

2. Chemical Calibration of the Meter and Electrode (buffers required)

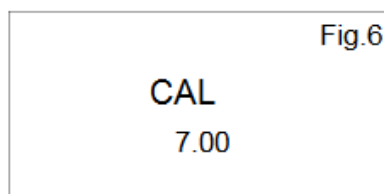
Buffer solutions and a pH electrode are needed to perform the following procedures.

Two Point Calibration

- Connect the PH electrode to the **BNC SOCKET**.
- Ensure that the temperature setting is adjusted to the temperature of the pH buffer solution. See TEMPERATURE COMPENSATION on page 5.
- Press the **PH/MV** button and select the pH mode. "PH" is displayed on the LCD.

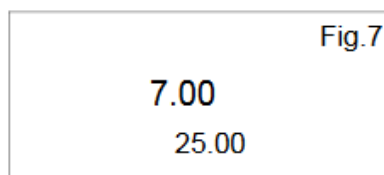
PH 7 Calibration

- Rinse the electrode with distilled water and immerse the electrode into the pH7 buffer solution.
- Press the **CAL** button. The upper display flashes "CAL" and the lower display shows the default calibration value (Fig.6).
- After approximately 5 seconds, the meter calibrates itself automatically. The upper display will show the calibrated value, the lower display will show temperature (Fig.7).



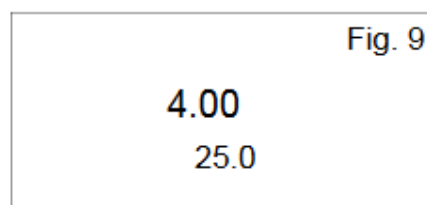
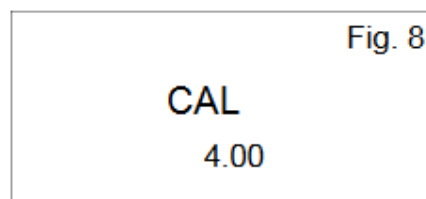
PH 4 or PH 10 Calibration

- Rinse the electrode with distilled water and immerse the electrode in the pH4 or pH10 buffer solution.
- Press the **CAL** Button. The upper display



shows "CAL" and the lower display shows the default calibration value (Fig.8).

- "CAL" will flash on the LCD for around 5 seconds. After that, the meter calibrates itself automatically. The upper display will show the calibrated value, the lower display will show temperature (Fig.9).
- Rinse the electrode again.
- To ensure the highest degree of accuracy, repeat calibration procedures at least two more times, using fresh solution.



4.2 Calibration

4.2.1 Buffer groups

The Education Line pH meters allow you to perform 1- or 2- point calibrations. After selecting your calibration buffer group from one of the three predefined buffer groups in the meter, the buffers are automatically recognized and displayed during calibration (auto buffer recognition).

The three predefined groups are:

B1	1.68	4.01	7.00	10.01		(at 25°C)
B2	2.00	4.01	7.00	9.21	11.00	(at 25°C)
B3	1.68	4.00	6.86	9.18	12.46	(at 25°C)

Tables (B1...B3) for automatic temperature compensation are programmed in the meter for each buffer group (see also Appendix).

4.2.2 Selecting a predefined buffer group

Press the **Setup** key (EL20) or press and hold the **Mode/Setup** key (EL2) until the setup icon appears on the display and the MTC temperature blinks. Press **Read** to ignore – the current temperature unit blinks – press **Read** to ignore again. When the current buffer group blinks, the buffers belonging to this buffer group appear alternating on the display. Use **▲** or **▼** to select another buffer group and press **Read** to confirm your selection. The meter will exit automatically to the measurement screen.

4.2.3 Performing a 1-point calibration

Place the electrode in a calibration buffer and press **Cal**. The calibration icon and the measurement icon appear on the display. The meter endpoints according to the preselected endpoint mode after the signal has stabilized or after pressing **Read**. The relevant buffer value is displayed and stored; the measurement icon disappears from the display.

To finish the calibration and return to the sample measurement, press **Read**. The offset value and the slope are then shown on the display for 3 seconds. To reject the calibration, press **Exit** before the meter returns automatically after 3 seconds to the measurement screen.

Note:

With the 1-point calibration only the offset is adjusted. If the sensor was previously calibrated with multi-point calibration the previously stored slope will remain. Otherwise theoretical slope (-59.16 mV / pH) will be used.

4.2.4 Performing a 2-point calibration

- Step 1: Perform the first calibration as described above in "Performing a 1-point calibration".
- Step 2: Rinse the electrode with deionized water.
- Step 3: Place the electrode in the next calibration buffer and press **Cal**

The measurement icon appears. The meter endpoints according to the preselected endpoint mode after the signal has stabilized or after pressing **Read**. The relevant buffer value is displayed and stored; the measurement icon disappears from the display.

The offset value and the slope are then shown on the display for 3 seconds. To reject the calibration, press **Exit** before the meter returns automatically after 3 seconds to the measurement screen.