QUADRATURE PHASING AND INDEX GATING OPTIONS

Standard Quadrature Phasing -
A leads B during clockwise rotation when viewed from the shaft end or mounting face.

If your model is...	And your output type is...	And you need...	For number of channels enter...	For waveform see...
15, 25, 121, 260, TR1, TR3	OC, PU, HV, OD, L5, PP	Single channel only	A	Figure 1
		Quadrature A and B	Q	Figure 2
		Quadrature A and B with 180° index gated to A	R	Figure 3
		Quadrature A and B with 90° index gated to A and B	R	Figure 4
		Quadrature A and B with inverted 180° index gated to A	R	Figure 5
		Quadrature A and B with inverted 90° index gated to A and B	R	Figure 6
755A, 702, 725, 758, 802S, 858S	HV, PP	Quadrature A and B with 180° index gated to A	R	Figure 3
		Quadrature A and B with 180° index gated to B	R	Figure 7
		Quadrature A and B with 90° index gated to A and B	R	Figure 4
		Quadrature A and B with ungated index centered on A between 360° and 180°	R	Figure 8
		Quadrature A and B with inverted 180° index gated to A	R	Figure 5
		Quadrature A and B with inverted 180° index gated to B	R	Figure 9
		Quadrature A and B with inverted 90° index gated to A and B	R	Figure 6
		Quadrature A and B with ungated inverted index centered on A between 360° and 180°	R	Figure 10
770, 771, 775, 776, 755A, 702, 725, 758, 802S, 858S, 865T	OC, PU *Note: Interpolated units PPR>3000 will use HV/PP waveforms.*	Quadrature A and B with ungated index centered on A low between 360° and 180°	R	Figure 11
		Quadrature A and B with 180° index gated to B low	R	Figure 12
		Quadrature A and B with 90° index gated to A low and B low	R	Figure 13
		Quadrature A and B with ungated index centered on A low between 360° and 180°	R	Figure 14
		Quadrature A and B with inverted 180° index gated to A low	R	Figure 15
		Quadrature A and B with inverted 180° index gated to B low	R	Figure 16
		Quadrature A and B with inverted 90° index gated to A low and B low	R	Figure 17
		Quadrature A and B with ungated inverted index centered on A low between 360° and 180°	R	Figure 18

Reverse Quadrature Phasing -
B leads A during clockwise rotation when viewed from the shaft end or mounting face.

If your model is...	And your output type is...	And you need...	For number of channels enter...	For waveform see...
15, 25, 121, 260, 770, 771, 775, 776, 865T, TR1, TR3	OC, PU, HV, OD, L5, PP	Reverse Quadrature A and B	K	Figure 19
		Reverse Quadrature A and B with 180° index gated to B low	D	Figure 20
		Reverse Quadrature A and B with 90° index gated to A low and B low	D	Figure 21
		Reverse Quadrature A and B with inverted 180° index gated to B low	D	Figure 22
		Reverse Quadrature A and B with inverted 90° index gated to A low and B low	D	Figure 23
755A, 702, 725, 758, 802S, 858S	HV, PP	Reverse Quadrature A and B with 180° index gated to B low	D	Figure 20
		Reverse Quadrature A and B with 180° index gated to A low	D	Figure 24
		Reverse Quadrature A and B with 90° index gated to A low and B low	D	Figure 21
		Reverse Quadrature A and B with ungated index centered on B low between 360° and 180°	D	Figure 25
		Reverse Quadrature A and B with inverted 180° index gated to B low	D	Figure 22
		Reverse Quadrature A and B with inverted 180° index gated to A low	D	Figure 26
		Reverse Quadrature A and B with inverted 90° index gated to A low and B low	D	Figure 23
		Reverse Quadrature A and B with ungated inverted index centered on B low between 360° and 180°	D	Figure 27
755A, 702, 725, 758, 802S, 858S	OC, PU *Note: Interpolated units PPR>3000 will use HV/PP waveforms.*	Reverse Quadrature A and B with ungated index centered on B low between 360° and 180°	D	Figure 28
		Reverse Quadrature A and B with 180° index gated to A low	D	Figure 24
		Reverse Quadrature A and B with 90° index gated to A low and B low	D	Figure 21
		Reverse Quadrature A and B with ungated index centered on B low between 360° and 180°	D	Figure 25
		Reverse Quadrature A and B with inverted 180° index gated to B low	D	Figure 22
		Reverse Quadrature A and B with inverted 180° index gated to A low	D	Figure 26
		Reverse Quadrature A and B with inverted 90° index gated to A low and B low	D	Figure 23
		Reverse Quadrature A and B with ungated and inverted index centered on B low between 360° and 180°	D	Figure 27

TECHNICAL INFORMATION

QUADRATURE PHASING AND INDEX GATING OPTIONS

Standard Quadrature Phasing = A Lead's B during clockwise rotation when viewed from the shaft end or mounting face.
Below are various examples of the different A, B, Z configurations that are possible when ordering your Encoder.

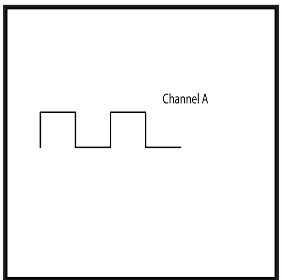

Figure 1: Single channel only

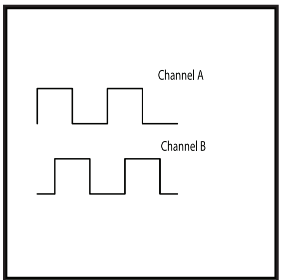

Figure 2: Quadrature A and B

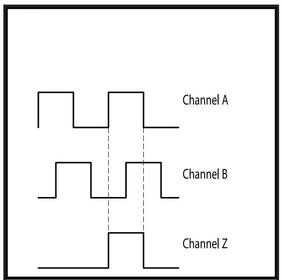

Figure 3: Quadrature A and B with 180° Index gated to A

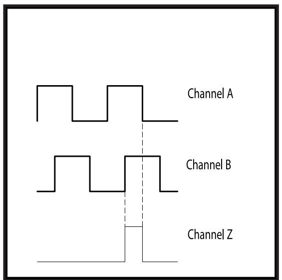

Figure 4: Quadrature A and B with 90° Index gated to A and B

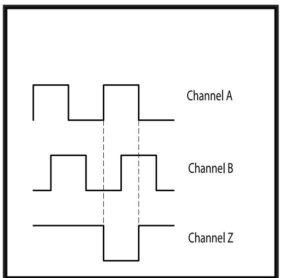

Figure 5: Quadrature A and B with inverted 180° Index gated to A

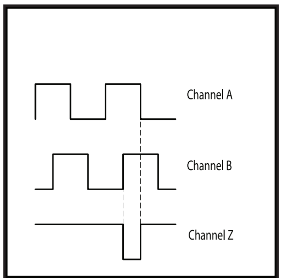

Figure 6: Quadrature A and B with inverted 90° Index gated to A and B

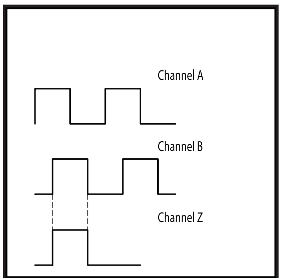

Figure 7: Quadrature A and B with 180° Index gated to B

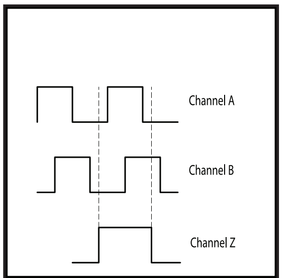

Figure 8: Quadrature A and B with ungated Index centered on A between 360° and 180°

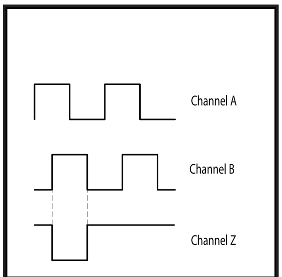

Figure 9: Quadrature A and B with inverted 180° Index gated to B

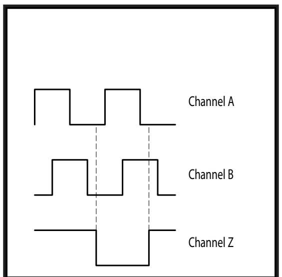

Figure 10: Quadrature A and B with ungated inverted Index centered on A between 360° and 180°

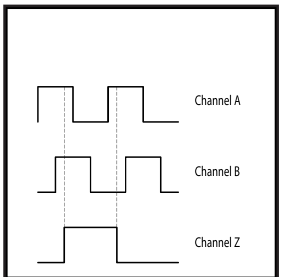

Figure 11: Quadrature A and B with ungated Index centered on A low between 360° and 180°

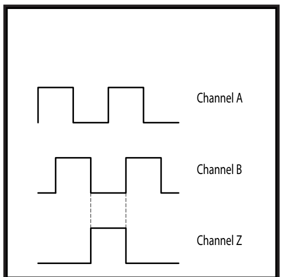

Figure 12: Quadrature A and B with 180° Index gated to B low

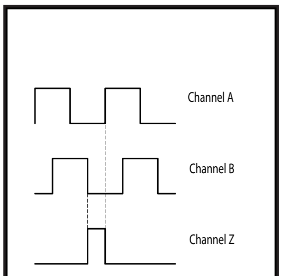

Figure 13: Quadrature A and B with 90° Index gated to A low and B low

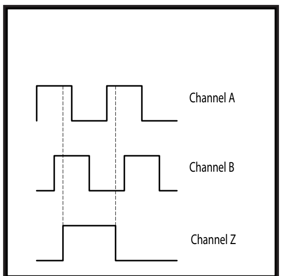

Figure 14: Quadrature A and B with ungated Index centered on A low between 360° and 180°

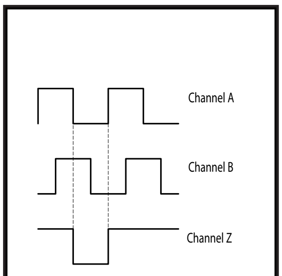

Figure 15: Quadrature A and B with inverted 180° Index gated to A low

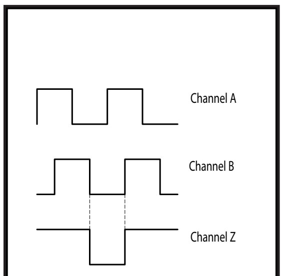

Figure 16: Quadrature A and B with inverted 180° Index gated to B low

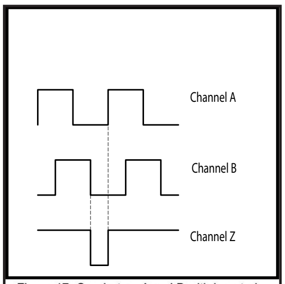

Figure 17: Quadrature A and B with inverted 90° Index gated to A low and B low

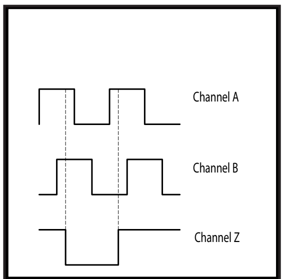

Figure 18: Quadrature A and B with ungated Index centered on A low between 360° and 180°

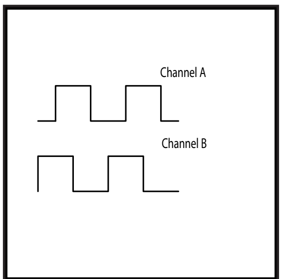

Figure 19: Reverse Quadrature A and B

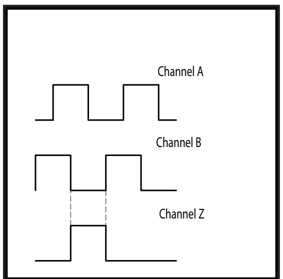

Figure 20: Reverse Quadrature A and B with 180° Index gated to B low

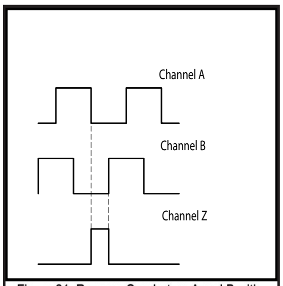

Figure 21: Reverse Quadrature A and B with 90° Index gated to A low and B low

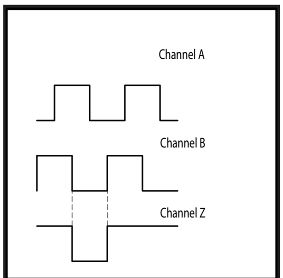

Figure 22: Reverse Quadrature A and B with inverted 180° Index gated to B low

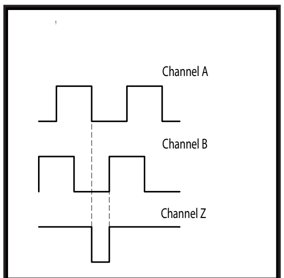

Figure 23: Reverse Quadrature A and B with inverted 90° Index gated to A low and B low

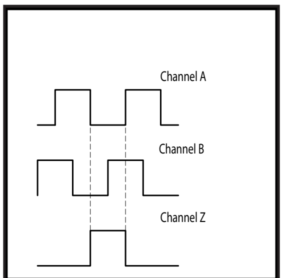

Figure 24: Reverse Quadrature A and B with 180° Index gated to A low

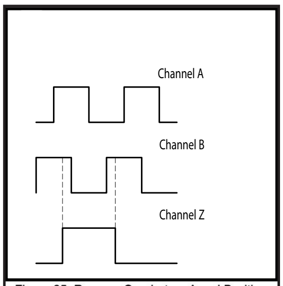

Figure 25: Reverse Quadrature A and B with ungated Index centered on B low between 360° and 180°

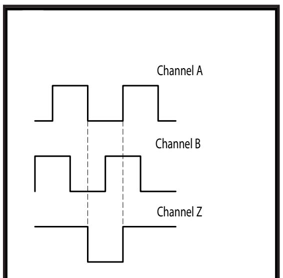

Figure 26: Reverse Quadrature A and B with inverted 180° Index gated to B low

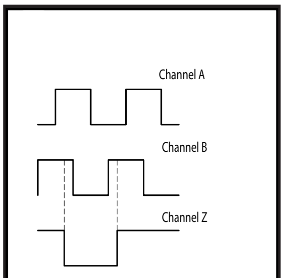

Figure 27: Reverse Quadrature A and B with ungated and inverted Index centered on B low between 360° and 180°

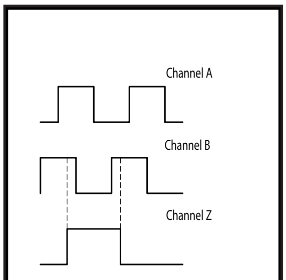

Figure 28: Reverse Quadrature A and B with ungated Index centered on B low between 360° and 180°

Marker (Index Pulse) Gating Options.

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. Sometimes 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 marker pulse.

BEPC defines the Marker pulse as follows: "Once per revolution centered over channel "A". For the HV output option, it can be gated to channel "A" and is 180 electrical degrees wide, or known as "half-cycle gating". We also have the abilty to gate the marker pulse to the "B" channel, or do 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 marker point. However, keep it in mind that with a narrower marker 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 Marker pulse ONLY apply to units with the "R" in the order code - which is A,B and Z channels. With single channel "A" or Quadrature "A&B" (Q) in the number of channels spot, there is no Marker pulse provided. Non-Standard gating options must be requested by the customer at the time of ordering.