

Compact Joystick Advanced - HMC

Code(s):

0033-7005a CJA-HMC

1. General

The **Compact Joystick Advanced - HMC** (CJA-HMC) is an input device and is coupled to the **Easy Rider** (ER) or **Magic Drive** (MD) wheelchair electronics.

- It's a proportional joystick module with an adjustable hand pad in a small housing.
- The joystick D50800 from PG Drive Technology is used. It is a very reliable contactless joystick which meets the most rigid requirements.
- The CJA-HMC can be adjusted to any individual need and possibility of the user. This can be done through the set-up of the ER or MD.
- We can install the CJA-HMC in a good position through the mounting kit.
- Because the CJA-HMC has a standard shaft diameter (8 mm), it will accept adaptive knobs available on the market.
- The CJA-HMC can be directly connected to the ER or MD system.
- The CJA-HMC is completely protected against moisture, which makes it suitable to use outdoors.



2. Operation

2.1 Introduction

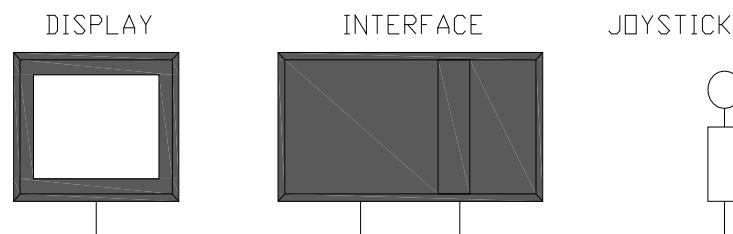
The CJA-HMC is a joystick module that can directly be connected to the ER or MD control system. So we refer to the ER or MD manual how to setup the complete wheelchair. The relevant contents of this chapter should be included in the wheelchair operating guide. Further copies of this document are available from HMC International in either written or disk (Adobe PDF) format. Copies of this document should not be made without the expressed permission of HMC International.

The operation of the ER or MD varies dependent on programming. This chapter covers the special types of operation for the CJA-HMC. For a complete description of the system we refer again to the ER or MD manual. It is the responsibility of the wheelchair manufacturer or local dealer to ensure that only the relevant sections of this chapter are included in the wheelchair's operating manual.

Please read this chapter carefully - it will help you to keep your wheelchair reliable and safe.

2.2 General

An ER or MD control system comprises a minimum of 3 modules - Joystick Module, graphic display and interface box. Because of the modular design, the depth of the control system can be greatly increased. The following diagram shows the basic set-up.



2.2.1 Handling

Avoid knocking your control system and especially the joystick. Be careful not to strike obstacles with the control system or joystick when you drive. Never drop the control system.

When transporting your wheelchair, make sure that the control system is well protected. Avoid damage to cables.

2.2.2 Operating Conditions

Your control system uses industrial-grade components throughout, ensuring reliable operation in a wide range of conditions. However, you will improve the reliability of the control system if you keep exposure to extreme conditions to a minimum.

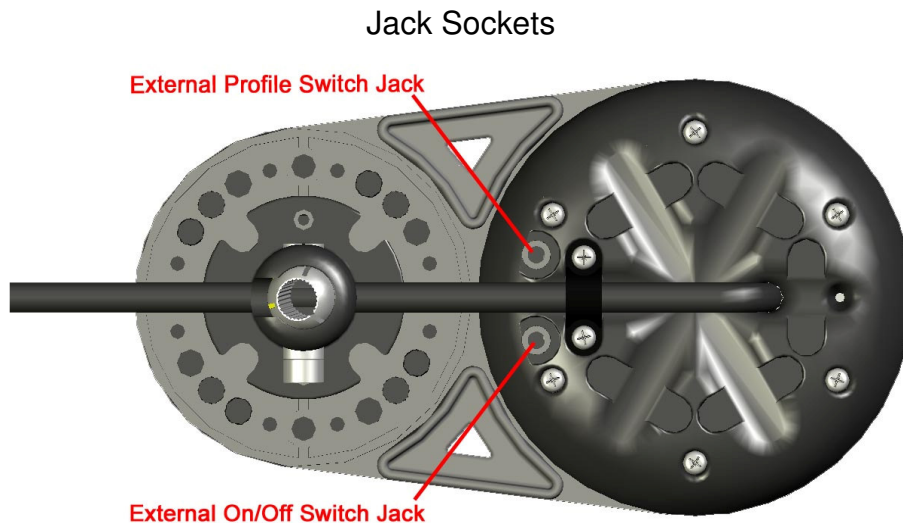
Do not expose your control system or its components to damp for prolonged periods. If the control system becomes contaminated with food or drink clean it off as soon as possible.

2.2.3 Cleaning

Clean the control system and the joystick with a cloth dampened with diluted detergent. Be careful when cleaning the joystick. Never use abrasive or spirit-based cleaners.

2.4 Controls

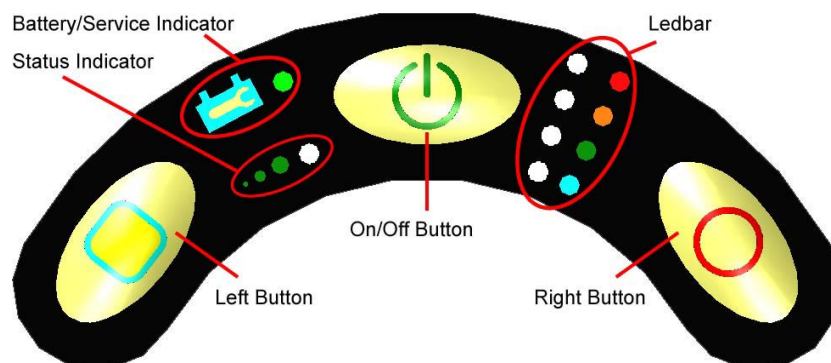
The controls typical for the CJA-HMC are explained in this section.



2.4.1 Joystick

The primary function of the joystick is to control the speed and direction of the wheelchair. The further you push the joystick from the centre position the faster the wheelchair will move. When you release the joystick the brakes are automatically applied. If the wheelchair is fitted with actuators, the joystick can also be used to move and select actuators.

2.4.2 Buttons and Led's



2.4.2.1 On/Off Button

The On/Off button applies power to the control system electronics, which in turn supply power to the wheelchair's motors.

Do not use the On/Off button to stop the wheelchair unless there is an emergency. (If you do, you may shorten the life of the wheelchair drive components).

2.4.2.2 Left/Right Button

These two buttons are used as function button for the ER or MD. They are parallel. It doesn't matter which one is used as function button.

2.4.2.4 External On/Off Switch Jack

This allows the user to turn the control system on and off using an external device, such as a buddy button.

2.4.2.5 External Profile Switch Jack

This allows the user to control the function button of the ER or MD using an external device, such as a buddy button.

2.4.2.6 Battery/Service Indicator

In normal operating state this displays the status of the system.

Green Continuous

The system is on and working well.

No Light

System is off.

2.4.2.7 Status Indicator

This led is for future implementation. Currently they are not used.

2.4.2.8 Led Bar

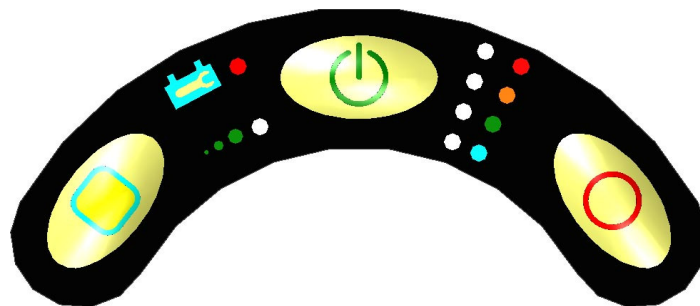
These leds are for future implementation. Currently they are not used.

2.5 Diagnostic Screen or Acoustic Feedback

When the control system safety circuits have operated and the control system has been prevented from moving the wheelchair, a diagnostics code will be displayed.

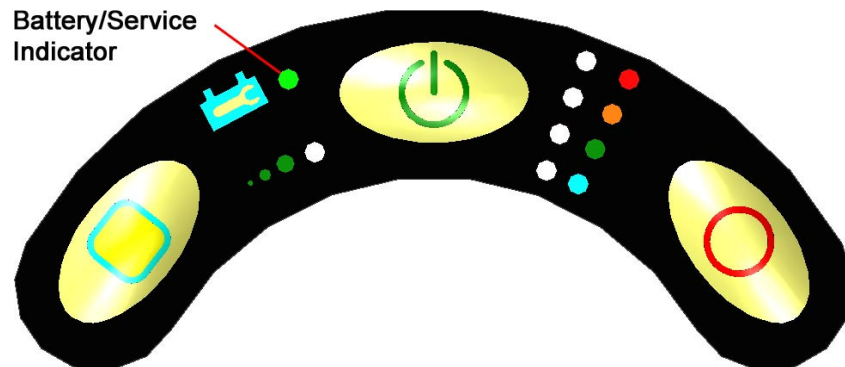
This indicates a system trip, i.e. the ER or MD has detected a problem somewhere in the wheelchair's electrical system.

The Battery/Service indicator LED will flash periodically red alternated with a green flash. The number of red flashes is an indication of the fault.



2.6 Getting Ready to Drive

- Operate the on/off switch. The Battery/Service indicator will turn green when the system starts up.



- Check that you select a profile which suits you.
- Push the joystick to control the speed and direction of the wheelchair.

Remark! If you push the joystick before or just after you switch the control system on, the ER or MD will enter an error state. You must release and centre the joystick to resume normal operation.

2.7 Tips for Using your Control System

2.7.1 Driving - General

Make sure that the control system is mounted securely and that the joystick position is correct. The hand or limb you use to operate the joystick should be supported, for example by the joystick modules arm pad. Do not use the joystick as the sole support for your hand or limb - wheelchair movements and bumps could upset your control.

2.7.2 Driving Technique

The control system interprets your joystick movements and produces appropriate movements of your wheelchair. You will need very little concentration to control the wheelchair, which is especially useful if you are inexperienced. One popular technique is to simply point the joystick in the direction you want to go. The wheelchair will “home-in” on the direction you push the joystick.

The further you push the joystick away from the rest position, the faster the wheelchair will go. Releasing the joystick will stop the wheelchair.

Remark! The wheelchair user must be capable of driving a wheelchair safely. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

2.7.3 Slow or sluggish movement

If the wheelchair does not travel at full speed or does not respond quickly enough, and the battery condition is good, there may be a nonhazardous fault. Contact your service agent.

2.8 Precautions for Use

In the event of the wheelchair moving in an unexpected way **RELEASE THE JOYSTICK**. This action will stop the wheelchair under any circumstances.

2.8.1 Hazards

Do not drive the wheelchair:

- Beyond restrictions indicated in your wheelchair user manual, for example maximum inclines, curb height etc.
- In places or on surfaces where a loss of wheel grip could be hazardous, for example on wet grassy slopes.
- If you know that the control system or other crucial components require repair.

Although the CJA-HMC and the control system is designed to be extremely reliable and each unit is rigorously tested during manufacture, the possibility of a system malfunction always exists (however small the probability). Under some conditions of system malfunction the control system must (for safety reasons) stop the chair instantaneously. If there is any possibility of the user falling out of the chair as a result of a sudden braking action, it is imperative that a restraining device such as a seat belt is supplied with the wheelchair and that it is in use at all times when the wheelchair is in motion. HMC International NV accept no liability for losses of any kind arising from the unexpected stopping of the wheelchair or arising from the improper use of the wheelchair or control system.

Do not operate the control system if the chair behaves erratically, or shows abnormal signs of heating, sparks or smoke. Turn the control system off at once and consult your service agent. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

Electronic equipment can be affected by Electro Magnetic Interference (EMI). Such interference may be generated by radio stations, TV stations, other radio transmitters and cellular phones. If the chair exhibits erratic behaviour due to EMI, turn the control system off immediately and consult your service agent. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

It is the responsibility of the chair manufacturer to ensure that the wheelchair complies with appropriate National and International EMC legislation. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

The wheelchair user must comply with all wheelchair safety warnings. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

2.9 Safety Checks

The electronic circuits in your control system have been designed to be extremely safe and reliable. The on-board microcomputer carries out safety checks at up to 100 times per second. To supplement this safety monitoring you should carry out the following periodic checks.

If the control system fails any of these checks, do not use the wheelchair and contact your service agent.

2.9.1 Daily Checks

Joystick: - With the control system switched off, check that the joystick is not bent or damaged and that it returns to the centre when you push and release it. If there is a problem do not continue with the safety checks and contact your service agent.

2.9.2 Weekly Checks

Parking brake: - This test should be carried out on a level floor with at least one meter clear space around the wheelchair.
- Switch on the control system.
- Check that the LEDs remain on, after initialization and that the battery gauge is displaying a reasonable amount of charge.
- Push the joystick slowly forwards until you hear the parking brakes operate. The chair may start to move.
- Immediately release the joystick. You must be able to hear each parking brake operate within a few seconds.
- Repeat the test a further three times, pushing the joystick slowly backwards, left and right.

Connectors: - Make sure that all connectors are securely mated.

Cables: - Check the condition of all cables and connectors for damage.

Joystick gaiter: - Check the thin rubber gaiter or boot, around the base of the joystick shaft, for damage or splitting. Check visually only, do not handle the gaiter.

Mounting: - Make sure that all the components of the control system are securely mounted. Do not overtighten any securing screws.

2.9.3 Servicing

To ensure continued satisfactory service, we suggest you have your wheelchair and control system inspected by your service agent after a period of 1 year from commencement of service. Contact your service agent for details when the inspection is due.

2.10 Programming

The control system can be programmed to meet your needs. Programming can be performed using the Download Module and software or the built-in setup routine. If you re-program your control system, make sure that you observe any restrictions given in your wheelchair user manual. Note any changes you make for future reference.

Remark! Programming should only be conducted by healthcare professionals with in-depth knowledge of ER or MD electronic control systems and the CJA-HMC. Incorrect programming could result in an unsafe set-up of a wheelchair for a user. HMC International NV accepts no liability for losses of any kind if the programming of the control system is altered from factory pre-set values.

2.11 Servicing

All repairs and servicing must be carried out by authorized service personnel. Opening or making any unauthorized adjustments or modifications to the control system or its components will invalidate any warranty and may result in hazards to yourself or other people, and is strictly forbidden.

HMC International NV accepts no liability for losses of any kind arising from unauthorized opening, adjustment or modifications to the ER or MD control system.

If the control system is damaged in any way, or if internal damage may have occurred through impact or dropping, have the product checked by qualified personnel before operating. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

2.12 Warranty

The CJA-HMC is covered by a warranty period defined by the service agent. For details of the warranty period, please contact your service agent.

The warranty will be void if the CJA-HMC has:

- Not been used in accordance with the CJA-HMC user manual – this manual – of HMC International.
- Not been used in accordance with the ER or MD control system Manual, of respectively HMC International NV or Permobil.
- Been subject to misuse or abuse.
- Been modified or repaired by non-authorized persons.

3. Installation

3.1 ER or MD Operation

Study the manual of the ER or MD. It is important that the User Manual of the ER or the appropriate manual of Permobil for the MD is supplied, either as part of the wheelchair user handbook or as a separate document.

3.2 Program Settings

It is the wheelchair manufacturer's or dealer responsibility to program the control system to suit the vehicle model and ensure safe operation in compliance with relevant legal requirements over the whole of the operating range. HMC International NV accepts no liability for losses of any kind due to failure to, or incorrect programming of the ER or MD Control System.

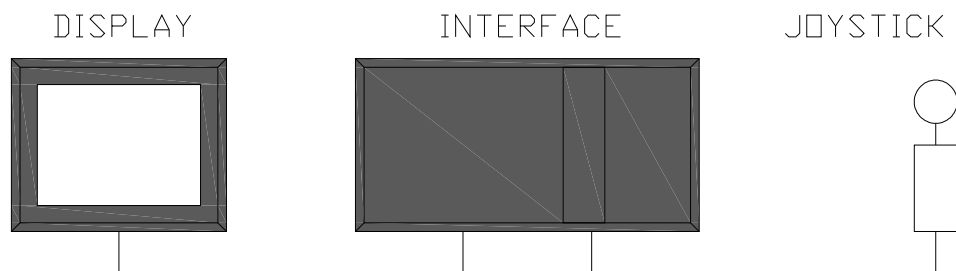
Programming should only be conducted by healthcare professionals with in-depth knowledge of the ER or MD electronic control systems and of the CJA-HMC. Incorrect programming could result in an unsafe setup of a wheelchair for the user.

3.3 Connections

The following is a selection of the most common configurations

3.3.1 Control Configurations

Consists of a Display, interface and a Joystick Module.



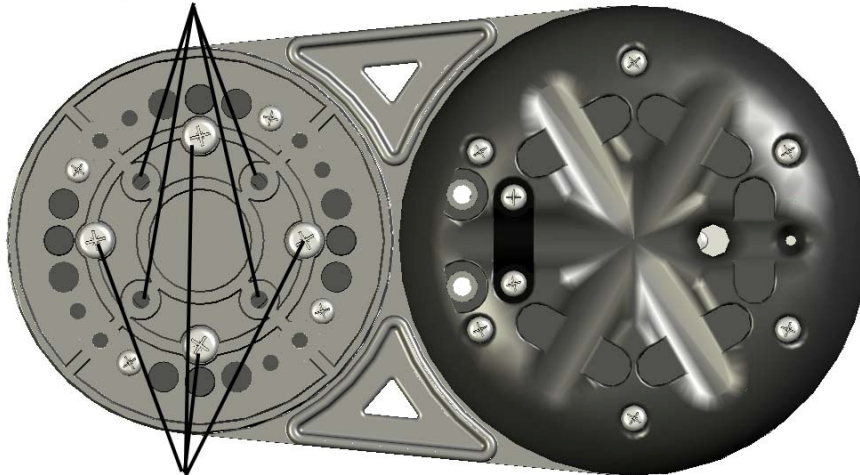
3.4 Mounting

3.4.1 Joystick Module Mounting

3.4.1.1 General

The Joystick Module should be secured using 4 Plastite 4mm screws with a maximum penetration of 25mm. There are 8 holes in 2 pitch circular diameters (PCD) – PCD 32mm and PCD 35.4 mm – reserved for mounting. Be careful not to overtighten the screw. 4 Plastite screws of 20mm are delivered with the module.

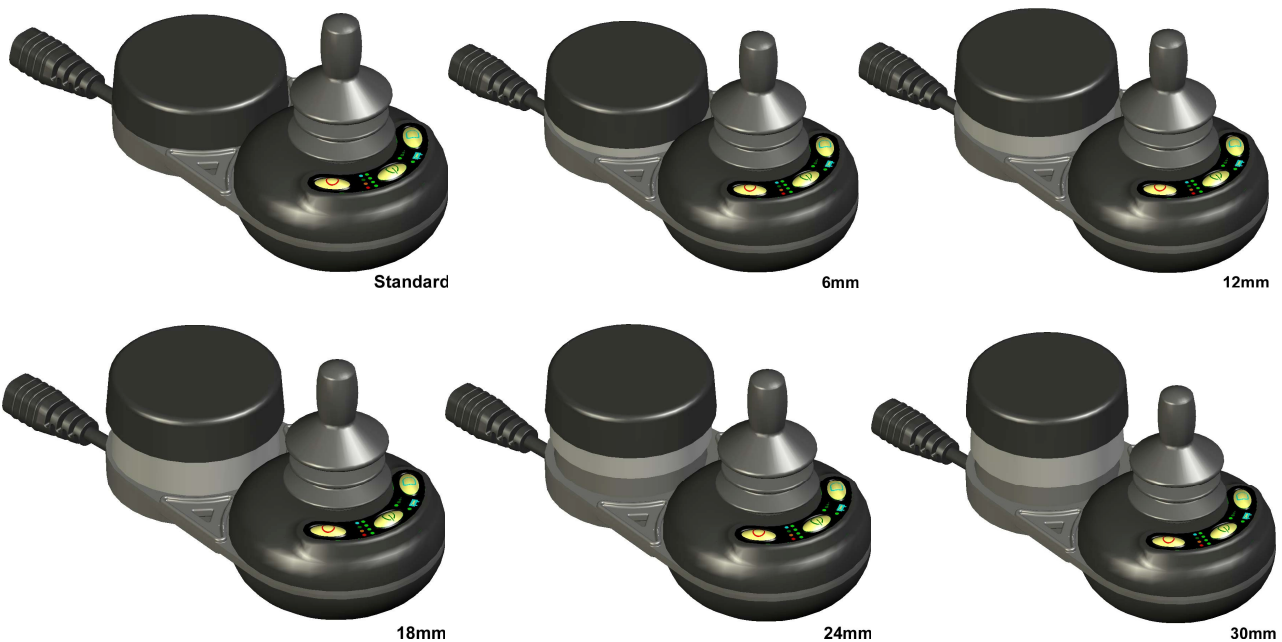
4x20mm plastite screws PCD 32mm



4x20mm plastite screws PCD 35.4mm

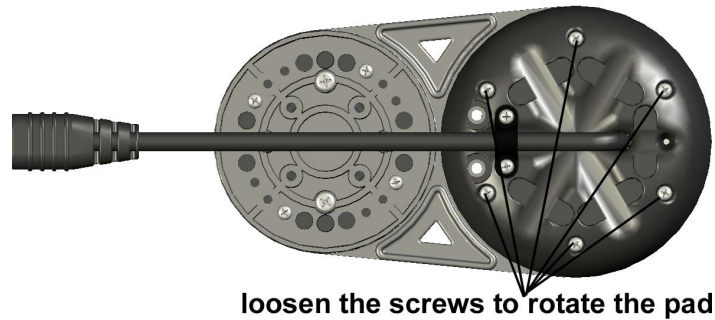
3.4.1.2 Pad Height Adjustment

By 'turning' the pad you can adjust it in height. Refer to *Mounting Instruction* for more details.

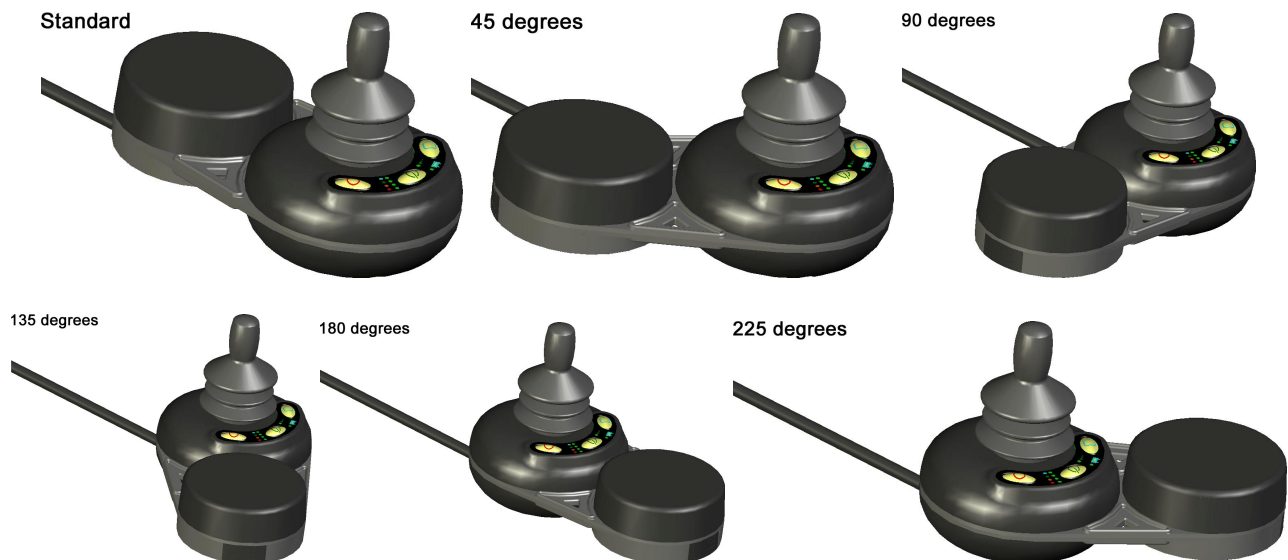


3.4.1.3 Orientation of Pad and Joystick

The Joystick Module must be mounted with the joystick shaft pointing vertically upwards. If you want to use any other mounting attitudes then contact HMC International NV.

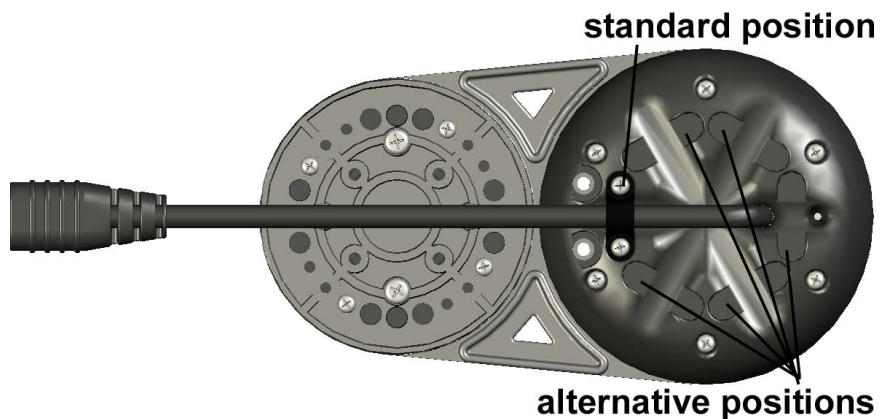


The pad can be rotated around the centre of the joystick. Loosen the 6 screws of the housing and rotate the pad in the position you want. Here are some examples.



3.4.1.4 Cable Strain Release

The cable strain release can be mounted in different ways. The picture shows the standard mounting position and the alternative positions.



3.4.2 ER or MD Mounting

We refer to the manual of the ER or MD.

3.4.3 Cables

The cables to the different modules must be routed and secured in such a way as to prevent damage to them, for example by cutting or crushing.
Contact HMC International NV if you need further advice.

3.8 *Functionality Tests*

Perform the following tests, in order, on each wheelchair before dispatch.

These tests should be conducted in an open space and a restraining device such as a seat belt should always be used. HMC International NV accepts no liability for losses of any kind arising from failure to comply with this condition.

3.8.1 Joystick and Gaiter

- Check that the joystick is not bent or damaged.
- Check the thin rubber gaiter or boot, around the base of the joystick shaft, for damage or splitting. Check visually only, do not handle the gaiter.
- Check that the joystick returns to the centre position when you push and release it.

3.8.2 Operational Test

This test should be carried out on a level floor with at least one meter clear space around the wheelchair.

- Switch on the control system.
- Check that the battery gauge.
- Push the joystick slowly forwards until you hear the parking brakes operate. The chair may start to move.
- Immediately release the joystick. You must be able to hear each parking brake operate within a few seconds.
- Repeat the test a further three times, pushing the joystick slowly backwards, left and right.

3.8.3 Test Drive

- Drive the wheelchair and make sure that it operates correctly for all positions of the user controls.

3.8.4 Soft-Stop Test

- Drive the wheelchair at full forward speed and switch the control system off.
- The wheelchair must not stop suddenly, but should decelerate to standstill.

3.9 *Electromagnetic Compatibility (E.M.C.)*

The CJA-HMC has been tested on a generic wheelchair for compliance with EC directive 89/336/EEC, and the EMC requirements of EN12184. You, as wheelchair manufacturer or dealer, should consider EMC and perform relevant tests if necessary.

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