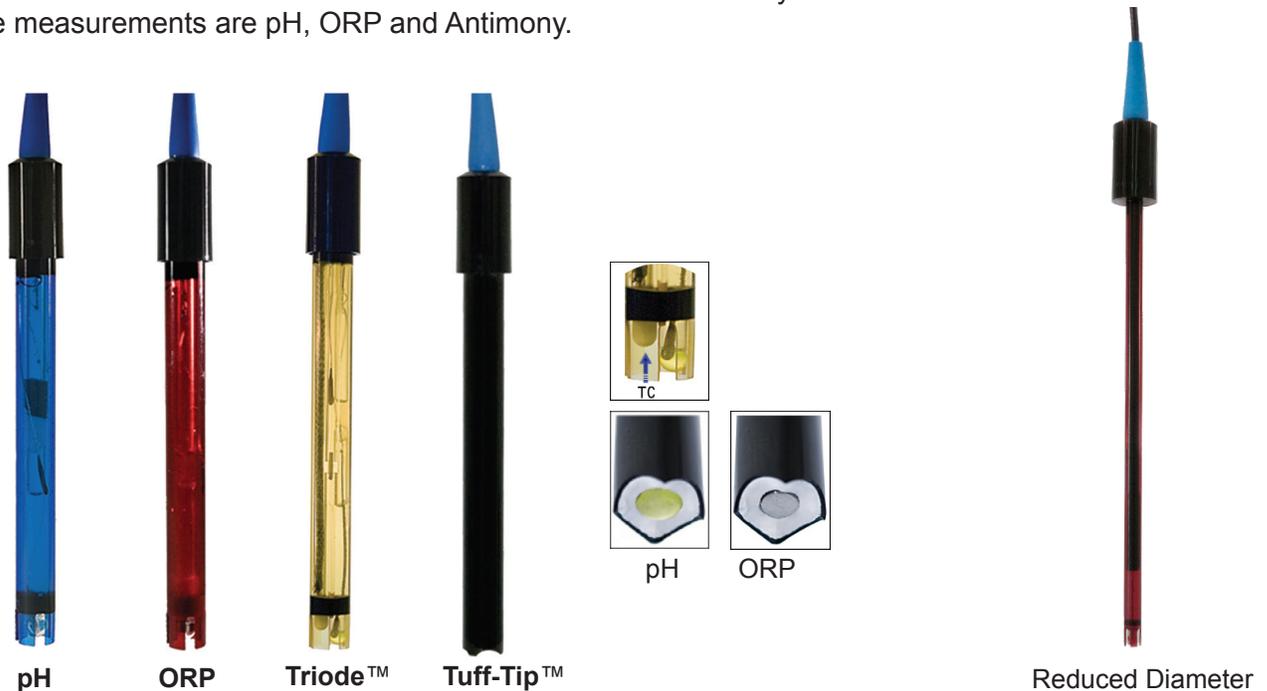
Table of Contents

| | | |
|--|-----|---|
| Epoxy Body Sensors General Purpose Glass Body Sensors | 3 | Van London Co. (VLC) manufactures a wide variety of electrodes, sensors, assemblies and accessories for pH, Contacting Conductivity, Toroidal Conductivity, ORP, Dissolved Oxygen, Optical Dissolved Oxygen, Potentiostatic Chlorine, Karl Fischer, Ion-Specific and Custom Designs. Direct Replacements for Laboratory, Titration, Biotech, and Industrial applications are available for all major brands. VLC is the authorized exclusive distributor in the USA for the Knick product line of pH Meters, Dissolved Oxygen Meters, Conductivity Meters, Portable Meters, In-Line Retractable, In-Line Fittings, the digital MemoSens® Electrode, "UniCal®" system which is a perfect compliment to the VLC electrodes focusing on industrial markets offering Explosion Proof equipment satisfying up to Class 1 / Div 1 requirements. |
| Specialty Sensors Titration | 4 | |
| Conductivity Sensors Dissolved Oxygen Sensors | 5 | |
| Ion Selective Sensors | 6-7 | With a complete machine shop and glass blowing shop we are capable of producing sensors that are designed for maximum performance in the harshest environments; we have a sizable inventory of sensors, analyzers, and meters available to expedite orders. Van London Co. has been in business since 1961 and has a long history of dedication to R&D to produce new measurements and designs to enable our business partners access to a superior product. |
| pHlat™ and 12mm Bulbs Micro Flow Cells | 8 | |
| Custom Designs, R&D and Private Label VLR Electrodes Flushing Junction Electrodes | 9 | VLC's goal has remained the same: to consistently produce a high quality product that exceeds each client's unique needs in a timely fashion at a reasonable cost. It is our desire not only to be a "vendor" but a "partner" working closely with you to promote success! |
| Connectors, Adapters, Bulb Shapes and Accessories | 10 | |
| S250 pH Simulator / Analyzers | 11 | |



pH and ORP Epoxy Body Sensors

These economical electrodes are manufactured with chemically resistant epoxy which makes it excellent for use with portable meters or bench top meters in harsh applications. Durability, Accuracy and Economy are the key factors with these sensors. Options include Tuff-Tip™, Triode™ (with Temperature Compensation), Platinum and Gold ORP, Detachable Lead Wires, Custom Reference Solutions, Reduced Body Diameter and Numerous Connectors to mate to all commercially available meters. Available measurements are pH, ORP and Antimony.



pH, ORP, and ISE General Purpose Glass Body Sensors

These general purpose sensors are the backbone of any lab. Numerous options are available including Mono & Combination Electrodes, Calomel References, Sealed & Refillable References and various Reference Fill Solutions.

These electrodes incorporate the newest pH glass formulations and Reference technologies to produce faster response times, excellent stability and superior reproducibility, all at an affordable price. Direct Replacements are available for all major brands.



pH and ORP Specialty Sensors

Many specialized sensors are also available including Sleeve Junction, Side Arm Refill, Spear Tip and Reduced Tip. Some of the options for these sensors are Calomel References, Sealed & Refillable References and Numerous Reference Fill Solutions. Direct Replacements are available for all major brands. Please consult the factory for your specific needs.



pH, ORP and Karl Fischer Sensors for Titrators

Numerous options are available including Sealed & Refillable References, Sleeve Junction, Side Arm Refill, Flat Tip and Reduced Tip, Detachable Leads and Numerous Reference Fill Solutions.

These electrodes incorporate the newest glass pH formulations and reference technologies to produce faster response times, excellent stability and superior reproducibility all at an affordable price. Direct Replacements are available for all major brands.



Contacting Conductivity Sensors

We have a wide variety of options for Conductivity Sensors allowing for exact fit for any application.

The body materials of construction include glass, epoxy, glass/epoxy and stainless steel.

The contact materials include platinum, graphite and stainless steel. The contact configurations are 2, 3 or 4 electrodes with optional platinumized surface treatment. All are available with a wide range of Temperature Compensators, cell constants and connectors for compatibility with any meter.



Dissolved Oxygen Sensors

These sensors are available in Polarographic or Galvanic, Glass or Plastic Bodies with a variety of Cathode Options for compatibility with most major meter manufacturers.





ION Selective Sensors



The *NEW* Low Level model NAB1502 Sodium ISE is designed to monitor sodium levels in the **ppb** range where conventional sodium electrodes are inaccurate. The monitoring of sodium at this level is essential in many applications especially in power plants where sodium impurities in the ppb range cause stress corrosion cracking in high pressure steam turbines and stainless steel generators.

Currently we manufacture sensors for numerous specific ion measurements. These can be supplied with various options including Mono or Combination, Sealed or Refillable, Rebuildable Sensing Tips, Flushable Reference Junctions and Specialized Reference Electrodes to minimize interference. Direct Replacements are available for all major brands.



VLC currently offers the following Ion Selective Electrodes (ISE):

| | |
|--|--|
| Ammonia (NH ₃) | Iodide (I ⁻) |
| Ammonium (NH ₄ ⁺) | Lead (Pb ⁺²) |
| Bromide (Br ⁻) | Nitrate (NO ₃ ⁻) |
| Cadmium (Cd ⁺²) | Nitrogen Oxide (NO _x) |
| Calcium (Ca ⁺²) | Perchlorate (ClO ₄ ⁻) |
| Carbon Dioxide (CO ₂) | Potassium (K ⁺) |
| Chloride (Cl ⁻) | Silver (Ag ⁺) |
| Copper (Cu ⁺²) | Sodium (Na ⁺) |
| Cyanide (CN ⁻) | Sulfide (S ⁻²) |
| Fluoride (F ⁻) | Surfactant |
| Fluoroborate (BF ₄ ⁻) | Water Hardness |



ION Selective Specifications

| Electrode | Catalog No. | Housing | Direct Measurement Range (ppm) | pH Range | Temp. Range (C°) | Interferences | Reference Electrode Style Fill Solution |
|---|--------------------|----------------|----------------------------------|-----------|------------------|---|---|
| Ammonia (NH₃) | NH31501 | Epoxy | 0.01 - 17,000 | above 11 | 0 - 50 | Volatile amines | Double Junction NH ₄ Cl |
| Ammonium (NH₄⁺) | NH41501 NH41502 | PVC Glass | 0.1 - Sat | 4 - 10 | 0 - 40 | K ⁺ | Double Junction NaCl |
| Bromide (Br⁻) | BRO1501 BRO1502 | Epoxy Glass | 0.4 - Sat | 2 - 14 | 0 - 80 | S ²⁻ ,I ⁻ ,CN ⁻ ;high levels of Cl ⁻ and NH ₃ | Double Junction KNO ₃ |
| Cadmium (Cd²⁺) | CD21501 CD21502 | Epoxy Glass | 0.01 - 11,200 | 2 - 12 | 0 - 80 | Ag ⁺ ,Hg ²⁺ ,Cu ²⁺ ,high levels of Pb ²⁺ and Fe ²⁺ | Double Junction KNO ₃ |
| Calcium (Ca²⁺) | CAL1501 CAL1502 | PVC Glass | 0.5 - Sat | 3 - 10 | 0 - 40 | Pb ²⁺ ,Hg ²⁺ ,Cu ²⁺ ,Ni ²⁺ | Single Junction KCl / AgCl |
| Carbon Dioxide (CO₂) | CO21501 | Epoxy | 4.4 - 440 | 4.8 - 5.2 | 0 - 50 | Volatile weak acids | Double Junction NaHCO ₃ |
| Chloride (Cl⁻) | CLO1501 CLO1502 | Epoxy Glass | 1.8 - Sat | 2 - 12 | 0 - 80 | S ²⁻ ,I ⁻ ,CN ⁻ ,Br ⁻ | Double Junction KNO ₃ |
| Copper (Cu²⁺) | CUO1501 CUO1502 | Epoxy Glass | 6.4x10 ⁻¹ - 6,350 | 2 - 12 | 0 - 80 | Ag ⁺ ,Hg ²⁺ ,high levels of Cl ⁻ ,Br ⁻ ,Fe ²⁺ ,Cd ²⁺ | Double Junction KNO ₃ |
| Cyanide (CN⁻) | CNO1501 CNO1502 | Epoxy Glass | 0.13 - 260 | 11 - 13 | 0 - 80 | S ²⁻ ,I ⁻ ,Br ⁻ ,Cl ⁻ | Double Junction KNO ₃ |
| Fluoride (F⁻) | FOO1501 FOO1502 | Epoxy Glass | 0.02 - Sat | 5 - 8 | 0 - 80 | OH ⁻ | Single Junction KCl / AgCl |
| Fluoroborate (BF₄⁻) | BF41501 BF41502 | PVC Glass | 0.5 (as B) - 10,800 | 2.5 - 11 | 0 - 40 | ClO ₄ ⁻ ;I ⁻ ,CN ⁻ | Double Junction (NH ₄) ₂ SO ₄ |
| Iodide (I⁻) | IOO1501 IOO1502 | Epoxy Glass | 6x10 ⁻³ - Sat | 0 - 14 | 0 - 80 | S ²⁻ ,CN ⁻ ,Br ⁻ ,Cl ⁻ S ₂ O ₃ ²⁻ ,NH ₃ | Double Junction KNO ₃ |
| Lead (Pb²⁺) | PB21501 PB21502 | Epoxy Glass | 0.2 - 20,700 | 3 - 8 | 0 - 80 | Ag ⁺ ,Hg ²⁺ ,Cu ²⁺ high levels of Fe ²⁺ ,Cd ²⁺ | Double Junction KNO ₃ |
| Nitrate (NO₃⁻) | NO31501 NO31502 | PVC Glass | 0.5 - Sat | 2.5 - 11 | 0 - 40 | ClO ₄ ⁻ ;I ⁻ ,CN ⁻ ,BF ₄ ⁻ , Cl ⁻ ,NO ₂ ⁻ | Double Junction (NH ₄) ₂ SO ₄ |
| Nitrogen Oxide (NO_x) | NOX1501 | Epoxy | 0.2 - 220 | 1.1 - 1.7 | 0 - 50 | SO ₂ ,HF,Acetic Acid | Double Junction NaNO ₂ |
| Perchlorate (ClO₄⁻) | PER1501 PER1502 | PVC Glass | 0.7 - Sat | 2.5 - 11 | 0 - 40 | No Significant Interference | Double Junction (NH ₄) ₂ SO ₄ |
| Potassium (K⁺) | KOO1501 KOO1502 | PVC Glass | 0.04 - Sat | 2 - 12 | 0 - 40 | Cs ⁺ ,NH ₄ ⁺ | Double Junction NaCl |
| Silver (Ag⁺) | AGS1501 | Epoxy | Ag ⁺ = 0.01 - 107,900 | 2 - 12 | 0 - 80 | Hg ²⁺ ,Hg ⁺ ,Chlorides | Double Junction KNO ₃ |
| Sodium (Na⁺) | NA71501 NA71502 | Glass Glass | 0.02 - Sat | 5 - 12 | 0 - 80 | H ⁺ ,K ⁺ ,Li ⁺ ,Ag ⁺ ,Cs ⁺ ,Tl ⁺ | Double Junction NH ₄ Cl |
| Sulfide (S²⁻) | AGS1502 | Glass | S ²⁻ = 0.003 - 32,100 | above 11 | 0 - 80 | Hg ²⁺ ,Hg ⁺ ,Chlorides | Double Junction KNO ₃ |
| Surfactant (X⁺ / X⁻) | SUR1501 SUR1502 | PVC Glass | N/A | 2 - 12 | 0 - 40 | Similar types of Surfactants | Single Junction KCl |
| Water Hardness (Ca²⁺ / Mg²⁺) | WHA1501 WHA1502 | PVC Glass | 0.5 - Sat | 5 - 10 | 0 - 40 | Cu ²⁺ ,Zn ²⁺ ,Ni ²⁺ ,Fe ²⁺ | Single Junction KCl |

pHlat™ and 12mm Bulbs



The pHlat™ is a true flat bulb with a 0-14 pH range. The low impedance of the glass formulation allows this shape to have fast response and stable readings with a 0-14 pH range. The pHlat™ bulb design is ideal for low volume samples either in a flow cell or or 12mm design. In an industrial application with high flow and suspended solids the pHlat™ bulb supplies superior life due to reduced bulb abrading.



The 12mm pH bulb provides a huge surface area for faster response time and significantly improved stability. The best part is that the 12mm bulb uses an extra thick ruggedized membrane that is rated for 0-14 pH range and up to 130°C and all of this with a remarkable 10 mΩ bulb resistance.



Micro Flow Cells



The Van London Co. Flow Through Cell is available in a 6000 µl semi-micro, or 200 µl micro cell. This electrode system is designed for continuous pH measurements in the laboratory where low volume is required. The cell design makes it suitable for a variety of low flow applications which require micro sampling. The Flow Through Cells are available in borosilicate glass, 316L Stainless Steel and Ultem. These cells are designed to be steam sterilized in an autoclave with the electrode installed.





Custom Designs, R&D and Private Label

- Custom designs are available for customers with special needs.
- In house R&D services are available for new measurements and specialty projects.
- We currently have customers world wide who use our private label and custom packaging option.

Sensor Options

- Lead free glass is available on most electrodes.
- Standard lead length for laboratory electrodes is 3 feet but other options are available.
- A large variety of connectors are available for compatibility with most meters.
- Several of the electrodes can be supplied with internal temperature compensation for ease of use.
- Sterilizable sensors are available for Pharmaceutical and Biotech applications.



VLR Electrodes

The new VLR sensor is designed for extreme precision and repeatability that is not available in conventional KCL/AgCl or calomel electrodes. This technology contains no mercury and is suitable for harsh environments including sulfides and large temperature surges while maintaining fast accurate readings. Conventional electrodes are susceptible to temperature errors that cannot be corrected for with a temperature compensator but that is not the case with the VLR. The VLR maintains high accuracy with temperature surges and is compatible with conventional pH meters. A wide variety of connectors are available to mate with most commercially available meters.



Flushing Junction Electrodes

The Flushing Junction Electrode is designed for use in solutions that can or will clog the reference junction causing false readings and eventually rendering the electrode useless. With the Flushing Junction one push and the junction is cleared of all debris and ready for use. This represents a huge cost savings and a significant improvement in accuracy. The Flushing Junction technology is available on a wide variety of electrode designs that can be used with most commercially available meters.

Connectors, Adapters, Bulb Shapes and Accessories

Connectors



Electrode Caps



Solutions



Accessories

Accessories are available to complete the product offering and make us your one stop shop for all of your electro-chemical sensor needs.

- NIST-Traceable Buffers
- Wire / Connector adapters
- External temperature compensators
- Electrode cap to fit all needs
- Connectors to mate with any meter
- Bulb shapes for any application
- Solutions for reference, ISE and DO refill
- Solutions for Electrode storage
- Solutions for custom reference needs
- Solutions for ISE calibration



Accessories



pH Simulator / S250



The S250 simulates pH or ORP signals that would normally be generated by the electrode. It can be used for troubleshooting to confirm that any pH or ORP meter is functioning correctly. This can also be used to certify a device prior to installation or batch. The S250 has outputs for 4, 7 and 10 pH and +700m and -700mV for ORP. It also has a High Meg ohm impedance option that is critical for simulating the high impedance of the pH glass and testing the amplification circuitry.

Handheld Multi-parameter Water Quality Meter

The newly released multi-parameter handheld set measures dissolved oxygen, conductivity, turbidity, pH, ORP, and Temperature in a single Smart-Meter. The Smart-Meter can communicate with Android devices through bluetooth connection, such as Android smart phones and tablets. Smart Meter App software makes many user applications very easy and intuitive



Optical DO Meter

Van London's VL-1009 is a wireless multi-parameter water quality monitoring system. The system can monitor dissolved oxygen, conductivity, turbidity, pH, and Temperature simultaneously through wireless networks.



System Specifications

- Dimensions: 144x144x155 mm
- Display: 192x64 LCD (viewing area: 104x39 mm)
- Weight: 1.5 kg
- Operating Temperature: -10 ~ 55 °C (Avoid direct sunlight)
- Enclosure rating: IP54 (ABS enclosure)
- Humidity: <= 95%
- Power Supply: 110V ~ 220V AC or 12V DC
- Output: One channel 4 ~ 20 mA, one relay output
- Wireless Transmitter: 433MHz, 1000 meter max distance in open air
- Temperature/Barometer pressure compensation: Auto
- Local data storage: Yes
- Local clock: Yes
- Sensor support: VLC Optical DO, turbidity, pH, and conductivity.



Laboratory Brochure

For additional information,
contact us at:

Van London Co.
10540 Rockley Road
Houston, TX 77099
Local: (832) 456-6641
Toll Free: (800) 522-7920
Web: www.VanLondon.com
e-mail: info@VanLondon.com
We Speak English, Spanish and Vietnamese

