Understanding Proportional Device Selection

What are my traditional joystick options?

NE and NE+

- **NE= non-expandable**
  - Only the joystick provided can be used
  - Minimal programming available
  - Can ONLY control two seating actuators (ex: tilt and recline)
  - Meant for those with stable conditions who do not require any advanced features or complex seating beyond two power actuators

Q-Logic 3e

Q-Logic 3 EX

- **E/EX= expandable**
  - Advanced programming for customized driving needs of the client
  - Additional input devices can be added to the system: head array, alternative joystick, switches
  - Can control any number of seating actuators for power seat functions
  - Smart phones and computers can be controlled through the Bluetooth component in the system
  - Recommended for any users with progressive conditions, neurological conditions or who need customized programming features

Enhanced Display

- **What additional electronics are needed to use an alternative proportional drive control?**
  - Expandable controller/harness
  - A separate display or specialty control input module (SCIM)

Specialty Control Input Module (SCIM)

Drive Control Options: Proportional

What is a proportional device?

- Allows 360 degrees of control
  - More efficient
- Provides speed control
  - The farther away from the center the control is deflected, the faster the device will move
- Provides fine control over the power chair
  - Does require a certain level for motor control for graded fine motor movements

Considerations for Proportional Joysticks:

Does the individual have:

- Range of motion necessary to move joystick in full throw?
- Motor control for graded movements?
- Adequate strength to deflect and sustain deflection?
- Adequate endurance to perform movement throughout the day?
- Alternate access locations for controlling a joystick?
- Adequate space for mounting the joystick in that location?

What options are there for proportional controls?

Assessing from steps 1-4:

1. Standard joystick (250 grams of force; 20-25 mm throw)
2. Standard joystick with modifications
   - Mounting or different toppers

Gatlin Midline Mount

Custom Tray with Cutout

Chin Control Harness

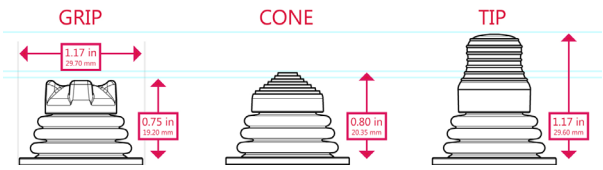
Joystick Handles

3. Alternative Joystick Options:

Mo-Vis Micro:

- 8.5 grams
  - Lightest option
- 3.33 mm throw
- Good for those with extremely weak muscular power
  - Ex: finger, lip, tongue, cleft of chin
- Common mounting:
  - Chin control harness, swing-away boom, gatlin mount or tray

Precision Mini Proportional Joystick



- 43 grams of force
- 9.5-14.4 mm throw (depending on topper)
- Most precise, multi-axis controller
- For those with minimal range of motion and strength with fine tuning available through i-Drive programming
- Fully sealed for those with excess oral secretions

Mo-Vis Multi:

- 49.89 grams of force
- 7.1 mm throw
- Designed for users with limited muscular power such as ALS or MS
- Ideal for use with chin, lip, or finger joystick
- Common mounting:
  - Chin control harness, swing-away boom, gatlin mount

All Around Lite:

- 120 grams of force
- 7 mm throw
- Typically used as a standard joystick but just has ½ the grams of force required for use
- Common mounting:
  - Gatlin mount, swing-away or flip-down hardware attachment at traditional joystick location

Mushroom:

- 227 grams of force
- 19 mm throw
- Designed for users that need to rest their wrist and use a gross grasp or for those using their foot to drive
- Small and large mushroom ball sizes
  - Ball designed to fit contour of the hand
  - Small: width (1.97”) height (1”)
  - Large: width (2.5”) height (1.65”)
- Common mounting: gatlin mount, swing-away arm mount, footplate mounted

All Around:

- 249 grams of force (standard joystick)
- 19.5 mm throw
- Free-style joystick for mounting anywhere
  - Great for those who may get overwhelmed with the traditional joystick display
- Can also be used as an attendant control
- Common mounting: Gatlin mount, swing away or flip down hardware attachment at traditional joystick location

All Around Heavy Duty:

- 650 grams of force
- 40 mm throw
- Joystick topper can not be changed as it is built into the joystick for maximum strength
- Designed for users with high tone/spasticity or dystonia to be used at the hand or foot
  - Those with exaggerated, forceful movements
- Common mounting: gatlin mount

Mo-Vis Road Compensation Feature:

- Slows the chair down to a predetermined speed when the sensor senses excessive vibrations
  - Ex: going over rough terrain
- Uses a sensor built into all of the Mo-Vis joysticks
- CLICK HERE to watch a demonstration.

4. Other alternative proportional devices

- RIM control: uses a proportional joystick mounted at the head with an additional toggle switch
- Other manufacturer devices:
  - Proportional head array: the firmer you press into a pad on the head array, the faster the chair goes
  - Touch pad: the further away from center you swipe, the faster the chair goes

Programming: What are some options for proportional customization?

Not inclusive. Always reach out to your representative for programming assistance.

Joystick Throw:

- Determines amount of travel that the joystick must be moved before reaching full speed
- Shortening: user only moves joystick a portion of the distance in order to get to max speed
- Requires greater motor control the shorter you make it
- When throw is less than 60-70%, look at alternatives like a joystick with less throw built in

Center Deadband:

- An imaginary circle around the center of the joystick position
- Joystick must be moved past the dead zone in order for the motors to engage and drive
- Increases the neutral zone of the joystick
  - Starts at size of a dime and increases all the way to about the size of a 50-cent coin
- Prevents unwanted movement through the joystick before the consumer stabilizes on the joystick

Tremor Suppression/Dampening:

- Increasing this parameter delays the wheelchairs response to a command while the wheelchair is moving forward
- Turned up to ignore tremors and only intentional commands are recognized
- Also works well when someone has upper extremity weakness driving over bumpy areas

Assign Directions:

- Allows orientation of joystick movements to be set up differently
- Must be inverse of each other but for example: pulling back can be forward and pushing forward can be reverse or forward and reverse can be placed in the traditional R/L command spots

Three-Direction:

- Allows the joystick to provide full direction control by only moving in three directions
  - Ex: pull back, right, and left
- Great for those getting progressive strength but still have some difficulty controlling all directions
- Can be changed over time to give all four directions when/if appropriate

Switch Input Joystick:

- Programming feature that takes the 360 freedom out of the controller where direct movements must be given in each direction for a command
- Works well for users who find the freedom of 360 control to be too sensitive
- Can be adjusted by a representative as a user needs if wanting to return to 360 degrees of freedom or true proportionality

Revisions:

Rev.	Date	CR/CO	Details of Change
0	5/7/21	0630-21	New education form