



## ValProbe® Humidity Sensors

Kaye is pleased to announce the introduction of the EMD 4000 Humidity Sensor. The EMD4000 will, effective immediately, replace the EMD 3000 sensor for all applications of humidity measurement, except for ETO sterilization. The EMD 4000 has shown significant improvement in long term stability and repeatability, especially at temperatures above 40°C, such as ICH stability studies.

Because of the performance improvement at higher temperatures, Kaye will be replacing EMD 3000 sensors with the EMD4000 sensor as part of our calibration or repair process. The EMD4000 sensor is the standard and suitable for stability chambers, storage mapping and other applications.

Kaye still offers the EMD 3000 sensor for new or repaired sensors, strictly for ETO applications. As illustrated in Figure 3 on the next page, if the EMD 3000 is still used, the logger will be supplied with a new cap saying "ETO".

**IMPORTANT:** *If you are sending back your humidity sensor for recalibration, be sure to mention if it is used for an ETO application. If it is not, Kaye will replace the sensor with the new standard EMD4000, which is more suitable for a wider range of applications.*

The humidity/temperature logger specifications are:

### Operating Range

25% to 85% RH (non-condensing)

EMD4000

0 to 55°C (with RH Sensor), 0 to 95°C (without RH Sensor)

EMD3000

20 to 30°C (with RH Sensor), 0 to 95°C (without RH Sensor)

### Accuracy

±2% RH at 25°C and 40°C (EMD4000)

±2% RH at 25°C (EMD3000)

±0.1°C

**Note:** *If a humidity logger is subjected to temperatures above 95°C, the system issues a warning message until you replace the sensor and note the change in the software.*

## Sensor Identification (EMD3000 & EMD4000)

To identify the type of sensor being used on the logger, unscrew the humidity cap. The EMD4000 sensor has a greyish silver etching, while the EMD3000 sensor has a golden etching.

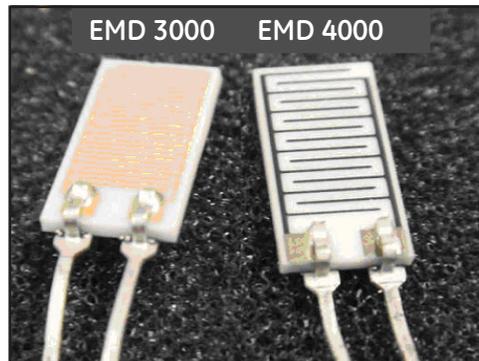


Figure 1: EMD3000 and EMD 4000 Sensors



Figure 2: EMD3000 and EMD 4000 Sensors on Loggers

The ValProbe loggers can be distinguished externally by the marking on the ValProbe cap. All the loggers shipping from the factory from 1 Mar 2010 have this marking. The loggers with ETO on the cap (Figure 3 below) include the EMD3000 sensors. Users should not interchange these caps with loggers having the EMD4000 sensors.



Figure 3: Loggers with and without ETO on Cap

# ValProbe® Humidity Sensor Replacement

Replacing the humidity sensor is a two-step process, which involves:

- Replacing the existing humidity sensor
- Recording the sensor change

## Replacing the Humidity Sensor

The humidity sensors are accurate to better than 2% over the operating temperature and humidity range. The humidity sensors are field replaceable. Replace with a Kaye-supplied humidity sensor (N1193). The logger only needs to be factory calibrated for a change in electronics on an annual basis, not for sensor replacement.

After replacing the humidity sensor in a humidity/temperature logger, you must reprogram the logger with the new sensor's batch code in order for the humidity readings to be accurate. The batch code specifies the manufacturing calibration offsets to be applied to the humidity sensor. The sensor change is recorded in the logger and in the audit trail.

**Note:** *If you are installing an EMD4000 sensor, be sure to run the "ValProbe EMD4000 Humidity Sensor Installation" (setup.exe) from the M4377 CD. Otherwise, the ValProbe installation will not permit you to use humidity loggers with EMD4000 sensors installed.*

### To replace the humidity sensor:

1. Unscrew the humidity cap and remove the existing humidity sensor.
2. Insert the replacement humidity sensor. Make sure that the sensor is fully inserted, and then remove the white protective cover. The humidity sensor should only be handled by its edges and care should be taken not to contaminate the sensing surface.
3. Replace the humidity cap.

### To reprogram the Logger with the new batch code:

1. Insert the humidity/temperature logger into the Reader.
2. From the Hardware screen, click the Logger icon. The Logger Information screen appears.
3. Click **Change RH Sensor**.
4. If user identification is required, enter your user ID and password when prompted and click **OK**.

A message appears stating you will need the two-character batch code in order to change the humidity sensor.

1. Click **OK**.
2. Enter the two-character batch code (XX) and click **OK**. If the batch code is not recognized, you are prompted to insert the Kaye Humidity Sensor Calibration Disk that came with the new sensor into the CD drive. This disk specifies the manufacturing calibration offsets to be applied to the humidity sensor for that batch code. Insert the disk into the drive and click **OK**.
3. Click **OK** when prompted that the sensor change has been noted in the logger. Then click **OK** to return to the Hardware screen.