

## Complex Rehab Power Wheelchair electronics

### Comparison matrix

|                                  | Invacare<br>MK 6i (Dynamic)   | PG Drive Technology<br>R-net   | Quantum<br>Q-Logic 2 (Curtis)  |
|----------------------------------|---|--|--|
| Power Wheelchair Bases supported | TDX series, FDX, Storm Series, Power Tiger  | All Permobil bases<br>Quickie<br>Redman, other manufacturers   | All Quantum  |
| Tracking technology              | True Track: (GB Motors, Standard on TDX SR, Arrow) Upgrade on Storm bases<br>G-Trac™ (Gyro Module) available on all MK6 systems<br>G-Trac can be enabled or disabled in any one or more individual drive profiles | Permobil: ESP (gyro technology) (standard on some, optional on some bases, not available on K450)<br>Can be enabled or disabled  | Accu-Trac Technology (tachometer) (optional)<br>Can be enabled or disabled   |
| Firmware upgrades                | Insert upgraded Pro (SD) Memory card into joystick or display – follow prompts. (Software upgrades available from web)  | ‘Future Proofing’ feature (new modules can be added without programming). Some modules are ‘flash’ upgradeable. Can upgrade by PC Programming, if needed.  | Yes, software download by computer or hand held programmer (Software upgrades available from PrideProvider.com)  |
| Initial system set-up            | Factory settings (4 standard drive profiles). Programmer or SD card to modify for user needs.<br>All modules added are recognized automatically – some (IR / Mouse) require initial programming                   | Plug and Play, modules and actuators recognized and programmed automatically   | Plug and Play, modules recognized and programmed automatically   |
| Factory Reset                    | Yes   | Yes  | No   |
| <b>Programming</b>               |   |  |  |
| Separate hand held programmer    | Yes<br>Help/Info key provides assistance.<br>MK6 Hand Held Programmer (HHP) works on MK5 and MK6 systems. MK5 HHP compatible with MK6<br>SD card available to back up or store commonly used programs.            | Yes<br>DTT – includes USB memory stick option for transferring files, mini-USB port for connection to PC.<br>Permobil: use dongle for Permobil specific features (dongle plugs into display or PC) | Yes<br>Programmer compatible with NE (non-expandable), NE+, and Q-Logic electronics.<br>Help key to describe parameter functions.<br>Internal 64mb memory & SD card available for additional memory storage. |
| HHP revision independent         | Yes   | Yes  | No, upgrades available on PrideProvider.com, plugs into computer via USB cable   |

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|--|---|--|---|
| Program through display (manual buttons)   | Yes, with SD card, can see all 4 drives at once on display  | Yes, with dongle on Permobil   | Very limited  |
| Program through joystick display           | Yes, with SD card on all expandable systems – views one drive profile at a time.  | Yes. On Board Programming (except Permobil LED joystick)<br>Can see 4 Profiles at once   | Limited   |
| Consumer can program through access method | Yes, with Professional SD card<br>IR programming with Professional or Basic card  | Yes<br>Quickie: keycode<br>Permobil: User Menu provides access to clock, diagnostics, background color, percentage of backlight, reset odometer and tripometer | Limited- 24 hour time clock, language, trip odometer reset, reminders, backlight  |
| Can program through computer               | Yes, indirectly via Professional SD card  | Yes<br>PC Programming Tool through dongle – required to change text and for some mouse features (uses printer cable)   | Yes<br>PC Programming Station   |
| Memory backup                              | Yes, onto Basic or Pro SD Card. (Not computer dependent) Card data can be read using USB card reader to view settings on PC.  | Yes<br>Through computer  | Yes<br>Through computer or handheld programmer. Programs can be shared between two with SD card or through USB plug-in.   |
| Can do “real time” programming             | No on Expandable systems. (Programmer can remain plugged in, but turned off when driving)<br>Yes on Non-expandable (SPJ+ Remote Joysticks)  | Yes  | Yes   |
| Diagnostics                                | Time and Date stamped error codes available on programmer - on color display without using programmer.<br>Error Code Help Screens (Definition & action required for remediation) with SD Card.<br>Additional diagnostics for actuators and driver controls.<br>Battery voltage and connected device diagnostics viewable on color display screens | Each module has its own error log.<br>Faults recorded sequentially for ease of use when diagnosing intermittent faults<br>PC shows detailed list               | Through computer and handheld: includes descriptions and error code help screens. Time and Date Stamp on fault codes. Help key will aid in diagnostics by providing possible causes of fault as well as steps to correct the error. |

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| Monitoring  | Actuator Amp draw & Angle Position with Smart Actuators<br>Status of limit switches.   | voltage, currents, inhibits etc. with both PC and DTT  | Through computer and handheld programmer: 100+ items available to monitor including seat position, actuator run time, multiple motor parameters, switch and button status, can check how far the PWC has been driven                            |
| Number of Drives/Profiles   | 4 (plus one for Attendant Control)   | 8 (8 <sup>th</sup> is attendant by default)  | 5 (5 for each drive control device), can eliminate any unneeded drives, 1 dedicated to power seating menu   |
| Preset programs   | Up to 13 available Standard driving programs, each can be modified, each can quickly be saved into any drive profile.  | Single program of factory settings<br>Permobil loads program that aligns with access method used, can request from manufacturer                                      | Single program of factory settings for each device type. Additional programs available on by request via email  |
| Simple vs. Advanced programming options                                     | Can change Overall Speed and Response in each drive profile, or access all Programming adjustments   | Advanced only  | Advanced only   |
| Torque<br><i>Increased power to overcome resistance, even at low speeds</i> | Yes, programmable  | Yes, programmable, per profile   | Programmable, labeled Power   |
| Power<br><i>Percentage of power available during driving</i>                | Yes  | Yes, per profile   | Same as Torque. Stops PWC movement if a set amount of power is required   |
| Sensitivity<br><i>how quickly the chair responds to joystick movement</i>   | <p>“Tremor dampening” settings as well as individual acceleration adjustments for forward, turning and reverse quadrants allow accommodation of user needs. Applies to digital and analog controls.</p> <p>“Traction” parameter adjustment reduces speed when going into or coming out of a turn. Helpful for softening veer correction w/ digital or latched controls</p> | <p>“Tremor dampening” in each profile</p> <p>Also separate “Acceleration” parameters for Forward, Reverse and Turn at minimum and maximum speeds in each profile</p> | <p>“Turn Sensitivity” parameter available to increase or decrease sensitivity. Speed turn rate parameter available to adjust sensitivity at higher speeds for steer correction. (all options per Drive)</p> <p>Tremor Suppression is global</p> |

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|--|--|---|--|
| Initial travel (distance) of the joystick is ignored   | No   | Deadband, programmable  | Center Deadband, programmable  |
| Latch<br><i>Movement of the PWC continues until a command is received to stop</i>                | Yes, Forward (Reverse is additional parameter)<br>Six latched types to choose from   | Yes, Forward and Reverse<br>Step Latch: puff each time to increase speed<br>Cruise Latch: hold puff to increase speed | Yes  |
| No Drive Mode<br><i>allows Driver to enter a Mode or Drive in which the chair will not drive</i> | No Driving mode - disables driving in selected profile with all other programmable functions available.<br>Can disable entire drive profile so it doesn't appear on display as a choice. | Yes, in desired Profile, turn Mode 1 off so client cannot drive   | Yes, Rest Profile can be programmed  |
| Sleep Mode<br><i>all functions disabled until Mode switch activated</i>                          | Yes<br>Can disable in ECU or mouse emulation modes   | Yes, programmable up to 30 minutes, turn off by setting to 0  | "Rest" profile can be programmed, no seating or drive functions available in this profile, mode command exits profile. |
| Program which drive to start in at Power On  | Yes<br>Program last drive used or a specific drive profile   | Goes to last Profile used or a specific profile<br>Power-up 'Mode' programmable on some JSMs                          | Yes<br>Program to last drive used or specific profile  |
| <b>Display</b>   |  |   |  |
| Color display  | Yes  | Yes. Two contrast options – indoor (white) or outdoor (blue)  | Index Matching on displays to absorb ambient light for outdoor use   |
| Backlit display  | Yes<br>Auto adjusts to ambient light (place tape over sensor to keep bright)   | Yes, adjustable   | Yes, programmable dimming time and backlight. Programmer also has programmable backlight.                              |
| Languages supported  | English  | English   | English, German, Spanish, Italian, French  |
| Customize text wording   | Yes, with MK6i Programmer or Professional SD Card  | Yes, through computer   | Yes, through computer  |

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| Change font size                               | Enhanced View Mode enlarges Icons on Monochrome display.<br>Enhanced & Sequential Scanning Modes with enlarged icons                                   | Programmable option of large ‘momentary’ screens when changing speed or profile.<br>Highlighted “User Menu” items are enlarged  | No   |
| Icons/Graphics                                 | Yes, some combined with text   | Yes, some with programmable text, e.g. mode names. Permobil uses own icons for power seating.   | Yes, profiles can be assigned as preset text, icons, or colors and shapes (pediatric).   |
| Display required for alternative access method | No, can add to any system with MPJ Joystick or Stand Alone Display   | Yes<br>Can use Input/Output Module (IOM) instead, but this has no power button (has 1/8” jack) or charger port (secondary charger port needs to be installed)   | Yes  |
| Buttons on Display                             | Info (help), Save, Select, Directional arrows.   | Profiles, Mode, Power, Speed Up, Speed Down   | Power, Mode and Directional Arrows (enhanced display 2.0)  |
| Switch Jacks on Display                        | Two:<br>1 = Remote power on/off,<br>2 = mode port with up to 2 available functions using splitter or stereo switch (Mode, Drive Select, Power Seating) | Omni Display:<br>Three: 1/8” Power, Port 1 and 2 9 pin for alternative drives, each has a dedicated mode switch jack<br><br>Quickie: Mode can be programmed to be Power Seating or Mode. 2 power seating commands can be sent using a splitter. | 1 = Remote power on/off<br>Can be programmed to be Power, Power/Mode, Kill, toggle (fwd/rev)<br>Power/Mode: hold switch for Power and quick hit for Mode.<br><br>2 = mode port<br>Mode- simple and advanced programming<br><i>Simple: cycles through modes</i><br><i>Advanced:</i><br><i>short command cycles through Drive Profiles</i><br><i>long command toggles between Drive Profiles and Aux. &amp; Seat functions</i> |
| Access to functions: consumer level of control | Consumer can add new IR devices using Basic SD Card.<br>Consumer can change date & time on color displays  | Consumer has access to User Menu to change clock time/settings, trip odometer, backlight color & display color, IR control  | Consumer can only change clock, trip odometer, language, backlight and reminders. These can be restricted, as well.  |

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| Shortcut Menu on Display                                | No                          | Mode selection enters User Menu or can be programmed to Sequence to move through options with repeated Mode selections (Drive, Reverse, etc.) | Can program a “Quick Access List” of desired shortcuts that are shown when chair goes into auxiliary menu.                                  |
| Locking feature to prevent any external access to chair | No                          | Yes: Either button sequence, key, both or neither – fully programmable, on joystick only  | System Lock - can be turned on or off   |
| Other   |                             | Clock, speed display<br>Mode name and profile name text programmable  | Can download digital photos to display or hand control<br>Clock, MPH, Battery %, Trip Odometer, Odometer                                    |
| <b>Joystick</b>   |                             |   |   |
| Joystick: hand rest                                     | Multiple Joystick Styles    | Yes, option on any PermaFix joystick (Permobil)   | Yes, through custom department.   |
| Joystick: display                                       | Yes, color MPJ              | Yes, color except LED joystick  | Yes, color, index matching<br>Ambient light sensor. Automatic display diming or brightness depending on lighting of environment.            |
| Joystick: buttons or toggle switches                    | Various options             | Buttons, Toggles and / or speed pot optional  | Buttons, side mounted dial (speed) and toggle (on/off, profile)   |
| Joystick: shortcut buttons                              | No                          | Profile button can be reassigned to provide access to both profiles or speed  | 2 – 1 for profile 1 and 1 for seat profile- Labeled I and II<br><br>Menu button displays Menu of shortcuts on display for user programming. |

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| Joystick: speed dial           | Yes   | Yes, option  | Yes - can be programmed for:<br>Limited: high and low limits<br>Continuous: no limits<br>Continuous forward: only forward movement of dial is required to change speed, will cycle through<br>Continuous rearward: only reverse movement of dial is required to change speed, will cycle through   |
| Joystick: switch jacks         | Two:<br>1 = Remote power on/off<br>2 = Stereo (two choice) switch port. (Can be programmed for Mode select, Drive Select, or Single actuator operation, (up, down, and up/down). May program two actuator functions to allow toggle switch function of actuator. If only one port is used, default is Mono Port 1 | Two: power and profile / mode  | 1 = Remote power on/off<br><i>Power- smart switch if enabled will change profile with short commands and power unit off with long commands</i><br><br>2 = mode port<br>Mode- simple and advanced programming<br><i>Simple: cycles through modes</i><br><i>Advanced: short command cycles through Drive Profiles long command toggles between Drive Profiles and Aux. &amp; Seat functions.</i> |
| Mode switch sequence: joystick | Reverse, Automatic Positioning, Powered Seating, Actuators, Drive Select, IR, Mouse, I-Portal, ECU 1/2, ECU3/4  | Profiles, Actuators, Aux., Drive. Sequence programmable  | Drive, Actuators, Aux.<br>Profiles 1-5 individually programmable for Drive, Seat, Aux. Disabled, or Rest   |
| Standby option: joystick       | Standby Select: (programmable time) allows driver control to select next operating mode after chair enters Stand By using directional command (Driving, Actuators, ECU, Mouse, IR, Drive Select). Standby can be disabled in ECU and Mouse/IR mode, Mode switch returns to Drive mode.                            | Yes, adjustable time or via mode switch<br>Can enter all modes and profiles from Standby, programmable directional commands. | Standby Select: go to Menu of Profiles<br>Can individually enable for drive, seat, aux. (global)<br>Scroll time programmable   |

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|--|---|--|---|
| Joystick: Can program the same joystick to be proportional or switched | No-Except if using latched driving.<br>(latched mode with joystick operates in digital or switch mode for directional control only) | No<br>(Step latched drive operates in digital manner)  | Yes, if joystick is deflected more than 50% it will act as switched joystick when programmed  |
| Joystick: swap axes<br><i>Assign any direction to any quadrant</i>     | Yes   | Yes  | Yes   |
| Joystick: can use with only 3 directions                               | Yes, activate RIM Mode<br>Enter "Reversing" mode either with Mode switch or through "Standby Select"                                | No<br>Could accomplish through any alternative proportional joystick and Omni display, 3 axis proportional                                   | Yes, 3-Direction Profile, using Left, Right and Reverse<br>Forward/Reverse toggle accomplished by quick movement in Reverse<br>Double hit to left to access actuators   |
| Joystick: compact/remote joystick                                      | Yes, no buttons   | Permobil: Compact Joystick & Compact Joystick Lite   | Stand Alone joystick<br>Power and Mode buttons<br>3 Drive & Actuator Functions  |
| Separate switch for actuators: with joystick<br><i>Required by CMS</i> | Yes   | Yes, via ICS Alternative Switch Box. Attach up to 8 custom programmable ability switches.  | Yes   |
| Other  | User can view battery voltage and date / time stamped error codes to report to RTS prior to service calls on MPJ joystick           |  | Built in Bluetooth standard on Q-logic 2.<br>-Mouse emulation<br>-connection to Apple and Android devices.  |
| <b>Alternative Access Methods Specifics</b>                            |   |  |   |
| Component required for alternative access connection                   | -Digital Interface for Sip n Puff & digital driver controls.<br>-Interface for ASL digital systems.                                 | Omni Display (2 9 pin ports) or IOM (9 pin port)   | Enhanced Display (9 pin) and Sip and Puff Interface<br>SCIM (Specialty Control Interface Module)<br>-Alternative controls through Q-logic 2 joystick.<br>-Does not support sip and puff or single switch scan |
| Number of alt. input devices that can be connected                     | Up to 4 Driver Controls plus attendant control.<br>(5)  | 2 (on each Omni, each 9 pin port also has a dedicated mode switch)<br>1 (IOM)<br>System can support up to 2 Omnis with 2 access methods each | Up to 4 driver controls- 1 Joystick, 1 Stand Alone, 1 Attendant Control, and 1 Specialty Control  |



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|---|--|---|---|
| Transfer of control between alternative input devices | Choose Drive Profile with desired driver control assigned  | Choose Profile programmed with that access method<br>“Allow Grab”: hit mode switch on desired access method   | Turn on the input device using power button for that device (i.e. on display)   |
| Head Array<br>Access to Reverse<br>Options            | 2 options:<br>1. Separate Mode switch: 1 <sup>st</sup> activation enables Reverse. 2 <sup>nd</sup> activation returns to forward driving.<br>2. Bypass mode switch by programming “Standby Select”. Once in Standby, left driver command activates Reverse driving. Forward command activates Forward driving. | <i>Mode switch:</i> single operation toggles direction<br>Or<br><i>Rear Pad:</i> first activation toggles direction, second activation drives<br>‘Switch Medium’ mode switch activation time to access user menu<br>‘Switch Long’ mode switch activation time to access Sleep<br>2 axis option for seating actuator control under Omni Port Controls menu (choose L/R or R/L) | <i>Mode switch:</i> 1st activation chooses Reverse, second activation can be either mode or standby select<br>Or<br><i>Rear Pad:</i> first activation toggles direction, second activation drives   |
| Sip ‘n puff   | 4 pressure<br>Hard Puff = Forward, Soft Puff = Right, Hard Sip = Reverse, Soft Sip = Left<br>Digital Interface required<br>Pressure programmable in all 4 quadrants to match user’s abilities<br>Reduce Tremor Dampening value and shorten tubing for best performance   | 4 pressure (programmable thresholds)<br>Built into Omni display<br>Programmable ‘ramp up’, ‘ramp down’ time (standard .3, works better at .25) to allow client to build pressure before signal is accepted  | 2 or 4 pressure option<br>2 pressure: 2 puffs = Forward, 1 puff = Right, 2 sips = Reverse, 1 sip = Left<br>Separate module required<br>Can adjust Sampling Delay to allow consumer to “ramp up” to allow client to build pressure before signal is accepted<br>Visual and audible pressure meter on client’s display screen.  |
| Switch Access   | Supports single, 3, 4 and 5 switch access<br>Can do 2 switch access using ASL 2 switch fiberoptic array  | Supports single, 3, 4 and 5 switch access<br>Can do 2 switch access using ASL 2 switch fiberoptic array   | Supports single, 2, 3, 4 and 5 switch access<br><u>2 switch:</u><br>1 <sup>st</sup> switch – double click and hold is Forward, single activation is Left. Double click and release is Mode.<br>2 <sup>nd</sup> switch – double click and hold is Reverse, single activation is Right<br>Can also do 2 switch access using ASL 2 switch fiberoptic array<br><u>3 switch:</u><br>Double hit on left to access actuators |

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|--|---|--|---|
| Single switch scanning                               | Requires external scanner   | 4 directions on display<br>Can scan all chair functions<br>Programmable speed for drive and menus  | 12 scanner options: single or 2 stage options.<br>Scanners can be programmed to specific profiles or be global.<br>Mode option can be disabled when scanning for communication devices.                                   |
| <b>Alternative Access Power, Mode and Navigation</b> |   |  |   |
| Mode switch functioning                              | Mode switch activation enters next available activated function (Reverse, Aux, Powered seating, etc.), and also acts as an emergency stop switch.   | Mode switch activation takes consumer to User's Menu on display or can activate sequence   | Mode switch activation sequence: Reverse, Profiles, Power. Can be programmed in multiple different ways.  |
| Standby option                                       | Standby Select Mode occurs after a programmable time elapses.<br>Directional driver control command chooses function / active mode.<br>Standby in ECU and Mouse Mode can be disabled.   | Yes, adjustable time or switch to standby via mode switch<br>Directional command chooses function.   | Standby Select takes consumer to list on display after a programmable time elapses.<br>Can be enabled for drive, seat, aux. individually.<br>Directional command chooses next function.                                   |
| Display function navigation: manual                  | Manual scroll: directional switches move through displayed choices<br><br>Drive Select: right command can scroll through Drives 1-4, Mode switch selects available modes in each drive. Standby Select can bypass mode switch function.<br><br>Drive Control Navigation (no switches) programmable. | Manual scroll: Forward command moves up displayed list, Reverse moves down (can Invert Forward and Reverse), Right selects, Left moves back a level. Order of menu programmable.<br><br>If using Head Array, Forward moves up the list and loops | Manual scroll: Forward command moves up displayed list, Reverse moves down, Right selects, Left moves back a level<br>Holding down the Forward or Reverse command will continue to scan after a programmed amount of time |
| Display function navigation: scanning                | 3 scanning types - any drive command makes selection: Modified row column enhanced (version of row/column w/large icons) sequential (one mode in each drive at a time). All with adjustable speed, adjustable initiation time.  | Auto scroll: adjustable speed. Right selects and Left moves back a level.  | Auto scroll: adjustable speed. Right selects and Left moves back a level.   |

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| Display function navigation: auditory scanning (speech) | No<br>Auditory feedback available for screen/mode changes whether through manual operation or in scanning modes. Different beeps used for different modes.<br><br>Allows Display to be non-visual dependent. (Can mount on back of chair). | No<br>Auditory feedback to indicate Profile, operating Mode or selection on User Menu (beeps can be turned on/off)  | No<br>Different tones for each drive profile, seat, and auxiliary.<br>Auditory feedback available for screen/mode changes whether through manual operation or in scanning modes                                  |
| <b>Infrared Transmission</b>                            |  |   |  |
| IR signal output  | IR Module, 6 devices (\$995 IR/ and RF Mouse pkg.)   | Yes, standard on Omni   | Yes (built-in)<br>Back of Display, multidirectional  |
| Preset codes  | Yes  | Yes<br>Can download many from internet  | No   |
| Learning  | Yes  | Yes   | Up to 288 (depending on size of code), macros (up to 3 commands)   |
| Macros  | No   | No  | Yes  |
| Insteon control   | Through IRLinc (not included) which converts IR to Insteon signals. Included remote can be used to teach IR signals to power wheelchair electronics. Separate Insteon modules required.  | Through IRLinc (not included) which converts IR to Insteon signals. Included remote can be used to teach IR signals to power wheelchair electronics. Separate Insteon modules required. | Through IRLinc (not included) which converts IR to Insteon signals. Included remote can be used to teach IR signals to power wheelchair electronics. Separate Insteon modules required.                          |
| Telephone   | Through IR receiving phone (not included).<br><br>Can also interface external switch operated phone.<br><br>Options to control a Smartphone through the PWC.   | Through IR receiving phone (not included).<br><br>Can also interface external switch operated phone.<br><br>Options to control a Smartphone through the PWC.                            | Through IR receiving phone (not included).<br><br>Can also interface external switch operated phone.<br><br>Options to control a Smartphone through the PWC. Built-in BT to connect to Apple or Android devices. |

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| Other                              | Can program Favorite Channels or use keypad to enter a channel.<br>Can't change text in IR templates   |   |  |
| <b>Mouse Emulation</b>             |  |   |  |
| Mouse emulation                    | -Yes, separate from display, optional<br>-Radio Frequency (RF), requires included USB dongle<br>-Proportional with joystick<br>3 or 4 quadrant operation<br>Wireless Control of PC, MAC, Comm Devices<br>Tecla shield available through ASL for iOS<br>I-Portal soon to be available for iOS and HID | Yes, separate from display, optional<br>Blue Tooth Mouse Module<br>Proportional with joystick<br>\$854 MRSP<br><br>Controls computer, Windows, and Android devices, new BlueTooth device pending for iPad<br><br>Tecla Shield allows iPad/iPhone access (additional cost)   | Yes, built into display<br>Blue Tooth or IR<br>IR requires ASL or GEWA mouse receiver<br>Proportional with joystick<br>Harness to power module with 1-2 switch jacks   |
| Mouse emulation<br>Clicks          | 2 switch jacks on mouse module for left and right clicks<br>Or<br>Use dwell software<br>Or<br>Use 3 quadrant mode<br>Left command = left click, reverse if available can be right click  | Joystick: can use Speed up and Speed down buttons for L/R clicks in Mouse Mode<br>Joystick or Alt. Access: any quick hit (nudge) of a directional command can be programmed to L or R click or Scroll up or down (requires PC)<br>or<br>Use dwell software<br><br>Mouse Module: 2 switch jacks for L/R clicks (programmable L/R, double L/R or scroll up/scroll down) | Left directional switch: click, double hit = double click<br>Right directional switch: right click<br>or<br>separate switch: toggles between mouse movement and mouse click.<br>Mouse click screen: 4 directions for L click, R click, double click and drag<br>or<br>Use dwell software<br>Programming option to make the clicks through the input device. Double left or Double right toggles between mouse movement and mouse clicks. |
| <b>Interfacing</b>                 |  |   |  |
| Auxiliary function templates       | N/A  | No  | Yes, can customize   |
| Component required for interfacing | Aux1/2 or Aux3/4 (can use both)<br>Aux1/2 = 2 outputs, 4 switch closures each<br>Aux3/4 = 2 outputs, 5 switch closures each  | IOM: Input/Output Module and cable<br>Both ports can be used as output  | ECU Module (8 switch outputs), cable   |

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|---|---|---|---|
| <b>Attendant Control</b>  | Proportional or Digital   |   |   |
| Attendant control features  | PWC control, does not use up a drive profile<br>Programmable Performance Adjustments for both Proportional & Digital Attendant Controls<br>If attendant control is on, Driver access method will not operate. | Uses Profile 8 as standard<br>Can be programmed to any profile(s)<br>Programmable 'grab' option to allow either the caregiver or the user to regain control.<br>Can access all user modes, seating, mouse, etc. or programmable to specific modes (includes Mode button)            | Power mode button<br>Doesn't use up a profile<br>If attendant control is on, access method will not operate.<br>Profiles individually programmable.<br>Profiles 2-3 can be turned off |
| <b>Actuators</b>  |   |   |   |
| General comments  | Can control actuators during driving with Smart Actuators or Motion Concepts  | Permobil: ICS Intelligent Control System (not R-net).   | Joystick control allows proportional speed control (unless in latch)  |
| Programmable combination of movements                                     | Smart actuator: can execute Automatic Positioning (from only 1 or up to 6 steps each sequence), up to 4 pre-set positions (1 per Drive).<br>Automatic Positioning with tilt, recline, and center mount legs.  | Up to 16 axes of seat motion can be defined using up to 6 actuators, either singly or in multiple combinations.<br><br>Permobil includes Tilt, Recline, ELRs, seat elevate, stand, power swing away chin, power transfer (footplate to floor and auto raise seat), power leg length | No  |
| Programmable Speed, Acceleration, Deceleration                            | Yes   | No<br>Joystick – proportional speed   | Yes   |
| Drive Inhibit (slows speed past programmed actuator angle)                | No  | Yes   | Yes   |
| Drive Lock out (prohibits driving past programmed actuator angle)         | Yes   | Yes   | Yes   |
| Limit movement (programs start and stop point/angle of actuator movement) | Motion limits can be programmed on Smart Actuators or Motion Concepts Memory Seating  | Yes   | No  |

## Complex Rehab Power Wheelchair electronics

### Comparison matrix

|                        | Invacare<br>MK 6i (Dynamic)   | PG Drive Technology<br>R-net                              | Quantum<br>Q-Logic 2 (Curtis)   |
|------------------------|---|---|---|
| Pressure Relief Signal | Series of beeps and a visual prompt to perform pressure relief. Chair will not drive until the mode switch is activated (user acknowledges beeps). Frequency (time) is programmable up to 60 minutes.<br><br>If the client is driving, the prompt will be delayed until driving stops | Virtual Seating Coach<br>Records/tracks weight shift data | Can program individualized reminder for pressure relief. Can program for set time or as an interval. Will repeat to programmable frequency until confirmed. Optional audible alert.   |
| <b>Other</b>           |   |   |   |
| Other comments         | Memory card works on Expandable level electronics only (4 Drive Systems). Can store/archive multiple systems or individual drives in a library for downloading to other systems.<br>MK6 Laptop IVS can view / change / print programmed settings                                      | HMC products now part of Permobil USA                     | User Reminder feature- programmable time or interval with customized wording programmed in PC programmer. Icons pending<br>Maintenance Reminder feature - programmed by days or miles. Can be individualized with PC programmer to input company name / number or other text. |