## Output-On-Position

The ACR9000 and ACR9030 controllers include a hardware-based output-on-position function that allows users to program the controller to fire outputs at sub-microsecond speeds based on encoder position. The outputs are tied directly to the encoder hardware circuitry, resulting in the smallest possible latency for superior accuracy. Because the function is handled by the encoder FPGA, output timing is not affected by program execution timing or multitasking. Outputs can be selected to trigger at fixed position increments or at selected positions based on an array of data. Position-based outputs can be optionally followed by time-based pulses.

### Hardware Based Output On Position

• Typical applications include laser-based manufacturing, vision systems, optical inspection, scanning and digital printing

• Sub-microsecond latency

• Up to 6 axes with dedicated high speed outputs

• Accuracy of +/- 1 encoder count for speeds up to 5 million counts/second

• 20 nano-second pulse width resolution

## Output-On-Position

### Features

• Output pulse widths can range from 20 nano-seconds to 40 seconds

• Any type of motion (jog, gear, cam, coordinated) can be used in conjunction with Output-On-Position

• The Output-On-Position sequence can be armed before or during a move in progress and can be cancelled before the move ends

• High-speed output channels available for:

  • Three axes on 4 and 6 axis controllers

  • Six axes on 8 axis controllers

• Can be used with incremental rotary and linear encoders, SSI encoders and absolute encoders

• Internal step and directions signals can be used as the encoder "source" to determine output positions for stepper axes
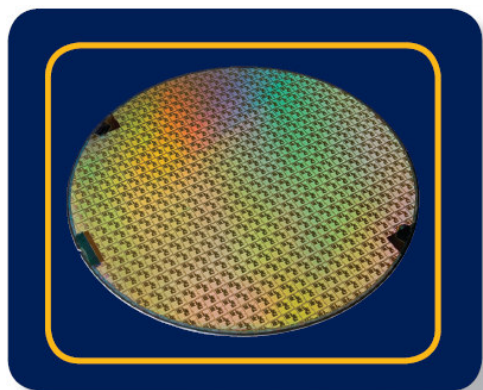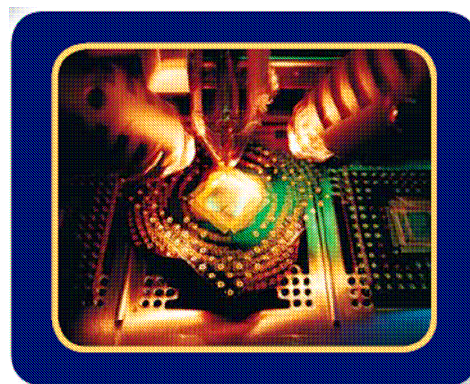
Two modes of operation are available to trigger the high-speed outputs: incremental and random. Incremental mode allows the user to specify a fixed increment at which to fire the output, within a defined start and end position. Random mode will fire the output based on a user-generated array of positions.

• Both incremental and random modes can include additional time-based outputs that can follow the position-based outputs.
• Up to 512 time-based outputs can be specified
• Distance between outputs can range from -32768 to +32767 encoder counts in incremental mode

**Parker**

## Output-On-Position

**Notes:**

• Requires ACR Operating System version 1.24 or greater

• Detailed information about this feature is available in the ACR Command Language Reference, see **OOP** commands

• High-speed outputs utilize the Step/Direction and Encoder A Channel from Axis3 and Axis7

   • 5V TTL differential signals

• Output On Position functions can be also be directed to the optically isolated general purpose on-board outputs for any axis.

   • Latency for general purpose outputs is 1.3 milliseconds

   • General purpose outputs latency can be improved to 40 micro-seconds with a custom hardware option. Consult factory for details.

• Not available for ETHERNET Powerlink axes or Aries Controller

| | Output-On-Position | |
|---|---|---|
| | High Speed | General Purpose |
| Axis0 | Axis 3 step output | Out32 |
| Axis1 | Axis 3 direction output | Out33 |
| Axis2 | Axis 3 SSI clock | Out34 |
| Axis3 | N/A | Out35 |
| Axis4 | Axis 7 step output | Out36 |
| Axis5 | Axis 7 direction output | Out37 |
| Axis6 | Axis 7 SSI clock | Out38 |
| Axis7 | N/A | Out39 |