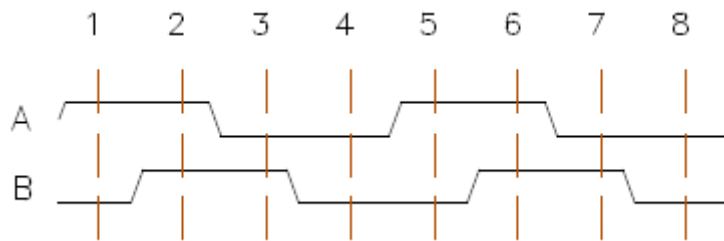


This decoding algorithm is based on an elegant description by a member of ETO, BobW.

Begin by considering a typical incremental encoder signal:



As shown, both channels A and B wrap around on themselves. When either signal changes, the state of one signal (say new B) is xor'ed with the previous state of the other signal (in this case old A). It does not matter which old signal is xor'ed with which new signal so long as the choice is always the same. The trigger for making a comparison is a change in state of either signal.

Step 1		Step 2		Step 3		Step 4		Step 5	
Direction 1 (Right)		Direction 1 (Right)		Direction 1 (Right)		Direction 1 (Right)		Direction 1 (Right)	
A	B	A	B	A	B	A	B	A	B
1	0	1	1	1	1	1	1	1	0
1	1	0	1	0	1	0	1	0	1
0	1	0	0	0	0	0	0	0	0
0	0	1	0	1	0	1	0	1	1
1	0	1	1	1	1	1	1	1	1
1	1	0	1	0	1	0	1	0	1
0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0

XOR B2 w/A1 = 0

XOR B3 w/A2 = 0

XOR B4 w/A3 = 0

XOR B5 w/A4 = 0

Similarly, rotation in the opposite direction (Direction 2) starting at the same sampling place creates the following progression:

Step 1		Step 8		Step 7		Step 6		Step 5	
Direction 2 (Left)		Direction 2 (Left)		Direction 2 (Left)		Direction 2 (Left)		Direction 2 (Left)	
A	B	A	B	A	B	A	B	A	B
1	0	1	0	1	0	1	0	1	0
0	0	0	0	0	0	0	0	0	0
0	1	0	1	0	1	0	1	0	1
1	1	1	1	1	1	1	1	1	1
1	0	1	0	1	0	1	0	1	0
0	0	0	0	0	0	0	0	0	0
0	1	0	1	0	1	0	1	0	1
1	1	1	1	1	1	1	1	1	1

XOR B8 w/A1 = 1

XOR B7 w/A8 = 1

XOR B6 w/A7 = 1

XOR B5 w/A6 = 1