

Index Gating Options

Encoder Products Company offers several index pulse gating options on most Accu-Coder™ models.

The index pulse is also referred to as the reference, marker pulse, or home pulse. This pulse is an individual output channel provided by the encoder that provides a single pulse once per revolution. It simply notes some discrete and fixed position in the mechanical rotation of the unit. Sometimes it is used with a counter to indicate the total number of revolutions the shaft has rotated, counting one pulse per revolution. Often times it is used to reset a counter if the counter needs to be reset to zero at the end of each encoder shaft revolution. Quite often it is used in servo applications where total system synchronism is required. Once every revolution, if everything agrees with the position feedback, the system knows it is still operating correctly. Or a system can return to a known physical position aligned with the index pulse.

EPC defines the index as follows: "Once per revolution centered over channel "A". For the HV output option, it normally is gated to channel "A", and is 180 electrical degrees wide, or known as "half-cycle gating". We also have the ability to gate the index pulse to the "B" channel, or to both "A" and "B" channels if required. If it is gated to both channels, it results in what is called "quarter cycle gating", which is 90 electrical degrees wide. This option allows more precise positioning of the index point. However, keep it in mind that with a narrower index pulse, comes the possibility of the device the encoder is connected to not seeing the narrow pulse because it happens so quickly. Please note that these comments regarding the index pulse ONLY apply to units with the "R" in the part number, which calls out A, B, & Z channels. With the "A" or "Q" in the number of channels spot, there is no index pulse provided. Nonstandard gating options must be requested by the customer at the time of ordering.

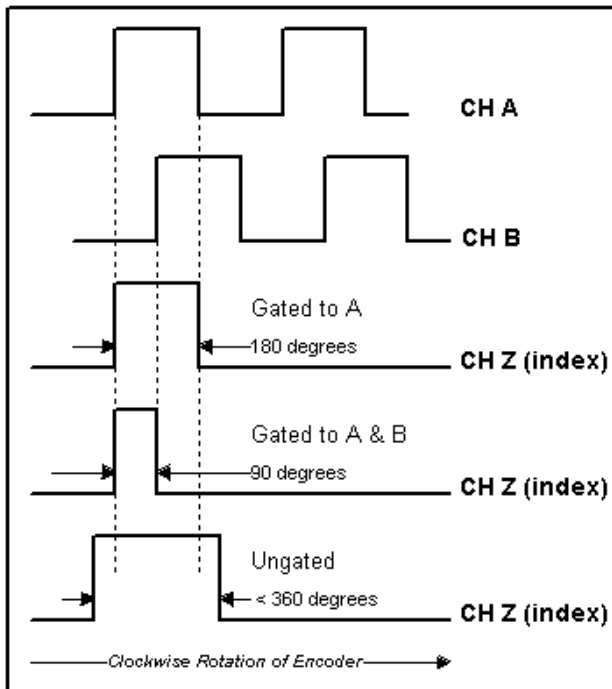


Diagram of index pulses for Accu-Coders™ that have a positive index following a positive Channel A.

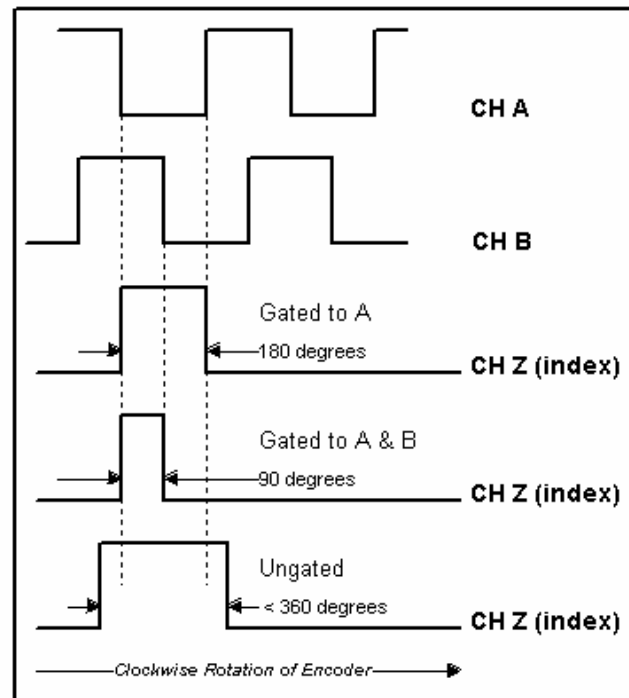


Diagram of index pulses for Accu-Coders™ that have a positive index following a negative Channel A.

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Most index pulses are related to electrical degrees. But some are mechanically derived. These are comprised of a disc with the index pulse etched onto this disk in addition to the main count channels. This type of index is usually referenced to a particular count channel such as "A". It is normally not gated, however it can be done on occasions. By making this etched aperture a certain width, the resulting pulse width of the index can be varied. Remember that the actual pulse "width" is a function of time, and the width will vary as an inverse function of rotational shaft speed. Some uses for lengthened mechanical index pulses are for resetting counters that have long reset time periods. Also by gating to the count channel, the encoder output can be inhibited for a period of time while the index pulse is active. This is commonly used in the packaging industry where counts are not desired while the container is filled and is moving to the next processing station. Mechanically derived index pulses are only available on selected Cube Series Accu-Coder™.

To see what gating options are available for a particular Accu-Coder™ please contact EPC Customer Service at 800-366-5412 or email sales@encoder.com.

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