Computer Sports Medicine, Inc., (CSMi)

HUMAC2015[®]/EMG APPLICATION PROGRAM User's Guide

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TABLE OF CONTENTS

SECTION 1.	INTRODUCTION1-1
Starting the	Delsys Application1-1
Starting the	Noraxon Application1-3
SECTION 2.	SELECTING THE EMG SYSTEM2-1
SECTION 3.	SETTING THE AUXILIARY OUTPUTS
SECTION 4.	PROTOCOLS4-1
Testing & Exe	ercise4-1
SECTION 5.	EMG SYSTEM PROTOCOLS
Defining the	Configuration
Defining the	Channels5-2
Defining the	Displays
SECTION 6.	REAL-TIME DISPLAY6-1
Main Contro	ls6-1
Real-Time Pl	ots6-1
SECTION 7.	CALIBRATION7-1
SECTION 8.	REPORTS
Plotted Data	
Measured Pa	arameters8-1
SECTION 9.	EXPORTING EMG DATA9-1

LIST OF FIGURES

Figure 1 EMG System Selection	2-1
Figure 2 Delsys Auxiliary Output Settings	3-1
Figure 3 HUMAC Test Protocol With EMG Option	4-1
Figure 4 EMG System Protocol Editor	5-1
Figure 5 EMG Configurations	5-1
Figure 6 EMG Channels - Default	5-2
Figure 7 EMG Sensor Locations	5-3
Figure 8 EMG Channels - Defined	5-3
Figure 9 EMG Isokinetic Test Report	8-2

SECTION 1.INTRODUCTION

This document describes the HUMAC/EMG System. The HUMAC/EMG is compatible with the Delsys Trigno and Noraxon myMOTION Systems.

Starting the Delsys Application

The Delsys Trigno Control Utility must be started before the HUMAC System.

1. Start the Trigno Control Utility.



- 2. The first time you run the Trigno Control Utility you must configure Compatibility mode.
 - a. At the bottom of the Trigno utility, click the **CONFIGURE** button.



b. From the DIGITAL OUTPUT tab, select BACKWARDS COMPATIBILITY.

Trigno System Configu	ration	_
Information Setting	Digital Output	rientation Filter
Enable Digital Outp	out	Changes will take
Command F	Port: 50040	effect after restarting the program.
High-frequency Data F	Port: 50041	Throttle Data
Low-frequency Data P	Port: 50042	Backwards Compatibility
IM Emg Data Por	rt: 50043	
IM Aux Data Por	rt: 50044	Reset to Default
Digital da	ata server IP is	one of: 192.168.1.11.

3. Pair the sensors with the Trigno Control Utility. *IMPORTANT:* The Trigno Auxiliary Adapter (K-type ±5V Analog Adapter <u>https://www.delsys.com/trigno-analog-adapter</u>) must be paired as sensor number 1.



- 4. Complete the pairing of all sensors.
- 5. If you are using the new Avanti sensors, you must configure the sensor the first time it is paired with the Trigno utility.
 - a. Analog Sensor (Channel 1).
 - i. From the **SENSOR** icon, click the **GEAR** (configure) button.



ii. Confirm the following settings from the **SENSOR SETTINGS** form.

Sensor Settings		
Sen Typ ID: Firm	sor 1 e: Analog Input Adapter 57137 tware: 40-34	
	Select Configuration Type: Analog x4 Analog x1	Push Button
Analog.A (V) -2222 Hz Analog.B (V) -2222 Hz Analog.C (V) -2222 Hz Analog.D (V) -2222 Hz	Rate 2222Hz	Bandwidth DC-100Hz

- iii. Set the CONFIGURATION to EMG+ACC
- iv. Set the **RATE** to **1926HZ**.
- v. Click the APPLY AND CLOSE button.
- b. EMG Sensors (Channel 2+).
 - i. From the **SENSOR** icon, click the **GEAR** (configure) button.



- ii. Set the CONFIGURATION to EMG+ACC
- iii. Set the **RATE** to **1926HZ**.

Selisor	Settings	Senso Type: Avanti Firmw	r 2 ID: 53957 Vare: 40-	7 34	-		×
	EMG Ont E	MG+Acc	MG+Gyro	EMG+IMU	EMG+Orient.	IMU Only	
	Ra 1926	te Hz	Range 11mV	•	Bandwidtl 20-450Hz	h	_
	148Hz (RMS)	1259Hz	1481Hz 3704Hz	1778Hz	1926Hz 4370Hz		
	2148Hz	2070112	0701112	Toodria			

- iv. Click the **APPLY AND CLOSE** button.
- c. **IMPORTANT:** The next time you use the Trigno system, simply start the Start the Trigno Control Utility and press the button (original design) or use the magnet (Avianti design) to re-pair the sensors. The Trigno utility will remember the previous settings. If you click the PAIR button on the Trigno Control Utility, you will need to set the configuration again.
- 6. The HUMAC connects to the Trigno system during active data collection. When you first start the HUMAC program, the Trigno utility will show *"Stopped"*.

Close	Stopped	Onfigure

7. During the during active data collection the Trigno will show "Remote (1 user)".



Starting the Noraxon Application

The Noraxon Connection Utility will automatically start when the HUMAC Program is stared.

- 1. The HUMAC program will launch the Noraxon MR setup program.
- 2. Select your Noraxon hardware, e.g. NORAXON DTS BELT RECEIVER.



- 3. Click the **CONFIGURE** button.
- 4. From the Hardware Setup form, in the **O**Detect Configuration area click the **DETECT** button.

Norason DTS Belt Receiver Hardw	vare Setup		×
🖏 In this dialog you ca			
0	Detect Configuration		
0	Adjust Settings		
Concert Manual DTC	Sancare		

- 5. The system should report the connection is successful. Click the **OK** button to continue.
- 6. In the O Adjust Settings area click the MANUAL DTS SENSORS button and enter your sensor Serial Numbers. *Note:* The HUMAC Torque channel should be Sensor #1 and the Position Channel should be Sensor #2. The EMG sensors should start at #3.

(2				Adjust Settings
R					
	General	Manu	al DTS Sensors		
					Sensors
	#	Serial	Label	Туре	
		5c4b	EMG 1	EMG	
	2	5c4c	EMG 2	EMG	

- 7. Click the **OK** button to save your changes.
- 8. From the HUMAC Wait for connection form, click the **OK** button to continue.

<

SECTION 2.SELECTING THE EMG SYSTEM

To select the EMG system you will be using:

- 1. From the FILE menu, select **PREFERENCES**.
- 2. In the EMG area, SYSTEM picklist, select your EMG System.

EMG	
System	None 🗸
	None
E-Stim —	Delsys Trigno
System	Noraxon myoMOTION

Figure 1 EMG System Selection

Note: You must select and EMG System to edit EMG protocols. The EMG System does not need to be connected to the HUMAC to edit protocols. The EMG System must only be connected to collect EMG data.

SECTION 3.SETTING THE AUXILIARY OUTPUTS

The Auxiliary Outputs should be set for the Delsys system.

- 1. From the UTILITIES menu, select AUXILIARY OUTPUTS.
- 2. Set the values as in Figure 2.
- 3. Click the OK button to save your changes.

Auxiliary Out	puts										
Position -	ed		Torque	ed		Speed Enable	ed		Direction	ed	
Gain	3000	09	Gain	570	09	Gain	2048	09	Gain	1024	09
Offset	0	09	Offset	0	09	Offset	0	09	Offset	0	09
	□ Rectify			🗆 Rectify			□ Rectify			🗆 Rectify	
										ок	? Help

Figure 2 Delsys Auxiliary Output Settings

SECTION 4.PROTOCOLS

Testing & Exercise

When running a test or exercise session, the **PROTOCOL** form now includes an **EMG** option.



Figure 3 HUMAC Test Protocol With EMG Option

Note: The EMG area will be disabled if no EMG System is selected from the FILE, PREFERENCES form.

- To include EMG data collection during a test, check the EMG, ENABLED checkbox.
- To edit the EMG protocol (sensor locations, displays) click the **SETUP** button. The HUMAC displays the EMG Editor form.

SECTION 5.EMG SYSTEM PROTOCOLS

The EMG System protocol editor allows you to define EMG settings which can be re-used across patients. In this example we'll define a *"Quadriceps"* **CONFIGURATION** with the following settings:

- Sample data from EMG Channel 1, EMG Channel 2, the NORM TORQUE and NORM POSITION channels.
- Display the EMG Channel 1 raw data, EMG Channel 1 RMS value, EMG Channel 2 raw data, NORM TORQUE data and NORM Position Data.

Note: You can also define EMG protocols from within the HUMAC System Protocol editor. (**UTILITIES PROTOCOLS**). EMG protocols defined inside the system protocol editor are tied to that specific system protocol.

- 1. From the **UTILITIES** menu, select **EMG PROTOCOLS**.
- 2. The HUMAC will display the EMG System Protocol Editor.





- 3. Click the ADD button.
- 4. The HUMAC duplicates the default EMG settings and displays the EMG Protocol Editor.

Defining the Configuration

The **CONFIGURATION** is the set of EMG hardware **CHANNELS** you will be sampling and real-time HUMAC **DISPLAYS** you want. **CONFIGURATIONS** are similar to extremity protocols which can be saved and re-used across patients.

1. In the **CONFIGURATONS**, **NAME** field, enter "*Quadriceps"*. The new name will be displayed in the list when you leave the field.

- Configuratio	ns	-		-		
	Name	SystemType	Default	SamplingRate	CutoffFrequency	WindowDuration
▶ default		Delsys Trigno		2000 Hz	1000 Hz	5 Sec
Name:	Our diament		Sampling Bate:	2000.0	Cuttoff Freg:	000.11
riano.	Quadriceps		sampling mate.	2000 Hz		000 Hz

Figure 5 EMG Configurations

ITEM	DESCRIPTION				
NAME The configuration name, e.g. "Quadriceps".					
SAMPLING RATE*	The hardware-based sampling rate.				
CUTOFF FREQ* The hardware-based cutoff frequency applied to all data channels.					
Note: The HUMAC E	MG software is designed to support different EMG Systems. Not all EMG Systems				

Note: The HUMAC EMG software is designed to support different EMG Systems. Not all EMG Systems include all hardware-based features listed below, e.g. **VARIABLE SAMPLING**, FILTERING, and GAIN.

Defining the Channels

The CHANNELS are the list of data channels supported by your EMG hardware.

In this example, we'll place EMG2 on the Rectus Femoris and EMG3 on the Vastus Medialis. *Note:* EMG1 on the Delsys is used for the NORM Torque, Position, Velocity and Direction signals.

UserLabel	Location	Enabled	Digital Filter	Gain
TRQ				1
POS			1	1
VEL			1	1
DIR			1	1
EMG2			1	1
EMG3			1	1
EMG4		V	1	1
EMG5		~	1	1
	UserLabel TRQ POS VEL DIR EMG2 EMG3 EMG4 EMG5	UserLabel Location TRQ POS VEL DIR EMG2 EMG3 EMG4 EMG5 Location	UserLabelLocationEnabledTRQIIPOSIIPOSIIVELIIDIRIIEMG2IIEMG3IIEMG4IIEMG5II	UserLabelLocationEnabledDigital FilterTRQIIIPOSIIIVELIIIDIRIIIEMG2IIIEMG3IIIEMG4IIIEMG5II

Figure 6 EMG Channels - Default

- 1. In the CHANNELS area, select the EMG2 row.
- 2. Enter "Rectus Femoris" in the USER LABEL field.
- 3. Click the **LOCATION ?** button to display a map of the sensor locations.



Figure 7 EMG Sensor Locations

- 4. We see the Rectus Femoris is location 44 on the sensor map. Click the **OK** button to close the form.
- 5. Enter 44 in the **LOCATION** field.
- 6. Continue the above process to define EMG3 as "Vastus Medialis".
- 7. The channel display should look as follows.

	Name	UserLabel	Location	Enabled	Digital Filter	Gain
	TRQ	TRQ		~	1	1
	POS	POS		~	1	1
	VEL	VEL			1	1
	DIR	DIR		~	1	1
	EMG2	Rectus Femoris	44	~	1	1
2	EMG3	Vastus Medialis	45			1
	EMG4	EMG4		~	1	1
	EMG5	EMG5		V	1	1
I	User Label: Vastus Medialis	Digital Filter Len: 1	Gain: 1	\checkmark	Enabled Locati	on: 45 ?

Figure 8 EMG Channels - Defined

ITEM	DESCRIPTION
NAME	The Channel Name. This is defined by CSMi for your EMG system.
USER LABEL	A custom name you can apply to the CHANNEL.
LOCATION	The EMG Sensor Location. When entering locations, click the ? button to display
	a muscle map with numbered locations.
ENABLED	The Channel is enabled for data collection. Note: Channels cannot be disabled
	with the Delsys system.

ITEM	DESCRIPTION
DIGITAL FITLER	The EMG hardware-based digital filter length.
LENGTH	
GAIN	The EMG hardware-based input gain.

Defining the Displays

Display the EMG Channel 1 raw data, EMG Channel 1 RMS value, EMG Channel 2 raw data, NORM TORQUE data and NORM Position Data.

- 1. In the **CHANNELS** area, select the **TRQ** row.
- 2. In the Displays area, click the ADD button.
- 3. The HUMAC will add the **TRQ** channel to the list of **DISPLAYS**.

ŀ	Dis	Displays												
l		Chan	Math	Offset	Gain	ABS	Invert	AC	+Limit	-Limit	+Thresh	-Thresh	Max	Min
l	►	TRQ	None	0	1				32767	-32767	20000	-20000		
l														

- 4. Repeat the above adding the **POS** and **EMG2** channels.
- 5. Now we're going to add an **RMS** display of the EMG2 channel.
- 6. In the **CHANNELS** area, select the **EMG2** row and click the **ADD** button.

Max Min 👘
Add Add
Delete
🔲 Maximum Threshold
🗌 🗌 Minimum Threshold

- 7. In the **DISPLAYS** area, select the **EMG2** row. In the **SETTINGS** area set the **MATH** to **RMS**.
- 8. In the **CHANNELS** area, select the **EMG3** row and click the **ADD** button. The DISPLAYS area should look like the following.

-1	Displays													
	Chan		Math	Offset	Gain	ABS	Invert	AC	+Limit	-Limit	+Thresh	-Thresh	Max	Min
		TRQ	None	0	1				32767	-32767	20000	-20000		
		POS	None	0	1				32767	-32767	20000	-20000		
		EMG2	None	0	1				32767	-32767	20000	-20000		
		EMG2	RMS	0	1				32767	-32767	20000	-20000		
	۲	EMG3	None						32767	-32767	20000	-20000		

Note:

- You can modify the **DISPLAYS** by selecting the row and updating the values in the **SETTINGS** and **GRAPH / LED BAR SCALE** areas.
- When running a test, the HUMAC store the raw data for each selected **CHANNEL**. The selected **DISPLAYS** have no effect on the stored data. A channel does not have to be displayed to have the data stored.

ITEM	DESCRIPTION
CHANNEL	The EMG hardware channel number.
MATH	Math functions we want applied to the data, e.g. RMS, FIR filter.
OFFSET	Software-based offset (numeric value) applied to the displayed data.
GAIN	Software-based gain multiplier applied to the displayed data.
ABSOLUTE VALUE	Display the absolute value of the signal.
INVERT SIGNAL	Invert the displayed signal.
AC COUPLE	Apply an AC Coupling (7Hz high-pass) filter to the signal.
UPPER	Maximum Y-Axis value plot value.
+THRESHOLD	Upper Y-Axis marker displayed as a horizontal line on the plot.
-THRESHOLD	Lower Y-Axis marker displayed as a horizontal line on the plot.
LOWER	Minimum Y-Axis value plot value.
MAXIMUM	When checked the +TREHSOLD will automatically track the maximum peak data
THRESHOLD	value.
MINIMUM	When checked the -TREHSOLD will automatically track the minimum peak data
THRESHOLD	value.

SECTION 6.REAL-TIME DISPLAY

1. The HUMAC utilizes a separate real-time display window which can be resized and moved independent of the HUMAC program.

Main Controls

At the top of the Real-Time display are the main controls.

	Qua	adriceps							_		\times
	Displa	ays: 5 💌 Window: 10 Sec	▼ Show: ▼ System	🔽 Settings	🔽 Scale	🔽 Graph	🔽 Bar	🔽 Recording			
F	Syste	em: Delsys Trigno - Connected									
	Cor	nnection Channel: TRQ	Label: TRQ								
		Cattings	- Soalo								
		Channel: TRQ 💌	+Limit 32767								
		Math: None 💌	+Threshold 20000	1000					- ppr ag	1001	
	TRO	Invert 🔲 Offset: 0	Auto Scale	-							
		ABS 🔲 Gain: 1	-Threshold -20000					Select	hewi	ndo v y	<mark>o</mark> u wa
			-Limit -32767	33990							
	_					X.hais				_	
		Channel: POS	Scale								
		Matter None	+Limit 32767	13000							
	g			-							
	R	Invert I Offset: U	Auto Scale	-1000							
		ABS 🔲 Gain: 1	Threshold -20000	3000.							
			-Limit -32767	-33990		Z has					
	_	C-11	C								
		Channel: EMG2	+Limit 32767	3000.							

ITEM	DESCRIPTION
DISPLAYS	The number of real-time displays shown. The HUMAC defaults to the number
	defined in your CONFIGURATION.
WINDOW	The number of seconds of real-time data in each plot window.
SYSTEM	Display/hide the SYSTEM area.
SETTINGS	Display/hide the SETTINGS area.
GRAPH	Display/hide the real-time plots.
BAR	Display/hide the real-time bars.
RECORDING	Display/hide the RECORDING area (at the bottom of the form).
SCALE	Display/hide the SCALE area.

Real-Time Plots

The HUMAC creates a separate real-time plot window for each **DISPLAY**.

	Settings	Scale	200.
	Channel: EMG2 🗾	+Limit 32767	2002.
noris	Math: RMS 💌	+Threshold 20000	
sFer	Invert 🔲 Offset: 0	Auto Scale	
fedu	ABS 🔲 Gain: 1	-Threshold -20000	3775
L CC		-Limit -32767	

ITEM	DESCRIPTION
USER LABEL	The USER LABEL defined in the CHANNELS display "Rectus Femoris". This is listed vertically along the left side of the display
SETTINGS	The hardware channel, math, offset and gain functions defined in the SETTINGS
	area of the DISPLAY form.
SCALE	The plot scale values defined in the GRAPH/LED BAR SCALE area of the DISPLAYS form.
+LIMIT	 When +LIMIT is displayed the maximum y-axis value is set to the displayed value (32767). There are three was to change this value: Manually enter a new value in the data area. Click the +LIMIT button to set the value in the data area to the maximum of the displayed data. Click the AUTOSCALE button to set the +LIMIT and – LIMIT to the maximum of the displayed data +25%.
+THRESHOLD / MAXIMUM	 Upper Y-Axis marker displayed as a horizontal line on the plot. There are two was to change this value: 1. Manually enter a new value in the data area. 2. Click the +THRESHOLD button to change it to MAXIMUM. In this mode, the THRESHOLD tracks the MAXIMUM as a "lazy hand".
AUTOSCALE	Click the AUTOSCALE button to set the +LIMIT and – LIMIT to the maximum of the displayed data +25%.
-THRESHOLD / MINIMUM	 Lower y-axis marker displayed as a horizontal line on the plot. There are two was to change this value: 1. Manually enter a new value in the data area. 2. Click the -THRESHOLD button to change it to MINIMUM. In this mode, the THRESHOLD tracks the MINIMUM as a "lazy hand".
-LIMIT	 When -LIMIT is displayed the maximum y-axis value is set to the displayed value (-32767). There are three was to change this value: Manually enter a new value in the data area. Click the -LIMIT button to set the value in the data area to the minimum of the displayed data. Click the AUTOSCALE button to set the +LIMIT and – LIMIT to the maximum of the displayed data +25%.

Note: When changes are made from this screen, the HUMAC will ask if you want to update your **CONFIGURATION** with the new values.

SECTION 7.CALIBRATION

Calibrating the EMG System allows the Delsys to report data in Foot-Pounds, Degrees and Degrees/Second. To calibrate the EMG System:

1. From the **EMG** menu, select **CALIBRATION**.

IMPORTANT: Before begging the POSITION, VELOCITY, DIRECTION calibration, the HUMAC will instruction you to remove all the weights. This is important as these calibrations are performed with the input adapter in CPM mode at 180 deg/sec.

EMG	MG Calibration						
TORQUE							
☑	Move the Chair away from the Dynamometer (Monorail position 75).						
	Set the Chair Rotation to 0.						
	Set the Dynamometer Tilt to 0.						
	Set the Dynamometer Rotation to 0.						
	Lock the Dynamometer in the fully lowered position.						
	Position the Input Adapter at 12:00 (straight up).						
	Set the ROM Stops at Teal "U" and Gray "U"						
	Set the Knee/Hip Adapter to number 45. (Pin should click in-place.)						
	Rest the Input Adapter against the Teal "U" Stop.						
•	Move the Input Adapter toward Teal "Q" until it locks in-place.						
•	Place 100 pounds on the arm. (Weights #1, 2, 3 and 4).						
•	Remove all weight from the input arm assembly.						
PO	POSITION, VELOCITY, DIRECTION						
☑	Begin Calibration (System will enter CPM mode at 180 deg/sec).						
DO	DONE						
	Calibration completed.						
	💭 👘						
	OK Cancel	Help					

SECTION 8.REPORTS

The HUMAC/EMG System includes a custom report. To generate an EMG report:

- 1. Click the **PATIENT** button and select a patient.
- 2. Click the **REPORT** button to open the reporting page.

Print/Pre

e

3. Select the test. *Note: The EMG column indicates if EMG data was collected with the test.*

									_	
		Date	Machine	Pattern	Description	Test	RData	LDate	EMG	H.
		17/2017 6:58:57 AM	NORM	Knee Extension/Flexion	DATA FROM DELSYS		•		v	Ρ.
		'5/2017 8:42:50 AM	NORM	Knee Extension/Flexion	DATA FROM DELSYS					2
		25/2017 9:27:50 AM	NORM	Knee Extension/Flexion	EMG		•		v	
		25/2017 © 07-50 AM	HUMAC Ralance	Standing Ralance - Rilateral	Wainhi Rasy AP . Valid 929R 349A AZ 0	5				
4.	From the R	EPORT TYPE	, select IS	OKINETIC EM	G REPORT.					

Isokinetic EMG Report

5. Click the **PRINT** or the **PREVIEW** button.

Plotted Data

The HUMAC plots the Torque vs. Time and RMS EMG vs. Time.

Measured Parameters

PARAMETER	DEFINITION
Peak Torque	Peak Torque value.
Peak EMG	Peak of the EMG RMS value.
Integrated EMG	Area under the EMR RMS plot.



HUMAC2015 Computer Sports Medicine, Inc. Isokinetic EMG Report - Knee Extension/Flexion

HUMAC2015® Version: 15.000.0186 © Computer Sports Medicine, Inc. www.csmisolutions.com

Figure 9 EMG Isokinetic Test Report

SECTION 9.EXPORTING EMG DATA

The real-time data can be exported to a CSV file.

- 1. From the **DATABASE** menu, select **EXPORT**.
- 2. Select the row with the data you want to export and click the **EXPORT** button. *Note: The EMG column indicates if EMG data is included with the test.*

Date	Machine	Pattern	Description	Test	RData	LData	EMG	-	
1/15/2013 11:35:34 PM	HUMAC Balance	Standing Balance - Bilateral	CTSIB :15 Eyes Open Eyes Closed					-	\mathbf{U}
1/2/2013 10:27:34 AM	HUMAC Balance	Standing Balance - Bilateral	Concussion Test Eyes O/C, Surface N/P	$\overline{\vee}$					Export
1/1/2013 1:42:46 PM	HUMAC Balance	Standing Balance - Bilateral	CTSIB :15 Eyes Open Eyes Closed	V	•				
3/29/2009 11:22:25 PM	NORM	Knee Extension/Flexion	2 Speed Protocol (60/180)	v	₹	7	Г		EMG
3/27/2009 11:41:24 AM	HUMAC 360	Leg Vertical Jump - Unilateral	5 Reps - 0, 10 Lbs Postion Bars	◄	•	7			
3/27/2009 10:26:05 AM	HUMAC 360	Leg Right/Left Cut	10 Feet Right to Left 0, 10 lbs	V	•		Г		
3/27/2009 10:09:23 AM	HUMAC 360	Leg Vertical Jump - Unilateral	5 Reps - 0, 10 Lbs Postion Bars	-	•	~			
3/27/2009 10:03:58 AM	HUMAC 360	Arm Curl - Unilateral	Power Test 10, 12lbs 5, 10 Reps	◄	▼	7	Г		
3/27/2009 10:01:25 AM	HUMAC 360	Arm Curl - Unilateral	Power Test 10, 12lbs 5, 10 Reps	V	•				
3/27/2009 9:56:40 AM	HUMAC 360	Arm Curl - Unilateral	Power Test 10, 12lbs 5, 10 Reps	V	₹	7			
3/4/2008 9:59:53 AM	NORM	Knee Extension/Flexion	Isometric 90/60/30 degrees	V	V			-	

[FILENAME]	C:\Users\Public\Documents\CSMi\HUMAC2015\EXPORT\Sample.csv							
[TEST DATE]	5/12/2017							
[TEST TIME]	1:56:02 PM	1						
[CONFIGURATION NAME]	EMG Label	Test - 1						
[EMG APPLICATION INFO]	HUMAC EM	1G						
[EMG APPLICATION Version]	V01.00.02							
[EMG TYPE]	Delsys Trigno							
[EMG FIRMWARE VERSION]								
[EMG SAMPLING RATE]	0 Hz							
[EMG CUTOFF FREQUENCY]	1100 Hz							
[WSTACK TYPE]	N/A							
[WSTACK FIRMWARE VERSION]								
[CHANNEL LABELS]	TRQ	POS	Rectus Femoris	Vastus Medialis	EMG4	EMG5	EMG6	EMG7
[CHANNEL LOCATIONS]								
[CHANNEL GAINS]	1	1	1	1	1	1	1	1
[CHANNEL DFILTER LENGTHS]	1	1	1	1	1	1	1	1
[RECORD HEADER]	Record #	TimeStamp	TRQ	POS	EMG2	EMG3	EMG4	EMG5
[RECORD]	1	0.001	-1070	16243	31706	31604	0	0
[RECORD]	2	0.002	882	16243	31712	31742	0	0
[RECORD]	3	0.003	882	15992	31709	31742	0	0