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Rev -

USERS MANUAL

FOR THE

IRESPOND SYSTEM

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Note: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by Micro Systems Inc. could void the user's authority to operate the equipment.

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LIST OF ACRONYMS

AC	Alternating Current
DC	Direct Current
ID	Identification
LCD	Liquid Crystal Display
PC	Personal Computer
RF	Radio Frequency
RSS	Rapid Scoring System
SIM	Student Interactive Module

1.0 SCOPE. This document provides information on the setup and operation of the IRespond System. The IRespond System is used in a classroom environment to allow an instructor to automate the test taking and grading process.

2.0 System Overview. The IRespond System consists of a single base station, thirty hand held remote modules and a software package which executes on a personal computer (PC) with a Windows XP operating system. The software package administers tests and questions from the instructor's PC to the individual remote users. The handheld units communicate over a wireless Radio Frequency (RF) link to a base station and utilize rechargeable batteries for " no wires" operation. Figure 1. illustrates the IRespond System operation.

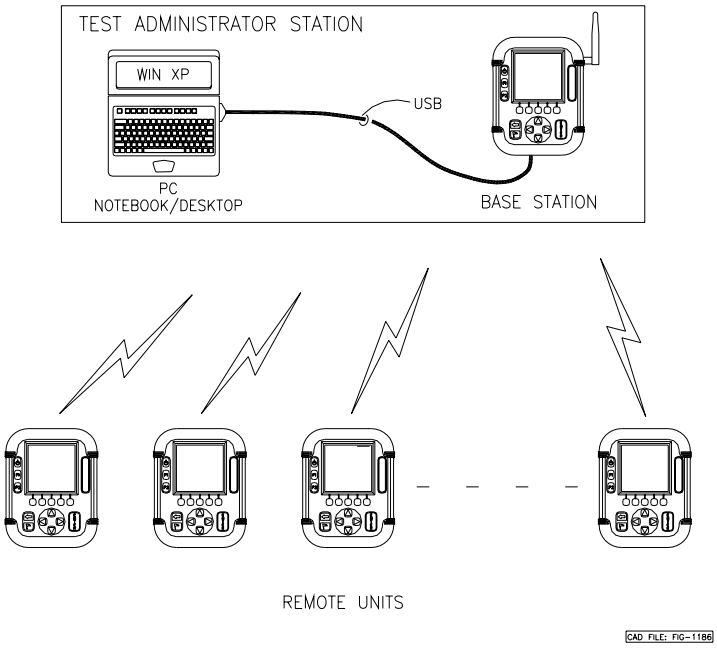

Figure 1. IRespond System Operation

2.1 Base Station Description. The base station controls message traffic flow between the PC and the Remote units. Note that the base station is a modified version of the Remote. A Universal Serial Bus (USB) interface and and a different software package are the major differences between the base station and Remote physically. The Liquid Crystal Display (LCD) display and keypad are used for diagnostic test and status display on the base station. Also the base station features an external antenna. Figure 2 illustrates the features of the base station.

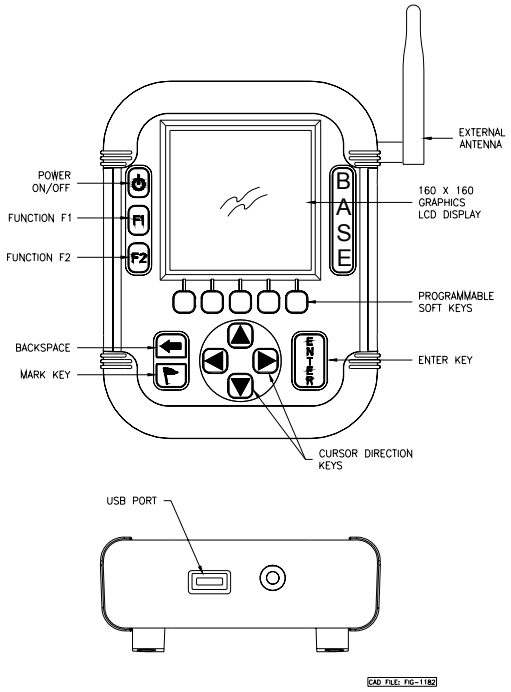

Figure 2. IRespond Base Station

The base station contains software to collect and distribute information between the Remotes and the IRESPOND software package on the PC. The software has two main functions; first the software manages the radio frequency traffic between the devices and then secondly communicate data to the PC via the USB port.

Base Station Set Up. Connect the supplied USB cable to the base station USB connector at the bottom of the unit. The base station derives DC power from the USB port. Press the power button to power the unit on. A second key press to the power switch will turn the unit off. The base station will display connection status to the PC USB link and status of the RF links indicating by the universal identification number for each Remote device logged into the base station.This display is shown in Figure 3.

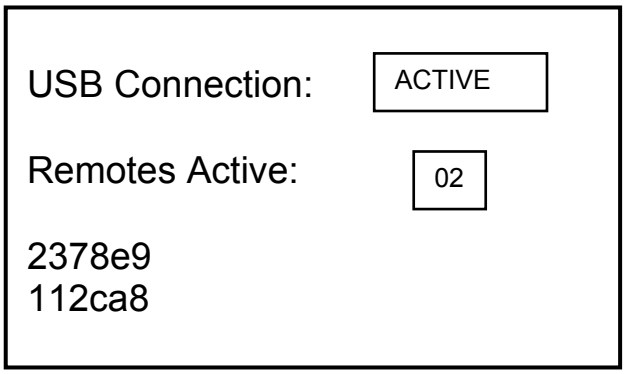

Figure 3. Base Station Display

2.3 Remote Module Description. The Remote provides the data entry point for the user of the IRespond system. The LCD graphics display, the programmable soft keys and cursor keys allow the user to quickly enter data for transmittal to the base station. Figure 4 shows the Remote features. Table I below explains the keypad assignments.

Table I. Keypad Functions

KEY	FUNCTION
Power	applies power to unit
F1	programmable function key
F2	programmable function key
S1-S5	programmable soft keys , for answer selection
Backspace	move cursor to previous position
Flag	mark undecided answer
up arrow	cursor up
right arrow	cursor right
down arrow	cursor down
left arrow	cursor left
enter	execute

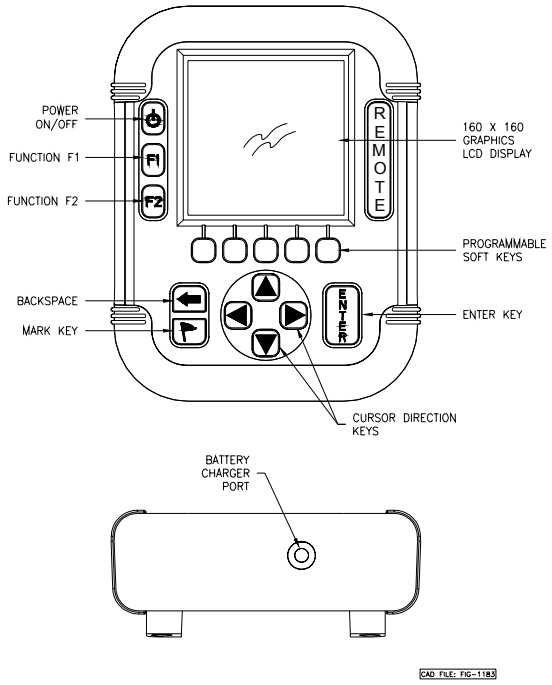

Figure 4. Remote Features

To turn the unit on press the power key. To turn the unit off, press the power key again. Note that during testing the power off function is disabled until the test time has elapsed or enabled by the base station.

2.4 Remote Operation. The Remote units operate in concert with the base station, therefore the base station must be powered on and communication established with the IRESPOND application prior to Remote activation. When the Remote user turns on the unit the device requests the user to enter his or her personal User Identification (ID) and password using the virtual keyboard display. Upon completion of this information , the ID and password are sent to IRESPOND. Upon recognizing the user the IRESPOND system will pass back the test the user is assigned.

The test can be displayed to the user in two ways. First is at a summary level that lists the test question number and shows the answer choice selected, if any. The second is a detail question level that shows the question number, the first 20 characters of the test question, and the answer choices below. The second level is where the user will actually take the test. For example, the user will review the first question and decide which answer choice to select and press the button on the hand held Remote. Once the selection is made, the answer selected will change shape and then the SIM will move to the next question.

Periodically the Base station will poll the devices and collect information. The answers selected by the user will be retrieved and temporarily stored by the base station. In

addition, information about the user, the number of questions answered/remaining, and the device number the user is employing can be displayed on the personal computer display.

When the user has completed the test, the user will submit the test for scoring. The Remote will deliver any remaining or updated information to the Base Unit PC. This information will be passed through to IRESPOND for immediate grading and storage. Once the test has been graded the instructor will have the ability to immediately review results and/or print reports.

2.5 Battery Charging. The Remote units are shipped with battery packs installed but uncharged. The battery charger is capable of bringing a battery pack from completely discharged to fully charged in approximately 3 hours. The Remote utilizes NiMH batteries in a 3 cell configuration. The Remote provides a low battery indication when the batteries reach 20% of capacity. Battery life is dependent upon operator use. The battery charger is connected to the Remote with a short 2 foot cable. One end of the cable has a 3 pin connector which inserts into the battery charger. The other end of the cable has a single prong audio jack connector which is inserted into one end of the Remote. The remote is not powered on during charging. While charging the battery charger will illuminate a red LED. When charging is complete the red LED will extinguish. The battery charger and cable are shown in Figure 5.

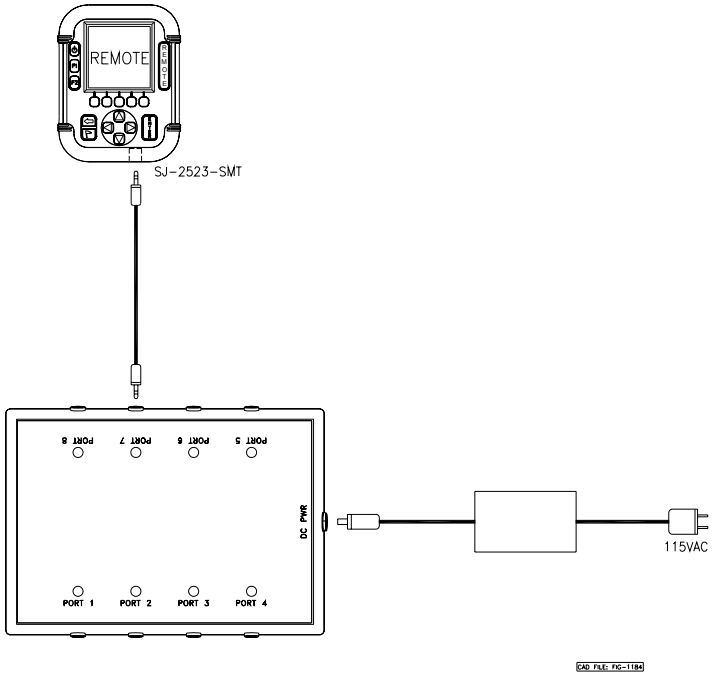

Figure 5. Battery Charger

2.6 Battery Pack Replacement. In the event that a battery pack will not remain charged and needs replacement then refer to Figure 6. Place the Remote on a flat surface with the display face down exposing the battery pack compartment on the rear of the Remote. Remove the battery cover screw with a cross tip screw driver. Press down on the battery pack connector clip on the pack in the unit. Gently remove the battery pack connector clip and remove the battery pack. Insert the new battery pack connector clip onto the mate within the unit ensuring that the clip snaps into place. Put the battery pack into the battery compartment. Replace the battery cover and re-install the battery cover screw.

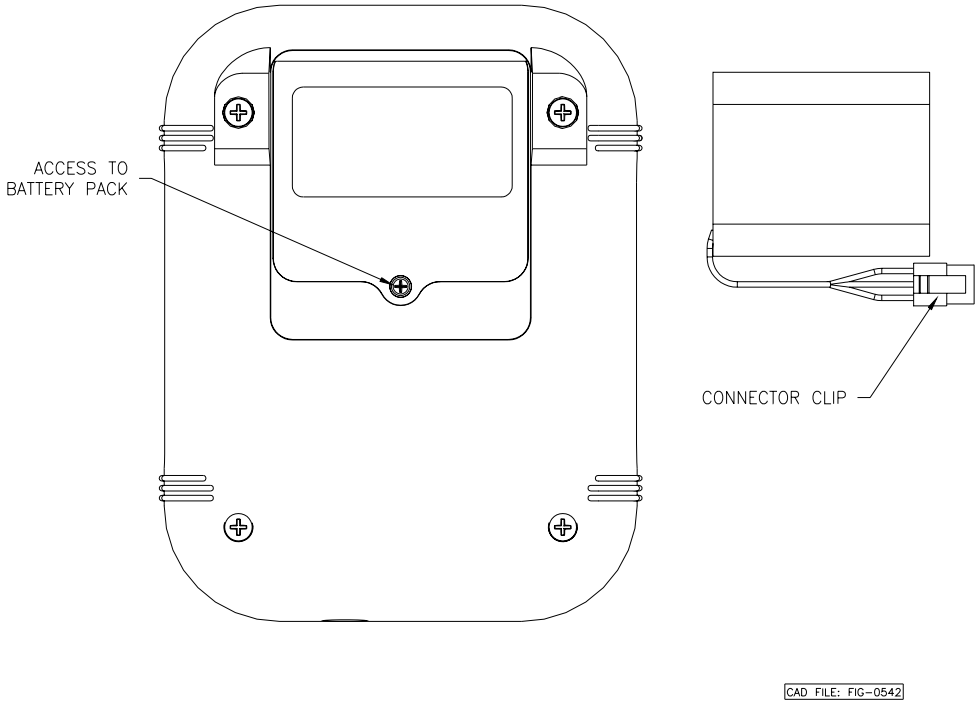

Figure 6. Battery Pack Replacement