

UniSmart™ Handle

User Manual



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1. INTRODUCTION

The UniSmart Handle™ is designed to promote high-quality therapeutic exercise for physiotherapy patients, members of fitness/wellness centers and those exercising at home. Used with elastic exercise bands or tubes the UniSmart™ Handle is a practical and simple digital interface for resistive exercise.

When used by therapists the UniSmart Handles provides real-time feedback by displaying force and repetition data. This enables therapists to see and record the specific data needed for reliable, evidence-based exercise programmes that help maximize patient strength and function in the shortest period of time possible.

Use the UniSmart Handle to:

- O Guide strengthening exercises.
- O Objectively measure and set precise resistance levels.
- O Count and indicate the number of repetitions of a specific exercise.
- O Encourage quality exercise by setting resistance targets and using immediate audio & visual signals to cue range of motion and resistance targets.
- O Wirelessly transmit performance data from the UniSmart Handle to your Bluetooth® enabled computer.
- O Record detailed exercise information to document skilled therapy services.

For additional information and online education, please visit www.unismarhandle.com

2. THERAPY ADVANTAGES

OBJECTIVITY

Therapists constantly face challenges that limit their ability to help patients achieve their therapy goals. Limited treatment times, an insufficient number of patient visits and capped payments can all affect successful patient outcomes. It is therefore vital that the therapist provides evidence-based treatments that are designed to maximize patient outcome in the shortest period of time.

Resistance exercises with elastic bands and tubes designed to improve muscle strength are one of the most essential and frequently provided forms of physiotherapy treatment. Research demonstrates that excellent muscle strengthening is achieved when specific exercise parameters, including body/limb position and range of motion, are precisely replicated each time the exercise is performed. Most critically, the intensity of the exercise (resistance level) must be sufficiently challenging to the patient, and as the patient strengthens over time, the resistance increased. In other words, to be effective the exercise must be both consistent and progressive; hence the term **Progressive Resistance Exercise, (PRE)**

Keeping track of specific exercise resistances is easy when using cuff weights, dumbbells, and weight machines because the amount of resistance, or weight, is usually clearly labeled. However, this objectivity currently does not exist when using resistive elastic bands.

When having patients exercise with elastic bands, the UniSmart™ Handle helps therapists simply and quickly determine specific exercise resistance by displaying the actual forces generated during each exercise.

When attached to a standard 10cm wide resistive elastic band, the UniSmart Handle displays the **peak force** generated by the patient (or therapist) during a single repetition. This information provides the therapist with detailed information needed to determine the optimal resistance appropriate for that exercise and patient.

Strength exercise research suggests that when a patient momentarily fatigues a muscle group between 8 to 12 repetitions of a strength exercise, the resistance is roughly 70% to 80% of one repetition maximum (1RM). This intensity is recommended in many clinical exercise guidelines as it represents a level of difficulty that is not too stressful to patients yet sufficient to generate rapid strength gains. The UniSmartTM Handle helps therapists to determine an actual 1RM value used to calculate the specific targeted exercise intensity.

For example, if the patient's 1RM is 5kg and the prescribed exercise intensity is 80% of RM, then the initial resistance load is 4kg.

In addition, research demonstrates that resistance must be progressed for muscles to strengthen. So, progressive increases in resistance levels are necessary over subsequent exercise sessions. The UniSmart Handle enables these increases to be made systematically and accurately. Let us look at how this is accomplished.

Seventy to 80% of a 1 RM is challenging enough so that when exercising at that intensity most people experience momentary muscle fatigue between 8 and 12 repetitions. If exercising to momentary fatigue, a patient demonstrates increased strength when they perform more repetitions at the same resistance level. If initially a patient fatigues between 8 and 12 repetitions and during a subsequent exercise session performs more than 12 repetitions, the intensity is then less than the target intensity of 70-80% of a 1 RM. Therefore after 12 or more repetitions the resistance should be increased. The challenge is to know when to increase the resistance and by how much.

Research suggests that when progressing resistance for those exercising from 70% to 80% of a 1RM the appropriate amount of an increase is 5%. An increase of 5% usually results in patients performing no fewer than 8 repetitions during the subsequent exercise session. Limiting the increase to 5% helps protect patients from over-exertion and ensures that they continue to exercise at the resistance range/dosage of 70% to 80% of 1 RM.

Here's an example of how objective data from the UniSmart Handle can provide the objectivity necessary to present high-quality, evidence based strength exercise.

A patient performs elbow flexion with the UniSmart™ Handle. During the initial exercise session, the therapist determines that the appropriate resistance for the patient is 5 kg. The patient fatigues during the 11th repetition. Because this is fewer than 12 repetitions the resistance is kept the same at 5 kg during the next exercise session. When performing the same exercise during the second exercise session, the patient fatigues during the 14th repetition. Since this is more than the 12 reps for the third exercise session; the resistance for the exercise is increased by 5% (. x 1.05) to 5.25 kg. The therapist chooses either a stronger level of band or sets the length of the band within the UniSmart™ Handle so the new resistance is level can be set at 5.25 kg. This is precise dosing of resistance helps optimize both patient safety and treatment outcomes.

BIOFEEDBACK

People typically perform at a higher capacity when they receive useful feedback relevant to their performance. Therapy patients are no different. The UniSmart™ Handle provides patients with specific feedback:

- (a) The peak force of each repetition.
- (b) The number of repetitions performed.
- (c) Adjustable audio signals & synchronously visual signals to cue the patient when repetition or peak force targets are achieved.

Furthermore, patients are naturally engaged and motivated by technology. While resistive elastic bands are 'low-tech' products and may be perceived by some patients as very simple form of exercise, they are none-the-less a very economical and user-friendly exercise tool. **The UniSmart Handle adds not only clinical value but sophistication to band exercise, thereby influencing patient perceptions and enhancing the professionalism of a therapy clinic.**

CONTROL

Without close oversight and detailed monitoring, patients performing strength exercises with resistive elastic bands often use poor technique: this can be in the form of incomplete range of motion, inadequate (or excessive) resistance, and/or improper body/limb position and substitute movements. The UniSmart Handle

technology, along with the band attachments, inherently encourages the performance of good-quality exercise. The UniSmart Handle provides patients with exercise targets, guiding patients with audio cues when resistance and/or repetition goals are achieved thus promoting high-quality resistance exercise.

DEFENDABLE DOCUMENTATION

Health Services, governmental agencies and medical insurance companies have steadily increased therapy documentation requirements. They want to see objective data that reflects progress, or lack thereof. This includes an increased focus on Therapeutic Exercise therapy procedures with reviewers closely scrutinizing if exercises are skilled in nature, versus rote unskilled activities. The UniSmart Handle provides essential, detailed resistance data and repetition figures that can be recorded at each therapy session to reflect the mindful and skilled therapy services provided to govern strength exercise. The reports produced by the UniSmart Handle clearly show the patient's progress and can be printed out and when required attached to the patient's record

The results of each strength exercise can be downloaded from the UniSmart Handle directly to a Bluetooth-enabled device such as a lap-top computer or a portable thermal printer. The captured information efficiently and effectively guides therapists to better tailor a patient's treatment plan based on the logical progression of strength exercises. This level of detail can result in optimal therapy results, shorter time to maximal patient function and better clinical patient outcomes overall.

For example: Compare these two patient therapy notes describing a single strength exercise:

- 1. Elbow flexion performed with green band. 2 sets of 10. Increased resistance from red band last week.*
- 2. Elbow flexion performed with blue band using 3.15kg of resistance. Patient receiving cues to insure full repetition each repetition. Resistance increased from 3 kg last week.*

CLINICAL BENEFITS

The UniSmart Handle can be used as part of an exercise programme to:

- o Improve muscle strength
- o Improve muscle power
- o Improve range of motion
- o Improve posture
- o Improve balance and proprioception
- o Improve gait
- o Enhance grip strength
- o Improve cardiovascular function
- o Increase blood circulation

3. SAFETY

- The UniSmart Handle should only be used with designated resistive bands. **NOT ALL BANDS ARE SUITABLE.** A list of approved resistive bands is shown in Section 8 of this manual.
- **Always follow the specific safety directions issued by exercise band manufacturer.**
- Be extra cautious when using exercises that involve stretching the resistive band toward the face and head as sudden release of tension could cause injury to the face or eyes. Protective eyewear should be worn if performing this type of exercise.
- Avoid any exercise that could cause the patient or band user to lose balance and fall if the band attached to the UniSmart Handle should suddenly snap or slip during the exercise.
- Avoid any exercise that could cause the patient's limbs move rapidly back and hit an close object or person should the band attached to the UniSmart Handle should suddenly snap or slip during the exercise.
- For patients using the UniSmart Handle as part of home therapy, it is very important to instruct the patient on safe and proper use of the UniSmart set to avoid injury.
- Inspect the resistive band before use for small nicks, tears, or punctures that may cause the band to break. If you find any such damage in the resistive band, discard the damaged band and replace with a new band before performing any exercises. Always examine the surface of the bands for signs of damage (i.e. cracks or tears) before use.
- Ensure a proper length of band to provide better user control and to avoid high pull forces.
- Never use bands that have been cut down in width.
- Make sure the resistive band is securely gripped and locked in the UniSmart Handle or its attachment before use. (i.e. you will hear a 'click' sound when the clip is locked.)
- When using the accessories such as the door anchor or the extremity cuff, make sure the accessory is fixed securely between the door and the door frame. **Always position the exerciser so that the door opens away from the user.** If the door has a lock, lock it to prevent unexpected door opening by another person. Tug on the anchor to test for stability before exercise to make

sure the anchor does not slip during exercise.

- o Always use a fresh piece of band for each and every exercise session.
- o To avoid excessively high resistance levels do not use a band that is too short. The minimum band length between the grips should always be greater than 30 cm.
- o Some brands of exercise bands have a fine wax bloom or powder coating on the surface of the band (this is to preserve the band) and this coating can affect the grip. Follow the band manufacturer's instructions for cleaning any surface contamination from the band.
- o If the resistance band is slipping from the band clamp, use a light wipe with alcohol (isopropanol) to clean the inside face of the clamp grips. NEVER APPLY ACHOHOL OR OTHER ORGANIC SOLVENTS DIRECTLY ON THE BANDS, only to the clamp grip surfaces. If the clamp mechanism or the clamp faces are damaged in anyway contact your local UniSmart Handle agent for repair.
- o Do not overstretch bands by more than 2 times its resting length. Example: a 30cm band should not be stretched to more than 90cm total length.
- o Do not use the UniSmart Handle while charging the battery. The system will beep and automatically turn off when the charge signal is detected
- o Do not tamper with the casing or change/remove any of original parts. This will **VOID** the warranty.
- o Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

PRECAUTIONS



Always consult a physician or therapist before starting any exercise program.



U.S. Food and Drug Administration warns that Radio Frequency Identification Devices can cause malfunctions in Pacemakers and Cardioverter-Defibrillators. The UniSmart Handle can wirelessly transfer exercise data via Bluetooth transmission at Radio Frequency. Please keep a minimum separation distance of 2.5 cm when using the Bluetooth transmission.



To prevent possible disruption of function, keep UniSmart Handle at least 10 feet from microwave or shortwave diathermy equipment.



For patients, your physician or therapist should develop an individualized exercise programme to meet your needs and abilities.



UniSmart Handle and resistive elastic bands are not toys; consult a physician or therapist before allowing children to exercise with elastic resistance bands.



With any exercise programme, muscle soreness may be experienced over the first few days. If considerable muscle soreness persists for more than 3-4 days, consult your physician or therapist. Do not exercise if experiencing pain.

If you experience sharp pain, shortness of breath, dizziness or light-headedness with any of these exercises, stop immediately and contact your healthcare provider.

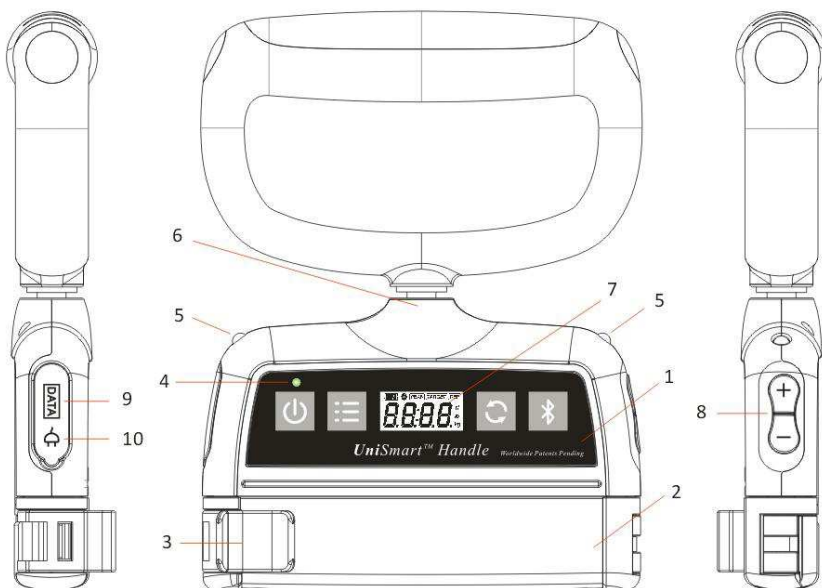
MAINTAINENCE

- o Always inspect the band before use for small nicks, tears, or punctures that may cause the band to break. If you find any flaws, discard the product and replace before performing any exercises. For band maintenance, please follow its manufacturer's instructions.
- o Store the UniSmart Handle and accessories out of direct sunlight and away from extreme temperatures.
- o After each use, wipe the UniSmart Handle with a clean damp cloth.

4. PRODUCT COMPOSITION

UNISMART HANDLE

- 1- Control Panel
- 2- Band Clamp
- 3- Locking Clip
- 4- Charge Indicator
- 5- Operation Indicator
- 6- Accessories Connector
- 7- LCD Indicator
- 8- Up/Down Button
- 9- Data Connector
- 10- Charge Connector

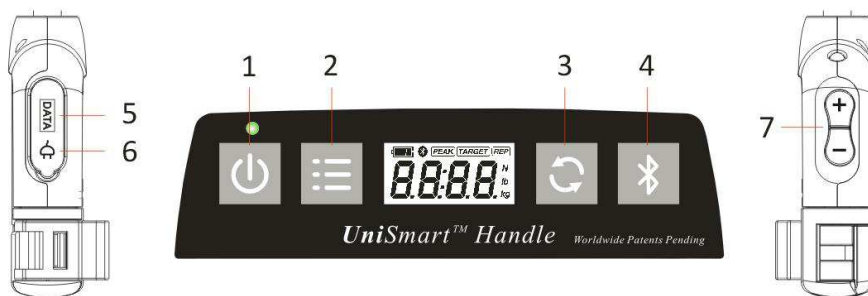


PRIMARY COMPONENTS

- 1- Door Anchor
- 2- Limb Strap
- 3- Dumb Handle
- 4- Bluetooth Printer & power supply (Optional)
- 5- Power supply unit
- 6- Webbing handle



CONTROL PANEL



1	POWER	Power device on and off.
2	MENU	Mode Setting F-0: Peak Force (testing the maximum force of patient) F-1: Target Force (Target force training) F-2: Repetition (Target repetition training) F-3: Rep & Target (Combination training) F-4: Wireless Transmission (PC/Printer) F-5: Volume Contorl (1-10 increments) F-6: Unit (lb, kg, N) F-7: ID setting (0000-9999)
3	SET/RESET	Set and save the parameters for each mode/Clear previously recorded data and reset (zero) the transducer.
4	DATA TRANSFER	Send the last captured data set via Bluetooth on ACP Printer to print formatted report. Press and hold the Print button for 2 seconds to start the sequence for printer identification and Bluetooth ID
5	DATA	Upgrade the firmware and calibrate the load cell through this data transmission port if necessary.
6	DC 6V	Charge the battery, the “CHARGE” indicator is lit when charge is activated through the power supply unit.
7	Up/Down Button	Select up/down the MODE and Parameters.

LCD DISPLAY



Battery Indicator (2 segments)

Mode Selection

PEAK

- PEAK: Display in real-time and peak force

TARGET

- TARGET: Target force setting

REP

- REP: Repetition Setting

TARGET REP

- TARGET+REP: Target force + Repetition Settings



Bluetooth Indicator (Status for wireless connection)

N

Force Unit: N, lb, kg

lb

N: Newton increment by 1 N

kg

lb: Pounds increment by 0.1 lb

kg: Kilograms increment by 0.1 kg



Digital display of measured force

BAND GRIP RANGE

- The UniSmart Handle is made to grip *only* designated brands of resistant bands with specific thicknesses (0.17mm ~ 1.2mm) to perform the progress training. See Section 8 for list of approved bands.
- UniSmart Handle is capable of gripping the **approved elastic bands** at single or double layers.
- To avoid slipping risk due to band overstretch make sure to retain a safe grip length (about the width of a hand palm) on the loose end of the band when fastening the band into the grip.
- **Note:** Do not overstretch the elastic band by more than 2 times its resting length. Example: a 10" band should not be stretched to more than 30" total length.
- **Do not use fold the band over on itself or use a band that is greater than 4 inches (10cm) in width. As this will result in it slipping from the grip when the band is stretched.**

LABELLING

Mode	Function
F0	Peak Resistance
F1	Target Resistance
F2	Repetition Resistance
F3	Combination (Peak, Target, Repetition)
F4	Data Print via Bluetooth
F5	Volume Control (0, 1-5)
F6	Unit Setting (N, lb, kg)
F7	ID Setting (0000-9999)

Be sure the band is securely anchored to a sturdy object or attachment.
 Do not overstretch bands by more than 3 times its resting length.
 Band Thickness: 0.17 ~ 1.2mm
 Force Range: 0-50lb (0-23kg/0-222N)

UniSmart™ Handle
Model Name : ZSH-BK
Serial Number: 072BK90001
Adaptor: PROTEK POWER, PMP15M-10-B7
DC Input: 5V,3A

ZMI ELECTRONICS, LTD
 6F-1, No.286-4 Shin Ya Road
 Kaohsiung, Taiwan 806
2012-08

Compliance with IEC60601-1:2005 & IEC60601-1-2:2007
 FCC ID: PD SZSH00201200YPM
 This device complies with part 15 of the FCC Rules.
 Operation is subject to the following two conditions:
 (1) This device may not cause harmful interference, and
 (2) This device must accept any interference received,
 including interference that may cause undesired
 operation.



CE compliance mark



European Union Directive on
Waste from Electrical and
Electronic Equipment



Consult instructions
for use



BF type applied part (grip)



Attention



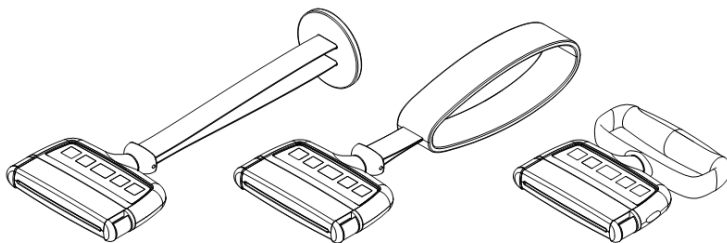
QR Code
Link to the online education
www.unismarthandle.com



Manufacturer and
Manufacturing Date

5. INSTALLATION FOR USE

INSTALLATION OF ACCESSOIRES



Each accessory has a “Y-shaped” KEY structure (see pictures below). Plug the key into the “Socket” of UniSmart or dumb handle, and then press and rotate to lock the KEY in place.

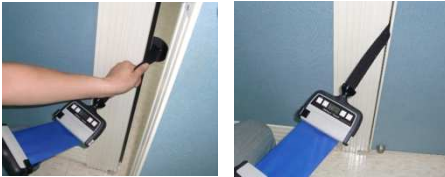
Key and Socket structure



- o Installation: Insert, press down and rotate to lock the accessory in place.
- o Uninstallation: Press down and rotate, and pull to remove accessory.



O Door Anchor



*For safety, place the door anchor between the door and the door frame. **Always position the exerciser so that the door opens away from the user.** If the door has a lock, lock it to prevent unexpected door opening by another person. Tug on the anchor to test for stability before exercise to make sure the anchor does not slip during exercise.

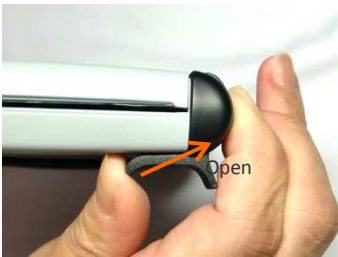
O Upper/Lower Extremity Strap



*For safety, please make sure the Velcro® strap is firmly attached.

INSTALLATION OF BAND

Step1: Locate the locking clip on the UniSmart Handle and use your thumb to open up the Locking Clip.



Step2: Use the appropriate length of 10 cm wide band for the clamp. For safety, the band should always extend beyond the clamp by at least the width of a palm. Close the Locking Clip and lock the clamp firmly.



Step3: Repeat the same procedure with the dumb handle band clamp.

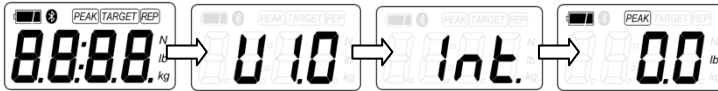


6. OPERATION INSTRUCTIONS

UNISMART HANDLE

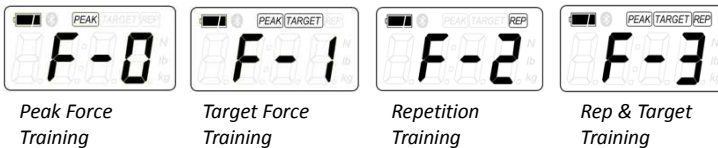
Step1: Press the **POWER** button for 2 seconds to power on the device.

The LCD display will show the software version, initialize data, and when complete, default then turn to measurement display status.

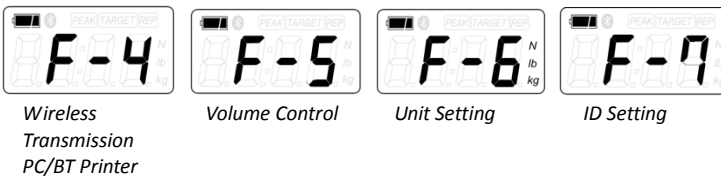


Step2: Press and hold the **MENU** button for 2 seconds to enter into the mode selection. Press **UP/DOWN** button to select the desired training mode or setting mode.

o Training Mode



o Setting Mode



Step3: Start the band exercise. After the user completes a full repetition, concentric force e.g. “pull (>1kg)-and eccentric release(<0.5kg)” as a cycle, the device will beep, and display the peak force value and show the force on the LCD display. (**Note:** Maximum recording: 1000 cycles per each exercise)

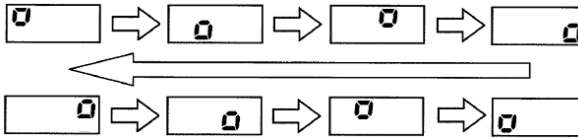
Step4: When a set of exercises is complete, to print the exercise data press and hold the **PRINT** button for 2 seconds. The data of the last set is transmitted via wireless Bluetooth to the Bluetooth printer.

*Note: The PC (current version for Windows® PC Only) must have the Bluetooth Chip/Dongle and install the designate software for transmission. Download it and go through the detailed guideline from www.unismartuniversity.com

*Note: The Bluetooth printer or PC must be turned on before transmission.

Once the **PRINT** button is pressed, the device will show the Bluetooth

symbol  and enter into Bluetooth printer search mode. The LCD displays the sequence as below.



Once the report has been printed, the LCD displays “P” and then returns to the default display. If the report fails to print, the LCD displays “noP” and returns to the default screen.



Step5: After the report has been printed and before starting a new set of exercises, press the **SET/RESET** button to clear previously recorded data. Repeat the Step2 to Step5 for each new exercise.

Note: To save battery power, when the device idles for over 30 seconds, the LCD backlight will dim but the unit is still active. When the device idles for over 2 minutes, the unit will automatically shut down.



HOW TO APPLY THE VARIOUS MODES TO CLINICAL PRACTICE

MODE F-0: Use to calculate specific exercise intensity dosage (lbs, kgs, Nm)

Perform a single repetition through the full range of motion (ROM). The peak force is displayed, wherever it occurs in the ROM. Multiply that figure by the desired strength exercise intensity to calculate the target peak force.

*Example - Peak force during the repetition is 22.2 lbs. The exercise intensity is 80% of 1 RM. Therefore, the exercise-specific resistance dosage is: $22.2 \times 0.80 = 17.8$ lbs (approximately 18#).

MODE F-1: Use to provide feedback to patient that target force is achieved

This mode enables the patient and you to receive audio (and/or visual) feedback each time the specific strength exercise resistance dosage is met or exceeded. This mode is particularly beneficial when the peak force occurs toward the maximum elongation of the elastic band. Therefore, the patient is prompted to move through his/her full ROM while exercising.

*Example – Using the same exercise data as in MODE F0, chose the color elastic band that offers around 15 to 20 lbs of resistance. Anchor the ends of the band so that a single repetition provides 18 lbs of force (NOTE: use Mode F0 to determine this). Once the band color and length is determined, using Mode F1, enter the peak force target of 18 lbs. Have the patient exercise to momentary fatigue or for a set number of repetitions (SEE: Mode F2 and Mode F3).

MODE F-2: Use to set repetition targets

Enter the number of repetitions you want your patient to perform for the set of exercise. This mode is used when you want a particular limit on the number of repetitions a patient performs and do not want them to exercise to momentary fatigue.

MODE F-3: Use to set both target force and repetition

This mode enables you to set both the target force and the repetition goal for the specific exercise. This mode is used when you want a particular limit on the number of repetitions, do not want them to exercise to momentary fatigue, but do want motivate them to achieve a specific peak force target for each repetition.

PC TRANSMISSION

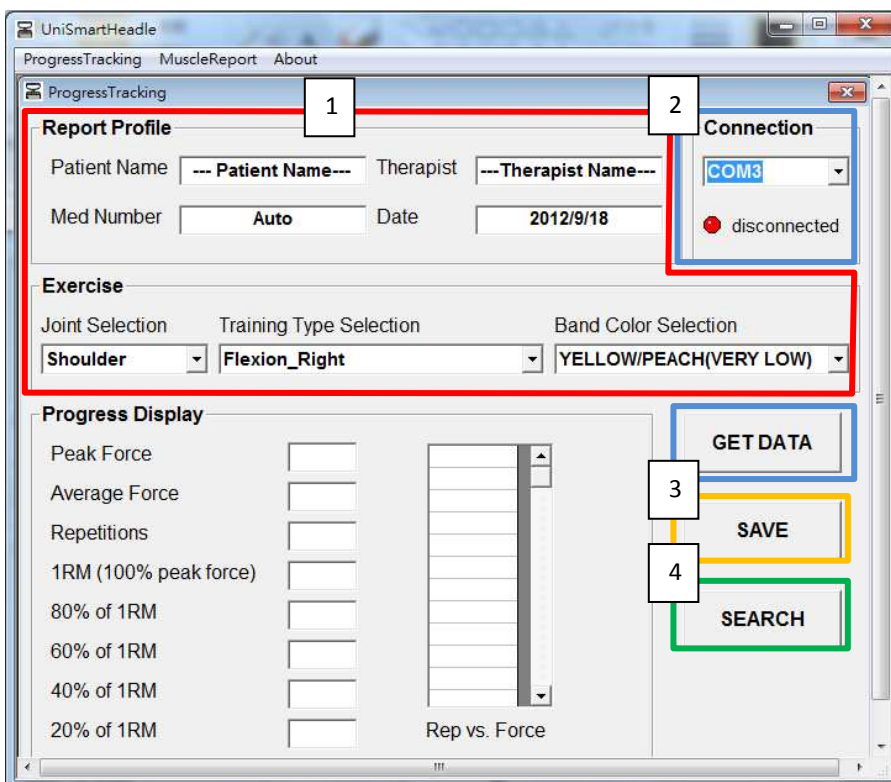
Before usage, make sure your PC is being plugged in the Bluetooth Dongle and paired with UniSmart Handle. (PIN Code: 0000)

Step1: Open the “Progress Tracking” program and edit the **Report Profile** and **Exercise** parameters.

Step2: Select **Connection** COM Port Number on the screen (given by Windows® OS after Bluetooth pairing), press **PRINT** button on the Omnismart Handle; it will beep for 2 min and wait for pairing. Press **GET DATA** on the screen before Omnismart Handle beeps off. Force data will be automatically transmitted from Omnismart Handle and shown in the program.

Note: when the Omnismart Handle shows “noP”, please try Step2 again.

Step3: Press **SAVE** to save the data into database

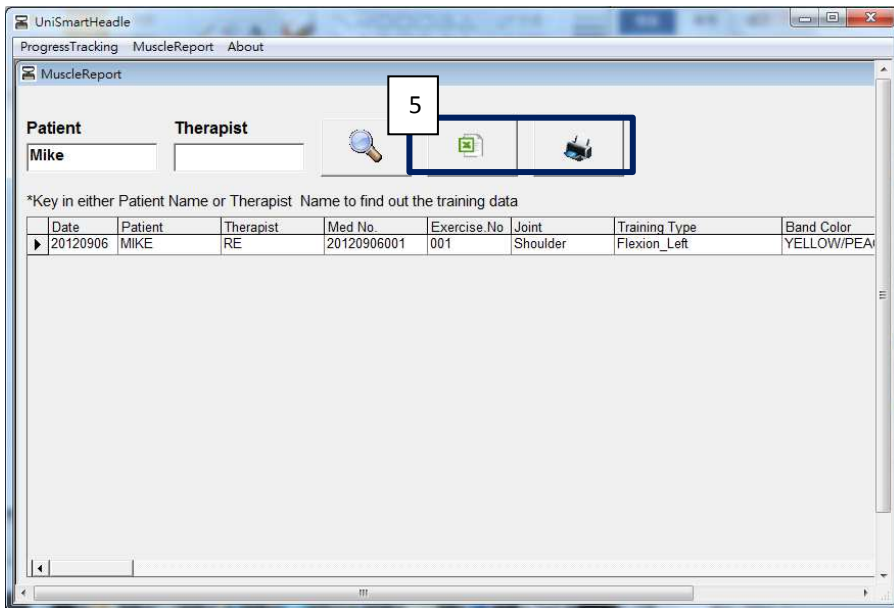


Step4: Press **SEARCH** to open a search screen to find and select the data that needs to be printed.

Step5: Press printer icon  to generate the report. Print it if needed.

Press excel icon  to export the report in excel format.

*Search Window



UniSmartHandle

ProgressTracking MuscleReport About

MuscleReport

Patient Therapist

Mike

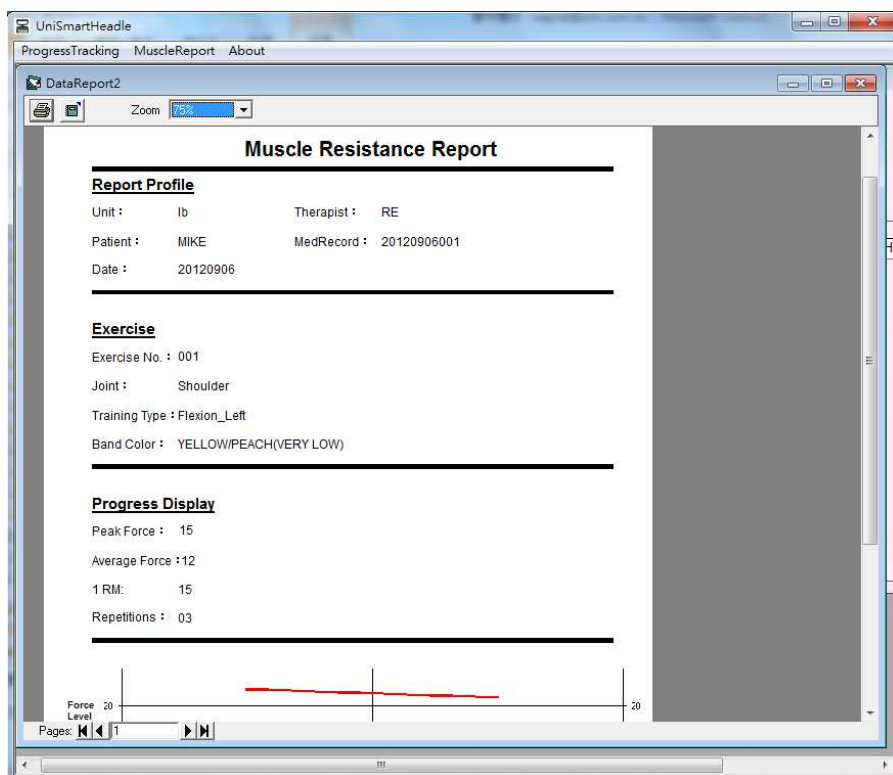
5

*Key in either Patient Name or Therapist Name to find out the training data

Date	Patient	Therapist	Med No	Exercise No	Joint	Training Type	Band Color
20120906	MIKE	RE	20120906001	001	Shoulder	Flexion_Left	YELLOW/PEAK

!!!

*Report Format



BLUETOOTH PRINTER (*OPTIONAL ACCESSORY)

Note: The Bluetooth Thermal Printer is an optional item and not supplied as a standard part of the UniSmart Handle package.



Step 1: Turn on the power by pressing the **POWER** button on the printer.

Note: Make sure the printer battery has been charged before use or plug the DC adaptor into the printer for power supply. Fully charged the printer should last for up to 40 hours.

Step 2: Make sure there is a paper roll inside the Bluetooth printer.

Step 3: Press the **FEED** button to feed out a short length of paper. (This is to prevent the paper getting stuck inside the cover during printing.)

Step 4: When the Bluetooth printer receives a command from the UniSmart Handle, the wireless connection is made automatically.

*Note: The best transmitted distance is <5 m

Step 5: Once the connection is made to the device, the Bluetooth printer will then print the report. (The *Report Format is shown below)

Step 6: Tear off the report from the Bluetooth printer using the built-in paper cut.

Step 7: When finished printing, turn off the printer by pressing the **POWER** button.

*Report Format

Muscle Resistance Report

ID: _____

Date: _____

Name: _____

Muscle: _____

Joint: _____

Band color: _____

Force: Peak _____ Avg. _____ lbs.

Target _____ lbs.

Reps: _____

Time: Total _____ Avg. _____ sec.

Force

	0%	20%	40%	60%	80%	100%
1						
2						
3						
4						
5						
.						
.						
XN						

1RM (100% Peak Force) = _____ lbs.

80% of 1RM = _____ lbs.

60% of 1RM = _____ lbs.

40% of 1RM = _____ lbs.

20% of 1RM = _____ lbs.

Printing Area

Handwriting Area

Printing Area

7. SPECIFICATION

Trade Name	UniSmart Handle TM
Model Name	ZSH-BK
Software Version	V1.0
Power Supply	3.7 V/900mAh Lithium-ion Battery (charge with 6VDC AC/DC adaptor; The exercise functions being designed not for use when charging)
Dimension	L6.02"xW5.31"xH0.98" (L153mmx135mmx25mm)
Weight:	UniSmart TM Handle: 324 g Dumb Handle: 229 g
Battery Life:	New lithium-ion battery operates the system for over 100 hours at normal uses. (A battery unit shall be repeated 500 charge/discharge cycles) <u>Battery Capacity Indicator</u>  : ≥ 50%  : 50%-20%  : 20%-5% (flashing)  : ≤ 5% (flashing)
LCD	White Backlight L1.02"xW0.49" (L26mmxW12.5mm)
Force Range	0-50 lb (0-22.7 kg/0-222.5N) with high accuracy & resolution
Unit Selection	lb/kg/N
Grip Thickness	0.17mm ~ 1.2mm (single layer to double layer)
Maximum Recording	1000 cycles per each exercise
Calibration	Internal: Auto-calibration by pressing the RESET button External: Plug in the calibration unit through the DATA port
Power Saving	If idle for 30 sec, the LCD backlight automatically turns off If idle for 2 min, the system automatically turns off
Wireless Transmission Distance	Bluetooth Printer <5 m ; PC Bluetooth Dongle<10m
Attachment	Fast Band change/Fast Accessory change
Configuration	
Compliances	IEC60601-1:2005, IEC60601-1-2:2007, FCC ID: PDSZSH00201200YPM
Operation Condition	0~40°C/0~90 %R.H
Storage Condition	-20~60°C/0~90%R.H

8. LIST OF RESISTIVE EXERCISE BANDS FOR USE WITH UNISMART HANDLE™



9. TROUBLESHOOTING

Error Message		Action
E-1	Internal Power Failure	Restart the system, if the error still happens, call local agent for repair.
E-2	Wireless Transmission Failure	Make sure the F-4 transmission setting (PC/Bluetooth Printer) is correct.

*for detailed troubleshooting, please refer to the service manual.

10. MANUFACTURER & AUTHORIZED REPRESENTATIVE & DISTRIBUTOR

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ZMI Electronics, Ltd. is a participant in Good Manufacturing Practices and is qualified as ISO 13485 supplier.

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