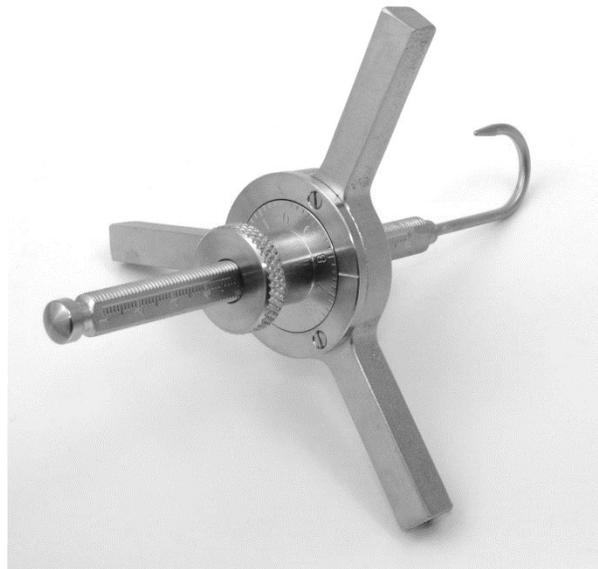


255-21x

User Manual

255-214 Hook Gauge (English units)

255-215 Hook Gauge (Metric)



Hook Gauge

Phone (530) 823-7185

Email nova@novalynx.com **Website** www.novalynx.com

Receiving and Unpacking

Carefully unpack all components and compare to the packing list. Notify NovaLynx Corporation immediately concerning any discrepancy. Inspect equipment to detect any damage that may have occurred during shipment. In the event of damage, any claim for loss must be filed immediately with the carrier by the consignee. Damages to equipment sent via Parcel Post or UPS require the consignee to contact NovaLynx Corporation for instructions.

Returns

If equipment is to be returned to the factory for any reason, call NovaLynx between 8:00 a.m. and 4:00 p.m. Pacific Time to request a Return Authorization Number (RA#). Include with the returned equipment a description of the problem and the name, address, and daytime phone number of the sender. Carefully pack the equipment to prevent damage or additional damage during the return shipment. Call NovaLynx for packing instructions in the case of delicate or sensitive items. If packing facilities are not available take the equipment to the nearest Post Office, UPS, or other freight service and obtain assistance with the packaging. Please write the RA# on the outside of the box.

Warranty

NovaLynx Corporation warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from the date of shipment from the factory. NovaLynx Corporation's obligations under this warranty are limited to, at NovaLynx's option: (i) replacing; or (ii) repairing; any product determined to be defective. In no case shall NovaLynx Corporation's liability exceed product's original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by NovaLynx Corporation, or that has been subjected to misuse, negligence, or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

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1 FORWARD

Thank you for purchasing NovaLynx products. NovaLynx has been designing and manufacturing weather instruments since 1988. NovaLynx represents several well-known brands of quality manufacturers, including Gill Instruments, RM Young, Kipp & Zonen, and Vaisala. It is our hope that our products will meet all your monitoring requirements.

2 INTRODUCTION

The **255-214 and 255-215 Hook Gauges** are part of a measurement system used to determine the amount of evaporation at a particular site. The gauges are designed to be used with a NovaLynx **255-200 Evaporation Pan** and a **255-205 Still Well** that supports the gauge while measurements are taken.

Evaporation is typically measured each day by resting the hook gauge on the still well, and turning the adjusting nut to raise or lower the hook. When the tip of the hook is at the water surface, the gauge is read and the data recorded. The difference between successive readings represents the amount of evaporation for that period of time.

Each gauge has two scales, one engraved on the threaded stem and the other on a rotating dial. The 255-214 Hook Gauge measures in inches with a resolution of 0.002". The 255-215 Hook Gauge measures in millimeters with a resolution of 0.02 mm.

3 SPECIFICATIONS

Hook Gauge	255-214	255-215
Units	Inches	Millimeters
Inscribed Range	4"	10 cm
Max mechanical range	3.7"	7.5 cm
Resolution	0.002"	0.02 mm
Stem major gradations	1"	1 cm
Stem minor gradations	0.1"	1 mm
Dial major gradations	0.01"	0.1 mm
Dial minor gradations	0.002"	0.02 mm
Material	Nickel plated brass	Nickel plated brass
Dimensions	Ø 5.25" x 7" height	Ø 133 mm x 178 mm height
Weight / Shipping	1 lb / 2 lb	0.5 kg / 1 kg
Shipping Carton	6.25" x 6.5" x 6.25"	16 x 17 x 16 cm

4 PRECAUTIONS

The hook gauge operates by turning a knob to move the stem up or down. The stem does not have mechanical stops at the ends, so care must be taken not to over-run the ends of the stem. If the stem is raised too far or the dial is removed from the stem, the unit will need to be returned to the factory for re-calibration.

- 255-214 Do not exceed the 3.7" mark on the stem
- 255-215 Do not exceed the 7.5 cm mark on the stem
- BOTH NEVER REMOVE THE STEM FROM THE DIAL ASSEMBLY

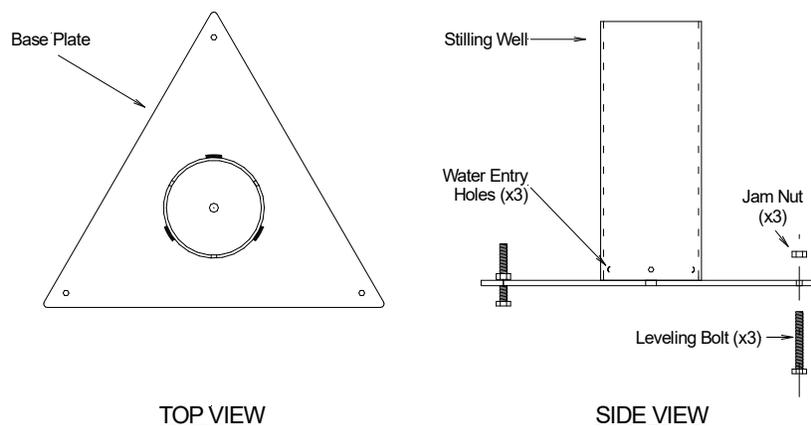
5 EVAPORATION PAN AND STILL WELL SETUP

Refer to the 255-200 Evaporation Pan User Manual for detailed information on installing the evaporation pan.

Experiments have shown that the height of the rim of the pan above the water surface affects the rate of evaporation. In order that the records from all stations using hook gauges will be comparable, the pan should be filled to a level 2 inches below the rim, and refilled (at a regular observation) when the water has receded 1 inch (3 inches below the rim). Where a micrometer hook gauge is used for measuring water levels, two short lines painted on the inside of the pan, 2 inches and 3 inches, respectively, below the rim, will assist in maintaining the proper water level. Read the gauge immediately before and after making any change in the water level, and record the readings.

The base of the NovaLynx 255-205 Still Well is triangular with leveling screws at each corner. Place the still well in the evaporation pan approximately one foot from the north edge of the evaporation pan (Northern Hemisphere) and use a carpenter's level across the top to check and adjust the level. Do not move or disturb the still well between readings for best accuracy.

The still well has three small holes that allow water to flow in and out of the still well. When adding water, pour the water into the pan (don't pour the water into the still well). Allow sufficient time for the water to equalize before taking readings.



6 EVAPORATION MEASUREMENT

The top of the still well supports the hook gauge (Appendix B). At the time of each observation, place the gauge on the stilling well and adjust the hook in the well until the point is below the surface of the water. Slowly turn the adjusting nut clockwise until the point just pierces the water surface. Reflection of the sky in the water will assist in determining when the point first breaks through the surface.

After setting the gauge, remove the gauge from the still well and read the scales (Appendix A). Begin with the markings on the stem, and then read the dial, noting the value of each gradation in the chart below. Add the readings together. Record the measurement, along with the time and date.

Hook Gauge	255-214 (inches)	255-215 (mm)
Stem major gradations	1.000	10.00
Stem minor gradations	0.100	1.00
Dial major gradations	0.010	0.10
Dial minor gradations	0.002	0.02

Evaporation rate can vary significantly by location and season. At a minimum, the level must be read before the water level drops below the range of the hook gauge. If this is not done, data will be lost and the record across the season will not be continuous. In areas of relatively high evaporation rates the level is read every 24 hours. The gauge readings should be taken at the same time each day. Extreme cases may require more frequent reading, or even a different method of measurement.

7 HOOK GAUGE MAINTENANCE

After taking readings, wipe off any moisture using a dry cloth. Store the gauge in a dry location. If the gauge must be transported, provide a carrying box with sufficient padding inside to protect the gauge.

If cleaning is required, use kerosene or mineral spirits and a cloth to wipe the gauge clean. After the solvent has evaporated, apply a small amount of light machine oil to the threads and run the dial up and down to spread the oil. Wipe off excess oil to ensure the oil does not transfer to the water in the evaporation pan.

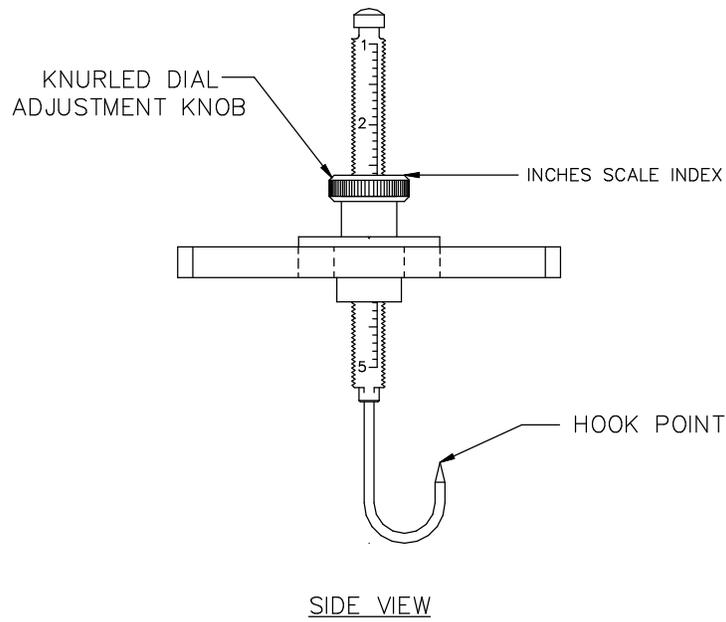
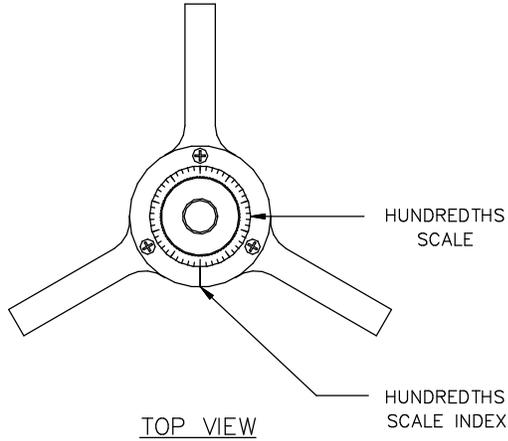
8 HOOK GAUGE CALIBRATION

As long as the maximum mechanical range of the gauge is not exceeded it should not be necessary to calibrate the unit. However, if the dial assembly accidentally travels beyond the threaded part of the stem and the unit cannot be returned to the factory for re-calibration, a field repair can be attempted.

The stem and nut in the dial assembly are double-threaded, so it is possible to assemble them incorrectly (180 degrees out of phase). This procedure indicates how to align the parts, and then check whether the nut is threaded onto the shaft correctly.

1. View the dial assembly from the bottom and note there is a flat surface inside the central hole which must align with and engage the flat surface of the stem.
2. While keeping the flat surface in the central hole aligned with the flat side of the stem, thread the dial assembly onto the stem by turning the knurled knob.
3. After the threads are engaged, continue threading until the top of the knob aligns with a major division on the stem (The inscribed line on the stem will be visible, not hidden below the surface of the knob).
4. Note the position of the zero on the dial relative to the dial index mark. If the zero is close to the index mark then the dial assembly is threaded properly.
5. If the zero cannot be adjusted to the index mark without moving the major mark on the stem out of position, then the nut is threaded incorrectly. Back the dial assembly off the threads and then rotate the dial **1/2 turn** before re-threading. Check that the zero on the dial aligns properly.

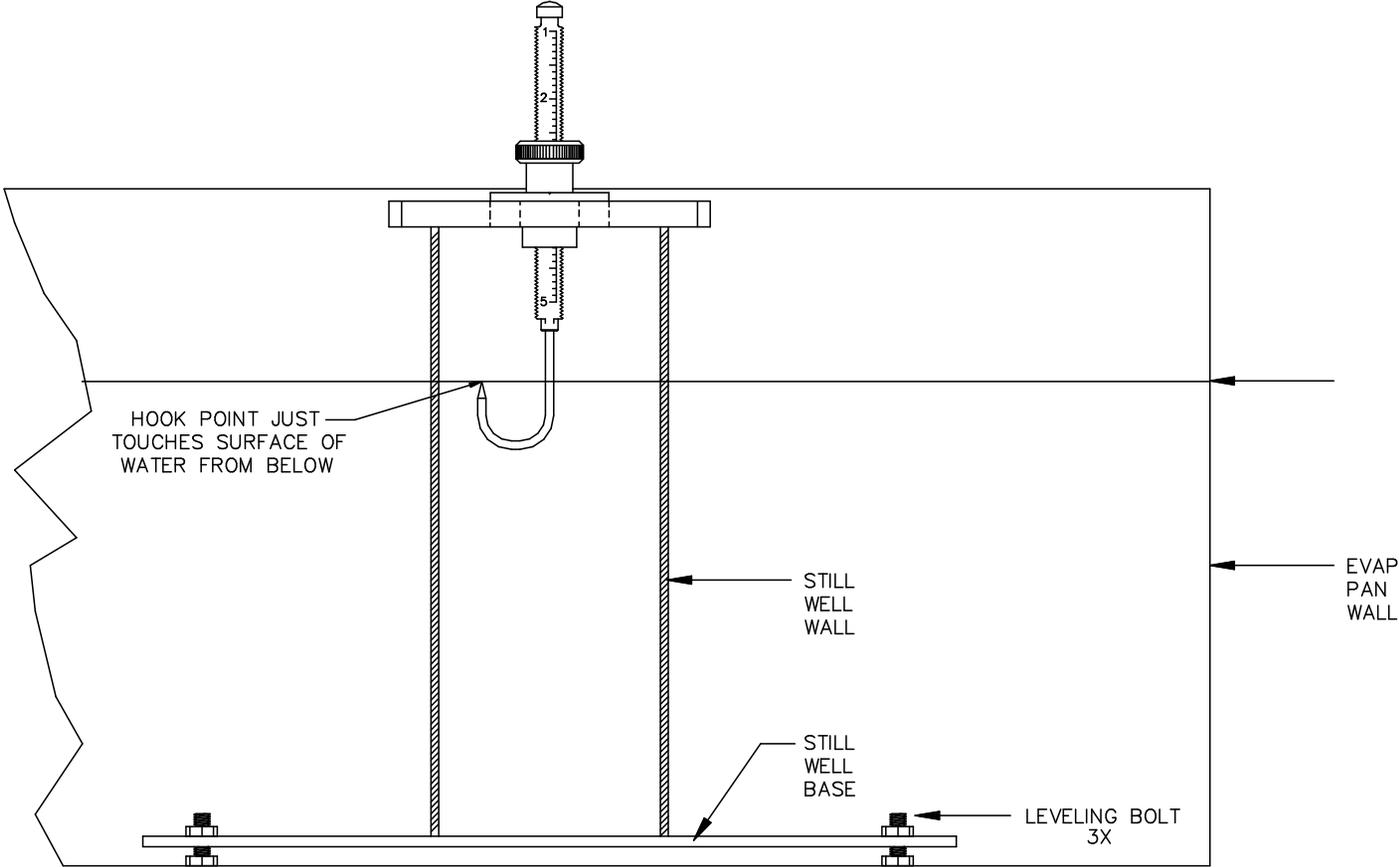
APPENDIX A



DWG 890-0075-02

255-214 Hook Gauge

APPENDIX B



NOTES: 1. HOOK GAUGE SHOWN WITH POINT ROTATED FOR ILLUSTRATIVE PURPOSES ONLY.

DWG 890-0076-02