

# **R-net connection manual**

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R-net joystick connection interface

Addendum to the manual of a mo-Vis Joystick



## Contact & Product

### mo-Vis bvba



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### R-net Connection manual

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# Contents

Contact & Product-----	2
mo-Vis bvba-----	2
R-net Connection manual -----	2
Contents -----	3
This manual is an addendum -----	4
Important information about this manual -----	5
About the R-net Joystick connection interface -----	7
Installation, first time use, conditions of usage, maintenance, parameter settings-----	8
Connecting the R-Net communication cable -----	8
R-net parameters-----	10
LED status -----	11
Supported R-net parameters -----	12
Error codes-----	15
Fault log-----	16
Technical data -----	18

## This manual is an addendum

This manual is an addendum of a mo-Vis Joystick manual and contains the information about the R-net system connection.

All information on: support, scrapping and spare parts, warranty and safety precautions from the mo-Vis Joystick manual are equally applicable to this addendum of the manual.

## Important information about this manual

Before you install or begin using this product, it is important that you read and understand the content of these installation and operating instructions, the safety instructions in particular.

The installation instructions will guide you as an installer through the options and possibilities with the mo-Vis product. The mo-Vis product should be adjusted with the mo-Vis Configurator software.

The operating instructions are primarily intended to acquaint you with the functions and characteristics of the mo-Vis product and how you can use it in the best manner possible. They also contain important safety and maintenance information, as well as describe possible problems that can arise during use.

Always keep the operating instructions handy in connection with your wheelchair, since the need for important information can arise concerning its use, safety and maintenance.

All information, pictures, illustrations and specifications are based on the product information that was available at the time of printing. Pictures and illustrations shown in these instructions are representative examples and are not intended to be exact depictions of the various parts of the product.

We reserve the right to make changes to the product without prior notice.

### ***Referenced products***

This manual is valid for the R-net Joystick connection interfaces.

### ***Ordering documentation***

You can download additional copies of this User & Installation manual on the mo-Vis website: [www.mo-vis.com](http://www.mo-vis.com).

# About the R-net Joystick connection interface

## *Purpose*

The R-net Joystick connection interface is a part of a mo-Vis R-net Joystick, and allows you to connect the joystick to a wheelchair with R-net system.

An R-net Joystick has a communication cable with an R-net connector. The cable can be directly plugged into the electronics of the wheelchair. The joystick then controls the wheelchair in all its functions (driving, electric gears, ...).

For more information about the R-net system, refer to the Curtis Wright website: [www.cw-industrialgroup.com](http://www.cw-industrialgroup.com).

## *Availability*

The following joysticks are available with an R-net connection:

- **All-round Joystick Heavy Duty:** large size joystick, extreme force (ca. 650 gr – 22.93 oz)
- **All-round Joystick:** regular size joystick, regular force (ca. 250 gr – 8.81 oz)
- **All-round Joystick Light:** regular size joystick, medium force (ca. 120 gr – 4.23 oz)
- **Multi Joystick:** smaller size joystick, limited force (ca. 50 gr – 1.76 oz), operated with finger, chin, lip, ...

- **Micro Joystick:** very small sized joystick, minimal force (ca. 8 gr – 0.28 oz), operated with finger, chin, tongue, lip, ...

## Installation, first time use, conditions of usage, maintenance, parameter settings

For installation, first time use, conditions of usage, maintenance and parameter settings, we refer you to the Joystick manual.

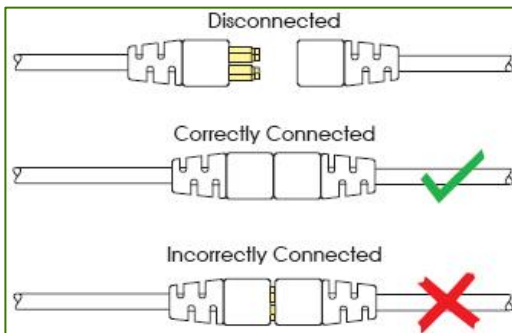
## Connecting the R-Net communication cable

### ***To connect the communication cables:***

Insert the connector into its mate and push firmly. The connector is inserted correctly if the yellow pins are completely invisible.

The connectors are secured using a friction system.





### ***To disconnect the communication cables:***

Firmly hold the connector housing and pull the connectors apart.



#### **CAUTION**

*Pull the connectors apart in a straight line to not damage the connection pins.*

## R-net parameters

Some R-net parameters need to be set for correct usage of the mo-Vis R-net Joysticks. For this we refer to the Curtiss-Wright manual SK77981-14 | R-net Technical Manual | Chapter 3 – Programming.

*R-net: Profile Management > Input Device Type (Ch. 3 – 4.4):* this parameter needs to be set to *Universal* for all mo-Vis joysticks.

*R-net: Controls > Global > Profile Button (Ch. 3 – 7.5):* the default setting of this parameter is *Profiles*. If you want access to the modes for control of other wheelchairs functionalities, such as seating positions etc., then you have to select *Profiles/Modes*.

## LED status

The illumination of the LED on the joystick or joystick interface indicates the operational status of the joystick.

RNET status	Tilt parameter	Joystick tilted	Led status
Out of focus	x	x	LED flashes as heartbeat
In focus	Enabled	N	LED on
In focus	Enabled	Y	LED flashes as heartbeat
In focus	Disabled	Y	LED on
In focus	Disabled	N	LED on
Configuring	x	x	LED flashes fast
Power cycle	x	x	LED flashes as heartbeat
Error	x	x	Flash the error code

## Supported R-net parameters

The following R-net parameters of the wheelchair electronics may or may not be supported by the mo-Vis joysticks.

Global parameter	Supported	Version	Description
Momentary screens enabled	N		
Change profile while driving	N		
Change speed while driving	N		
Actuator switches while driving	N		
Speed adjust	N		
Profile button	Y	V02.00	
Actuator endstop beep	N		
Sounder volume	Y	V02.03	
Start-up beep	N		
Lock function enabled	N		
Reverse driving alarm	Y	V02.00	

Global parameter	Supported	Version	Description
Emergency stop switch	N		
OBP keycode entry	N		
Power-up mode	N		
External profile jack function	N		
Profile/mode jack detect	N		
On/off jack detect	N		

Profiled parameter	Supported	Version	Description
Joystick forward throw	Y	V02.01	
Joystick reverse throw	Y	V02.01	
Joystick left throw	Y	V02.01	
Joystick right throw	Y	V02.01	
Joystick deadband	N		Use deadband setting in the mo-Vis configurator

Profiled parameter	Supported	Version	Description
Invert left/right JS axis	Y	V02.01	
Invert fws/rev JS axis	Y	V02.01	
Swap joystick axis	N		Use rotate function in the mo-Vis configurator
Change mode while driving	Y	V02.00	
Sleep timer	Y	V02.00	
Standby timer	Y	V02.00	
Switch to standby	Y	V02.01	
Mode selection in standby	Y	V02.01	
Standby in modes	Y	V02.01	
Standby forward	Y	V02.00	
Standby reverse	Y	V02.00	
Standby left	Y	V02.00	
Standby right	Y	V02.00	
Remote selection	Y	V02.03	
Background	N		No screen to support this.

## Error codes

When a fault occurs, the LED of the mo-Vis R-net Joystick will start to flash. A long delay is followed by a number of flashes with a short delay. The error message depends on the connection type. Count the number of flashes and look up the according error message in the table below:

Flash count	Reason	Required action
1	-	-
2	Connection Cable/Driver issues	Check/replace cable to wheelchair, and/or check/replace sensor cable (if available), or Replace PCB
3	Power supply	Check R-net cable and/or replace PCB
4	Joystick/sensor fault	Check/replace joystick
5	-	-
6	ADC – internal Analog to Digital converter	Replace PCB
7	Test Flag failed or diagnostic failed	Redo tests and/or replace PCB.
8	CPU fault	Replace PCB
9	Scheduler fault	Update software or replace PCB
10	Coding error	Update software or replace PCB

## Fault log

A fault log with counters is maintained. The fault log can be accessed by the configurator (Dealer Level). Below is an overview registered faults.

Depending on the joystick type, not all faults may be possible.

Fault	Reason	Required action
CPU Error RAM	CPU consistency check failed.	Replace PCB
CPU Error FLASH		
CPU Error EEPROM		
Run Error Scheduler	Firmware consistency check failed.	Update Software or Replace PCB
Code Error Framework		
Code Error Application		
MSP Command Corrupt	Corrupt command was received.	Connection with the PC (Configurator program) went wrong, try again.
MSP Command Unknown	Unknown command was received.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.
MSP Sub Command Unknown	Unknown Sub Command was received.	
MSP Argument Invalid	Invalid argument received.	
MSP Device Not Ready	Device as not ready to receive an MSP command.	
MSP Device Wrong State	The device is not able to receive a command in the current device state.	
PCB Test Failed	Factory test failed.	A fault occurred during factory testing.
Assembly Test Failed		



<b>Fault</b>	<b>Reason</b>	<b>Required action</b>	
Field Test Failed	Field test failed (Calibration).	A fault occurred during field testing (Calibration).	
Test Flag Check	One or more test flags not set.	Redo tests and/or replace PCB.	
ADC	ADC Conversion error.	Check R-net Cable, replace PCB interface	
Rnet Uart overflow	Uart send queue is full.	Replace PCB	
Rnet Uart Underflow	Uart receive queue is empty.		
Rnet Communication timeout	Maximum number of packet retransmissions is reached.		
Rnet Tx overflow	Packet transmit buffer is full.		
Rnet Rx Overflow	Packet receive buffer is full.		
Rnet Invalid seq nr	Received a packet with an invalid sequence number		
Rnet Data packet error	Data packet ACK mismatch.		
Rnet Data descr error	Invalid packet data descriptor.		
Rnet Api version error	The R-net chip contains an invalid API version.		Load the latest API version into the R-net chipset with the R-net dongle
Rnet Chip tripped error	The R-net chipset has encountered an internal error.		Internal chipset error: Replace PCB R-net system error: solve R-net system error
Communication	Communication with the sensor (joystick failed)	Check cable to sensor (joystick) and/or replace sensor (joystick)	
Joystick (Sensor)	The Sensor (joystick) faulty		
Accelerometer	The Accelerometer fails		

### ***Available on:***

- All-round Joystick R-net Heavy Duty (P002-77)
- All-round Joystick R-net (P002-75)
- All-round Joystick R-net Light (P002-76)
- Multi Joystick R-net (P002-62)
- Micro Joystick R-net (P002-52)

### ***Connectors***

- Female R-net connector with cable



Installation date: . . / . . / . . . .

Dealer: . . . . .



***Dealer stamp:***

A large, empty rectangular box with a thin green border, intended for a dealer stamp.

***Serial number sticker***

A large, empty rectangular box with a thin green border, intended for a serial number sticker.