Water Activity Meter
MS2100 Calibration steps

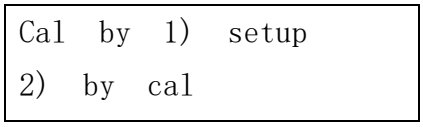
The calibration of the activity measurement is to calibrate the zero and slope values of the curve in the instrument. The calibration of the instrument is realized by measuring the activity value of potassium nitrate and sodium chloride saturated solution. The average value of each sample is measured several times. As follows:

	potassium nitrate	Sodium Chloride
First time	0.943	0.806
Second time	0.944	0.808
Third time	0.939	0.804
Average Value	0.942	0.806

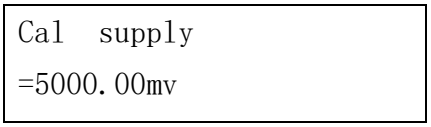
The average activity of potassium nitrate is 0.942, and the average activity of sodium chloride is 0.806, deviating from the normal value, indicating that the instrument needs calibration.

The calibration steps are as follows:

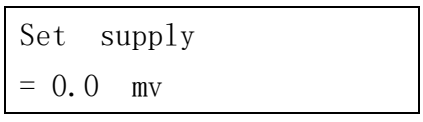
1、Turn on the instrument and press button (setup), enter the password (123), press the confirmation key to enter "4" -System Setup, and then press the confirmation key, and input "6" - Primary Sensor Cal, press the confirmation key appears:



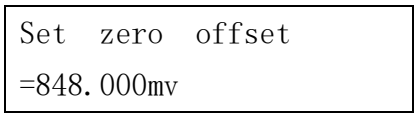
Press“1”,appears:



Enter 5000.00, press the confirmation key:



Enter 5000.00 again, press the confirmation key:



Record 848.00mv for standby. Press the confirmation key to appear.

Set sensorslope =30.72600mv/RH

Record 30.72600 for standby.

848.00 and 30.726 are the zero and slope values of the instrument.

2、Calculation

Formula: RH= (V-V0) /S；

RH: relative humidity;

V: the voltage value corresponding to the activity of the sample;

V0: zero point value;

S: the slope of the slope.

① The activity values , the existing zero point values and the slope values are replaced in the formula. Calculated the voltage number of "V potassium nitrater" and "V chlorine" when measuring the activity of saturated potassium nitrate and saturated Sodium Chloride Solution.

94.2=（V potassium nitrate—0.848）/0.030726， V potassium nitrate=3.742V；

80.6=（V chlorine—0.848）/0.030726， V chlorine =3.325V。

② The new slope and zero points are calculated.

Standard activity value: RH potassium nitrate= 93.6% RH chlorine = 75.3%

Formula: S= (V potassium nitrate —V chlorine) * 1000/ RH potassium nitrate—RH chlorine

1) S new = (V potassium nitrate— V chlorine) x 1000/(93.6—75.3)

= (3.742-3.325) x 1000/18.3

=22.787

2）S/1000=0.03924 is replaced by the formula: RH= (V—V0) /S

RH potassium nitrate =93.6 V potassium nitrate =3.742V

3.742 - New V0=93.6 x 0.05081

New V0=1.61V

③ Input the new slope S=22.787 and the new V0=1610mv into the instrument.

Specific practices and steps (1,). Change the 848.00 in the instrument to 1610. Change the 30.726 in the instrument to 22.787 The calibration is completed.