FATEK
The Brand You Can Rely on!

General Specifications

Environmental specifications

Item			Specification	Note
Operating ambient temperature	Enclosure space	Minimum	5°C	Permanent installation
		Maximum	40°C	
	Open space	Minimum	5°C	
		Maximum	55°C	
Storage temperature			-25~70°C	
Relative humidity(non-condensing, RH-2)			5～95%	
Pollution resistance			Degree II	
Corrosion resistance			Base on IEC-68 standard	
Altitude			≤2000m	
Vibration resistance	Fixed by DIN RAIL		0.5G, 2 hours for each direction of 3 axes	
	Fasten by screw		2G, 2 hours for each direction of 3 axes	
Shock resistance			10G, three times for each direction of 3 axes	
Noise resistance			1500 Vp-p, pulse width 1μS	
Withstand voltage			1500VAC, 1 minute	L, N to any terminal

AC power supply specifications

Specification \ Item		10/14 points main units	20/24 points main units	32/40 points main units	60 points main units
Input range	Voltage	100~240VAC, -15%/+10%			
	Frequency	50/60Hz ±5%			
Max. power consumption (built-in power supply)		21W(SPW14-AC)	36W(SPW24-AC)		
Inrush current		20A@264VAC			
Allowable power momentary interruption time		< 20mS			
Fuse rating		2A, 250V			

DC power supply specifications

Specification \ Item	10/14 points main units	20/24 points main units	32/40 points main units	60 points main units
Input voltage	12 or 24 VDC, -15%/+20%			
Max. power consumption (@ full built-in power supply)	21W(SPW14-D12/D24)	36W(SPW24-D12/D24)		
Inrush current	20A@12 or 24VDC			
Allowable power momentary interruption time	< 2mS			
Fuse rating	3A(D12)/1.5A(D24),125V	5A(D12)/2.5A(D24),125V		

Main unit specifications

* : Default, changable by user

Item			Specification	Note
Execution speed			0.33uS/Sequential instruction	
Program capacity			20K Words	
Program memory			FLASH ROM or SRAM + Lithium battery for Back-up	
Sequential instruction			36 instructions	
Function instruction			326 instructions (126 kinds)	Include derivative instructions
Flow chart command (SFC)			4 instructions	
Communication Interface	Port 0 (RS232 or USB)		Communication speed 4.8k ~ 115.2Kbps (9.6Kbps)*	
	Port 1 ~ Port 4 (RS232, RS485 , Ethernet, CANopen or GSM)		Communication speed 4.8k ~ 921.6Kbps (9.6Kbps)*	Port1 ~ 4 provides FATEK or Modbus RTU/ASC II or user defined communication protocol
	Maximum link stations		254	
Digital (Bit status)	X	Input contact (DI)	X0~X255 (256)	Corresponding to external digital input
	Y	Output relay (DO)	Y0~Y255 (256)	Corresponding to external digital output
	TR	Temporary relay	TR0~TR39 (40)	

(Continue)

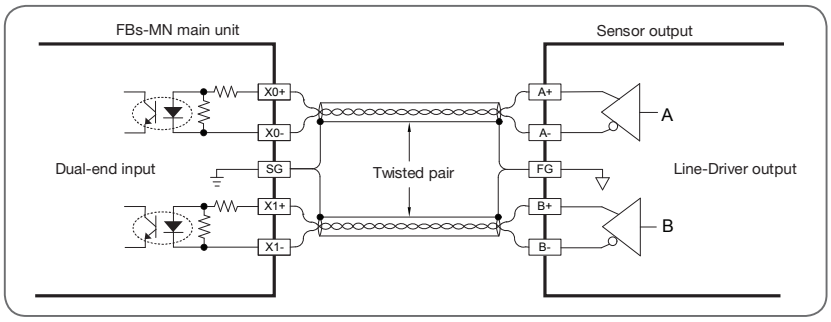
Item					Specification				Note
Digital (Bit status)	M	Internal relay		Non-retentive	M0 ~ M799 (800)*				Can be configured as retentive type
					M1400 ~ M1911 (512)				
				Retentive	M800 ~ M1399 (600)*				Can be configured as non-retentive type
		Special relay			M1912 ~ M2001 (90)				
	S	Step relay		Non-retentive	S0 ~ S499 (500)*				S20 ~ S499 can be configured as retentive type
				Retentive	S500 ~ S999 (500)*				Can be configured as non-retentive type
	T	Timer "Time-Up" status contact			T0 ~ T255 (256)				
	C	Counter "Count-Up" status contact			C0 ~ C255 (256)				
Register (Word data)	TMR	Timer current value register	0.01S Time base		T0 ~ T49 (50)*				T0 ~ T255 numbers for each time base can be adjusted.
			0.1S Time base		T50 ~ T199 (150)*				
			1S Time base		T200 ~ T255 (56)*				
	CTR	Counter current value register	16-bit	Retentive	C0 ~ C139 (140)*				Can be configured as non-retentive type
				Non-retentive	C140 ~ C199 (60)*				Can be configured as retentive type
			32-bit	Retentive	C200 ~ C239 (40)*				Can be configured as non-retentive type
				Non-retentive	C240 ~ C255 (16)*				Can be configured as retentive type
	HR DR	Data register		Retentive	R0 ~ R2999 (3000)*				Can be configured as non-retentive type
					D0 ~ D3999 (4000)				
				Non-retentive	R3000 ~ R3839 (840)*				Can be configured as retentive type
	HR ROR			Retentive	R5000 ~ R8071 (3072)*				When not configured as ROR, it can serve normal register (for read/write)
				Read only register	R5000 ~ R8071 can be set as ROR ~ default setting is (0)*				ROR is stored in special ROR area and not occupy program space
				File register	F0 ~ F8191 (8192)				Save/retrieved via dedicated instruction
	IR	Input register			R3840 ~ R3903 (64)				Corresponding to external numeric input
	OR	Output register			R3904 ~ R3967 (64)				Corresponding to external numeric output
	SR	Special system register			R3968 ~ R4167 (197), D4000 ~ D4095 (96)				
		0.1mS high-speed timer register			R4152 ~ R4154 (3)				
		High-speed counter register		Hardware (4 sets)	DR4096 ~ DR4110 (4x4)				
				Software (4 sets)	DR4112 ~ DR4126 (4x4)				
		Calendar Register			R4128 (sec)	R4129 (min)	R4130 (hour)	R4131 (day)	Optional for MA model
					R4132 (month)	R4133 (year)	R4143 (week)		
	XR	Index register			V · Z (2), P0 ~ P9 (10)				
Interrupt control		External interrupt control			32 interrupts (16 points input positive/negative edge)				
		Internal interrupt control			8 interrupts (1, 2, 3, 4, 5, 10, 50, 100mS)				
0.1mS high speed timer(HST)					1 (16-bit), 4 (32-bit, share with HHSC)				
High-speed counter (HSC)	Hardware high-speed counter (HHSC) /32-bit			No. of channel	Up to 4				• Total number of HHSC and SHSC is 8 HHSC can be converted into 32-bit/0.1mS time base High-Speed Timer (HST) • Half of maximum frequency while A/B input
				Counting mode	8 modes (U/D, U/Dx2, P/R, P/Rx2, A/B, A/Bx2, A/Bx3, A/Bx4)				
				Counting frequency	Maximum is 200KHz (Single-end input) or 920KHz (differential input)				
	Software high-speed counter (SHSC) /32-bit			No. of channel	Up to 4				
				Counting mode	3 modes (U/D, P/R, A/B)				
				Counting frequency	Maximum sum up to 5KHz				
NC position pulse out (HSPSO)		Number of axis			Up to 4				
		Output frequency			Maximum is 200KHz (Single-end output) or 920KHz (differential output)				Half of the maximum while A/B output
		Pulse output mode			3 modes (U/D, P/R, A/B)				
		Programming method			Dedicated position language				
		Interpolation			Maximum 4 axes linear interpolation				
HSPWM output		Number of points			Up to 4				
		Output frequency			72Hz ~ 18.432KHz (with 0.1% resolution) 720Hz ~ 184.32KHz (with 1% resolution)				
Captured input				Points	Maximum 36 points (All inputs in main unit are suitable this feature)				
				Minimum capturable Pulse width	>10 µS (for ultra high speed / high speed input)				
					>47 µS (for Medium speed input)				
					>470 µS (for Medium low speed input)				
Digital filter				X0 ~ X15	Adjustable frequency 14KHz ~ 1.8MHz				Chosen by frequency at high frequency
					Adjustable time constant 0 ~ 1.5mS/0~15mS (unit: 0.1mS/1mS)				Chosen by time constant at low frequency
				X16 ~ X35	Time constant 1 ~ 15mS adjustable (unit: 1ms)				

General Specifications

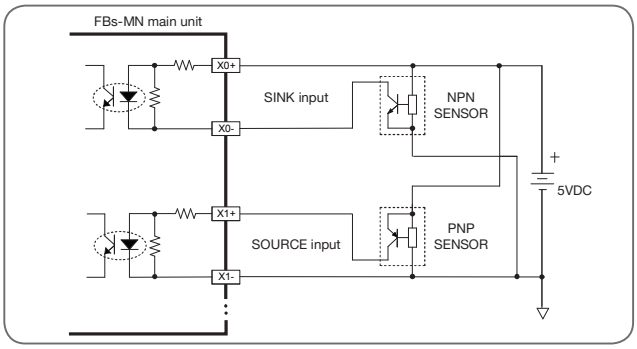
Digital Input (DI) Specifications

Item / Specification		5VDC differential input	24VDC single-end input				Notes
		Ultra high speed	High speed	Medium speed(HSC)	Medium low speed (capture input)	Low speed	
Maximum input frequency*/ accumulated time		920KHz	200KHz	20KHz(HHSC) Total 5KHz(SHSC)	0.47mS	4.7mS	*: Half of maximum frequency while A/B phase input
Input signal voltage		5VDC ± 10%	24VDC ± 10%				
Threshold current	ON	>11mA	>8mA	>4mA		>2.3mA	
	OFF	<2mA		<1.5mA		<0.9mA	
Maximum input current		20mA	10.5mA	7.6mA		4.5mA	
Input indication		Displayed by LED: light when "ON", dark when "OFF"					
Isolation method		Optical isolation, 500VAC, 1 minute					
SINK/SOURCE wiring		Independent wiring	Via variation of internal common terminal S/S and external common wiring				
Noise filtering methods		DHF (0~15mS) +AHF (0.47μS)		DHF (0~15mS) +AHF (4.7μS)	DHF (0~15mS) +AHF (0.47mS)	AHF (4.7mS)	DHF: Digital Hardware Filter AHF: Analog Hardware Filter

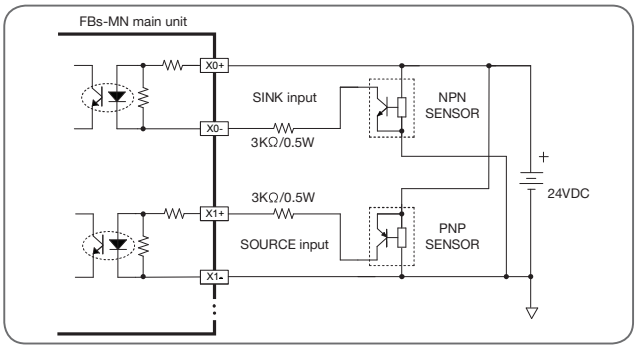
Wiring of 5VDC differential input (with frequency up to 920KHz, for high speed or high noise environments)



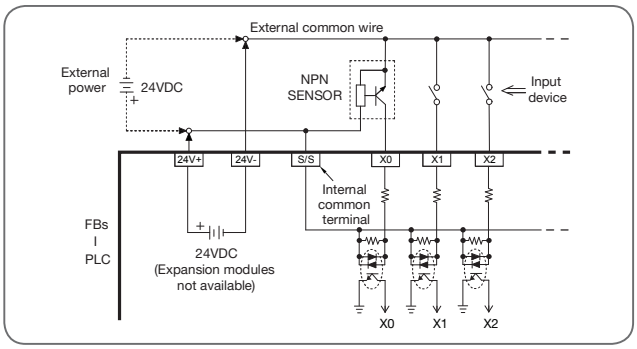
Wiring of 5VDC differential input to 5VDC single-end SINK /SOURCE input (Max. 200KHz)



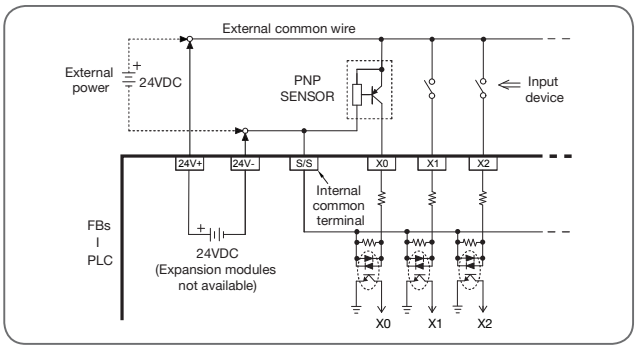
Wiring of 5VDC differential input to 24VDC single-end SINK /SOURCE input (Max. 200KHz)



Wiring of 24VDC single-end SINK input



Wiring of 24VDC single-end SOURCE input

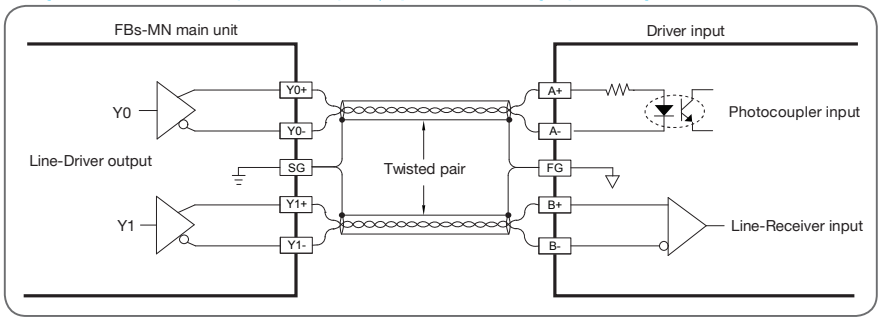


Digital Output (DO) Specifications

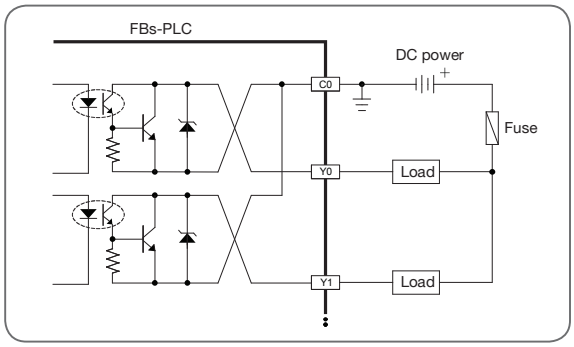
Item / Specification		Differential output	Single-end transistor output			Single-end relay output
		Ultra high speed	High speed	Medium speed	Low speed	
Maximum output frequency*		920KHz	200KHz	20KHz	—	—
Working voltage		5VDC±10%	5~30 VDC			< 250VAC/30VDC
Maximum load current	Resistive	50mA	0.5A	0.5A	0.5A/0.1A (24YT/J)	2A/single, 4A/common
	Inductive					80VA(AC)/24VA(DC)
Maximum voltage drop/ conducting resistance		—	0.6V	2.2V	2.2V	0.06V (initial)
Minimum load		—	—			2mA/DC power
Leakage current		—	< 0.1mA/30VDC			—
Maximum output delay time	ON→OFF	200nS	2μS	15μS		10mS
	OFF→ON			30μS		
Output status indication		Displayed by LED: Light when "ON", dark when "OFF"				
Over current protection		N/A				
Isolation type		Optical isolation, 500VAC, 1 minute				Electromagnetic isolation 1500VAC, 1 minute
SINK/SOURCE output type		Independent dual terminals for arbitrary connection	Choose SINK/SOURCE by models and non-exchangeable			Can be arbitrarily set to SINK/SOURCE output

* : Half of the maximum frequency while A/B phase output

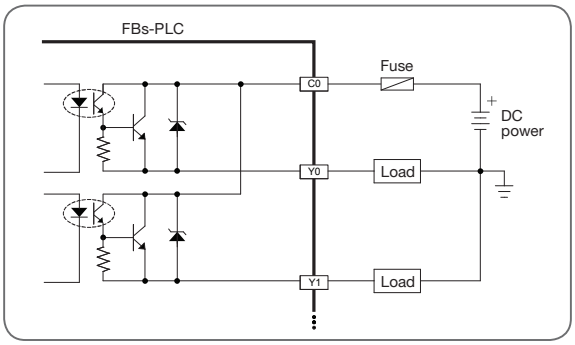
Wiring of 5VDC differential output (with frequency up to 920KHz, for high speed or high noise environments)



Wiring of transistor single-end SINK output



Wiring of transistor single-end SOURCE output



Wiring of relay single-end output