Programming Compact Joystick Advanced, CJA R-net

2.0 Programming

The control system can be programmed to meet your needs. Programming can be performed using the R-net programmer software and dongle/programming key.
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 PGDT electronic control systems and the CJA R-net. Incorrect programming could result in an unsafe set-up of a wheelchair for a user. Permobil Inc accepts no liability for losses of any kind if the programming of the control system is altered from factory pre-set values.

2.1 Program Settings

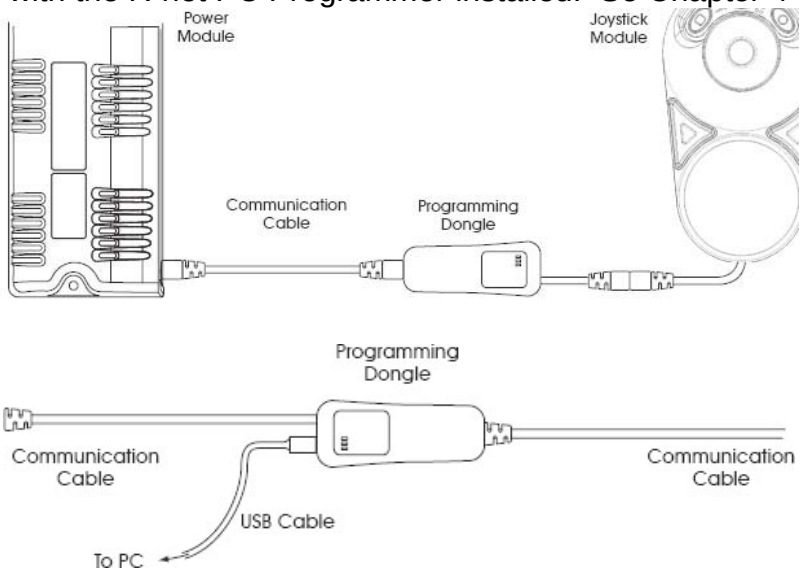
It is the wheelchair manufacturer's or dealer responsibility to program the control system to suit the vehicle model and ensure safe operation in compliance with relevant legal requirements over the whole of the operating range. Permobil Inc accepts no liability for losses of any kind due to failure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

Programming should only be conducted by healthcare professionals with in-depth knowledge of PGDT electronic control systems and of the CJA R-net of Permobil Inc, incorrect programming could result in an unsafe setup of a wheelchair for the user.

2.2 Programming Connection

2.3 PC Programming

To utilize the R-net PC Programming Suite the R-net Dongle must first be connected in the communications system as shown. A USB cable can then be connected between the Dongle and a PC with the R-net PC Programmer installed. Se Chapter 4



3.0 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. Permobil Inc accepts no liability for losses of any kind arising from failure to comply with this condition.

3.1 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.

3.2 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 remains on, or flashes, after one second.
- 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.

3.3 Test Drive

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

3.4 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.

4 Programming

4.1 Introduction

This chapter gives an overview of the programmable parameters within the R-net control system related to the CJA R-net. The R-net can be programmed using a PGDT R-net PC Programmer.
Programming should only be conducted by healthcare professionals with in-depth knowledge of PGDT control systems and in-depth knowledge of the CJA R-net. Incorrect programming could result in an unsafe set-up of a wheelchair for a user. Permobil Inc accepts no responsibility for losses of any kind if the programming of the control system is altered from the factory pre-set values.

4.2 PC Programmer

For a complete list of all programmable parameters we refer to the *R-net Control System Technical Manual – SK77981* – of PGDT.
Here is the list with all parameters related to the CJA R-net.

Compact Joystick Advanced:

Grab Focus	*Sets how the focus can be grabbed*
Grab Focus Time	*Maximum time to grab focus by joystick movement*
Profile Switch	*Sets the functionality of the profile switch*
Left Button	*Sets the functionality of the left button*
Right Button	*Sets the functionality of the right button*
Standby Seating Mode	*Sets how the axes are controlled in the standby seating mode*
Number of axes	*Sets the number of axes that can be controlled in the axes mode*
Jack Disconnected Alarm	*Enables alarm on jack disconnection*

4.2.1 Grab Focus: Default – Local On

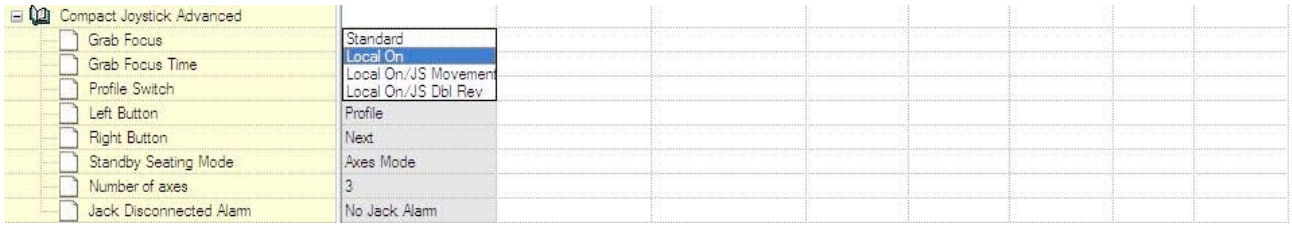
Sets how focus can be grabbed.

Standard: The CJA will function similar as a standard JSM from PGDT (refer to *R-net Control System Technical Manual – SK77981* – from PGDT).

Local On: If the local power button/switch is operated to start-up the system, the joystick module will be the active input device.

Local On/JS Movement: Additional to the Local On the focus can be grabbed by any movement of the joystick *.

Local On/JS Double Reverse: Additional to the Local On the focus can be grabbed by moving the joystick twice backwards *.

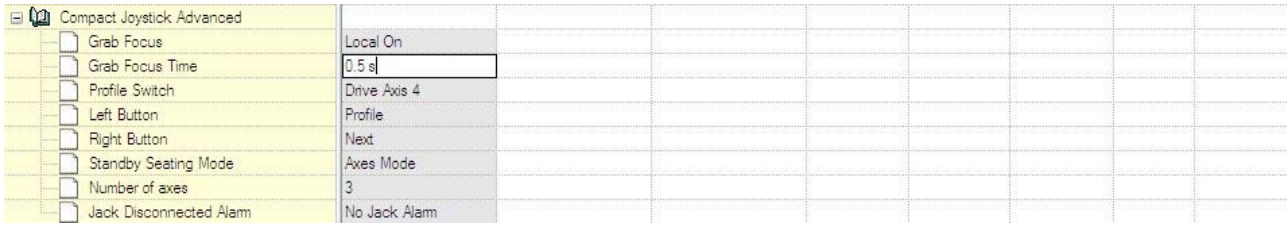


* See also Grab Focus Time

4.2.2 Grab Focus Time: Default – 0.5 s

Maximum time to grab focus by joystick movement

0.1 … 2.0 s Sets the period in which the movement to grab the focus must be finished.



4.2.3 Profile Switch: Default – Horn

Sets the functionality of the profile switch

Off: The external switch is disabled

Profile: Selects the next profile (and mode if Profile/Mode is set for Profile Button – refer to *R-net Control System Technical Manual – SK77981* – from PGDT)

Horn: Selects the horn. The horn will sound while this button/switch is depressed.

Mode: Selects the next available mode in the last profile in which that mode was used.

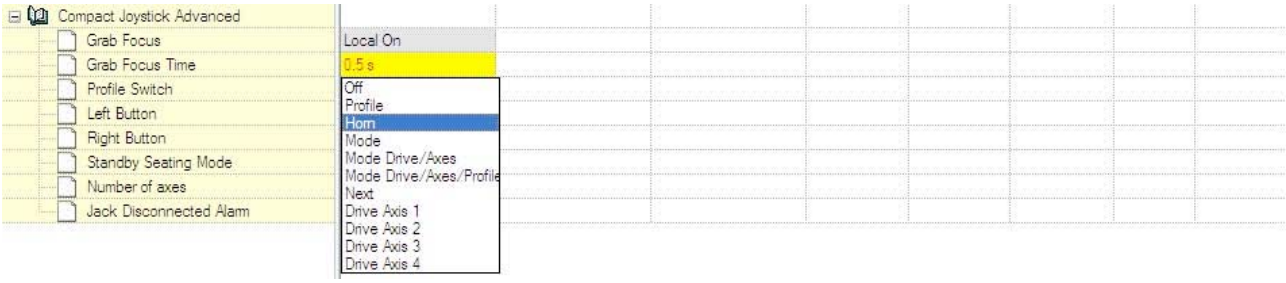
Next: Selects the next profile or next axis. This functionality makes only sense in combination with 'Mode Drive/Axes' or 'Profile' assigned to another button/switch.
- Mode Drive/Axes
Pressing the 'Mode Drive/Axes' button or switch will switch between 'drive mode' and 'local axes mode'.

Pressing the ‘Next’ button or switch will in ‘drive mode’ select the next profile and in ‘local axes mode’ the next axis.
- Profile
Pressing the ‘Profile’ button or switch will in ‘drive mode’ select the next profile or in ‘local axes mode’ switch to ‘drive mode’.
Pressing the ‘Next’ button or switch will in ‘local axes mode’ select the next axis or in ‘drive mode’ switch to ‘local axes mode’.

Mode Drive/Axes: Selects alternating ‘Drive Mode’ or ‘Local Axes Mode’. This parameter is used in combination with the ‘Next’ parameter. See section 4.3.4 for an example. Pressing the button/switch that is assigned as ‘Next’ will select in ‘drive mode’ the next profile and in ‘local axes mode’ the next axis. The number of axes is limited to the value set in the ‘Number of Axes’ parameter.
This is also known as the 2 button control.

Mode Drive/Axes/Profiles: Selects between ‘drive mode’, ‘profile selection’ and ‘local axes mode’. See section 4.3.3 for an example. In ‘drive mode’ the joystick is used to drive the wheelchair, in ‘profile selection’ with the joystick you can select the next or previous profile and in ‘local axes mode’ with the joystick you can drive an axis or selects the next or previous axis. This is also known as the 1 button control.

Drive Axis 1 ... 4: Allows you to control the selected axes by depressing the button/switch. Special precautions are built-in to limit the possibility to involuntary activation of an axis. It also limits the maximum duration of the activation.

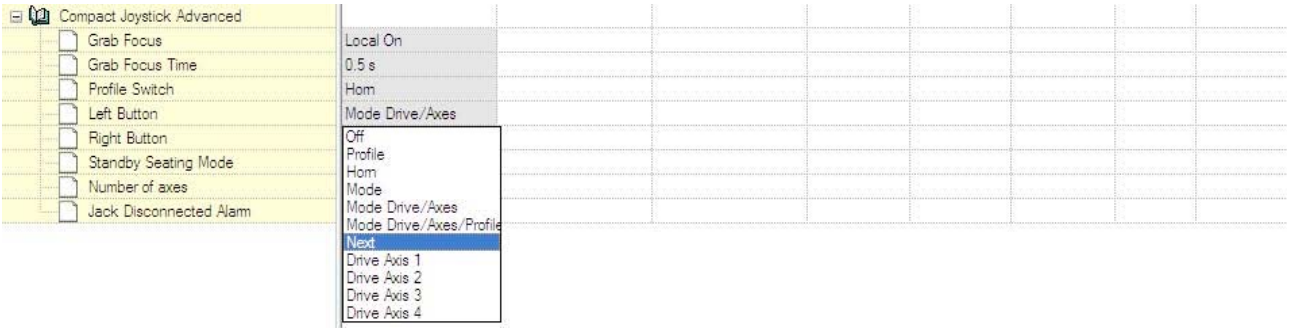


4.2.4 Left Button: Default – Mode Drive/Axes

Sets the functionality of the left button
See Profile Switch for detailed information about the different functionalities.

4.2.5 Right Button: Default – Next

Sets the functionality of the right button
See Profile Switch for detailed information about the different functionalities.

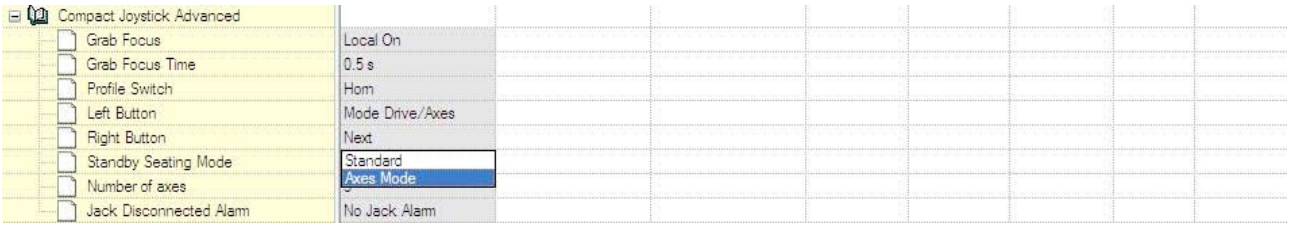


4.2.6 Standby Seating Mode: Default – Axes mode

Sets how the axes are controlled in the standby seating mode

Standard: The seating mode of the R-net system is selected. It is controlled by the joystick movements. This setting is only advisable if the action can be followed on a device equipped with a display like a JSM or an Omni.

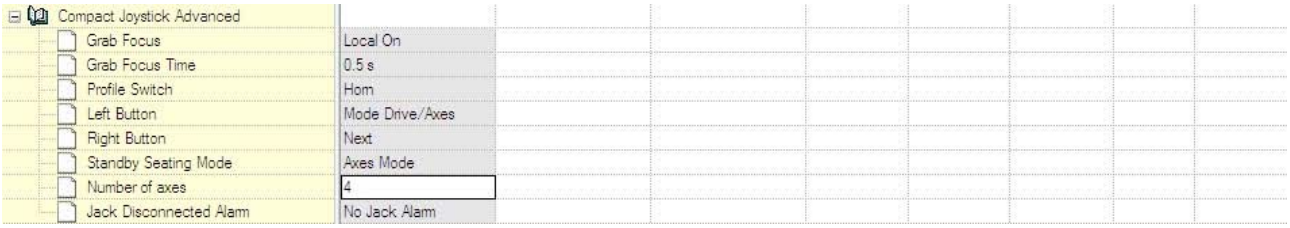
Axes Mode: The axes are controlled locally. It is also controlled by the joystick movements. The active axis is indicated by a led. This mode should be set when there is no display available for the user. The maximum accessible number of axes is limited to 4 instead of 12 – standard axes mode.



4.2.7 Number of Axes: Default – 4

Sets the number of axes that can be controlled in the axes mode

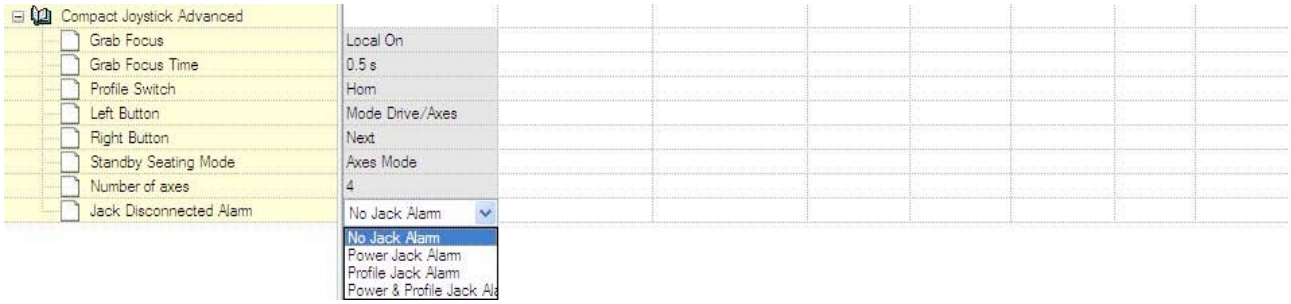
1 … 4 Setting this parameter to 1 allows you only to access axis 1, setting this parameter to 2 allows you to access axis 1 and axis 2, … You will never be able to access axis 5 even if it is the only axis available on the system.



4.2.8 Jack Disconnected Alarm: Default – No Jack Alarm

Enables alarm on jack disconnection

No Jack Alarm:	No alarm will be generated when a disconnection of the External On/Off Switch or the External Profile Switch occurs.
Power Jack Alarm:	When a disconnection on the External On/Off Switch Jack occurs, the system enters an error state. Further driving is no longer possible.
Profile Jack Alarm:	When a disconnection on the External Profile Switch Jack occurs, the system enters an error state. Further driving is no longer possible.
Power & Profile Jack Alarm:	This is the combination of Power Jack Alarm and Profile Jack Alarm.



4.3 User Cases:

4.3.1 General

The contents of this chapter will explain you, from a user point of view, how to deal with all parameters that are related to the CJA R-net.

Depending on the use case more or less parameters must be changed. Below are showed some examples.

4.3.2 User can not operate buttons/switches:

Operation is all done by movement of the joystick. A standby function is needed to change profiles, axes, etc.

Settings:

Profile Management	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7	Profile 8
Profile Name				S1	S2	S3	S4	
Profile Enable				Yes	Yes	Yes	Yes	
Mode Enable				[12345678]	[1]	[1]	[1]	
Input Device Type	Universal	Universal	Universal	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Attendant
Input Device Subtype	All	All	All	All	All	All	All	All
Allow Grab	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls								
Global								
Change Profile while Driving	Yes							
Profile Button	Profiles							
Profiled	Indoor	Outdoor	Profile 3	S1	S2	S3	S4	Attendant
Change Mode while Driving				No	No	No	No	
Standby Time				5 s	5 s	5 s	5 s	
Mode Selection in Standby				Yes	Yes	Yes	Yes	
Standby in Modes				[1234567]	[1234567]	[1234567]	[1234567]	
Standby Forward				Drive	Drive	Drive	Drive	
Standby Left				Seating	Seating	Seating	Seating	
Standby Right				Rem Sel	Rem Sel	Rem Sel	Rem Sel	
Remote Selection				Yes	Yes	Yes	Yes	
Compact Joystick Advanced								
Grab Focus	Local On							
Grab Focus Time	0.5 s							
Profile Switch	Horn							
Left Button	Mode Drive/Axes							
Right Button	Next							
Standby Seating Mode	Standard							
Number of axes	4							
Jack Disconnected Alarm	No Jack Alarm							

The standby function is the key to access all the possibilities of you wheelchair. From standby you can
access drive mode: move joystick forward
operate actuators: move joystick left
change profile: move joystick right

4.3.3 User can operate 1 button/switch:

Operation is done by a combination of the joystick and the button or switch.

The assigned button is used to switch between ‘drive mode’, ‘local axes mode’ and ‘profile selection mode’. In each mode the joystick is used to operate the functions of that mode.

Settings:

Profile Management	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7	Profile 8
Profile Name				S1	S2	S3	S4	
Profile Enable				Yes	Yes	Yes	Yes	
Mode Enable				[12]	[1]	[1]	[1]	
Input Device Type	Universal	Universal	Universal	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Attendant
Input Device Subtype	All	All	All	All	All	All	All	All
Allow Grab	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Controls								
Global								
Change Profile while Driving	Yes							
Profile Button	Profiles							
Profiled	Profile 1	Profile 2	Profile 3	S1	S2	S3	S4	Attendant
Change Mode while Driving				No	No	No	No	
Compact Joystick Advanced								
Grab Focus	Local On							
Grab Focus Time	0.5 s							
Profile Switch	Mode Drive/Axes/Profile							
Left Button	Mode Drive/Axes/Profile							
Right Button	Horn							
Standby Seating Mode	Axes Mode							
Number of axes	4							
Jack Disconnected Alarm	No Jack Alarm							

4.3.4 User can operate 2 or 3 buttons/switch:

Operation is done by a combination of the joystick and the button or switch.

There are 2 ways of controlling your wheelchair – mode structure based or direct button control.

Mode structure based:
The assigned buttons are used for:
Left Button: selects alternating ‘Drive Mode’ or ‘Local Axes Mode’ = selects different mode
Right Button: in ‘Drive mode’, it selects the next available profile; in ‘Local Axes mode’ it selects the next axis.
External Profile Switch: is used to operate the horn.

Settings:

Profile Management	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7	Profile 8
Profile Name				S1	S2	S3	S4	
Profile Enable				Yes	Yes	Yes	Yes	
Mode Enable				[12]	[1]	[1]	[1]	
Input Device Type	Universal	Universal	Universal	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Attendant
Input Device Subtype	All	All	All	All	All	All	1	All
Allow Grab	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Controls								
Global								
Change Profile while Driving	Yes							
Profile Button	Profiles							
Profiled	Profile 1	Profile 2	Profile 3	S1	S2	S3	S4	Attendant
Change Mode while Driving				No	No	No	No	
Standby Time				0 s	0 s	0 s	0 s	
Compact Joystick Advanced								
Grab Focus	Local On							
Grab Focus Time	0.5 s							
Profile Switch	Horn							
Left Button	Mode Drive/Axes							
Right Button	Next							
Standby Seating Mode	Axes Mode							
Number of axes	4							
Jack Disconnected Alarm	No Jack Alarm							

Direct button control:
The assigned buttons are used for:
Left Button: selects the next available profile.
Right Button: selects the next axis
External Profile Switch: is used to operate the horn.

Settings:

Profile Management	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6	Profile 7	Profile 8
Profile Name				S1	S2	S3	S4	
Profile Enable				Yes	Yes	Yes	Yes	
Mode Enable				[12]	[1]	[1]	[1]	
Input Device Type	Universal	Universal	Universal	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Compact JS Advanced	Attendant
Input Device Subtype	All	All	All	All	All	All	1	All
Allow Grab	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Controls								
Global								
Change Profile while Driving	Yes							
Profile Button	Profiles							
Profiled	Profile 1	Profile 2	Profile 3	S1	S2	S3	S4	Attendant
Change Mode while Driving				No	No	No	No	
Standby Time				0 s	0 s	0 s	0 s	
Compact Joystick Advanced								
Grab Focus	Local On							
Grab Focus Time	0.5 s							
Profile Switch	Horn							
Left Button	Profile							
Right Button	Next							
Standby Seating Mode	Axes Mode							
Number of axes	4							
Jack Disconnected Alarm	No Jack Alarm							

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