Use of high-speed counter

1) C251 C252 C254 (AB phase) maximum response frequency: 120KHz

2) C253 C255 (phase AB) maximum response frequency: 120KHz

3) C235 C241 C244 C238 (single-phase) maximum response frequency: 120KHz

4) Maximum response frequency of other high-speed counters: 10KHz;

5) The high speed counter of phase AB can be set with 2-fold frequency and 4-fold frequency (the setting is only valid in the current cycle of OUT drive):

**When M8196 — ON, C251 C252 C254 count pulse 2 frequency multiplication;

**When M8197 — ON, frequency doubling of C253 C255 counting pulse 2;

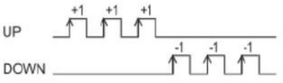
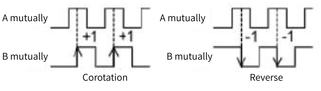
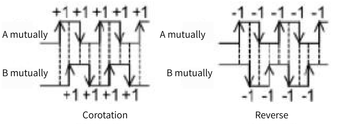
**When M8198 — ON, C251 C252 C254 count pulse 4 times frequency;

**When M8199 — ON, C253 C255 count pulse 4 times frequency;

Example: If an AB phase encoder is used, it will generate 1024 pulses per revolution. If frequency multiplication is not set, the counter will count 1024

(The original FX3U does not support 2-fold frequency). If 2-fold frequency is set, turn the counter for 2048; If the frequency multiplication is set to 4, turn it once

Counter count 4096; instructions:

		Input signal form	Counting direction
One way single count input			Specify increase/ decrease count through ON/OFF of M8235 ～ M8245 ON: decrease count OFF: increase count
One way double count input			As shown in the left figure, count up/down. The counting direction can be set through M8246 ～ M8250. ON: count down OFF: count up
Two way double counting input	1 X		As shown in the figure on the left, according to the change of A/B phase input state, the counting is automatically increased/ decreased, and the counting direction can be entered through lines M8251～ M8255.
	4 X		

	Counter No	distinguish	Input terminal assignment							
			X000	X001	X002	X003	X004	X005	X006	X007
One way single count input	C235	H/W	U/D							
	C236	S/W		U/D						
	C237	S/W			U/D					
	C238	H/W				U/D				
	C239	S/W					U/D			
	C240	S/W						U/D		
	C241	H/W	U/D	R						
	C242	S/W			U/D	R				
	C243	S/W					U/D	R		
	C244	H/W	U/D	R					S	
	C245	S/W			U/D	R				S
One way single count input	C246	S/W	U	D						
	C247	S/W	U	D	R					
	C248	S/W				U	D	R		
	C249	S/W	U	D	R				S	
	C250	S/W				U	D	R		S
Two way double counting input	C251	H/W	A	B						
	C252	H/W	A	B	R					
	C253	H/W				A	B	R		
	C254	H/W	A	B	R				S	
	C255	H/W				A	B	R		S

H/W: Hardware counter S/W: Software counter U: Up counter input D:Minus counter input

A:A Phase input B:B Phase input R:External reset input S:External start input

Only X0-X5 high-speed function is supported, X6 and X7 do not support high-speed function

Instructions for DHSCS, DHSCR and DHSZ instructions:

**The times of simultaneous driving of three high-speed comparison commands: X0 hardware counter twice, X3 hardware counter twice, and software counter four times (greater than 6705);

**When comparing hardware high-speed counters, the response frequency will not change. DHSCS and DHSCR perform real-time comparison, but DHSZ hardware interval comparison is not real-time, but about 5us comparison;

**When the hardware high-speed counter is used, the comparison results will be output as long as DHSCS, DHSCR and DHSZ are driven