

User units are a description of the resultant position units after electronic gearing parameters are adjusted. This is a feature used when a Yaskawa Servopack is in position mode. A Servopack may be in position mode under two circumstances: accepting pulses from a stepper motor indexer or when an application module such as an NS600, NS300 or NS500 is attached.

Electronic gearing is expressed as a ratio. The result is that the position can be pulsed or commanded in logical user units, not just motor-encoder counts. Positioning in user units allows the application programmer to set position targets in realistic units rather than encoder counts.

The Ratio is expressed as B/A, where B and A are integers. "B" is the number of Quadrature [x4] encoder counts the motor will move for a given "A" number of commanded user units.

If B=300 and A=20, then for every 20 user units sent to the Servopack via pulses or a position command issued from an option card, the servomotor will move 300 encoder counts. If only 10 user units are commanded, then the servomotor will move 150 encoder counts.

$$\text{Commanded}[UserUnit] \times \frac{B}{A} = \text{MotorMotion}[EncoderCounts]$$

For the case where the ratio and number of units moved result in a remainder number of encoder counts, the remainder is stored. This stored remainder is added later when the absolute motor position is such that it can accept it.

The limitations are as follows. The integers in the numerator or denominator must be between 1 and 65535. The ratio of the two must be between 0.01 and 100.

B-NUMERATOR: The integer number of encoder counts for a fixed motion of the load. *“Encoder resolution that exists.”*

Number of Servo Motor Encoder Counts

Number of User Units Desired For the above Encoder Counts

A-DENOMINATOR: The integer number of “user units for a fixed motion of the load. *“User units desired.”*