historical data, average characteristic levels (e.g., glucose), or the like. Alternative embodiments include the ability to scroll through the data. The display **2208** may also be used with a keypad **2202** on the characteristic monitor to program or update data in the characteristic monitor **2200**. It is noted that the typical user can be expected to have somewhat diminished visual and tactile abilities due to complications from diabetes or other conditions. Thus, the display **2208** and keypad **2202** should be configured and adapted to the needs of a user with diminished visual and tactile abilities. In alternative embodiments, the value can be conveyed to the user by audio signals, such as beeps, speech or the like. Still further embodiments may use a touch screen instead of (or in some cases addition to) keypad **2202** to facilitate water proofing and to ease changes in the characteristic monitor **2200** hardware to accommodate improvements or upgrades.

[**0078**] In further embodiments of the present invention, the characteristic monitor **2200** may be replaced by a different device. For example, in one embodiment, the telemetered characteristic monitor transmitter **2100** communicates with an RF programmer (see FIGS. **1-29**) that is also used to program and obtain data from an infusion pump **1010** or the like. The RF programmer may also be used to update and program the transmitter **2100**, if the transmitter **2100** includes a receiver for remote programming, calibration or data receipt. The RF programmer can be used to store data obtained from the sensor set **2150** and then provide it to either an infusion pump **1010**, characteristic monitor, computer or the like for analysis. In further embodiments, the transmitter **2100** may transmit the data to a medication delivery device, such as an infusion pump or the like, as part of a closed loop system. This would allow the medication delivery device to compare sensor results with medication delivery data and either sound alarms when appropriate or suggest corrections to the medication delivery regimen. In preferred embodiments, the transmitter **2100** would include a transmitter to receive updates or requests for additional sensor data. An example of one type of RF programmer can be found in U.S. patent application Ser. No. 60/096,994 filed Aug. 18, 1998 and is entitled "INFUSION DEVICE WITH REMOTE PROGRAMMING, CARBOHYDRATE CALCULATOR AND/OR VIBRATION ALARM CAPABILITIES," or U.S. patent application Ser. No. 09/334,858 filed Jun. 17, 1999 and is entitled "EXTERNAL INFUSION DEVICE WITH REMOTE PROGRAMMING, BOLUS ESTIMATOR AND/OR VIBRATION ALARM CAPABILITIES," both of which are herein incorporated by reference.

[**0079**] In further embodiments, the telemetered characteristic monitor transmitter **2100** can include a modem, or the like, to transfer data to and from a healthcare professional. Further embodiments, can receive updated programming or instructions via a modem connection.

[**0080**] As shown in FIGS. **30-33**, in preferred embodiments, the microprocessor **2216** is coupled to a data input and output (I/O) port **2210**, and the user can download the stored information to an external computer (see **FIGS. 1, 10** and **29**), or the like, through the data I/O port **2210** for evaluation, analysis, calibration, or the like. Preferably, the data I/O port **2210** is capable of transferring data in both directions so that updated program instructions or reminder alarms can be set by the user or doctor. In preferred embodiments, the I/**0** port **2210** uses infrared (IR) technology, such as that shown and described in U.S. Pat. No. 5,376,070 entitled "Data Transfer System for an Infusion Pump", or the like, which is herein incorporated by reference. However, in alternative embodiments, the I/**0** port **2210** may use other data transfer technologies such as cables, fiber optics, RF, or the like. In still other embodiments, the data I/O port **2210** may include multiple ports to support multiple communication protocols or methods, or may include a universal port capable of transmitting data in several different modes. In preferred embodiments, the stored data may be downloaded to (or new program instructions and data uploaded from) a computer, communication station, or the like. In alternative embodiments, the stored data may be downloaded to (or new program instructions and data uploaded from) an infusion pump, or the like. In preferred embodiments, the characteristic monitor **2200** is the approximate size of a conventional glucose meter or smaller. However, in alternative embodiments, the characteristic monitor **2200** may be formed in larger sizes, comparable to a TV controller or a pocket calculator, and may include a larger display **2208** to facilitate more complicated or easier programming.

[**0081**] The keypad **2202** provides the user with the capability to store additional information, set the date and the time, or set alarms to indicate when to take the next test with the characteristic meter **2300**. The keypad **2202** is used in conjunction with the display **2208** to access the various modes, alarms, features, or the like, by utilizing methods typically employed to set the parameters on a conventional glucose meter, an infusion pump, or the like. The keypad **2202** may also be used to manipulate the stored data in the characteristic monitor **2200** and display the data on the on-board display **2208**.

[**0082**] The programs for controlling the sensor monitor **2212** of the characteristic monitor **2200** are also stored in the ROM **2204**, and sensor data signal values received by the sensor interface **2214** from the sensor set **2150** are processed by the sensor monitor **2212** and the microprocessor **2216**, and then the results are stored in the RAM **2206**. The sensor monitor **2212** and the sensor interface **2214** can be activated by a wired connection to a sensor set **2150** that draws power from the characteristic monitor, by receipt of a signal from the telemetered characteristic monitor transmitter **2100**, or by the keypad **2202**. Preferred embodiments use a characteristic monitor **2200** (in which the system includes a Potentiostat such as sensor monitor **2212**) to receive the sensor signals from a telemetered characteristic monitor transmitter **2100**, as shown in U.S. patent application Ser. No. 60/103,812 entitled "Telemetered Characteristic Monitor System and Method of Using the Same", which is herein incorporated by reference. In alternative embodiments, the sensor signals may be received on a more infrequent (or periodic) basis from a Holter-type monitor system, as shown in U.S. patent application Ser. No. 09/246,661 entitled "An Analyte Sensor and Holter-type Monitor System and Method of Using the Same", which is herein incorporated by reference.

[**0083**] As shown in FIGS. **30-33**, the characteristic monitor **2200** includes a display **2208** that is used to display the results of the measurement received from the sensor in the sensor set **2150** via a cable and connector **2180** attached to the telemetered characteristic monitor transmitter **2100**, or the like. In preferred embodiments, the display device **2208** is an active matrix LCD. However, alternative embodiments