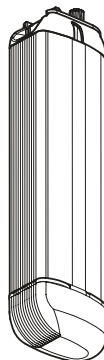


For G-Motion

RS232
Serial Protocol Specification

System integrator version
(Beta version 0.2)



Goelst G-Motion serial protocol BETA 0.2
works with firmware 1.2.14 and higher
Concept - 01.03.2021
no rights can be derived from this document.
All rights reserved

Contents

1. Introduction	5
2. Connection	6
2.1 Software version.....	6
2.2 Hardware connections.....	6
2.2.1 Cabling.....	6
2.2.2 Wiring RJ45.....	6
2.2.3 UART / TTL 3V.....	7
2.3 Connection Settings	7
3. Commands	8
3.1 Overview.....	8
3.2 Return values.....	8
3.3 Details.....	9

1. Introduction

This document describes the serial protocol for Goelst G-Motion Curtain Controller systems. The Curtain Controller system is a modular system.

Each motor unit consists of at least a control board, which may be expanded by one or more expansion boards such as a RF board, GM-BUS board or WiFi board. Meaning that each motor may have several boards that can be addressed separately. It's important to understand this modular architecture, otherwise the way of addressing may seem confusing.

This protocol is used both on the TTL-level serial port on the RJ45 connector as well as on the I2C Internal Bus, connecting the expansion modules. On the I2C Internal bus, the communication is mapped on the same protocol interpreter internally. The TargetID is internally used as the I2C DeviceAddress. But for the reader, this document mostly describes the RS232 TTL-level communication on the externally available RJ-45 connector, being the only access point for others. Because of this, this document is written like it was made exclusively for the RJ45 communication. But Internally it's also used for development of expansion modules.

An expansion module adds networking capabilities and interconnects 2 or more motor units. Messages may be relayed (broadcast) over this network and motor units in the network can be addressed this way. One should however consider the nature of the network to determine if the intended use fits the type of network. In other words: understand your network! For example: a RF receiver-only module may not broadcast messages and thus may not be able to respond over the network! Another example may be that in a large network, but with low bandwidth and slow response times, it may take a while to read all possible parameters (poor performance because of a use-case that does not fit the type of network).

Disclaimer: future versions may not be (downwards) compatible!

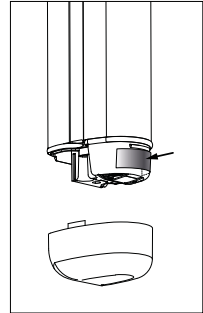
2. Connection

2.1 Software version

Beta version 0.2 is compatible with firmware v1.2.14, mentioned on the motor label after "SW":



(example)



(label location)

2.2 Hardware connections

2.2.1 Cabling

There are two ways to connect to a G-Motion motor unit, using official Goelst Cable types:

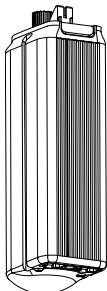
- 6036-RS232-SUBD/RJ45** Connection cable with DE-9 D-sub connector and RJ45 connector. This cable converts RS232 to TTL for serial communication.
- 6036-RS232-USB/RJ45** Connection cable with USB-A connector and RJ45 connector. This cable converts the RS232 based protocol to USB for easy use with computer-based systems (also for use icw Customer Service Tool).

Note: it's important to have a Goelst Service Cable compatible with the G-Motion curtain system.

Warning: Improper connections may damage your hardware!

2.2.2 Wiring RJ45

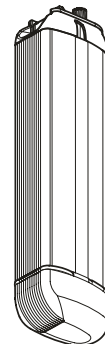
Wiring the RJ45 connector: old Goelst 3G motor units (left) and the new G-Motion units:



Wiring of the RJ45 plug for old 3G Goelst motor units (obsolete)



Correct wiring of the RJ45 plug for G-Motion units.



2.2.3 UART / TTL 3V

The G-Motion motor units use 3V TTL serial communication on an RJ45 connector using the following pinout:

PIN	FUNCTION
1	TX DATA (CCM out, external in)
2	DNC – Do not connect
3	DNC – Do not connect
4	GND
5	DNC – Do not connect
6	DNC – Do not connect
7	DNC – Do not connect
8	RX DATA (CCM in, external out)

2.3 Connection Settings

The Goelst interface uses a serial connection with the following connection settings:

SETTING	VALUE
BAUD RATE	115200
DATA BITS	8
STOP BITS	1
PARITY	even
FLOW CONTROL	None
LINE ENDING	CR+LF

3. Commands

Commands can be transmitted towards the curtain controller to retrieve data or to execute.

3.1 Overview

COMMAND	PARAMETER	SHORT DESCRIPTION
SN	None	Retrieve the serial number of the current device
GET	(pos tmp lux)	Retrieve the current position, measured temperature or value of the lux sensor of the current device
REMOTE GET	<Remote address>, (pos tmp lux)	Retrieve the current position, measured temperature or value of the lux sensor of the device with serial number <Remote address> over G-Motion BUS
MV	(open close stop [1..5])	execute an open, close, stop or preset event on the current device
REMOTE MV	(open close stop [1..5])	Transmit and execute an open, close, stop or preset event over the RS485 bus

3.2 Return values

Every command sent towards the Curtain controller elicits a response. This response can be one of the following

- **The retrieved value** – For the commands that retrieve a specific value, only this value is given
- **“cmd ok”** – After successfully handling an executing or setting command
- **“cmd failed”** – After a timeout event or incorrect parameters
- **“cmd unknown”** – When a command is sent that is not recognized by the controller.

3.3 Details

sn – Serial number	
Command	“sn”
Parameters	None
Response	A hexadecimal number that is the serial number of the attached device
Response format	Hexadecimal number
Example	“sn”
Example response	14EA8D15

get – Retrieve current values/ measure	
Command	“get”
Parameters	<ul style="list-style-type: none"> • “pos” • “tmp” • “lux”
Response	<p>pos – Retrieve the current position of the slider on the rails on the attached device. Integer in millimeters.</p> <p>tmp – Retrieve the current temperature as measured by the attached device. Integer in °C</p> <p>lux – Retrieve the current lux value of the attached device. Only valid when a lux sensor is attached to the device. Integer in lux</p>
Example	“pos get”
Example response	25

remote get – Retrieve current values/ measurements of remote devices	
Command	“remote get”
Parameters	<p><Remote address></p> <ul style="list-style-type: none"> • “pos” • “tmp” • “lux”
Response	<ul style="list-style-type: none"> • pos – Retrieve the current position of the slider on the rails of the device with <Remote address> as serial number. Integer in millimeters. • tmp – Retrieve the current temperature as measured by the device with <Remote address> as serial number. Integer in °C • lux – Retrieve the current lux value of the device with <Remote address> as serial number. Only valid when a lux sensor is attached to the remote device. Integer in lux
Notes	<p>A request for data is transmitted over G-Motion BUS. This feature requires the G-Motion BUS extension boards</p> <p>If a device with the given serial number is not attached or does not respond, the command will time-out and will give “cmd failed”</p> <p>Only the last 16 bits of the serial number are used.</p>
Example	“remote get 14EA8D15 pos”
Example response	25

mv – Execute a command	
Command	“mv“
Parameters	<ul style="list-style-type: none"> • “open” • “close” • “stop” • [1..5]
Result	Opens or closes the curtain, stops movement or moves to a pre-defined preset.
Response format	Command result string
Example	“mv1”
Example response	cmd ok

remote mv – Transmit a move event over the GM-BUS bus	
Command	“remote mv“
Parameters	<ul style="list-style-type: none"> • “open” • “close” • “stop” • [1..5] <UserAddress>
Result	Transmits an open, close, stop or preset event with the specified UserAddress over the GM-BUS bus.
Response format	Command result string
Notes	<p>The event is transmitted over GM-BUS. This feature requires the GM-BUS extension boards</p> <p>An event is transmitted with the UserAddress as specified in the command. There are maximum 31 UserAddresses available.</p> <p>User Addresses can be activated in the motor with G-motion IR-Remote curtain controllers (UA 1-15) or with G-Motion Customer software tool (UA 1-31)</p> <p>Each motor have to be subscribed to this specific UserAddress for controllers to respond to the event.</p> <p>Motors activated on the same UA form a group and can be controlled with 1 command.</p> <p>Standard UA 1 is activated as factory setting.</p>
Example	“remote mv open 23”
Example response	cmd ok

Notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

The information provided in this document is intended for informational purposes only and is subject to change. Information may be changed or updated, no rights may be derived from it.

All rights reserved.

Goelst NL BV, 2021
The Netherlands

