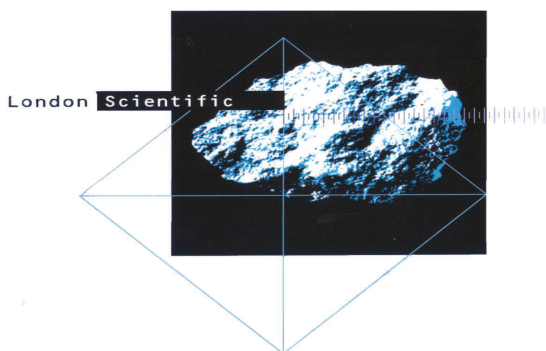


London Scientific

electrochemistry accessories

1-800-270-5665

*In Canada only*



Date:

July 2010

#### 2010 ACCESSORIES CATALOGUE

- Working, counter & reference electrodes for Electrochemistry Cells
- Various Electrochemistry Cell options available from PAR, ALS & Scribner.
- Electrodes for pH, titration & redox measurements

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## Reference Electrodes

### DbI Junction, Ag/AgCl reference, porous pin

Shaft: refillable, glass, 9.5 mm Ø

Shaft length L: 118 mm

Internal fill sol'n:

$\text{KNO}_3$

Price: \$220.00

Order #: RREF0024



### Red Rod, Ag/AgCl reference, porous pin

Temperature range:  $-10...+100\text{ }^\circ\text{C}$

Shaft: refillable, glass, 7.5 mm Ø

Shaft length L: 103 mm

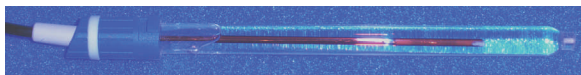
Internal & storage sol'n: Sat. KCl

Cable: 1M included

Price: \$110.00

Order #: REF201

Connection: Banana



### Calomel reference, porous pin

Temperature range:  $-10...+60\text{ }^\circ\text{C}$

Shaft: refillable, glass, 7.5 mm Ø

Shaft length L: 103 mm

Reference system: Calomel  $\text{Hg}/\text{Hg}_2\text{Cl}_2$

Internal & storage sol'n: Sat. KCl

Cable: 1M included

Price: \$110.00

Order #: REF401

Connection: Banana or BNC

### Hg/HgSO<sub>4</sub> reference, porous pin

Temperature range:  $0...+60\text{ }^\circ\text{C}$

Shaft: refillable, glass, 7.5 mm Ø

Shaft length L: 103 mm

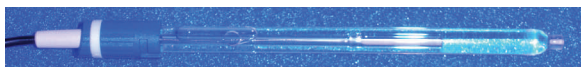
Fill solution:  $\text{K}_2\text{SO}_4$

Cable: 1M included

Price: \$160.00

Order #: REF601

Connection: Banana



### Calomel reference, Taper joint, ceramic

Temperature range:  $+15...+40\text{ }^\circ\text{C}$

Shaft: refillable, glass, 10 mm Ø

Shaft length L: 103 mm

Internal & storage sol'n: Sat. KCl

Taper joint: NS14.5

Cable: extra

Price: \$230.00

Order #: B3410

Connection: S7



### Hg/HgSO<sub>4</sub> reference, Taper joint, ceramic

Temperature range:  $+15...+40\text{ }^\circ\text{C}$

Shaft: refillable, glass, 10 mm Ø

Shaft length L: 103 mm

Fill solution:  $\text{K}_2\text{SO}_4$

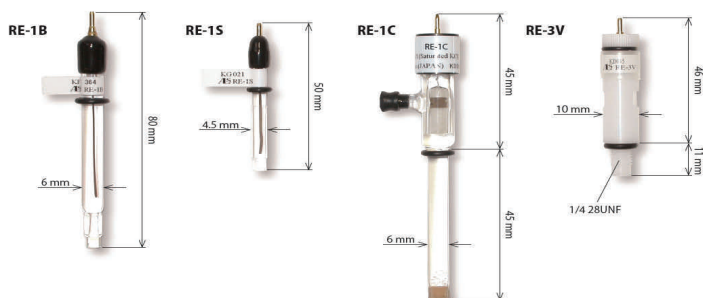
Cable: extra

Price: \$230.00

Order #: B3610

Connection: S7

## ALS Reference Electrodes

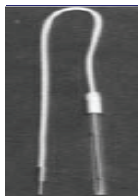


| Order # | Description  | Length (mm) | OD (mm) | Porous Junction | Price    |
|---------|--|-------------|---------|-----------------|----------|
| 012167  | RE-1B Ag/AgCl type with 3M NaCl fill solution                          | 70          | 6       | Vycor Glass     | \$ 75.00 |
| 012168  | RE-1S Ag/AgCl type with 3M NaCl fill solution                          | 40          | 4.5     | Vycor Glass     | \$ 75.00 |
| 012169  | RE-3V Ag/AgCl type with 3M NaCl fill solution                          | 48          | 10      | Vycor Glass     | \$135.00 |
| 012171  | RE-7 non-aqueous Ag/Ag <sup>+</sup> Type with ACN/TBAP fill            | 70          | 6       | Vycor Glass     | \$ 75.00 |
| 012172  | RE-7S non-aqueous Ag/Ag <sup>+</sup> Type with ACN/TBAP fill           | 40          | 4.5     | Vycor Glass     | \$ 75.00 |
| 012173  | RE-7V non-aqueous Ag/Ag <sup>+</sup> Type with ACN/TBAP fill-POM       | 48          | 10      | Vycor Glass     | \$135.00 |
| 012174  | RE-7VP non-aqueous Ag/Ag <sup>+</sup> Type with ACN/TBAP fill-PEEK     | 48          | 10      | Vycor Glass     | \$135.00 |
| 002056  | RE-2B Calomel type with Saturated KCl fill solution                    | 90          | 6       | Ceramic         | \$150.00 |
| 002057  | RE-2C Hg type with Saturated K <sub>2</sub> SO <sub>4</sub> fill sol'n | 90          | 6       | Ceramic         | \$165.00 |
| 002058  | RE-1C Ag/AgCl type with Saturated KCl fill solution                    | 90          | 6       | Vycor Glass     | \$150.00 |
| 011503  | RE-6H Hg type reference electrode kit in alkaline sol'n                | 90          | 6       | Ceramic         | \$270.00 |

### Applications

RE-1B - Ag/Cl Reference electrode for CV  
 RE-1S - Ag/Cl Reference electrode for SECM  
 RE-1C - Ag/Cl Saturated KCl Reference electrode  
 RE-3V - Ag/Cl Reference electrode applied to Flow cell  
 RE-7 - Ag/Ag<sup>+</sup> Reference electrode for CV of Non-Aqueous solvent  
 RE-7S - Ag/Ag<sup>+</sup> Reference electrode for SECM  
 RE-7V - Ag/Ag<sup>+</sup> Reference electrode applied to Flow cell  
 RE-2B - Available as a standard electrode of reference electrodes  
 RE-2C - Reference electrode free from chloride ion  
 RE-6H - Reference electrode kit available in alkaline solution

## PAR Reference Electrodes



### Ag/AgCl reference, Micro, for K0264 Cell Kit

Temperature range: -5...+80 °C  
 Fill solution: 3M NaCl &  
 Saturated Ag/Cl  
 Cable: included

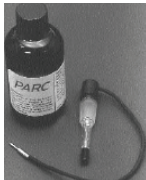
Price: \$245.00  
 Order #: K0265  
 Connection: US Pin



### Saturated Calomel reference, Taper joint T14/20

Temp range: +15...+40 °C  
 Length: 3½ inches  
 Fill solution: Sat. KCl  
 Cable: included

Price: \$495.00  
 Order #: K0077  
 Connection: US Pin



### Hg/HgSO<sub>4</sub> reference, Taper joint T14/20

Temp range: +15...+40 °C  
 Length: 3½ inches  
 Fill solution: K<sub>2</sub>SO<sub>4</sub>  
 Cable: included

Price: \$445.00  
 Order #: G0093  
 Connection: US Pin

### Non-Aqueous Reference Electrode, Taper joint T14/20

Inner element is silver wire  
 immersed in Acetonitrile containing  
 0.1 M AgNO<sub>3</sub>  
 Filling Solution: G0155  
 Cable: included

Price: \$530.00  
 Order #: K0103  
 Connection: US Pin

## Bridges, holders, frits –ALS & PAR

### PAR Bridge tube Vycor Frit Kit

Provides isolation of 3½ in L reference electrodes to prevent contamination of test solution by electrode filling solution.

Includes G0100 See also PAR cells section for replacement Reference electrode bridge tubes

Price: \$290.00/PK  
 Order #: K0065

### Vycor Frits & Tubing

Replacement 5 per pack  
 4mm diameter

Price: \$78.00/PK  
 Order #: G0100

### Polyethylene Frits & Tubing

5/pk- Recommended for use in strongly basic solutions which can dissolve Vycor

Price: \$110.00/PK  
 Order #: G0194

### ALS Sample Holders -Available in 3 sizes.

Sold with glass Vycor tip attached, in pack of 2 pcs.

O-rings only 30/pk

Prt# 002247

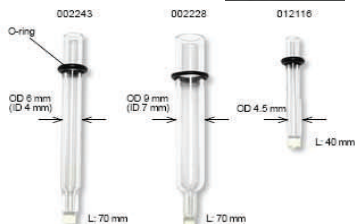
Price: \$30.00/pk

Price: \$24.00/PK

Order #: 012177

Order #: 012176

Order #: 012175



## Glassy Carbon

**ALS Glassy Carbon Rods, plate or film:** ALS offers smaller dimensions, in various forms. Maximum length of Rods is 4".

| Order # | Product Description                         | Price    |
|---------|---|----------|
| 010761  | R-1 Glassy Carbon rod OD:1mm Length:100mm   | \$570.00 |
| 010762  | R-2 Glassy Carbon rod OD:2mm Length:100mm   | \$300.00 |
| 010763  | R-3 Glassy Carbon rod OD:3mm Length:100mm   | \$300.00 |
| 012086  | P-1 Glassy Carbon plate 25x25mmx1.0mm Thick | \$195.00 |
| 012087  | P-2 Glassy Carbon plate 25x25mmx2.0mm Thick | \$165.00 |
| 012088  | P-3 Glassy Carbon plate 25x25mmx3.0mm Thick | \$150.00 |
| 012089  | F-1 Glassy Carbon film 25x25mmx0.1mm Thick  | \$255.00 |

### PAR Glassy Carbon Rod:

Dimensions: 12"L x ¼"D  
Replacement for PAR corrosion cell kit  
K0047

Price: \$95.00

Order #: G0091



## Printed Electrodes

**IDA, ITO, Ring-Disk type printed electrodes :** ALS offers a large variety of printed electrodes to numerous to mention here. Constantly developing better designs to satisfy this ever changing market, and customer requests. Contact us for the latest available printed electrodes.

This IDA design offers 65 pairs of generator/collector electrodes to give continuous electrochemical redox cycling. This significantly boosts sensitivity of the electrode. Available with or without passivation membrane in Au, C, Pt & ITO. In widths of 10, 3, and 2 µm.

*Currently stocked listed below.*

Price: \$225.00

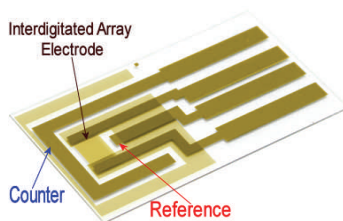
Order #: 012265

IDA (ITO) 10µm printed electrode  
without membrane

Price: \$225.00

Order #: 012128

IDA (ITO) 10µm printed electrode  
with membrane



## Platinum Electrodes

### Pt Plate 6x8 mm, Glass body:

Shaft: 12 mm Ø x 110 mm L,  
Cable: 1M included

Price: \$250.00

Order #: 5779182F-003B

Connection: BNC

Price: \$250.00

Order #: 5779182F-003U

Connection: Banana

### Pt Wire 1mm Ø, Glass body:

Shaft: 12 mm Ø x 110 mm L,  
Cable: 1M included

Price: \$150.00

Order #: 5779182W-003B

Connection: BNC

Price: \$150.00

Order #: 5779182W-003U

Connection: Banana



## Pt Counter for ALS Voltammetry cells:



002222



002233



002234

Price: \$112.50

Order #: 002222

5cm Pt counter for VC-2 cell

Price: \$150.00

Order #: 002233

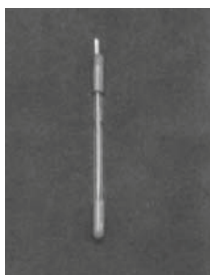
5cm Pt counter for VC-3 cell

Price: \$300.00

Order #: 002234

23cm Pt counter -coiled

## Pt Counter electrodes for PAR cells:



K0266 Counter Electrode Assembly

Price: \$300.00  
Order #: K0266  
Pt 0.3mmD wire  
Counter electrode  
assembly with bridge  
tube, 2ml volume, &  
Vycor frit

Price: \$160.00

Order #: RDE0021

Pt Wire 6inches

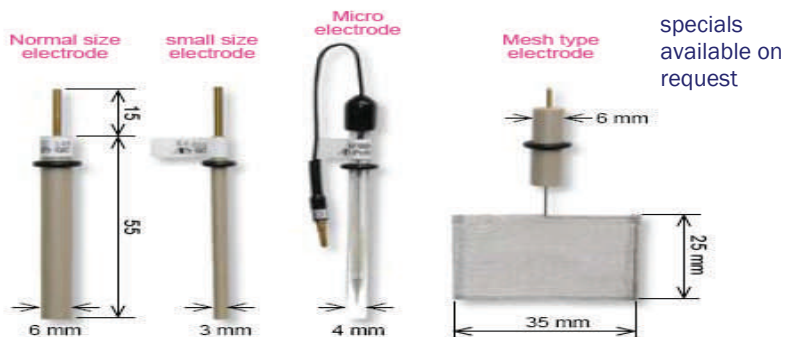


RDE0021

## Working Electrodes

| Working Electrodes              | Features and Applications  |
|---------------------------------|--|
| Platinum Electrode              | Conventional electrode- has hydrogen adsorption wave, used for H <sub>2</sub> O <sub>2</sub> detection |
| Gold Electrode                  | Conventional electrode- has no hydrogen adsorption wave, used for thiols detection                     |
| Glassy Carbon Electrode         | Chemically stable electrode with large potentials to cover oxygen and hydrogen evolutions              |
| Sliver Electrode                | For cyanide and sulfide detection  |
| Nickel Electrode                | Detection of amino acids and carbohydrates   |
| Palladium Electrode             | Used to study the process of adsorption and desorption of hydrogen                                     |
| Carbon Paste Electrode          | Mixed with enzymes, etc. to make modified electrodes   |
| Plastic formed Carbon Electrode | Its highly-orientated graphite edge is exposed to the surface. Cost effective. Similar to HOPG         |

## Working electrode configurations



### PK-3 Electrode Polishing Kit:

Refresh the working electrode surface for CV/Flow cells.  
Contents of PK-3 can be provided separately.

Price: \$165.00

Order #: 011975

Complete PK-3 Kit

| 01195 Contents |  |
|----------------|--|
| 012620         | 0.05 $\mu\text{m}$ polishing alumina (20 ml) |
| 012621         | 1 $\mu\text{m}$ polishing diamond (10 ml)    |
| -              | Alumina polishing pad (10 pcs)               |
| -              | Diamond polishing pad (10 pcs)               |
| 002249         | Replacement glass plate for PK-3 (1 pc)      |



## Working Electrodes

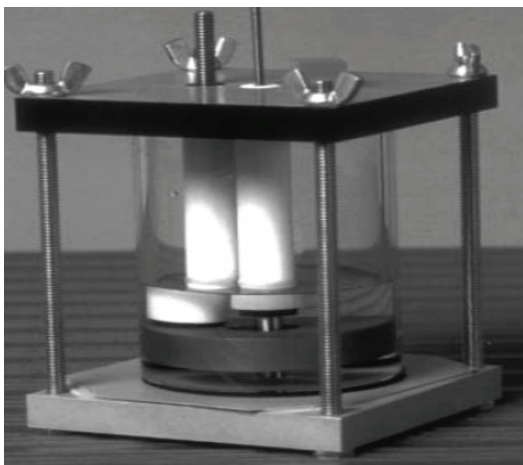
| Part No. | Description                      | Isolation | Mesh/OD  | Size/ID     |
|----------|----------------------------------|-----------|----------|-------------|
| 002250   | Platinum gauze electrode         | PEEK      | 80 mesh  | 25x35mm     |
| 002251   | Gold gauze electrode             | PEEK      | 100 mesh | 25x35mm     |
| 002417   | GCE Glassy Carbon electrode      | PEEK      | 10 mm    | 5 mm        |
| 002012   | GCE Glassy Carbon electrode      | PEEK      | 6 mm     | 3 mm        |
| 012297   | GCE Glassy Carbon electrode      | PEEK      | 6 mm     | 1.6 mm      |
| 012298   | GCE Glassy Carbon electrode      | PEEK      | 3 mm     | 1.6 mm      |
| 002002   | MCE Micro Carbon fiber electrode | Glass     | 4 mm     | 33 $\mu$ m  |
| 002007   | MCE Micro Carbon fiber electrode | Glass     | 4 mm     | 7 $\mu$ m   |
| 012585   | FEE Iron electrode               | PEEK      | 6 mm     | 3 mm        |
| 002018   | FEE Iron electrode               | PEEK      | 6 mm     | 1.5 mm      |
| 012584   | CUE Copper electrode             | PEEK      | 6 mm     | 3 mm        |
| 002017   | CUE Copper electrode             | PEEK      | 6 mm     | 1.6 mm      |
| 002271   | MCUE Micro copper electrode      | Glass     | 4 mm     | 25 $\mu$ m  |
| 002419   | AGE Silver electrode             | PEEK      | 6 mm     | 3 mm        |
| 002315   | SAGE Silver electrode            | PEEK      | 3 mm     | 1.6 mm      |
| 002418   | AUE Gold electrode               | PEEK      | 10 mm    | 5 mm        |
| 002421   | AUE Gold electrode               | PEEK      | 6 mm     | 3 mm        |
| 002314   | SAUE Gold electrode              | PEEK      | 3 mm     | 1.6 mm      |
| 002010   | MAUE Micro gold electrode        | Glass     | 4 mm     | 100 $\mu$ m |
| 002004   | MAUE Micro gold electrode        | Glass     | 4 mm     | 25 $\mu$ m  |
| 002420   | PTE Platinum electrode           | PEEK      | 10 mm    | 5 mm        |
| 002422   | PTE Platinum electrode           | PEEK      | 6 mm     | 3 mm        |
| 002313   | SPTE platinum electrode          | PEEK      | 3 mm     | 1.6 mm      |
| 002009   | MPTE Micro Platinum electrode    | Glass     | 4 mm     | 100 $\mu$ m |
| 002015   | MPTE Micro platinum electrode    | Glass     | 4 mm     | 15 $\mu$ m  |
| 002016   | NIE Nickel electrode             | PEEK      | 6 mm     | 1.5 mm      |
| 002273   | MNIE Micro Nickel electrode      | Glass     | 4 mm     | 100 $\mu$ m |
| 002019   | PDE Palladium electrode          | PEEK      | 6 mm     | 1.6 mm      |
| 002319   | SPDE Palladium electrode         | PEEK      | 3 mm     | 1.6 mm      |
| 002252   | Pyrolytic Graphite Electrode     | PEEK      | 6 mm     | 3 mm        |
| 002408   | PFCE 3 Carbon electrode          | PEEK      | 6 mm     | 3 mm        |
| 011854   | SPFCE Carbon electrode           | PEEK      | 3 mm     | 1 mm        |

## Electrochemistry Cells

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### K0307 Tait Cell -PAR Coatings Cell

Accepts a wide range of working electrode shapes and sizes. Diameter of exposed sample area is 2.5 sq in. Designed for long term exposure times. Excellent current distribution properties and allows small electrolyte volumes. Total volume 250mls.



Price: \$1465.00

Order #: K0307

For complete Kit

Order #: MP1363

Replacement

Reference electrode

Order #: MP1362

Replacement Counter  
electrode

### CFC-13 Cell -Scribner Coatings Cell

Cylindrical acrylic cell body with an O-ring seal for direct clamping to a flat samples having a 2" to 3" width & length of 2" or more and thickness from foils up to 1/4".

Exposed sample area is 13 cm<sup>2</sup>. Neoprene O-ring is supplied with each cell.

Counter electrode is 125 μ inches of Pt on Nb expanded mesh with surface area of 25 cm<sup>2</sup>. Electrolyte volume is about 125ml



Price: \$600.00

Order #: CFC-13

Larger version with  
top clamping to  
accommodate various  
Sample designs up to  
4in wide & 3in length

Price: \$800.00

Order #: CFC-34

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## Electrochemistry Cells

### 011951 ALS Plate Material Evaluating Cell:

This handy cell was developed to evaluate plate material such as metal, semi-conducting plate, etc. The sample plate material is sandwiched between the cell blocks. Kit price includes Pt counter electrode and must choose reference electrode from listed below.

**Price: \$330.00**  
**Order #: 011951**

| Cat No.  | Description                        | Quantity |
|----------|------------------------------------|----------|
| 011951   | PME Cell                           | 1        |
| Contents |                                    |          |
|          | Teflon Cell [Body]                 | 1        |
|          | Teflon Cell [Base]                 | 1        |
|          | O-ring                             | 1        |
|          | Screw 20 mm                        | 2        |
|          | Purging tube 1 m                   | 1        |
| 002222   | Pt counter electrode for VC-2 cell | 1        |



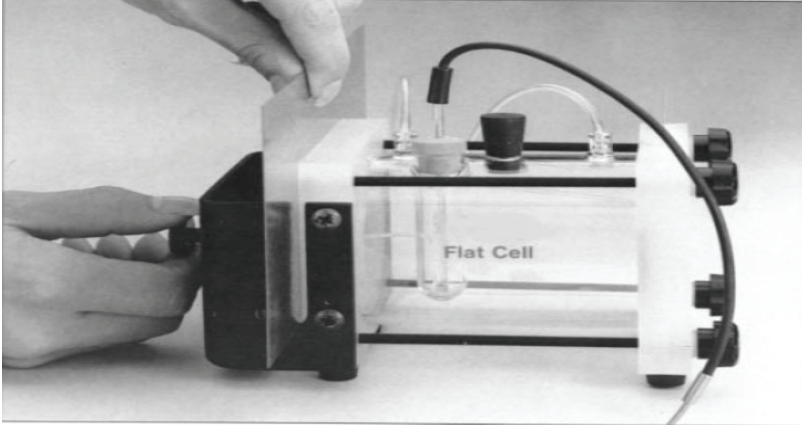
| Cat No.       | Reference electrode choices                                  | Price    |
|---------------|--|----------|
| <b>012167</b> | RE-1B Silver-Silver chloride reference electrode             | \$ 75.00 |
| <b>012171</b> | RE-7 Non Aqueous reference electrode                         | \$ 75.00 |
| <b>002058</b> | RE-1C Silver/Silver Chloride Reference Electrode (Sat KCl)   | \$150.00 |
| <b>002056</b> | RE-2B Calomel Reference Electrode                            | \$150.00 |
| <b>002057</b> | RE-2C Reference Electrode                                    | \$165.00 |
| <b>011503</b> | RE-6H Reference Electrode Kit available in alkaline solution | \$270.00 |

## Electrochemistry Cells

### K0235 PAR Flat Cell

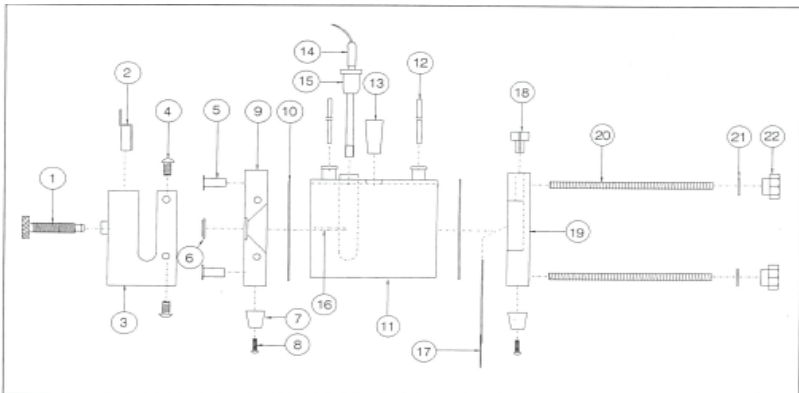
This practical design accommodates a wide range of electrode shapes and sizes, eliminating the need for machining or special mechanical procedures. It disassembles quickly and operates with a small sample volume. Minimum specimen size 1.9cm<sup>2</sup>, sample volume < 300ml.

**Price: \$1690.00**  
**Order #: K0235**  
**Complete Kit**



### K0235 PAR Flat Cell Kit includes: Diagram #

|             |                       |    |    |                          |               |
|-------------|-----------------------|----|----|--------------------------|---------------|
| 2517-1343-A | Clamping Screw        | 1  | 12 | Tubing Tygon             | 3100-0094-0   |
| 2517-1345-A | Shoe Assembly         | 2  | 13 | Drain Plug               | 2805-0043     |
| 1415-1908-A | Clamping Frame        | 3  | 14 | Reference electrode      | 219995        |
| 2811-0280-0 | Screw (#10-32)SS      | 4  | 15 | Rubber Well Plug         | 2805-0044     |
| 2806-0086   | Nut, Rivnut           | 5  | 16 | Tubing, TFE              | 232117        |
| MP1239      | Gasket, TFE           | 6  | 17 | Counter Electrode        | 219810        |
| 2800-0042   | Resting Foot          | 7  | 18 | Cap & tubing             | 230213/232387 |
| 800877      | Screw (#4-40)SS x 3/8 | 8  | 19 | Cntr electrdr/ end plate | 219807        |
| 219806      | Sample end cap        | 9  | 20 | Threaded Rod             | 2502-0026-A   |
| OR0142      | Gasket, Viton         | 10 | 21 | Washer, Flat Nylon       | 2815-0048-0   |
| G0219       | Glass Cylinder        | 11 | 22 | Knob                     | 2406-0311     |



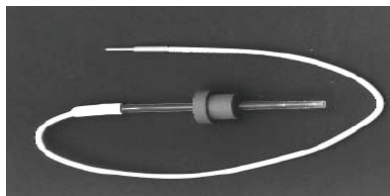
## Electrochemistry Cells

### K0235 PAR Flat Cell replacement & modification kits:

K0260 Reference Electrode kit.

219995 Reference Electrode  
2805-0044 Rubber Well Plug

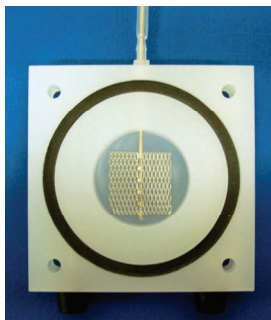
**Price: \$230.00**  
**Order #: K0260**



K0261 Counter Electrode kit.

219810 Counter Electrode  
230213 Cap  
230213 Tubing  
2800-0042 Resting Foot  
800877 Screw (#4-40) SS x 3/8"  
219807 Counter Electrode End Plate  
OR0142 Gasket, Viton

**Price: \$320.00**  
**Order #: K0261**

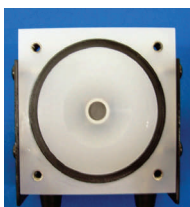


In Galvanic Corrosion measurements where two samples are required the following modification kits provide an additional sample exposure of 1cm<sup>2</sup> (K0259) or 12.6cm<sup>2</sup> (K0280). The K0235 can also accommodate two K0280 to have 12.6cm<sup>2</sup> openings at both ends.

K0259 Modification Kit contains:

1415-1906-A Clamping Frame  
219806 Sample end Cap (1cm<sup>2</sup>)  
2517-1343-A Clamping Screw  
2517-1345-A Shoe Assembly  
2800-0042 Resting Foot  
2806-0086 Nut, Rivnut  
800877 Screw (#4-40) SS x 3/8"  
2811-0280-0 Screw (#10-32) SS x 3/8"  
2811-0414-0 Screw (#4-40) x 9/16" (2ea)  
OR0142 Gasket, Viton (2/pk)

**Price: \$615.00**  
**Order #: K0259**  
**1cm<sup>2</sup> Sample Exposure**



K0280 Modification Kit contains:

222594 Support bracket  
221758 Sample end Cap (12.6 cm<sup>2</sup>)  
2517-1343-A Clamping Screw  
222595 Contact Shoe  
2800-0042 Resting Foot  
2806-0086 Nut, Rivnut  
800877 Screw (#4-40) SS x 3/8"  
2811-0280-0 Screw (#10-32) SS x 3/8"

**Price: \$745.00**  
**Order #: K0280**  
**12.6cm<sup>2</sup> Sample Exposure**



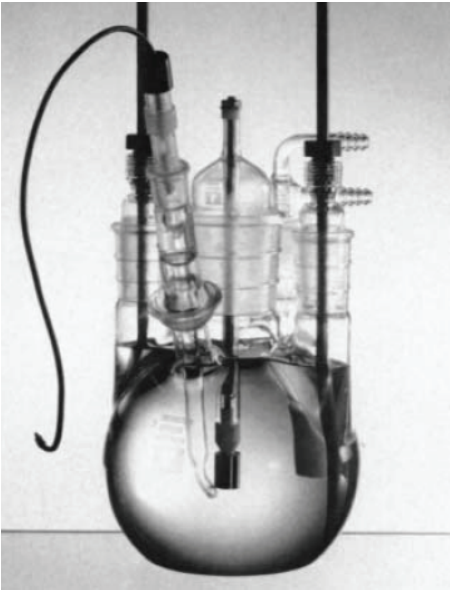
## Electrochemistry Cells

### K0047 PAR Corrosion Cell

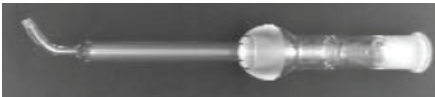
Cell permits a series of metal specimens and liquid environments to be tested quickly and uniformly. Most aggressive conditions (except HF) can be tested at ambient and elevated temperatures Cell volume is 1L.

Individual parts are available separately.

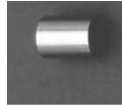
**Price: \$2295.00**  
**Order #: K0047**  
**Complete Kit**



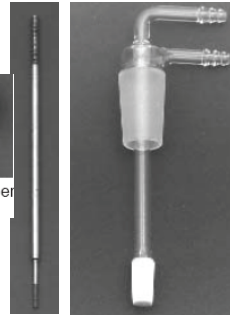
G0095 Reference  
Electrode Bridge Tube



G0096 Corrosion Flask



MP0751 Cylinder  
Specimen



MP0631 G0094 Purge Tube

### K0047 PAR Corrosion Cell Kit includes:

- G0091 2 ea Graphite Rod
- G0094 1 ea Purge Tube
- G0095 1 ea Reference electrode bridge tube
- G0096 1 ea Corrosion Flask-1L flat bottom with 4 ground glass joints
- G0097 1 ea Electrode Holder
- G0098 2 ea Threaded Adapter for T24/40 joint
- G0099 1 ea Ball & Socket Clamp
- G0100 1 ea Vycor Frits 4mm (pk of 5)
- K0077 1 ea Saturated Calomel Reference Electrode
- MP0630 1 ea Replacement Teflon Gaskets for mounting sample (pk of 5)
- MP0631 1 ea Electrode Mounting Rod
- MP0751 1 ea Cylinder Specimen, 430 Stainless Steel
- 2806-0043 1 ea Knurled thumb nut
- 2815-0043 1 ea Flat washer
- 2815-0093 1 ea Flat Teflon washer

## Electrochemistry Cells

### K0047 PAR Corrosion Cell Optional items:

K0105 Flat Specimen Holder Kit is designed to accept flat samples 0.625 ±0.01" in diameter and up to 1/8" thick. Sealing washer is made of Kalrez® exposing 1 cm<sup>2</sup> of the specimen to test solution. Attaches to the G0097 electrode holder.

K0105 Kit contains:

- OR0080 2ea Kalrez o-rings
- 2504-0081-0 2ea Kalrez o-rings
- 2517-0918-0 1ea Sample holder body
- 2517-0919-0 1ea Sample holder plug
- 2517-0920-0 1ea Sample holder cap
- 2517-0921-0 1ea Sample holder rod
- 2517-0922 2ea Kalrez flat washers(211513)

**Price: \$1330.00**

**Order #: K0105**

**Complete Kit**

**Price: \$790.00/pk**

**Order #: K0106**

**K0105 replacement o-ring kit (6 each)**

**2 of OR0080; 2 of 2504-0081-0 & 2 of 2517-0922**

**Price: \$425.00/pk**

**Order #: K0157**

**4 Kalrez® Flat washers (2517-0922)**

MP1239 Crevice-Free Teflon Washer

Eliminates crevice corrosion in the K0105 Flat specimen hold by sealing with a knife edge instead of a flat surface. Replaces the normal Kalrez

washer because of cold flow characteristics of Teflon. Dispose after one use.

**Price: \$220.00/pk of 25**

**Order #: MP1239**

**Price: \$145.00**

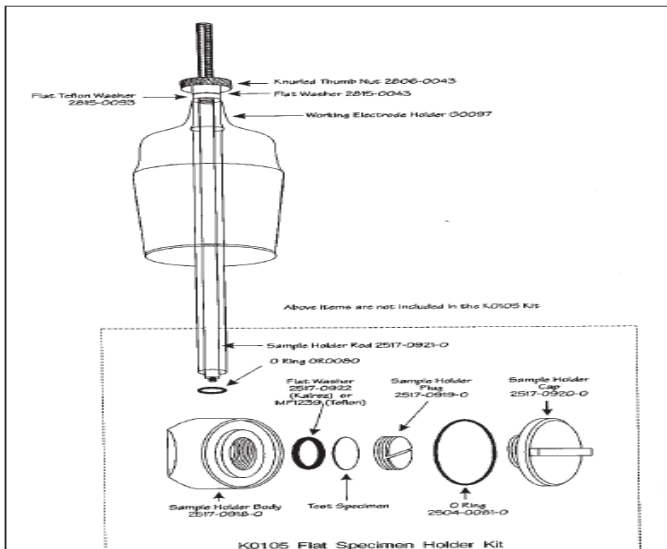
**Order #: G0101**

**Storage bottle Corrosion Cell Reference bridge tube**

**Price: \$280.00**

**Order #: G0196**

**Corrosion Cell Thermometer adapter**

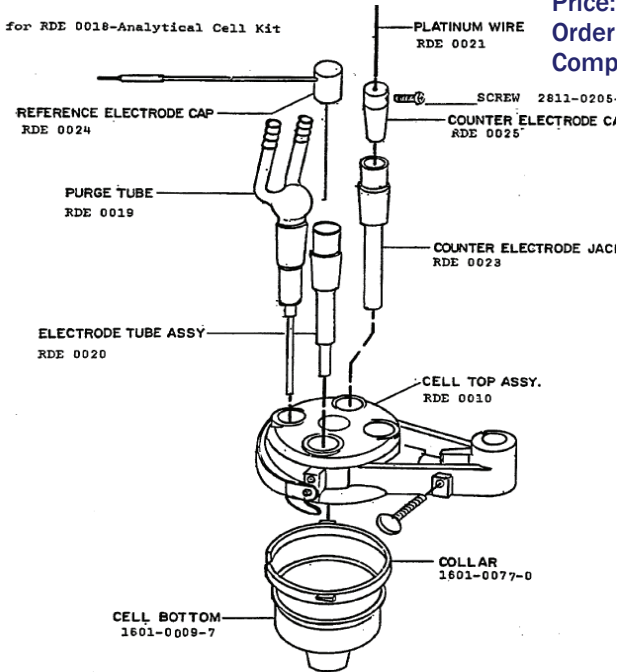


## Electrochemistry Cells

### RDE0018 PAR Analytical Cell

Designed for the PAR 616 & 636 Rotating Disk Electrode but the numerous accessories available has expanded the applications of this cell kit for many setups. Cell volume is 5-50ml. Individual parts are available separately.

**Price: \$1270.00**  
**Order #: RDE0018**  
**Complete Kit**



1601-0009-7



RDE0010



RDE0019



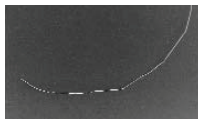
RDE0020



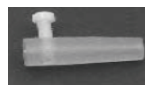
RDE0023



RDE0024



RDE0021



RDE0025

## Electrochemistry Cells

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### RDE0018 PAR Analytical Cell included items:

- K0060 Cell Bottom Kit includes cell collar & 5-50ml bottom  
Collar prt#1601-0077-0 ; Bottom prt# 1601-0009-7
- K0066 Top assembly for Polarographic electrodes
- RDE0010 Top assembly RDE (1-16mmD hole & 4-14mmD holes for T14/20 taper )
- RDE0019 Purge Tube
- RDE0020 Reference electrode tube assembly
- RDE0021 Pt Counter electrode wire (6in)
- RDE0022 AgCl-KCl filling solution 125ml
- RDE0023 Counter electrode bridge tube
- RDE0024 Reference electrode cap
- RDE0025 Counter electrode cap
- 2811-0205-0 Counter electrode cap screw
- 

### RDE0018 PAR Analytical Cell Optional items:

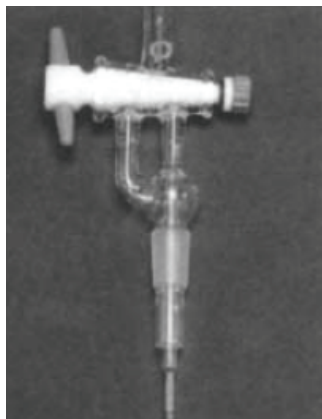
- G0028 Purge tube-2 way Teflon stopcock to direct inert gas
- G0100 Vycor Frits 4mm (pk of 5)
- 1601-0078-3 Cell Bottom (glass,2-50ml)
- K0062 Polarographic Cell Bottom (2-50ml)
- K0064 Jacketed cell bottom for K0060
- RDE0026 Reference Bridge Tube



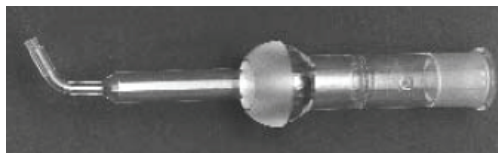
K0064



1601-0078-3



G0028



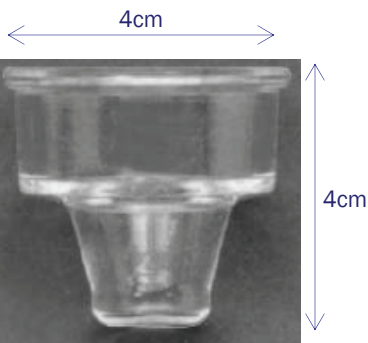
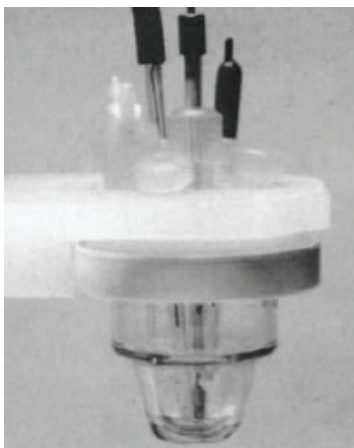
RDE0026

## Electrochemistry Cells

### K0264 PAR Micro Cell

The Micro Cell kit comes as a complete kit to which you need only add the working electrode of your choice (Glassy carbon, Gold or Platinum) in 10µm or 2mm diameter sizes. Working cell volume is 3

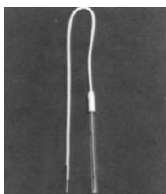
**Price: \$1285.00**  
**Order #: K0264**  
**Complete Kit**



21960 Cell Bottom

### K0264 PAR Micro Cell Kit includes:

- |        |     |  |                  |
|--------|-----|--|------------------|
| G0100  | 1pk | Vycor frits, 4mm   |                  |
| K0265  | 1ea | Ag/AgCl Reference electrode with tube, wire & frit   |                  |
| K0266  | 1ea | Counter electrode assembly with bridge tube, 2ml volume, Vycor frit & Pt 0.3mm D counter electrode wire. |                  |
| SL0070 | 1ea | 3M NaCl/sat AgCl fill solution for K0265   |                  |
| 219581 | 1ea | Cell Top (ring stand mountable) 6 holes (3mm/4mmD)   |                  |
| 219600 | 1ea | Glass Cell bottom, 3-15mls   |                  |
| 220196 | 3ea | Threaded bushing (to secure electrodes & thermometer)  |                  |
| 220253 | 1ea | Threaded bushing (to secure working electrode)   |                  |
| 220262 | 1ea | Threaded Plug (to plug thermometer port)   |                  |
| 220325 | 1ea | Threaded plug (to plug sample port)  |                  |
| 220553 | 1ea | Cell Support Cap   |                  |
| 230125 | 1ea | Knob   | 230197 1ea       |
| 230259 | 5ea | Ferrule Fitting  | 231572 1ea       |
| 231573 | 2ea | Luer Lock Ring   | K0268 1ea        |
| 231575 | 1ea | Fitting taper luer   | 231576 1ea       |
| 231581 | 1ea | Tubing 1/8"ID (3ft)  | 2504-0102-0      |
|        |     |  | Quad Ring, Viton |



K0265 Silver/Silver Chloride Reference Assembly



K0266 Counter Electrode Assembly

**Price: \$245.00**  
**Order #: K0265**  
**Rplcmt Ref**

**Price: \$300.00**  
**Order #: K0266**  
**Rplcmt Counter**

**Price: \$360.00**  
**Order #: G0057**  
**Cell bottoms pk of 6**

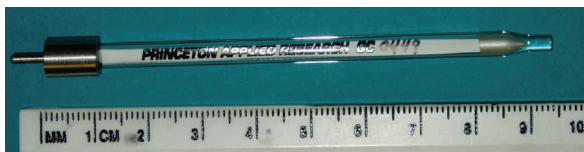
## Electrochemistry Cells

### K0264 PAR Micro Cell Optional working electrodes and cell bottoms:

Microelectrodes: 10 $\mu$ m  $\pm$ 2 $\mu$ m diameter disk material with a fine wire or fiber which is sealed in glass. This enables re-polishing of the micro disk and provides an effective barrier against solution leakage in a wide variety of solvents.

Electrode shaft is 8cm L x 4mm D

Operating temperature range 5-80°C



Price: \$715.00

Order #: G0224

Gold Micro

Price: \$715.00

Order #: G0225

Platinum Micro

Price: \$680.00

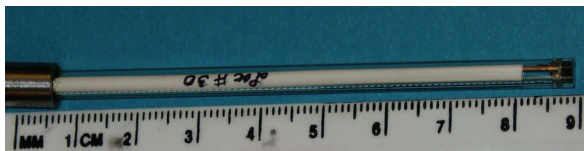
Order #: G0226

GC Micro

Milli-electrodes: 2mm  $\pm$ 0.2mm diameter disk material with a fine wire or fiber which is sealed in glass. This enables re-polishing of the micro disk and provides an effective barrier against solution leakage in a wide variety of solvents.

Electrode shaft is 9cm L x 4mm D

Operating temperature range 5-80°C



Price: \$580.00

Order #: G0227

Gold Milli

Price: \$655.00

Order #: G0228

Platinum Milli

Price: \$539.50

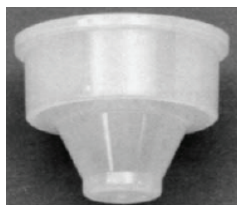
Order #: G0229

GC Milli

Price: \$485.00/PK

Order #: G0174

Teflon PFA Cell Bottoms 6/pk



G0174 Cell Bottom

Price: \$190.00/pk

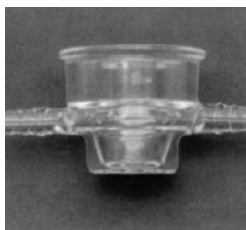
Order #: G0191

Stir Bars 3/pk

Price: \$320.00

Order #: G0193

Jacketed Cell Bottom  
Water jacket version  
of 219600



G0193 Jacketed Cell Bottom



RG100 Cell Bottom

Price: \$400.00

Order #: RG100

Cell Bottom used  
with QCM for  
quantifying mass  
changes along with  
electrochemical  
experiment

## Electrochemistry Cells

### ALS Voltammetry Cells

Several small cell kit configurations are available using the same the 5ml or 20ml sample vials and exchanging electrodes. Kits include Pt counter electrode. Reference electrode is extra. For more detail of components and applications request literature breakout sheets.

Price: \$60.00/pk of 10

Order #: 001056

20ml vials

Order #: 011504

5 ml vials

Price: \$30.00

Order #: 001209

20ml vial holder

Order #: 011227

5ml vial holder

Price: \$180.00

Order #: 011224

VC-4 Cell Kit 5ml



20ml Kits

Price: \$150.00

Order #: 001052

VC-2 Cell Kit

Price: \$195.00

Order #: 002232

VC-3 Cell Kit

Price: \$285.00

Order #: 010914

SVC-3 Cell Kit

Price: \$195.00

Order #: 012188

VC-5 Cell Kit

### SEC-C ALS Spectroelectrochemical Cell

Spectroelectrochemistry (SEC) is aimed at the investigation of electrochemical reaction mechanism and the interface structure between electrolyte solution and electrode.

#### Components:

011498: SEC-C Pt

Gauze WE

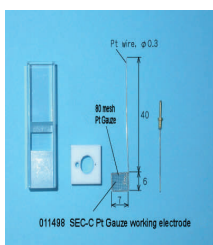
011499: SEC-C Pt CE

011500: SEC-C Thin

Layer Quartz Glass cell

011501: SEC-C Teflon cap

010537:Purgig tube



| Order # | Description   | Price      |
|---------|---|------------|
| 011240  | SEC-C Thin Layer Quartz Glass Spectroelectrochemical cell Kit | \$1,650.00 |
|         | Optional WE-choose appropriate reference                      |            |
| 011857  | SEC-C Au Gauze working electrode                              | \$225.00   |
| 012167  | RE-1B Silver-Silver chloride reference electrode              | \$75.00    |
| 012171  | RE-7 Non Aqueous reference electrode (Ag/Ag+)                 | \$75.00    |

## Combined pH Electrodes

### High performance electrodes for demanding measurements

pH range: 0...14  
 Temperature range: -5...+100 °C  
 Shaft: glass, 12 mm Ø  
 Shaft length L: 120 mm  
 Zero point: pH = 7.0 ± 0.3  
 Diaphragm: platinum  
 Reference system: Silamid®  
 Reference electrolyte: KCl 3 mol/l  
 Glass membrane  
 form: cone  
 Cable: 1M included

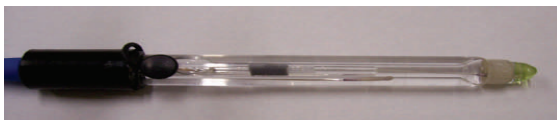
Price: \$225.00  
 Order #: 285129171  
 Connection: BNC



### High performance electrodes for demanding measurements

pH range: 0...14  
 Temperature range: 0...+100 °C  
 Shaft: glass, 12 mm Ø  
 Shaft length L: 103 mm  
 Zero point: pH = 7.0 ± 0.3  
 Reference system: GX-V®  
 Reference electrolyte: Sat KCl  
 Liquid junction Type: annular ring  
 Glass membrane  
 impedance (25°C):  
 20 Mohm  
 Cable: 1M included

Price: \$225.00  
 Order #: 577V521  
 Connections: Type7/BNC/S7



### Rugged electrode, epoxy body, Tuff-Tip®

pH range: 0...14  
 Temperature range: 0...+100 °C  
 Shaft: glass, 12 mm Ø  
 Shaft length L: 110 mm  
 Reference system: double  
 junction, sealed  
 Liquid junction Type:  
 ceramic  
 Cable: extra

Price: \$220.00  
 Order #: SP11X  
 Connections: S7



### High Temperature electrode, Glass body

pH range: 0...14  
 Temperature range: 5...+110 °C  
 Shaft: glass, 12 mm Ø  
 Shaft length L: 110 mm  
 Reference system: double  
 junction, sealed  
 Liquid junction Type:  
 annular ring  
 Cable: extra

Price: \$225.00  
 Order #: SP22X  
 Connections: S7

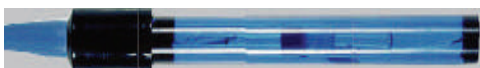


## Combined pH Electrodes

### Flat Surface electrode, epoxy body

pH range: 0...12  
 Temperature range: 0...+80 °C  
 Shaft: sealed epoxy, 12 mm Ø  
 Shaft length L: 110 mm  
 Reference system: Ag/AgCl  
 Internal & storage sol'n: 4M KCl /AgCl  
 Cable: 1M included

Price: \$135.00  
 Order #: GK732511B  
 Connection: BNC



Flat Surface pH

### Spear Point electrode, epoxy coating, glass Tip

pH range: 0...11  
 Temperature range: 0...+50 °C  
 Glass tip, 6 mm Ø x 17mmL  
 Shaft length L: 100 mm  
 Reference system: Ag/AgCl  
 Sealed DPA gel electrolyte  
 Cable included with LE427  
 Cable Extra with InLab Model

Price: \$208.00  
 Order #: LE427  
 Connection: BNC



*InLab option for more demanding applications Order# 51343153 \$374.00*

### Rugged electrode, epoxy body, 110mmL

pH range: 0...13  
 Temperature range: 0..+100 °C  
 Shaft: sealed epoxy 12mm Ø  
 Reference system: Ag/AgCl  
 Internal & storage sol'n: 4M KCl /AgCl  
 Cable: 1M BNC included

Price: \$95.00  
 Order #: GK733526B  
 With guard

Price: \$95.00  
 Order #: GK733523B  
 With removable guard



### Rugged electrode, epoxy body, 110mmL

pH range: 0...13  
 Temperature range: 0..+100 °C  
 Shaft: sealed epoxy with guard 12mm Ø  
 Reference system: Calomel Hg/Hg<sub>2</sub>Cl<sub>2</sub>  
 Internal & storage sol'n: 4M KCl  
 Cable: 1M included

Price: \$150.00  
 Order #: GK733928B  
 Connection: BNC



Calomel, Plastic Body pH

## Combined pH Micro-Electrodes

### Micro electrodes for cuvettes, NMR tubes

pH range: 0...13  
 Temperature range: -5..+80 °C  
 Shaft: glass, reduced 12 mm Ø to 4mm Ø  
 Shaft length L: 130 mm  
 Reference system: Calomel Hg/Hg<sub>2</sub>Cl<sub>2</sub>  
 Reference Fill sol'n: KCl 4 mol/l  
 Glass membrane: GX-1  
 Cable: 1M  
 Immersion depth: 8mm  
 Single Junction

Price: \$175.00  
 Order #: 5473901-003B  
 Connection: BNC  
 Ag/AgCl  
 4mmD x 130mmL



### Micro electrode, glass body

pH range: 0...13  
 Temperature range: -5..+80 °C  
 Shaft: glass, reduced tip 4mm Ø  
 Shaft length L: 130 mm  
 Reference system: Calomel Hg/Hg<sub>2</sub>Cl<sub>2</sub>  
 Reference Fill sol'n: KCl 4 mol/l  
 Glass membrane: GX-1  
 Cable: 1M included  
 Immersion depth: 8mm  
 Double Junction

Price: \$250.00  
 Order #: 5473701-50-003B  
 Connection: BNC  
 Calomel  
 4mmD x 130mmL

### Micro electrode, epoxy body

pH range: 0...13  
 Temperature range: 0..+100 °C  
 Shaft: sealed epoxy with guard 6mm Ø  
 Shaft length L: 155 mm  
 Reference system: Ag/AgCl  
 Internal & storage sol'n: 4M KCl /AgCl  
 Cable: 1M included  
 Immersion depth: 7mm

Price: \$130.00  
 Order #: GK533501B  
 Connection: BNC  
 Ag/AgCl  
 6mmD x 155mmL



### Micro electrode, epoxy body

pH range: 0...13  
 Temperature range: -5..+80 °C  
 Shaft: epoxy with guard 6mm Ø  
 Shaft length L: 155 mm  
 Reference system: Calomel Hg/Hg<sub>2</sub>Cl<sub>2</sub>  
 Reference Fill sol'n: KCl 4 mol/l  
 Cable: 1M included  
 Immersion depth: 12mm

Price: \$155.00  
 Order #: GK533901B  
 Connection: BNC  
 Calomel  
 6mmD x 155mmL

## Combined REDOX Electrodes

### Platinum pin 1mmD, refillable, glass body

Temperature range: +10...+40 °C  
 Shaft: 12 mm Ø x 170mmL  
 Reference system: Calomel  
 Fill sol'n: 3M KCl  
 Cable: extra

Price: \$385.00  
 Order #: PT61  
 Connection: S7

### Platinum pin 1mmD, refillable, glass body

Temperature range: +10...+40 °C  
 Shaft: 12 mm Ø x 120mmL  
 Reference system: Calomel  
 Fill sol'n: 3M KCl  
 Cable: extra

Price: \$350.00  
 Order #: PT62  
 Connection: S7



Available in 2 lengths 120mm and 170 mm

### Platinum ring, sealed epoxy body

Temperature range: -5...+100 °C  
 Shaft: 12 mm Ø x 110mmL  
 Reference system: Ag/AgCl sealed  
 Cable: 1M included

Price: \$140.00  
 Order #: MK739602B  
 Connection: BNC



### Platinum ring, refillable, glass body

Temperature range: -5...+100 °C  
 Shaft: 12 mm Ø x 110mmL  
 Reference system: Ag/AgCl  
 Fill sol'n: 3M KCl  
 Cable: 1M included

Price: \$150.00  
 Order #: MK779601B  
 Connection: BNC  
 Also available with S7  
 connection Order#:E31M003



## Dummy Cells

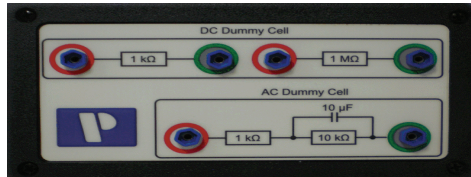
Solartron 12861 ECI Test Module –included with 1287A System

**\$600.00**



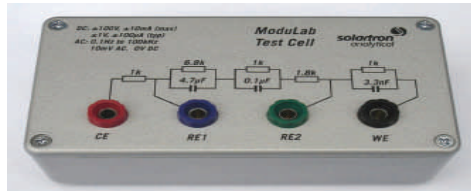
PAR 223935 DC/AC Dummy Cell –included with VersaStat 4

**\$500.00**



Solartron 20877A Modulab Test Cell –included with Modulab Systems

**\$600.00**



Solartron 208713A Modulab 0.1ohm Cell – included with Modulab internal or external boosters

**\$950.00**



X15V003 General Purpose DC/AC dummy cell

**\$345.00**



FEMTOTEST Low Current Femto Test Cell

**\$345.00**

## Connectors and Cables

### Cable-BNC to Banana –RG58 for Solartron Potentiostats

Stocked in 1m, 2m & 3m lengths. Other lengths available on request

Order#: 1287CBL-1 \$ 50.00  
 Order#: 1287CBL-2 \$ 85.00  
 Order#: 1287CBL-3 \$150.00

### Cable-DB15 to 4 banana plugs for Solartron 1480/1470

Stocked in 1m, 2m, 3m & 8m lengths. Other lengths are available on request

Order#: 147001A-1 \$ 140.00  
 Order#: 1480CBL-2 \$ 170.00  
 Order#: 1480CBL-3 \$ 200.00  
 Order#: 1480CBL-8 \$ 400.00

### Cable-Screw Cap S7/S8 to BNC light duty -stocked in 1m, 3m & 6m lengths.

Order#: SC01B \$ 40.00  
 Order#: SC03B \$ 60.00  
 Order#: SC06B \$ 80.00

### Cable-Screw Cap S7/S8 to BNC, Heavy duty, 50ohm. 1 meter length only

Order#: A95A122  
 Price: \$92.00

### Cable-Screw Cap S7/S8 to Banana. 1m length

Order#:A94L111 Price: \$25.00

### Cable-Screw Cap S7/S8 to US-Pin. 1m length

Order#:9001041-003D  
 Price: \$25.00

### Alligator clip/banana connector -red or black, Ni pltd \$0.75 each

Order#: T115SR or T115SB

### US pin female to banana male connector

Order#: 1809-0 Price: \$20.00

### BNC -m to Banana-m connector

Order#: 1894  
 Price: \$25.00 each

### US pin male to banana female connector

Order#: 803-109  
 Price: \$5.00

### BNC termination plug

Order#: 3840-50  
 Price: \$15.00 each

### BNC -f to Banana-f connector

Order#: A94P807  
 Price: \$25.00 each

### GPIB-USB-HS for Windows Vista/XP with cable: Price: \$900.00

Order#:778927-01

### IEEE instrument connection GPIB cable-2m length

Order#: IEEE4888 \$125.00

### 6Ft AB USB cable for VersaStat to computer

Order#: 752860 Price: \$40.00

### Cable for 2273

Order#: C0379  
 Price: \$656.50

Prices are in Canadian funds and subject to change

## Fill, Storage Solutions, Buffers & Cleaners

| Electrode Filling solutions:       |       | Order #     | Price    |
|------------------------------------|-------|-------------|----------|
| 3M NaCl/AgCl                       | 125ml | R001042S    | \$50.00  |
| 4M Sat KCl/AgCl                    | 125ml | RDE0022     | \$25.00  |
| 4M Sat KCl                         | 30ml  | F21M010     | \$30.00  |
|                                    | 250ml | R001013-250 | \$45.00  |
| Sat K <sub>2</sub> SO <sub>4</sub> | 30ml  | F21M007     | \$30.00  |
|                                    | 60ml  | P1509-60    | \$35.00  |
| ACN/TBAP for RE-7                  | 10ml  | 012039      | \$22.50  |
| ACN/0.1 M AgNO <sub>3</sub>        | 30ml  | G0155       | \$162.50 |

| pH Electrode Storage Solution: |       |           |          |
|--------------------------------|-------|-----------|----------|
|                                | 500ml | P1000-500 | \$ 30.00 |
|                                | 1L    | P1000-1L  | \$ 48.00 |
|                                | 4L    | P1000-4L  | \$140.00 |

### pH Buffer Solutions, N.I.S.T Traceable:

|                 |       |           |         |
|-----------------|-------|-----------|---------|
| Buffer pH 1.68  | 500ml | P1019-500 | \$40.00 |
| Buffer pH 4.00  | 500ml | P1021-500 | \$30.00 |
|                 | 1L    | P1021-1L  | \$40.00 |
| Buffer pH 6.86  | 500ml | P1022-500 | \$32.00 |
|                 | 1L    | P1022-1L  | \$48.00 |
| Buffer pH 7.00  | 500ml | P1023-500 | \$30.00 |
|                 | 1L    | P1023-1L  | \$40.00 |
| Buffer pH 9.18  | 500ml | P1024-500 | \$32.00 |
|                 | 1L    | P1024-1L  | \$48.00 |
| Buffer pH 10.00 | 500ml | P1025-500 | \$30.00 |
|                 | 1L    | P1025-1L  | \$40.00 |
| Buffer pH 12.45 | 1L    | P2888-1L  | \$65.00 |

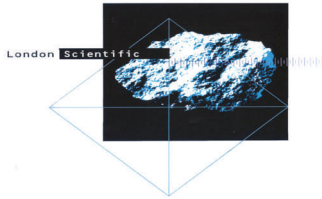
**pH 5.00 Buffer Solution:**  
1L size CB5-1L  
\$48.00

**pH Rejuvenation Solution:**  
2x500ml kit  
P1002-2500  
\$68.00

### pH Electrode Cleaning Solutions:

|            |       |           |         |
|------------|-------|-----------|---------|
| General    | 500ml | P1001-500 | \$32.00 |
|            | 1L    | P1001-1L  | \$46.00 |
| Inorganics | 500ml | P1006-500 | \$48.00 |
|            | 1L    | P1006-1L  | \$74.00 |
| Protein    | 500ml | P1005-500 | \$52.00 |
|            | 1L    | P1005-1L  | \$92.00 |

Prices are in Canadian funds and subject to change



**SIGNAL RECOVERY**



# METTLER TOLEDO

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