



Economical and High-Quality PLC

FATEK B1/B1z Series Micro-Programmable Controllers



FATEK[®] AUTOMATION CORPORATION

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Be impressed with the high quality!

Features

Core Technology of the Advanced SoC

With advanced software, hardware techniques and over 20 years experience in the automation industry, FATEK has integrated its own SoC CPU (Systems on Chip), hardware logic solver (HLS), hardware high-speed counter/timer, NC positioning, communication, FLASH, and SRAM into a tiny BGA chip. This is an industry first making FATEK a market leader in micro PLC design!

Compact and Rugged

Common components are now integrated into the SoC, so the processor and I/O board layer can now be manufactured on a single PCB substantially reducing the overall size and increasing the reliability of the B1/B1z series controllers!

High Quality and High Reliability

With the streamline hardware design and the highly integrated SoC technology, the quantity of the components required in the B1/B1z

series PLC is significantly reduced. With the combination of the high quality parts rigorous quality control procedures, FATEK creates a high quality PLC for today's industry.

Competitive Low Price

The streamline design of SoC technology significantly reduces the hardware costs. The B1/B1z series PLC incorporates the most sophisticated manufacturing process and high quality two-layer board design, and have better noise immunity than other four-layer PLC board design. This makes the B1/B1z PLC very price-competitive in today's cost-conscious PLC market!

Easy to Use, Common Instruction Sets

The B1/B1z series PLC is an economic type PLC without any compromise to its performance. It also provides all the easy to use yet powerful FBs series PLC's instructions. Both B1/B1z and FBs series PLC are programmed by the same utility software - Winproladder.



Environmental Specifications

Item	Specification	Note
Storage temperature	-25°~70°C	
Operating ambient temperature	0°~55°C	
Relative humidity	5~95%	Non-condensing, RH-2
Pollution resistance	Degree II	
Corrosion resistance	Based 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	1500Vp-p, pulse width 1μs	
Withstand voltage	500VAC, 1 minute (DC)	L, N to any terminal
	1500VAC, 1 minute (AC)	

DC Model Power Specifications

Specification	Item	10/14 Points Main Unit	20/24 Points Main Unit	32/40 Points Main Unit	60 Points Main Unit
Input voltage		24VDC, -15%/+20%			
Max. power capability		2.5W/3W	3.5W/4W	4.5W/5W	6W
Inrush current		20A@24VDC			
Allowable power momentary interruption time		<2ms			
Fuse rating		2A, 125VDC			

AC Model Power Specifications (custom products)

Specification	Item	10/14 Ponits Main Unit	20/24 Ponits Main Unit	32/40 Ponits Main Unit	60 Points Main Unit
Input power/Frequency		85 ~ 264VAC / 50 ~ 60Hz			
Max. power capability (Built-in sensor power supply)		21W			
Inrush current		20A@264VAC			
Allowable power momentary interruption time		<20mS			
Fuse rating		2A, 250VAC			

*1: Default, changeable by user
 *2: LAIO and LANTC module will occupy Port1

Main Unit Specifications

Specification	Item	B1	B1z	Note
Execution speed		0.33uS / Sequential instruction		
Memory capacity	Program (Word)	7936 Words	3840 Words	
	Comment (Byte)	8K Bytes	4K Bytes	
Program memory		FLASH ROM or SRAM+Lithium battery Back-up		
Sequential instruction		36 instructions		
Function instruction		326 instructions(126 kinds)	323 instructions(123 kinds)	Include derivative instructions
Flow chart command (SFC)		4 instructions		
Communication Interface	Port0 (RS232) Speed 4.8k~115.2kbps	Built-in		
	Port1~2 (RS232, RS485, Ethernet) Speed 4.8k~921.6kbps	Expandable Port1 and Port2	Built-in Port2(RS485) No expandable	
	Maximum link stations	254		
Digital (Bit status)	X Input contact (DI)	X+Y=128	6 / 8 / 12 / 14 / 20 / 24 / 36	Corresponding to external digital input
	Y Output relay (DO)		4 / 6 / 8 / 10 / 12 / 16 / 24	Corresponds to external digital output
	TR Temporary relay	TR0~TR39 (40)		
	M Internal relay	Non-retentive	M0~M799 (800)*1	
Retentive		M1400~M1911 (512)		
Special relay		M800~M1399 (600)*1		
		M1912~M2001 (90)		

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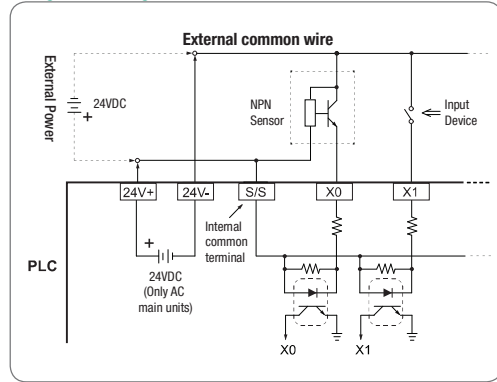
Specification	Item	B1	B1z	Note	
Digital (Bit status)	S Step relay	Non-retentive	S0~S499 (500)*1	S20~S499 can be configured as retentive type	
		Retentive	S500~S999 (500)*1	Can be configured as non-retentive type	
	T Timer "Time-Up" status contact	T0~T255 (256)			
	C Counter "Count-Up" status contact	C0~C255 (256)			
	TMR Time current value register	0.01S Time base	T0~T49 (50)*1		
		0.1S Time base	T50~T199 (150)*1		
		1S Time base	T200~T255 (56)*1		
	CTR Counter current value register	16-bit	Retentive	C0~C139 (140)*1	Can be configured as non-retentive type
			Non-retentive	C140~C199 (60)*1	Can be configured as retentive type
		32-bit	Retentive	C200~C239 (40)*1	Can be configured as non-retentive type
Non-retentive			C240~C255 (16)*1	Can be configured as retentive type	
HR DR Data register	Retentive	R0~R2999 (3000)*1			
		R5000~R8071 (3072)*1			
	Non-retentive	R3000~R3839 (840)*1			
		R5000~R8071 can be set as ROR, default setting is (0)*1			
ROR Read only register	R5000~R8071 can be set as ROR, default setting is (0)*1				
FR File register	F0~F8191 (8192)				
IR Input register	R3840~R3857 (18)	-		Corresponding to the external numerical input	
OR Output register	R3904~R3921 (18)	-		Corresponding to the external numerical output	
SR	Special system register	R3968~R4167 (200)			
		D4000~D4095 (96)			
	0.1mS High-speed timer register	R4152~R4154 (3)			
	High-speed counter register	Hardware(4 sets)	DR4096~DR4110 (4x4)		
Software(4sets)		DR4112~DR4126 (4x4)			
Calendar register	R4128 (sec)	R4129 (min)	R4130 (hour)	R4131 (day)	
	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		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		
		Counting mode	8 modes (U/D / U/Dx2 / P/R / P/Rx2 / A/B / A/Bx2 / A/Bx3 / A/Bx4)		
	Software high-speed counter(SHSC)/32-bit	Counting frequency	Maximum is 50KHz (Singled-end input)		
		No. of channel	Up to 4		
Counting mode	Counting mode	3 modes (U/D / P/R / A/B)			
	Counting frequency	Maximum sum up to 5KHz			
NC position pulse output (HSPSO)	Number of axis	Up to 4			
	Output frequency	Maximum is 50KHz (Singled-end input)			
	Pulse output mode	3 modes (U/D / P/R / A/B)			
	Programming method	Dedicated position language			
HSPWM output	Interpolation	Maximum 4 axes linear interpolation			
	Number of points	Up to 4			
Captured input	Output frequency	72Hz~18.432KHz (with 0.1%resolution)			
		720Hz~184.3KHz(with 1%resolution)			
		Points			
		Maximum 36 points (All inputs in main unit come with this feature)			
Minimum captured pulse width	>10μs (for Ultra high/high speed input)				
	>47μs (for medium speed input)				
	>470μs (for medium/low speed input)				
Digital filter	X0~X15	Adjustable frequency 14KHz~1.8MHz			
		Adjustable time constant 0.1~1.5mS/1~15mS(unit: 0.1mS/1mS)			
		X16~X35			
		Time constant 1~15mS adjustable(unit: 1mS)			

Digital Input (DI) Specification

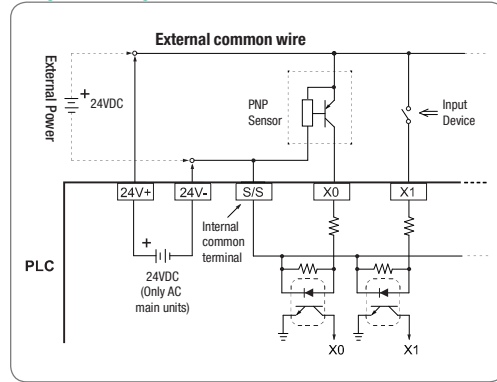
*: Half of maximum frequency while A/B phase input

Specification	Item	Main Unit			Extension module	Note
		High speed (HHSC)	Medium speed (SHSC)	Low speed (≥ X16)		
Maximum input frequency		50KHz*	Total 5KHz	—	—	HHSC: Hardware High speed counter SHSC: Software High speed counter
Input signal voltage		24VDC±10%				
Threshold current	ON	> 4mA		> 2.3mA		
	OFF	< 1.5mA		< 0.9mA		
Maximum input current		7.6mA		4.5mA		
Input status indication		Displayed by LED: light when "ON", dark when "OFF"				
Isolation method		Optical isolation, 500VAC, 1 minute				
SINK/SOURCE selection		Select by wiring methods (internal common terminal S/S and external common wiring)				
Noise filtering methods		AHF(0.42us)+DHF(14KHz-1.8MHz or 0.1-15ms)	AHF(0.2ms)+DHF(1-15ms)	AHF(1mS)	DHF: Digital Hardware Filter AHF: Analog Hardware Filter	

Wiring of 24VDC single-end SINK input



Wiring of 24VDC single-end SOURCE input

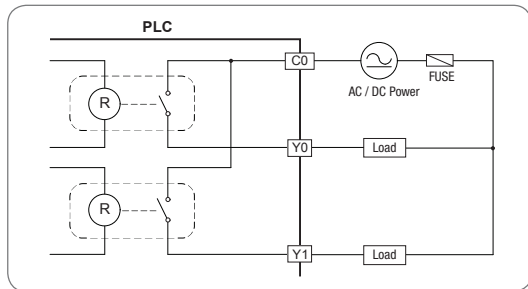


Digital Output (DO) Specifications

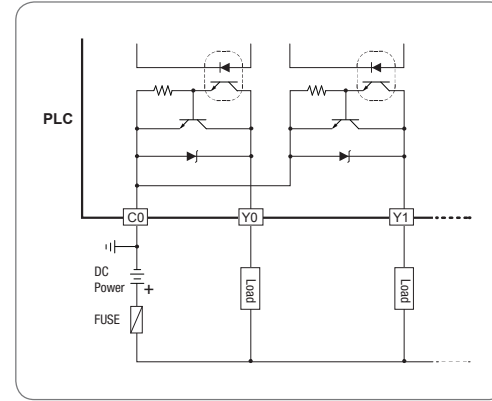
*: Half of maximum frequency while A/B phase output

Specification	Item	High speed transistor output (Main unit HSP50)	Low speed transistor output	Single-end relay output	Note
		Maximum output frequency	50KHz*	—	
Working voltage		5-30VDC			HSP50: Hardware High Speed Pulse Output
Maximum load current	Resistive	0.3A/0.1A (M4T/J)		<250VAC/30VDC	
	Inductive	0.5A		2A/single, 4A/common 80VA(AC)/24VA(DC)	
Maximum voltage drop/conducting resistance (initial)		0.5V	1V	30mΩ (@1A, 6VDC)	
Minimum load		—	—	2mA/DC power	
Leakage current		< 0.1mA/30VDC			
Maximum output delay time	ON → OFF	15μS			
	OFF → ON	30μS			
Output status indication		Displayed by LED: light when "ON", dark when "OFF"			
Isolation method		Optical isolation, 500VAC, 1 minute		Electromagnetic isolation 1500VAC, 1 minute	

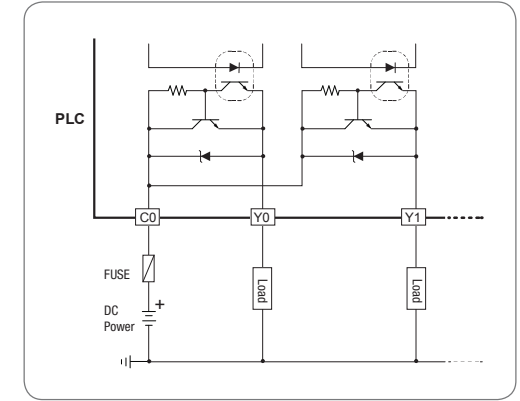
Wiring of relay single-end output



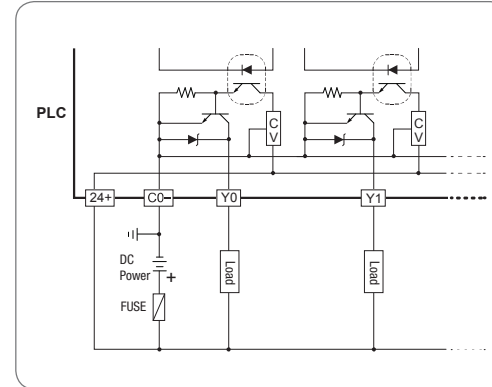
Wiring of transistor single-end SINK output



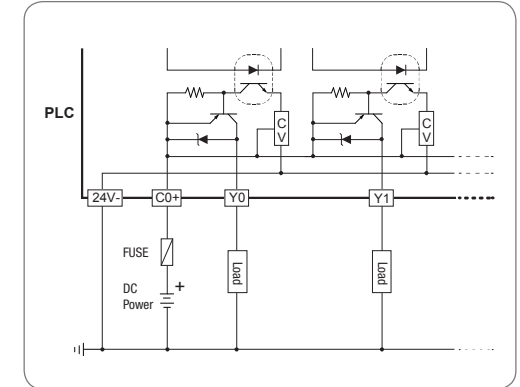
Wiring of transistor single-end SOURCE output



Wiring of M4T main unit Y0~Y7 transistor single-end SINK output



Wiring of M4J main unit Y0~Y7 transistor single-end SOURCE output



Model Specification



B1z Main Units

Spec.	Model	B1z-10MR	B1z-10M(T/J)	B1z-14MR	B1z-14M(T/J)	B1z-20MR	B1z-20M(T/J)	B1z-24MR	B1z-24M(T/J)	
Digital input	24VDC	High speed (50KHz)	4 points (2-axis single phase or A/B phase)				6 points (3-axis single phase or A/B phase)		8 points (4-axis single phase or A/B phase)	
		Medium (Total 5KHz)	2 points		4 points		6 points			
		Low speed	—		—		—			
Digital Output	Relay	High speed (50KHz)	—	2 points (1-axis single phase or A/B phase)	—	2 points (1-axis single phase or A/B phase)	—	4 points (2-axis single phase or A/B phase)	—	4 points (2-axis single phase or A/B phase)
		Low speed	—	2 points	—	4 points	—	4 points	—	6 points
		Transistor (5-30 VDC)	—	—	—	—	—	—	—	—
Communication port	Built-in	2 ports (Port0:RS232, Port2:RS485)								
	Expandable	—								
Calendar		—								
Wiring mechanism		5mm European fixed terminal block								
Dimension		Figure 1 (Standard), Figure 2 (Slim)				Figure 3 (Standard), Figure 4 (Slim)				

(Continue)



Spec.		Model	B1z-32MR	B1z-32M(T/J)	B1z-40MR	B1z-40M(T/J)	B1z-60MR	B1z-60M(T/J)
Digital input	24VDC	High speed (50KHz)	8 points (4-axis single phase or A/B phase)					
		Medium speed (Total 5KHz)	8 points					
		Low speed	4 points		8 points		20 points	
Digital Output	Transistor (5~30 VDC)	Relay	12	—	16	—	24	—
		High speed (50KHz)	—	6 points (3-axis single phase or A/B phase)	—	6 points (3-axis single phase or A/B phase)	—	8 points (4-axis single phase or A/B phase)
		Low speed	—	6 points	—	10 points	—	16 points
Communication port	Built-in Expandable	Built-in	2 ports (Port0:RS232, Port2:RS485)					
		Expandable	—					
Calendar		—						
Wiring mechanism		5mm European fixed terminal block						
Dimension		Figure 5 (Standard), Figure 6 (Slim)			Figure 7 (Standard), Figure 8 (Slim)			

B1 Main Units



Spec.		Model	B1-10MR	B1-10M(T/J)	B1-14MR	B1-14M(T/J)	B1-20MR	B1-20M(T/J)	B1-24MR	B1-24M(T/J)
Digital input	24VDC	High speed (50KHz)	4 points (2-axis single phase or A/B phase)			6 points (3-axis single phase or A/B phase)		8 points (4-axis single phase or A/B phase)		
		Medium (Total 5KHz)	2 points		4 points		6 points		6 points	
		Low speed	—		—		—		—	
Digital Output	Transistor (5~30 VDC)	Relay	4 points	—	6 points	—	8 points	—	10 points	—
		High speed (50KHz)	—	2 points (1-axis single phase or A/B phase)	—	2 points (1-axis single phase or A/B phase)	—	4 points (2-axis single phase or A/B phase)	—	4 points (2-axis single phase or A/B phase)
		Low speed	—	2 points	—	4 points	—	4 points	—	6 points
Communication port	Built-in Expandable	Built-in	1 port (Port0:RS232)							
		Expandable	2 ports (Port1~2,RS485 or RS232 or Ethernet)							
Calendar		Built-in								
Wiring mechanism		5mm European fixed terminal block								
Dimension		Figure 1 (Standard), Figure 2 (Slim)				Figure 3 (Standard), Figure 4 (Slim)				

(Continue)



Spec.		Model	B1-32MR	B1-32M(T/J)	B1-40MR	B1-40M(T/J)	B1-60MR	B1-60M(T/J)
Digital input	24VDC	High speed (50KHz)	8 points (4-axis single phase or A/B phase)					
		Medium (Total 5KHz)	8 points					
		Low speed	4 points		8 points		20 points	
Digital Output	Transistor (5~30 VDC)	Relay	12	—	16	—	24	—
		High speed (50KHz)	—	6 points (3-axis single phase or A/B phase)	—	6 points (3-axis single phase or A/B phase)	—	8 points (4-axis single phase or A/B phase)
		Low speed	—	6 points	—	10 points	—	16 points
Communication port	Built-in Expandable	Built-in	1port (Port0:RS232)					
		Expandable	2 ports (Port1~2,RS485 or RS232 or Ethernet)					
Calendar		Built-in						
Wiring mechanism		5mm European fixed terminal block						
Dimension		Figure 5 (Standard), Figure 6 (Slim)			Figure 7 (Standard), Figure 8 (Slim)			

B1 4-axis NC Positioning Main Units



Spec.		Model	B1-24M4T/J*	B1-40M4T/J*
Digital input	24VDC	High speed (50KHz)	8 points (4-axis single phase or A/B phase)	
		Medium (Total 5KHz)	6 points	8 points
		Low speed	—	8 points
Digital Output	Transistor (5~30 VDC)	High speed (50KHz)	8 points (4-axis single phase or A/B phase)	
		Low speed	2 points	8 points
Communication port	Built-in Expandable	Built-in	1 port (Port0:RS232)	
		Expandable	2 ports (Port1~2,RS485 or RS232 or Ethernet)	
Calendar		Built-in		
Wiring mechanism		5mm European fixed terminal block		
Dimension		Figure 3 (Standard), Figure 4 (Slim)	Figure 5 (Standard), Figure 6 (Slim)	

*J : Customized product

Left Side Communication Expansion Modules



Spec.		Model	B1-CM25E	B1-CM55E
Digital input	24VDC	Network interface	10 Base T	
		Network protocol	TCP, UDP, ICMP, ARP	
		Application protocol	FATEK client and server mode, Modbus-TCP server mode	
Digital Output	Transistor (5~30 VDC)	PLC interface	Port 2	
		PLC communication speed	9.6K / 19.2K / 38.4K / 57.6K / 115.2 K / 230.4 K	
Communication port	Built-in Expandable	Expansion communication interface	RS232 (Port1) RS485 (Port2)	RS485 (Port1, Port2)
		Application IP port number	FATEK port number 500, Modbus-TCP 502 or customized	
Security protection		IP based access control		
Indicators		Internet RX, TX, LINK LEDs indicators		
Wiring mechanism		RJ45, 3-pin spring terminal block, DB9F		
Dimension		Figure 11 (Standard only)		

(Continue)



Spec.		Model	B1-CM2	B1-CM22	B1-CM5	B1-CM55	B1-CM25
Communication interface			RS232(2)	RS232(1,2)	RS485(2)	RS485(1,2)	RS232(1)+RS485(2)
Communication status			Receive (RX) : Green LED, Transmit (TX) : Red LED				
Wiring mechanism			DB9F	DB9F	3-pin spring terminal block		DB9F : 3-pin spring terminal block
Dimension			Figure 11 (Standard), Figure 12 (Slim)				

Left Side Temperature/Analog I/O Expansion Modules



Spec.		Model	B1-L4AD	B1-L2DA	B1-L2A2D	B1-L4NTC
Number of channels			4 channel input	2 channel output	2 channel input + 2 channel output	4 channel temperature input
Resolution			12 bits			
Input / Output signal range			0~10V(voltage) / 0~20mA(current)			100Ω ~ 100KΩ
Maximum resolution			2.44mV(voltage) / 4.88μA(current)			—
Accuracy			±1%			
Conversion time			Conversion once for each scan			
Maximum input signal			±15V(voltage) / 30mA(current)			—
Input impedance / Output load			Input impedance 100KΩ (voltage), 125Ω (current) / Output load : 2K~1MΩ (voltage), 0~500Ω (current)			—
Isolation method			Non-isolation			
Wiring mechanism			3.81mm European fixed terminal block			
Dimension			Figure 13(Standard), Figure 14(Slim)			Figure 13(Standard)

Right Side Digital I/O Expansion Modules



Spec.		Model	B1-4YR	B1-4Y(T/J)	B1-8X	B1-8YR	B1-8Y(T/J)	B1-8XYR	B1-8XY(T/J)
Digital input	24VDC	Low speed	—	—	8	—	—	4	4
	Relay	2A	4	—	—	8	—	4	—
Digital output	Transistor	0.5A	—	4	—	—	8	—	4
	Wiring mechanism		5mm European fixed terminal block						
Dimension		Figure 9 (Standard), Figure 10 (slim)							

(Continue)



Spec.		Model	B1-16X	B1-16YR	B1-16Y(T/J)	B1-16XYR	B1-16XY(T/J)	B1-24XYR	B1-24XY(T/J)	
Digital input	24VDC	Low speed	16	—	—	8	8	14	14	
	Relay	2A	—	16	—	8	—	10	—	
Digital output	Transistor	0.5A	—	—	16	—	8	—	10	
	Wiring mechanism		5mm European fixed terminal block							
Dimension		Figure 1 (Standard), Figure 2 (slim)							Figure 3 (Standard), Figure 4 (slim)	

Dimensions

(Continue)



Spec.	Model	B1-40XYR	B1-40XY(T/J)	B1-60XYR	B1-60XY(T/J)
Digital input	24VDC Low speed	24	24	36	36
Digital output	Relay	16	—	24	—
	Transistor	—	16	—	24
Wiring mechanism		5mm European fixed terminal block			
Dimension		Figure 5 (Standard), Figure 6 (slim)		Figure 7 (Standard), Figure 8 (slim)	

Right side Analog I/O Expansion Modules



Spec.	Model	B1-6AD	B1-2DA
Input point		6 points input	2 points output
Input/Output value		12 bit	
Maximum resolution		1.22mV(Voltage), 2.44µA(Current)	
Input/Output signal range	Voltage	-10 ~ +10V, -5 ~ +5V, 0 ~ 10V, 0 ~ 5V	
	Current	-20 ~ +20mA, -10 ~ +10mA, 0 ~ 20mA, 0 ~ 10mA	
Accuracy		±1%	
Input impedance		63.2KΩ(Voltage) 250Ω(Current)	—
Conversion time		Conversion once for each scan	
Maximum input signal		±12V(Voltage) ±24mA(Current)	—
Allowable load range		—	500 ~ 1MΩ(Voltage) 0 ~ 500Ω(Current)
Isolation method		Non-isolation	
Wiring mechanism		3.81mm European fixed terminal block	
Dimension		Figure 9 (Standard), Figure 10 (slim)	

Right side Temperature Measurement Expansion Modules



Spec.	Model	B1-2TC/6TC	B1-6RTD
Number of input points		2 /6 points	6 points
Sensor type and temperature measurement range		J (-200~1200°C) E (-190~1000°C) K (-190~1300°C) T (-190~380°C) R (0~1800°C) B (350~1800°C) S (0~1700°C) N (-200~1000°C)	3-wire RTD sensor (JIS or DIN) Pt100(-200~850°C) Pt1000(-200~600°C)
	Temperature compensation	Built-in cold junction compensation	—
	Resolution	0.1°C	
	Temperature refresh time	Conversion once for each scan	
	Overall Precision	±(1%+1°C)	±1%
Isolation method	Transform (power) and optical (signal) isolation, 500VAC, 1 minute, no isolation between each channel		
Power consumption	24VDC -15%/+20%, 2W max.		
Wiring mechanism	3.81 mm European fixed terminal block		
Dimension	Figure 9 (Standard)		

FBs Compatible Peripheral (Refer to FBs-PLC Catalog for Detail Specifications)

Memory Pack	PWM/DA Module	RFID card	Simple HMI	General Purpose Communication Converter		
FBs-PACK	PWM/DA	CARD-H	FBs-PEP/PEPR	FBs-CM25C	FBs-CM5R	FBs-CM5H

Bluetooth Communication Module	USB Converter Cable	Port 0 Communication Cables			
FBs-B2C	FBs-U2C-MD-180	FBs-232P0-9F-150	FBs-232P0-9M-400	FBs-232P0-MD-200	FBs-232P0-MDR-200

DC24V Power Supply

1A	2A	3A	4A	5A	6A
ADP-24V-1A	ADP-24V-2A	ADP-24V-3A	ADP-24V-4A	ADP-24V-5A	ADP-24V-6A

Figure 1 10/14 points main units or expansion modules (standard)

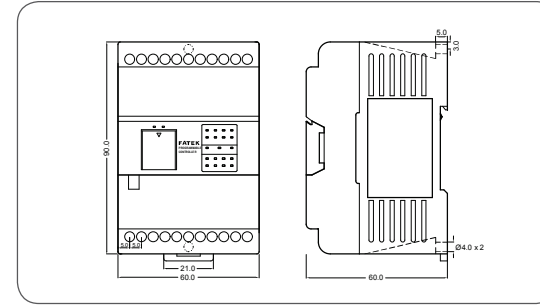


Figure 2 10/14 points units or expansion modules (slim)

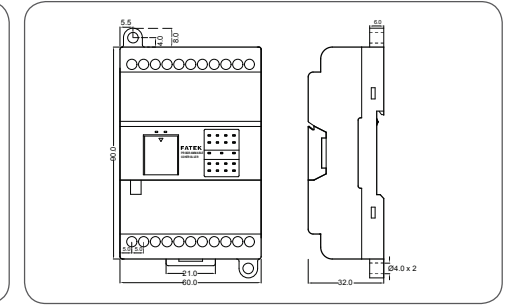


Figure 3 20/24 points main units or expansion modules (standard)

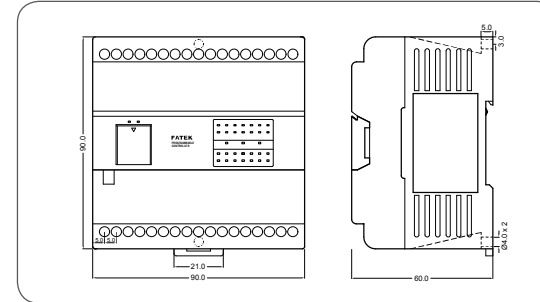


Figure 4 20/24 points main units or expansion modules (slim)

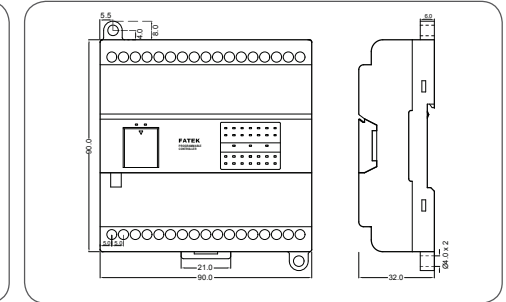


Figure 5 32/40 points main units or expansion modules (standard)

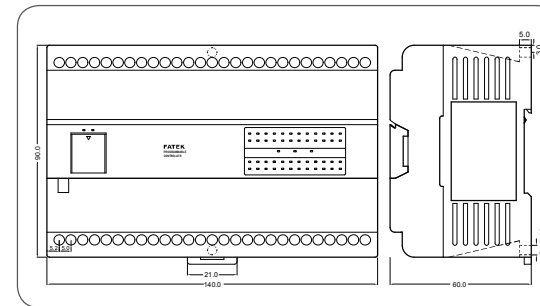


Figure 6 32/40 points main units of expansion modules (slim)

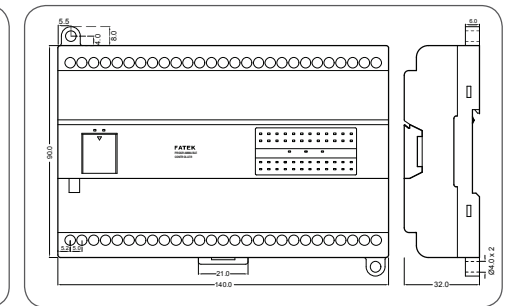
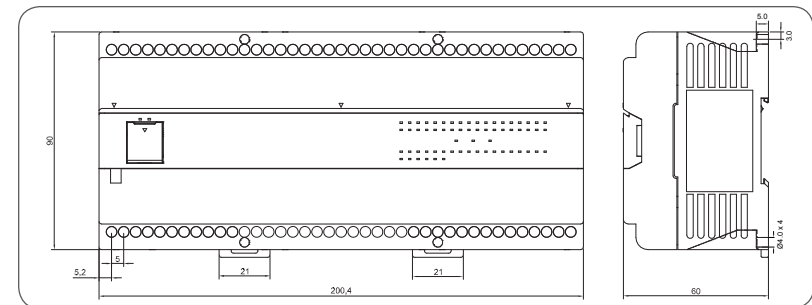


Figure 7 60 points main unit or expansion modules (standard)



Model List

Figure 8 60 points main unit or expansion modules (Slim)

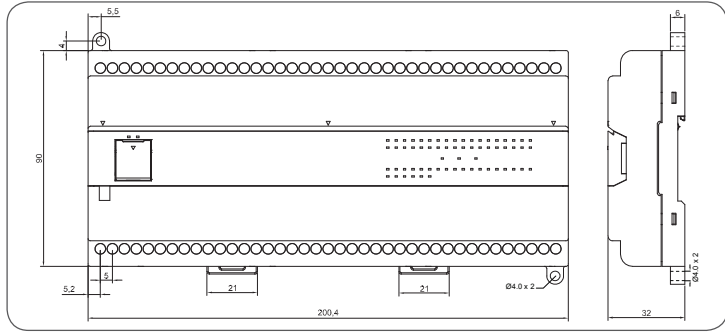


Figure 9 Right-side expansion (Standard)

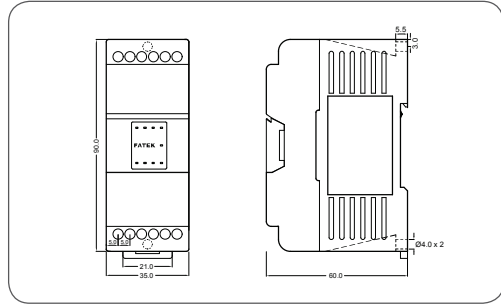


Figure 10 Right-side expansion (Slim)

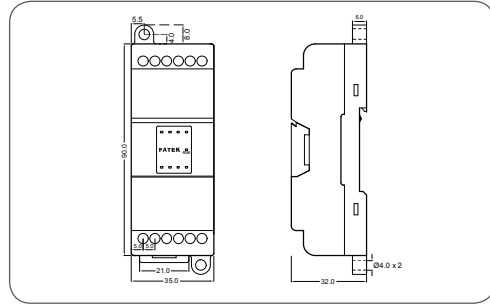


Figure 11 Left-side expansion (Standard)

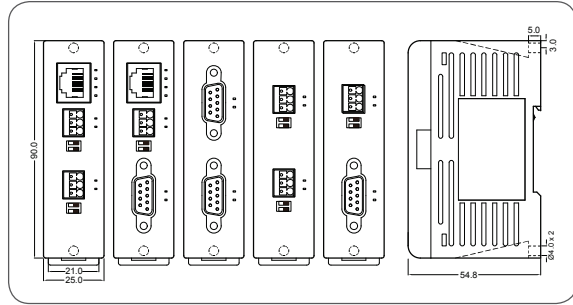


Figure 12 Left-side expansion (Slim)

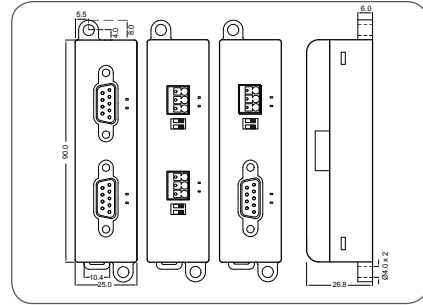


Figure 13 Left-side expansion (Standard)

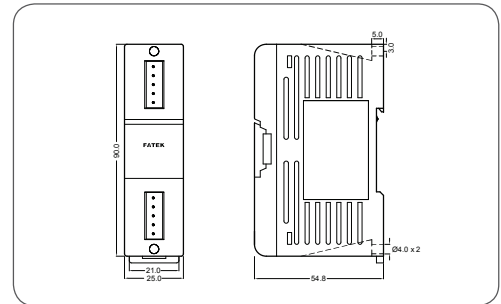
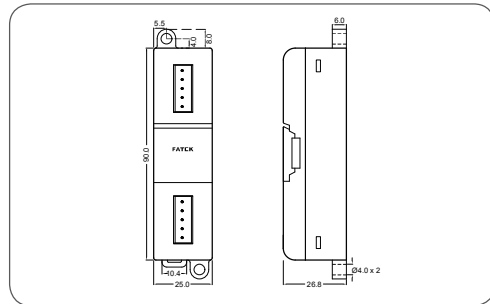


Figure 14 Left-side expansion (Slim)



Item Name	Module	Specifications		
Main Units	B1z Main Units	B1z-10M ◇ 25-○☆	6 points 24VDC digital input (4 points 50 KHz, 2 points total 5KHz), 4 points relay output or transistor output (2 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1z-14M ◇ 25-○☆	8 points 24VDC digital input (4 points 50 KHz, 4 points total 5KHz), 6 points relay output or transistor output (2 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1z-20M ◇ 25-○☆	12 points 24VDC digital input (6 points 50 KHz, 6 points total 5KHz), 8 points relay output or transistor output (4 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1z-24M ◇ 25-○☆	14 points 24VDC digital input (8 points 50 KHz, 6 points total 5KHz), 10 points relay output or transistor output (4 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1z-32M ◇ 25-○☆	20 points 24VDC digital input (8 points 50 KHz, 8 points total 5KHz), 12 points relay output or transistor output (6 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1z-40M ◇ 25-○☆	24 points 24VDC digital input (8 points 50 KHz, 8 points total 5KHz), 16 points relay output or transistor output (6 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
	B1 Main Units	B1-10M ◇ 2-○☆	6 points 24VDC digital input (4 points 50 KHz, 2 points total 5KHz), 4 points relay output or transistor output (2 points 50KHz), RS232(Port 0) communication port	
		B1-14M ◇ 2-○☆	8 points 24VDC digital input (4 points 50 KHz, 4 points total 5KHz), 6 points relay output or transistor output (2 points 50KHz), RS232(Port 0) communication port	
		B1-20M ◇ 2-○☆	12 points 24VDC digital input (6 points 50 KHz, 6 points total 5KHz), 8 points relay output or transistor output (4 points 50KHz), RS232(Port 0) communication port	
		B1-24M ◇ 2-○☆	14 points 24VDC digital input (8 points 50 KHz, 6 points total 5KHz), 10 points relay output or transistor output (4 points 50KHz), RS232(Port 0) communication port	
		B1-32M ◇ 2-○☆	20 points 24VDC digital input (8 points 50 KHz, 8 points total 5KHz), 12 points relay output or transistor output (6 points 50KHz), RS232(Port 0) communication port	
		B1-40M ◇ 2-○☆	24 points 24VDC digital input (8 points 50 KHz, 8 points total 5KHz), 16 points relay output or transistor output (6 points 50KHz), RS232(Port 0) communication port	
	4-axis NC positioning Modules	B1-60M ◇ 2-○☆	36 points 24VDC digital input (8 points 50 KHz, 8 points total 5KHz), 24 points relay output or transistor output (6 points 50KHz), RS232(Port 0)+RS485(Port 2) communication ports, both sides are not expandable	
		B1-24M4(T/J)2-D24 ☆	14 points 24VDC digital input (8 points 50 KHz, 6 points total 5KHz), 10 points transistor output (8 points 50KHz, 0.1A), RS232(Port 0) communication port, J is custom product	
	Left Side Expansion Module	Communication Modules	B1-CM2SE ☆	1 port RS232 (Port 1) + 1 port RS485 (Port 2) + Ethernet network interface communication module
			B1-CM5SE ☆	2 ports RS485 (Port 1, Port 2) + Ethernet network interface communication module
			B1-CM2 ☆	1 port RS232 (Port 2) communication module
			B1-CM22 ☆	2 port RS232 (Port1, Port2) communication module
B1-CM5 ☆			1 port RS485 (Port 2) communication module	
B1-CM55 ☆			2 port RS485 (Port1, Port2) communication module	
LAIO Modules		B1-CM25 ☆	1 port RS232 (Port 1) + 1 port RS485 (Port 2) communication module	
		B1-L2DA ☆	Non-isolated 2 channels, 12-bit analog output module (0~10V or 0~20mA)	
		B1-L4AD ☆	Non-isolated 4 channels, 12-bit analog input module (0~10V or 0~20mA)	
Temperature Modules		B1-L2AD ☆	Non-isolated 2channels, 12-bit analog input + 2 channels, 12-bit analog output combo analog module (0~10V or 0~20mA)	
		B1-L4NTC ☆	4 channels, NTC temperature input module, 12-bit resolution, measuring range 100Ω~100KΩ	
		B1-4Y ◇ ☆	4 points relay or transistor output	
Right Side Expansion Module	DIO Expansion Modules	B1-8X ☆	8 points 24VDC digital input	
		B1-8Y ◇ ☆	8 points relay or transistor output	
		B1-8XY ◇ ☆	4 points 24VDC digital input, 4 points relay or transistor output	
		B1-16X ☆	16 points 24VDC digital input	
		B1-16Y ◇ ☆	16 points relay or transistor output	
		B1-16XY ◇ ☆	8 points 24VDC digital input, 8 points relay or transistor output	
		B1-24XY ◇ ☆	14 points 24VDC digital input, 10 points relay or transistor output	
		B1-40XY ◇ ☆	24 points 24VDC digital input, 16 points relay or transistor output	
		B1-60XY ◇ ☆	36 points 24VDC digital input, 24 points relay or transistor output	
		AIO Modules	B1-6AD ☆	Non-isolated 6 channels, 12-bit analog input module (Voltage:-10~10V,-5~5V,0~5V Current: -20~20mA,-10~10mA,0~20mA,0~10mA)
	B1-2DA ☆		Non-isolated 2 channels, 12-bit analog output module (Voltage:-10~10V,-5~5V,0~5V Current: -20~20mA,-10~10mA,0~20mA,0~10mA)	
	Temperature Modules	B1-2/6TC	2/6 channels, thermocouple temperature input module with 0.1°C resolution, J, K, R, S, E, T, B, N thermocouple sensor	
		B1-6RTD	6 channels, RTD temperature input module with 0.1°C resolution, 3-wire RTD sensor (PT100 or PT1000)	
	FBS Compatible Peripheral	Memory Pack	FBS-PAKC	PLC program memory pack with 20K Words program, 20K Words register
		PWMDA Module	PWMDA	10-bit single channel pules width modulation (PWM) 0~10V analog output (AD) module
		RFID Card	CARD-H	General purpose RFID (ISO-14443A Standard) (for FBS-PEPR)
		Simple HMI	FBS-PEP/PEPR	Multi-characters with graphics-based Parameter Entry Panel, built-in RFID Read/Write module with PEPR
		General Purpose Communication Converters	FBS-CM25C FBS-CM5R FBS-CM5H	General purpose RS232 to RS485/RS422 communication interface converter with optical isolation General purpose RS485 repeater with optical isolation General purpose 4 ports RS485 HUB with optical isolation, RS485 can be connected as star connection
Bluetooth Communication Module		FBS-B2C	Bluetooth Module for PLC Main Unit Port 0	
USB Communication Converter		FBS-U2C-MD-180	Communication converter cable with standard USB AM connector to RS232 Mini-DIN 4M connector (used in standard PC USB to FBS main unit Port0 RS232), length 180cm	
Port 0 Communication Cables		FBS-232P0-9F-150	Mini-DIN 4M to DB9F communication cable (FBS main unit Port 0 RS232 connect to standard DB9M), length 150cm	
		FBS-232P0-9M-400	Mini-DIN 4M to DB9M communication cable (FBS main unit Port 0 RS232 connect to standard DB9F), length 400cm	
		FBS-232P0-MD-200	Mini-DIN 4M to Mini-DIN 4M communication cable (FBS main unit Port 0 RS232 connect to FBS-PEP/PEPR), length 200cm	
	FBS-232P0-MDR-200	Mini-DIN 4M to 90° Mini-DIN 4M communication cable (FBS main unit Port 0 RS232 connect to FBS-PEP/PEPR), length 200cm		
DC24V Power Supply	ADP-24V-1A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 1A, DIN-RAIL Type		
	ADP-24V-2A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 2A, DIN-RAIL Type		
	ADP-24V-3A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 3A, DIN-RAIL Type		
	ADP-24V-4A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 4A, DIN-RAIL Type		
	ADP-24V-5A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 5A, DIN-RAIL Type		
	ADP-24V-6A	90~240VAC Input Voltage, 50/60Hz, Output Voltage: 24VDC, Output Current: 6A, DIN-RAIL Type		

◇ : R - Relay output, T - Transistor SINK (NPN) output, J - SOURCE (PNP) output
 ◎ : D24 - 21.6~28.8 VDC power supply, AC - 85~264 VAC power supply (customized products)
 ☆ : Blank - Standard case, -S - Slim case (units with AC power supply have no slim case)