

Reference Manual



Thought Technology Ltd. 8205 Montreal/ Toronto Blvd. Suite 223, Montreal West, QC

8205 Montreal/ Toronto Blvd. Suite 223, Montreal West, QC H4X 1N1 Canada Tel: +1 (800) 361-3651 · +1 (514) 489-8251 Fax: +1 (514) 489-8255 E-mail: <u>mail@thoughttechnology.com</u> Webpage: <u>http://www.thoughttechnology.com</u>





CLASSIFICATION



- Type BF Equipment
- Internally powered equipment
 - Continuous operation



Read Instruction Manual

CAUTION

RxOnly

US Federal Law restricts this device to sale by or on order of licensed health care practitioners.

WARNING

- Do not operate active sensor within 10 feet (3m) of an operating cellular phone, similar radio transmitting device, other powerful radio interference producing sources such as arc welders, radio thermal treatment equipment, x-ray machines or any other equipment that produces electrical sparks.
- All encoders are totally isolated from line (110 or 220VAC) power due to battery operation and fiber optic connections to computers. However, many hospitals and the FDA require that computers, printers and any other equipment used with medical devices be electrically isolated from line voltage to UL or CSA medical safety standards.
- Do not connect inputs or outputs of the encoder or sensors to line powered devices, except through the fiber optic cable.
- The PC used with the encoder must be placed outside the patient/client environment (more than 3 meters or 10 feet) or the PC must comply with EN60601-1.1 (system safety).
- After use, the disposable electrodes may be a potential biohazard. Handle and, when applicable, dispose of these materials in accordance with accepted medical practice and any applicable local, state and federal laws and regulations.
- To diminish the risk of spreading communicable diseases, always use good hygiene practices with reusable EMG electrodes, particularly if abrasive substances are used. In all cases, refer to your facility's infection control procedure.000
- Do not use in the presence of a flammable anesthetic mixture with air or with Oxygen or Nitrous Oxide.
- Not to be immersed in water.
- Take care in arranging patient and sensor cables to avoid risk of patient entanglement or strangulation.
- The operator is responsible for ensuring the safety of any devices controlled or triggered by Infiniti equipment or software, or by any software or hardware receiving data from Infiniti equipment. Infiniti equipment must not be configured or connected in such a way that failure in its data acquisition, processing or control functions can trigger patient feedback stimulus that poses an unacceptable level of risk.
- Use of any equipment in a biofeedback context should be immediately terminated upon any sign of treatmentrelated distress or discomfort.
- Not to be connected to a patient undergoing MRI, Electro surgery or defibrillation.

ATTENTION

- To prevent static discharge from damaging the sensor and/or encoders, use anti-static mats or sprays in your working area. A humidifier may also be used to help prevent static environments by conditioning hot, dry air.
- Not for diagnostic purposes. Not defibrillator proof. Not for critical patient monitoring.
- To prevent voiding warranty by breaking connector pins, carefully align white guiding dot on sensor plug with slot on sensor input.
- Sharp bends or winding the fiber optic cable in a loop smaller than 4 inches (10cm) may destroy the cable.
- A fiber optic cable not fully pushed into its receptacle may cause the unit not to operate; make sure that both ends of the cable are fully inserted into their receptive jacks and the nuts are tightened firmly.
- Make sure to remove electrodes from sensor snaps immediately after use.
- Apply conductive gel only to electrodes; never put gel directly on sensor snaps.

- Always use electrodes between the subject and the sensor.
- Do not plug third party sensors directly into instrument inputs. Plug only Thought Technology active sensor cable connectors into instrument inputs. All EMG electrodes and third party sensors must be connected to active sensors, either directly or through an adapter.
- Remove batteries when the device is not being used for extended period of time. Please dispose of battery
 following national regulations.

INTENDED PURPOSE

• Biofeedback, relaxation and muscle re-education purposes.

CONTRAINDICATIONS

• None.

NOTE

- No preventative inspections required; maintenance must be performed by qualified personnel.
- The supplier will make available, upon request, circuit diagrams, component parts lists and description or other information required for the repair of product by qualified personnel.
- If a fiber optic or patient cable is damaged or breaks, please replace it.
- Due to the essential performance and intended use of the device, testing for immunity to electromagnetic disturbances was not required and was not performed. The device may be susceptible at levels below IEC60601-1-2 immunity test levels.
- The operator must be familiar with typical characteristics of signals acquired by this equipment, and be able to
 detect anomalies in the acquired signal that could interfere with treatment effectiveness. Depending on the
 importance of signal integrity, it may be advisable to continuously monitor the raw signals, in time and/or
 frequency domain, while the device is being used for biofeedback or other purposes. If anomalies are observed
 on acquired signals, and if you suspect a problem with electromagnetic interference, contact Thought
 Technology for a technical note on identification and remediation.

MAINTENANCE AND CALIBRATION

• Wipe encoder with a clean cloth.

Store in its original acco

• Factory testing and calibration ensure equipment accuracy and frequency response. The user may invoke a self-calibration function that will recalibrate certain device parameters (see section in hardware manual). Contact Thought Technology for factory recalibration if necessary.

STORAGE

•	Store in its original case.	
•	Temperature	-23 to +60C
•	Humidity (Non-condensing)	10% to 90%
•	Atmospheric Pressure	70 to 106 Kpa
TRANSPOR	TATION	
•	Transport in its original case.	
•	Temperature	-23 to +60C
•	Humidity (Non-condensing)	10% to 90%
•	Atmospheric Pressure	70 to 106 Kpa

Guidance and manu	facturer's declarat	ion – electromagnetic emissions
The Infiniti system is intended for use in the ele system should assure that it is used in such an		ment specified below. The customer or the user of the Infiniti
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The Infiniti system uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Infinition start is suitable for use in all establishments
Harmonic emissions IEC 61000-3-2	Not applicable	The Infiniti system is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	that supplies buildings used for domestic purposes.

Manual No. SA7972 ver. 6.1 (April 2016) © copyright Thought Technology Ltd. 2003-2016

TABLE OF CONTENTS

REQUIREMENTS 1 FIRST TIME RUN 2 STARTING THE PROGRAM 2 VERIFYING SETTINGS 2 Temperature and Force Units 3 Notch Filter 3 Text Report Options 3 Confidential Setting 3 ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Connecting TT-USB and the encoder 5 Datation of the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 Electromagnetic Electrical Interferences 6 Electromagnetic interferences 6 Electromagnetic interferences 6 Electromagnetic interferences 7 Connecting the sensors 7 Correct orientation of sensors 7 Cornecting the sensors 7 Correct orientation o	INTRODUCTION	.1
STARTING THE PROGRAM. 2 VERIFYING SETTINGS. 2 Temperature and Force Units 3 Notch Filter. 3 Text Report Options 3 Confidential Setting 3 ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interferences 6 Electromagnetic Interferences 6 Electrostatic discharges 7 Connecting the sensors 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/Proc EMG (PIN: SA930M/SA95032) 8 MyoScan/Proc FMG (PIN: SA9301M/S0) 8 ForceTrac (PIN: T640) 8 HR/BVP Sensor (PIN: SA9310M) 9 Resperation Sensor (PIN: SA9310M) 9 Skin Temperature Sensor (PIN: SA9320M) 10 Disposable EKG/FMG electrodes 10	REQUIREMENTS	1
VERIFYING SETTINGS. 2 Temperature and Force Units 3 Notch Filter 3 Text Report Options 3 Confidential Setting 3 ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interferences 6 Electromagnetic interferences 6 Electrostatic discharges 7 Cornecting the sensors 7 Correct orientation of sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9401M-50) 8 IncinicTrac (PNI: T7640/T7650/T7650) 8 ForceTrac (PNI: T7640/T7650/T7650) 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA930M) 9 KtG-Z Sensor (P/N: SA9310M) 9 KtG-Z Sensor (P/N: SA9311M) 9 Skin Temp	FIRST TIME RUN	.2
Temperature and Force Units 3 Notch Filter 3 Text Report Options 3 Confidential Setting 3 ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Ilectrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electromagnetic interferences 7 Cornecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScar/ MyoScar/ Z EMG Sensor (P/N: SA9503W/SA95032) 8 MyoScar/ Pro EMG (P/N: SA9304M) 9 EVG-Z Sensor (P/N: SA9304M) 9 EVG-Z Sensor (P/N: SA9304M) 9 EVG-Z Sensor (P/N: SA9304M) 9 Start the Program. 10 Start the Program. 12 Starting a session from a Favorite. 12	STARTING THE PROGRAM	2
Notch Filter. 3 Text Report Options. 3 Confidential Setting. 3 ENTERING KEY CODES 3 HARDWARE SET-UP. 5 THE ENCODER. 5 Connecting TT-USB and the encoder. 5 Sonnecting TT-USB and the encoder. 6 Eatry Placement. 6 Caring For the Fiber Optic Cable 6 Electromagnetic Ilectrical Interferences. 6 Electromagnetic interferences. 6 Electromagnetic interferences. 7 Cornecting the sensors. 7 Correct orientation of sensors. 7 Sensors, Electrodes, and Accessories Used with the System. 8 MyoScan-Pro EMC (PN: SA9401M-50) 8 MyoScan-Pro EMC (PN: SA9304M/SA95032) 8 MyoScan/ Pro EMC (PN: SA9304M) 8 ForeFire (PN: Tr660) 7 Skin Temperature Sensor (P/N: SA9304M) 8 ForeFire (PN: Tr640) 8 Skin Temperature Sensor (P/N: SA9304M) 9 Skin Temperature Sensor (P/N: SA9304M) 9 Skin Temperature Sensor (P/N: SA9304M) 9		
Notch Filter. 3 Text Report Options. 3 Confidential Setting. 3 ENTERING KEY CODES 3 HARDWARE SET-UP. 5 THE ENCODER. 5 Connecting TT-USB and the encoder. 5 Sonnecting TT-USB and the encoder. 6 Eatry Placement. 6 Caring For the Fiber Optic Cable 6 Electromagnetic Ilectrical Interferences. 6 Electromagnetic interferences. 6 Electromagnetic interferences. 7 Cornecting the sensors. 7 Correct orientation of sensors. 7 Sensors, Electrodes, and Accessories Used with the System. 8 MyoScan-Pro EMC (PN: SA9401M-50) 8 MyoScan-Pro EMC (PN: SA9304M/SA95032) 8 MyoScan/ Pro EMC (PN: SA9304M) 8 ForeFire (PN: Tr660) 7 Skin Temperature Sensor (P/N: SA9304M) 8 ForeFire (PN: Tr640) 8 Skin Temperature Sensor (P/N: SA9304M) 9 Skin Temperature Sensor (P/N: SA9304M) 9 Skin Temperature Sensor (P/N: SA9304M) 9	Temperature and Force Units	3
Confidential Setting 3 ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 Electromagnetic interferences 6 Electromagnetic interferences 6 Electrostatic discharges 7 Cornecting the sensors 7 Correct orientation of sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 Indino Trac/Dual-Inclino Trac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 Respiration Sensor (P/N: SA9308M) 9 RKin Temperature Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9309M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 Skin Conductance S		
ENTERING KEY CODES 3 HARDWARE SET-UP 5 THE ENCODER 5 Description 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electromagnetic interferences 7 Connecting the sensors 7 Correct orientation of sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503W/SA95032) 8 MyoScan/ Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 Inclino Trac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/RVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9311M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9311M) 9 Skin Conductance Sensor (P/N: SA9311M)		
HARDWARE SET-UP 5 THE ENCODER 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503W/SA9503Z) 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9401M-50) 8 HR/BVP Sensor (P/N: SA930BM) 9 EKG-Z Sensor (P/N: SA930BM) 9 EKG-Z Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 9 Skin Temperature Sensor (P/N: SA9310M) 9 Static EMG electrodes 10 Disposable EKG/EMG electrodes 10 Software Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 EGORDING SESSIONS <td< td=""><td>Confidential Setting</td><td>3</td></td<>	Confidential Setting	3
THE ENCODER 5 Connecting TT-USB and the encoder 5 Battery Placement. 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences. 6 Electromagnetic interferences. 7 Connecting the sensors 7 Correct orientation of sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan-Pro EMG (P/N: SA9503M/SA9503Z) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9309M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 Disposable EKQ/EMG electrodes 10 Disposable EKQ/EMG electrodes 10 Disposable EKQ/EMG electrodes 10 Disposable EKQ/EMG electrodes 10 Static EMG electrodes (P	ENTERING KEY CODES	3
Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electromagnetic interferences 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9303W/SA9503Z) 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9308M) 10 EKG Wrist Staps (P/N: SA9308M) 10 EKG Wrist Staps (P/N: SA9301M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9327) 10 Disposable EKG/EMG electrodes 10 Disposable EKG/EMG electrodes	HARDWARE SET-UP	.5
Connecting TT-USB and the encoder 5 Battery Placement 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electromagnetic interferences 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9303W/SA9503Z) 8 MyoScan/ MyoScan-Z FMG Sensor (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9308M) 9 Skin Conductance Sensor (P/N: SA9308M) 10 EKG Wrist Staps (P/N: SA9301M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9327) 10 Disposable EKG/EMG electrodes 10 Disposable EKG/EMG electrodes	THE ENCODER	5
Battery Placement. 6 Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences. 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors. 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan-Pro EMG (P/N: SA9503W/SA9503Z). 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655). 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA931M) 9 Skin Temperature Sensor (P/N: SA931M) 9 Skin Conductance Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Disposable EKG/EMG electrodes 10 Startic EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA9500) - Optional. 11 Tele-Infiniti CF TM (P/N: SA9600) - Optional. 11 SOFTWARE OVERVIEW. 12		
Caring For the Fiber Optic Cable 6 Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Temperature Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 For Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SofTWARE OVERVIEW 12 Starting a session from a Favorite	5	
Electromagnetic Electrical Interference 6 SENSORS AND ACCESSORIES 6 Electromagnetic interferences 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: T650/T7655) 8 ForceTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: SA9306M) 9 EKG-Z Sensor (P/N: SA9306M) 9 EKG-Z Sensor (P/N: SA9306M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Skin Temperature Sensor (P/N: SA9309M) 10 Skin Tomperature Sensor (P/N: SA9309M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 Skin Temperature Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA9600) - Optional 11 Tele-Infiniti CF TM (P/N: SA9600) - Optional 11 Static EMG OVERVIEW 12 Start the Program 12 <td></td> <td></td>		
SENSORS AND ACCESSORIES 6 Electromagnetic interferences. 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan/Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 Skin Temperature Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA3600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
Electromagnetic interferences 6 Electrostatic discharges 7 Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan/Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Temperature Sensor (P/N: SA9309M) 10 Skin Conductance Sensor (P/N: SA9327) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA751) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 Software Overview 12 Start the Program 12 Starting a session from a Favorite 12		
Electrostatic discharges .7 Connecting the sensors .7 Correct orientation of sensors .7 Sensors, Electrodes, and Accessories Used with the System .8 MyoScan/MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) .8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) .8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) .8 ForceTrac (P/N: T7640) .8 HR/BVP Sensor (P/N: SA9306M) .9 EKG-Z Sensor (P/N: SA9306M) .9 KG-Z Sensor (P/N: SA9306M) .9 Skin Temperature Sensor (P/N: SA9310M) .9 Skin Conductance Sensor (P/N: SA9309M) .10 Skin Conductance Sensor (P/N: SA93209M) .10 Disposable EKG/EMG electrodes .10 Static EMG electrodes (P/N: SA9327) .10 Foot Pedal (P/N: SA7551) .11 Tele-Infiniti CF [™] (P/N: SA9600) - Optional .11 SOFTWARE OVERVIEW .12 RECORDING SESSIONS .12 Start the Program .12 Starting a session from a Favorite .12	SENSORS AND ACCESSORIES	6
Connecting the sensors 7 Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9308M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Fort Pedal (P/N: SA7551) 11 Tel-Infiniti CF™ (P/N: SA9327) 10 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12	Electromagnetic interferences	6
Correct orientation of sensors 7 Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9306M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9306M) 10 Skin Temperature Sensor (P/N: SA9309M) 10 Skin Temperature Sensor (P/N: SA9311M) 10 Skin Temperature Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9327) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12	Electrostatic discharges	7
Sensors, Electrodes, and Accessories Used with the System 8 MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 9 EKG-Z Sensor (P/N: SA9306M) 9 EKG-Z Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA9600) - Optional 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12	Connecting the sensors	7
MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z) 8 MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes 10 Static EMG electrodes 10 Stort Pedal (P/N: SA95600) - Optional 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12	Correct orientation of sensors	7
MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50) 8 InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12	Sensors, Electrodes, and Accessories Used with the System	8
InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655) 8 ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Tomperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF [™] (P/N: SA9600) - Optional 11 Software Overview 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12	MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z)	8
ForceTrac (P/N: T7640) 8 HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9311M) 10 Skin Conductance Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
HR/BVP Sensor (P/N: SA9308M) 9 EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12	InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655)	8
EKG-Z Sensor (P/N: SA9306M) 9 Respiration Sensor (P/N: SA9311M) 9 Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
Respiration Sensor (P/N: SA9311M)		
Skin Temperature Sensor (P/N: SA9310M) 10 Skin Conductance Sensor (P/N: SA9309M) 10 EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF TM (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 Start the Program 12 Starting a session from a Favorite 12		
EKG Wrist Straps (P/N: SA9325) 10 Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12	Skin Temperature Sensor (P/N: SA9310M)	.10
Disposable EKG/EMG electrodes 10 Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
Static EMG electrodes (P/N: SA9327) 10 Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
Foot Pedal (P/N: SA7551) 11 Tele-Infiniti CF™ (P/N: SA9600) - Optional 11 SOFTWARE OVERVIEW 12 RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12	•	
Tele-Infiniti CF™ (P/N: SÁ9600) - Optional		
RECORDING SESSIONS 12 Start the Program 12 Starting a session from a Favorite 12		
Start the Program	Software Overview	12
Start the Program		
Starting a session from a Favorite		
	-	
Starting a Script Session		
Starting an Open Display Session		

Sensor Connections	15
STOPPING A SESSION	16
REPLAYING SESSIONS	
REVIEWING SESSIONS	
Review Rejecting Artifacts	
Calculating Statistics	
Setting In/Out Markers	
Generating Session Reports	
TOOL BAR OPTIONS	
Toggling Between Screens	
Adjusting Scales and Threshold	
USING A WEB CAMERA	
USING A DVD	
SENSOR CALIBRATION AND ZEROING	
IMPEDANCE CHECK	
	00
GENERAL SEMG ASSESSMENT	
OVERVIEW	26
CLINICAL GUIDE REFERENCE.	
GENERAL PROCEDURE	
Starting the Session	
Measuring Reviewing the session	
Generating a report	
G.SEMG01 – BASELINE ASSESSMENT	
G.SEMG02 – MAXIMAL FORCE ASSESSMENT	
G.SEMG03 – ENDURANCE ASSESSMENT	
G.SEMG04 – FAST FLICK ASSESSMENT	
G.SEMG05 – GLOBAL SEMG ASSESSMENT 1 MUSCLE	
SEMG ASSESSMENT – GENERAL PURPOSE (G.SEMG06 and up)	
G.SEMG06 - SEMG Assessment with 2 EMG	
G.SEMG07 - SEMG Assessment with 4 EMG (FlexComp Infiniti only)	
G.SEMG08 - SEMG Assessment with 6 EMG (FlexComp Infiniti only)	
G.SEMG09 - SEMG Assessment with 10 EMG (FlexComp Infiniti only)	
STATIC SEMG ASSESSMENT	33
OVERVIEW	
CLINICAL GUIDE REFERENCE	
PROCEDURE	
Starting the Session	33
Measuring	
Generating a report	
DYNAMIC SEMG ASSESSMENT	37
OVERVIEW	
CLINICAL GUIDE REFERENCE	
GENERAL PROCEDURE	
Starting the Session	70
งเลเนเบ และ งองจุงหา	

Measuring	
Reviewing the session	
Generating a report	
PROCEDURE FOR LUMBAR SPINE ASSESSMENT	40
PROCEDURE FOR LUMBAR SPINE ASSESSMENT	
Starting the Session	40
Measuring	
Reviewing the session	
Generating a report	
PROCEDURE FOR CERVICAL SPINE ASSESSMENT	
Starting the Session	
Measuring	
Reviewing the session	
Generating a report	
	······································
PROCEDURE FOR ANTERIOR KNEE ASSESSMENT	40
PROCEDURE FOR ANTERIOR RNEE ASSESSMENT	
Starting the Session	40
Measuring	
Reviewing the session	
Generating a report	51
MUSCLE FATIGUE MONITORING	53
OVERVIEW	
CLINICAL GUIDE REFERENCE	
GENERAL PROCEDURE	53
Starting the Session	
Measuring	54
Measuring	54
-	
Measuring	
SEMG BIOFEEDBACK	55
SEMG BIOFEEDBACK	55
SEMG BIOFEEDBACK	
SEMG BIOFEEDBACK	55
SEMG BIOFEEDBACK	55
SEMG BIOFEEDBACK	
SEMG BIOFEEDBACK	55 55555555565962
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION	55 55 55 55 55 56 62 64
SEMG BIOFEEDBACK	55 55 55 55 55 56 62 64
SEMG BIOFEEDBACK OVERVIEW. CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING. CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING.	55 55 55 55 56 64 68
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING.	55 55 55 55 56 62 64 68 70
SEMG BIOFEEDBACK OVERVIEW. CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING. CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING.	55 55 55 55 56 62 64 68 70
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING. UNSTABLE SHOULDER MOTOR FUNCTION RESTORATION	55 5555555556626464687071
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING. UNSTABLE SHOULDER MOTOR FUNCTION RESTORATION	55 5555555556626464687071
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING.	55 5555555556626464687071
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING UNSTABLE SHOULDER MOTOR FUNCTION RESTORATION RESPIRATION TRAINING	55 55 55 55 55 55 55 55 55 56 59 62 62 64 64 68 70 71 71
SEMG BIOFEEDBACK	55 55 55 55 55 55 55 55 56 59 62 64 64 68 70 71 71 73
SEMG BIOFEEDBACK OVERVIEW CLINICAL GUIDE REFERENCE GENERAL PROCEDURE Starting the Session CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – TRAINING UNSTABLE SHOULDER MOTOR FUNCTION RESTORATION RESPIRATION TRAINING	55 55 55 55 55 55 55 55 56 59 62 64 64 68 70 71 71 73
SEMG BIOFEEDBACK	

SKIN CONDUCTANCE AND TEMPERATURE BIOFEEDBACK	79
OVERVIEW	79
CLINICAL GUIDE REFERENCE	
PROCEDURE	79
STATIC RANGE OF MOTION ASSESSMENT	82
OVERVIEW	
CLINICAL GUIDE REFERENCE	
GENERAL PROCEDURE	
Preparing the instrumentation	
Measuring	
Generating a report	84
DYNAMIC RANGE OF MOTION ASSESSMENT	87
OVERVIEW	
CLINICAL GUIDE REFERENCE	
GENERAL PROCEDURE	
Starting the Session	
Measuring	
Reviewing the session	
Generating a report	
PROCEDURE FOR LUMBAR SPINE ASSESSMENT	90
Starting the Session	
Measuring	
Reviewing the session Generating a report	
PROCEDURE FOR CERVICAL SPINE ASSESSMENT	
Starting the Session	
Measuring	
Reviewing the session	
Generating a report	
PROCEDURE FOR ANTERIOR KNEE ASSESSMENT	95
Starting the Session	
Measuring Reviewing the session	
Generating a report	
RANGE OF MOTION TRAINING	
OVERVIEW CLINICAL GUIDE REFERENCE	
PROCEDURE	
ROMT01 – ROM Training with 1 inclinometer	
ROM101 – ROM Training with 1 inclinometer ROMT02 – ROM Training with 2 inclinometers	100
MANUAL MUSCLE TESTING	
PROCEDURE	

Starting the Session	
Muscle Testing Training (MMT01 & MMT02)	
Unilateral/Bilateral Muscle Testing (MMT03 & MMT04)	
Measuring	
Unilateral/Bilateral Muscle Testing with EMG (MMT05 & MMT06) Generating a report	
ALGOMETRY	
OVERVIEW	
CLINICAL GUIDE REFERENCE	
PROCEDURE	
Starting the Session	
Measuring	
Generating a report	112
HARDWARE SPECIFICATIONS	114
PLACING ORDERS	
TECHNICAL SUPPORT	
WARRANTY	117
RETURNING EQUIPMENT FOR REPAIR	118
REPAIR RETURN FORM	

Introduction

Welcome to the reference manual for Rehab Suite. This manual provides information intended to help you get the most out of your system.

The manual is organized into chapters as follows:

- Installation and System Requirements lists the computer requirements recommended for running the software.
- First Time Run explains how to start the software and verify its settings prior to using it for the first time.
- **Hardware Set-up** provides general information about the encoder, sensors and accessories included in the system. It also shows how to connect the hardware elements.
- **Software Overview** introduces the main functions of the BioGraph Infiniti software: recording, replaying, and reviewing sessions. It discusses the analytical processes of artifact rejection, statistics calculation, and report generation. In addition this section explains how to use a web camera with the software, how to calibrate and zero sensors, and how to run an impedance check.

The next chapters explain the protocols run by the system. These are:

- General SEMG Assessment
- Static SEMG Assessment
- Dynamic SEMG Assessment
- Muscle Fatigue Monitoring
- SEMG Biofeedback
- Respiration Training
- Heart Rate Monitoring and HRV
- Skin Conductance & Temperature Biofeedback
- Static Range of Motion Assessment
- Dynamic Range of Motion Assessment
- Range of Motion Training
- Manual Muscle Testing
- Algometry

Each protocol chapter presents the general principles of one specific protocol. It lists relevant references in the clinical guide. It provides step-by-step instructions for running the protocol. Finally, it describes how to generate a report.

The remaining sections of the manual provide a list of **Hardware Specifications**, and information about the **Warranty**, obtaining **Technical Support**, and **Returning Equipment** for repair if necessary.

Note: Important safety information about operating the equipment is provided in the front matter of the manual starting on page *i*.

REQUIREMENTS

Please refer to *IS7915 – BioGraph Infiniti PC System Requirements* for a detailed list of requirements for running BioGraph Infiniti 6.1.

Once the software is installed, you have to configure your system. This takes only a few minutes.

STARTING THE PROGRAM

To start the program, simply double-click on the BioGraph Infiniti icon on the Desktop.



The program always starts by showing the Main Menu screen.

From here you can set global settings that affect the performance of BioGraph Infiniti.

Note: Global settings remain in effect unless you change them.



VERIFYING SETTINGS

Select **Preferences** from the **Tools** menu in the Main Menu Screen. In the **General** tab verify temperature and force units, notch filter settings and text report options.

emperature Units		Notch Filter Op	bions		
Celsius	Fahrenheit	Frequency:	50	Hz	60 Hz
iorce Units		Signal type:	1 march		-
Klograms	Pounds	advise office	V EEG	EKG	V EMG
acer Units		Show/Hide File	names		
Seconds	Percentages	Hide		Show	
		Text Report O	ptions		
		HTML	O PDF	O M	S Word

Temperature and Force Units

Default values for Temperature and Force are determined from your computer's Regional Settings when BioGraph Infiniti is run for the first time. Ensure that the correct values are selected, **Kilograms** or **Pounds** for **Force** and **Fahrenheit** or **Celsius** for **Temperature**.

Notch Filter

Default values for the notch filter Frequency are determined from your computer's Regional Settings when BioGraph Infiniti is run for the first time. Select each **Signal type** that you plan to use (**EEG**, **EKG** or **EMG**) and ensure that the **Frequency** is set to **50Hz** or **60Hz**, depending on the transmission frequency used in your country (60Hz for North America, for instance).

Text Report Options

You can generate text reports in one of three different formats, HTML, PDF, or Microsoft Word. Select your preferred format here.

Note: Microsoft Word, a PDF reader, and a web browser **must** be installed on your system for these functions to work. You print and save text reports using the **Print** and **Save** functions of the appropriate software.

Confidential Setting

Optionally, enable the **Confidential** setting. This helps protect the privacy of your clients by masking their names in the client database.

- Click **Database** to open the Main Database window.
- From the **Settings** menu, select **Confidential**. The check mark indicates that the setting is enabled.
- If you need to disable the **Confidential** setting, repeat these steps to remove the check mark.

	ings Options Tools Inactivity Period
✓	Confidential
	Clinic Label

Main Database

Settings Options Tools			
Clients:			
Full Name	ID Num	Clinic ID	1
Ballance, Tara	1		
Dorimond, Florian	3		
Florimond, Dorian	2		
Keyes, Florida	4		
Shores, Lajolla	5		

With the Confidential setting disabled

Settings Options Tools				
Clients:				
Full Name	ID Num	Clinic ID	1	
Ba******, T***	1			
Do******, F*****	3			
FI*******, D*****	2			
Ke***, F*****	4			
Sh****, L*****	5			

With the Confidential setting enabled

ENTERING KEY CODES

The first time you start to record a session with BioGraph Infiniti, the software will check for the key codes and ask you to enter them. You will also be asked to enter key codes if you have uninstalled and reinstalled the software, or if this is the first time you are using your encoder with your existing installation.

There are three ways to start recording a session. They are described fully in the chapter <u>Software Overview</u> beginning on page 12.

- **Quick Start**: Click this option to record a Favorite session (page 12). This is the preferred method for recording sessions.
- Start Open Display Session: Click this option to record an unscripted session using your own selection of feedback screens (page 14).
- Start Script Session: Click this option to record a script session (page 13).
- Quick Start
 Start Open Display Session
 Start Script Session
- 1. Click Quick Start, select a name from the Clients list and a protocol from the Favorites list, and then click OK.

- 2. The Encoder Key Codes dialog box opens.
- 3. Click to highlight your unit's serial number in the left table (in this example, DA1002; this is the same number as on the back of the unit).

Select an encoder S	erial Number and enter a	Key Code for it.	Expected physics	al channel configuration	
			Encoder Input	Description	Sensor Type
Key Co	de	Encoders	1A	A: Raw EMG	MyoScan-Flex
123456	7890> Clear		18	B: Raw EMG	MyoScan-Flex



The serial number is found on the back of the encoder.

- 4. Enter the Encoder Key Code (found inside the encoder battery compartment) in the Key Code text box.
- 5. Click **Constant** to move the serial number from the left table to the right table. The serial number should now appear in the **Configuration Table**.
- 6. When done, click OK.
- 7. Now the Application Key Code dialog box opens.
- 8. Enter the Application Key Code.

This number is found in the battery compartment with the encoder key code.

9. When done, click **OK**.

Note: Even if you are using more than one encoder, you need to enter only one Application Key Code.

If the key codes have been entered properly and there is no problem with your encoder setup or your sensor connections, the recording screen will open.

Application Key Code
Enter the Application Key Code.
1234567890
OK Cancel

Hardware Set-up

Before you can start recording a session, you have to set up your hardware. The following section describes how to connect a FlexComp Infiniti encoder but the process is similar when using ProComp Infiniti and ProComp5 Infiniti. For more information on using your particular encoder, please refer to the device's hardware manual.

THE ENCODER

Connecting TT-USB and the encoder



Insert one end of the fiber optic cable carefully into the fiber optic port on the encoder. Tighten the nut gently so that the cable won't slip out.



Do the same with the other end of the fiber optic cable and the fiber optic port of the TT-USB interface unit.



Insert the small connector of the USB cable into the USB port on the TT-USB interface device.

Insert the large connector of the USB cable into the USB port of your PC.



USB ports on a PC are generally located at the back of the base unit. You may also find a USB port at the front of your base unit; you can connect the other end of the USB cable to it. On a laptop, USB ports are usually located at the side or the back of the laptop. It is recommended to always use the same USB port for connecting the TT-USB to your computer.



Connected hardware components

Battery Placement

Opening the Compartment

Looking at the underside of the encoder, you will see a long door in the plastic enclosure. Holding the encoder with the connectors facing you and with the door up, push lightly down and back with your thumbs on the door to slide it open.

Attention: The internal workings of the encoder are not intended to be opened for repair except by qualified service personnel. The tamper-evident seal under the batteries in the battery compartment should not be removed or broken. Thought Technology may refuse to honour the unit's warranty if the seal is broken.



Polarity

When the compartment cover has been slid out, place four AA batteries in the slots, observing the correct battery polarity as embossed on the inside surface of the compartment.

Closing the Compartment

Slide the door back into the encoder case, gently pushing it in until you feel the click of the locking mechanism.

Keeping an Eye on the Battery Level

Since each sensor draws a small amount of power from the batteries when connected to the encoder, it is better to connect only the sensors that are going to be used for a session before you start recording; this will ensure maximal battery life. Most Thought Technology software applications will display a battery power indicator; we recommend that you replace the batteries as soon as this indicator falls below about 50% of the battery power.

Caring For the Fiber Optic Cable

A fiber optic (FO) cable is used for transmitting the sensor data to the computer. Although this technology provides maximal electrical isolation, signal fidelity and freedom of movement, some care has to be taken when handling the fiber optic cable, as it is much less flexible than a regular electric wire.

Be careful not to bend it sharply or wind it in a loop smaller than 4 inches in diameter.

Electromagnetic Electrical Interference

When performing a biofeedback session, it is best to avoid placing the encoder near the computer, display monitor or any other electrical device, where it can be exposed to electromagnetic fields.

SENSORS AND ACCESSORIES

The instrumentation system includes a group of sensors used for the various protocols. Before a session can be recorded, the correct sensors must be connected to the encoder.

Electromagnetic interferences

The SEMG and EKG sensors are capable of detecting very tiny electrical signals (millionths of a Volt) generated by muscle activity. Therefore they are very sensitive to electromagnetic fields generated by other devices in the exam room, such as radio transmitting devices, computer monitors, medical devices (for example x-ray machines), and fluorescent, halogen or neon lights.

These devices should be turned off, if they are not needed for the examination. If the situation arises, keep the instrumentation 10 feet away from radio transmitting devices and 3 feet away from electronic devices (including monitors) and fluorescent, halogen or neon lights.



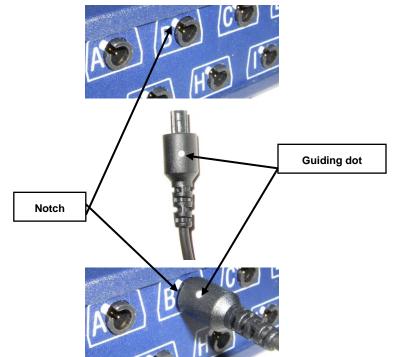
Disconnect all the unused sensors from the encoder. If not connected to the examinee, they may act as antennas and capture unwanted signals that would corrupt the signal.

Electrostatic discharges

To prevent static discharge from damaging the sensor and/or encoder, use anti-static mats or sprays in your working area. A humidifier may also be used to help prevent static environments by conditioning hot, dry air.

Connecting the sensors

When connecting a sensor to the encoder, make sure to properly line up the guiding dot on the top of the plug with the notch in the device's input socket.



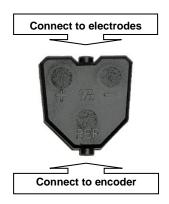
Forcing the plug into the jack in any other position may damage your equipment.

Correct orientation of sensors

For some sensors, such as the temperature and skin conductance sensors, either the connection cable or the electrode cable forms a permanent part of the item. Other sensors, for example the push button switch, have removable cables but only a single input entrance. This makes it impossible to connect these sensors in the wrong orientation to the encoder.

Certain sensors, however, have removable cables and two input entrances. It is important to orient these sensors to the encoder correctly so that the physiological signal is properly received. These sensors include the EKG, EEG, and EMG sensors, all of which are shaped like the illustration at the right.

Such a sensor is correctly oriented to the encoder when the cable joining them is connected to the bottom entrance of the sensor. If an extender cable with electrodes needs to be attached to such a sensor, it should be connected to the top entrance of the sensor.



Sensors, Electrodes, and Accessories Used with the System

MyoScan/ MyoScan-Z EMG Sensor (P/N: SA9503M/SA9503Z)

A DIS

The MyoScan is a pre-amplified surface electromyography sensor, sensing raw SEMG.

MyoScan-Z also allows impedance check.

- Input Range 0 -2000 μV
- Bandwidth 20 Hz 500Hz.

Used for:

- SEMG Assessment
- Muscle Fatigue Monitoring
- SEMG Biofeedback
- Dynamic Range of Motion
- Respiration Training
- Manual Muscle Testing

MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50)



The MyoScan-Pro is a pre-amplified surface electromyography sensor for use on low sampling rate inputs of the ProComp5 and ProComp Infiniti, and designed to measure RMS SEMG.

Used for:

- SEMG Assessment
- SEMG Biofeedback

InclinoTrac/Dual-InclinoTrac (P/N: T7650/T7655)



The Dual-InclinoTrac is a dual inclinometer that measures relative angle (between back and head, for instance).

Used for:

- Static Range of Motion Assessment
- Dynamic Range of Motion Assessment
- Range of Motion Training

ForceTrac (P/N: T7640)



The ForceTrac can be used as an algometer when used with its rod attachment.

ForceTrac can be used as a manual muscle tester when used with its rubbercoated probes (a flat one, and a curved one).

Used for:

- Manual Muscle Testing
- Algometry



HR/BVP Sensor (P/N: SA9308M)



The HR/BVP sensor is a blood volume pulse (BVP) detection sensor (also known as a photoplethysmography – PPG – sensor) housed in a small finger worn package, to measure heart rate (HR) and provide BVP amplitude, BVP waveform, HR and heart rate variability (HRV) feedback.

Used for:

• Heart Rate Monitoring and HRV

EKG-Z Sensor (P/N: SA9306M)



The EKG sensor is a pre-amplified electrocardiograph sensor, for directly measuring the heart's electrical activity. Connects via extender cables for a single channel hook up.

Used for:

Heart Rate Monitoring and HRV

Respiration Sensor (P/N: SA9311M)



The respiration sensor is a sensitive girth sensor worn using an easy fitting high durability woven elastic band fixed with a length adjustable webbing belt. It detects chest or abdominal expansion/contraction and outputs the respiration waveform.

The sensor is latex-free, magnet-free, and Velcro-free, and can be worn over clothing.

Used for:

- Respiration Training
- Relaxation
- Heart Rate Monitoring and HRV

Accessories to the ForceTrac are (from left to right):

- Rod attachment
- Curved muscle testing probe
- Flat muscle testing probe

Skin Temperature Sensor (P/N: SA9310M)



The Temperature sensor measures skin surface temperature between $10^{\circ}C - 45^{\circ}C$ ($50^{\circ}F - 115^{\circ}F$). It is supplied with a self adhering band for easy finger placement.

Used for:

- Stress Assessment
- Relaxation

Skin Conductance Sensor (P/N: SA9309M)



The Skin Conductance sensor measures the conductance across the skin, and is normally connected to the fingers or toes. Supplied with two finger bands.

Used for:

- Stress Assessment
- Relaxation

EKG Wrist Straps (P/N: SA9325)

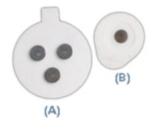


EKG Wrist Straps come in a kit containing reusable medical-grade, non-latex straps and replaceable silver/silver-chloride electrodes.

They provide fast, convenient placement of electrodes for measuring EKG from the wrists.



Disposable EKG/EMG electrodes



(A) T3402M – Triode[™] electrode, with standard 2cm spacing of silver-silver chloride electrodes, backed with nickel plated brass snaps to prevent corrosion.

(B) T3425 – UniGel electrodes, for use with the EKG sensor or EMG, in case of sensitive placements on dry skin.

Static EMG electrodes (P/N: SA9327)



Standard silver-silver chloride re-usable electrodes, backed with nickel plated brass snaps to prevent corrosion when connected to pre-amplifiers for extended periods.

Foot Pedal (P/N: SA7551)



The Foot Pedal connects to the encoder and allows the user to remotely drive the software (initiate the recording).

Used for:

- SEMG para-spinal scanning
- Thermal scanning
- SEMG para-spinal scanning with thermographic scanning
- Range of Motion assessment
- Manual Muscle Testing
- Algometry

Tele-Infiniti CF™ (P/N: SA9600) - Optional



The Tele-Infiniti CF turns the encoder into a long range monitoring device. The unit disappears into the Compact Flash slot, leaving only the antenna visible to transmit data up to 300 feet (100 m).

This accessory is optional.

Software Overview

This chapter provides you with a rapid overview of the main functions of the BioGraph Infiniti software. Refer to the on-line help manual for a more detailed description of all the functions and features of the program.

To open the on-line help, press the F1 function key, on your keyboard, from any dialog box in the program. Because the on-line help manual is designed to provide contextual information, it will automatically open at the section that discusses the dialog box from which the help was called.



The information in this chapter is of a general nature. Each protocol chapter explains how to record, review and report upon data using that particular protocol.

RECORDING SESSIONS

With the BioGraph Infiniti software, two types of sessions can be recorded: **Open Display** and **Script** sessions. Both types of session can be recorded with BioGraph Infiniti.

- **Scripts** are predefined protocols that group together varied types of activities with specific display screens. They are used for evaluation and assessments because they produce statistics that can be used to determine the type of exercise and/or practice that is needed by the patient. These statistics can be trended across sessions to reflect patient progress.
- **Open Display** sessions are used for biofeedback training, when flexibility is important and you need to be able to rapidly change the session parameters, depending on the client's reactions. The kinds of feedback include various types of audio, such as music, tones, sounds and voice prompts. There are also visual media, such as animations, and different graphs that change color when the signals pass their threshold markers.

Start the Program

After making the necessary connections described in the previous chapter, turn on your encoder and start the BioGraph Infiniti software.

Starting a session from a Favorite

A **Favorite** is a predefined session configuration that contains all the settings you need for recording, replaying, and reviewing a session. Depending on the session type (script or open display), these settings include scripts, channel sets and screens, statistics for session reports, auto-rejection settings for review mode, and Excel report options. Favorites simplify and standardize the process of recording and reviewing sessions.

Rehab Suite includes a Favorite for every protocol. You find them listed in the Favorites table when you click the **Quick Start** button on the main BioGraph screen.

To start a session from a Favorite:

- 1. Click the Quick Start button on the main screen.
- 2. Optionally, click **Add New Client**, in the **Client Data** screen enter at least the person's first and last name, and click **OK**.
- 3. Select a name from the list of **Clients**.
- 4. Choose a **Category** from the drop-down list. Only the favorites belonging to the category will display.
- 5. Select a Favorite from the list.
- 6. Click OK.

If there is no problem with your encoder or sensor connection, the recording screen will open.

lients:			Categories							
Full Name	ID Number	Clinic ID	Show all categories							
Ballance, Tara	1		Favorite							
Dorimond, Florian	3									
Florimond, Dorian	2		Description							
Keyes, Florida	4		S.ROM 19 - Ankle - Flexion/Extension							
Shores, Lajolla	5		S.ROM 18 - Knee - Flexion/Hyper-Extension							
			S.ROM 17 - Hip - External/Internal Rotation							
			S.ROM 16 - Hip - Abduction/Adduction							
			S.ROM 15 - Hip - Flexion/Extension							
			S.ROM 14 - Wrist - Radial/Unar Deviation							
			S.ROM 13 - Wrist - Flexion/Extension							
			S.ROM 12 - Forearm - Supination/Pronation							
			S.ROM 11 - Elbow - Flexion/Extension							
			S.ROM 10 - Shoulder - External/Internal Rotation							
			S.ROM 09 - Shoulder - Abduction/Adduction in S30°							
			S.ROM 08 - Shoulder - Flexion/Extension							
			S.ROM 07 - Lumbar Spine - L/R Lateral Flexion							
			S.ROM 06 - Lumbar Spine - Flexion/Extension							
			S.ROM 05 - Thoracic Spine - Left/Right Rotation							
			S.ROM 04 - Thoracic Spine - Flexion/Extension							
			S.ROM 03 - Cervical Spine - Left/Right Rotation							
			S.ROM 02 - Cervical Spine - L/R Lateral Flexion							
			S.ROM 01 - Cervical Spine - Flexion/Extension							
			S.EMG01 - Para-Spinal Scanning							
			ROMT02 - ROM Training with 2 indinometers							
			DOMT01 - DOM Training with 1 indinameter							

Note: If this is the first time you are recording a session, at this point the system will prompt you to enter key codes. See page 3 for more details.

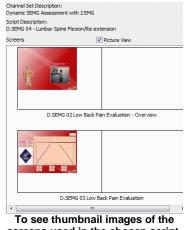
7. Start recording by clicking on the **Start** button **b** in the toolbar.

Starting a Script Session

Select **Start Script Session** from the Main Menu screen. This opens the **Start Session** screen where you go through the process of selecting a client file and script, setting up session parameters, and launching recording mode.

			đ	eck your prefere	nces, switch en	coders ON, and	l click Start.					
ents:			Sessions:									
Full Name	ID N	Clinic ID	Date and Time	Script	Duration	Descrip	Channel Set Description: Dynamic SEMG Assessment v	with 2 EMG				
Ballance, Tara	1		17/03/2016 3:15:21 PM	D.SEMG 04	00:00:50		Script Description:					
Dorimond, Florian	3		17/03/2016 3:17:16 PM	D.SEMG 04	00:00:50		D.SEMG 04 - Lumbar Spine F	lexion/Re-ext	ension			
lorimond, Dorian	2						Screens		Picture View			
Keyes, Florida	4							E				
Shores, Lajolla	5						Description		Category	Date Mod		
							D.SEMG 02 Low Back Pain B			22/10/20		
							D.SEMG 03 Low Back Pain B	Evaluation	Training (script)	20/10/20		
	Start		Keep Virtual C Select I	hannel Settings. New Script		Chanr	nel Set Configuration		Add New C	ient		
	fault Sett			ew Session			lit Script Settings		Cancel			

Start Session



screens used in the chosen script, select *Picture View*.

To record with a new script:

- 1. Select an existing Client.
- 2. Optionally, select a previously recorded script session from the Sessions list.
- 3. Click one of the following New Script options:
 - Define New Session to select a new script.
 - Keep Virtual Channel Settings. Select New Script to keep the client's channel set and settings but select a different script.

The Script Database window opens.

	Select a s	cript. Turn er	ncoder(s) ON and click OK.		
elect an Encoder Communication Protocol			Script Categories		
roComp Infiniti		Dynamic SEMG Assessment			
Description	Duration	Activities	Channel Set Description	Category	Date Modified
D.SEMG 01 - Cervical Spine Flexion/Re-extension	00:00:50	4	Dynamic SEMG Assessment wit.	. Dynamic SEMG Assessment	14/11/2008 11:57:04 AM
D.SEMG 02 - Cervical Spine L/R Lateral Flexion	00:01:20	5	Dynamic SEMG Assessment wit.		21/10/2008 12:18:39 PM
D.SEMG 03 - Cervical Spine Left/Right Rotation	00:01:32	5	Dynamic SEMG Assessment wit.	. Dynamic SEMG Assessment	17/11/2008 12:40:03 PM
D.SEMG 04 - Lumbar Spine Flexion/Re-extension	00:00:50	4	Dynamic SEMG Assessment wit.	. Dynamic SEMG Assessment	21/10/2008 12:19:17 PM
D.SEMG 05 - Lumbar Spine L/R Lateral Flexion	00:01:32	5	Dynamic SEMG Assessment wit	. Dynamic SEMG Assessment	21/10/2008 12:20:42 PM
D.SEMG 06 - Lumbar Spine Left/Right Rotation	00:01:32	5	Dynamic SEMG Assessment wit.	. Dynamic SEMG Assessment	21/10/2008 12:20:53 PM
					03/11/2008 10:13:14 AM
zipt Screens:			Catego	Picture View	Date Modified
D.SEMG 02 Knee Assessment - Overview			Instruc	tions	21/10/2008 11:17:17 AM
D.SEMG 03 Knee Assessment			Trainin	g (script)	21/10/2008 11:20:49 AM
Channel Set Configuration Edit Script :	Settinas OK		Back		Cancel

- 4. Select **FlexComp Infiniti** or **ProComp Infiniti** as the encoder communication protocol from the drop-down list at the top.
- 5. Optionally, choose a **Script Category** from the drop-down list. Only the scripts belonging to the category will display.
- 6. Select a script from the list, and click **OK**.

Note: If this is the first time you are recording a session, at this point the system will prompt you to enter key codes. See page 3 for more details.

7. When the recording screen opens, start the script by clicking on the **Start** button **D**, and follow the on-screen instructions.

To record with a previously recorded script:

- 1. Select an existing **Client**.
- 2. Select a previously recorded script session from the Sessions list.
- 3. Click one of the following Start options:
 - **Start** to rapidly start a new session with the same display screens and script settings as the selected session. These include any changes you made to the client settings.
 - Start: Default Settings to start a new session with the default channel set settings instead of any changes
 you made to the client settings for the selected session.

Note: If this is the first time you are recording a session, at this point the system will prompt you to enter key codes. See page 3 for more details.

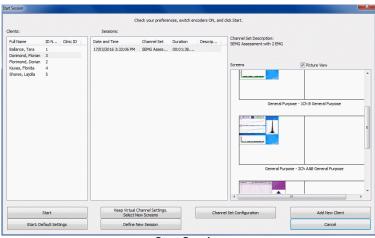
4. When the recording screen opens, start the script by clicking on the **Start** button **D**, and follow the on-screen instructions.

To record with a new client:

- 1. Click Add New Client, in the Client Data screen enter at least the person's first and last name, and click OK.
- 2. Select the new Client from the list.
- 3. Click **Define New Session** and when the **Script Database** opens, follow the remaining steps to record with a new script.

Starting an Open Display Session

Select **Start Open Display Session** from the Main Menu screen. This opens the **Start Session** screen where you go through the process of selecting a client file and channel set, setting up session parameters, and launching recording mode.





To record a new session:

- 1. Create a new client as described above, or select an existing client from the list.
- 2. Select Define New Session to open the window.

The Select up to 5 Screens for Open Display Mode window opens.

Description Setter a Channel Set and them Category in not filled in Channel Set Cohegory Setter a Channel Set and them Category in not filled in Relaxation Channel Set Cohegory Setter a Channel Set and them Cohemed Set Cohegory Relaxation Description Date Medifield P Dynamic StM Assessment with 2 MG 01/07/000 51:14:07PH QUI/0200 51:14:07PH Namuel Music Testing Description Munual Music Testing 04097/2000 51:14:14PH Relaxation - 1Ch One Flexo Relaxation - 1Ch New Flexo Relaxation -	Picture Wew Date Modified 10/10/2008 2:37:34 PM
Catagory is not filed in Relaxation Catagory is not filed in Stream Description Description Description Description Diff Massesment with 4EMG 11/1/1/2008 4:41:50 PM Dymmer SDM Assessment with 4EMG 01/0/1/2008 5:14:10 PM Description Relaxator Diff Massesment with 4EMG 01/0/1/2008 5:14:40 PM Relaxator: 1:50 PM Dymmer SDM Assessment with 4EMG 01/0/1/2008 5:14:40 PM Relaxator: 1:50 PM Relaxator: 1:50 PM Manual Made Testing 04/0/2/2009 5:11:44 PM Relaxator: 1:50 PM Relaxator: 1:50 PM Rel Relaxator: 1:50 PM Relaxator: 1:50 PM Rel PIEES Suite IEEG Cathryle EDG 06/1/1/2008 2:4:4:01 PM Relaxator: 1:50 Fmer Mass Resprator Training 04/1/1/2008 2:4:5:1 PM Relaxator: 1:50 Fmer Mass Resprator Training 04/1/1/2008 2:4:5:1 PM Relaxator: 1:50 Fmer Mass Roth Training with 1: Indiconsters 14/0/1/2008 1:3:5:1 PM Relaxator: 1:50 Fmer Mass Roth Training with 1: Indiconsters 14/0/1/2008 1:3:5:1 PM Relaxator: 1:50 Fmer Mass Roth Tarring with 1: Indiconsters 14/0/1/2008 1:3:5:1 PM Relaxator: 1:50 Fmer Mass Roth Catherback, Wh 2:EMG <th>Picture Wew Date Modified 10/10/2008 2:37:34 PM</th>	Picture Wew Date Modified 10/10/2008 2:37:34 PM
Jannel Set Screens Decorption Date Modified Marce SMM Assessment with 4 EMG 1/1/12/008 414:160 PM Dynamic SMM Assessment with 4 EMG 1/1/12/008 414:160 PM Reavators - 1Ch Dird Dynamic SMM Assessment with 4 EMG 1/1/12/008 414:160 PM Reavators - 1Ch Dird Dynamic SMM Assessment with 4 EMG 0/1/12/008 114:160 PM Reavators - 1Ch Dird Herrit Rak Monitoring with 500 and EMG 0/4/12/009 51:164 PM Reavators - 1Ch Dirde Ime Manual Mado Texting 0/4/0/2009 51:164 PM Reavators - 1Ch Dirde Ime PEEDS Subt LEEG APhyse BIG 0/1/1/2008 24:400 PM Reavators - 1Ch Dirde Ime PEEDS Subt LEEG APhyse BIG 0/1/1/2008 24:401 PM Reavators - 1Ch Sindery Resprator Training 0/1/1/2008 31:405 PM Reavators - 1Ch Sindery ROM Tarring with 1 Indrometers 1/0/1/2008 31:90:51 PM Reavators - 2Ch Sindery ROM Tarring with 1 Indrometers 1/0/1/2008 31:90:51 PM Reavators - 2Ch Sindery ROM Tarring with 1 Indrometers 1/0/1/2008 31:90:51 PM Reavators - 2Ch Sindery ROM Tarring with 1 Indrometers 1/0/1/2008 31:90:51 PM Reavators - 2Ch Sindery RSMG Assesment with 4 EMG	Date Modified 10/10/2008 2:37:34 PM
Description Date Modified Description Dyname SIMA Assessment with 4EMG 11/11/2008 44-1150 PM Relaxation - 1Ch DVD Relaxation - 12 Million Relaxation - 12 Million Relaxation - 12 Million Dyname SIMA Assessment with 4EMG 02/12/2008 519:59-84 AM Relaxation - 12 Million Heart Take Monitoring with 5P and EMG 04/02/2009 511:20 PM Relaxation - 12 Million Manual Mudic Testing with 5PG 04/02/2009 511:20 PM Relaxation - 12 Million Manual Mudic Testing with 5PG 04/02/2009 511:20 PM Relaxation - 12 Million Manual Mudic Testing with 5PG 04/02/2009 511:20 PM Relaxation - 12 Million Manual Mudic Testing with 5PG 04/02/2009 511:20 PM Relaxation - 12 Million Relis Subs LEEG Science 04/02/2009 51:20 PM Relaxation - 12 Million Relis Subs LEEG Science 04/02/2009 51:20 PM Relaxation - 20 Million Relis Subs LEEG Science 04/02/2009 51:20 PM Relaxation - 20 Million Relis Subs LEEG Science 04/02/2009 51:20 PM Relaxation - 20 Million Relis Subs LEEG Science 04/02/2009 51:20 PM Relaxation - 20 Million Relis Subs LEEG Science 04/02/2009 5	Date Modified 10/10/2008 2:37:34 PM
Opmanic ROM Assessment with 4 EMG 11/11/2008 44/11/50 PM Relaxation - 1.Ch 10/0 Opmanic ROM Assessment with 3 EMG 01/10/2008 14/10/27 PM Relaxation - 1.Ch 10/0 Opmanic SDM Assessment with 3 EMG 01/10/2008 14/10/27 PM Relaxation - 1.Ch 10/0 Mana SDM Assessment with 3 EMG 01/10/2008 14/10/27 PM Relaxation - 1.Ch 10/0 Heart Take Montering with EMG and EMG 04/02/2009 5111/44 PM Relaxation - 1.Ch 10/0 Mana Made Testing 04/02/2009 5111/44 PM Relaxation - 1.Ch 10/0 Mana Made Testing with EMG and EMG 04/02/2009 5111/44 PM Relaxation - 1.Ch 10/0 Fm Enzy PEED Subt 12 EEG 06/10/2008 24:60.3PM Relaxation - 1.Ch 10/0 Fm Enzy PEED Subt 12 EEG S AHys EMG 01/10/2008 24:60.3PM Relaxation - 1.Ch 10/0 Fm Enzy PEED Subt 12 EEG S AHys EMG 11/10/2008 24:60.3PM Relaxation - 1.Ch 10/0 Fm Enzy Reprintor Training 04/12/2008 31:26:35.PM Relaxation - 1.Ch 10/0 FM Ref Subt 12 EEG S AHys EMG 04/12/2008 31:26:35.PM Relaxation - 2.Ch Shrwing H Ref Subt 22 EGG S Cohereince 04/12/2008 31:26:32.PM Relaxation - 2.Ch Shrwing H Roth Taring with 1 Individuetters 14/02/2009 41:33.PM Relaxation - 2.Ch S	10/10/2008 2:37:34 PM
Opmans (SMC Assessment with 2 PMG 01/07/080 11:41:07PH Relaxation - 1.07 Heal Linet. Opmans (SMC Assessment with 2 PMG 01/07/080 11:41:47PH Relaxation - 1.07 Giver (JmC) Heart Rate Montarry with 587 and PMG 04/02/2009 51:11:41PH Relaxation - 1.07 Giver (JmC) Heart Rate Montarry with 587 and PMG 04/02/2009 51:10:41PH Relaxation - 1.07 Giver (JmC) Manual Mucic Testring 04/02/2009 51:10:41PH Relaxation - 1.07 Giver (JmC) Manual Mucic Testring with 587 and PMG 04/02/2009 51:10:41PH Relaxation - 1.07 Heart (JmC) PIEEG Suite IEEG SHrye EVG 05/12/2008 21:40:51PH Relaxation - 1.07 Biver (JmC) PIEEG Suite IEEG Schreine 05/12/2008 21:40:51PH Relaxation - 1.07 Biver (JmC) PIEEG Suite IEEG Schreine 05/12/2008 12:40:51PH Relaxation - 1.07 Biver (JmC) Reparation Training 04/12/2008 12:55:51PH Relaxation - 2.07 Bivershall Rolf Training Hith Indinometer 15/02/2009 41:10:51PH Relaxation - 2.07 Bivershall Rolf Assessment With 2 EMG 05/02/2009 41:10:51 PH Relaxation - 2.07 Bivershall Rolf Assessment With 2 EMG 05/02/2009 41:10:51 PH Relaxation - 2.07 Bivershall Rolf Conference Mith 2 EMG 05/02/2009	
Dynamic SBMA Assessment with PABG 02/10/2008 919:14-04 M Relaxaton - 1:07 for entrop fr PABC 2009 91:12:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:12:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:12:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:12:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:10:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:10:02 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop fr PABC 2009 91:10:03 PM Relaxaton - 1:07 for entrop fr Relaxaton - 1:07 for entrop f Relaxaton - 1:07 for entrop f Relax	
Ites T& Reventory with B/P and D% 0-1/02/2009 51:11-41PM Relaxation - 1:Ch (horse Flox) Heart T& Reventories with B/P and D% 0-1/02/2009 51:10-61PM Relaxation - 1:Ch (horse Flox) Manual Muach Testring 0-1/02/2009 51:10-61PM Relaxation - 1:Ch (horse Flox) Manual Muach Testring with B/R 0/1/1/2008 2:14-61PM Relaxation - 1:Ch (horse Flox) PIEED Satie TEES 0-1/0/2008 2:46-01PM Relaxation - 1:Ch Relaxation PIEED Satie TEES G B/Hys E/RG 0/1/1/2008 2:46-01PM Relaxation - 1:Ch Relaxation PIEED Satie TEES G B/Hys E/RG 1/1/1/2008 2:46-01PM Relaxation - 1:Ch Relaxation PIEED Satie TEES G A/Hys E/RG 1/1/1/2008 2:46-01PM Relaxation - 1:Ch Relaxation PIEED Satie TEES G A/Hys E/RG 0/1/1/2008 2:96:27HM Relaxation - 2:Ch B/Hym B/H Relaxation Taraing 0/1/1/2008 2:96:27HM Relaxation - 2:Ch B/Hym B/H ROM Training with 1:Indivancetra 1:0/0/2009 4:17:39 FM Relaxation - 2:Ch B/Hym B/H Rold Assessment with 2:E/MG 0:0/1/2008 1:97:59 FM Relaxation - 2:Ch B/Hym B/H Rold Assessment with 2:E/MG 0:0/1/2008 1:97:59 FM Relaxation - 2:Ch B/Hym B/	-Bar Graphs 07/10/2008 10:17:46 AM
Hater Italia Montoring with BIG and BIG 0.4022/009 51:12:01 PM Relaxation - 1.01. Into Graph Manual Musich Training with BIG 0.4092/009 51:14:04 PM Relaxation - 1.01. Into Graph Manual Musich Training with BIG 101/11/008 22:41:19 PM Relaxation - 1.01. Into Graph Relaxation - 1.01. Into Graph VT EEG Subt I EEG 06/13/2008 22:45:13 PM Relaxation - 1.01. Similary Relaxation - 1.01. Similary VT EEG Subt I EEG & Phys BVP 06/13/2008 23:45:13 PM Relaxation - 1.01. Similary Relaxation - 1.01. Similary VT EEG Subt I EEG & Phys BVG 01/12/008 32:45:13 PM Relaxation - 1.01. Similary Relaxation - 1.01. Similary VT EEG Subt I EEG & Christis EEG & 10/10:2008 12:45:13 PM Relaxation - 1.01. Similary Relaxation - 2.01. Similary Reprint Training 04/12/008 33:95:25 PM Relaxation - 2.01. Similary Relaxation - 2.01. Similary ROM Training Wit 1 Individuenter 1.00/12/009 41:10.19 PM Relaxation - 2.01. Similary Relaxation - 2.01. Similary ROM Tarring Wit 1 Individuenters 1.00/12/009 41:10.19 PM Similary Relaxation - 2.01. Similary ROM Tarring Wit 2 RMG 0.00/12/009 51:05:12 PM Relaxation - 2.01. Similary Relaxation - 2.01. Similary Rold Assessment With 4 PMG 0.00/12/009 51:05:10 M <td< td=""><td>Fractal 07/10/2008 10:06:53 AM</td></td<>	Fractal 07/10/2008 10:06:53 AM
Manual Maudic Testring 04/07/2008 51:46-04 PK Relaxation - 1:Ch Phanet Muzz Manual Maudic Testring with BMG 10/11/2008 22:46-01 PK Relaxation - 1:Ch Relaxa	tion 23/05/2008 11:33:11 AM
Manual Muscle Testrop with BMG 10/11/2008 22-4611 PM Relaxation - 1Ch Relaxation PEEG Subs LEEG 00/10/2008 22-4612 PM Relaxation - 1Ch Sinky PEEG Subs LEEG Subyle EIG 00/10/2008 22-4612 PM Relaxation - 1Ch Sinky PEEG Subs LEEG Subyle EIG 00/10/2008 22-4612 PM Relaxation - 1Ch Sinky PEEG Subs LEEG Subyle EIG 00/10/2008 22-452 PM Relaxation - 1Ch Sinky EIG Report and Training 04/12/2008 32-452 PM Relaxation - 1Ch Sinky EIG ROM Training with 1 Indicemeter 10/02/2009 417.150 PM Relaxation - 2Ch Sinking H ROM Training with 2 Indicemeters 14/02/2008 50:552 PM Relaxation - 2Ch Sinking H SPML Biotechack with 2 PMG 15/02/2009 41:15.16 PM Relaxation - 2Ch Sinking H SPML Biotechack with 2 PMG 15/02/2009 51:05.27 PM Relaxation - 2Ch Sinking H	h 07/10/2008 10:13:28 AM
PIEEG Suite LEEG 06/10/2008 24:46:30 PM Rekaston - 1:0: ninky PIEEG Suite LEEG Selflys EPI 06/10/2008 24:46:31 PM Rekaston - 1:0: ninky PIEEG Suite LEEG Selflys EPI 06/10/2008 12:65:51 PM Rekaston - 1:0: ninky PIEEG Suite LEEG Selflys EPIG 17/10/2008 12:95:51 PM Rekaston - 1:0: ninky Reparator Training 04/12/2008 13:95:25 PM Rekaston - 2:0: historia	zzle 07/10/2008 10:15:53 AM
PIEEG Suite 1EEG & Phys BIP 06/10/2008 2:914-294 Relaxation - 1:Ch Space Hoto PIEEG Suite 1EE Schwert Bio Schwert Biot 17/10/2008 1:253-294 Relaxation - 1:Ch Space Hoto PIEEG Suite 1EE Schwert Biot 07/10/2008 1:253-294 Relaxation - 1:Ch Space Hoto PIEEG Suite 12 EEG & Coherence 06/13/2008 2:49:25 MI Relaxation - 2:Ch Schwaton - 1:Ch Space Hoto Report Soft Training with 1 Indrometer 150/12/009 4:17:30 PH Relaxation - 2:Ch Shrinking H ROM Training with 2 Indrometers 140/12/009 4:17:30 PH Sele Software Hoto SPNG Assessment with 2 EMG 05/02/2009 4:11:16 PH PH SPNG Boelesback with 2 EMG 05/02/2008 5:05:32 PH PH	n Bar Graph 07/10/2008 10:16:37 AM
PIECS Suit: EECS & Physe BCG 17/10/2008 11:06:51 PM Relaxation - 1:Ch What Flexic PIECS Suit: EECS & Chereince 09/10/2008 31:96:25 PM E Relaxation - 1:Ch What Flexic Report on Training 04/11/2008 31:96:25 PM E Relaxation - 1:Ch What Flexic ROM Training with 1 Indrometers 1.90/10/2009 41:73:05 PM E Relaxation - 2:Ch Shrinking H ROM Training with 2 Indrometers 1.40/10/2009 41:73:05 PM E Relaxation - 2:Ch Shrinking H SMIC Assessment Whit 2 EMG 0.50/2009 41:14:16 PM E Relaxation - 2:Ch Shrinking H SMIC Assessment Whit 2 EMG 0.50/2009 41:14:16 PM E Relaxation - 2:Ch Shrinking H SMIC Assessment Whit 2 EMG 0.50/2009 41:15:05 PM E Relaxation - 2:Ch Shrinking H SMIC Assessment Whit 2 EMG 0.50/2009 41:16:16 PM E Relaxation - 2:Ch Shrinking H	07/10/2008 10:19:06 AM
PI EEG Suite 2EEG & Coherence 05/(10)2008 2-98-32 Million Relaxation - 2Ch Relaxation Respiration Training 0-4/11/2008 3-98-32 Million Relaxation - 2Ch Relaxation ROM Training with 1 Indrometer 13/01/2009 4-10-30 Million Relaxation - 2Ch Shinking Hillion ROM Training with 2 Indrometers 1-40/02/009 +10-30 Million Relaxation - 2Ch Shinking Hillion SBMG Biolecaback with 2 EMG 05/02/009 +11-14 FM Bislion Stotistist PM SBMG Biolecaback with 4 EMG 05/02/008 50:553 FM Bislion Shinking Hillion	ops 10/10/2008 2:40:43 PM
Reprint Transing 04/11/2008 359:32 PM Relaxation - 2Ch Shrinking H Roll Transing With Tundsometer 15/0/2009 4-10:30 PM Relaxation - 2Ch Shrinking H ROM Transing With Tundsometers 14/0/2009 4:17:30 PM Relaxation - 2Ch Shrinking H ROM Transing With Tundsometers 14/0/2009 4:17:30 PM Relaxation - 2Ch Shrinking H RelPK descensent With 2 PMG 0/0/2/2009 5:05:52 PM Relaxation - 2Ch Shrinking H RelPK descensent With 2 PMG 15/0/2/2009 5:05:52 PM RelPK descensent With 4:EMG	don 07/10/2008 10:26:45 AM
ROM Training with Indiometer 15/01/2009 2-44:23 PM ROM Training with 2 Indiometers 14/01/2009 4-17:20 PM ROM Research with 2 PMG 00/20209 4-14:16 PM SIME Ginekeback with 2 PMG 15/02/2009 4-14:16 PM SIME Ginekeback with 2 PMG 15/02/2009 5-05:32 PM SIME Ginekeback with 2 PMG 01/02/2008 5:05:32 PM	n with DVD 23/05/2008 11:36:09 AM
ROM Training with 2 Indinometers 14(01/2009 4:17:30 PM SBVG Assessment with 2 EMG 05(02/2009 4:14:16 PM SBVG Borkedback with 2 EMG 15/10/2008 5:05:52 PM SBVG Borkedback with 4 EMG 05/02/2000 5:05:52 PM	Heads 10/10/2008 2:42:52 PM
SEMG Assessment with 2 EMG 05/02/2009 +1:4:16 FM SEMG Biofeedback with 2 EMG 15/10/2008 50:552 FM SEMG Biofeedback with 2 EMG 09/01/2008 10:25:01 AM	
SEMG Biofeedback with 2 EMG 15/10/2008 5:05:52 PM SEMG Biofeedback with 4 EMG 09/10/2008 10:25:01 AM	
SEMG Biofeedback with 4 EMG 09/10/2008 10:25:01 AM	
Static ROM Assessment 22/09/2008 4:32:34 PM	
Static SEMG Assessment 22/09/2008 3:29:34 PM	
Channel Set Conflouration OK	



screens available for the chosen channel set, select *Picture View*.

Select up to 5 Screens for Open Display Mode

- 3. Select **FlexComp Infiniti** or **ProComp Infiniti** as the encoder communication protocol from the drop-down list at the top.
- 4. Highlight a Channel Set on the left.
- 5. Optionally, choose a **Screen Category** from the drop-down list. Only the screens belonging to the category will display.
- 6. Choose one to five Screens from the list, and click OK.

To select more than one screen, press down the CTRL key while clicking with the left mouse button.

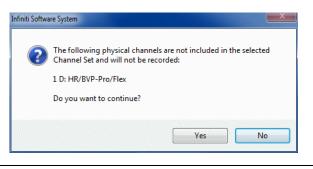
Note: If this is the first time you are recording a session, at this point the system will prompt you to enter key codes. See page 3 for more details.

7. When the recording screen opens, start recording by clicking on the Start button **1**.

Sensor Connections

If there are problems with your sensor connections, the program will report them prior to accessing the recording screen. If, for example, you have sensors that are connected but are not required for this channel set, you will get a warning message.

You can remove the sensor if you want, or continue recording by clicking **Yes**. Keep in mind that no data is recorded for sensors that are not defined in the channel set.



Note: If there are sensor connection problems in addition to extra sensors, this information won't appear as a separate message. It will display in the **Sensor Connections** window.

If you have connected wrong sensor types, you will see the **Sensor Connections** window. All the sensors that are expected will be listed in the **Expected Sensor** column.

The **Wrong Sensor Type** column shows which sensor type was actually detected. You can remove the wrong sensor or replace it with the right one.

Click **Repeat** to check the sensor connections again until the system no longer detects a wrong sensor type. The program will not allow you to record a session with the wrong sensors.

Channel	Description	Expected Sensor	Wrong Sensor Type!	Replacement Signal Value
A	A: Raw EMG	MyoScan-Flex		
1 B	B: Raw EMG	MyoScan-Flex		
1 C	C: EMG	MyoScan-Pro 1600	Sensor is not detected	1
1 D	D: EMG	MyoScan-Pro 1600	HR/BVP-Pro/Flex	
1 F		not in Channel Set	EEG-Z	
	Channels th	nat are not included in the s	elected Channel Set will not	t be recorded.

Note: If the Wrong Sensor Type column is empty, the correct sensor has been connected.

If you do not connect all the sensors that are required for the selected channel set, the message "Sensor is not detected" appears in the **Wrong Sensor Type** column. When a sensor is not connected, the program replaces its signal value by a constant value of 1. You can record a session when some sensors are missing, but the corresponding signal will be a flat line. Any calculations based on that signal will not reflect real physiological changes.

STOPPING A SESSION

No duration is set for an Open Display session. It must be stopped manually by clicking the Stop button

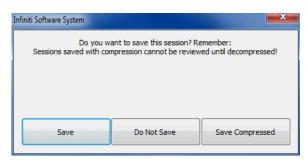


The duration of a **Script** session is set at the time the script is defined. When the script reaches its end, recording will automatically stop.

When the session ends, the following series of message prompts will appear and guide you through the process of saving data, adding notes to the session file, and, optionally reviewing the data or recording another session.

1. Save session data:

You can save the session in compressed format but, unless your hard drive has very little space available or you do not need to review the saved sessions, we recommend that you always **Save**, which uses noncompressed format.



Compressed files can't be replayed, reviewed or trended until they have been decompressed.

2. Enter Session Notes:

Here you can enter, if you want, a treatment code, a session description and some notes. Click OK to continue.

Training Code		
Description		
Description		-
		-
	ОК	ancel

3. Review or replay the session:

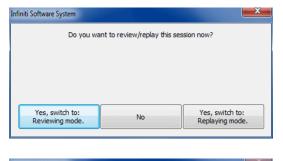
You have the option to analyze the session data at this point. You can switch to review mode or replay mode.

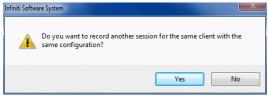
After you review the data and close the viewing screen, the program displays the next message prompt.

- 4. Record another session with the same settings:
 - If you selected **No** at the previous message, the program asks if you want to record another session with the same settings.
 - If you select **Yes** at this point, the recording screen will reopen.
- 5. Turn off your encoder:

If you selected **No** at the previous message, the program prompts you to turn your encoder off.

Click **OK** to return to the Main Menu screen.







You can also manually stop recording a script session by clicking the Stop button

In this case, you are prompted to confirm the command.

- If you select **No**, the script continues recording normally.
- If you select Yes, no data is saved for the session, and you are prompted to record another session with the same settings (message 4, above).

Infiniti Softw	The Script is not finished. Session data will not be saved. Do you want to stop recording?
	Yes No

REPLAYING SESSIONS

Replaying a session allows you to play back a recorded session like a movie. This is useful if you have recorded video data. You can replay the session from any point in time and skip to event markers or script activities and steps.

- 1. Select Database from the Main Menu screen.
- 2. In the Main Database window select the client whose session you want to replay.
- 3. Select the session from the right-hand table.
- 4. Click on **Replay Session** at the bottom.

ents:				Sessions:						
ull Name		ID Num	Clinic ID !	Date and Time	Script / Channel Set	Type	Duration	Descriptio	n Sta	ate
allance, Tara		1		17/03/2016 3:20:38 PM	D.SEMG 07 - Knee As		00:00:44			
orimond, Florian		3		17/03/2016 3:45:51 PM	SEMG Biofeedback wit.	Open	00:00:06.			
lorimond, Dorian		2								
eyes, Florida		4								
hores, Lajolla		5								
lient Options				Session Options						
aent options				Session Options						7
Add New Client	Edit Client Data	Delete Client(s)	Trend Report	Delete Ses	sion(s) Session Notes	Export	Data Re	view / Report	Replay Session	
										J
				Delete vi				Compress /		ן
	Archive Client(s)	Import Client(s)	Export Client(s)	data (if a		Export Se	ssion(s)	Decompress /	HRV Report	
Restore Client(s)				ourse for a	2.177			occompress		

5. The next step depends on whether you selected a Script session or an Open Display session to replay.

- If you selected a Script session, the screen enters replaying mode.
- If you selected an **Open Display** session, the window **Review/Replay Session Confirmation** opens.

To replay the session using different screens from those used to record it, click **Select Screens** to open the **Select Screens** window. Select up to 5 screens and click **OK** to return to **Review/Replay Session Confirmation**.

Click **OK** to enter replay mode.

Review/Replay Session Confirmation	×
Channel Set Options	
SEMG Biofeedback with 2 EMG	
Select Channel Set Edit Virtual Channel Settings	
Get original channel set and screens	
Screens Equilibration - 2Ch Balance Ratio Equilibration - 2Ch Bi-Lateral Bar-Video Equilibration - 2Ch Bi-Lateral Bar-Video 2 Equilibration - 2Ch Gorilla Ratio	
Select Screens Set Screen Order	
OK	

Review/Replay Session Confirmation

6. Click on the **Start** button **b** to replay the session.

REVIEWING SESSIONS

After recording a session you can analyze the data by going into review mode. This mode allows you to scroll through the graphs, look at statistics, and print out a report displaying the data in graphical and/or statistical form.

Review

- 1. Select Database from the Main Menu screen.
- 2. In the Main Database window select the client whose session you want to review.
- 3. Select the session from the right-hand table.
- 4. Click on Review/Report at the bottom.

The Review/Replay Session Confirmation window opens.

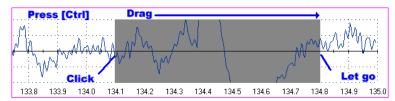
Review/Replay Session Confirmation	Review/Replay Session Confirmation
Channel Set Options Dynamic SEMG Assessment with 2 EMG Select Script Edit Virtual Channel Settings	Channel Set Options SEMG Biofeedback with 2 EMG Select Channel Set Edit Virtual Channel Settings
Screens Report-Review - 2Ch General Dynamic SEMG Assessment Review Scree Report-Review - 2Ch Knee Assessment Review Screen Report-Review - 2Ch Lumbar Spine Review Screen	Screens Report-Review - 1Ch Open Display Report-Review - 2Ch 2 Line Graphs Report-Review - 2Ch Open Display Report-Review - 2Ch Unstable Shoulder Review Screen
Select Screens Set Screen Order	Select Screens Set Screen Order
OK Cancel	OK Cancel

If you are reviewing a session that was recorded using a Favorite, then review screens will already be selected by default, and you can click OK to enter review mode.

- 5. Otherwise, to select review screens, do the following.
 - Click on Select Screens. •
 - From the Screen Category drop-down list, select Report-Review. Only screens from the selected category • will be listed.
 - Select up to 5 screens and click OK to return to Review/Replay Session Confirmation.
 - Click OK again to enter review mode. •

Rejecting Artifacts

The purpose of rejecting artifacts is to have reliable statistics, with the least amount of noise affecting the recording. Rejecting artifacts can be performed while reviewing sessions. It can be done manually by the person reviewing the data. First review the session to determine where the recording is most affected by noise. Then place artifact rejection segments at these locations, by following these steps.



- 1. Select the line graph containing the segment to be rejected. The selected graph will display a magenta border.
- 2. Press and hold the [Control] Key.
- 3. Place the cursor over one end of the rejected segment.
- 4. Click and hold the left mouse button. (You can release the [Control] key at this point.)
- 5. Drag the cursor across the segment to be rejected. The selected segment is highlighted in gray.
- 6. At the end of the segment, release the mouse button.

Note: You can place artifact rejection segments only on single-line graph instruments. If you get an error message, you have to select a different screen for reviewing.

Calculating Statistics

You have two options for calculating statistics.

The option to Calculate statistics for the whole session is always available. It calculates statistics for all data recorded during the session, with the exception of data contained within rejection segments.

If you have set at least one **In/Out** area on a line graph, you have the option to **Calculate statistics for the selected areas**. It calculates statistics for all data contained within these areas. (A brief description of In/Out markers and how to set them is provided below.)

• To calculate statistics for a session, click the **Calculate Statistics** button in the tool bar and select a calculation option.

A message confirms that the program is processing session data and then the **Statistics** window opens.

tatistics for !	elected Areas										E X	Statistics								
Description	Start Time	Duration	A: IIR	B: IIR	A: EMG	R: FMG	A: Smooth	R: Smooth	488: 4 - R	488: 4 + R	A88: (A-8 A8	Activity	Activity Descri	ption	Step	Step Descriptio	an	Statistic Description		Value
	00:00:00.649		-640.74	-980.60	1292.78	1357.17	1288.54		-64.38	2649.95	-0.02							A: IIR		1553.93
In Mid	00:00:02.505		424.52	-980.60	1357.85	1388.66	1266.54	1337.52	-04.38	2049.95	-0.02							B: IIR		-372.95
Out		00:00:00.124	-1380.00	1166	1340.87	1284.99	1365.97		-30.81	2625.85	-0.01							A: EMG		1324.55
out	00:00:05.041	00:00:00.124	-1380.00	1100	1340.67	1284.99	1333.30	1223.84	55.68	2025.85	0.02							B: EMG		1333.73
																		A: Smoothing average		1320.42
																		B: Smoothing average		1350.84
																		A&B: A - B difference		-9.19
																		A8B: A + B		2658.28
																		A8B: (A-B) / (A+B) ratio		-0.00
												- 8						A&B: (A-B)/(A+B) Smoot A: EMG as % of value	ning avg	-0.01 1324.55
																		A: EMG as 16 of Value		1324.00
					m						Þ									
				То	tal session di Reject	uration: 00: Ion Duration										Tol		ion: 00:00:06.375		
Channel	Channel Descript	on						Rejection	Durations	Rejection (Ourations (%)						Rejection I			
V9	A: EMG							- 001	00:00.443	-	6.95	Activity	Activity Descri	ption		Activity Duration	Channel	Channel Description	Rejection Durations	Rejection Durations (%)
	A. 010								00.00.113		0.95						¥9	A: EMG	00:00:00.443	6.95
		Sel	ect All				Calo	ulate Average fi	or the selected	areas							Clos	se		
		C	lose					Generat	e Report											

Calculate statistics for the selected areas

Calculate statistics for the whole session

If you selected **Calculate statistics for the selected areas**, you can select two or more areas and click **Calculate Average for the selected areas**.

To create an area statistics report, click **Generate Report** in this window. BioGraph Infiniti displays your report as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the appropriate software.

Note: When this window is open, the session report function in the Main Frame tool bar creates a report for the whole session.

• Click **Close** to close the window.

Setting In/Out Markers

You can perform this function on single line and multiple line graphs. It allows you to define specific areas where you can perform statistical analysis.

- Place your cursor at a specific point on the line graph, click the right mouse button, and select **Set In Marker for Area**.
- When Event Marker Labels opens, select or enter a name for the area and click OK. An In marker is placed on the graph.
- Place your cursor at a subsequent point on the graph, click the right mouse button again, and select **Set Out Marker for Area** to place an **Out** marker.

The two markers together indicate an area of the graph which is uniquely identified by the name you entered.

You can set as many In/Out areas as you want, but areas cannot overlap.

Generating Session Reports

In review mode BioGraph Infiniti 6.1 can generate two types of session report.

• Excel reports have been predefined and customized especially for the Rehab Suite protocols. An Excel report transfers session statistics from the session data file into a Microsoft Excel workbook and subjects them to further analysis. Excel reports can be saved or printed using the Excel functions. Excel reports have not been defined for open display sessions.

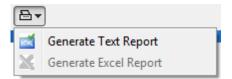
The protocol chapters contain detailed information about their respective Excel reports.

• **Text reports** include general information about the session as well as optional information (session notes, statistics, markers) that you select. A text report can be generated from any screen which includes line graphs or trend graphs. Text reports can be generated in HTML, PDF, or Microsoft Word format. They can be saved or printed using the **Print** and **Save** functions of the relevant software. Text reports are preferred for open display sessions, but they can also be generated for script sessions.

To generate a session report, enter review mode either immediately after recording a session (see <u>Stopping a</u> <u>Session</u> on page 16), or from the Database window by selecting the session from the database and clicking on **Review/Report** (see <u>Reviewing a Session</u> on page 18).

Select review screens, and then follow these steps:

- 1. If this is an open display session, from the **Options** menu select **Set Open Display Statistics** and choose the channels for which statistics should be calculated.
- 2. If necessary, perform *artifact rejection* on the recorded data.
- 3. Click the **Calculate Statistics** icon in the tool bar to recalculate the statistics.
- 4. If you have loaded more than one screen, open the screen from which you want to generate the report. Different screens can generate different reports.
- 5. Click the **Session Report** icon in the tool bar and select the type of report that you want to generate.



The icon beside **Generate Text Report** indicates whether the report will be created in HTML, PDF, or Microsoft Word format. To change this setting, go to the **Options** menu and open **Text Report Options**, where you can select a different format.

- If you select **Generate Excel Report**, Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.
- If you select Generate Text Report, the Text Report Options window opens, and you must continue to the next step.
- 6. Select report components by placing a check mark in the desired boxes.
- Click Generate Report to generate the report. Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in Preferences. The report can be saved or printed using the Print and Save functions of the relevant software.

ext Report Options	
	tion is always included in the report. t optional report settings:
Session Notes	
Session Statistics	
Session Markers	
Graph Options	
Screen Graphs	Trend Instruments
Graph Time Frame Options	Trend Graph Scale Frame Options
Size to session	 Size to session
Same as screen time frame	Span by span
Keep ratio and proportions	Keep ratio and proportions
Generate Report	Cancel

Note: Microsoft Word and Excel, a PDF reader, and a web browser **must** be installed on your system for the reporting functions to work.

	investigant das Compat	hilly Month - Marcard March
🖬 Microsoft Excel - Cervical Spine Flexion Extension.xls-bgr [Read-Only]	tope mart Regiligent References Mailings Reverse View	
Bie Edit View Insert Format Tools Data Window Help Type a question for help - 8 ×	■記録を受けては型・活動でなるのがあえる(三日の間の気間と hore (A	(99 × 1
🗋 🗃 🕢 🗇 🖾 🖾 🖏 👗 🕰 📲 🍼 🕶 🔍 🔊 🗢 🖉 👘 🖉 🖉 🖉		•
Anal 10 B Z U 臣 吾 君 图 S % , 始 超 读 课 田 • 🎝 • 🗛 •		
🛄 🖄 🖄 🖾 🧐 🏷 🕄 🦓 🖓 😭 I 🖤 Reply with Changes End Review	Reconcision Reconcision (NALI)	Reconcered Reconcered Instant
C63 • £	1	performer and the second
	Trans. 101 - Tex Britana, 10 Refer. 1	1110 ltg
2 Static Range of Motion - Inclinometry	Research Restantion	String Search Sectories 100 107 107
4	Reaction Relations - 10.00 million Rep. Reaction Tracticity (1986)	Thermody management of the second and there are a second and the s
5 Cervical Spine Flexion/Extension	Reaction Reference	Total Asian International Market
7 Client: Bulk INCREDIBLE	Print New Yorkson New York	Aug. Ann. March Constitut States and Annual State States and Annual States and Annual States
Session Date: 16/08/2008 Session Time: 3:30:38 PM	2 m 12 m 2 m 2 m	Anno Anno Marcolardo Anno Anno Anno Anno Anno Anno Anno Anno
3 Session Time, 3.30.30 PM	No. No. 1999 Autor Matter Street Conception of Conception	ALC - 1
Position: Ope if here or selects Movement type: (select)	Torus Mills 20 Mills States 1 1 1	· · ···· little annotizent taa haaf haarda aa
D N Flexion Result Valid Used	12 2	
To Measure 1 42.9 YES L Flexion - 2 Extension	Down 18	00'00.00 00.00.05
K Manuary 6.6 V15 D Manuary 4.4 4.5 D Manuary 4.4 4.5 D Manuary 4.7 V15 B Manuary 4.2 V15 B D Manuary 4.2 V15 B D Manuary Nath Valid Manuary D Manuary Valid Manuary Manuary		
B Measure 4 44.7 YES Ed 60.0 B Measure 5 41.7 YES Ed 60.0		
20 Measure 6 42.0 YES 82 50.0		
22 Extension Result Valid Used		
3 Measure 3 53.1 YES 20	\$10.0010.000 \$10.000.000 Dot 10.000	
	mpan of	
2P Messace 5 901 VES 60 1 2 3M Messace 5 48.6 VTS 88 0.0 1 2 3M FROM Nerm Piendit Max X Nerm Der X Der		
30 POM Norm Basult Max % Norm Dev % Dev 31 Flexion 50 43.1 44.7 96.2 -6.9 -13.8	-1000 t	
31 Pression 30 43.1 44.7 96.2 45.8 10.6 32 Extension 60 50.5 52.8 84.2 -9.5 -55.8	Instance Incompress to Units	shaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
33 34 Summary Notes	And the second s	
3	Testing and the second se	
	Rear Red Total	
30		seenna an
40		
	00.000 000 000 000 000	-
44 Eollow-up Notes		
Draw • 🖟 AutoShapes • 🔪 🔍 🖂 🖓 🌒 🖉 🖉 • 🚣 • 🗮 🗮 🛱 🖉 🥊		· · · · · · · · · · · · · · · · · · ·
Ready	and the second se	

Excel-generated session report

Word-generated session report

TOOL BAR OPTIONS

While recording, replaying or reviewing an open display session there are certain options that are available on a tool bar found near the top of the display screen. To learn more about the tool bar, refer to the online help by pressing F1.

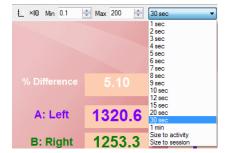
Toggling Between Screens

If you have chosen more than one screen you can view each one by clicking on the numerical buttons on the toolbar at the top. Up to five screens can be viewed (in the example below, there are four, where the third screen is currently on display).



Adjusting Scales and Threshold

By clicking on a graph instrument you can enable any of the scale and threshold options on the toolbar shown below.



• Vertical scale: The minimum and maximum scale values can be changed by clicking on the up and down arrows to the right of the text boxes labeled with **Max** and **Min**.

The numbers increase or decrease by 0.1, but when you click on the **Scaling Coefficient** button *increase*, the numbers change by 1. (You can also type the desired value into the text box and then click anywhere on the screen to save the change.)

• Multi line-graph Y1 and Y2 axes toggle: The multiple line graph has a left and a right vertical scale that can be adjusted independently of each other by clicking on the toggle button.

1



Left vertical scale enabled.

Right vertical scale enabled.

- **Threshold:** The threshold line on a bar graph, line graph and animation scale can be adjusted in the same way as the vertical scale. The text box labeled **Thr1** is for single threshold graphs, while **Thr2** is for double threshold graphs like the multi-line graph that can have up to two guidelines.
- **Time scale:** The default time for all the screens is 30 seconds. You can select a new time scale by clicking on the drop-down menu.

USING A WEB CAMERA



When you see this logo on a screen in the manual, it means you can use a webcam with this screen. You only need to connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

The software searches for a connected video capture device and activates it automatically. A preliminary testing window will pop up, in order to adjust the camera. The video will be recorded with the session and can be reviewed or replayed.

If you have more than one video capture device connected to your system, and want to use a specific one, place the cursor on the video image and click the right mouse button, then select the device from the list:



USING A DVD



When you see this logo on a screen in the manual, it means a DVD can be used with this screen. You need only insert the DVD in the DVD player of your computer.

When the option **Start DVD but Pause session** is selected, you can launch a DVD, access the DVD menu and start a movie while the program waits in Pause.

When you are ready to start recording data, click the **Pause** button. Recording will begin.

Note: Your computer system must include a functioning DVD drive in order to use this function.

SENSOR CALIBRATION AND ZEROING

The ForceTrac and Dual-InclinoTrac sensors may require calibration or zeroing. You do this in the Recording Screen before starting to run the protocol.

From the Hardware menu of the Recording Screen, select **Sensor** Calibration.

This opens the **Sensor Calibration & Zeroing** window. Here you can run a Wizard to zero or calibrate your sensor.

Har	dware View Help	
	Battery Level	
	Impedance Check	
	Zeroing	
	Offset Check	- 1
	Sensor Calibration	
	Encoder Type Confirmation	

Encoder, Channels, and Sensors

The left pane of the window identifies the specific encoder by its serial number (in this case, CA1422), lists the channels for the encoder, and indicates the calibration and zeroing status of the sensor attached to each channel.

If a sensor has previously been zeroed or calibrated, the value entered in *Sensor serial no.* displays beside its channel identifier.

Click **Display Legend** to open a window explaining the symbols used to indicate sensor status.

Display Legend	Sensor input value	
A1422 Channel A	Sensor serial no.	
Channel B	Sensor type	Unconnected
Channel C Channel D	Encoder serial no.	CA1422
Channel E Channel F	Physical channel no.	Channel H
Channel G	Unit type	
	Zeroing date	
	Calibration date	
	Calibration due date	
	Day(s) between calibrations	
	Gain	<u></u>
	Offset	

×=Sen	sor Disconnected	
=Enc	oder serial number	-
Calibr	ation status	
=Cali	bration done	マル
=Cali	bration due	SY
=Cali	bration was never performed	
=No	calibration scheme defined	/
	Zeroing status	
	=Zeroing done	
	= Zeroing was never perfor	med
	=No zeroing scheme define	ed

In the screen shot above, for example:

- For the sensor connected to Channel A, calibration and zeroing schemes exist. Zeroing has been performed, but calibration has not, and the sensor is due to be calibrated.
- For the sensor connected to Channel B, calibration and zeroing schemes exist. Both calibration and zeroing have been performed.
- For the sensor connected to Channel C, calibration and zeroing schemes exist. Zeroing has been performed, but calibration has never been performed.
- Sensors have not been connected to the other channels.

Command Buttons

Note:

The command buttons are in a row at the bottom of the window. Depending on whether you are calibrating or zeroing the sensor, some button labels will change.

Calibrate now: Click this button to open the Calibration Wizard, which provides step-by-step instructions leading you through the calibration procedure. The wizard opens the right pane of the window. When the Zeroing Wizard is active, this button is disabled.

Zero now: Click this button to open the Zeroing Wizard, which provides step-by-step instructions leading you through the zeroing procedure. The wizard opens the right pane of the window. When the Calibration Wizard is active, this button is disabled.

If a sensor requires both calibration and zeroing, calibrate the sensor before you zero it.

Display Legend	Sensor input value	-717.2781 PU	
CA1422	Sensor serial no.		
Channel B	Sensor type	Force	- 🔁 🔬 🌾
Channel C Channel D	Encoder serial no.	CA1422	- 9 00- 4
Channel E Channel F	Physical channel no.	Channel C	
Channel G Channel H	Unit type	Pressure Unit	
an and a second second	Zeroing date	18/03/2016	- 🗕 💆
	Calibration date		Enter sensor information. Click 'Next' to continue.
	Calibration due date		
	Day(s) between calibrations	0	
	Gain		
	Offset	-717.0938	User Entry(PU) 180

Apply: Click this button to save changes to the settings.

Abort calibration: In the Calibration Wizard, click this button to exit the wizard without saving changes.

Abort zeroing: In the Zeroing Wizard, click this button to exit the wizard without saving changes.

Next: After completing each step, click this button to proceed to the next step.

Close: At any step, click this button to discard any changes to the settings and close the wizard. You will be prompted to confirm that you want to discard the changes.

Sensor Status Details

The list in the middle panes of the window shows specific values for the sensor on the selected channel. For a description of these values, press F1 to consult the on-line help.

IMPEDANCE CHECK

It may be necessary to check impedance values for MyoScan-Z sensors. These values indicate the quality of contact between the electrodes and the skin. You do this in the Recording Screen before starting to run the protocol.





The graphic display shows the impedance values of the selected sensor in green, orange or red.

- Green indicates a low value.
- Orange indicates a medium value.
- Red indicates a high value.

Ideally, all three measurements should display in green.

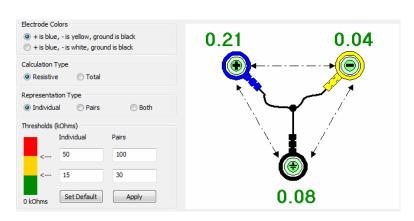
For more information about impedance checking, press F1 to consult the online help.

From the **Options** menu of the Recording Screen, select **Impedance Check**. This opens the **Impedance Check** window.

Then, trigger impedance checking from your encoder. To do this:

- Ensure that the encoder's **power light** is on.
- Press and hold down the **power button** for about 3 seconds, or until the power light starts blinking.

When the power light begins to blink, impedance checking mode is active.



To exit impedance checking mode, press the power button down for about 3 seconds, or until the power light stops blinking.

OVERVIEW

The following protocols are very common SEMG assessment techniques. They can be performed at the beginning of each visit. They allow you to quickly assess the examinee's muscle condition and determine the training parameters of the day (since an examinee's condition can change over time).



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: SEMG ASSESSMENT; section: SEMG SIGNAL ANALYSIS: GENERAL CONCEPTS

Also recommended:

- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- SKELETAL MUSCLE PROPERTIES

GENERAL PROCEDURE

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensor to channel A.
 - Optional MyoScan/MyoScan-Z sensors to channel B, and channels C to J for FlexComp Infiniti.

Α	В	С	D	Е	F	G	н	I	J
Муо	Myo (optional)	Myo (optional for FlexComp)							

- Turn the encoder on.
 - 1. Click Quick Start.

	Qui	ck Sta	rt	

- 2. From Categories, select Pro/Flex Rehab Suite General SEMG Assessment.
- 3. From Clients, select a name.
- 4. From **Favorites**, select the desired **Assessment Protocol**.
- 5. Click OK.

Pro Rehab Suite - General SEM	1G Assessment	
Full Name	ID Number	Clinic ID
Shores, Lajolla	5	
aronte .		
avorite Description		
Description		
Description G.SEMG01 - Baseline		
Description G.SEMG01 - Baseline G.SEMG02 - Maximal Force		
Description G.SEMG01 - Baseline G.SEMG02 - Maximal Force G.SEMG03 - Endurance	essment 1 Musde	

Measuring

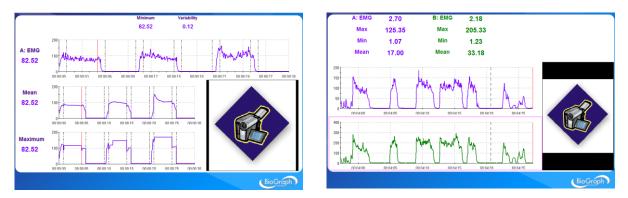
Click the Start button

Reviewing the session

When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Categories

In review mode, a screen similar to this will appear:



If you used a webcam to make a video recording of the session, during review the video playback is synchronized to the EMG signal as you move the Time Mark back and forth along the EMG signal line graph.

Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

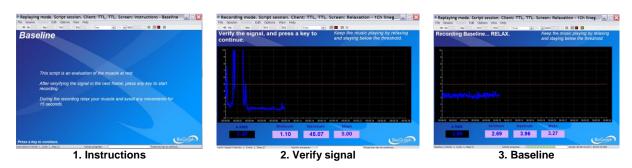
Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

G.SEMG01 – BASELINE ASSESSMENT

This protocol measures the resting level of the muscle. The patient must be asked to totally relax the muscle.

The protocol script is divided into 3 steps:

- 1. **Read instructions:** Gives you an overview of what to expect; no data is recorded; press any key when you are done.
- 2. **Verify signal:** Take the time to make sure the sensor and cables are connected properly. No data is recorded. Pressing any key on your keyboard allows you to advance to the next activity.
- 3. Baseline: Relax muscles to determine new resting levels; duration is 15 seconds.



G.SEMG02 – MAXIMAL FORCE ASSESSMENT

This protocol measures the maximal force of the muscle. The maximal force is the highest level of voluntary contraction that a person can achieve without inducing unacceptable pain.

The protocol is divided into 3 steps:

- 1. **Read instructions:** Gives you an overview of what to expect; no data is recorded; press any key when you are done.
- 2. **Verify signal:** Take the time to make sure the sensor and cables are connected properly. No data is recorded. Pressing any key on your keyboard allows you to advance to the next activity.
- 3. Rest-work cycle: The patient relaxes and contracts muscles for 5 seconds, three times.

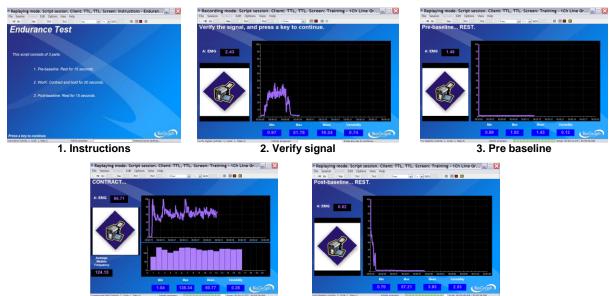


G.SEMG03 – ENDURANCE ASSESSMENT

This protocol assesses a sustained contraction. The patient contracts as strongly as they can during an extended period (about 20 seconds). This monitors the recruitment of the slow twitch fibers (muscle endurance). The contraction should be performed against static resistance (isometric contraction).

The protocol is divided into 5 steps:

- 1. **Read instructions:** Gives you an overview of what to expect; no data is recorded; press any key when you are done.
- 2. Verify signal: Take the time to make sure the sensor and cables are connected properly. No data is recorded. Pressing any key on your keyboard allows you to advance to the next activity.
- 3. Pre-Baseline: The patient must relax.
- 4. **Contract and Hold:** The patient contracts as strongly as they can during an extended period (about 20 seconds).
- 5. Post-Baseline: Comparison of resting levels (pre/post) assesses the ability to recover.



4. Contract and Hold

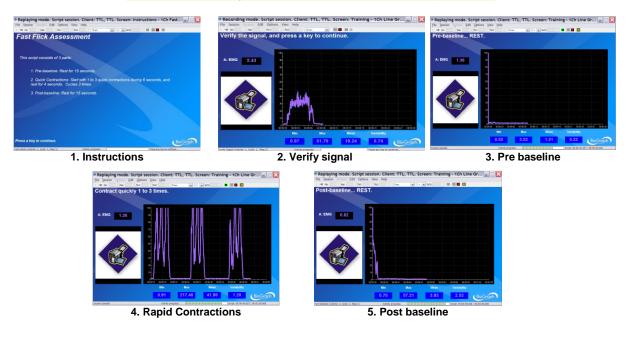


G.SEMG04 - FAST FLICK ASSESSMENT

This protocol measures the maximal force of the muscle. The maximal force is the highest level of voluntary contraction that a person can achieve without inducing unacceptable pain.

The protocol is divided into 5 steps:

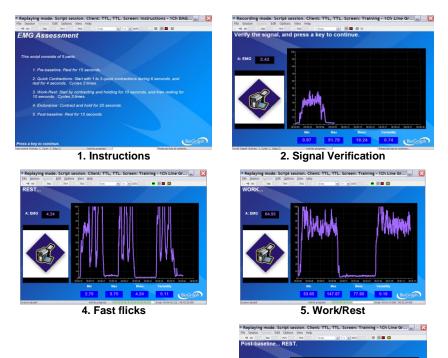
- 1. **Read instructions:** Gives you an overview of what to expect; no data is recorded; press any key when you are done.
- 2. **Verify signal:** Take the time to make sure the sensor and cables are connected properly. No data is recorded. Pressing any key on your keyboard allows you to advance to the next activity.
- 3. Pre-Baseline: The patient must relax.
- 4. Rapid Contractions: the patient repetitively contracts as quickly and strongly as they can.
- 5. Post-Baseline: Comparison of resting levels (pre/post) assesses the ability to recover.

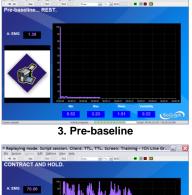


Rehab ProComp & FlexComp Infiniti™ Rehab Suite Reference Manual

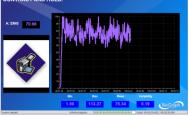
G.SEMG05 - GLOBAL SEMG ASSESSMENT 1 MUSCLE

This is a complete assessment of the muscle with 5 activities: pre baseline, fast flicks (rapid contractions), work/rest (maximal force), endurance and post baseline.





laying mode. Script session. Client: TTL, TTL. Screen: Training - 1Ch Line Gr... 🖃 🗆 🔀



6. Endurance

7. Post baseline

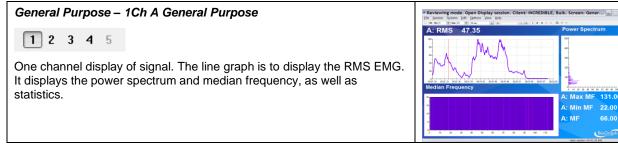
2.53 BioGraph

SEMG ASSESSMENT - GENERAL PURPOSE (G.SEMG06 and up)

0.82

This section regroups generic display screens designed for SEMG Assessment. As opposed to the protocols above, here there is no sequence of actions and limitation of time.

G.SEMG06 - SEMG Assessment with 2 EMG



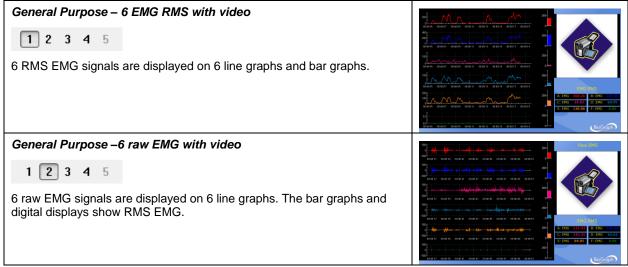
General Purpose – 1Ch B General Purpose	Reviewing mode: Open Display session. Client: INCREDIBLE, Bulk: Screen: Gener
1 2 3 4 5 One channel display of signal. The line graph is to display the RMS EMG. It displays the power spectrum and median frequency, as well as statistics.	B: RMS 50,16 Power Spectrum
General Purpose – 2Ch A&B General Purpose	Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Gener
1 2 3 4 5 The two line graphs on the top display the raw EMG of A and B. The power spectrum displays A on the left and B on the right. The graph at the bottom displays the median frequency of both channels.	A: RMS 53.84 B: RMS 68.46
General Purpose – 2Ch Line-Bar Graphs	* Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Gener
1 2 3 4 5	A RMS B RMS 65.52 56.59
The two RMS EMG signals are displayed on line graphs and bar graphs. Statistics are also displayed.	transformed and the second sec

G.SEMG07 - SEMG Assessment with 4 EMG (FlexComp Infiniti only)

General Purpose – 4 EMG RMS with video	
1 2 3 4 5	
4 RMS EMG signals are displayed on 4 line graphs and bar graphs.	
General Purpose – 4 raw EMG with video	
1 2 3 4 5	
4 raw EMG signals are displayed on 4 line graphs. The bar graphs and digital displays show RMS EMG.	

These screens are also used for review.

G.SEMG08 - SEMG Assessment with 6 EMG (FlexComp Infiniti only)



These screens are also used for review.

G.SEMG09 - SEMG Assessment with 10 EMG (FlexComp Infiniti only)

General Purpose – 10 EMG RMS with video	
1 2 3 4 5	
10 RMS EMG signals are displayed on 5 line graphs.	
General Purpose – 10 raw EMG with video	
1 2 3 4 5	
10 raw EMG signals are displayed on 10 line graphs. The digital displays show RMS EMG.	
	No. No.

These screens are also used for review.

Static SEMG Assessment

OVERVIEW

Static SEMG Scanning assesses the resting level of the muscles surrounding the spine in static position. The protocol scans 12 sites x 2 (left/right) from C2 to L5.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: SEMG ASSESSMENT; section: STATIC SEMG ASSESSMENT

Also recommended:

INTRODUCTION TO SURFACE ELECTROMYOGRAPHY

PROCEDURE

Starting the Session

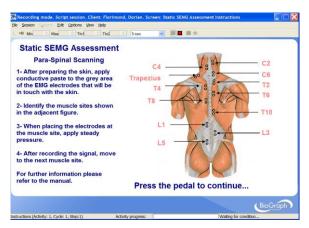
- Connect the sensors to the encoder as follows:
 - MyoScan or MyoScan-Z sensors to channels A and B (left in A, right in B);
 - Foot pedal to channel C.

Α	В	С	D	Е	F	G	Н	I	J
Myo (left)	Myo (right)	Pedal							

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Static SEMG Assessment.
 - 3. From Clients, select a name.
 - 4. From Favorites, select S.EMG01 Para-Spinal Scanning.
 - 5. Click OK.

ID Number	Clinic ID
5	

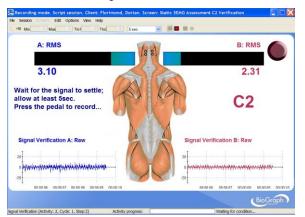
• Click the Start button **D** and read the instructions on the screen. **Do not press the foot pedal yet**.



- Put conductive electrode paste or cream on the EMG electrodes (grey area only).
- Position yourself next to the examinee, the encoder attached to your belt, with the pedal near your foot.
- Press the foot pedal to go to the next screen.

Measuring

1. Place the active electrodes (positive and negative) in alignment with the spine (except for trapezius), at a distance of 3 cm out from the vertebral ridge, and at the site shown on the screen.

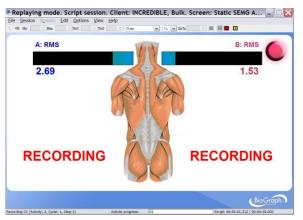


2. Position your hands so that the electrodes remain stable and do not move, as shown in the picture below. Apply gentle pressure on the sensor so that the 3 electrodes make good contact with the skin.

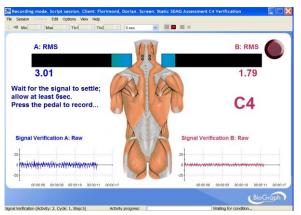


3. Ask the examinee to relax their muscles.

- 4. Wait for the signal to settle; allow at least 5 seconds before recording the data. But do not wait more than 30 seconds; the signal will not settle more and you risk creating movement artifacts by holding the electrodes too long.
- 5. Press the foot pedal to record.



6. Then move to the next site.

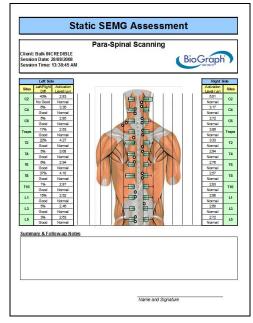


- Repeat steps 1 to 6 for sites from C2 to L5.
- When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Generating a report

- After the review screen opens, you can generate a SEMG Assessment report. This is an Excel report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.



Normative Data are shown with a "T" on the graph:



The report shows the difference between left and right (in %) for each site. The formula is (Max(left,right)-Min(left, right))/Max(left,right).

The report rates the level of activation of each site:

Ranges	Level of activation	Color code
Between Mean – 1 StD. and Mean + 1 StD.	Normal	(green)
Between Mean + 1 StD. and Mean + 2 StD.	Mid Activation	(yellow)
Between Mean + 2 StD. and Mean + 3 StD.	Moderate Activation	🗌 (orange)
Greater than Mean + 3 StD.	Severe Activation	(red)
Less than Mean – 1 StD.	Mid Inhibition	(yellow)
Less than $1\mu V$ or greater than $25\mu V$	Invalid Data	🔀 (red)

Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

•

Summary Notes:

- In Excel 2000 and Excel 2003, place your cursor in the text box and start typing.
 - In Excel 2007, place your cursor in the text box.

Marked improvement

Right-click the mouse button.
 Select Edit text.

Start typing.

- Edit Text
- Rehab ProComp & FlexComp Infiniti™ Rehab Suite Reference Manual

3.

OVERVIEW

Dynamic SEMG assesses muscle tension through various movements, such as flexion/extension, lateral flexion or rotation.

In addition to general protocols, the system provides three assessment protocols for the **cervical spine** (CP, SCM or Traps) and for the **lumbar spine**:

- Flexion/Extension
- Left/Right Lateral Flexion
- Left/Right Rotation

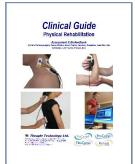
It also provides one assessment protocol for the anterior knee (VMO and VL).



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: SEMG ASSESSMENT; section: DYNAMIC SEMG ASSESSMENT

Also recommended:

- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- SKELETAL MUSCLE PROPERTIES

GENERAL PROCEDURE

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensors to channels A and B (left in A, right in B).
 - o Optional MyoScan/MyoScan-Z sensors to channels C and D (left in C, right in D).

A	В	С	D	E	F	G	н	Ι	J
Муо	Муо	Myo (optional)	Myo (optional)						

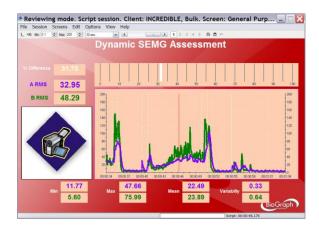
• Turn the encoder on.

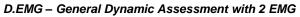
- 1. Click Quick Start.
- 2. From Categories, select Pro/Flex Rehab Suite - Dynamic SEMG Assessment.
- 3. From Clients, select a name.
- 4. From Favorites, select the desired General Dynamic Assessment Protocol.
- 5. Click OK.

tegories		
legones		
Pro Rehab Suite - Dynamic SEMG /	Assessment	
Full Name	ID Number	Clinic ID
Shores, Lajolla	5	
Description		
Description D.SEMG - General Dynamic Asses		
D.SEMG - General Dynamic Asses D.SEMG - General Dynamic Asses	sment with 4 EMG	
Description D.SEMG - General Dynamic Asses	sment with 4 EMG n/Re-extension	
Description D.SEMG - General Dynamic Asses D.SEMG - General Dynamic Asses D.SEMG01 - Cervical Spine Flexio	sment with 4 EMG n/Re-extension teral Flexion	
Description D.SEMG - General Dynamic Asses D.SEMG - General Dynamic Asses D.SEMG01 - Cervical Spine Flexio D.SEMG02 - Cervical Spine L/R La	sment with 4 EMG n/Re-extension teral Flexion ight Rotation	
Description D.SEMG - General Dynamic Asses D.SEMG - General Dynamic Asses D.SEMG01 - Cervical Spine Flexio D.SEMG02 - Cervical Spine L/R La D.SEMG03 - Cervical Spine Left/R	sment with 4 EMG n/Re-extension teral Flexion ight Rotation ı/Re-extension	
Description D.SEMG - General Dynamic Asses D.SEMG - General Dynamic Asses D.SEMG01 - Cervical Spine Flexio D.SEMG02 - Cervical Spine L/R La D.SEMG03 - Cervical Spine Left/R D.SEMG04 - Lumbar Spine Flexior	sment with 4 EMG n/Re-extension teral Flexion ight Rotation ı/Re-extension teral Flexion	

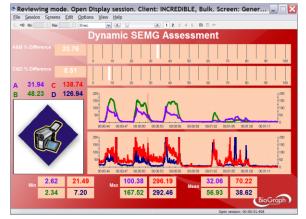
Measuring

Click the Start button





The Multi-line graph will display the EMG signal of 2 channels A and B. The Bar graph indicates the % Difference between the two signals. There are statistics available as well.





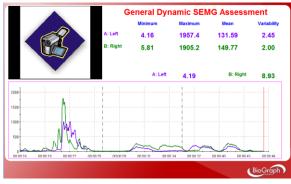
The two Multi-line graph will display the EMG signal of 2 channels simultaneously, respectively A and B, C and D. The Bar graphs indicates the % Difference between the signals (A and B), (C and D). There are statistics available as well.

Mark the different stages of the movement with event makers (events can be marked by hitting the space bar or a key of the keyboard that you would have preliminarily labeled with the name of the event).

Reviewing the session

When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:



D.EMG - General Dynamic Assessment with 2 EMG

The Multi-line graph will display the EMG signal of 2 channels A and B. The Bar graph indicates the % Difference between the two signals. There are statistics available as well.

Select the desired display time window on the screen by using the dropdown list.

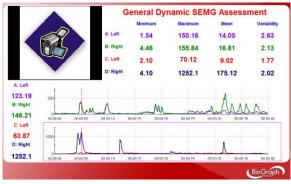
It is recommended to select first **Size to session** for a global view of the session and then **Size to activity** to view the different phases of the motion.

Scroll through the session by using the scroll bar.

You can read the value of a given point on the signal by moving the red Time Mark. The Time Mark is usually placed at the right end of the graph (see picture).

To move the Time Mark:

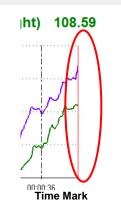
- 1. Place the cursor over the Time Mark.
- 2. Click and hold down the mouse button.
- 3. Drag the Time Mark to the desired position.



D.EMG – General Dynamic Assessment with 4 EMG

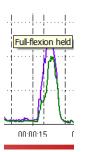
The two Multi-line graph will display the EMG signal of 2 channels simultaneously, respectively A and B, C and D. The Bar graphs indicates the % Difference between the signals (A and B), (C and D). There are statistics available as well.

30 sec 🔹	
1 sec	
2 sec	
3 sec	
4 sec	
5 sec	
6 sec	
7 sec	
8 sec	
9 sec	
10 sec	
12 sec	
15 sec	
20 sec	
30 sec	
1 min	
Size to activity	•
Size to session	
	P.



.

Move the mouse cursor over a marker (vertical dashed line) to display its label (such as flexion, re-extension etc.)



If you used a webcam to make a video recording of the session, during review the video playback is synchronized to the EMG signal as you move the Time Mark back and forth along the EMG signal line graph. This allows you to see lateral deviations in the movement and to observe any antalgic position.

The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

PROCEDURE FOR LUMBAR SPINE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

• Connect the MyoScan/MyoScan-Z EMG sensors to the encoder in channels A and B (left in A, right in B).

А	В	С	D	E	F	G	н	I	J
Myo (left)	Myo (right)								

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite - Dynamic SEMG Assessment.
- Categories
 Pro Rehab Suite Dynamic SEMG Assessment
 Full Name
 ID Number
 Clinic ID
 Shores, Latolla

Quick Start

3. From **Clients**, select a name.

- 4. From Favorites, select the desired Dynamic SEMG Protocol for Lumbar Spine.
- 5. Click OK.

escription	
).SEMG - Gen	eral Dynamic Assessment with 2 EMG
D.SEMG - Gen	neral Dynamic Assessment with 4 EMG
D.SEMG01 - C	Cervical Spine Flexion/Re-extension
D.SEMG02 - C	Cervical Spine L/R Lateral Flexion
D.SEMG03 - C	Cervical Spine Left/Right Rotation
D.SEMG04 - L	umbar Spine Flexion/Re-extension
D.SEMG05 - L	umbar Spine L/R Lateral Flexion
D.SEMG06 - L	umbar Spine Left/Right Rotation
D.SEMG07 - K	inee Assessment

• Click the Start button **and read the instructions on the screen**.

First you will see an overview screen (Flexion/Re-extension, shown here):



• Press a key to go to the next screen.

In the next screen, verify that the signal is free of artifacts and the sensors properly placed.



• Before going to the next screen and starting to record, instruct the examinee to perform the motion slowly, until they feel restriction, tightness or discomfort.

Measuring

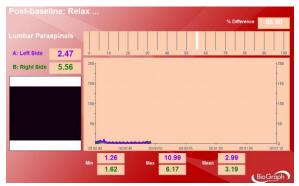
1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.

A: Left Side 10.70 B: Right Side 4.28 50 50 50 50 50 50 50 50 50 50									
B: Right Side 4.28	A: Left Side	10.70	0 1	0 20	30	40 1	50 60	70 80	90 10
100	B: Right Side	4.28	200						[²⁰⁰
50 -50 -50			150 -						- 150
Junior and a state of the state			100						100
Junior and a state of the state									
			501						50

2. Then the voice prompt asks the examinee to perform the motion three times.

Flexion: Bend Forv	ward as	far as	you car	1	1		
						6 Difference	31.75
Lumbar Paraspinals A: Left Side 11.95	0 10	20	30	40 50	60 70	80	90 100
B: Right Side 8.16	200						[²⁰⁰
	150+						-150
	100						-100
	50						-50
-	80.00.10	00.00.15	00:00:20	00:00:25	00:00:30	00.00.35	10
	Min 11	.95	Max	73.12	Mean 4	4.46	
	8.	16		50.06	2	7.23	
							BioGraph

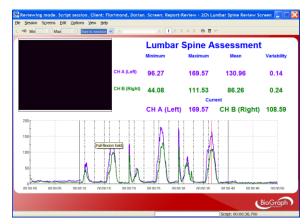
3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.



Reviewing the session

When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:

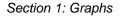


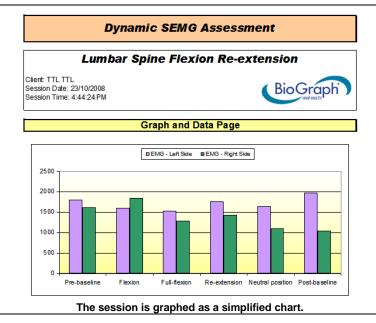
The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is an Excel report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.





For relaxation phases, such as baselines, neutral position and completed range of motion (full flexion, full rotation etc.), the EMG (RMS) mean is plotted. For motion phases, such as flexion, re-extension or rotation, the EMG (RMS) peak is plotted.

Section 2: Data

			Difference	Average
BASELINE ANALYSIS	Left side	Right side	(Right - Left)	Difference
	(µV)	(μV)	(µV)	(%)
Pre-baseline average	8.0	5.3	-2.7	33.84%
Flexion peak	71.5	55.6	-15.9	22.26%
Full-Flexion average	5.8	4.3	-1.5	25.48%
Re-extension peak	161.5	114.4	-47.1	29.16%
Neutral position average	4.4	3.4	-1.1	23.94%
Post-baseline average	2.9	3.3	0.4	11.74%
WITHIN-MOTION ANALYSIS	Left side	Right side	Difference	
Flexion/re-extension peaks ratios	0.44	0.49	8.88%	
Pre/post baselines difference (µV)	5.03	1.94	-3.09	
TEMPORAL ANALYSIS			Difference	
TEMPORAL ANALTSIS	Left side	Right side	(Right - Left)	
Time to flexion peak (seconds)	1.35	1.33	-0.03	
Time to re-extension peak (seconds)	1.24	1.39	0.16	
Pre-baseline variability	0.16	0.15	-0.01	
Post-baseline variability	0.57	0.33	-0.23	

The report computes the difference between left and right either in μ V or in %.

The formula for μV difference is (right - left).

The formula for percentage difference is (Max(left,right)- Min(left, right))/Max(left,right).

Section 3: Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

Summary Notes:

In Excel 2000 and Excel 2003, place your cursor in the text box and start typing.
In Excel 2007, place your cursor in the text box.

A

匝

Edit Text

Group

Marked improvement

- 1. Right-click the mouse button.
- 2. Select Edit text.
- 3. Start typing.

PROCEDURE FOR CERVICAL SPINE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensors positioned on the CPs to channels A and B (left in A, right in B).
 - MyoScan/MyoScan-Z sensors positioned on the SCMs or Traps to channels C and D (left in C, right in D).

Α	В	С	D	Е	F	G	н	I	J
Myc (left C	P) Myo (right CP)	Myo (left SCM or Traps)	Myo (right SCM or Traps)						

- Turn the encoder on.
 - 1. Click Quick Start.

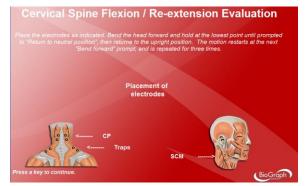
<u>Q</u> uick	Start	

- 2. From Categories, select Pro/Flex Rehab Suite Dynamic SEMG Assessment.
- 3. From Clients, select a name.
- 4. From Favorites, select the desired Dynamic SEMG Protocol for Cervical Spine.
- 5. Click OK.

Shores, Lajolla 5 avorite Description D.SEMG - General Dynamic Assessment with 2 EMG D.SEMG - General Dynamic Assessment with 4 EMG D.SEMG01 - Cervical Spine Flexion/Re-extension D.SEMG02 - Cervical Spine L/R Lateral Flexion D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion	ro Rehab Suite - Dynamic SEM	G Assessment	
avorite Description D.SEMG - General Dynamic Assessment with 2 EMG D.SEMG - General Dynamic Assessment with 4 EMG D.SEMG01 - Cervical Spine Flexion/Re-extension D.SEMG02 - Cervical Spine L/R Lateral Flexion D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion	Full Name	ID Number	Clinic ID
avorite Description D.SEMG - General Dynamic Assessment with 2 EMG D.SEMG - General Dynamic Assessment with 4 EMG D.SEMG01 - Cervical Spine Flexion/Re-extension D.SEMG02 - Cervical Spine L/R Lateral Flexion D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion D.SEMG06 - Lumbar Spine Left/Right Rotation	Shores, Lajolla	5	
D.SEMG02 - Cervical Spine L/R Lateral Flexion D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion			
D.SEMG02 - Cervical Spine L/R Lateral Flexion D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion	D.SEMG - General Dynamic Ass	essment with 2 EMG	
D.SEMG03 - Cervical Spine Left/Right Rotation D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion	D.SEMG - General Dynamic Ass	essment with 4 EMG	
D.SEMG04 - Lumbar Spine Flexion/Re-extension D.SEMG05 - Lumbar Spine L/R Lateral Flexion	D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex	essment with 4 EMG kion/Re-extension	
D.SEMG05 - Lumbar Spine L/R Lateral Flexion	D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex	essment with 4 EMG kion/Re-extension	
	D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R	essment with 4 EMG kion/Re-extension Lateral Flexion	
D.SEMG06 - Lumbar Spine Left/Right Rotation	D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R D.SEMG03 - Cervical Spine Left	essment with 4 EMG kion/Re-extension Lateral Flexion t/Right Rotation	
	D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R D.SEMG03 - Cervical Spine Left D.SEMG04 - Lumbar Spine Flex	essment with 4 EMG kion/Re-extension Lateral Flexion t/Right Rotation ion/Re-extension	

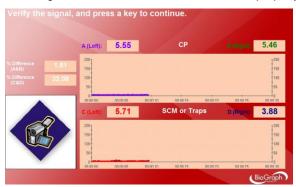
Click the Start button local and read the instructions on the screen.

First you will see an overview screen (Flexion/Re-extension, shown here):



• Press a key to go to the next screen.

In the next screen, verify that the signal is free of artifacts and the sensors properly placed.



Before going to the next screen and start recording, instruct the examinee to perform the motion slowly, until they
feel restriction, tightness or discomfort.

Measuring

1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.

	A (Left):	5.23		СР		Bilbights:	5.15
1.51	100						200 150
30.45	50-						100 50
	00000	00.00.05	000010	00.00.15	00 00 20	000025	00.00.00
	C (Left):	5.34	S	CM or Tra	aps	D (Right)	3.71
	100						I ²⁰⁰
	50-						150
	50						50
	0,00,00	00-00-05	00.00.10	00:00:15	00-00-20	000025	0,00.00

2. Then the voice prompt ask the examinee to perform the motion three times.

Flexion: Bend yo	ur head	forward	as far	as you ca	an		
	A (Left):	3.18		СР		a mono:	3.64
% Difference (A&B) % Difference (C&D)	50	مم					200 150 100 50 0
	c (Leff):	00.00.15 2.87	000020	SCM or Tra	ips	D (Right):	6.15
	160 58	hung					200 150 100 50
	0 00 00 10	0.0015	02:00:20	60.00.25	00.00.30	60:00:35	01.00.40

3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.

	A (Left):	3.46		СР		B (Right)	4.30
	-07 ¹⁰⁰						150
G Difference 22. (C&D)	3.3 50-						100
	0 80 00 40	00:08-45	00:00:50	00.00.55	00-61-00	00-01-05	00-01-10
	C (Left):	3.07		SCM or Tra	aps	D (Right):	2.38
	100						Į ²⁰⁰
	50						150
							50
	0 00.00.40	00:00:45	00.00.50	00.0055	00-01-00	00-01-05	00:01:10

Reviewing the session

When the session ends, a series of message prompts guides you through the process of saving data, adding
notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:

				Cervi	cal S	pine A	ssess	ment	t –
				Minimum	0000	Maximum	Mear	1	Variability
		CH	A (Left)	3.78		6.42	4.95	5	0.11
		CH	B (Right)	3.57		5.61	4.75	5	0.08
		CH	C (Left)	2.78		8.91	4.02	2	0.32
		СН	D (Right)	2.78		7.83	3.91	1	0.22
				C	urrent				
CH A (Left)	4.45	CH B (Right)	4.85	СН	C (Left)	3.54	CH D	(Right)	3.50
50		n	Jos	in					
00.00.00.00.00	ns nn nn 10	00.0015	000020	00.00.25	00-00-30	00:00:35	00-00-40	00:00:45	00:00:50
50	11	-111		11	1.11	1 1 1	1		
		Amora	La	Sool	lid	had	and		
			00.00.20	00.0025	00.00.30	00.00.35	00.00-40	00:00:45	00.00.50

The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

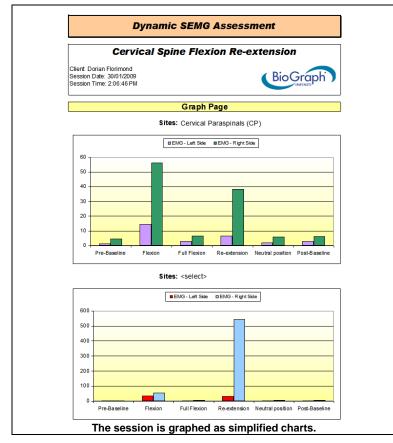
Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is an Excel report.
 - 1. Click the **Session Report** icon in the tool bar.

2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.

Section 1: Graphs



For relaxation phases, such as baselines, neutral position and completed range of motion (full flexion, full rotation etc.), the EMG (RMS) mean is plotted. For motion phases, such as flexion, re-extension or rotation, the EMG (RMS) peak is plotted.

The first graph shows CP. The second graph shows the second pair of monitored sites. They can be either SCM or traps.

In order to select the sites, you have to click on "<select>".

Sites:	Sternocleidomastoid (SCM)	-
	<select></select>	
	Sternocleidomastoid (SCM)	-
	Trapezius Not used	
	Not used	

The legend on the next pages will be automatically updated.

_

Section 2: Data

	Data I	Page		
ervical Paraspinals (CP)				
			Difference	Average
PARALLEL SYMMETRY ANALYSIS	Left side	Right side		Difference
PARALLEL STMMETRT ANALTSIS	(µV)	(µV)	(µV)	(%)
re-baseline average	5.2	5.2	0.0	0.08%
lexion peak	16.9	15.5	-1.4	8.06%
ull-Flexion average	8.5	8.0	-0.5	6.00%
Re-extension peak	18.5	23.0	4.5	19.59%
leutral position average	4.4	4.5	0.1	2.85%
ost-baseline average	4.0	3.9	-0.1	2.93%
WITHIN-MOTION ANALYSIS	Left side	Right side	Difference	
lexion/re-extension peaks ratios	1.31		5.69%	
re/post baselines difference (µV)	0.02	-1.57	-1.58	
TEMPORAL ANALY SIS		_	Difference	
	Left side			
ïme to flexion peak (seconds)	2.10		0.13	
ïme to re-extension peak (seconds)	0.90		-0.08	
re-baseline variability	0.15			
ost-baseline variability	0.15	0.08	-0.07	
Sternocleidomastoid (SCM)				
	Left side	Right side	Difference (Right - Left)	Average Difference
PARALLEL SYMMETRY ANALYSIS	(µV)	(µV)	(Right - Leit) (µV)	(%)
	(µv)	(µv)	(µv)	(70)
re-baseline average	1.9	21	0.2	10.46%
lexion peak	7.1	13.9	6.8	49.10%
ull-Flexion average	3.4		6.4	65.24%
Re-extension peak	5.4		5.9	52.00%
leutral position average	3.4		3.7	54.65%
Post-baseline average	1.9		1.8	48.81%

The data are grouped in order to facilitate the analysis.

The report computes the difference between left and right either in μV or in %.

The formula for μV difference is (right - left).

The formula for percentage difference is (Max(left,right)- Min(left, right))/Max(left,right).

Section 3: Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

•

Summary Notes:

- In Excel 2000 and Excel 2003, place your cursor in the text box and start typing.
 - In **Excel 2007**, place your cursor in the text box.
- Marked improvement
- 1. Right-click the mouse button.
- 2. Select Edit text.

Edit Text

Start typing.

PROCEDURE FOR ANTERIOR KNEE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

• Connect the MyoScan/MyoScan-Z EMG sensors to the encoder in channels A and B (A for VMO, B for VL).

Α	В	С	D	Е	F	G	Н	I	J
Myo (left)	Myo (right)								

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Dynamic SEMG Assessment.
 - 3. From Clients, select a name.
 - 4. From Favorites, select the desired Dynamic SEMG Protocol for Knee Assessment.
 - 5. Click OK.

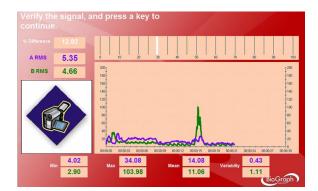
	1.0						
<u>Q</u> uick Start							
ategories							
Pro Rehab Suite - Dynamic SEM	Assessment						
Full Name	ID Numbe	r Clinic ID					
Shores, Laiolla 5							
Shores, Lajolla	5						
Shores, Lajolla avorite Description	5						
avorite							
avorite Description	essment with 2 EMG						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex	essment with 2 EMG essment with 4 EMG ion/Re-extension						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R	essment with 2 EMG essment with 4 EMG ion/Re-extension Lateral Flexion						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex	essment with 2 EMG essment with 4 EMG ion/Re-extension Lateral Flexion						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R	essment with 2 EMG essment with 4 EMG ion/Re-extension Lateral Flexion /Right Rotation						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R D.SEMG03 - Cervical Spine Left	essment with 2 EMG essment with 4 EMG ion/Re-extension Lateral Flexion /Right Rotation on/Re-extension						
avorite Description D.SEMG - General Dynamic Ass D.SEMG - General Dynamic Ass D.SEMG01 - Cervical Spine Flex D.SEMG02 - Cervical Spine L/R D.SEMG03 - Cervical Spine Left D.SEMG04 - Lumbar Spine Flexi	essment with 2 EMG essment with 4 EMG ion/Re-extension Lateral Flexion /Right Rotation on/Re-extension .ateral Flexion						

Click the **Start** button and read the instructions on the screen.
 First you will see an overview screen:

Knee Asse	ssment
Place the electrodes as indicated. Start the range of prompted. Hold the position (with both legs on the bid the starting position. The motion resta	ock) until prompted to "Step down", returning to
Range of Motion	Planters of origination
Press a key to continue.	BioGraph

• Press a key to go to the next screen.

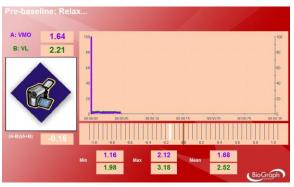
In the next screen, verify that the signal is free of artifacts and the sensors properly placed.



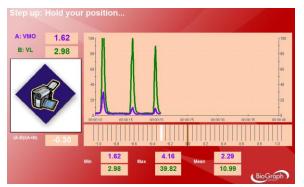
• Before going to the next screen and starting to record, instruct the examinee to perform the motion slowly, until they feel restriction, tightness or discomfort.

Measuring

1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.



2. Then the voice prompt asks the examinee to perform the motion three times.



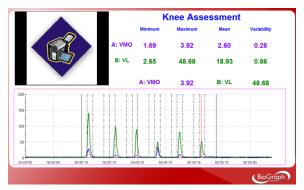
3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.

A: VMO B: VL	1.39	100							1 ¹⁰⁰
B: VL	2.41	80-							80
		60							60
6	?	40.							40
		20							20
		0	00.35	80-00-40	00.00-45	000050	00-00-55	00.01.00	0
(A-B)/(A+B)	-0.27		0 -0.8	-0.6	-0.4 +0.2	80 0.2	0.4 0	6 0.8	1.0
		Min	1.07	Max	1.64	Mean	1.36		
		Min	2.14		3.22	Mean	2.52		

When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Reviewing the session

In review mode, a screen similar to this will appear:



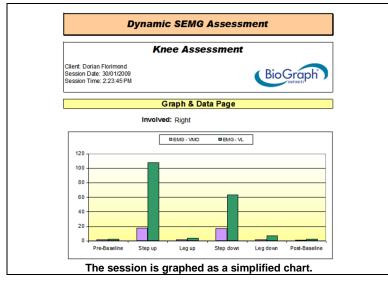
The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is an Excel report.
 - 1. Click the Session Report icon 🗁 🖬 in the tool bar.
 - 2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.

Section 1: Graphs



For relaxation phases, such as baselines and neutral position (leg up and leg down), the EMG (RMS) mean is plotted. For motion phases, (step up and step down), the EMG (RMS) peak is plotted.

In order to select the involved side, you have to click on "Involved".



Section 2: Data

	VMO (µV)	VL (µV)
Pre-baseline average	1.6	2.5
Step up	17.9	107.8
Legup	1.7	3.8
Step down	17.1	63.4
Leg down	2.0	7.3
Post-baseline average	1.4	2.5
Pre/post baselines difference (µV)	0.26	0.06
PARALLEL SYMMETRY ANALYSIS During Step-up	VMO/VL 0.2	
During Step-down	0.3	

The report computes the difference between pre and post baselines and the ratio VMO/VL EMG peaks during the motion phases.

Section 3: Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

Summary Notes:

• In Excel 2000 and Excel 2003, place your cursor in the text box and start typing.

Edit Text

Group

A

中

• In Excel 2007, place your cursor in the text box.

Marked improvement

- 1. Right-click the mouse button.
- 2. Select Edit text.
- 3. Start typing.

Muscle Fatigue Monitoring

OVERVIEW

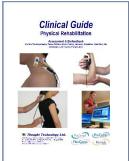
SEMG can be used as an indicator of muscle fatigue. The following screens were designed for this purpose.



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: SEMG ASSESSMENT; section: MUSCLE FATIGUE MONITORING

Also recommended:

- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- SKELETAL MUSCLE PROPERTIES

GENERAL PROCEDURE

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensor to channels A.
 - Optional MyoScan/MyoScan-Z sensor to channel B.

Α	В	С	D	E	F	G	н	I	J
Муо	Myo (optional)								

- Turn the encoder on.
 - 1. Click Quick Start.
- Quick Start

 ehab
 Categories

 Pro Rehab Suite Muscle Fatigue
- 2. From Categories, select Pro/Flex Rehab Suite Muscle Fatigue.

•

- 3. From **Clients**, select a name.
- 4. From Favorites, select Muscle Fatigue Monitoring.
- 5. Click OK.

Measuring

Click the Start button
 Include A start button

 Full Name
 ID Number
 Clinic ID

 Shores, Lajolla
 5

 Favorite

 Description

 Muscle Fatigue Monitoring with 2 EMG

You can view each screen by clicking on the numerical buttons on the toolbar at the top.

1

2 3 4 5

• To stop the session, click the Stop button:	
Muscle Fatigue Monitoring on A & B 1 2 3 4 5 For each signal, RMS EMG and median frequency are plotted on the same line graph. Video can also be recorded.	A: EHG (rV) 122. A: Median Prequency (Hz) 150.
Muscle Fatigue Monitoring on A 1 2 3 4 5 This screen is similar to the one above, but only displays channel A.	A: EHG (IV) 122. A: Madian Frequency (Hz) 150.
Report - Review – 2Ch 2 Line Graphs 1 2 3 4 5 The two RMS EMG signals are displayed on line graphs. Statistics are also available.	A 650 122.06 8 65 Max 135.17 Max 233.44 Mn 0.97 Mn 0.85 Hen 44.24 Mean 111.24 Hen 44.24

Review screen

The same screens are used for review.

All these screens are accessible from **Start Open Display Session** in the channel set "**SEMG Assessment with 2 EMG**".

SEMG Biofeedback

OVERVIEW

This section suggests several training screens that will enhance and speed up rehabilitation thanks to SEMG biofeedback.



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains several biofeedback training techniques.

Chapter: SEMG BIOFEEDBACK TRAINING

Also recommended:

- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- SKELETAL MUSCLE PROPERTIES

GENERAL PROCEDURE

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensor to channel A.
 - o Optional MyoScan/MyoScan-Z sensors to channel B to D, and channels E to J for FlexComp Infiniti.

Α	В	С	D	E	F	G	н	Ι	J
Муо	Myo (optional)	Myo (optional)	Myo (optional)	Myo (optional for FlexComp)					

• Turn the encoder on.

1. Click Quick Start.

 From Categories, select one of the categories starting with "Pro/Flex Rehab Suite – SEMG Biofeedback –".

Quick Start
Categories Pro Rehab Suite - SEMG Biofeedback - Control

- 3. From Clients, select a name.
- 4. From Favorites, select the desired SEMG Biofeedback Protocol.
- 5. Click OK.

Full Name	ID Number	Clinic ID
Shores, Lajolla	5	
Favorite		
Description		
RELAX01 - Relaxation with 1 EMG		
RELAX02 - Relaxation with 1 EMG		
RELAX03 - Relaxation with 2 EMG		

Click the Start button

You can view each screen by clicking on the numerical buttons on the toolbar at the top.



• If the feedback is scale dependent, you can adjust the sensitivity of the animation or graph as follow:

	والمكنى	
150	T	1
100		
50	i 4	*
0		

Min	0	*	Max	180	*

Select the animation by clicking on it. A thin red frame will appear around it.

Type the desired EMG scale in **Min** and **Max**. Then click anywhere on the screen.

If the feedback is threshold-dependent: The threshold line on a bar graph, line graph and animation can be
adjusted in the same way as the vertical scale. The text box labeled Thr1 is for single threshold graphs, while
Thr2 is for double threshold graphs like the multi-line graph that can have up to two guidelines.





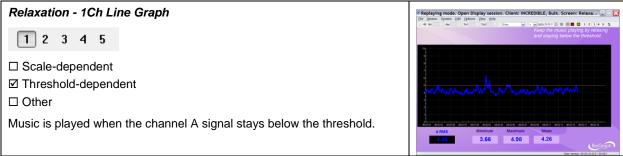
You can also directly move the threshold by placing the mouse cursor on the threshold line, pressing and holding the mouse left button and moving the cursor up and down.

To stop the session, click the Stop button:

CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – RELAXATION

These screens are designed for muscle deactivation training and, ultimately, total relaxation.

RELAX01 - Relaxation with 1 EMG



Relaxation - 1Ch Relaxation Bar Graph	* Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Relaxa I Ke Streen Streen: Edit Ophon Yow Heb
1 2 3 4 5	Les w w w he he he to gravity. Relation to keep the music playing.
 Scale-dependent Threshold-dependent Other Music is played when the channel A signal stays below the threshold. 	ARIS 4.43 Manum 3.86 Maximm 9.34 Mean 4.85
Relaxation - 1Ch Smiley	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Relaxa Ele Series Sores (ch. Options Size: Brip He Series Sores (ch. Options Size: Brip He Series (ch. Options Size: B
1 2 3 4 5	Keep the face smilling by relaxing your muscles and staying below the threshold.
□ Scale-dependent	A RMS 4.31
☑ Threshold-dependent	Co Co Minum
Coher	Mashum Mash
The face will smile when the channel A signal is below the threshold.	
Relaxation - 1Ch Knee Flexion	Enter pased Open and Control of C
1 2 3 4 5	le jean spen (4 gen we be the maximum in the frame is washing (2 ■ 0 125 + 5 th Kein the log faxed and the music playing by staying below the threshold.
□ Scale-dependent	Anus 4.99
☑ Scale-dependent ☑ Threshold-dependent	4.99 100 3.10 100 000 6.79 100 100 100 100 100 100 100 100 100 100
□ Other	6,79 Ins 4,56
When the signal is below the threshold, the leg relaxes; when above, it	
straightens.	Core searce (2007) (2007)
Relaxation - 1Ch Wrist Flexion	Replaying mode. Open Display testion. Client: INCREDIBLE, Bulk. Screen: Relaxa
1 2 3 4 5	suy anow we mean ou to make we nand move.
□ Scale-dependent	ARMS 3.79
☑ Threshold-dependent □ Other	
When the signal is below the threshold, the wrist relaxes; when above, it	
straightens.	Marau Marau
RELAX02 - Relaxation with 1 EMG	Innexe (passed Open senses): (668-12,077,08.61.1
Relaxation - 1Ch Filled Line-Bar Graphs	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Relaxa Post Service Service Set Options Set Help Help Service Set Option Set Help
1 2 3 4 5	New the event step of build and give a first the first hold
□ Scale-dependent	
☑ Threshold-dependent	
Other	
Music is played when the channel A signal stays below the line graph threshold.	After other o
The signal is displayed in two different views: filled line graph and bar graph.	Oper answers (16.81 36.80) / 181561

Relaxation - 1 Ch Parrot Puzzle	Replaying mode. Open Display session. Client: INCREDIBLE, Builk. Screen: Relaxa Porture of the sense of the s
 1 2 3 4 5 □ Scale-dependent ☑ Threshold-dependent □ Other If the EMG reading is below the threshold for 10 seconds then the puzzle 	Can you complete the puzzlo? The the stress of the stress
starts to fill in. If the signal goes above, pieces will disappear.	665 GP
 Relaxation - 1Ch Growing Fractal 1 2 3 4 5 Scale-dependent Threshold-dependent Other This display assists a patient to differentiate between contracting and relaxing their muscles. Set the animation scale to a maximum value that is appropriate for a low sub-maximal contraction. Set the animation threshold in the middle of this scale. As the patient sustains a sub-maximal contraction and the EMG activity goes above the threshold, the fractal will fill in. As the patient releases the contraction and the EMG activity falls below its threshold the fractal will slowly open and a relaxing song is heard. The complete animation cycle takes approximately 20 seconds, 10 on each side of the threshold. 	Reviewing mode: Open Display sestion. Client: INCREDIBLE, Bulk. Screent: Relaxa
Relaxation - 1Ch Space Hoops 1 2 3 4 5 □ Scale-dependent □ Threshold-dependent □ Other The animation moves when the channel A signal is below the threshold.	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Relax
Relaxation - 1Ch DVD 1 2 3 4 5 Scale-dependent Threshold-dependent Other The channel A signal must stay below the bar graph's threshold to keep the DVD screen size constant.	

RELAX03 - Relaxation with 2 EMG

Relaxation - 2Ch Shrinking Heads ion. Client: INCREDIBLE, Bulk. Screen: Relaxa... 1 2 3 4 5 □ Scale-dependent ☑ Threshold-dependent □ Other Music is played when both channels A and B (bar graphs on the right) are 9 17.4 below the threshold. The two heads must have the same size, which means both signals must be at the same level. Channel B could be connected to the healthy site, in order to use it as a model for the unhealthy site. Relaxation - 2Ch Relaxation with DVD INCREDIBLE Bulk Sc a... ... 🗆 🔀 1 2 3 4 5 □ Scale-dependent DVD ☑ Threshold-dependent □ Other The DVD will resume playing when both channels A and B are below the threshold.

CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – STRENGTHENING

These screens are designed for muscle activation training and ultimately strengthening. The scale should be adjusted according to the maximal force and the threshold to the training goal.

STRN01 - Strengthening with 1 EMG

The three screens show a classic view of the signal with bar graphs and line graphs.

Strengthening - 1Ch Bar Graph	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Streng
1 2 3 4 5	Keep the music playing by staying above the threshold.
 □ Scale-dependent ☑ Threshold-dependent □ Other 	A SM8 51.92 Mormun 3.75 Maximum 38.36 Hean 11.03
This screen graphs the channel A signal on a bar graph and also displays statistics.	
A sound plays when the signal goes above the threshold.	
Strengthening - 1Ch Filled Line Graph	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Streng
1 2 3 4 5	pare for more playing by playing along the bound of
 □ Scale-dependent ☑ Threshold-dependent □ Other 	
The signal changes color, and bolero music plays, when channel A goes above the threshold.	3.43 2.94 21.30 12.69 (60.56)

Strengthening - 1Ch Filled Line-Bar Graphs

 1
 2
 3
 4
 5

 Characterization
 Scale-dependent
 Image: Characterization of the signal changes color, and music plays, when channel A goes above the line graph threshold.
 Image: Characterization of the signal changes color, and music plays, when channel A goes above the line graph threshold.
 Image: Characterization of the signal changes color, and music plays, when channel A goes above the line graph threshold.

 The bar graph also displays the EMG levels in real time.
 Image: Characterization of the signal changes color of the signa

STRN02 – Contract and Hold (with 1 EMG)

The four next screens provide the patient with more interesting feedback. Each screen requires the patient to hold the contraction for a longer period of time.

Strengthening - 1Ch Smiley	* Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Streng
1 2 3 4 5	Keep the face smilling by staying above the threshold.
 □ Scale-dependent ☑ Threshold-dependent □ Other 	40.01 1000
The face will continue smiling as long as the contraction on channel A is being held above threshold.	
Strengthening - 1Ch Rooster Puzzle	Applaying mode. Open Display session. Client: INCREDBLE, Bulk. Screen: Streng
 □ Scale-dependent ☑ Threshold-dependent □ Other 	76.23 90.52 243.31
The puzzle will fill when the contraction on channel A has been held above the threshold for more than 3 seconds. If the contraction dips below the threshold, then the timer will reset.	126.49 (60.5%) (10.5%)
The threshold is also indicated by the Tarantella tune and can be set on the bar graph instrument.	
Strengthening - 1Ch Flower Puzzle	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Streng
1 2 3 4 5	See what happens when you hold the contraction above the threshold for more than 5 seconds.
 □ Scale-dependent ☑ Threshold-dependent □ Other 	42.11 G7.46 Maximum 198.29
The puzzle will fill when the contraction on channel A has been held above the threshold for more than 5 seconds. If the contraction dips below the threshold, then the timer will reset.	Men 131.5 Comparison Men part Contraction (Contraction)
The threshold is also indicated by a jazz tune and set on the bar graph.	

Strengthening - 1Ch Dolphin Puzzle

□ Scale-dependent

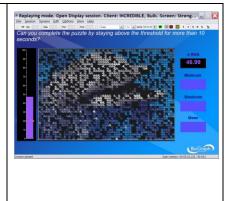
☑ Threshold-dependent

□ Other

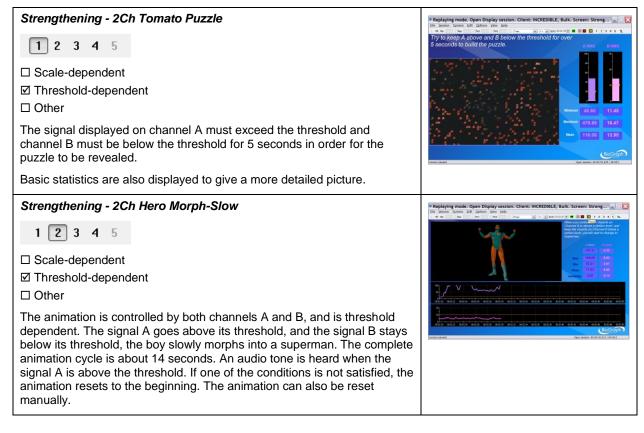
The puzzle will fill when the contraction on channel A has been held above the threshold for more than 10 seconds. If the contraction dips below the threshold, then the timer will reset.

The threshold is also indicated by a harpsichord sound and can be set on the bar graph instrument.





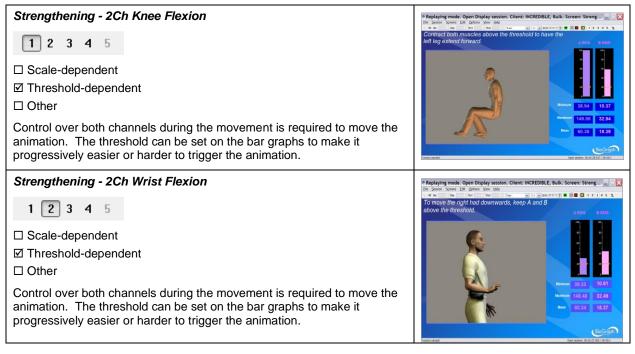
The four next screens are more challenging, involving two muscles. Channel A is used for the muscle that must be activated, while channel B is used for the muscle that must not be activated.



Strengthening - 2Ch Car Race	Replaying mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Streng In Kernel (Strengther Strengther Str
 1 2 3 4 5 Scale-dependent Threshold-dependent Other The aim is to make the blue car (channel A) pass the finish line (the white bar on the far right of each track) before the yellow car (channel B). To meet this goal, A must stay above its threshold while B stays below. The points for A increment when both channels are in condition, and the points for B increment when B is above threshold. 	Keep the orange car from reaching the finish.
Strengthening - 2Ch Conditional DVD 1 2 3 4 5 Scale-dependent Image: Threshold-dependent Other	Replaying mode: Open Display sussion. Client: InCRD08LE, Bulk: Screen: Streep:

STRN04 – Uptrain A / Downtrain B Specific (with 2 EMG)

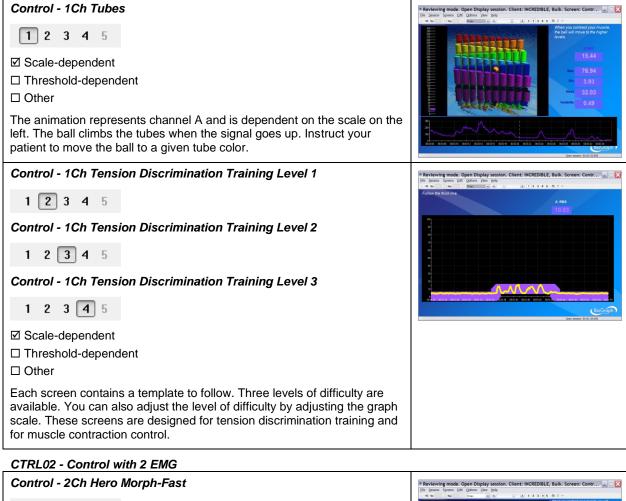
The two next screens are specific to a given joint.



CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – CONTROL

These screens are designed for muscle control training. The scale should be adjusted according to the maximal force. Channel B is used to train the patient not to activate a second muscle while activating the first one. The threshold of channel B should be set at a small value above the resting baseline.

CTRL01 - Control with 1 EMG

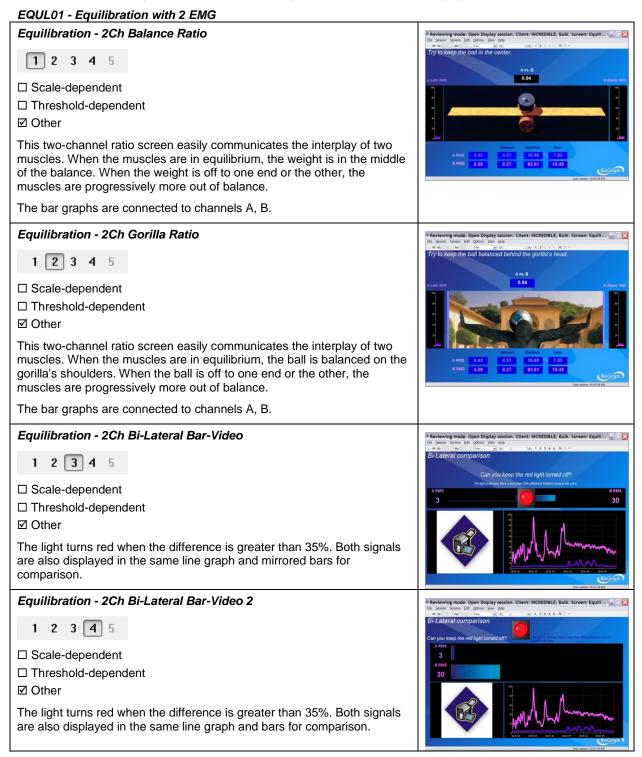


1 2 3 4 5 ☑ Scale-dependent □ Threshold-dependent □ Other The animation represents channel A and is dependent on the scale on the left. The boy morphs into a superman when the channel A signal is toward the upper range of the scale. As the signal comes down the scale, the superman returns to a boy. Control - 2Ch Animal Game an Display session Client: INCREDIBLE Bulk Screen: Contro 1 2 3 4 5 ☑ Scale-dependent □ Threshold-dependent □ Other An exercise to control muscle contraction by lining up the cartoon man with the animal in the blue square while the line-up of animals constantly changes. Channel A is connected to the animation. The stronger the contraction, the further the man moves to the right. To keep the man moving, the signal from channel B should remain below its threshold.

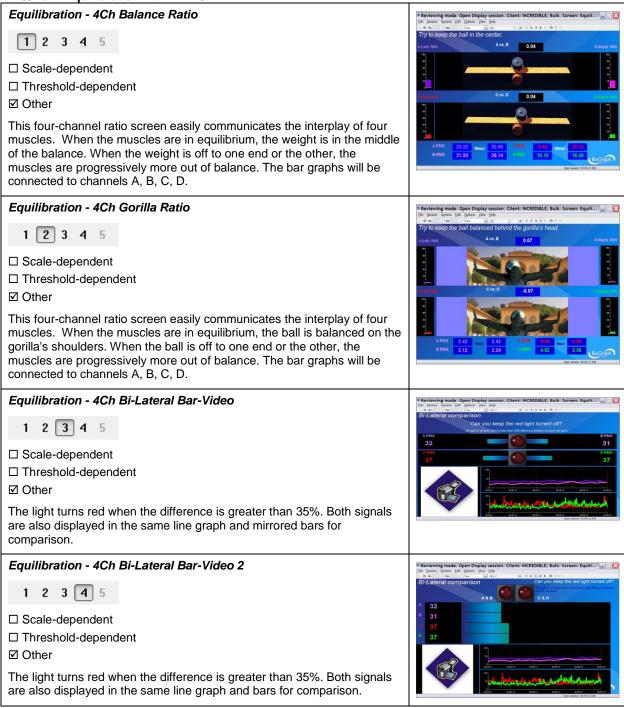
Rehate ProComp & FlexComp Infiniti™ Rehab Suite Reference Manual

CATEGORY: PRO/FLEX SUITE – SEMG BIOFEEDBACK – EQUILIBRATION

These screens are designed for equilibration training. Equilibration refers to bringing muscles into equilibrium.



EQUL02 - Equilibration with 4 EMG



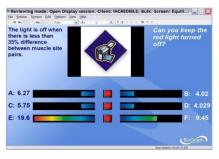
EQUL03 - Postural Training with 4 EMG

The next three screens are specified for postural training. They will reinforce good posture with visual assistance.

Equilibration – 4Ch Postural Training – Cervical & Thoracic Spine	8 Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Equili 💷 🗆 🔀
 1 2 3 4 5 □ Scale-dependent □ Threshold-dependent ☑ Other The light will turn red when the difference between the two muscles at the site is greater than 35%. The mirrored bar graphs assist the comparison at the site. 	A: RMS 6.27 C: RMS 5.75 Can you keep the red light turned off? Label 10 and 10 an
Equilibration – 4Ch Postural Training – Cervical & Lumbar Spine	* Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Equili 💷
 1 2 3 4 5 □ Scale-dependent □ Threshold-dependent ☑ Other The light will turn red when the difference between the two muscles at the site is greater than 35%. The mirrored bar graphs assist the comparison at the site. 	A: RMS 6.27 Can you keep the red light turned off? C: RMS 5.75 24.19 E: RMS D: RMS D: RMS C: RMS D: RMS D: RMS D: RMS D: RMS C: RM
Equilibration – 4Ch Postural Training – Thoracic & Lumbar Spine	* Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Equili
 1 2 3 4 5 □ Scale-dependent □ Threshold-dependent ☑ Other The light turns red when the difference is greater than 35%. Both signals are also displayed in the same line graph and bars for comparison. 	Can you keep the red light turned off? A: RMS 6.27 C: RMS 5.75 C: RMS C:
EQUL04 – Postural Training with 6 EMG (FlexComp Infiniti only)	•
Equilibration – 6Ch Bi-Lateral – Video	* Reviewing mode. Open Display session. Client: INCREDIBLE, Bulk. Screen: Equili
1 2 3 4 5 □ Scale-dependent	The light is of when there is less than 35% difference between muscle site pairs.

- □ Threshold-dependent
- Ø Other

Comparing 6 muscle sites, the difference between each two-muscle site should be less than 35%. The red light will be on to indicate the difference is greater than 35%.



Equilibration – 6Ch Postural Training – Cervical & Thoracic & Lumbar Spine

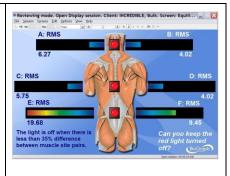
1 2 3 4 5

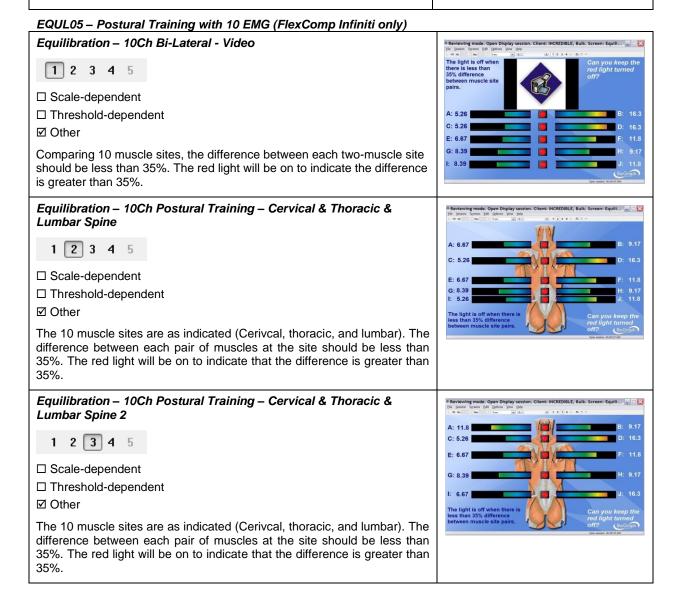
□ Scale-dependent

□ Threshold-dependent

☑ Other

The 6 muscle sites are as indicated (Cervical, thoracic, and lumbar). The difference between each pair of muscles at the site should be less than 35%. The red light will be on to indicate that the difference is greater than 35%.





Equilibration – 10Ch Postural Training – Thoracic & Lumbar Spine

□ Scale-dependent

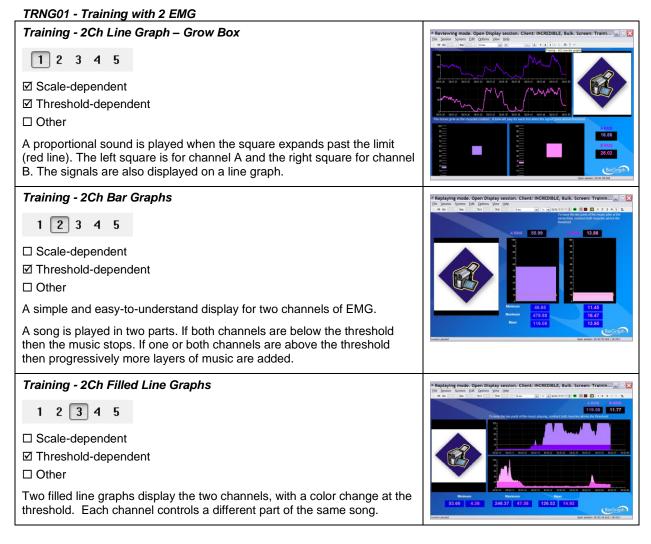
□ Threshold-dependent

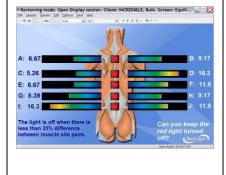
☑ Other

The 10 muscle sites are as indicated (Thoracic, and lumbar). The difference between each pair of muscles at the site should be less than 35%. The red light will be on to indicate that the difference is greater than 35%.

CATEGORY: PRO/FLEX SUITE - SEMG BIOFEEDBACK - TRAINING

These screens are for general training, involving more complex or various exercises.





Training - 2Ch Line-Bar Graphs NCREDIBLE, Bulk, Screen: Traini... -1 2 3 4 5 □ Scale-dependent ☑ Threshold-dependent □ Other Both channels are displayed on a line graph and a bar graph. Training – 1Ch Motor Copy Training ent: INCREDIBLE, Bulk, Sc 1 2 3 4 5 175.4 □ Scale-dependent □ Threshold-dependent Ø Other This screen is used for the motor copy training technique. It can also be used to train the patient to consistently repeat the same contraction without a template. Do the first repetition, and then wait for the new signal to appear in the top graph below before doing the next repetition. The movement detection threshold is set to 20µV. If you want to modify this value, from the Edit menu select Edit VC Settings, select V210 and edit the Input 2 Constant Value. TRNG02 - Training with 4 EMG Training - 4Ch Bar Graphs 1 2 3 4 5 □ Scale-dependent ☑ Threshold-dependent □ Other Four bar-graphs representing 4 EMG channels, with a color change above threshold. Training - 4Ch Filled Line Graphs on, Client: INCREDIBLE, Bulk, Screen: Traini... 💷 🗆 🔀 1 2 3 4 5 18.89 □ Scale-dependent ☑ Threshold-dependent □ Other Four filled line graphs display the four channels, with a color change at the threshold.

 Training - 4Ch Line-Bar Graphs

 1
 2
 3
 4
 5

 Scale-dependent

 Threshold-dependent

 Other

 The four channels are displayed on a line graph and a bar graph.

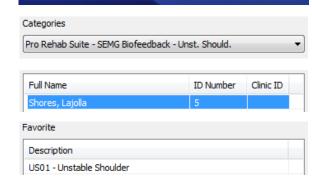
UNSTABLE SHOULDER

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensor to channel A (Infraspinatus) and B (Lower Trapezius).

Α	В	С	D	E	F	G	н	I	J
Муо	Муо								

- Turn the encoder on.
 - 1. Click Quick Start.
 - From Categories, select one of the categories starting with Pro/Flex Rehab Suite – SEMG Biofeedback - Unstable Shoulder.
 - 3. From **Clients**, select a name.
 - 4. From Favorites, select the Unstable Shoulder Protocol.
 - 5. Click OK.



Quick Start

• Click the Start button 🞑 and read the instructions on the screen.

You can view each screen by clicking on the numerical buttons on the toolbar at the top.



Unstable Shoulder – 2Ch Unstable Shoulder – Overview Screen mode, Open Display session, Client: TTL, TTL, Screen: Unstable Shoul... -1 2 3 4 5 □ Scale-dependent □ Threshold-dependent □ Other This screen will demonstrate videos of required ranges of motion that the patient is required to perform. Unstable Shoulder – 2Ch Unstable Shoulder – Training Screen n. Client: TTL, TTL, Screen: U 1 2 3 4 5 □ Scale-dependent ☑ Threshold-dependent Two filled line graphs represent Infraspinatus muscle (Ch A) and Lower Trapezius (Ch B). Both channels have to be above threshold. Two different alarms will play when the signals (A&B) are above or below 2.08 threshold.

MOTOR FUNCTION RESTORATION

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensor to channels A to D.
 - o Optional MyoScan/MyoScan-Z sensors to channels E to J for FlexComp Infiniti.

Α	В	С	D	E	F	G	н	-	J
Муо	Муо	Муо	Муо	Myo (optional for FlexComp)					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From **Categories**, select one of the categories starting with **Pro/Flex Rehab Suite Motor Function Restoration**.
 - 3. From **Clients**, select a name.
 - 4. From **Favorites**, select the desired Motor Function Restoration Protocol.
 - 5. Click **OK**.

	Quick Sta	rt	
Categories			
Pro Rehab Suite - Motor	Function Restora	ation	
Full Name		ID Number	Clinic ID
Shores, Lajolla		5	
avorite			
Description			

Click the Start button

You can view each screen by clicking on the numerical buttons on the toolbar at the top.



All the screens under this category are based on the same principle. Only the number of channels and their assignment to a group (uptrain/downtrain) vary.

The feedback is given on the ensemble of the signals. The patient gets a reward only if all the muscles simultaneously follow their correct activation pattern. The muscles and their corresponding signals are sorted into two groups: the up-trained and the down-trained. The up-trained muscles are the ones that will be encouraged to fire. The down-trained muscles are the ones that will be discouraged to fire.

When the EMG of the up-trained muscles goes above a threshold and the EMG of the down-trained muscles goes below a threshold, the DVD resumes.

All the uptrain signals are on the left, while all the downtrain signals are on the right.

When a signal is not in the right state (above threshold for uptrain, below for downtrain), the corresponding bar is red (and green otherwise).

When they are all green, the DVD resumes.



Respiration Training

OVERVIEW

Respiration training should be considered as part of the rehabilitation program:

- Proper breathing during effort enhances the efficiency of the contraction and therefore the efficiency of the training.
- Proper breathing is necessary for overall health and speeds up healing.
- Respiration training may also help the examinee to relax before therapy (reduces anxiety).

The following biofeedback training screens were designed for this purpose.



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations.

Chapter: RESPIRATION TRAINING WITH BIOFEEDBACK

PROCEDURE

- Connect the sensors to the encoder as follows:
 - o Respiration sensor to channel D.
 - MyoScan/MyoScan-Z to channel A and B (optional).

Α	В	с	D	E	F	G	н	I	J
Myo (optional)	Myo (optional)		Resp						

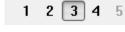
- Turn the encoder on.
 - 1. Click Quick Start.

Quick Start

2.	From Categories, select Pro/Flex Rehab
	Suite – Respiration Training.

- 3. From Clients, select a name.
- 4. From **Favorites**, select the training protocol.
- 5. Click OK.
- Description Respiration Training
- Click the Start button

You can view each screen by clicking on the numerical buttons on the toolbar at the top.



Categories

Full Name

Shores

Favorite

Pro Rehab Suite - Respiration Training

ID Number

Clinic ID

• To stop the session, click the Stop button:

Training - Abdominal Respiration Training 1 2 3 4 5 1.41 This screen was designed to train abdominal breathing. The line graph at the bottom displays the respiration amplitude. The two line graphs on the right display the EMG of the associated muscles. If the EMG of one channel is above its threshold, music will be 25.1 heard. Training - Abdominal Respiration Training Windmill Get 10010 = 🗰 🖩 🖬 🖬 1 2 3 4 1 2 3 4 5 Resp rate This screen was designed to train abdominal breathing. The greater is 10.82 the abdominal respiration amplitude, the faster the windmill turns. D: Re The line graph at the bottom displays the respiration amplitude. The two line graphs on the right display the EMG of the associated muscles. If the EMG of one channel is above its threshold, the windmill will stop turning and music will be heard. Training - Relaxation Training n Training 1 2 3 4 5 This screen was designed for relaxation. 6.44 The line graph displays the respiration amplitude. The examinee must follow the pink dot. This will lead them to a slow D: Respiratio breathing rate (around 6 breath/min). 20.53

Training – Respiration During Exercise

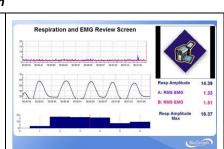
The screen was designed to help the examinee to breath properly during an exercise. It has a line graph displaying the respiration amplitude and a video camera.

A tone proportional to the respiration amplitude can be heard.

Review screen: Report Review – Respiration and EMG Review Screen

The screen was designed for the review of the session.

It shows the respiration amplitude and the EMG activity along with the video.



6.47 piration (abdom 17.1

All these screens are accessible from Start Open Display Session in the channel set "Respiration Training".

Heart Rate Monitoring and HRV

OVERVIEW

The system allows the therapist to monitor rapid changes in the heart rate. It gives the choice of gathering the heart rate from **EKG (electrocardiogram)** or **BVP (Blood Volume Pulse)**.

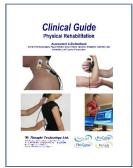
The following screens allow the monitoring of heart rate (from BVP or EKG), respiration and EMG (2 sites).



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations.

Chapter: HEART RATE MONITORING & HRV

Also recommended:

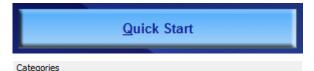
- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- RESPIRATION TRAINING WITH BIOFEEDBACK

PROCEDURE

- Connect the sensors to the encoder as follows:
- BVP or EKG sensor to channel C.
- Respiration sensor to channel D.
- MyoScan/MyoScan-Z to channel A and B (optional).

Α	В	С	D	Е	F	G	н	I	J
Myo (optional)	Myo (optional)	EKG or BVP	Resp						

- Turn the encoder on.
 - 1. Click Quick Start.



2. From Categories, select Pro/Flex Rehab Suite – Heart Rate Monitoring.

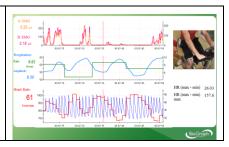
Pro Rehab Suite - Heart Rate Monitoring

	3.	From Clients , select a name.	Full Name Shores, Lajolla		ID Number 5	Clinic ID
	4.	From Favorites , select the training protocol (with EKG or BVP).	Favorite			
	5.	Click OK .	Description			
	0.		Heart Rate Monitor	-		
•		k the Start button				
	Υοι	a can view each screen by clicking on the numerical	buttons on the to	oolbar at the top.		
		1 2 🕃	4 5			
•	To	stop the session, click the Stop button:				
He	art R	ate & EMG Monitoring with webcam				
C	1 2	3 4 5				61 Respiraton 8.63 Estrain Respiraton 8.63 Estrain RR max - RR may 26 05
san	ne lir	een displays the respiration amplitude and the hear ne graph. It plots the 2 channels of EMG. The HRV n R Min is also displayed. Video can be recorded.			10/16 110/18 110/18 00 10/16 110/18 000/11 0 10/16 110/18 000/11 0	AMM 525 v Una 225 v Una 215 v Carbon 215 v Carbon Mark N
He	art R	ate & EMG Monitoring				Les 00 16
1	2	345				Filespinaton 8.63 Extrain HR max - HR max 20.00
Thi	s scr	een is similar to the one above, but without webcam	1.			8.0.5 m A. (10) 5.70 μ² μα 9.00 μ² χ21.6 μ² 9.76 μ² μα 9.76 μ² μα 10.00 μα χ21.7 μ²
Не	art R	ate & Monitoring				⁶⁶ 64 bootsta
1	12	3 4 5		┨┉┤╲┍┍╍┓╴╱		-64
		een is similar to the ones above, but shows only the piration.	heart rate		700 0 10 0 10 M	4 19 10 10 10 10 10 10 10 10 10 10
Vei	rifica	tion Screen			الم الم	89
1	12	3 4 5				40 Beatstrain Respiration 8.05 British HR max - HR min 26.03
		a signal verification screen. It shows raw BVP (or Ek well as raw EMG.	G) with heart		0000 0000 0000 00000 00000 0000 0000 00000 00000 00000 00000 00000 00000	Notive A 1000 5.70 μr 5.70 μr Hat 201 μr Note 201 μr B 2.76 μr Hat 201 μr Note 201 μr Hat 201 μr Note 201 μr

Review screen

The screen was designed for the review of the session.

It shows the respiration amplitude and rate, the raw BVP (or EKG), heart rate, and Heart Rate Variability (HRV), and the EMG activity along with the video.



All these screens are accessible from Start Open Display Session in the channel set "Heart Rate Monitoring with BVP and EMG" or "Heart Rate Monitoring with EKG and EMG".

Skin Conductance and Temperature Biofeedback

OVERVIEW

Skin conductance and peripheral temperature biofeedback is useful when training of overall physiology is desired, as it incorporates two modalities with simple correlations to relaxation: skin conductance (lower) and temperature (raise). When these physiological measures meet the biofeedback conditions, the subject is in a general state of relaxation. These physiological measures can also be used to assess the level of stress of the examinee during the examination.

The following biofeedback screens were designed for that purpose.



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations.

Chapter: SKIN CONDUCTANCE AND PERIPHERAL TEMPERATURE BIOFEEDBACK Also recommended:

- RESPIRATION TRAINING WITH BIOFEEDBACK
- HEART RATE MONITORING & HRV

PROCEDURE

- Connect the sensors to the encoder as follows:
 - Temperature sensor to channel C.
 - o Skin Conductance sensor to channel E.

Α	В	С	D	E	F	G	н	I	J
		Temp		SC					

- Turn the encoder on.
 - 1. Click Quick Start.



 From Categories, select Pro/Flex Rehab Suite – Skin Conductance and Temperature.

Categories

Pro Rehab Suite - Skin Conductance & Temperature



From	Clients,	select a	name.
	From	From Clients,	From Clients, select a

- 4. From Favorites, select Biofeedback with Skin Conductance and Temperature.
- 5. Click OK.
- Click the Start button **D**.

Full Name	ID Number	Clinic ID				
Shores, Lajolla	5					
Favorite						
Description						
Biofeedback with Skin Conductance and Temperature						

You can view each screen by clicking on the numerical buttons on the toolbar at the top.

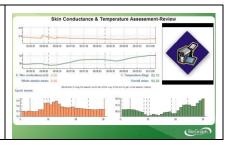
1 2 3 4 5	
• To stop the session, click the Stop button:	
Training - Biofeedback on Skin Conductance1 2 3 4 5The screen shows a bar graph of the skin conductance and plays a song and an animation when the SC value dips below the threshold. The threshold is set to automatically follow the signal to allow for instantaneous feedback of any change of direction.	
Training - Biofeedback on Temperature 1 2 3 4 5 The screen shows a bar graph of the temperature signal and plays a song and an animation when the signal value moves over the threshold. The threshold is set to automatically follow the signal to allow for instantaneous feedback of any change of direction.	
Assessment & Review – Skin Conductance & Temperature 1 2 3 4 5 The screen was designed for assessment. The screen shows a line graph of the raw signals of SC and Temp and a trend graph of epoch means. It also has a video/audio instrument, so you	
can record the examination. Events can be marked by hitting the space bar or a key of the keyboard that you would have preliminarily labeled with the name of the event).	

Review/replay screen

The screen was designed for the review of the session.

The screen shows a line graph of the raw signals of SC and Temp and a trend graph of epoch means.

Drag the time marker (vertical red line) over the raw signal and see the value for any data point as a number in the center of the screen. To see the whole session mean, drag the time marker completely to the end of the session.



All these screens are accessible from **Start Open Display Session** in the channel set "Biofeedback with Skin Conductance and Temperature".

Static Range of Motion Assessment

OVERVIEW

Range of Motion (ROM) assessment evaluates the ability of the examinee to achieve the full range of movement for a given part of the body.

A dual inclinometer is used for measuring the angle between the neutral position and the maximum range of motion position that the examinee can achieve until they feel restriction, tightness or discomfort.

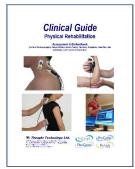
The protocols are based on AMA guides (6th edition, 2007).

Protocols use the world standard Neutral Zero Reference method. This method defines the 0° angle as referring to the neutral position of the joint.

The measurement is repeated 6 times as a validity check.

The measures are compared to AMA normative data.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: RANGE OF MOTION ASSESSMENT; section: STATIC RANGE OF MOTION ASSESSMENT

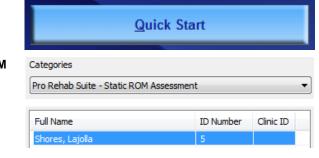
GENERAL PROCEDURE

Preparing the instrumentation

- Connect the sensors to the encoder as follows:
 - Dual/single inclinometer to channel E;
 - Foot pedal to channel C.

Α	В	с	D	E	F	G	н	I	J
		Pedal		INC					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Static ROM Ca Assessment.
 - 3. From **Clients**, select a name.



- 4. From **Favorites**, select the desired Static ROM Protocol.
- 5. Click OK.

ROM 02 - Cervical Spine - L/R Lateral Flexion ROM 03 - Cervical Spine - Left/Right Rotation ROM 04 - Thoracic Spine - Flexion/Extension ROM 05 - Thoracic Spine - Left/Right Rotation ROM 06 - Lumbar Spine - Flexion/Extension ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	Description	
ROM 03 - Cervical Spine - Left/Right Rotation ROM 04 - Thoracic Spine - Flexion/Extension ROM 05 - Thoracic Spine - Left/Right Rotation ROM 05 - Lumbar Spine - Left/Right Rotation ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Flexion/Extension ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 01 - Cervical Spine - Flexion/Extension	
ROM 04 - Thoracic Spine - Flexion/Extension ROM 05 - Thoracic Spine - Left/Right Rotation ROM 06 - Lumbar Spine - Flexion/Extension ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 02 - Cervical Spine - L/R Lateral Flexion	
ROM 05 - Thoracic Spine - Left/Right Rotation ROM 06 - Lumbar Spine - Flexion/Extension ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 03 - Cervical Spine - Left/Right Rotation	
ROM 06 - Lumbar Spine - Flexion/Extension ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 04 - Thoracic Spine - Flexion/Extension	
ROM 07 - Lumbar Spine - L/R Lateral Flexion ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 13 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 05 - Thoracic Spine - Left/Right Rotation	
ROM 08 - Shoulder - Flexion/Extension ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 06 - Lumbar Spine - Flexion/Extension	
ROM 09 - Shoulder - Abduction/Adduction in S30° ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 13 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 07 - Lumbar Spine - L/R Lateral Flexion	
ROM 10 - Shoulder - External/Internal Rotation ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 08 - Shoulder - Flexion/Extension	
ROM 11 - Elbow - Flexion/Extension ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 09 - Shoulder - Abduction/Adduction in S30°	
ROM 12 - Forearm - Supination/Pronation ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 10 - Shoulder - External/Internal Rotation	
ROM 13 - Wrist - Flexion/Extension ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 11 - Elbow - Flexion/Extension	
ROM 14 - Wrist - Radial/Ulnar Deviation ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 12 - Forearm - Supination/Pronation	
ROM 15 - Hip - Flexion/Extension ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 13 - Wrist - Flexion/Extension	
ROM 16 - Hip - Abduction/Adduction ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 14 - Wrist - Radial/Ulnar Deviation	
ROM 17 - Hip - External/Internal Rotation ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 15 - Hip - Flexion/Extension	
ROM 18 - Knee - Flexion/Hyper-Extension	S.ROM 16 - Hip - Abduction/Adduction	
	S.ROM 17 - Hip - External/Internal Rotation	
ROM 19 - Ankle - Flexion/Extension	S.ROM 18 - Knee - Flexion/Hyper-Extension	
	S.ROM 19 - Ankle - Flexion/Extension	

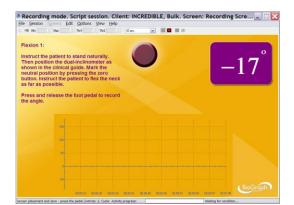
• Click the Start button and read the instructions on the screen. Do not press the foot pedal yet.



- Position yourself next to the examinee, with the encoder attached to your belt and the pedal near your foot.
- Press the foot pedal to go to the next screen.
- Position and stabilize the examinee in neutral position.
- If the patient cannot reach the neutral position, right-click on the purple box on the screen, enter the neutral zero reference (angle displayed when zero button is pressed) and click **Apply**:

Neutral Position Adjustment								
0.00	Local Constant Value		×					
e information, read your		15						
ess the foot pedal t	Apply		Close					

• Position the dual inclinometer on the examinee and press the Zero button (on the primary or secondary, whichever is more convenient for you).



Measuring

- Instruct the examinee to perform the motion slowly, until they feel restriction, tightness or discomfort. Make sure the inclinometer does not move against the body part during the motion.
- 2. When the position is stabilized, press the pedal to record the measure.



- 3. Instruct the examinee to go back to neutral position. Do not press the Zero button again.
- Repeat the exercise 6 times.
- Then repeat it another 6 times for the antagonistic movement.

	Session	Screens	Edit	Options	Tiem	Help						
10	Mes	Max		The1	Thv2		30 eec.	×	 III *			
0	kion 2:						-	-				
							1					
	truct th trai po		nt to r	nove ba	ck to th	1e						17
								-			-	
	en insti ward fi		patie	nt to rep	beat the							
l		1.2		1.0.0						-		
	ss and	releas	e the '		al to re	cord						
B	angle.											
•												
•												
		4										
•												
		1										
•												
,												
												BioGros

• When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

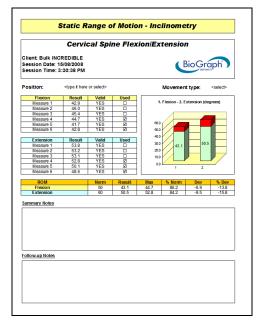
Generating a report

• After the review screen opens, you can generate a ROM Assessment report. This is an Excel report.

1. Click the **Session Report** icon in the tool bar.

2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.



Validity Check of the Trials

Left Rotation	Result	Valid	Used
Measure 1	22.3	YES	
Measure 2	24.7	YES	
Measure 3	23.8	YES	
Measure 4	24.9	YES	
Measure 5	23.8	YES	
Measure 6	24.7	YES	

 YES
 Image: measures.

 YES
 Image: measures.

 Valid
 Used

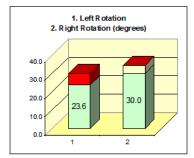
 VES
 Image: measures.

weasure r	30.0	TEO	
Measure 2	32.9	YES	
Measure 3	33.8	YES	
Measure 4	33.9	YES	V
Measure 5	34.0	YES	M
Measure 6	34.1	YES	

Result

Final Result

Right Rotation



ROM	Norm	Result	Max	% Norm	Dev	% Dev
Left Rotation	30	23.6	24.7	78.7	-6.4	-21.3
Right Rotation	30	34.5	36.8	114.9	4.5	14.9

It then compares these to AMA Norms and shows the % of norm and the deviation from the norm.

The report shows the 6 measures and which ones are selected. Measures are considered as valid if they are within $+/-5^{\circ}$ or +/-10% of the average of the three. It takes the three last consecutive valid

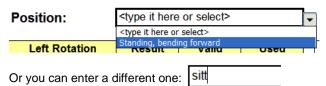
If the result is less than the norm, you see the result in green and the deviation from the norm in red.

If the result is greater than the norm, you see the norm in green and the deviation from the norm in yellow (so the result is green+yellow).

User's fields

Position

You can select the examinee's position (there is a different list for each protocol):



Involved Side (for the extremities only):

You can select the involved side:

Side:	<select></select>			
	<select></select>			
Used	Left	-		
Useu	Right	FI		
	T T			

Movement Type:

You can select the movement type:

Movement type:	<select></select>				
	<select></select>				
	Passive				
1. Left Rotation	Assisted				
	Free				
2. Right Rotation (degrees)					

Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

Summary Notes:	•	In Excel 2000 and Excel 2003, place your cursor in the text box and start typing					
Marked improvement	•	In I	Excel 2007, place your cursor in the	e text box	κ.		
Marked inprovement	J	1.	Right-click the mouse button.	(comm	10		
		2.	Select Edit text.		Edit Te <u>x</u> t	A	
		~	Otherst transies as	臣	Group		P

3. Start typing.

Comparing to uninvolved side

Some reports allow you to compare the results with the uninvolved side:

Report Within Patient Analysis Report

- 📐 AutoShapes - 🔪 🚬 🦳 🦳 🖉 🚳 Select the sheet "Within Patient Analysis Report".

Type the results of the uninvolved side in the corresponding column:

Uninvolved	Res
153	12
0	2.

Dynamic Range of Motion Assessment

OVERVIEW

Similarly to Dynamic SEMG, Dynamic ROM assesses muscle tension through various movements, by combining EMG with inclinometry.

In addition to general protocols, the system provides three assessment protocols for the **cervical spine** (CP, SCM or Traps) and two for the **lumbar spine**.

It also provides one assessment protocol for the anterior knee (VMO and VL).



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrumentation. It also explains how to prepare the examinee and the procedure to follow.

Chapter: RANGE OF MOTION ASSESSMENT; section: DYNAMIC RANGE OF MOTION ASSESSMENT

Also recommended:

- INTRODUCTION TO SURFACE ELECTROMYOGRAPHY
- SKELETAL MUSCLE PROPERTIES
- SEMG ASSESSMENT; section: DYNAMIC SEMG ASSESSMENT

GENERAL PROCEDURE

Starting the Session

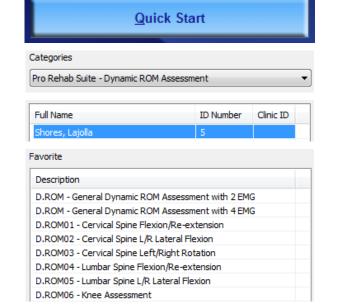
If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - o MyoScan/MyoScan-Z sensors to channels A and B (left in A, right in B).
 - o Optional MyoScan/MyoScan-Z sensors to channels C and D (left in C, right in D).
 - Dual/single inclinometer to channel E.

Α	В	С	D	E	F	G	Н	Ι	J
Муо	Муо	Myo (optional)	Myo (optional)	INC					

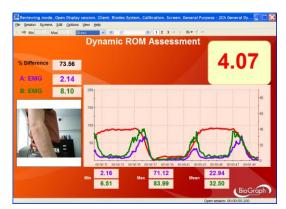
• Turn the encoder on.

- 1. Click Quick Start.
- 2. From Categories, select Pro/Flex Rehab Suite Dynamic ROM Assessment.
- 3. From **Clients**, select a name.
- 4. From **Favorites**, select the desired General Dynamic ROM Assessment Protocol.
- 5. Click OK.



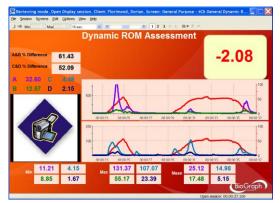
Measuring

Click the Start button



D.ROM – General Dynamic ROM Assessment with 2 EMG

The Multi-line graph will display the EMG signal of 2 channels A and B along with the angle (in red). There are statistics available as well.



D.ROM – General Dynamic ROM Assessment with 4 EMG

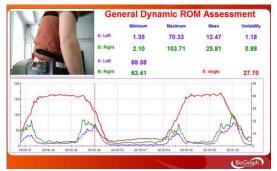
The two Multi-line graph will display the EMG signal of 2 channels simultaneously, respectively A and B, C and D, along with the angle (in red). There are statistics available as well.

- Press the zero button of the inclinometer once, to mark the neutral position.
- Mark the different stages of the movement with event makers (events can be marked by hitting the space bar or a keyboard key that was previously assigned the name of the event).

Reviewing the session

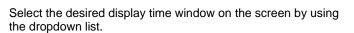
When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:

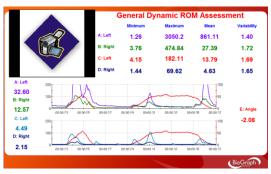


D.ROM – General Dynamic ROM Assessment with 2 EMG

The Multi-line graph will display the EMG signal of 2 channels A and B along with the angle (in red). There are statistics available as well.

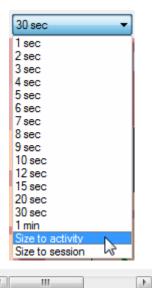


It is recommended to select first **Size to session** for a global view of the session and then **Size to activity** to view the different phases of the motion.



D.ROM – General Dynamic ROM Assessment with 4 EMG

The two Multi-line graph will display the EMG signal of 2 channels simultaneously, respectively A and B, C and D, along with the angle (in red). There are statistics available as well.

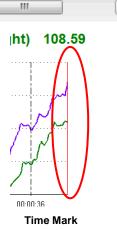


Scroll through the session by using the scroll bar.

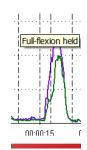
You can read the value of a given point on the signal by moving the red Time Mark. The Time Mark is usually placed at the right end of the graph (see picture).

To move the Time Mark:

- 1. Place the cursor over the Time Mark.
- 2. Click and hold down the mouse button.
- 3. Drag the Time Mark to the desired position.



Move the mouse cursor over a marker (vertical dashed line) to display its label (such as flexion, re-extension etc.)



If you used a webcam to make a video recording of the session, during review the video playback is synchronized to the EMG signal as you move the Time Mark back and forth along the EMG signal line graph. This allows you to see lateral deviations in the movement and to observe any antalgic position.

The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic SEMG Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

PROCEDURE FOR LUMBAR SPINE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the MyoScan/MyoScan-Z EMG sensors to the encoder in channels A and B (left in A, right in B).
- Dual inclinometer to channel E.

Α	В	С	D	E	F	G	н	I	J
Myo (left)	Myo (right)			INC					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Dynamic ROM Assessment.
- Quick Start
 Categories
 Pro Rehab Suite Dynamic ROM Assessment

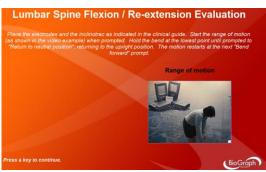
 Full Name
 ID Number
 Clinic ID
 Shores, Lajolla
 5
- 3. From **Clients**, select a name.

- 4. From Favorites, select the desired Dynamic ROM Protocol for Lumbar Spine.
- 5. Click OK.

Description	
.ROM - General Dynamic ROM Assessment	with 2 EMG
D.ROM - General Dynamic ROM Assessment	with 4 EMG
D.ROM01 - Cervical Spine Flexion/Re-extens	sion
D.ROM02 - Cervical Spine L/R Lateral Flexion	1
D.ROM03 - Cervical Spine Left/Right Rotation	n
D.ROM04 - Lumbar Spine Flexion/Re-extensi	ion
D.ROM05 - Lumbar Spine L/R Lateral Flexion	
).ROM06 - Knee Assessment	

Click the Start button
 and read the instructions on the screen.

First you will see an overview screen (Flexion/Re-extension, shown here):



• Press a key to go to the next screen.

In the next screen, verify that the signal is free of artifacts and the sensors properly placed.



- Press the zero button of the inclinometer once, to mark the neutral position.
- Before going to the next screen and starting to record, instruct the examinee to perform the motion slowly, until they feel restriction, tightness or discomfort.

Measuring

1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.



2. Then the voice prompt asks the examinee to perform the motion three times.



3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.

							1	2 4	2
6 Difference	40.05							3.4	2
A RMS	1.42								
BRMS	0.85	200					-		[²⁰⁰
C	R	140 120 100 40 40 40 20 40 000055	00.00.58	00.01.01	000.04 000.07	000110 000	13 000116	000119 000022	-100 -0 -100 -100 -000125
		1.07	_	oo or or	2.22		1.43	000119 000122	000125
	M	1.07		Max		Mean			

Reviewing the session

When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:



The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic ROM Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

PROCEDURE FOR CERVICAL SPINE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the sensors to the encoder as follows:
 - MyoScan/MyoScan-Z sensors positioned on the CPs to channels A and B (left in A, right in B).
 - MyoScan/MyoScan-Z sensors positioned on the SCMs or Traps to channels C and D (left in C, right in D).
 - Dual inclinometer to channel E.

Α	В	С	D	E	F	G	н	I	J
Myo (left CP)	Myo (right CP)	Myo (left SCM or Traps)	Myo (right SCM or Traps)	INC					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Dynamic ROM Assessment.
 - 3. From Clients, select a name.
 - From Favorites, select the desired Dynamic ROM Protocol for Cervical Spine.
 - 5. Click OK.

essment	
ID Number	Clinic ID
5	
essment with 2 EM	G
essment with 4 EM	G
e-extension	
al Flexion	
t Rotation	
t Rotation e-extension	
	ID Number 5 essment with 2 EM essment with 4 EM e-extension

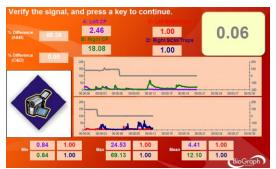
Click the Start button and read the instructions on the screen.

First you will see an overview screen (*Flexion/Re-extension*, shown here):



• Press a key to go to the next screen.

In the next screen, verify that the signal is free of artifacts and the sensors properly placed.



- Press the zero button of the inclinometer once, to mark the neutral position.
- Before going to the next screen and start recording, instruct the examinee to perform the motion slowly, until they
 feel restriction, tightness or discomfort.

Measuring

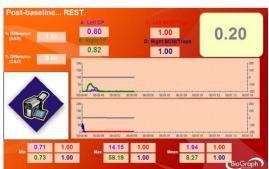
1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.



2. Then the voice prompt ask the examinee to perform the motion three times.



3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.



Reviewing the session

• When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

In review mode, a screen similar to this will appear:

Reviewing mod	le. Open Displa	y session. Client: Fl	orimond, Dor	ian. Screen: Re	port-Review - 40	h Cervical Spine Re	rie 📃 🗆 🔀
Elle Session Sgreen	ns Edit Options	; ⊻lew ⊞elp					
L ×0 Min0	Max 1	5 sec. 🔍 🔇	100	2 1 2 3	4 5 A • D ×		
			Min (Left) 1 (Right) 3	ervical \$ nimum 1.26 1.76 1.15	Spine As Maximum 3050.2 474.84 182.11	sessment Mean 861.11 27.39 13.79	Variability 1.40 1.72 1.69
		CHD	(Right) 1	.44	69.62	4.63	1.65
	32.60		12.57	Current		CH E (Angle)	-2.08 2.15
CH A (Left)	32.60	CH B (Right)	12.57	CH C (Left	4.49	CH D (Right)	2.15
500	A	5 000025 000027 00	00.70 00.00.70		0000032 000033		50
100 50	A	5 000026 000022 00		A		00014 00035 000	100 50
							BioGraph

The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic ROM Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

PROCEDURE FOR ANTERIOR KNEE ASSESSMENT

Starting the Session

If you are going use a webcam to make a video recording of this session, connect your webcam to a USB port of your computer and turn it on.

- Connect the MyoScan/MyoScan-Z EMG sensors to the encoder in channels A and B (A for VMO, B for VL).
- Dual inclinometer to channel E.

Α	В	С	D	E	F	G	н	Ι	J
Myo (left)	Myo (right)			INC					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Dynamic ROM Assessment.
 - 3. From Clients, select a name.
 - 4. From Favorites, select the Dynamic ROM Protocol for Knee Assessment.
 - 5. Click OK.

n		ole.	C	-	-+
ч	ui	ck	3	a	π

ID Number

Clinic ID

Categories

Pro Rehab Suite - Dynamic ROM Assessment

Full Name Shores, Laiolla

Favorite

Description	
D.ROM - General Dynamic ROM Assessment with 2 EMG	
D.ROM - General Dynamic ROM Assessment with 4 EMG	
D.ROM01 - Cervical Spine Flexion/Re-extension	
D.ROM02 - Cervical Spine L/R Lateral Flexion	
D.ROM03 - Cervical Spine Left/Right Rotation	
D.ROM04 - Lumbar Spine Flexion/Re-extension	
D.ROM05 - Lumbar Spine L/R Lateral Flexion	
D.ROM06 - Knee Assessment	

Click the Start button label and read the instructions on the screen.

First you will see an overview screen:



• Press a key to go to the next screen.

In the next screen, verify that the signal is free of artifacts and the sensors properly placed.

Verify the	signal a	inu pre	:55 d Kt	:y to t	onuni	Je.				
A: VMO	6.00								0.2	9
B: VL	7.35									
-		100								J ¹⁰⁰
	5	80 60								60
	× >	40								40
	-	20		Λ	A					20
		00.01.30	00013	5 0	n:n1:4n	02.01.45	nn:	11.50	00:01:55	00:02:00
(A-B)/(A+B)	-0.10	-1.0	-0.8	-0.6 -4	4 -6.2		02	0.4	0.5 0.8	1.0
		Min	3.20	Max	2083.	2 Me		445.56		
			4.17		2387.6			204.42		

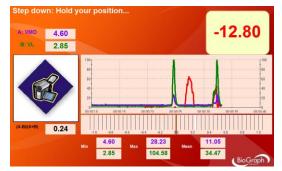
- Press the zero button of the inclinometer once, to mark the neutral position.
- Before going to the next screen and starting to record, instruct the examinee to perform the motion slowly, until they feel restriction, tightness or discomfort.

Measuring

1. Before performing the motion, the examinee stays in neutral position and relaxes their muscles during 10 seconds.



2. Then the voice prompt asks the examinee to perform the motion three times.



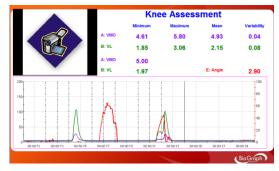
3. At the end of the exercise, the examinee is asked to stay in neutral position and relax their muscles during 10 seconds.



When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Reviewing the session

In review mode, a screen similar to this will appear:



The review allows you to verify that the motion has been properly performed by the examinee at the right time, when prompted. You can also check the consistency from trial to trial.

Generating a report

- After the review screen opens, you can generate a Dynamic ROM Assessment report. This is a Text report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Text Report, select report components in the Session Report window, and click Generate Report.

Your report displays as a document in HTML, PDF, or Microsoft Word format, depending upon the setting in **Preferences**. The report can be saved or printed using the **Print** and **Save** functions of the relevant software.

OVERVIEW

Range-of-motion therapy usually consists of simple exercises to increase the range of motion, flexibility, strength, endurance and control over the movement.

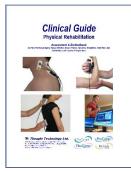
The following biofeedback training screens were designed for this purpose.



This logo on a screen in a protocol indicates that you can use an optional webcam with the screen to record video of the session. You need only connect your webcam to a USB port of your computer and turn it on before you start the session.

Note: Your computer system must be connected to a video capture device, such as a webcam, and the proper software installed, in order to use this function.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the use of biofeedback for ROM therapy. It also explains how to prepare the examinee and the procedure to follow.

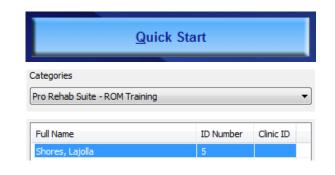
Chapter: ROM THERAPY WITH BIOFEEDBACK

PROCEDURE

- Connect the sensors to the encoder as follows:
 - A single inclinometer unit (InclinoTrac) to channel C.
 - Optionally, the second InclinoTrac unit can be used as a single inclinometer and connected to channel E.

Α	В	С	D	E	F	G	н	I	J
		INC		INC (optional)					

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite ROM Training.
 - 3. From Clients, select a name.



- 4. From **Favorites**, select the desired training protocol.
- 5. Click **OK**.
- Click the Start button
 .

You can view each screen by clicking on the numerical buttons on the toolbar at the top.

12345	
-------	--

• To stop the session, click the Stop button:

ROMT01 – ROM Training with 1 inclinometer

Neutral Position Training – Gorilla Animation 1 2 3 4 5 In this screen, the examinee is being trained to keep his joint in neutral position, by keeping the ball centered behind the monkey's neck. When he is successful, the green light turns on.	-0.95 Herede Router MAX: 11.0 MAX: 15.0 MAX: 15.0
Threshold-based Training – Bowling Animation 1 2 3 4 5 This is a threshold-based exercise. The examinee must perform the motion until a threshold is crossed. When this happens, the animation starts, and the bowl is thrown. The examinee must hold the position during 5 seconds to do a strike and get a point. They must then go back to neutral position to restart.	Points 1 2 2 2 2 2 2 2 2 2 2 2 2 2
Neutral Position and ROM Training – Dial Animation	
1 2 3 4 5 This is a stretching exercise. The examinee is told to reach a given color on the rainbow. When they return to neutral position, the light turns on.	A G.9 A G.

Favorite Description

ROMT01 - ROM Training with 1 indinometer ROMT02 - ROM Training with 2 indinometers ROM Training – Animal Game

1 2 3 4 5

Here, the examinee has to align the character with the animal appearing in the left box, by moving his limb.

104. Max: 106.8 Min: 27.02

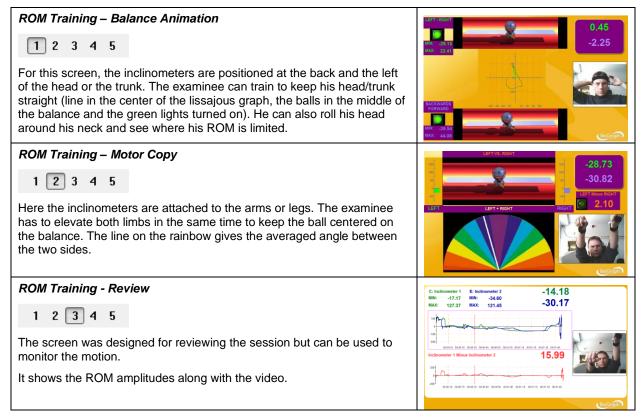
Review screen: ROM Training - Review

The screen was designed for reviewing the session. It shows the ROM amplitude along with the video.	C: inclinance M:: 12.22 M:: 0.53 -12.32 -12.32 -12.32 -12.32 -12.32 -12.32
--	--

All these screens are accessible from Start Open Display Session in the channel set "ROM Training with 1 inclinometer".

ROMT02 – ROM Training with 2 inclinometers

The second unit of the dual-InclinoTrac can also be used as a single unit. You can use both units together, either for working on the three dimensions or bilateral training.



Review Screen: ROM Training - Review

The screen was designed for reviewing the session.	C: Inclinometer 1 E: Inclinometer 2 MIN: -17.17 MIN: -34.60 MAX: 127.37 MAX: 121.45
It shows the ROM amplitudes along with the video.	being of the set of th

All these screens are accessible from **Start Open Display Session** in the channel set "**ROM Training with 2** inclinometers".

-14.18 -**30.17**

15.99

OVERVIEW

Manual muscle testing is the assessment of muscles and tendons and their ability to generate force. Computerized manual muscle testing improves and enriches a method that has existed and evolved for almost a century, by replacing subjective factors with objective data. SEMG allows the monitoring of potential muscle substitution.

Note that muscle testing with ForceTrac is allowed only for grades 4 and 5.

The examinee should be monitored closely and tests should be terminated immediately if there is any evidence of pain.

The system is intended only to capture an objective record of force applied during testing, rather than to reduce the risk of injury. **Therefore the ultimate responsibility for risk of injury rests with the examiner**.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of computerized instruments along with traditional muscle testing. It also explains how to prepare the examinee and the procedure to follow.

Chapter: MANUAL MUSCLE TESTING

Also recommended: INTRODUCTION TO SURFACE ELECTROMYOGRAPHY

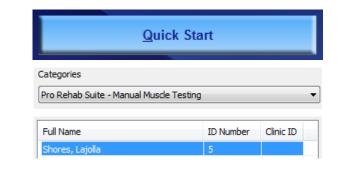
PROCEDURE

Starting the Session

- Connect the sensors to the encoder as follows:
 - ForceTrac to channel D;
 - Foot pedal to channel C.
 - MyoScan/MyoScan-Z to channel A and B (optional).

Α	В	С	D	E	F	G	н	I	J
Myo (optional)	Myo (optional)	Pedal	FTrac						

- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite - Manual Muscle Testing.
 - 3. From **Clients**, select a name.



- 4. From Favorites, select the desired Muscle Testing Protocol.
- 5. Click OK.

vorite	
escription	
MT01 - Manual Muscle Testing Training	
MT02 - Manual Muscle Testing Training with EMG	
MT03 – Unilateral Muscle Testing	
MT04 – Bilateral Muscle Testing	
MT05 - Unilateral Muscle Testing with EMG	
MT06 - Bilateral Muscle Testing with EMG	

Muscle Testing Training (MMT01 & MMT02)

These screens were designed for training purposes and for becoming familiar with the procedure and the instrumentation. They allow the recording of video, so the session can be replayed.

If you use EMG sensors (MMT02), position them on the muscles of interest.

Note: Make sure your ForceTrac is properly calibrated before starting.

- Click the Start button
- Ask the examinee to complete the range of motion and stabilize their position.
- Position the ForceTrac on the examinee.
- When ready, press the pedal and perform the test at full load.
- Resistance should always be applied gradually (not suddenly) and in the direction of the motion ("line of pull" of the muscle). The break usually happens within 2 or 3 seconds. A shorter break time may lead to re-injury. A longer break time may lead to fatigue.
- The trace of the applied force should appear after few seconds.
- You can repeat the exercise.



Training Screen without SEMG

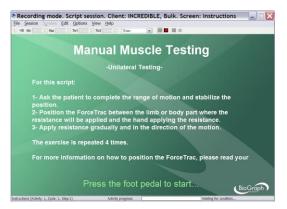


Training Screen with SEMG

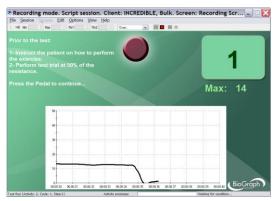
Unilateral/Bilateral Muscle Testing (MMT03 & MMT04)

Note: Make sure your ForceTrac is properly calibrated before starting.

• Click the Start button **and read the instructions on the screen**. Do not press the foot pedal yet.



- Position yourself next to the examinee, with the encoder attached to your belt, the pedal near your foot and the ForceTrac in the palm of your hand.
- Press the foot pedal to go to the next screen.
- Position and stabilize the examinee in neutral position.
- Ask the examinee to complete the range of motion and stabilize their position.
- Position the ForceTrac on the examinee and perform a trial at 50% load (do not press the pedal).

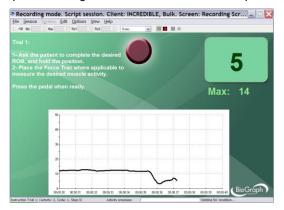


• Press the foot pedal to go to the next screen.

The examinee should be monitored closely and tests should be terminated immediately if there is any evidence of pain.

Measuring

1. Ask the examinee to complete the range of motion and stabilize their position.



2. When ready, press the pedal and perform the test at full load.



Resistance should always be applied gradually (not suddenly) and in the direction of the motion ("line of pull" of the muscle). The break usually happens within 2 or 3 seconds. A shorter break time may lead to re-injury. A longer break time may lead to fatigue.

- Repeat the exercise 4 times.
- Then repeat it 4 times for the opposite side, if you are performing bilateral testing.
- When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Unilateral/Bilateral Muscle Testing with EMG (MMT05 & MMT06)

The procedure is very similar to the one described above. The only difference is that the EMG sensors must be positioned on the muscles of interest and that EMG activity will be recorded.

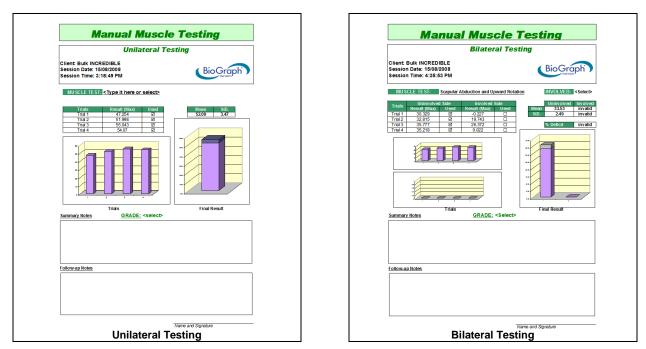


Potential substitute muscles being monitored with SEMG during the test. A tone can be heard when the SEMG goes above a threshold.

Generating a report

- After the review screen opens, you can generate an MMT report. This is an Excel report.
 - 1. Click the **Session Report** icon in the tool bar.
 - 2. Select Generate Excel Report.

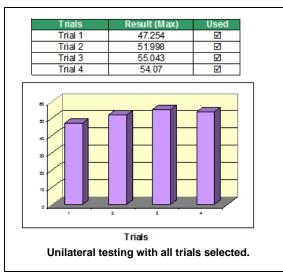
Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.

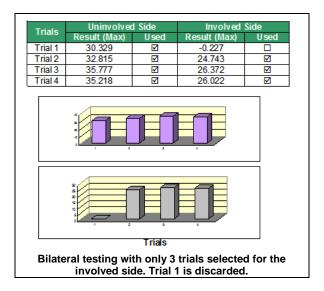


Validity Check of the Trials

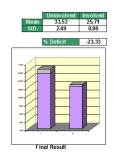
The important data is the **peak load** before the break (maximum force). Trials are selected when if there is less than 15% between two consecutive trials and if the overall variation (coefficient of variation) between the selected trials is also less than 15%. The test requires at least 3 selected trials to be valid.

Only the selected trials are plotted on the graph.





Final Result



For the protocols with SEMG, the EMG peak intensity as well as the EMG-to-Force ratios are computed.

User's fields

Muscle Test

You can select the muscle test type (different list for unilateral/bilateral test):

the involved side.

MUS	CLE TEST:	<type here="" it="" or="" select=""></type>			
		<type here="" it="" or="" select=""></type>	~		
		Scapular Abduction and Upward Rotation			
Trials	Uninvolve	Scapular Elevation			
111019	Result (Max)	Scapular Adduction			
Trial 1	30.329	Scapular Depression and Adduction Scapular Adduction and Downward Rotation			
Trial 2	32.815	Shoulder Flexion	_		
Trial 3	35 777	Shoulder Extension	×.		
Or you o	can enter vou	Ir own test: MUSCLE TEST:	Cerv		

Or you can enter your own test:

Involved (bilateral testing only):

You can select the involved side (right/left):



Grade

You can select the grade:



Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

In Excel 2000 and Excel 2003, place your cursor in the text box and start typing. •

In Excel 2007, place your cursor in the text box. •

Marked improvement

- 1. Right-click the mouse button.
- A Edit Text 丏 Group

Summary Notes:

- Select Edit text. 2.
- 3. Start typing.

	Uninvol	ved Side	Involved Side				
EMG (Side A)		EMG (Side B)		EMG (Side A)		EMG (Side B)	
EMG (Max)	EMG /F	EMG (Max)	EMG/F	EMG (Max)	EMG/F	EMG (Max)	EMG/F
140.411	1.051	55.85	1.057	39.366	0.753	107.305	0.88
55.418	0.889	130.164	0.854	42.201	0.723	49.438	0.976
94.885	0.909	239.211	1.137	93.068	1.186	41.895	0.951
47.728	0.812	64.256	0.969	65.424	0.673	119.005	1.511

The final result computes the mean and standard deviation of the selected trials. For the bilateral test, the percentage of deficit is also computed. This is the

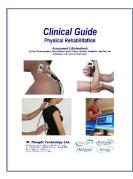
difference in percent between the final result of the uninvolved side (reference) and



OVERVIEW

Algometry measures Pressure Threshold (PTM). It quantifies the sensitivity of para-spinal tissues and their tenderness.

CLINICAL GUIDE REFERENCE



The clinical guide gives general guidelines and recommendations for the accurate use of the instrument. It also explains how to prepare the examinee and the procedure to follow.

Chapter: ALGOMETRY

PROCEDURE

Starting the Session

- Connect the sensors to the encoder as follows:
 - ForceTrac with rod attachment to channel D;
 - Foot pedal to channel C.

Α	В	С	D	E	F	G	н	I	J
		Pedal	FTrac						

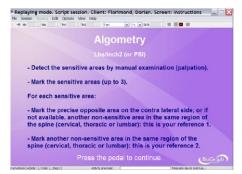
- Turn the encoder on.
 - 1. Click Quick Start.
 - 2. From Categories, select Pro/Flex Rehab Suite Algometry.
 - 3. From **Clients**, select a name.
 - 4. From **Favorites**, select the Algometry Protocol.
 - 5. Click OK.

<u>Q</u> uick	Start	
Categories		
Pro Rehab Suite - Algometry		
Full Name	ID Number	Clinic ID
Shores, Lajolla	5	
Favorite		
Description		
Algometry - Kg/cm2 Algometry - Lbs/inch2 or PSI		

Note: The force unit (kgs/cm² or lbs/in²) depends on whether you have selected Pounds or Kilogram units in the **General** tab of **Preferences** (accessed from the Main Menu screen).

Note: Make sure your ForceTrac is properly calibrated before starting.

Click the Start button
 and read the instructions on the screen. Do not press the foot pedal yet.



- Press the foot pedal to go to the next screen.
- Hold the ForceTrac in your hand.

Force Unit Verification screen

Before you can proceed, you must verify the Force units.

If you use imperial units, press the ForceTrac algometer against a hard surface until it reaches at least 100 Lbs/inch² (PSI). If you are unable to reach this value, it means the Force unit is not properly set.

Note: $1 \text{ Lbs/inch}^2 = 1 \text{ PSI}.$

- If you can't reach Lbs/inch² (PSI), change the force unit to Pounds.
 - 1. To do this, first end the session and return to the Main Menu screen of BioGraph Infiniti.
 - 2. Open the **Tools** menu, click on **Preferences** and in the **General** tab, select **Pounds**.
 - 3. Click **OK** and then start a new session.



If you use metric units, press the ForceTrac algometer against a hard surface. If you are able to reach at least 14 Kg/cm², it means the Force unit is not properly set, and the red light will turn on.

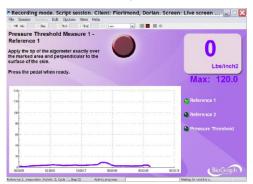
- If the red light turns on, change the force unit to Kilograms.
 - 1. To do this, first end the session and return to the Main Menu screen of BioGraph Infiniti.
 - 2. Open the **Tools** menu, click on **Preferences** and in the **General** tab, select **Kilograms**.
 - 3. Click **OK** and then start a new session.
- If the red light does NOT turn on, press the pedal to continue.

Comparing the second seco

- **Note:** Pressing the pedal allows you to go to the next screen only if the maximum applied pressure is greater than 3 Kg/cm² and less than 14 Kg/cm².
- Position yourself next to the examinee, with the encoder attached to your belt, the pedal near your foot and the ForceTrac in the palm of your hand.

Measuring

1. Repeat the following sequence three times, once for each pressure threshold measure:



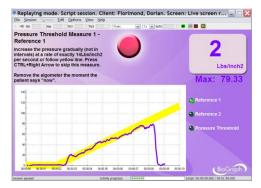
2. **Measure of reference 1:** Apply the tip of the algometer over the marked area and perpendicular to the surface of the skin. When ready to measure, press the foot pedal.



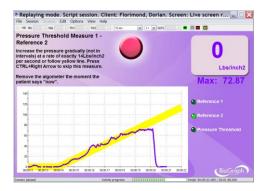
4. **Measure of reference 2:** Apply the tip of the algometer over the marked area and perpendicular to the surface of the skin. When ready to measure, press the foot pedal.

		ons View He				
-10 Mir 0 Ma	0 701	= T142	2 2 mc		÷	
essure Thre essure Thre ply the tip of the marked area rface of the sk	eshold he algomete and perpen	r exactly ove)		4 Lbs/inch2
ess the pedal v	vhen ready.					/lax: 5.97
140		ana pasan			TE COMPANY	
120						
180						
80						ressure Threshold
ю						
-0						
ALL POST PROPERTY.					- · · · · · · · ·	
30						

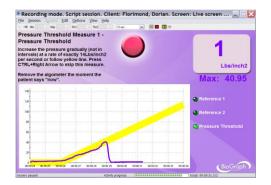
6. **Measure of pressure threshold:** Apply the tip of the algometer over the marked area and perpendicular to the surface of the skin. When ready to measure, press the foot pedal.



 Increase the pressure gradually at a rate of exactly 14Lbs/inch² or 10Kg/cm² or follow the yellow line. Remove the algometer at the moment the patient says "now".



 Increase the pressure gradually at a rate of exactly 14Lbs/inch² or 10Kg/cm² or follow the yellow line. Remove the algometer at the moment the patient says "now".



- Increase the pressure gradually at a rate of exactly 14Lbs/inch² or 10Kg/cm² or follow the yellow line. Remove the algometer at the moment the patient says "now".
- When the session ends, a series of message prompts guides you through the process of saving data, adding notes to the session file, and switching to reviewing mode so that you can generate a session report.

Generating a report

- After the review screen opens, you can generate an Algometry report. This is an Excel report.
 - 1. Click the **Session Report** icon in the tool bar.

2. Select Generate Excel Report.

Microsoft Excel opens and displays your report as a workbook. You can print or save the report using Excel's **Print** and **Save** functions.

		Alg	omet	ry	
Client TTL TTL					
Session Date: 03	440000				Die Curreli
Session Time: 24					BioGraph
Session nine. 2.4	13. 12 PM				INFINITI*
		Dette 4	- One of the		
		Data	& Graph	Page	
		Measu	ire 1 (Kg	(cm2)	
Area:	Cervical			Descriptio	n of site:
PTM:	C1	Left			
Reference 1:	Opposite Side				
Reference 2	Surrounding				-
Reference 1	Reference 2	Pressure T		Average of	Difference Between F
				References	and References
0.19	0.06	0.06	5	0.12	-0.07
				(0)	
Area:	Cervical	Measu	ire 2 (Ka		
PTM:	Cervical C4	Left		Descriptio	n of site:
Reference 1:	Opposite Side	Leit			
Reference 2	Opposite Side				
Hererence 2	opposite cide				1
Reference 1	Reference 2	Pressure T	hreshold	Average of References	Difference Between F
0.056	0.056	0.05	ē.	0.056	and References 0.00
0.000	0.000	0.00	•	0.000	0.00
		Measu	ire 3 (Kg	/cm2)	
Area:	Thoracic			Descriptio	n of site:
PTM:	T4	Left			
Reference 1:	Opposite Side				
Reference 2	Surrounding				
Reference 1	Reference 2	Pressure T	hreshold	Average of	Difference Between P
0.056	0.056			References 0.056	and References
0.050	0000	0.05	0	0.000	0.00
	O F	Pressure Thresh	ki DAve	rage of References	
0.1	41				
0.1	2	_			
	1				
0.0					
0.0			_		_
0.0	× +				
0.0	2				
	0 + Measure	e 1	Measure 2	Measure	3

Algo	ometry
Client: TTL TTL Session Date: 03/11/2008 Session Time: 2:43:12 PM	BioGraph
Summary and	I Follow-up page
Summary notes:	
Follow-up notes:	
	Name and Signature

Selecting the sites

Area:	Not used 🖵
PTM:	<select> <</select>
Reference 1:	Not used Cervical
Reference 2:	Thoracic
	Lumbar
Reference 1	Sacral Reference 2

Area:	Cervical
PTM:	<select> -</select>
Reference 1:	C1
Reference 2:	C2 C3
Reference 1	C4 C5 C6
79.33	C7

C3

<select>

<select>

PTM:

ference 1:

ference 2:

For each measure, first select the area (cervical, thoracic, lumbar or
sacral). If the measure is not used, select Not used .

Then select the PTM site...

... and the side.

<select>

<select>

Left

Center Right -

PTM:	C3
Reference 1:	<select></select>
Reference 2:	<select></select>
	Opposite Side
	Surrounding
Reference 1:	Opposite Side
Reference 2:	<select></select>
	<select></select>
Reference 1	Opposite Side
	Surrounding

Then select the reference sites (opposite side or surrounding muscle).

You can also add a description of the location of the site.

Area:	Cervical		Description of site:
PTM:	C3	Left	one inch from the spine
Reference 1:	Opposite Side		

Data table

Reference 1	Reference 2	Pressure Threshold	Average of References	Difference Between PT and References
79.33	72.87	64.04	76.10	-12.06

The data table shows the three measures, the average of the references and the difference between the references and the pressure threshold.

According to the literature, the following conditions are considered a positive finding:

- The difference between the PTM and the opposite side or surrounding muscle, in the same patient, exceeds 2 kg/cm² (28.5 Lbs/inch²).
- The PTM is less than 3 kg/cm² (42.7 Lbs/inch²).

Summary and Follow-up notes

You can enter notes in the summary/follow-up notes boxes:

In Excel 2000 and Excel

Summary Notes:

- In Excel 2000 and Excel 2003, place your cursor in the text box and start typing.
- In Excel 2007, place your cursor in the text box.

Marked improvement

- 1. Right-click the mouse button.
- Select Edit text.
 Start typing.



Hardware Specifications

MyoScan/MyoScan-Z EMG Sensors (SA9503M/SA9503Z)



Size (approx.) Weight Input impedance Input range Sensitivity CMRR Channel bandwidth Signal output range Input / output gain Supply voltage Current consumption Accuracy

MyoScan-Pro EMG Sensor (SA9401M-60 or SA9401M-50)



Size (Approx.) Weight Input impedance Input range

Sensitivity Bandwidth Accuracy

EKG Sensor (SA9306M)



Length (approx.) Weight Temperature range Accuracy

HR/BVP Flex/Pro Sensor (SA9308M)



Length (approx.) Weight Input range Accuracy 37mm x 37mm x 12mm (1.45" x 1.45" x 0.45") 15g (0.5 oz) ≥10GΩ in parallel with 10pF 0 - 2000µVRMS <0.1µVRMS >130dB 10Hz - 1kHz 0 - 1.0VRMS 500 7.26V (± 0.02V) 0.7mA (± 0.25mA) ±0.3µVRMS ±4% of reading @25°C to 30°C

37mm x 37mm x 15mm (1.45" x 1.45" x 0.60") 25g (1 oz) 10G Ω in parallel with 10pF 0 - 400 μ VRMS, 0 - 1600 μ VRMS <0.1 μ VRMS 20Hz - 500Hz ±5%, ±0.3 μ VRMS

152cm (60") 10g (0.33oz) 10°C - 45°C (50°F – 115°F) ±1.0°C (±1.8°F) 20°C – 40°C (68°F – 104°F)

20mm x 34mm x 10mm (0.72" x 1.33" x 0.41") 20g (0.66 oz) Unit less quantity displayed as 0% – 100% ±5%

Respiration Sensor (SA9311M)

	Size of sensor (approx.)	33mm x 33mm x 11mm (1.28" x 1.28" x 0.44"
	Weight (approx.)	90g (3.3 oz)
	Input range	0 – 9cm (0 – 3.55")
	Supply voltage	7.26V (± 0.05V)
	Current consumption	≤ 0.5mA
	Straps:	
	Length, sensor strap (approx.)	18cm (7")
	Length, elastic strap (approx.)	14cm (5.5")
	Max. length, small extender strap (approx.)	51cm (20")
	Max. length, medium extender strap (approx.)	84cm (33")
kin Conduc	tance Flex/Pro Sensor (SA9309M)	
	Size without electrode leads (approx.)	3.5 cm (1.4")
	Size with electrode leads (approx.)	15 cm (6.0")
	Cable length (approx.)	127 cm (50")
	Weight (approx.)	25 g (1 oz)
G	Signal input range	0 – 30.0 μS
	Accuracy	$\pm 5\%$ and $\pm 0.2~\mu S$
kin Tempera	ature Sensor (SA9310M)	
	Length (approx.)	152cm (60")
1	Weight	10g (0.33oz)
1	Temperature range	10°C - 45°C (50°F – 115°F)
	Accuracy	±1.0°C (±1.8°F) 20°C – 40°C (68°F – 104°F)
, nclinoTrac/D	ual-InclinoTrac (SA7650/ SA7655)	
	Dimensions	32mm x 18mm x 71mm
4.	Weight	26g
	Range	± 180°
L. L.	Accuracy (operated in vertically-oriented plane)	≤ 1.0° (standalone mode) ≤ 2.0° (dual mode, angle difference)
	Output gain	4.44mV / degree inclination
	Output voltage span	2.200 ± 0.8V
	Power supply	7.26V
	Current consumption, maximum	9.5 mA (standalone mode) 19.0 mA (dual mode)
	Link cable	RJ-11, 2 pairs, reversed (this is not a standard telephone cable)

ForceTrac (SA7600)



Dimensions Weight Input range (force) Safe overload Accuracy Zero-level output Full scale output swing Power supply Algometer Attachment: Dimensions Weight Material **Flat Tester Attachment:** Dimensions Weight Material **Curved Tester Attachment:** Dimensions Weight Material

93mm x 63mm x 25mm 94g 0-100 lbf 250 lbf \pm (0.1lbf + 5% of reading) 2.048V 1V at 100 lbs load 7.26V 69mm x 11mm (diameter) 14g Aluminum 9mm x 42mm (diameter) 39g Neoprene 19mm x 42mm (diameter) 52g Neoprene

Outside USA

Tel: 1-514-489-8251 Fax: 1-514-489-8255

In USA Toll-Free

Tel:1-800-361-3651

E-Mail: mail@thoughttechnology.com

Or contact your local authorized distributor.

Technical Support

Outside USA

Tel: 1-514-489-8251

Fax: 1-514-489-8255

In USA Toll-Free

Tel: 1-800-361-3651

E-Mail: techsupport@thoughttechnology.com

Or contact your local authorized distributor.



The hardware (encoder and sensors) is guaranteed to be free from defects in material and workmanship for 1 year from the date of purchase.

In the unlikely event that repair is necessary, contact Thought Technology Ltd. to receive a Return Authorization number. Then send the unit back by a traceable method. Thought Technology will not be responsible for items not received. We will repair or replace your unit(s) that are still under warranty free of charge.

This warranty does not apply to damage incurred through accident, alteration, or abuse.

This warranty does not cover damage to the Infiniti encoder or the sensors caused by obvious mechanical mistreatment of the system.

Returning Equipment for Repair

Before returning the equipment, please contact first our service department and get an authorization number (RA number).



Canada and International +1 514 489-8251



USA 1-800-361-3651

] Service@thoughttechnology.com

Then fill-in the return form (the form can be found at the end of the manual). You must provide a detailed description of the problem you are experiencing, and your telephone/fax number and e-mail.

The unit(s) must be sent **postage prepaid** and **insured**, with proof of purchase to one of the addresses below.

All customs and duties charges will be billed to the customer if incurred by sending the unit to the wrong address.

In the USA, ship insured to:

Thought Technology Ltd. Cimetra LLC 8396 State Route 9 West Chazy, New York 12992 USA

In Canada, ship insured to:

Thought Technology Ltd. 8205 Montreal/ Toronto Blvd. Suite 223 Montreal West, Quebec Canada H4X 1N1

For international:

- Package must be marked "Broker: Livingston International 133461"
- Ship insured to:

Thought Technology Ltd. 8205 Montreal/ Toronto Blvd. Suite 223 Montreal West, Quebec Canada H4X 1N1

Repair Return Form

Be sure to call for authorization before returning any equipment!

Copy and complete this form and include it with the unit(s).

Include a copy of original invoice and return to the address in the Returning Equipment section.

Name	
Company	
Address	
Phone No.	
Fax No.	
Date Purchased	
From Whom	
Model Name	
Serial No.	
Problem	

