

RS-485

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Version: 1.0.0

The Cool Muscle supports communications via a RS-485 type half duplex communications protocol. The actual physical interface still utilizes the regular voltage levels and serial interface hardware, but utilizing an RS-485 style half duplex communications.

In RS-485 mode, when the motor has a message to communicate it will stream a {# where # is its motor ID number. When the motor receives this same command back to acknowledge the request it will then transmit its message followed by {0 to close communications. Parameter K62 will determine whether the motor is communicating in RS-485 mode and what the node ID is. If K62=0, RS-485 mode is off, otherwise that is the node ID of the motor.

RS-485 Commands

D	Set Node ID
Sets the node ID of a motor with a specific serial number. The Syntax is D# = SN where # is the desired node ID, and SN is the serial number of the motor.	
D12=103490138	Sets the node ID of motor with serial number 103490138 to 12
{0	Broadcast
Opens RS-485 communications to all nodes. Also used to close communications once a message has been issued.	
{0	Begin command broadcast to all motors or end communications.
{#	Address Node
Address node with ID#, where # is any number from 1-255. Only node ID# will communicate until {0 is issued.	
{1	Address node 1

Disabling RS-485

It is not unusual for someone to accidentally set the motor to RS-485 mode and become confused when the motor will only stream out a series of "{1" and not respond. In this case, the motor is requesting communication access and has something to report. To disable RS-485 and switch back to standard serial communications we must:

1. Give the motor communications access
2. Let the motor report its message
3. Gain communications access to the motor
4. Set K62=0 to disable RS-485 communications

The process for doing this is as follows:

1. Acknowledge the motors request for communications. For instance, if the motor is sending {1 to request communications, we send back a {1 to allow it access.
2. The motor will then report the message it is trying to communicate, followed by a {0 to end communications
3. To gain communications access to the motor, we address that motor ID again, for example if the motor is node 1 as in the above example, we send a {1 again.
4. Now that the correct motor is listening to us, we can send K62=0 to switch off RS-485 and resume normal communications.