Axis Velocity

The ACR controllers provide a number of different parameters to view and monitor axis velocity.

### P12288 - P14199 Axis Parameters (Axes 0-7)

<table>
<thead>
<tr>
<th>Monitor Parameters</th>
<th>Axis Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity FP32</td>
<td>12315 12571 12827 13083 13339 13595 13851 14107</td>
</tr>
</tbody>
</table>

#### Jog Parameters

| Current JOG VEL FP32 | 12346 12602 12858 13114 13370 13626 13882 14138 |

#### Reserved Parameters

| RPM Factor FP32     | 12370 12626 12882 13138 13394 13650 13906 14162 |
| RPM FP32            | 12371 12627 12883 13139 13395 13651 13907 14163 |
| Smooth Encoder Velocity FP32 | 12372 12628 12884 13140 13396 13652 13908 14164 |

### P6144 - P6655 Object Parameters

<table>
<thead>
<tr>
<th>ENC Parameters</th>
<th>ENC Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoder Velocity LONG</td>
<td>6145 6161 6177 6193 6209 6225 6241 6257</td>
</tr>
</tbody>
</table>

### P38144 - P38391 EPLD Position Parameters

<table>
<thead>
<tr>
<th>EPLD Position Parameters</th>
<th>EPLD Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPLD Velocity LONG</td>
<td>38145 38161 38177 38193 38209 38225 38241 38257</td>
</tr>
</tbody>
</table>

**Velocity (Monitor):** The TOTAL (CAM + Gear + Jog + Coordinated) **commanded velocity** for the axis. Units are counts/second.

**Current JOG VEL:** The current velocity of a JOG move

**Encoder Velocity:** Signed change in encoder counts since the previous servo period.

**EPLD Velocity:** Signed change in EPL drive’s encoder counts since the previous servo period.

**RPM:** Revolutions per minutes are calculated and stored in this parameter, based on the value set in RPM factor. This value is only populated when RPM factor is greater than zero.

**Smooth Encoder Velocity:** Encoder counts/servo period. This is actually a “filtered” value, sampled and averaged over 50 servo periods. This value is used to calculate RPM and is only populated when RPM factor is greater than zero.

**Notes:**

- EPL axes do not populate the encoder velocity parameter. The EPLD Velocity parameter serves this function for EPL axes.
- RPM and Smooth Encoder Velocity are only updated when an axis is associated with and encoder or EPL drive, i.e., encoders without an axis and stepper axes will cannot use RPM and smooth velocity.
- **ACR Operating System 1.22 or greater is required to use RPM and Smooth Encoder Velocity for EPL drives**
Using RPM factor
The controller will only populate RPM and Smooth Encoder velocity if RPM factor is greater than 0. The user needs to set the RPM factor.

RPM factor uses the following formula:
RPM Factor = 60/(Encoder Pulses per Revolution * PERIOD)

Example
Axis0
Motor with 8000 pulses per revolution encoder
0.5 millisecond servo period

P12370=60/(8000*0.0005)

P12371: will update axis velocity in Revolution/minute

Alternatively, to display in revs/sec, set P12370=0.25

Default PERIOD for ACR90x0 controllers is 0.0005 seconds.
Default PERIOD for Aries Controllers is 0.00025 seconds

To check the current PERIOD setting for the controller, type PERIOD at any terminal prompt.

SYS>PERIOD
0.0005
SYS>