ID	Name	Type	Description	Units
20	Target Speed	signed 16-bit	Motor target speed (-3200 to +3200) requested by the controlling interface.	internal units
21	Speed	signed 16-bit	Current speed of the motor (-3200 to +3200).	internal units
22	Brake Amount	unsigned 16-bit	When Speed=0, this variable indicates how hard the controller is braking with a value from 0 (full coast) to 32 (full brake). Otherwise, it has a value of 0xFF (255). The high byte of this variable is always zero.	0=coast, 32=brake
23	Input Voltage	unsigned 16-bit	Measured voltage on the VIN pin.	mV
24	Temperature	unsigned 16-bit	Board temperature as measured by a temperature sensor near the motor driver. Temperatures below freezing are reported as 0.	0.1 °C
26	RC Period	unsigned 16-bit	If there is a valid signal on RC1, this variable contains the signal period. Otherwise, this variable has a value of 0.	0.1 ms
27	Baud Rate Register	unsigned 16-bit	Value of the controller's baud rate register (BRR). Convert to units of bps with the equation `72,000,000/BRR`. In automatic baud detection mode, BRR has a value of 0 until the controller has detected the baud rate.	seconds per 7.2e7 bits
28	System Time (Low)	unsigned 16-bit	Two lower bytes of the number of milliseconds that have elapsed since the controller was last reset or powered up.	ms
29	System Time (High)	unsigned 16-bit	Two upper bytes of the number of milliseconds that have elapsed since the controller was last reset or powered up.	65,536 ms

Temporary Motor Limits

These variables contain the user-imposed limits on the motor output, such as maximum speed, acceleration, and deceleration. These variables are initialized to the hard motor limit settings (see **Section 5.2**) every time the controller is powered up or reset and every time the apply settings button is pressed in the Simple Motor Control Center. These temporary limits can be changed via the serial interface while the controller is running to impose stricter/safer limits than the hard motor limit settings (see the Set Motor Limit command in **Section 6.2.1** and **Section 6.3.1**).

ID	Name	Type	Description	Units
30	Max Speed Forward	unsigned 16-bit	Maximum allowed motor speed in the forward direction (0 to 3200).	internal units
31	Max Acceleration Forward	unsigned 16-bit	Maximum allowed motor acceleration in the forward direction (0 to 3200; 0 means no limit).	Δ*speed* per *update period*
32	Max Deceleration Forward	unsigned 16-bit	Maximum allowed motor deceleration from the forward direction (0 to 3200; 0 means no limit).	Δ*speed* per *update period*
33	Brake Duration Forward	unsigned 16-bit	Time spent braking (at speed 0) when transitioning from forward to reverse.	ms
36	Max Speed Reverse	unsigned 16-bit	Maximum allowed motor speed in the reverse direction (0 to 3200).	internal units
37	Max Acceleration Reverse	unsigned 16-bit	Maximum allowed motor acceleration in the reverse direction (0 to 3200; 0 means no limit).	Δ*speed* per *update period*
38	Max Deceleration Reverse	unsigned 16-bit	Maximum allowed motor deceleration from the reverse direction (0 to 3200; 0 means no limit).	Δ*speed* per *update period*
39	Brake Duration Reverse	unsigned 16-bit	Time spent braking (at speed 0) when transitioning from reverse to forward.	ms

The Simple Motor Controller uses an internal system of units, labeled **internal units** in the above tables, where 3200 represents the maximum possible motor speed in the forward direction, 0 represents a stopped motor, and -3200 represents the maximum possible motor speed in the reverse direction. The RC and analog channel inputs are scaled from their raw units into this internal "-3200 to +3200" unit system using the channel calibration settings.

6.5. Cyclic Redundancy Check (CRC) Error Detection

For certain applications, verifying the integrity of the data you are sending and receiving can be very important. Because of this, the Simple Motor Controller has optional 7-bit cyclic redundancy