Warranty

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of 30 days from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

• Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within 10 days after receipt of shipment. Claims for lost shipments must be made within 30 days of invoice or other notification of shipment.

Please save damaged or pilfered cartons until claim settles. In some instances, photographic documentation may be required. Some items are time sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container.

• WPI cannot be held responsible for items damaged in shipment en route to us. Please enclose merchandise in its original shipping container to avoid damage from handling. We recommend that you insure merchandise when shipping. The customer is responsible for paying shipping expenses including adequate insurance on all items returned.

• Do not return any goods to WPI without obtaining prior approval and instructions (RMA#) from our returns department. Goods returned unauthorized or by collect freight may be refused. The RMA# must be clearly displayed on the outside of the box, or the package will not be accepted. Please contact the RMA department for a request form.

• Goods returned for repair must be reasonably clean and free of hazardous materials.

• A handling fee is charged for goods returned for exchange or credit. This fee may add up to 25% of the sale price depending on the condition of the item. Goods ordered in error are also subject to the handling fee.

• Equipment which was built as a special order cannot be returned.

• Always refer to the RMA# when contacting WPI to obtain a status of your returned item.

• For any other issues regarding a claim or return, please contact the RMA department

Warning: This equipment is not designed or intended for use on humans.

World Precision Instruments, Inc.

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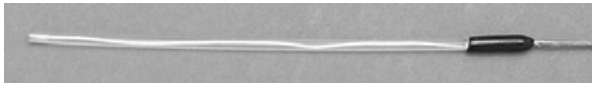
SDR2

Reference Electrode

INSTRUCTION MANUAL

Serial No._____



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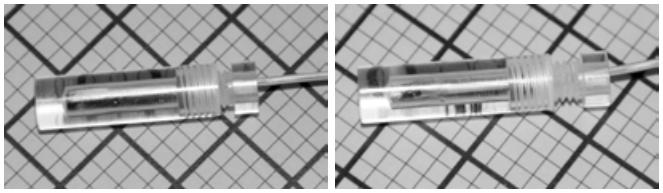
The **Dri-Ref** series of reference electrodes exhibits stable potential, low resistance and very low electrolyte leakage. **Dri-Ref** has a low electrode resistance, an important consideration when making low-noise measurements. Although the internal filling solution contains 3M KCl, the extremely low fluid leakage means **Dri-Ref** may also be used in combination with ion selective electrodes, including those for K^+ and CL^-, without significant contamination by the reference electrode.

The **SDR2** electrode is a unique **Dri-Ref** electrode. It is leak-free, because the glass frit used in other **Dri-Ref** electrodes is replaced by a slightly porous, polymer, liquid junction membrane. This membrane is extremely delicate, and it is easily damaged if the electrode is incorrectly removed from the protective shipping container. See the unpacking instructions below.

The **SDR2** membrane swells in size if it is used in low molarity solutions, and it recovers its size in 3M KCl. This electrode is intended for use in applications for physiological measurements (100–200mM KCl). The **Dri-Ref** electrodes are not intended to be used as a voltage or current sourcing electrode, rather as a voltage reference electrode for pH or ion selective measurements. The **Dri-Ref** electrodes are not intended for long-term measurements beyond a few minutes. For longer duration applications, larger mass Ag/AgCl dual junction reference electrodes may be used.

UNPACKING

Unpack the electrode immediately upon receipt. The electrode is shipped with the membrane tip sealed in a small vial of 3M KCl.



1. Hold the vial upright and carefully unscrew the cap from the vial to loosen it. The cap does not need to be completely removed.
2. As you unscrew the cap, the compression fitting releases and the electrode can be removed. Gently slide the electrode from the vial.
3. The electrode is ready for use. If it is not to be used immediately, store the electrode in a cool place away from sunlight with the tip immersed in 3M KCl.

STORAGE

When not in use, store the electrode in a cool place away from sunlight with the tip immersed in 3M KCl. Exposure to air for more than 15 minutes can result in an unusable electrode due to the KCl buildup on the membrane.

CLEANING

Rinse the electrode with water or electrolyte of the same strength as the sample solution before and after each use. An enzymatic cleaner such as Enzol (WPI #**7363-4**) or other surfactant can be used to remove the accumulation of proteins and other substances that can clog the membrane.

TROUBLESHOOTING

If you suspect a problem with the stability of the electrode, substitute a known good reference electrode for a comparison check. Also check for trapped air bubbles in the tip, which could affect readings and stability. In some cases, you can clear internal air bubbles that might be interfering with the reading by pointing the electrode tip down and gently tapping near the tip. Ag/AgCl electrodes can acquire a galvanic voltage charge in use and should be equilibrated (balanced or shorted out electrically) against another similar electrode in a conductive saline solution (3M KCl). This equilibration process can take up to 24 hours. An un-equilibrated electrode can be used as long as the pH or ISE system is re-calibrated or the amplifier's offsets are employed to negate the galvanic charge.

For help with your **Dri-Ref**, contact the WPI Technical Support team at 941.371.1003 or technicalsupport@wpiinc.com.

SPECIFICATIONS

Length	5.2"
Diameter	2 mm
Construction	PVC
Liquid Junction Frit	Polymer membrane
Lead Length	30 in..
Plug	2 mm pin
Resistance (typical)	< 5 KΩ
Filling Solution	KCl
Leakage (mL/hr)	no leakage