

# **MODEL A8-AF**

## **OPERATING INSTRUCTIONS**

Part No. MRC005683 - N

**Moisture Register Products**  
A Div. of Aqua Measure Instrument Co.

1712 Earhart Ct.

La Verne, CA 91750

Tel: +1 (909) 392 5833

Fax: +1 (909) 392 5838

E-mail: [sales@aquameasure.com](mailto:sales@aquameasure.com)

[www.MoistureRegisterProducts.com](http://www.MoistureRegisterProducts.com)

# Model A8-AF

## Operating Instructions

REV	E.O.	DESCRIPTION	PART NUMBER	DATE
A	32276	MANUAL	MRC005683 – N	5-05
B	32333	MANUAL	Serial # 5D4446 & Higher	5/06

# Table of Contents

Introduction.....	1
Operation.....	1
Internal Standard.....	2
Battery Condition Indication.....	2
Battery Charging.....	3
Emergency Battery.....	3
Test Block (Optional).....	3
Maintenance.....	4
Trouble Shooting.....	5
Spare Parts List for A8-AF.....	5
Test Block Readings.....	6
Notes:.....	10

# Operating Instructions

## Introduction

The Model A8-AF Indicator, Radome Moisture Meter is a direct replacement instrument for the obsolete AF-K2D Indicator, Radome Moisture Meter. It is used to obtain a qualitative indication of moisture differences in the structure of radomes.

The A8-AF is comprised of two basic components: the electrode gun and the meter unit. These components are interconnected by a 2'8" cable attached with one push-in connector. In addition, a battery charger and carrying case are provided.

Theory: The A8-AF indicates moisture pockets in radomes by measuring the radio frequency dielectric power loss of materials in contact with the electrode buttons. When water enters the radome structure, the power loss of the radome at the spot of water entry increases, causing a higher indication on the meter unit when the electrode buttons are in close proximity to the moisture pocket. The response of the A8-AF to moisture pockets is identical to the response of the obsolete AF-K2D.

## Operation

The A8-AF is operated by holding the meter case in one hand and the electrode gun in the other hand. It is energized by flipping the ON/OFF switch ON. Press the adjust button for a count of three to cause the meter pointer to go to zero for a count of three. It is recommended that you press the adjust button before every test. Due to the sensitivity of this instrument, a slight zero drift may occur during warm-up. Press the adjust button for a count of three to re-zero.

Place the electrode gun on the radome. Search out areas of higher meter indication by moving the electrode to different locations on the radome. Attempt to find the most responsive point of high meter indication. In this manner, moisture pockets can be pinpointed. Do not slide the electrode over the surface of the radome. Always flip the ON/OFF switch to OFF when finished.

Sliding the electrode will cause the electrode buttons to wear out and may affect the accuracy of the readings.

## Note

Radomes with conductive surfaces cannot be measured through the conductive material. Measurements must be taken from the inside. Using the comparator scale, determinations can easily be made of the quality of the radome, and repairs made before damage exceeds allowable levels.

## Internal Standard

The A8-AF contains an internal calibration standard attached to the bottom of the meter case. The calibration standard is used periodically during testing to assure that the indications of the A8-AF are at all times correct. The standard simulates radome material of high moisture content and is applied directly to the electrode gun buttons to assure performance checking of the entire instrument.

The standard is as follows:

1. Energize the A8-AF by flipping the ON/OFF switch to ON, wait three seconds, then press the adjust switch for a count of three and release it. Press the electrode gun against the red standard plate on the bottom of the meter case, so the electrode buttons engage their respective depressions on the standard plate.
2. The electrode gun must be in firm contact with the standard. The meter should indicate between 19 and 21 on the numerical scale (arrow on dial).

Figure 1 shows how this standard checking procedure is accomplished.

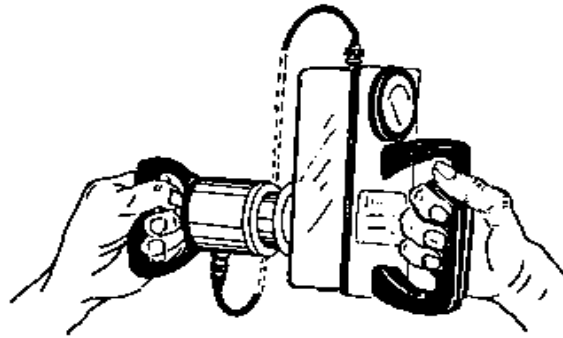


Figure 1

## Battery Condition Indication

The A8-AF has been designed to show a low battery charge indication before battery discharge can reach the point of damage to battery cells. This indication is in the form of meter zero drift or pegging.

When the instrument is first energized after charging, a downscale drift will occur immediately after the instrument has been turned on and adjustment has been performed. This drift may occur for up to ten seconds but then will stop, at which time the adjust switch is again operated and the radome testing can proceed.

Unless the battery is in need of a charge, instrument stabilization after initial turn on will occur within a few seconds. However, as an end of charge indication, initial zero drift will continue and make accurate radome testing impossible. The batteries must be charged at this time.

## Battery Charging

The A8-AF contains three “C” size nickel metal hydride cells in series to form a nominal 3.60 volt battery. Converting circuitry is employed to step up this voltage to correct operating levels in the instrument.

An external 115 VAC 60 Hz battery charger is used to charge the A8-AF. For best battery life, it is recommended that the cells be discharged to the point where the end of charge indication occurs, then fully charged for fourteen to eighteen hours.

## Battery Replacement

The A8-AF battery is not user accessible and can only be replaced by Moisture Register Products.

The A8-AF is also available with user – replaceable “C” batteries. This special version is not rechargeable.

WARNING: Do not use the A8-AF battery charger to recharge standard zinc carbon or alkaline “C” cell batteries. The battery charger is intended for use only with Ni MH batteries

## Test Block (Optional)

The A8-AF test block (part number 552391) is used to check the accuracy of the A8-AF. It is recommended that the A8-AF instruments be checked using the test block at regular intervals.

1. Place the A8-AF test block on any solid, dry surface at table top height.
2. Be sure electrode is clean. Do not get any moisture or product material inside electrode.
3. Hold the A8-AF meter and electrode in the air at least 12 inches away from any object or surface. Turn instrument on by flipping the ON/OFF switch to ON. Press the adjust button for a count of three to re-zero.
4. Place the A8-AF electrode firmly on center of the test block (Figure 2) and verify that the A8-AF reading matches the value posted on the test block serial label, plus or minus one. **Example:** If the value posted on the test block serial label is 18, the reading should be between 17 and 19. Repeat if necessary.
5. Record the reading in charts provided on pages 11-14.



Figure 2

## Maintenance

Moisture Register Products is the manufacturer of and the only authorized repair center for A8-AF instruments. Repairs performed elsewhere will cause the warranty to be void.

The A8-AF should be kept in its carrying case when not being used. This will keep the instrument clean and free from contamination. Routine maintenance consists of keeping the electrode gun buttons clean and periodically checking the zero setting and calibration standard. Water based solvents should not be used to clean the A8-AF, as an accumulation of residue can cause false readings. Anhydrous methanol is a preferred cleaning solvent for the plastic parts of the instrument and should be used sparingly.

## Trouble Shooting

1. Excessive zero drift longer than ten seconds after proper battery charge:  
End of battery life: End of battery life is generally characterized by inability to hold a charge, resulting in excessive drift. In this event, send the instrument back to the factory for battery replacement.
2. No meter indication after turning the instrument on and pressing adjust switch:  
Inability to charge battery: After end of battery life, cell failure may occur such that the battery cannot be charged.
3. Inability to set zero with adjust switch:
  - a. Check mechanical meter zero: With the meter case sitting on its bottom end (handle down), carefully set meter pointer to zero using black screwdriver adjustment on lower center of meter face.

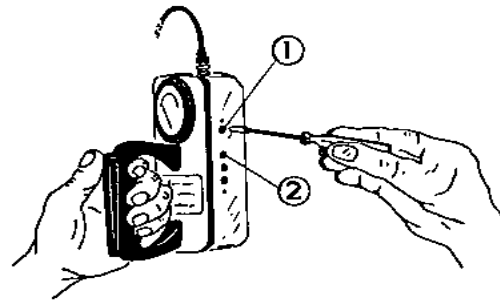


Figure 3

4. Incorrect indication when checking calibration standard:  
Adjust calibration trimmer using calibration standard.  
Check calibration standard using correct operating procedure above. If indication is too high, adjust the trimmer 1, under trimmer cover position 1, clockwise one turn (Figure 2). If too low, turn counterclockwise. Turn on, press adjust and recheck standard. Repeat until correct.

Do not adjust trimmer 2.

## Spare Parts List for A8-AF

Part No.	Part
MRC003422-M	Battery Charger, 2.9V, 400 MA, Dynamic 2-1600
MRC005554	Electrode Button
MRC005570	Electrode Spring
MRC005682	A8-AF Carrying Case
552393	A8-AF Test Block









**Notes:**

Moisture Register Products manufacture Continuous On-Line Systems and Hand-Held Portable Meters that are designed for optimum performance, essential convenience and complete reliability to accomplish a multitude of applications in a wide range of industries.

Our Continuous On-Line Systems offer Near Infrared and Radio Frequency Sensors to constantly measure your process moisture. These systems assist you in analyzing, recording and controlling moisture on your product line.

Our Hand-Held Portable Moisture Meters offer on the spot measurement as well as flexibility for use on a variety of materials such as:

Moisture Register Products has portable moisture meters for use on a wide variety of materials, some of which are listed below.

**LUMBER  
PLASTER WALL  
GYPSUM BOARD  
NONWOVENS  
CORK**

**VENEER  
DRY WALL  
TEXTILES  
PAPER PRODUCTS  
AIRCRAFT RADOMES**

Moisture Register Products and AQUA Measure Instrument Company are fully committed in providing products and services at a quality level that continues to improve and that meets our customer's expectations.

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