

Sequential instructions

Instruction	Operand	Ladder symbol	Function
ORG	X,Y,M, S,T,C		Network starts by an A contact
ORG NOT			Network starts by a B contact
ORG TU			Network starts by a TU contact
ORG TD			Network starts by a TD contact
ORG OPEN			Network starts by an open contact
ORG SHORT			Network starts by a short contact
LD	X,Y,M, S,T,C		Branch line starts by an A contact
LD NOT			Branch line starts by a B contact
LD TU			Branch line starts by a TU contact
LD TD			Branch line starts by a TD contact
LD OPEN			Branch line starts by an open contact
LD SHORT			Branch line starts by a short contact
AND	X,Y,M, S,T,C		Serial connect with an A contact
AND NOT			Serial connect with a B contact
AND TU			Serial connect with a TU contact
AND TD			Serial connect with a TD contact
AND OPEN			Serial connect with an open contact
AND SHORT			Serial connect with a short contact

Instruction	Operand	Ladder symbol	Function
OR	X,Y,M, S,T,C		Parallel connect with an A contact
OR NOT			Parallel connect with a B contact
OR TU			Parallel connect with a TU contact
OR TD			Parallel connect with a TD contact
OR OPEN			Parallel connect with an open contact
OR SHORT			Parallel connect with a short contact
ANDLD			Concatenate two blocks in series
ORLD			Merge two blocks in parallel
OUT	Y,M,S		Output result to coil
OUT NOT			Output the inverse of result to a coil
OUT L	Y		Output result to a retentive coil
OUT	TR		Store node status in temporary relay
LD			Retrieve node status from temporary relay
TU			Take differential up of node status to node status
TD			Take differential down of node status to node status
NOT			Inverse node status
SET			Set a coil
RST			Reset a coil

Step ladder instructions (SFC)

Instruction	Operand	Ladder symbol	Function
STP	Snnn		Define STEP program
STPEND			STEP program end

Instruction	Operand	Ladder symbol	Function
TO	Snnn		STEP divergence
FROM			STEP convergence

Function instructions

Category	NO.	Instruction	Derivative	Function
Timer		Tnnn		General timer instruction (T0 ~ T255)
Counter		Cnnn		General counter instruction (C0 ~ C255)
Setting / Resetting		SET	DP	Set all bits of register or a discrete point to 1
		RST	DP	Clear all bits of register or a discrete point to 0
	114	Z-WR	P	Zone set or clear
Digital operation	4	DIFU		Take differential up of the node status to operand
	5	DIFD		Take differential down of the node status to operand
	10	TOGG		Toggle the coil status
Mathematical operation	11	(+)	DP	Sa+Sb → D
	12	(-)	DP	Sa-Sb → D
	13	(×)	DP	Sa × Sb → D
	14	(/)	DP	Sa / Sb → D
	15	(+1)	DP	Add 1 to D
	16	(-1)	DP	Subtract 1 from D
	23	DIV48	P	48 bits integer division Sa / Sb → D
	24	SUM	DP	Sum of N consecutive values
	25	MEAN	DP	Average of N consecutive values
	26	SQRT	DP	Square root of S
	27	NEG	DP	Two's complement of D (Negative number)
	28	ABS	DP	Absolute value of D
	29	EXT	P	Extend 16 bits into 32 bits
30	PID	P	PID calculation	

Category	NO.	Instruction	Derivative	Function
Mathematical operation	31	CRC16	P	CRC16 calculation
	32	ADCNV		Offset and full scale conversion for analog I/O
	200	I→F	DP	Integer to floating point number conversion
	201	F→I	DP	Floating point number to integer conversion
	202	FADD	P	Addition of floating point number
	203	FSUB	P	Subtraction of floating point number
	204	FMUL	P	Multiplication of floating point number
	205	FDIV	P	Division of floating point number
	206	FCMP	P	Comparison of floating point number
	207	FZCP	P	Zone comparison of floating point number
	208	FSQR	P	Square root of floating point number
	209	FSIN	P	SIN trigonometric function
	210	FCOS	P	COS trigonometric function
211	FTAN	P	TAN trigonometric function	
212	FNEG	P	Change sign of floating point number	
213	FABS	P	Absolute value of floating point number	
Logic operation	18	AND	DP	Sa AND Sb
	19	OR	DP	Sa OR Sb
	35	XOR	DP	Sa XOR Sb
	36	XNR	DP	Sa XNR Sb
Comparison	17	CMP	DP	Value Compare
	37	ZNCMP	DP	Zone Compare

Function instructions

(Continues)

Category	NO.	Instruction	Derivative	Function
Move operation	8	MOV	DP	Move S to D
	9	MOV/	DP	Inverse S and move to D
	40	BITRD	DP	Move the Bit-N of S to FO
	41	BITWR	DP	Write INB input to the Bit-N of D
	42	BITMV	DP	Move the Bit-Ns of S to the Bit -Nd of D
	43	NBMV	DP	Move the Nibble-Ns of S to the Nibble-Nd of D
	44	BYMV	DP	Move the Byte-Ns of S to the Byte-Nd of D
	45	XCHG	DP	Exchange Da and Db
	46	SWAP	P	Swap the High-Byte of D with the Low-Byte of D
	47	UNIT	P	Take Nb0 of N words to form a Word
	48	DIST	P	Distribute N Nb of S to Nb0 of N Words
	49	BUNIT	P	Low byte of words re-unit
	50	BDIST	P	Words split into multi-byte
	160	RW-FR	DP	File register access
Shift / Rotation	6	BSHF	DP	Shift D right 1 bit or left 1 bit
	51	SHFL	DP	Shift D left N bits
	52	SHFR	DP	Shift D right N bits
	53	ROTL	DP	Rotate D left N bits
	54	ROTR	DP	Rotate D right N bits
Code conversion	20	→BCD	DP	Convert S into BCD
	21	→BIN	DP	Convert S into Binary
	55	B→G	DP	Binary to Gray code conversion
	56	G→B	DP	Gray code to Binary conversion
	57	DECOD	P	Decode the Ns ~ Nl. of S
	58	ENCOD	P	Encode the Ns ~ Nl. of S
	59	→7SG	P	Convert N+1' Nb of S into 7-segment code
	60	→ASC	P	Convert character/number into ASCII code
	61	→SEC	P	Represent hour, minute, second by seconds
	62	→HMS	P	Represent second by hour, minute and second
Flow control	63	→HEX	P	Convert ASCII code into hexadecimal
	64	→ASCII	P	Convert hexadecimal into ASCII code
	0	MC		Master control loop start
	1	MCE		Master control loop end
	2	SKP		The start of the skip loop
	3	SKPE		The end of the skip loop
		END		Terminate the execution of program (for debugging)
	22	BREAK	P	Exit from FOR-NEXT loop
	65	LBL		Define the string as label
	66	JMP	P	Jump instruction
	67	CALL	P	Call instruction
	68	RTS		Subroutine return instruction
	69	RTI		Interrupt return instruction
	70	FOR		The start of the FOR loop program
71	NEXT		Return point of FOR loop	
I/O instruction	74	IMDIO	P	Refresh I/O immediately
	76	TKEY	D	10 keys input convenient instruction
	77	HKEY	D	16 keys input convenient instruction
	78	DSW	D	Thumbwheel switch input convenient instruction
	79	7SGDL	D	7-segment multiplexing display convenient instruction

Category	NO.	Instruction	Derivative	Function
I/O instruction	80	MUXI		Multiplexing input convenient instruction
	81	PLSO	D	Pulse output(PSO) instruction
	82	PWM		Pulse width modulation output (PWM) instruction
	83	SPD		Speed detection instruction
	84	TDSP		7/16-segment LED display control
	86	TPCTL		PID temperature control
	139	HSPWM		Hardware PWM pulse output
	Cumulative Timer	87	T.01S	
88		T.1S		0.1S time base cumulative timer
89		T1S		1S time base cumulative timer
Monitor and control	90	WDT	P	Set watchdog timer
	91	RSWDT	P	Reset watchdog timer
HSC/ HST	92	HSCTR		Read CV of hardware high speed counter/timer
	93	HSCTW		Write CV or PV of hardware high speed counter/timer
Text	94	ASCWR		Output ASCII message
Ascend/ Descend	95	RAMP		Ascending/Descending convenient instruction
Communication	150	M-BUS		Modbus protocol communication
	151	CLINK		Fatek/Generic protocol communication
Table operation	100	R→T	DP	Move register Rs to the table Td
	101	T→R	DP	Move the Rp of table Ts to register Rd
	102	T→T	DP	Move the Rp of table Ts to the Rp of table Td
	103	BT_M	DP	Move table Ts to table Td
	104	T_SWP	DP	Swap Ta and Tb
	105	R-T_S	DP	Search Rs from table Ts
	106	T-T_C	DP	Compare table Ta and table Tb
	107	T_FIL	DP	Fill Rs into Td table
	108	T_SHF	DP	Shift table left or right
	109	T_ROT	DP	Rotate table left or right
	110	QUEUE	DP	First in first out (Queue) instruction
	111	STACK	DP	First in last out (Stack) instruction
	112	BKCMP	DP	Compare Rs with zone defined by two tables
	113	SORT	DP	Sort the table
Matrix operation	120	MAND	P	AND two matrixes
	121	MOR	P	OR two matrixes
	122	MXOR	P	XOR two matrixes
	123	MXNR	P	XNR two matrixes
	124	MINV	P	Inverse matrix
	125	MCMP	P	Compare two matrixes and find out the differences between two matrixes
	126	MBRD	P	Read the bit of a matrix pointed by pointer
	127	MBWR	P	Write the bit of a matrix pointed by pointer
	128	MBSHF	P	Shift matrix left 1 bit or right 1 bit
	129	MBROT	P	Rotate matrix left 1 bit or right 1 bit
NC Position control	130	MBCNT	P	Count the number of bit whose value is 1 in matrix
	140	HSPSO		Hardware NC pulse output
	141	MPARA		Set NC position parameters
	142	PSOFF	P	Force to stop HSPSO
Interrupt control	143	PSCNV	P	Convert pulse count into mechanical value for display
	145	EN	P	Enable external input or peripheral interrupt/operation
	146	DIS	P	Disable external input or peripheral interrupt/operation



Environmental specifications / Power supply specifications / Main unit 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°C ~ +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

■ Power supply specifications

- AC power supply

Item		Specification	10/14 points main unit	20/24 points main unit	32/40 points main unit	60 points main unit
Input range	voltage		100 ~ 240VAC -15%/+10%			
	Frequency		50/60Hz ±5%			
Max. power consumption (built-in power supply)			21W (POW-14)		36W (POW-24)	
Inrush current			20A @ 264VAC			
Allowable power momentary interruption time			<20mS			
Fuse rating			1A, 250VAC			

- DC power supply

Item		Specification	10/14 points main unit	20/24 points main unit	32/40 points main unit	60 points main unit
Input range			24VDC -15%/+20%			
Max. power consumption (built-in power supply)			15W (DPOW-10)		24W (DPOW-16)	
Inrush current			20A @ DC24 V			
Allowable power momentary interruption time			<20mS			
Fuse rating			3.15A, 250VAC			

■ Main unit specifications

* is default, user configurable

Item		Specification	Note
Execution speed		0.33uS/Sequential instruction in average	
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	Port0 (RS232 or USB)	Communication speed 4.8Kbps ~ 921.6Kbps (9.6Kbps)*	
	Port1 ~ Port4 (RS232, RS485 or Ethernet)	Communication speed 4.8Kbps ~ 921.6Kbps (9.6Kbps)*	Port1 ~ 4 provide FATEK or Modbus master/slave communication protocol
	Maximum link stations	254	

Main unit specifications

(Continue)

* is default,user configurable

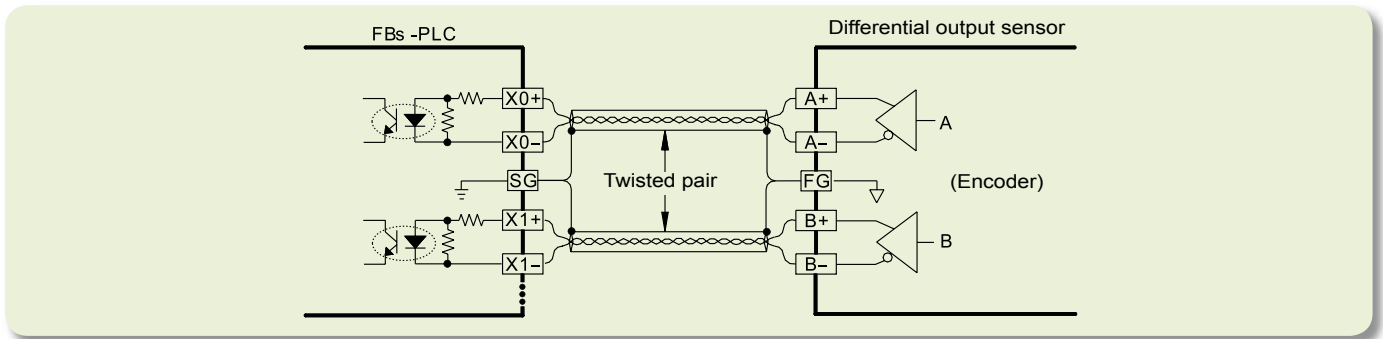
Item			Specification				Note	
Digital (Bit status)	X	Input contact (DI)	X0 ~ X255 (256)				Corresponding to external digital input	
	Y	Output relay (DO)	Y0 ~ Y255 (256)				Corresponding to external digital output	
	TR	Temporary relay	TR0 ~ TR39 (40)					
	M	Internal relay	Non-retentive	M0 ~ M799 (800)*			Can be configured as retentive type	
			Retentive	M1400 ~ M1911 (512)				
		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		Retentive	R0 ~ R2999 (3000)*		Can be configured as non-retentive type		
			Non-retentive	D0 ~ D3999 (4000)				
	HR ROR	Data register	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 consume program space		
			File register	F0 ~ F8191 (8192)		Must save/retrieved via special commands		
	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), R4000 ~ R4095 (96)				Except R4152 ~ R4154	
	(Special register)	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)	Not available in MA model		
		R4132 (month)	R4133 (year)	R4134 (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 bits), 4 (32 bits, share with HHSC)					
High-speed counter	Hardware high-speed counter (HHSC) /32bits	No. of channel	Up to 4				Total number of HHSC and SHSC is 8 HHSC can be converted into 32 bits/0.1mS time base high-speed timer	
		Counting mode	8 modes (U/D, U/Dx2, K/R, K/Rx2, A/B, A/Bx2, A/Bx3, A/Bx4)					
		Counting frequency	Maximum is 120KHz (Single end input) or 920KHz (differential input)					
	Software high-speed counter (HHSC) /32bits	No. of channel	Up to 4					
Counting mode		3 modes (U/D, K/R, A/B)						
		Counting frequency	Maximum sum up to 10KHz					
NC position pulse out (HSPSO)	Number of axis		Up to 4					
	Output frequency		Maximum is 120KHz (Single end output) or 920KHz (differential output)				Half of the maximum while A/B output	
	Pulse out mode		3 modes (U/D,K/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		Up to 36					
	Pulse width		>10 μS (High speed)					
			>47 μS (Medium speed) >470 μS (Medium low speed)					
Digital filter	X0 ~ X15		Adjustable filtering frequency 14KHz ~ 1.8MHz				Chosen by frequency at high frequency	
			Adjustable time constant 0 ~ 1.5mS/0~15mS (In 0.1mS/1mS)				Chosen by time constant at low frequency	
	X16 ~ X35		Time constant 1mS ~ 15mS, adjustable by step of 1mS					

Digital input (DI) specifications

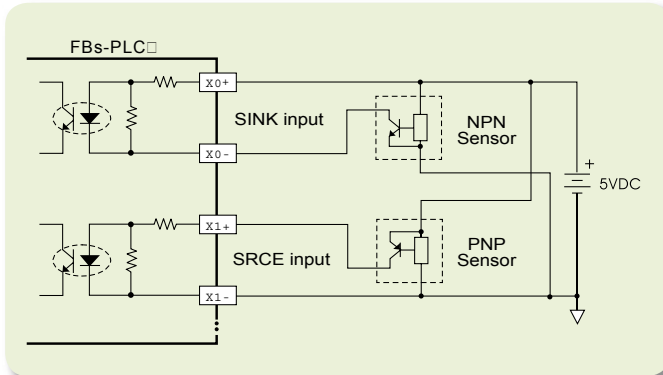
Specification	5VDC differential input		24VDC single-end input			Note
	Ultra high speed 920KHz	High speed 120KHz	Medium speed (HSC) 20KHz*1	Medium low Speed (Captured) 470µs*2	Low speed 4.7mS	
Input signal voltage	5VDC ± 10%		24VDC ± 10%			
Threshold current	ON	> 6mA	> 4mA	> 4mA	> 2.3mA	*1 Limit of input speed in MA model is 10KHz *2 For captured inputs
	OFF	< 2mA	< 1.5mA	< 1.5mA	< 0.9mA	
Maximum input current	20mA	7mA	7mA	7mA	4.2mA	
Input indication	Displayed by LED: Lit when "ON", dark when "OFF"					
Isolation method	Photocouple isolation					
SINK/SRCE wiring	Independent wiring	Via variation of internal common terminal S/S and external common wiring				
Noise filtering methods	DHF (0nS ~ 15mS) +AHF (470nS)		DHF (0nS ~ 15mS) +AHF (470µS)		AHF (4.7mS)	DHF: Digital hardware filter AHF: Analog hardware filter

Note: In this catalog, All the In/Out type of "Source" is denoted by its abbreviation - "SRCE"

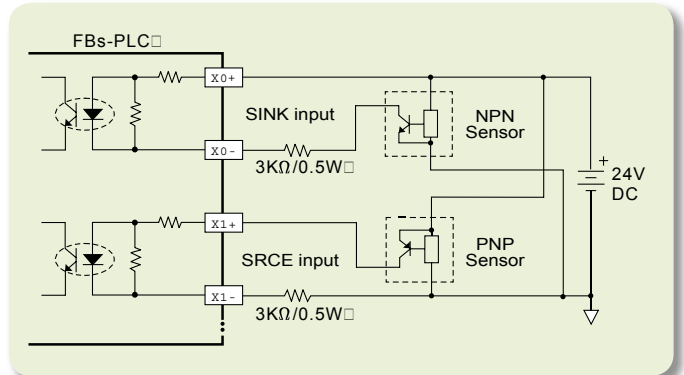
- Wiring of 5VDC differential input (with frequency up to 920KHz for high speed or high noise environments)



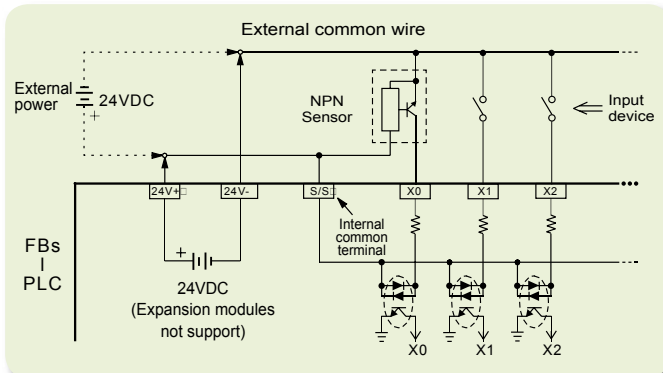
- Wiring of 5VDC differential input to 5VDC single-end SINK /SRCE input (Max. 120KHz)



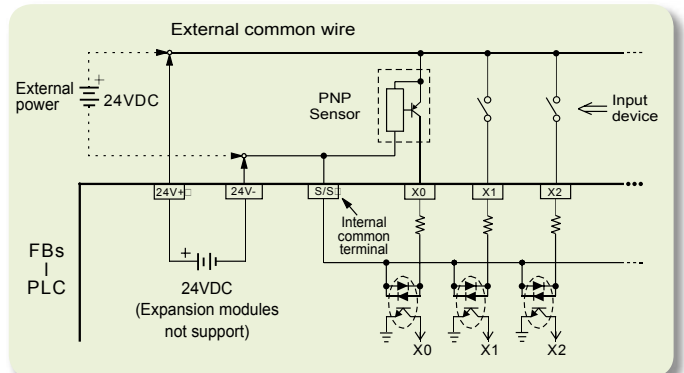
- Wiring of 5VDC differential input to 24VDC single-end SINK /SRCE input (Max. 120KHz)



- Wiring of 24VDC single-end SINK input



- Wiring of 24VDC single-end SRCE input



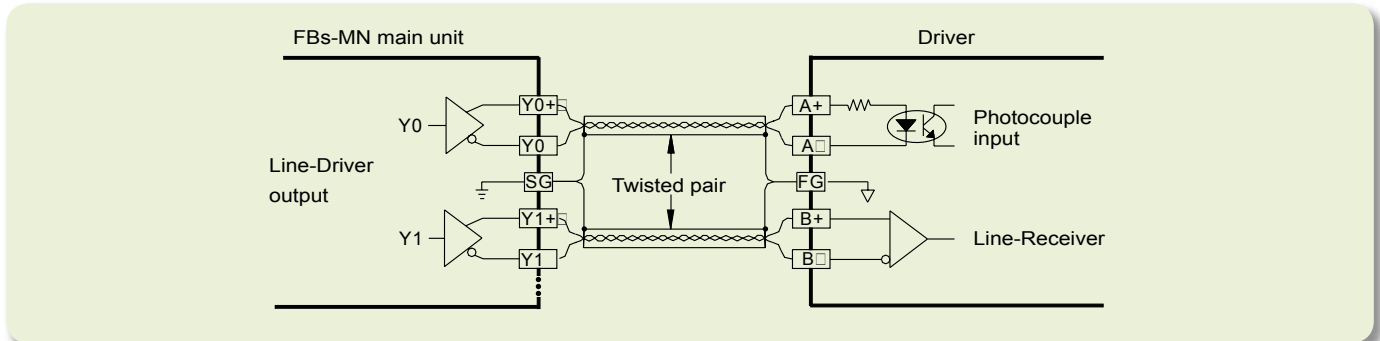
Digital output (DO) specifications

Digital output (DO) specifications

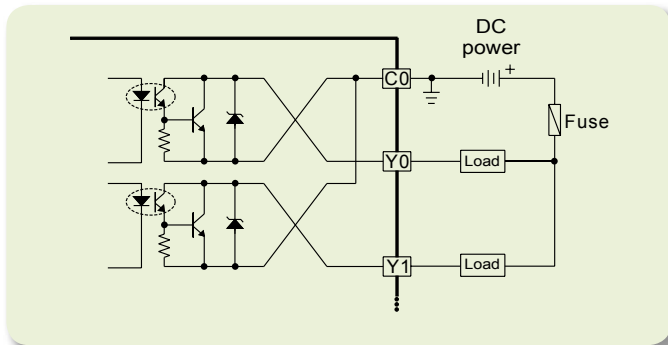
Item	Specification	Differential output		Single-end transistor output		Single-end relay output	Single-end TRIAC output
		Ultra high speed	High speed	Medium speed	Low speed		
Maximum switching (working) frequency		920KHz*	120KHz*	20KHz*	200Hz	For ON/OFF, not suitable for switching frequently	
Working voltage		5VDC	5 ~ 30 VDC			< 250VAC, 30VDC	100 ~ 240VAC
Maximum load current	Resistive	50mA	0.5A	0.2A	0.5A 0.1A (24EYT)	2A/single, 4 A/common	1A
	Inductive					80VA	15VA/100VAC 30VA/200VAC
Maximum voltage drop (@ maximum load)		-	0.6V	2.2V	1.2V	0.06V (initial)	1.2Vrms
Minimum load		-	-			2mA/DC power	25mA
Leakage current		-	< 0.1mA/30VDC			-	2mA
Maximum output delay time	ON → OFF	200nS	200nS	15μS	1mS	10mS	1mS
	OFF → ON			30μS			
Output status indication		Displayed by LED: Lit when "ON", dark when "OFF"					
Over current protection		N/A					
Isolation type		Photocouple isolation			Electromagnetic isolation	Photocouple isolation	
SINK/SRCE output type		Independent dual terminals for arbitrary connection	Choose SINK/SRCE by models and non-exchangeable			Bilateral device, can be arbitrarily set to SINK/SRCE output	

* : Half of the maximum while A/B output

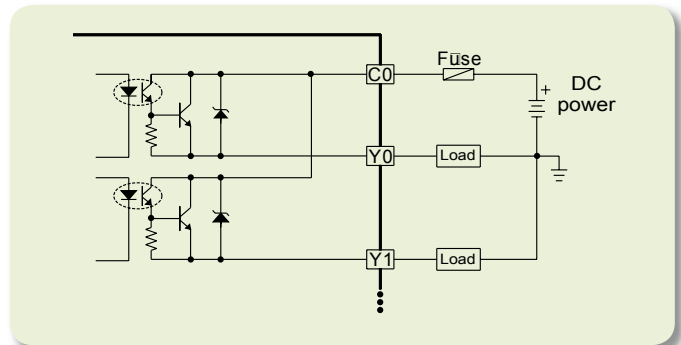
- Wiring of 5VDC differential output (Up to 920KHz for U/D/CK output; Up to 460KHz for A/B output; For high speed or high noise environments)



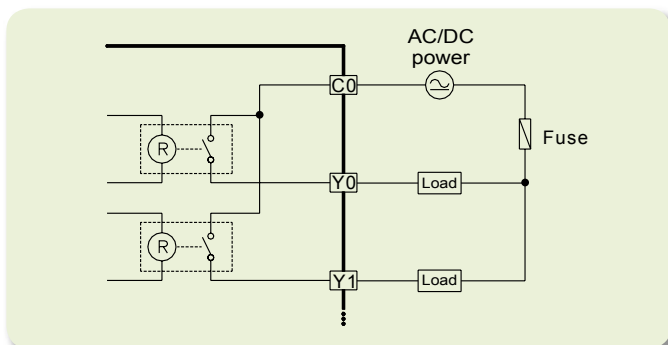
- Wiring of transistor single-end SINK output



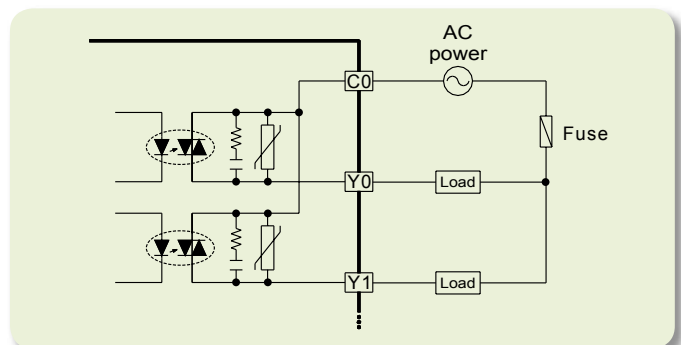
- Wiring of transistor single-end SRCE output



- Wiring of relay single-end output



- Wiring of Thyristor single-end output



NC positioning main units (MN)

(7.62 mm detachable terminal block)



FBS-20MN (T,S)



FBS-32MN (T,S)



FBS-44MN (T,S)

Specification Model number	Comm. port		Digital input				Digital output				Dimension		
	Calendar	Expansible Built-in	5VDC		24VDC		5VDC		Relay	Thyristor			
			Ultra high-speed (HSC) 920KHz	Medium speed (HSC) 20KHz	Medium low speed (Cap.) 470µS	differential ultra high-speed 920KHz	Transistor (5 ~ 30VDC) Medium speed 20KHz (0.2A) Low speed 200Hz (0.5A)	AC/DC (2A)				AC (1A)	
FBS-20MN △-⊙	Built-in	4 ports (Port1 ~ 4, RS485 or RS232) 1 port (Port0, USB or RS232)	2 points (1 axis)	10 points		2 points (1axis)			6 points		Figure 1		
FBS-20MNT ◇△-⊙							6 points						
FBS-20MNS △-⊙												6 points	
FBS-32MN △-⊙					4 points (2 axes)	12 points	4 points	4 points (2 axes)	4 points	4 points	8 points		Figure 1
FBS-32MNT ◇△-⊙													
FBS-32MNS △-⊙												8 points	
FBS-44MN △-⊙					8 points (4 axes)	8 points	12 points	8 points (4 axes)		8 points	8 points		Figure 1
FBS-44MNT ◇△-⊙											8 points		
FBS-44MNS △-⊙												8 points	

△ : Port0 interface: Blank—RS232, U—USB

◇ : Transistor output type: Blank—SINK output (NPN), J—SRCE output (PNP)

⊙ : Power supply: Blank—AC power supply (100 ~ 240VAC), D—DC power supply (24VDC)

High-performance main units (MC)

(7.62 mm detachable terminal block)



FBS-10MC (T,S)



FBS-14MC (T,S)



FBS-20MC (T,S)



FBS-24MC (T,S)



FBS-32MC (T,S)



FBS-40MC (T,S)



FBS-60MC (T,S)

Specification Model number	Comm. port		Digital input			Digital output				Dimension		
	Calendar	Expansible Built-in	24VDC			Transistor (5 ~ 30VDC)			Relay		Thyristor	
			High speed (HSC) 120KHz	Medium speed (HSC) 20KHz	Medium low speed (Cap.) 470µS	High speed 120KHz (0.5A)	Medium speed 20KHz (0.2A)	Low speed 200Hz (0.5A)				AC/DC (2A)
FBS-10MC △-⊙-X	Built-in	4 ports (Port1 ~ 4, RS485 or RS232) 1 port (Port0, USB or RS232)		4 points					4 points		Figure 2	
FBS-10MCT ◇△-⊙-XY						2*~4 points	2 points					
FBS-10MCS △-⊙-X					2*~4 points						4 points	Figure 2
FBS-14MC △-⊙-X						6 points				6 points		
FBS-14MCT △-⊙-XY							2*~6 points	4 points				Figure 1
FBS-14MCS △-⊙-X											6 points	
FBS-20MC △-⊙-X						10 points				8 points		Figure 1
FBS-20MCT ◇△-⊙-XY							2*~8 points	6 points				
FBS-20MCS △-⊙-X					2*~6 points						8 points	Figure 1
FBS-24MC △-⊙-X						12 points				10 points		
FBS-24MCT ◇△-⊙-XY							2*~8 points	6 points	2 points			Figure 1
FBS-24MCS △-⊙-X											10 points	
FBS-32MC △-⊙-X										12 points		Figure 1
FBS-32MCT ◇△-⊙-XY						4 points	2*~8 points	6 points	4 points			
FBS-32MCS △-⊙-X					2*~8 points						12 points	Figure 1
FBS-40MC △-⊙-X										16 points		
FBS-40MCT ◇△-⊙-XY						14 points	8 points	2*~8 points	6 points	8 points		Figure 1
FBS-40MCS △-⊙-X											16 points	
FBS-60MC △-⊙-X										24 points		Figure 1
FBS-60MCT ◇△-⊙-XY						20 points	2*~8 points	6 points	16 points			
FBS-60MCS △-⊙-X											24 points	

△ : Port0 interface : Blank—RS232, U—USB

◇ : Transistor output type : Blank—SINK output (NPN), J—SRCE output (PNP)

⊙ : Power supply: Blank—AC power supply (100 ~ 240VAC), D—DC power supply (24VDC)

X: Extra high speed input (120KHz) points

Y: Extra high speed output (120KHz) points

* : The standard MC main units has the built-in 2 points of high speed input and 2 points of high speed output. For optional order, can be 1 ~ 6 points of high speed I/O expandable. I/O expanding points to be specified at column X (input number) and Y (output number) of model number. For example FBS-40MCT-21 means extra 2 points of high speed input (total 4points) and one more point of high speed output (total 3 points). Another example FBS-24MCT-03 means only 3 more points of high speed output (total 4 points).

Economical main units (MA) / Digital expansion units

■ Economical main units (MA)

(7.62 mm terminal block)



FBS-10MA (T,S)



FBS-14MA (T,S)



FBS-20MA (T,S)



FBS-24MA (T,S)



FBS-32MA (T,S)



FBS-40MA (T,S)



FBS-60MA (T,S)

Specification Model number	Comm. port		Digital input		Digital output			Dimension						
	Calendar	Expansibile Built-in	24VDC		Transistor (5 ~ 30VDC)		Relay		Thyristor					
			Medium Speed 10KHz	Medium low (Cap.) 470µS	Medium speed 10KHz (0.2A)	Low speed 200Hz (0.5A)	AC/DC (2A)		AC (1A)					
FBS-10MA △-⊙	No	2 ports (Port1-2, RS485 or RS232)	4 points		2 points	4 points	4 points	Figure 2						
FBS-10MAT ◇△-⊙									4 points	6 points	4 points	4 points	4 points	Figure 2
FBS-10MAS △-⊙														
FBS-14MA △-⊙									4 points	4 points	2 points	6 points	6 points	Figure 2
FBS-14MAT ◇△-⊙														
FBS-14MAS △-⊙									16 points	4 points	4 points	8 points	8 points	Figure 1
FBS-20MA △-⊙														
FBS-20MAT ◇△-⊙									20 points	4 points	12 points	16 points	16 points	Figure 1
FBS-20MAS △-⊙														
FBS-24MA △-⊙									16 points	4 points	8 points	12 points	12 points	Figure 1
FBS-24MAT ◇△-⊙														
FBS-24MAS △-⊙									32 points	4 points	20 points	24 points	24 points	Figure 1
FBS-32MA △-⊙														
FBS-32MAT ◇△-⊙									20 points	4 points	12 points	16 points	16 points	Figure 1
FBS-32MAS △-⊙														
FBS-40MA △-⊙									16 points	4 points	8 points	12 points	12 points	Figure 1
FBS-40MAT ◇△-⊙														
FBS-40MAS △-⊙									32 points	4 points	20 points	24 points	24 points	Figure 1
FBS-60MA △-⊙														
FBS-60MAT ◇△-⊙									20 points	4 points	12 points	16 points	16 points	Figure 1
FBS-60MAS △-⊙	32 points	4 points	20 points	24 points	24 points	Figure 1								

△ : Port0 interface: Blank—RS232, U—USB

◇ : Transistor output type: Blank—SINK output (NPN), J—SRCE output (PNP)

⊙ : Power supply: Blank—AC power supply (100 ~ 240 VAC), D—DC power supply (24 VDC)

■ Digital expansion units

(7.62 mm terminal block)



FBS-24EAP(T,S)



FBS-40EAP(T,S)



FBS-60EAP(T,S)

Specification Model number	Digital input		Digital output			Dimension					
	24VDC		Transistor (5 ~ 30VDC)		Relay		Thyristor				
	Low speed 4.7mS	Low speed 200Hz (0.5A)	Low speed 200Hz (0.5A)		AC/DC (2A)		AC (1A)				
FBS-24EAP-⊙	14 points		10 points	10 points	10 points	Figure 1					
FBS-24EAPT △-⊙							16 points	16 points	16 points	16 points	Figure 1
FBS-24EAPS-⊙											
FBS-40EAP-⊙	24 points		16 points	16 points	16 points	Figure 1					
FBS-40EAPT △-⊙							24 points	24 points	24 points	24 points	Figure 1
FBS-40EAPS-⊙											
FBS-60EAP-⊙	36 points		24 points	24 points	24 points	Figure 1					
FBS-60EAPT △-⊙							36 points	36 points	36 points	36 points	Figure 1
FBS-60EAPS-⊙											

△ : Transistor output type: Blank—SINK output (NPN), J—SRCE output (PNP)

◇ : Power supply: Blank—AC power supply (100 ~ 240 VAC), D—DC power supply (24 VDC)