

# USER GUIDE



## Portable Salinity Refractometer with ATC

### Model RF20

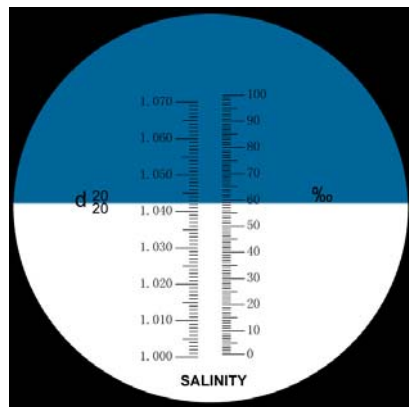
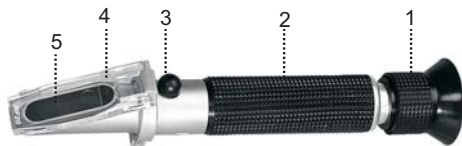


### Introduction

Congratulations on your purchase of the Extech RF20 Handheld Salinity Refractometer with Automatic Temperature Compensation. Precision optical instruments should be handled gently; avoid touching the optical surface. Careful use of this instrument will provide years of reliable service.

### Description

1. Eyepiece
2. Mirror tube
3. Adjust screw
4. Cover plate
5. Prism



Field of view

### Operation

The instrument measures the refractive index of the sample and displays the result in parts per thousand ( $^{0}/_{00}$ ) and specific gravity ( $d^{20}_{20}$ ).

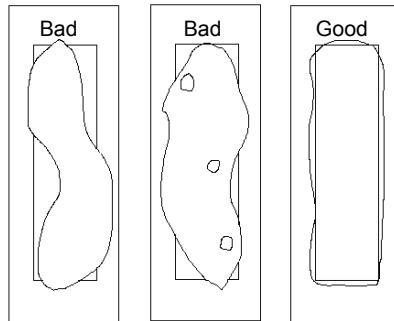
#### 1. Zero Adjustment

Put distilled water on the prism; enough to cover the entire prism. Close the cover plate and rotate the adjusting screw so that the light/dark boundary line (known as the shadow-line) evens up with the zero line. After the zero adjustment, clean the prism with soft cloth.

#### 2. Sample Preparation and Measurement Readings

To take a reading, place a few drops of a sample liquid on the measurement prism. Ensure that enough solution is added to the prism in order to cover the entire prism. Close the prism so that the liquid spreads across the entire surface of the prism without air bubbles or dry spots (see diagrams below). Allow the sample to remain on the prism for approximately 30 seconds.

While holding the instrument under a light source, look through the eyepiece. The salinity concentration is determined by the intersection of the boundary of the light and dark fields (known as the shadow-line) on the printed scale. The left side of the scale indicates the specific gravity and the right side parts per thousand. If the scale appears out of focus, the eyepiece may be adjusted by rotating the knurled portion. The instrument also features an eye guard to prevent stray light from entering the eyepiece and causing reflections.



It may be necessary to adjust the position of the light source to maximize the contrast of the shadow-line. Under normal conditions, optimal contrast is obtained by holding the instrument underneath and perpendicular to a light source. Once a reading has been taken, wipe dry with a clean cloth (do not wash or rinse) and place the instrument in the supplied plastic case. Store the instrument in a safe, dry environment.

Temperature is the single most important factor influencing refractometer readings and is one of the largest sources of measurement error. However, this device incorporates automatic temperature compensation and the concern for temperature fluctuations in sample liquids is alleviated. When ambient temperature varies from 68°F (20°C), readings are automatically adjusted to compensate for temperature variance between 50°F to 86°F (10°C to 30°C).

### Specifications

Scale	Range	Resolution
Parts Per Thousand	0 to 100 $^{0}/_{00}$	1 $^{0}/_{00}$
Specific Gravity	1.000 to 1.070 $d^{20}_{20}$	0.001 $d^{20}_{20}$

Dimensions: 7.6 x 1.5 x 1.5" (194 x 38 x 38mm)

Weight: Approx. 8.0 oz. (227g)

### Calibration and Repair Services

FLIR Systems, Inc. offers repair and calibration services for the Extech Instruments products we sell. NIST certification for most products is also provided. Call the Customer Service Department for information on calibration services available for this product. Annual calibrations should be performed to verify meter performance and accuracy. Technical support and general customer service is also provided, refer to the contact information provided below.

### Warranty

FLIR Systems, Inc. warrants this Extech Instruments brand device to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department for authorization. Visit the website [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. FLIR Systems, Inc. specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. FLIR's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

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Repair & Returns: Option 4; E-mail: [repair@extech.com](mailto:repair@extech.com)

Product specifications are subject to change without notice

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