[0059] **FIG. 32** is a perspective view of a characteristic monitor with a characteristic meter in accordance with a second embodiment of the present invention.

[0060] **FIG. 33** is a perspective view of a characteristic monitor with a characteristic meter for use with a telemetered glucose sensor and an infusion pump in accordance with a third embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0061] As shown in the drawings for purposes of illustration, the invention is embodied in a remote programmer and/or a handheld personal data assistant (PDA) that includes a medical device module for interfacing with a medical device. In preferred embodiments, medical device module interfaces with a characteristic monitor that obtains data from a telemetered characteristic monitor transmitter connected to a sensor set that determines body characteristics on a continuous, near continuous or intermittent basis. In further embodiments of the present invention, the medical device module interfaces with a characteristic meter for obtaining discrete measurements. In particular embodiments, the measurements received from the characteristic meter can be utilized by a characteristic monitor for calibration and/or data analysis and verification. In preferred embodiments, the characteristic monitor interfaces with a telemetered characteristic monitor transmitter that uses a sensor set and is for determining glucose levels in the blood and/or bodily fluids of the user. Preferably, the characteristic meter is primarily adapted for use with test strips that use a blood sample to determine glucose levels. However, other embodiments of the characteristic meter may use other testing structures, such as liquid samples placed in a receptacle, or the like, or test strips that use samples from other fluids, such as interstitial fluid, spinal fluid, saliva, urine, tears, sweat, or the like. However, it will be recognized that further embodiments of the invention may be used to interface with other telemetered characteristic monitors transmitters and/or meters to determine the levels of other agents, characteristics or compositions, such as hormones, cholesterol, medication concentrations, viral loads (e.g., HIV), or the like. In preferred embodiments, the characteristic monitor and sensor are primarily adapted for use with subcutaneous human tissue. However, still further embodiments may be placed in other types of tissue, such as muscle, lymph, organ tissue, veins, arteries or the like, and used in animal tissue. Other embodiments of the present invention may interface with other medical devices, such as pacemakers, implanted analyte sensor patches, infusion devices, telemetry devices, or the like.

[0062] As illustrated in **FIG. 21**, preferred embodiments of the infusion device **1010** include a remote RF programmer **1012**, a carbohydrate (or bolus) calculator **1014** and/or a vibration alarm **1016**. The RF programmer **1012** and carbohydrate calculator **1014** communicate with a processor **1018** contained in a housing **1020** of the infusion device **1010**. The processor **1018** is used to run programs and control the infusion device **1010**, and is connected to an internal memory device **1022** that stores programs, history data, user defined information and parameters. In preferred embodiments, the memory device is a ROM and DRAM; however, in alternative embodiments, the memory device **1022** may include other memory storage devices such as RAM, EPROM, dynamic storage such as flash memory, energy efficient hard-drive, or the like. In preferred embodiments, the infusion device **1010** is an external infusion pump that is programmed through a keypad **1024** (including keys **1108**, **1110**, **1112** and **1114**) on the housing **1020** or by commands received from the RF programmer **1012** through a transmitter/receiver **1026**. Feedback to the infusion device **1010** on status or programming changes are displayed on an LCD **1028** and/or audibly through a speaker **1030**. In alternative embodiments, the keypad **1024** may be omitted and the LCD **1028** may be used as a touch screen input device or the keypad **1024** may utilize more keys or different key arrangements then those illustrated in the figures. The processor **1018** is also coupled to a drive mechanism **1032** that is connected to a fluid reservoir containing fluid that is expelled through an outlet **1036** in the reservoir **1032** and housing **1020**, and then into a body of a user through tubing and a set **1038**. In further alternative embodiments, the keypad **1024**, LCD **1020**, speaker **1024** may be omitted and the infusion device is implanted in a body of the user, and all programming and data transfer is handled through the RF programmer **1012**.

[0063] Several programming options will be available in the infusion device **1010**, and will include up to three customized basal profiles, a carbohydrate (or bolus) calculator and an alarm clock, as well as remote and on-device programming. Additionally, a physician/educator will be able to configure the infusion device **1010** through a Communications Station **1008** to provide or restrict access to certain programming options. Particular embodiments of the infusion device **1010** will also download stored information through the Communication-Station. Further description of a Communication Station of this general type is be found in U.S. Pat. No. 5,376,070 to Purvis et al., entitled DATA TRANSFER SYSTEM FOR AN INFUSION PUMP, which is herein incorporated by reference. This information can be used alone or combined with information from a Glucose Meter and/or a Glucose Sensor to assist the user and/or the health care professional in making intelligent therapy decisions. Moreover, the information, programs and data may be downloaded to a remote or local PC, laptop, station, or the like, for analysis and review by a MiniMed or a trained health care professional through the transmitter/receiver **1026**. The data may also be downloaded through a Communication-Station **1008** to a remotely located computer **1006** such as a PC, lap top, or the like, over communication lines, by modem or wireless connection, as shown in **FIG. 25**.

[0064] The remote RF programmer **1012** (or remote commander) will enable the user to perform basic external infusion device **1010** programming steps without accessing the keyboard **1024** on the external infusion device **1010** or looking at the LCD (Liquid Crystal Display) **1028** screen. This will benefit visually impaired users of the external infusion device **1010**, since the remote RF programmer **1012** will give them ready access to the most commonly used operations of the external infusion device **1010**, and will obviate the need for visual feedback. Of particular importance to the sight impaired will be the auditory feedback (and/or vibration feedback as discussed below) that the external infusion device **1010** will provide. The instructions from the RF programmer **1012** will be confirmed by a series of audible beeps (or if requested by programming, vibration) from the external infusion device **1010**. In alternative